

**INFLUENCE OF FIRMS' CAPABILITY ON DELIVERY OF QUALITY OUTSOURCED ICT  
SERVICES IN KENYAN PUBLIC INSTITUTIONS**

**CASE STUDY OF KENYA MEDICAL RESEARCH INSTITUTE (KEMRI)**

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A Research Proposal submitted to the School of Computing and Informatics – University of Nairobi, in partial fulfillment of the requirements for award of the Master of Science in Information Technology Management (MSc. ITM).

2017

## DECLARATION

This project proposal is my original work and to the best of my knowledge this research work has not been submitted for any other award in any University.

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## **DEDICATION**

I Sally Kiteme dedicate this work to my husband Mr. Ngumbau Muthami, Children; June Mutheu, Julie Ndumi and Jeremy Reli for their Moral, Financial support and continuous belief in me. My dedication goes to my adorable colleagues at my work place for inspiring and challenging me throughout the journey. We worked very hard to make this happen, each of you played a role.

Thank you and God's Blessings.

## **Acknowledgement**

My special gratitude and acknowledgements are extended Dr. Agnes Wausi for imparting knowledge to me, her encouragement, vital guidance, availability and willingness to assist me in successfully conducting this study despite the tight schedules. My appreciation also extends to all lecturers of the School of Computing and Informatics at the University of Nairobi for providing the foundational knowledge necessary for making this research successful.

## **ABSTRACT**

*Aim:* The aim of this study was to establish the influence of firm's capability on delivery of quality outsourced ICT services in Kenyan Public Institutions. This research focused on The Kenya Medical Research Institute branches in Nairobi, Kisumu and Mombasa. It was conducted between the month of May and September 2017. The specific objectives were to examine how the independent variables namely; IT capability, organizational capability and vendor management capability has on the delivery of quality outsourced ICT services in Kenyan Public Institutions. It further looked at the effect of intervening variables such as information sharing, communication quality and collaborative participation and their relationship with both the independent variables and the dependent variable.

*Study design:* This study employed a mixed research design constituting both qualitative and quantitative type of research.

*Methodology:* A mixed method constituting both qualitative and quantitative research design was used constituting both probability and non-probability sampling methods. The researcher used purposive sampling followed by stratified simple random sampling to select respondents for the study. A sample size of 95 respondents comprising of 22 ICT assistants, 15 ICT officers, 12 senior ICT officers, 9 ICT section leads, 2 ICT trainers, 2 ICT managers, 1 ICT director and 32 members from the management team were selected in line with Yamane's (1967) formula. Questionnaires and interviews were used as the data collection instruments.

*Research findings:* The research findings revealed that independent variables namely; IT capability, organization capability and vendor management capability contribute to the delivery of quality outsourced ICT services. Each of these factors had a positive and significant influence on the dependent variable. The research further revealed that the intervening variables (information sharing, communication quality and collaborative participation) have an influence which is either significant or insignificant on the relationships between independent variables and dependent variable. The findings may be useful to both public and private institutions within the country and beyond in embracing outsourcing of services.

*Keywords:* *ICT, outsourcing, firms' capability, IT capability, organization capability, vendor management.*

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

KEMRI – Kenya Medical Research Institute

ICT – Information Technology Management

IT – Information Technology

OPEX – Operating Expenditures

CAPEX – Capital Expenditures

SLAs – Service Level Agreements

ISO – International Organizations on Standardization

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

Outsourcing of Information Communication Technologies (ICT) services is basically described as an arrangement where a professional company (service providers) are contracted in order to provide the needed business solutions and services on behalf of the contracting company/business. This arrangement may sometimes involve the outsourced organization engaging another party (third party) to deliver services on its behalf. An organization may outsource services, products and solutions for specific departments. The IT function can outsource various/different Information Systems (IS) functions. Institutions/businesses and even governments outsource IT and IT-enabled business processes for a number of reasons. These include but are not limited to the need to lower costs, the need to exploit the technical expertise from the outsourced company(s), the need to mitigate risks, process reengineering, and the opportunity to focus on core capabilities (Ross & Beath, 2006).

Gottschalk & Solli-Saether (2006) argues that outsourcing ICT services help avoid the potential headaches of managing IT and IT service delivery. They further explain that it is enticing to institutions that need service delivery to task a company whose provision of outsourced services is its core business. Indeed, outsourcing becomes an alternative arrangement that allows the business managers to concentrate on their core business operations. IT functions are normally given to professional institutions/companies who have track record in providing such services. Some of the notable benefits accruing to a company contracting service providers include but not limited to cutting costs, as well as less frustrations as this is left for the providers to deal with and give an update report on the same. However, outsourcing organizations have experienced dissatisfaction in the services they receive, particularly as a company's business needs change. Furthermore, the decision to engage a service provider with the intention of saving on expenditure lacking cost-benefit analysis of the value of services often leads to higher costs with deprived user satisfaction. According to Lee & Kim (1999), it is domineering, therefore, to conduct a "proper analysis of the service quality before building a relationship with a service provider for a successful outsourcing arrangement. The traditional way of thinking in IT outsourcing was to

move the current IT function out of the organization and let another organization handle it. There was no strategic thinking behind it, except the idea of solving a problem, saving some money or improving a function by means of some undefined solutions. The new way of thinking is to make IT outsourcing part of a strategic transformation of the IT function where new tasks and roles are implemented to replace old tasks and roles”.

“The decision to outsource or in source enterprise-wide activities related to the acquisition, deployment, and management of IT represents one of the most complex choices facing a firm’s management. In-sourcing requires management to commit significant resources to a course of action while forgoing numerous advantages associated with the marketplace. On the one hand, the effects may be too costly to reverse. For a firm to accumulate resources necessary to generate or maintain a competitive advantage, in-sourcing may be required. The complexity of this decision is demonstrated in research conducted by Leiblein, Reuer, and Dalsace (2002) who examined the relationship between governance choice and technological performance. In contrast to popular arguments they suggested that in-sourcing or outsourcing leads to superior technological performance. They found that decisions on governance per se do not significantly influence technological performance directly; rather, differences in the performance of transactions governed by different organizational forms are driven by factors underlying governance choice. The increasing rapidity of technological change and the increasing dispersion of knowledge suggest an increased role for outsourcing in the economy while the relationship between governance choice and performance is dependent on the distribution of relevant capabilities and the degree to which performance is driven by autonomous or systemic innovation”.

Indeed, the concept of transformational subcontracting is on the rise. This are scenarios where businesses/companies intend to engage service providers driven by more necessary reasons. For example, “it is to facilitate rapid organizational change, to launch new strategies, and to reshape company boundaries. In doing so, they are engaging in transformational outsourcing and partnering with another company to achieve a rapid, substantial, and sustainable improvement in enterprise-level performance. This becomes a success because transformational outsourcing places the power to bring new capabilities to the organization and squarely in the hands of



executives who have and value those capabilities. In other words, the outsourcing partner provides a management team that is experienced in the capability that the organization seeking change needs. The executives are also empowered by the outsourcing process to implement the practices they bring with them” (Linder, 2004).

Furthermore, “empirical evidence suggests that carefully crafted outsourcing strategies increases the overall performance of the firm. Outsourcing is generally considered as a very powerful tool for cutting costs and improving performance. Through outsourcing, firms can take advantage of the best external vendors and restructure entrenched departments that are reluctant to change. Outsourcing can also help organization to focus on their core business. Since building core competencies and serving customer needs are critical to a firm’s success, anything that detracts from this focus may be considered for outsourcing (Barthélemy, 2003b). Successful outsourcing is no different from any other business relationship. It requires nurturing and management so that the needs of all parties are met. It is critical that both the outsourcer and the service provider of outsourced services understand each other's expectations and dependencies, as well as focus on maintaining a strong communication channel. Regular monitoring and reporting, for example, provide valuable information on the health of the relationship”. Besides, the businesses are ever required to analyse risks associated with engaging a service provider as this will enable them to put in place essential prior-planning before the engagement is kick-started (Mosher & Mainquist, 2011).

In Kenya, the major ICT companies that provide outsourced services include Access Kenya, Jamii Telkom and Safaricom Cloud services among others. They provide ICT services such as ICT infrastructure, help desk and transaction processing, cloud services including SaaS, IaaS, and PaaS. Some of the drivers for outsourcing have been the need for cost effectiveness and the need for specialized computing power. Outsourcing ICT services has led to the increased attention in building successful partnership between customers and IS service providers.

## **1.2 Statement of the Problem**

Outsourcing ICT services has been on the rise in developed as well as developing countries in the world. It entails multi sourcing which is basically outsourcing IT services to main contractor as well as other ICT vendors. According to the Gartner Group, the “worldwide outsourcing

market size rose from US\$ 21.3 billion in 1997 to US\$ 59.6 billion in 2005, with an annual growth rate of 14%” (Terdiman, 1993). Currently, the ICT outsourcing market size in public institutions in Kenya is also on the rise. Outsourcing ICT services attracts benefits such as: cost effectiveness (which come as a result of a shift from CAPEX to OPEX); quality service that results from the utilization of trained, experienced, qualified and certified professionals; focus on core business; increased efficiency and competitiveness. The Kenya Medical Research Institute (KEMRI) has not been left behind in outsourcing of ICT services. Some of the services they outsource include: network and internet provision services; network security solutions; ERP solutions; service desk solutions; hardware/software maintenance as well as document imaging and archiving services.

Factors on capability determine a firms’ success in institutions’ outsourcing arrangement. Han et al., (2008) identifies three capability factors of a firm as having an influence on outsourcing success. These include; the IT capability, organizational relationship capability and vendor management). However, there is a rising need for organizations to exhibit the value gained from this arrangement. Abdolvand, (2016) and Lee, (2001) studied the effects of human factor on the success of Information Technology (IT) outsourcing and the impact of knowledge sharing, organizational capability and partnership quality on ICT outsourcing success respectively. From their findings, it is clear that the capability of a firm dictates its outsourcing success. It is because of these aspects that the researcher sought to establish the influence of a firms’ capability (IT capability, organizational relationship capability and vendor management) on delivery of quality outsourced ICT services at Kenya Medical Research Institute.

### **1.3 General Objective**

The main objective of this research was to examine the influence of a firm’s capability on delivery of quality outsourced ICT services in Kenyan Public Institutions.

### **1.4 Specific Objectives**

- i. To determine IT capability and its influence on delivery of quality outsourced ICT services at Kenya Medical Research Institute.
- ii. To establish organizational capability and its influence on delivery of quality outsourced ICT services at Kenya Medical Research Institute.

- iii. To determine vendor management capability and its influence on delivery of quality outsourced ICT services at Kenya Medical Research Institute.
- iv. To establish the influence of information sharing on the relationship between IT capability, organizational relationship, vendor management and quality outsourced ICT services at Kenya Medical Research Institute.
- v. To establish the influence of communication quality on the relationship between IT capability, organizational relationship, vendor management and quality outsourced ICT services at Kenya Medical Research Institute.
- vi. To establish the influence of collaborative participation on the relationship between IT capability, organizational relationship, vendor management and quality outsourced ICT services at Kenya Medical Research Institute.
- vii. To propose a model for establishing the effect of a firm's capability on delivery of quality outsourced ICT services at Kenya Medical Research Institute.

### **1.5 Research Hypotheses**

The study adopted alternate hypotheses which were as follows:

**H1:** IT capability has a positive influence on delivery of quality outsourced ICT services in Kenyan Public Institutions.

**H2:** Organizational capability has a positive influence on delivery of quality outsourced ICT services in Kenyan Public Institutions.

**H3:** Vendor management capability has positive influence on delivery of quality outsourced ICT services in Kenyan Public Institutions.

**H4<sub>a</sub>:** Information sharing has a positive significant influence on the relationship between IT capability and delivery of quality outsourced ICT services.

**H4<sub>b</sub>:** Information sharing has a positive significant influence on the relationship between organizational relationship and delivery of quality outsourced ICT services.

**H4:** Information sharing has a positive significant influence on the relationship between vendor management and delivery of quality outsourced ICT services.

**H5a:** Communication quality has a positive significant influence on the relationship between IT capability and delivery of quality outsourced ICT services.

**H5b:** Communication quality has a positive significant influence on the relationship between organizational relationship capability and delivery of quality outsourced ICT services.

**H5c:** Communication quality has a positive significant influence on the relationship between vendor management and delivery of quality outsourced ICT services.

**H6a:** Collaborative participation has a positive significant influence on the relationship between IT capability and delivery of quality outsourced ICT services.

**H6b:** Collaborative participation has a positive significant influence on the relationship between organizational relationship and delivery of quality outsourced ICT services.

**H6c:** Collaborative participation has a positive significant influence on the relationship between vendor management and delivery of quality outsourced ICT services.

## **1.6 Significance of the Study**

The findings in this research study provides a guide on ICT outsourcing for Kenyan Public Institutions, in particular, The Kenya Medical Research Institute (KEMRI) and the influence of firms' capability on delivery of quality outsourced ICT services. This is important since many organizations and businesses have embarked on outsourcing as seen in the increasing market size. It focuses on critical aspects required for the delivery of quality outsourced ICT services.

## **1.7 Limitations of the Study**

In spite of this study providing important foundational basis, it has some noted limitations as well. First, the results given by this study are only limited to one side of any outsourcing arrangement. The results are from the service receiver's view. It does not take into consideration the service providers' opinion yet the success of outsourcing and provision of quality ICT services is also enjoyed by the service provider. Secondly, this study was also conducted in one

public institution – KEMRI and therefore may not effectively capture what goes on in other public institutions.

### **1.8 Operational Definition of Terms**

**ICT outsourcing:** ICT outsourcing refers to “an arrangement in which one ICT company provides ICT services to another company that could be provided in-house or is usually provided in-house in similar organizations.

**Knowledge:** This refers to information whose validity has been established through tests of proof. It has emerged as a strategically significant resource of the firm. Accordingly, knowledge management becomes a key factor to gain and sustain a competitive advantage.

**Organizational capability:** These include technical and managerial IT capabilities, organizational relationship capability and vendor management capability.

**Partnership quality:** It is as an inter-organizational relationship aimed at achieving shared goals for the participants.

**Contracts:** Refers to a formal agreement between two organizations or more in which one or more companies work for or provide service(s) to another company or companies on a stated job or services for a given period of time

**Multi-Contracts:** It is a situation where there is more than one contractor signs a contract to deliver a service(s) or a single contractor engaging in more than one contract.

**Service Level Agreement (SLA):** This is a contract between a service provider (either internal or external) and the end user that defines the level of service expected from the service provider.

**Capabilities:** It is a concept in resource-based theory. It refers to what the organization can do. It tends to grow over time as a firm takes actions that build on its strategic resources. It constitutes both dynamic and static capabilities.

**Resources:** These refer to what an organization owns”.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 ICT Outsourcing

The outsourcing of ICT services started in early 1960s when the Electronic Data Systems (EDS) and Bluecross entered into an agreement to provide data processing services in EDS (Lee, 2003). This grew and expanded and it became an area of concern to both professional in the industry as well as researchers to study on (Schwarz, 2014). “Moreover, IT has always been considered as an extensive and professional service which can always be outsourced. As the extent of IT outsourcing increases, along with its profitability, the number of service providers as well as specialized services in this sector will be on the increase (Lee, 2003).

Wold, (1993) defines outsourcing as delegating the planning, management, implementation and operation of specific tasks to an independent third party. Given the range of IT outsourcing that Yung and Huang (2011) suggests, IT outsourcing can be considered as significant participation of foreign factors in providing the physical and human resources related to IT in customer organization. It can also be the transfer of assets from various human forms, network or hardware of the customer organization to an external factor which is responsible for delegated activities. Outsourcing happens when a company contracts major goods and services to other companies. Work that is already done internally is shifted to an external service provider, and the employees of the original organization are often transferred to the service provider. There is no profit sharing or mutual contribution in outsourcing, and it is different with alliance, partnership or joint venture in which resources are transmitted between service provider and client. The ICT services are mostly outsourced whenever an organization needs to achieve operational excellence from the foreign contractors. Such excellence is in terms of gaining strategic advantages, economic as well as technological advantages. Organizations consider outsourcing as a factor for gaining economic advantages, increase flexibility, and improving service quality for better access to new technologies. Outsourcing of ICT influences not only the cost structure of the company, but also the company’s long term competition in terms of service delivery”.

## **2.2 Outsourced ICT Services**

Arshad et al., (2008) notes that the most outsourced services by both public and private sector organizations worldwide include network services, systems analysis, design, implementation and management, e-business solutions, security of ICT solutions and information contained there in, end user support as well as user-staff training.

## **2.3 Information Technology Capability**

Information Technology capabilities refer to the competence of a business firm or organization/institution to identify and deploy IT that meets the business needs. According to Karimi et al. (2007), the deployment of IT is meant to “improve business process in a cost-effective manner, and to provide long-term maintenance and support for IT-based systems”. In order for a firm to utilize outsourced vendor’s technical expertise, “the technical and managerial IT capability of the client’s firm is important. Technical IT capability involves technical knowledge and skills needed to develop applications. Managerial IT capability on the other hand implies knowledge of where and how IT is deployed effectively and profitably to meet strategic business objectives. It is also assumed that the client’s firm will also require IT capabilities to be effective in monitoring a vendor’s work”. At this point, a firm’s IT expert(s) and their managers involve themselves with knowledge and information sharing. This is in tandem with the argument by Jae-Nam Lee, (2000) and Abdolvand, (2016) who reiterated that such sharing may result into a firm’s IT and management capability and hence translates to the success of IT outsourcing.

## **2.4 Partnership Relationships / Vendor Management**

Partnership is defined by Lee and Kim (1999) as a relationship between some organisations with the sole intention of achieving the participants’ shared objectives. Attention is increasing being paid towards building successful partnerships in IT outsourcing. However, this has been an ongoing area of interest in management. Different views have also developed regarding inter-organizational associations.

Partnerships as stated by Lee and Kim (1999) exist in two categories: “transactional style and partnership style. A transactional-style relationship or partnership develops through the formal contract in which rules of the game are well specified and the failure to deliver on commitments by either party should be resolved through litigation or penalty clauses in the contract. In

contrast, the requirements of a partnership-style relationship or partnership are: to include risk and benefit sharing; the need to view the relationship as a series of exchanges without a definite end point; and the need to establish a range of mechanisms to monitor and execute its operations. In traditional IS management, the role of a service provider was limited in terms of the size of the contract and the type of service. Maintenance of hardware or program subcontracting has traditionally been the typical IS service provider. However, the type of relationship in outsourcing is changing from buyer–seller relationships to a more strategic partnership relationship. This means that partnership has moved from transactional style (where relationship motive was self-interest) to partnership style (where interest is win-win situation). This allows organisations to gain competitive advantage (Lee and Kim, 1999).

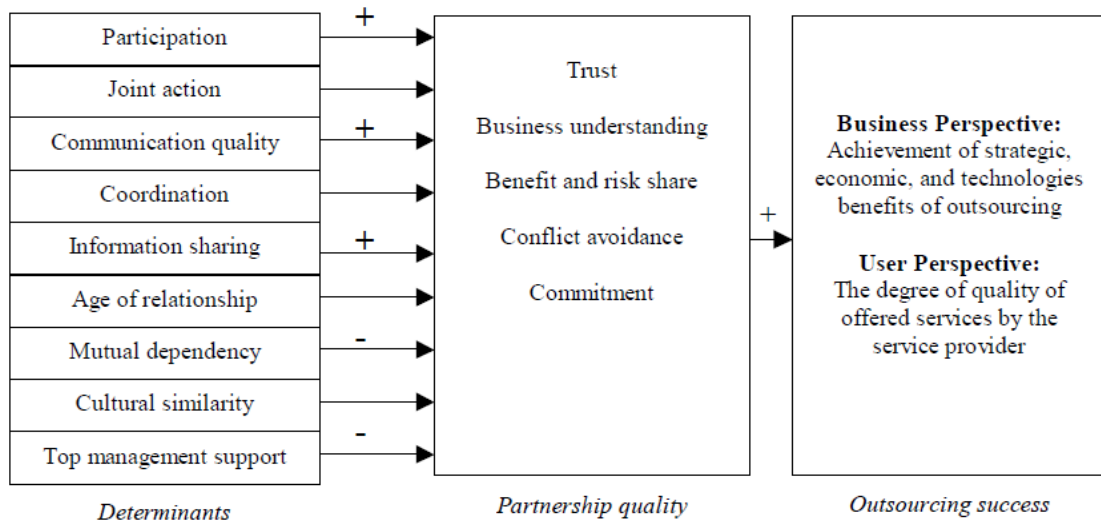
However, a good relationship does not always bring out the participants' desired results. According to social theories, two mechanisms namely trust and power, can explain the relationship between organizations. Trust which is a feature of relationship quality, has been conceptualized as a firm's belief that the other company will perform actions that will result in positive outcome for the firm, and will not take unexpected actions that can result in negative outcomes for the firm. Power is determined by the relative dependence between two actors in an exchange relationship, and the concept of power is only meaningful when compared with another organization. While social exchange theory uses the concept of trust to explain interactions between participants, the power political theory relies on the power derived from offering valuable resources than few other sources can provide (Lee & Kim, 1999).

Partnership is an effective way of improving economies of scale and scope provided by the traditional modes of organization. However, partnership does not guarantee a desired outcome. Therefore, careful attention needs to be paid to the partnership problems that may lead to an unstable and conflicting relationship. Therefore, partnership quality is an important concept in this respect. Quality is treated as having two dimensions: (1) fitness of use, for example; Does the product or service does what it is supposed to? Does it possess the features that meet the customers' needs? And (2) reliability, for instance; To what extent is the product free from deficiencies? If we apply the first dimension to partnership, therefore, partnership quality may be expressed as how well the outcome of a partnership delivered matches the participants'



expectations (Lee & Kim, 1999). From this outset, partnership quality can be viewed as an antecedent of the outsourcing success. High partnership quality may be a necessary condition for outsourcing success, but not a sufficient condition. For instance, if the main objective of the outsourcing was cost reduction but the outsourcing vendor failed to meet the objective, such an outsourcing project would be a failure regardless of the partnership quality between the service receiver and provider. Thus, Lee and Kim (1999) distinguish the concept of partnership quality from that of outsourcing success, and empirically tested whether outsourcing is successful when high-quality partnership exists. They identified the following five factors that make up partnership quality: trust (degree of confidence and willingness between partners); business understanding (degree of understanding of behaviors, goals, and policies between partners); benefit/risk share (degree of articulation and agreement on benefit and risk between partners); conflict (degree of incompatibility of activities, resource share, and goals between partners); and commitment (degree of the pledge of relationship continuity between partners)”. Figure 1 below shows the various aspects of partnership quality.

**Figure 1: Relationship between partnership quality and outsourcing success**



## 2.5 Stakeholders in IT Outsourcing Environment

Stakeholders in IT comprises of individuals having the similar prospects, perceptions, and specific objectives for IT and outsourcing arrangement. There exist eight types of IT

stakeholders as explained by Lacity and Willcocks (2000a). These are; “customer senior business managers, customer senior IT managers, customer IT staff, customer IT users, supplier senior managers, supplier account managers, supplier IT staff, and subcontractors. In addition, there are four distinct customer IT stakeholders, three distinct supplier stakeholders, and one subcontractor role”. However, for this research, the focus is in the firm’s internal stakeholders as explained below:

*“Customer senior business managers* are responsible for achieving business results from IT expenditures, but they often lack the tools to assess whether the IT function is adding value. They often ask senior managers for evidence of business value.

*Customer senior IT managers* are typically centralized and responsible for balancing the costs of IT with the services provided to ensure value for money. In general, senior IT managers are often frustrated by their charge. Users often demand service excellence while their bosses often demand cost containment.

*Customers IT staff* are responsible for IT service delivery. Although they are expected to meet budgets and deadlines, IT professionals are generally technology enthusiasts who also seek to please users. The internal IT staff is often the stakeholder group most profoundly affected by outsourcing.

*IT users* typically focus on IT service excellence, expecting systems to be up and running, to provide business functionality, and to facilitate the execution of their business responsibilities. The IT users rarely resist outsourcing, but they frequently have questions about confidentiality and integrity of data”. Other user departments include all the departments other than ICT department in a firm. These departments need to work together to strengthen the relationship which can enhance the firm’s organizational capability.

## **2.6 Quality ICT Service Provision and Outsourcing Success**

This is described as the situation where the outsourcing outcomes matches the customer’s requirements. These are described as follows:

### **2.6.1 Successful Outsourcing Relationships**

In this case, the drive towards continuous outsourcing is caused by the ever changing focus from the main primary focus that entail cost reduction to a more important emphasis of improving business performance. Traditionally, vendor economies of scale and specialization were the main focus. “It is, however, becoming less convincing as companies with well-run innovative IS departments that are large enough to accrue the same scale and specialization benefits as a vendor. They are, nevertheless, engaged in significant outsourcing deals (DiRomualdo and Gurbaxani, 1998).

Lambe, Spekman, and Hunt (2002b) describes success in IS outsourcing as including a high level of joint profits between the companies which generate a lot of profits together, and have an increased joint profits shared between the firm and vendor. Lee and Kim (1999) describe two variables to measure success: The first variable is business perspective. This has items such as ability to refocus on core business, enhanced IT competence, increased access to skilled personnel, enhanced economies of scale in human resources, enhanced economies of scale in technological resources, increased control of IS expenses, reduced risk of technological obsolescence, increased access to key information technologies and increased satisfaction with overall benefits from outsourcing. The second variable used to measure success is, user perspective. This has the following; reliability of information, relevancy of information, accuracy of information, currency of information, completeness of information, and timeliness of information. Successful IT outsourcing relationships require success for both client and vendor.

In the case where the vendor is the sourced firm, an IT outsourcing relationship is successful if it generates profit for the company and if it strengthens the company’s value proposition in terms of complementary competencies such as IT personnel development, methodology development and dissemination, and customer relationship management (Levina & Ross, 2003). Where the client is the sourcing firm; an IT outsourcing relationship is successful if it generates profit for the company and if it contributes to achievement of outsourcing objectives as exemplified by Lee and Kim (1999). Managing successful IT outsourcing relationships means that source firm and the sourcing firm both achieve their objectives in a joint effort. Achieving objectives is a matter of outsourcing outcome.

Domberger et al. (2000) measured IT outsourcing performance using both desired performance and realized performance. In this case, clients typically have an expectation of service quality prior to awarding a contract. This can be referred to as desired performance. A necessary part of this contract management involves an assessment of the realized performance of the contract. In their study, the desired performance (delivery of quality service) and realized performance of the contracts were based on the following eight attributes: Service availability and timeliness; Out-of-hours availability; Response in emergencies; Provision at expected cost; Delivery to expected quality; Accuracy of advice; Correctness of error fixes; and Minimization of system downtime". Domberger et al. (2000) further exemplified that the eight service attributes listed were taken to represent measures of quality on delivery of outsourced ICT services. The delivery of quality ICT services is a perceived concept that is more specific than success in IT outsourcing. Provision of quality ICT services is one of the key objectives of KEMRI's strategic plan 2013-2017 as well as their ICT policy statement (KEMRI Policy, 2013).

Parasuraman et al. (1985) also looked at the measurement of quality in a multi-dimensional direction by having "a multi-scale measurement scale where all the features of quality were measured separately. The dimensions describe the features which are desirable in a service in order to fulfill quality standards. The five dimensions are tangibility, reliability, responsiveness, assurance and empathy. These are discussed below:

**Tangible:** This feature refers to the physical nature of the facilities (complementary assets), the appearance of service providers' personnel as well as the equipment used in service provision.

**Reliability:** This refers to the ability of a given service to be delivered in accordance to pre-set expectations. The feature is positively related with the accuracy and dependability of a given system or service.

**Responsiveness:** This is the rate at which the customers are attended to by service providers. The feature also involves the willingness of the system or the staff to promptly meet the needs of a client. According to Parasuraman et al. (1985), responsiveness is the willingness to attend to the needs of customers and provide prompt service.

**Assurance:** This is the ability of service providers to give knowledge based information and convince the client to trust a given system or service. It includes the competence and personal relationship of the service provider.

**Empathy:** This is a factor which relates to service provider's character. It refers to provision of individualized service and attention to the customers of an institution". The description of empathy is the caring and individual attention that a service provider gives to their customers. This measurement parameter sees the service from the welcoming nature of service providers while they are attending to their customers (Rust and Oliver, 1994).

**Collaboration:** Collaboration is the manner in which ICT services are introduced to the end users. It includes activities such as training and sharing of information which leads to effective use of ICT services. It also refers to change management which incorporates attributes such as participatory approach in the implementation process, managerial expertise and communication.

**Resources:** Resources imply technical manpower, financial resources and facilities to support provision of ICT services. Availability of adequate resources promote establishment of state of the art technology infrastructure which can lead to enhanced services. This has a bearing in the nature of relationship between service quality and customer satisfaction (McConnell, Brue & Flynn, 2011).

Furthermore, a firms' performance according to RBV model is measured by a number of indicators that are grouped into two broad categories namely finance and efficiency. The indicators falling under the financial category include Return On Investment (ROI), ROE, ROS, revenue as well as sales (Mahmood and Mann 1993; Hitt and Brynjolfsson 1996; Rai, Patnayakuni et al. 1997; Shin 2006). There are other special indicators that are used in certain circumstances such as customer satisfaction and market share (Devaraj and Kohli 2000; Ranganathan, Dhaliwal et al. 2004; Ray, Muhanna et al. 2005).

## **2.7 Theoretical Literature Review**

Outsourcing of IT services is on the rise as it is becoming an accepted practice by institutions. Thus organisations are experiencing continuous force to demonstrate the value of this engagement. It is an engagement entered by organisations with an expectation of allowing the institution reaps the associated benefits. Literature from previous researchers have indicated a number of factors that if keenly observed and practiced may lead an organization to realize positive ICT outsourcing effects. The related empirical literature are reviewed and discussed in the section below.

### **2.7.1 Process Theory Approach**

The process theory approach explains the “impact of the client firm’s resource capability on outsourcing success. A firm’s IT related capabilities may include technology, human resources, and relationship capabilities. Bharadwaj, (2000) suggests three specific IT resources required in a firm. These include IT infrastructure, human IT resources, and IT enabled intangibles. These are organizational IT related capabilities that influence performance and in this case the success of IT outsourcing. Gonzalez, Gasco & Llopis (2006) noted that managerial IT skills is also a critical and influential IT related resource factor that contribute to organizational sustained competitive advantage. The analysis of the process theory identified three major variables. These are IT capability which consisting of technical IT and managerial IT capabilities, organizational relationship capability, and vendor management capability.

To begin with, in order for the firm to utilize the outsourced vendor’s technical expertise, the client firm’s technical and managerial IT capability is important. Technical IT capability involves technical knowledge and skills needed to develop applications, while managerial IT capability implies knowledge of where and how IT is deployed effectively and profitably to meet strategic business objectives. It is also assumed that the client firm will also require IT capabilities to be effective in monitoring a vendor’s work. At this point, firms’ IT professionals and their managers involve themselves in knowledge and information sharing”. This is in tandem with the argument of Jae-Nam Lee (2000) and Abdolvand, (2016) who established that such sharing may result in firm’ IT and managers capability and hence translates into IT outsourcing success.

Furthermore, organizational relationship capability is required. This is the ability to organize and enable communication between IT function and other functional departments often referred to as business groups. This can be further explained to mean the existence of beneficial and facilitative relationship between the IS function and other organizational functions such as marketing, accounting and finance, production, HR, quality department among others. It is needed as it will

enable the functional areas noted above to give their business requirements in entirety so as to enable the IT function to respond with acceptable and working IT solutions that facilitate business operations (Bassellier & Benbasat, 2004). This is interpreted to mean that what IT/IS provides or does is not what suites them, but, it is what is required by each functional department. It is further explained that business/IT alignment is at the heart of this. Lee, (2000) also noted that the central focus in the in the area of strategic management has been how the business functions/organizations need to position themselves in order to gain and sustain competitive edge over and above the fellow competitors.

In addition, vendor management capability is also required. This is the ability of the outsourcing firm to “look outside an existing contractual arrangement and explore long-term relations with suppliers. A study by Han et al. (2008) noted that improving the quality of the relationship between organizations (outsourced company and outsourcer) is the best way for organisations to realize the benefits of outsourcing. Such interactions should include and go beyond rules, agreements, and exceptions. The result of this is the creation and maintenance of a win–win situation. This facilitates vendor’s participation in the IT outsourcing. The management’s coordination of the vendor’s work should induce the vendor’s proactive collaboration resulting in better performance (Shi, Kunnathur & Ragu-Nathan, 2005). Lee, & Kim (1999) explains the variables for the interaction process by noting factors that determine partnership quality. They include communication, information sharing, collaborative participation, cooperation, knowledge sharing, joint action, participation, and conflict resolution. However, (Han, Lee, & Seo, 2008) in their study identified three major variables to represent the degree of interaction. These variables include:

- Information sharing: This is the extent to which critical and proprietary information is communicated to the partners.
- Communication quality: It is the accuracy, timeliness, adequacy, and credibility of the information exchanged (Henderson, 1990).
- Collaborative participation: This is the extent to which a firm’s core business process management is understood by the vendor. It includes the appreciation of the vendor’s IT expertise for managerial problem solving by the client. Thus, partners should engage in joint planning - goal setting and issue resolution”.

Han, Lee, & Seo, 2008) studied the variables for relationship intensity to include “closeness, relationship strength and quality. The variables employed to measure the level of relationship intensity include measures of trust, dependence, commitment, coordination, benefit and risk share. Bove & Johnson (2001) proposed two key attributes of relationship intensity. These are trust and commitment. A study by Han, Lee, & Seo, (2008) adopted these two variables. Coordination, dependence, benefit and risk sharing were adopted constructs on relationship intensity.

This research adopted interaction process. Metcalf et al. (1998) theorized buyer–seller relationships based on this model as a way of suggesting the constructs of social and information exchange as the determinants of cooperation and adaptation. Adopting the same constructs, Kalafatis (2002) applies it to examine the relationship-building structures at different levels of the traditional distribution channel. Lee and Kim (Year?) carried out a study that classified partnership-related factors into the determinants of partnership quality and the attributes of the partnership itself. The determinants of partnership quality included communication, information sharing, participation, cooperation, knowledge sharing, joint action, participation, and conflict resolution. Kern and Willcocks (2000) also formalized the interaction process in the context of operationalizing the process of an IT outsourcing relationship. By combining the results of these studies, the researcher selected three major variables to represent the degree of the interaction. These are:

- Information sharing which refers to the extent to which critical and proprietary information is communicated to the partners;
- Communication quality which is the accuracy, timeliness, adequacy, and credibility of the information exchanged; and
- Collaborative participation which focuses on the extent to which a vender understands a firm’s core business process management. It also includes the appreciation of the vendor’s IT expertise for managerial problem solving by the client.

Thus, partners should engage in joint planning - goal setting and issue resolution”.



### **2.7.2 Relationship Intensity**

Relationship intensity is termed by Bove and Johnson (2001) as the “closeness, relationship strength and relationship quality. The variables employed to measure the level of relationship intensity include measures of trust, dependence, commitment, coordination, benefit and risk share. The two key attributes of relationship intensity, trust and commitment”. The researcher used these two attributes to form the constructs of relationship intensity. The metrics used to measure and test outsourcing trust include the vendor making beneficial decisions, vendor willing to provide assistance without any exception, vendor sincerity as well as friendly relations. Similarly, commitment was measured using the willingness of vendor and client to maintain good relationship, strengthened relationship, keeping promises and finally the willingness to continue with relationship by both parties.

### **2.7.3 Outsourcing Performance**

Han, Lee, & Seo, (2008) generally analyzed and agreed that outsourcing success should be measured in view of strategic, technological, and economic attainments. Lee & Kim (1999) added the user’s perception to the constructs of strategic, technological and economic attainments. These included things such as reliability, relevancy, timeliness, accuracy, currency, and completeness of information as critical aspect when analyzing outsourcing success. It is, however, important to note that user’s perception introduces an aspect of user satisfaction while the other three aforementioned factors (strategic, technological, and economic) focuses on business aspects.

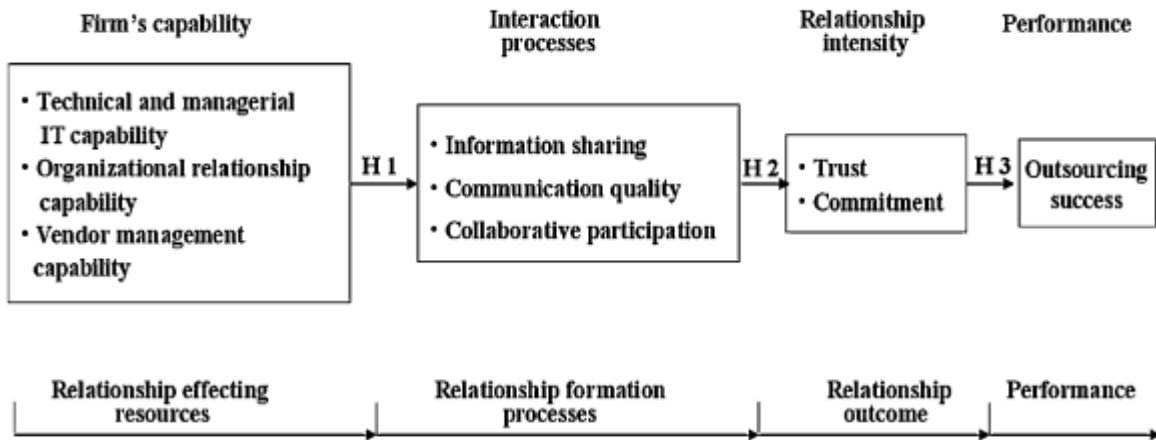


Fig. 1. Research model.

Figure 2: A model on the impact of a firms' capability on outsourcing success

A study conducted by Han, Lee & Seo (2008) analyzed the impact of a firm's capability on outsourcing success. It explains that “it is a process perspective that shows that a client firm’s resource capability positively influenced the interaction process. The impact of the organizational relationship capability on information sharing, communication quality, and collaborative participation was significant. Also, the results indicated statistically positive effects of vendor management capability on information sharing, communication quality, and collaborative participation. One exceptional result, contrary to general reasoning, was the non-significant relationship between IT capability and the interaction process. The constructs of the interaction process consisting of information sharing, communication quality, and collaborative participation were significantly related to trust and commitment. Also, the constructs of trust and commitment had significant positive impacts on outsourcing success. In addition, there was a significant indirect effect of information sharing and communication quality on outsourcing success. This showed that the interaction processes and relationship intensity were meaningful intervening variables for outsourcing success. The first-order impact of resource capability on the interaction processes and subsequent relationship intensity was also confirmed by the significant indirect effects of both capability and relationship intensity”.

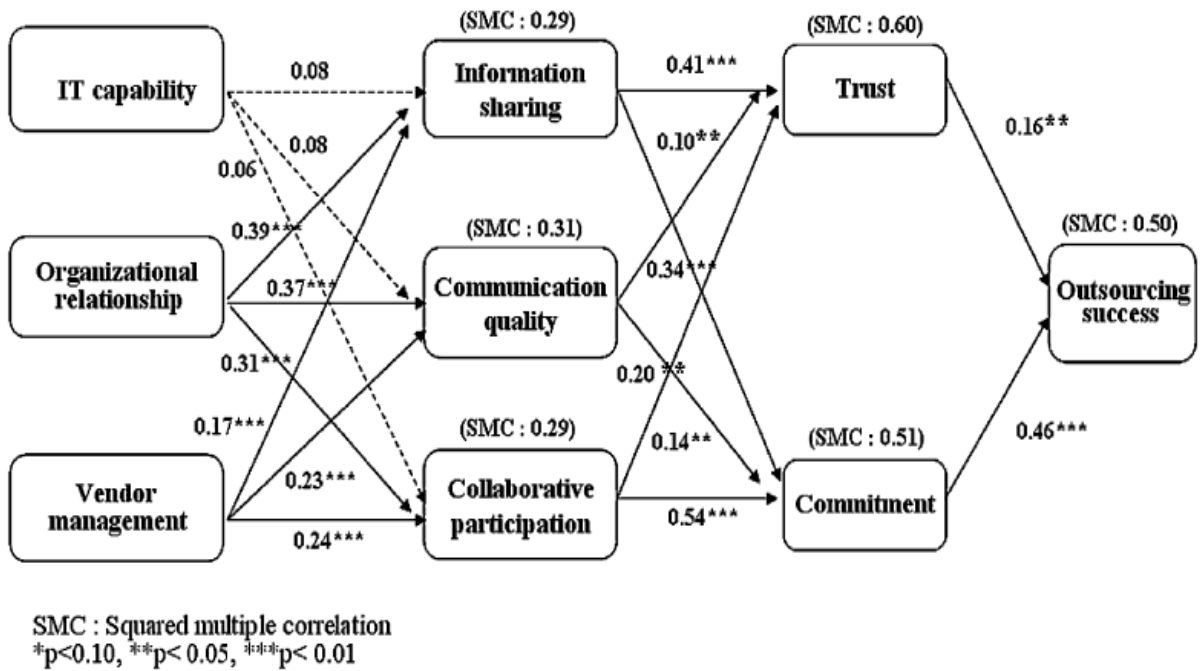


Fig. 2. Results of the model analysis using LISREL.

Figure 3: IT capability, Organisational relationship and Vendor management on outsourcing success

### 2.7.4 Human Factor on Success of Information Technology Outsourcing

Abdolvand, (2016) noted that effective knowledge transfer and human factors translates to Information Technology outsourcing success. Knowledge transfer requires effective communication. The communication in this instance is a situation where information exchange and transfer of meaning happens from one party to another. Abdolvand (2016) also explained that “the mutual communication between the service receiver and provider is considered as one of the most effective factors of outsourcing based on cooperation, hence creating a win-win relationship. The researcher further notes that service providers and receivers skill and capability, leads to the accurate relationships and trust between parties. If the providers don’t have the appropriate competency and capability to implement, it leads the project to failand this causes distrust in future projects. Moreover, a strong trust causes more knowledge sharing and learning from each other, hence knowledge transfer (Park, Im & Kim 2011). In fact, trust is a key factor in knowledge transfer” Abdolvand (2016).

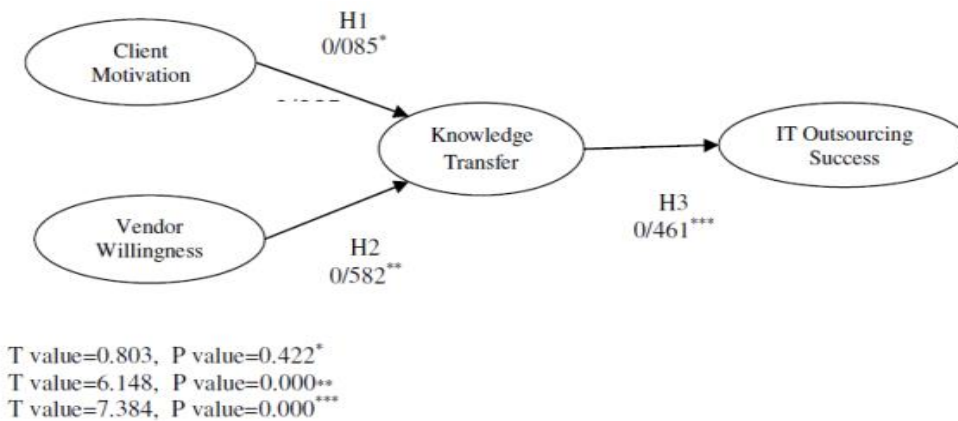
The researchers further noted that human beings exist in an environment with both cultural and environmental factors which are within and without the institutions. These factors affect the said human factors. This influence the aspect of IT capability amongst IT and managerial staff. Other researcher such as Park, Im & Kim, (2011) and (Han, Lee, Chun & Seo 2013) have also studied the factors that affects outsourcing success and have shown that the “effective transfer of technical knowledge can have a significant impact on the effective IT outsourcing. They further noted that effective transfer and share of knowledge depends on several factors including: initial trust, explicit and tacit knowledge. It may also include human factors such as client and service provider capabilities, characteristics, communication and participation that consequently affect the collaborative learning.

A study by Teo & Bhattacharjee, (2014) observed the effect of collaboration experiences on knowledge transfer and the performance of IT outsourcing. In a similar study, Park, Im, & Kim (2011) also noted the role of IT human and the IT projects capability in the knowledge transfer process in IT outsourcing context. Lee, (2001) similarly looked at the effects of knowledge sharing, organizational capability and partnership quality on IS outsourcing success and finally a study by Blumenberg, Wagner & Beimborn, (2009) observed the effect of different kinds of knowledge transfer and sharing on IT outsourcing. All the studies revealed that human and organizational capabilities accelerate the process of knowledge transfer which leads to more confidence in IT projects. It can therefore be concluded that effective knowledge sharing between outsourced company and outsourcer can result in successful IT outsourcing”.

Abdolvand, (2016) “examined the effect of human factors including client motivation and vendor willingness on IT outsourcing success in organizations in Iran. The results showed that there is a positive effect of vendor willingness on knowledge transfer (Teo & Bhattacharjee, 2014). Similarly, Lee, (2001) and Blumenberg, Wagner & Beimborn (2009) noted that there exists a positive effect of knowledge transfer on outsourcing success. While previous studies by scholars such as Theo and Betchurchi (2001) demonstrated the positive effects of client motivation on the extent of knowledge transfer from the vendor, this hypothesis was rejected in the study by Teo & Bhattacharjee, (2014). It is, therefore, necessary that during the contract, firms must act in a way that encourages and promotes proper and accurate knowledge transfer by

the vendor and its required contexts which could be the client’s readiness and time allocation to knowledge acquisition and provision.

Besides having administrative knowledge, vendor should be capable of transiting and communicating to knowledge transfer. In other words, it must be ensured that the vendor is willing and capable of transferring knowledge, and it can be considered as an evaluation criterion of the vendor”. The more effective knowledge transfer is, the greater the possibility of success in outsourcing projects (Abdolvand, 2016). This study was only limited to the effect of human factor and particularly knowledge transfer and its influence on success of IT outsourcing.



**Figure 4: Knowledge transfer and IT outsourcing success**

### 2.7.5 Knowledge Sharing, Organizational Capability and Partnership Quality on IS Outsourcing Success

Jae-Nam Lee (2000) in his study noted that the “effect of the ability of the service receiver to absorb the needed knowledge and of companies to build a partnership on these relationships was of his focus. In recent studies, there has been much interest in knowledge sharing through outsourcing partnership and its effect on outsourcing success Gallivan, & Oh, (1999). The knowledge sharing between the service receiver and provider is considered as one of the major

motives of the outsourcing partnership based on mutual trust (Mowery et al. 1996). However, knowledge sharing among different organizations is not an easy task. Knowledge sharing is based on organizational context, and thus that knowledge cannot easily be transferred among organizations with different cultures, structures, and goals. Therefore, for successful knowledge sharing in an outsourcing partnership, both the service receiver and provider should have a clear common vision and goals for partnership as well as a belief that their partners will not act opportunistically; this may be termed partnership quality.

For successful knowledge sharing to be realized, the contracting company has to also be able to learn or acquire the needed knowledge from the giving organization (subcontracted company). This is termed as absorptive capability. It is where an organization/institution is in a position to recognize the value of new, internal information, assimilate it, and apply it to the enterprise.

Jae-Nam Lee (2000) further noted that outsourcing relationships have shifted from a contractual to a partnership-based relationship. It is therefore evident that for successful ICT outsourcing to be realized, quality partnership relationship plays a critical role. Furthermore, knowledge sharing through the outsourcing partnership is emphasized and the degree of both partnership quality and organizational capability in IS outsourcing are of fundamental importance”.

### **2.7.6 Knowledge Sharing**

Knowledge has been defined differently by different proponents. Liebeskind (1996) defines it as information whose rationality has been established over tests of proof. Knowledge sharing is a set of activities of transferring or disseminating knowledge (tacit and explicit) from one person, group or organization to another (Jae-Nam Lee, 2000). Jae-Nam Lee (2000) noted that “knowledge sharing has emerged as a strategically significant resource that every firm needs for it to gain and sustain competition. Knowledge management, therefore, is the process of capturing, storing, sharing, and using knowledge. In the process of knowledge management, a major management issue arises on how to change individual knowledge into organizational knowledge. This is because organizational knowledge is inherently created and resides with individuals. The proponent further notes that of critical importance is how to integrate and manage organizational knowledge so that it results in successful business performance”.

In order for organizations to share knowledge, communication is an important aspect. It involves the information exchange and transfer of meaning. Abdolvand (2016) noted that in the long run, “such information exchange creates knowledge. The mutual communication between the service receiver and provider is considered as one of the most effective factors of outsourcing based on cooperation, which creates a win-win relationship. The researcher further noted that service provider’s and receiver’s skill and capability, lead to the accurate relationships and trust between parties; if the providers don’t have the appropriate competency and capability to implementation, they lead the project to fail and this causes distrust in future projects. Consequently, for organizations to improve business performance, knowledge has to be exploited to produce new products and services. Organizational knowledge is not only created within an organization but can also be acquired externally. Therefore, increasing attention has been paid to how organizations learn from their partners and develop new competencies through strategic alliances.

It can be generalized that organizational resources and capabilities are key success factors for competitive advantage and its sustainability. Accordingly, the organizational capability depends on valuable resources that are inimitable, cannot be substituted, and is durable. It, therefore, depends on an organization's ability to acquire and use them for competitive advantage”. Furthermore, for sustained competitiveness, an organization needs to embrace dynamic capabilities. This is an aspect of a firm being able to renew, change and adapt new capabilities posed by both internal and external environment through organizational learning.

### **2.7.7 Outsourcing Partnership**

Lee, (2000) explains that partnership is “an inter-organizational relationship meant to achieve shared goals between the participants. Partnership goes beyond organizations stipulating formal contract in which the rules are well defined and the failure to deliver on commitments by either party is resolved through either litigation or penalty clauses in the contract to a situation where the relationship is seen as that of risk and benefit sharing. It also includes the need to view the relationship as a series of exchanges without a definite endpoint, and the need to establish a range of mechanisms to monitor and execute its operations. Partnerships can create a competitive

advantage through the strategic sharing of organizations' key information and knowledge. Closer relationships result from more frequent and more relevant information and knowledge exchanges among high performance partners. By sharing knowledge between the service receiver and provider, they are able to sustain a more effective outsourcing relationship over time. Since tacit knowledge is hard to formalize and communicate, this study focused on explicit and implicit knowledge sharing between the service receiver and provider” (Lee, 2000). The extent of implicit and explicit knowledge sharing is represented by the Figure 4 below. Finally, outsourcing success can be realised in instances where the customers requirements are holistically met in an outsourcing arrangement and subsequently its outcome.

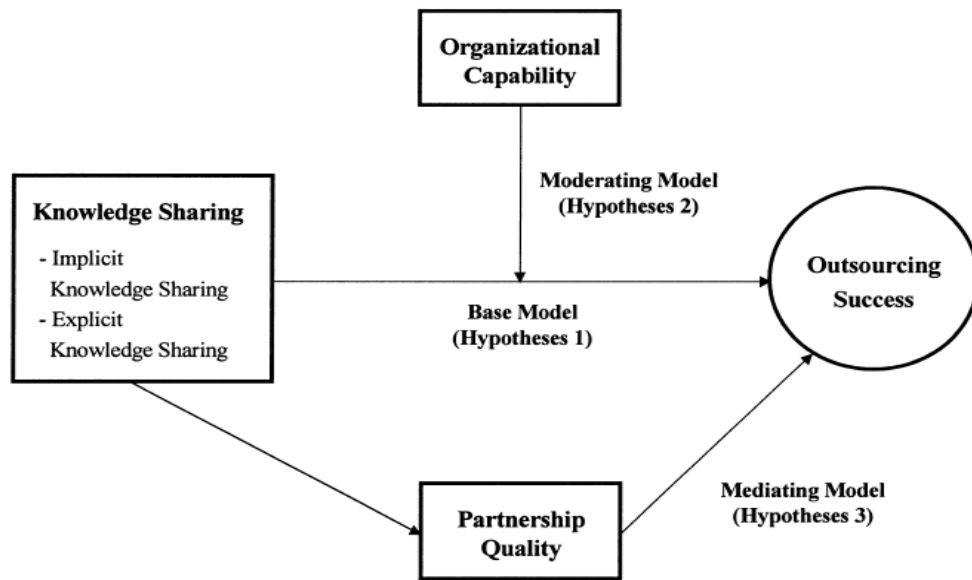


Fig. 1. Research model.

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**Figure 4: knowledge sharing and outsourcing success**

Lee (2000) in his research concluded that “knowledge sharing is significantly associated with the degree of attainment of outsourcing benefits; the ability of the service receiver to absorb the needed knowledge has a significant direct effect on the benefit attainment. The finding further showed the strong relationship between partnership quality and outsourcing success. It indicates that fostering a cooperative relationship based on trust, business understanding, benefit and risk sharing, conflict, and commitment is critical to maximize the strategic, economic, and



technological benefits for outsourcing. This study confirms the widely held belief that knowledge sharing is one of the major predictors for outsourcing success, organizational capability to learn or acquire the needed knowledge from other organizations is a key source of successful knowledge sharing, and partnership quality is a significant intervening factor between knowledge sharing and outsourcing success”.

## **2.8 Summary of the Chapter**

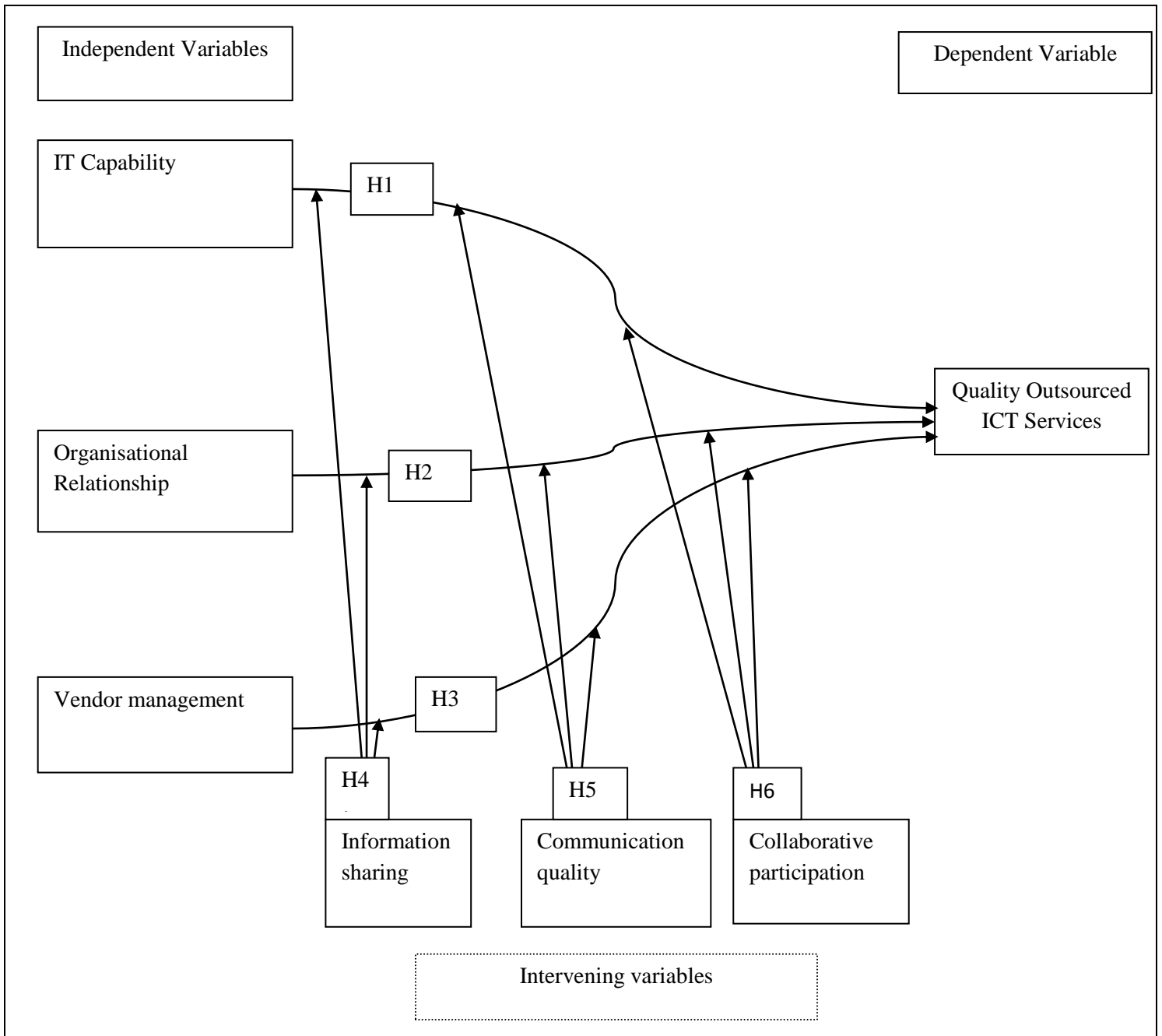
The analysis of empirical literature has shown how different authors have looked at the contribution of firm’s capability as well as knowledge sharing capability, communication and other aspects as having a contribution on provision of quality ICT services. Han, Lee & Seo (2008) looked at the “firm’s IT capability, organizational relationship capability, vendor management capability as independent variables and taking information sharing, communication quality, collaborative participation, trust taking and commitment mediating variables”. Other researchers such as Abdolvand, (2016) studied the effects of human factor on the success of information technology outsourcing. The author noted that effective knowledge transfer and human factors translates to information technology outsourcing success. This researcher looked at only knowledge sharing as an independent variable that contributed to success of outsourcing.

Jae-Nam Lee (2000) studied the impact of knowledge sharing, organizational capability and partnership quality on IS outsourcing success. However, his study was limited to organizational capability as a moderating variable and partnership quality as mediating variable. It is because of this narrow (focus on one aspect) that the researcher has used all the individual aspects of this research work to inform the choice of process theory to guide this research. It entails firm’s IT capability where the outsourcing firm needs to have competent IT staff as well as IT capable managerial team. This allows efficient and effective utilization of outsourced functions. Secondly, firm’s organizational capability is a second critical aspect in ICT outsourcing environment. It entails the organizational ability to have active relationships between various departments that outsource as well as those deemed to be the ones utilizing the outsourced services (service departments). Third factor was the establishment of vendor management capability. It is the ability of the outsourcing firm to look beyond an existing contractual arrangement and explore long-term relations with suppliers. Such interactions should include and

go beyond rules, agreements, and exception. The result of this is the creation and maintenance of a win-win situation. This facilitates vendor's participation in the IT outsourcing.

## 2.9 Conceptual Framework

Figure 5: Conceptual framework



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research philosophy, research design, population of the study, sample size, sample design, and data collection methods that was used to assess the effect of ICT outsourcing on delivery of quality ICT services at KEMRI, Kenya. Interviews and questionnaires were used as instruments of data collection. The study was be guided by objectives namely: to determine IT capability and its influence on delivery of quality outsourced ICT services at Kenya Medical Research Institute; to establish organizational capability and its influence on delivery of quality outsourced ICT services at Kenya Medical Research Institute; to determine vendor management capability and its influence on delivery of quality outsourced ICT services at Kenya Medical Research Institute and finally to establish the influence of information sharing, communication quality and collaborative participation on the relationship between the the firms' capability and the delivery of quality outsourced ICT services at Kenya Medical Research Institute.

##### **3.1.1 KEMRI – ICT Centres**

In the 2013-2017 KEMRI strategic plan, the Institute recognizes ICT as a major driver in facilitating research and innovation in the current highly technologically driven environment. The KEMRI has invested in ICTs, which supports learning, research and management of its activities. The ICT directorate has ICT Policy which acts as a blueprint that guides the design, development, implementation, and effective use of ICT services and resources by KEMRI employees.

The objectives of the ICT directorate at KEMRI include: Enhancing availability of ICT systems; enhancing compliance with the relevant laws of Kenya; enhancing information security of KEMRI systems; enhancing best practice according to ISO; enhancing efficient use of information systems by KEMRI employees and stakeholders and finally; to enhance a spirit of awareness, co-operation and trust in the institution.

### **3.2 Research Philosophy**

Positivism, interpretivist and pragmatism are the three research philosophies that guided this study. Benbasat et al. (1987) explains that “no single research methodology is intrinsically better than the other methodology, and hence the reason for many authors calling for a combination of research methods in order to improve the quality of research”. This research adopted the pragmatism philosophy. This is because pragmatism allows the combination of both positivism and interpretivist. This approach allowed for adequate answering of all research questions. One approach may be ‘better’ than the other for answering particular questions as well as instances where questions are not explicitly positivist or interpretivist philosophy.

Tashakkori and Teddlie (1998) suggest that “it is more appropriate for the researcher in a particular study to think of the philosophy adopted as a continuum rather than opposite positions. At some point the knower and the known must be interactive, while at others, one may more easily stand apart from what one is studying, (Tashakkori and Teddlie, 1998:26). Pragmatism is intuitively appealing largely because it avoids the researcher engaging in what they see as rather pointless debates about such concepts as truth and reality. In their view you should study what interests you and is of value to you, study in the different ways in which you deem appropriate, and use the results in ways that can bring about positive consequences within your value system”, (Tashakkori & Teddlie, 1998).

### **3.3 Research Choices/Approach**

This study adopted the deductive approach. In deductive approach, hypotheses and research design is carefully developed and tested against the adopted framework (Collis and Hussey, 2003).

### **3.4 Research Design**

The study employed a mixed method of both qualitative and quantitative descriptive research design. The reason for using descriptive research is to depict the existing state of affairs. According to Kothari (2004), studies concerning individuals, groups or situations with the aim of obtaining complete and accurate information are best done using descriptive studies. The researcher has no control over the variables instead will report the situation as it is (Kothari

2004). The researcher must also clearly define the objectives that he/she wants to measure as well as design adequate methods of measuring each of the objectives with clear definition of population under study. Kothari (2004), explains that the design must focus on the following: formulating the objectives of the study; designing data collection methods; choosing the sample; collecting data, processing as well as further analysis to facilitate reporting the findings. In this case the study looked into the effect of ICT outsourcing on delivery of quality ICT services by employing both quantitative and qualitative approaches.

### 3.5 Study Site

This study was conducted at Kenya Medical Research Institute (KEMRI) in Kenya.

### 3.6 Target Population

The target population was 124 respondents. The target population is a group of individuals or object having characteristics that can be observed and measured (Mugenda and Mugenda, 2003). The target population was distributed as depicted in the Table below.

**Table 1: Table 1: Distribution of the target population at KEMRI**

<b>S.No</b>	<b>Section/designation</b>	<b>Total</b>
1.	KEMRI ICT assistants (Nairobi, Kisumu, Kilifi)	28
2.	KEMRI ICT officers (Nairobi, Kisumu, Kilifi)	19
3.	KEMRI ICT trainers (Nairobi, Kisumu, Kilifi)	3
4.	KEMRI Senior ICT officers (Nairobi, Kisumu, Kilifi)	15
5.	KEMRI ICT section leads (Nairobi, Kisumu, Kilifi)	12
6.	KEMRI ICT managers (Nairobi, Kisumu, Kilifi)	3
7.	KEMRI ICT director only Nairobi	1
8.	KEMRI Management (Nairobi, Kisumu, Kilifi)	43
<b>TOTAL NO. OF RESPONDENTS</b>		<b>124</b>

**Source: Researcher, 2017**

### 3.7 Sampling Design

This study was a survey where the researcher used a section of the population to represent the total population. The researcher employed both probability and non-probability sampling methods. According to Kothari (2004) non-probability sampling which is also called deliberate sampling, purposive sampling or judgmental sampling is a sampling method where the researcher has a deliberate choice of respondents to use for the study. This type of sampling will be applied to select the respondents who are senior staff from the ICT and senior management in KEMRI. On the other hand, probability sampling will be used to select respondents from ICT department (ICT staff – assistant, officers and trainers).

### 3.8 Sample Size

The sample size for this study was 95 respondents. Gall and Borg (2008) defines a sample as a carefully selected subgroup that represents the whole population in terms of characteristics. It is a subset selected from the accessible population and should be a representative of the actual population. Several factors affect the sample size; the intention of the research, the objective of the research, what is at stake, what will be useful, what will have credibility and what can be done with available time and resources (Sekaran, 2003). Owing to the difficulties with responses from larger groups, a total of 95 respondents will be chosen by the researcher. The representative sample size with known confidence and risk levels was selected based on Yamane (1967) formula as illustrated below.

**Figure 6: Yamane (1967) formula for calculating sample size**

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size

N = target population

e = the level of precision/ the acceptable sampling error

Using Yamane’s formula above, acceptable sampling error of 5% and confidence level of 95% gave 95 respondents. From the stratas, a sample size was calculated. It then followed the method of proportional allocation for each stratum. The results are as shown in Table 2 below.

Table 2: Distribution of the sample size

<b>S.No</b>	<b>Section/designation</b>	<b>Total</b>	<b>Sample</b>
1.	KEMRI ICT assistants (Nairobi, Kisumu, Kilifi)	28	22
2.	KEMRI ICT officers (Nairobi, Kisumu, Kilifi)	19	15
3.	KEMRI ICT trainers (Nairobi, Kisumu, Kilifi)	3	2
4.	KEMRI Senior ICT officers (Nairobi, Kisumu, Kilifi)	15	12
5.	KEMRI ICT section leads (Nairobi, Kisumu, Kilifi)	12	9
6.	KEMRI ICT managers (Nairobi, Kisumu, Kilifi)	3	2
7.	KEMRI ICT director only Nairobi	1	1
8.	KEMRI Management (Nairobi, Kisumu, Kilifi)	43	32
<b>TOTAL NO. OF RESPONDENTS</b>		<b>124</b>	<b>95</b>

Source: Researcher, 2017

### 3.9 Sampling Techniques

The population was divided into eight different stratas where purposive sampling was used to select respondent - ICT director, while simple random sampling was employed in the other seven stratas. This was intended to reduce sampling error. “Simple random sampling is a subset of a target population in which each member of the subset has an equal probability of being chosen. Purposive sampling is considered more appropriate when the universe happens to be small and a known characteristic of it is to be studied intensively”, (Kothari, 2004; Biggam, 2008).

### 3.10 Data Collection Instruments

The researcher employed both questionnaires and interviews as instruments of data collection. Data collection “refers to the process of gathering information to serve or prove some facts” (Kombo & Tromp, 2006).

### **3.10.1 Questionnaires**

Questionnaires always seem to provide a logical and easy way of collecting data from respondents. However, they may prove difficult to design and obtain the required information based on the responses from the respondents. The questionnaires should therefore be designed in a manner that the questions will be clear and for easier reliability and data management (Saunders, Lewis & Thornhil, 2011). Kumar (2005) observes that a questionnaire is a written list of questions which requires answers to be recorded by respondents. The questionnaires for this study were designed based on the research objectives and issues pertinent to ICT Outsourcing and their effects/impact on delivery of quality ICT services at the Kenya Medical Research Institute (KEMRI).

“A structured questionnaire was used to collect data for this research. Questionnaire was administered by drop and pick method to avoid interrupting respondent work schedule. The use of questionnaires was one of the best impersonal techniques that were used to elicit data from respondents as suggested by Leedy (1993). The use of questionnaires is presumed to cover a large number of samples and give standardized questions that will be processed easily by the researcher. Milne (1999) asserted that with a questionnaire, the respondents are free to express their views on issues without fear and also answer the questions at their own pace”. The questionnaires will comprise of both closed and open-ended questions.

### **3.10.2 Interviews**

Interviews enabled face-face discussion with the respondents targeted for the study. Interviews were recorded for better future reference and memory. An interview schedule was drawn up and entailed both closed and open ended questions.

The interviews helped to understand the nature of ICT Outsourced Services at KEMRI and how effective and efficient they have been in relation to delivery of quality ICT services in the institution.

### **3.11 Ethical Consideration**

A research permit for the study was obtained from the Ministry of Education through the University of Nairobi. The researcher sought consent from the study target population before



conducting the actual study. This was then followed by an explanation of the research instrument to the respondents. The researcher also assured the respondents that confidentiality will be observed. The researcher also explained to the subjects the procedure used to gather data for the study and the direct and indirect benefits of the study to the respondents and the institution in general.

### 3.12 Data Analysis

The analysis of data in assessment of the effect of firm’s capability on delivery of quality outsourced ICT services at KEMRI - Kenya employed descriptive, correlation and simple regression data analysis models. These were used to establish the multiple regression coefficient and correlation coefficients and differences between extents of the relationship between firm’s capability and delivery of quality ICT services. The beta ( $\beta$ ) coefficients for each independent variable generated from the model was subjected to regression analysis that was used to test the effect of ICT outsourcing on delivery of quality ICT services as shown below.

$$\begin{aligned}
 Y &= \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon \dots\dots\dots 1 \\
 y &= \beta_0 + \beta_1X_1 + \varepsilon \dots\dots\dots 2 \\
 y &= \beta_0 + \beta_2X_2 + \varepsilon \dots\dots\dots 3 \\
 y &= \beta_0 + \beta_3X_3 + \varepsilon \dots\dots\dots 4
 \end{aligned}$$

$y$  Delivery of quality outsourced ICT services

$\beta_0$  Is the constant

$X_1$  Firm’s IT capability

$X_2$  Firm’s organizational capability

$X_3$  Vendor management capability

$\beta_1 - \beta_3$  Are the coefficient regression or change induced in  $y$  by change in  $x$

$\varepsilon$  error term

### 3.13 Operationalization of the Research Variables

Operationalization is the process of defining both dependent and independent variables into quantifiable factors. The process defines concepts and allows them to be measured, empirically and quantitatively. The variable factors considered under each of the independent variables are shown in Table 3 below.

**Table 3: Independent and Dependent Variables**

<b>No.</b>	<b>Independent variables</b>	<b>Perceived factors</b>	<b>Dependent variable</b>
1.	Firm's IT capability	<p>“IT and Managerial IT capability: scheme for IT standardization, ability to integrate IT, we understand the trend of IT</p> <p>Managerial IT capability</p> <p>Ability to integrate functional requirement, ability to leverage IT as strategic core competence, availability of a blueprint of IT strategy in accordance with business strategy as well as the ability to continuously update IT strategy according to the change of business environment”.</p>	Delivery of quality outsourced ICT services
2.	Firm's organizational relationship capability	<p>“The management reflects opinions from IT department in making decisions, our management and IT department communicate well each other, our IT department and end-users communicate well each other as well as IT department and business departments trust each other”.</p>	Delivery of quality outsourced ICT services
3.	Vendor management capability	<p>“There exist a formalized processes to select vendors, there is ability to evaluate the performance of IT outsourcing, there exist a management processes for outsourcing projects, there exist a systematic processes to manage outsourcing contracts with vendors and finally a systematic processes to control outsourcing vendors”.</p>	Delivery of quality outsourced ICT services
4	Relationship formation process	Communication quality, Information sharing and Collaborative participation	Delivery of quality outsourced ICT services

### **3.14 Pilot Testing**

Pilot testing was done using 29 respondents from the sample population but these did not form part of the respondents selected and used for the actual research. Pilot testing was done to ensure that there were no deficiencies and ambiguities in the final questionnaire used by the researcher. Reliability tests were done to see the consistency of the research responses. After pilot testing, reliability of the data collected was ascertained using the Cronbach's Alpha coefficient test. According to Fraenkel and Wallen (2000), "a reliability of 0.70 or higher is preferable for research purposes. The resultant variable of the factor analysis was used to see the strength of relationship as well as strength of explaining ability of the variables. These regression tests involved calculating and comparing to gain insight into the nature of the relationship between independent variables and dependent variables" (Saunders, Lewis & Thornhill, 2012).

### **3.15 Validity**

"This is established when the research demonstrates a causal relationship between two variables (Saunders, Lewis, & Thornhill, 2012, p. 76). To enhance internal validity the questionnaires were simple, well understood and easy to administer. Further to this, triangulation of data sources was used for both questionnaires and interviews.

**External Validity:** This refers to the extent to which the findings of the research can be generalized to other relevant settings or groups (Saunders, Lewis, & Thornhill, 2012). This research looked at ICT Outsourcing at KEMRI and the representativeness of the sample therefore added to the external validity of the study.

### **3.16 Objectivity**

Objectivity was observed to avoid (conscious) bias or subjective selection while conducting or reporting this research. This ensured the research was free of biasness and any influence or conditions which singly or together distort data" (Saunders, Lewis, & Thornhill, 2012, p. 85).

### **3.12 Limitations of Methodology and How to Overcome**

The sample size selected under the methodology is small. This is due to the time limit and minimal funding obtained for the research. The small sample size will also however, provide the research with a small data set that would be easily manageable.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

This chapter presents the results of the analysed data obtained through various analysis techniques. As indicated in the research design, due to the nature of the study both qualitative and quantitative methods were used. The data obtained from the study has been clearly tabulated, analyzed, and presented using SPSS version 21.0 analytical tool.

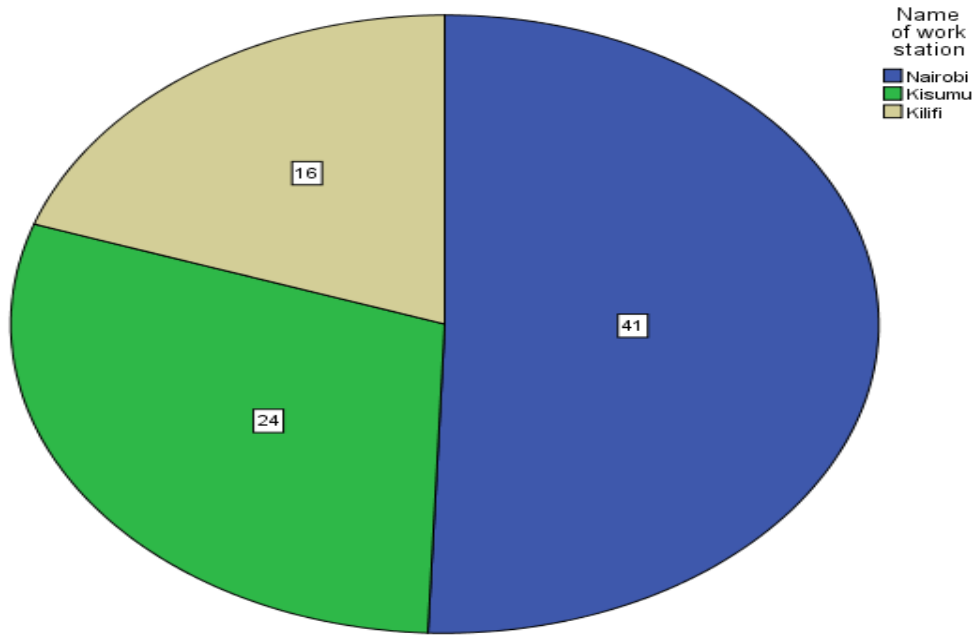
**Table 4: Table showing number of questionnaires returned**

No. of questionnaires issued	No. of questionnaires returned	Response rate (%)
95	81	85.3%

#### 4.2 Summary of Responses

Data collection was carried out in the six branches of KEMRI. These branches were The HQ-Nairobi, Kisumu and Kilifi. The results from the respondents were analysed to determine the effect of firms' capability on delivery of quality outsourced ICT services in Kenyan Public Institutions: A case study of Kenya Medical Research Institute (KEMRI). Out of these 81 respondents, 41 of them representing 50.6% were drawn from Nairobi branch. 24 respondents representing 29.6% were drawn from Kisumu branch and finally 16 respondents representing 19.8% were drawn from Kilifi branch.

Figure 7: Commonly outsourced ICT services



### 4.3 Firms' Capability as Independent Variable

#### 4.3.1 IT Capability

The respondents were tasked to rate the metrics of IT capability in a Likert scale of 1-5. In this scale, 1 represented Strongly Disagree and 5 representing Strongly Agree. The descriptive analysis for the independent variable - IT capability is as shown in the Table 5 below:

Table 5: IT capability descriptive statistics

	Mean	Std. Deviation	N
encourage IT standardization	3.38	1.338	81
Highly integrated IT services	3.42	1.203	81
Understanding of IT trends	4.28	.597	81
Existence managerial IT capability	4.19	.743	81
Management understanding of IT	4.30	.660	81
Existence of blueprint of IT strategy	4.23	.638	81
Continuous update of IT strategy	4.32	.668	81
Average Mean and Std. Deviation	<b>4.02</b>	<b>0.835</b>	81

Source (Research data, 2017)

The respondents generally agreed that the institution is generally conversant with IT as shown above. The following aspects were asked: Encouraging IT standardization (M=3.38, SD=1.338), aspect Highly integrated IT services (M=3.42, SD=1.203), aspect Understanding of IT trends (M=4.28, SD=0.597), aspect Existence managerial IT capability (M=4.19, SD=0.743), aspect of Management understanding of IT (M=4.30, SD=0.660), aspect of Existence of blueprint of IT strategy (M=4.23, SD=.638), aspect of Continuous update of IT strategy (M=4.32, SD=0.668). The analysis shows that majority of respondents agreed that the management and IT professionals were IT savvy.

#### 4.3.2 Organizational Relationship Capability

This was the second independent variable in firms' capability. The study revealed that KEMRI has good (mean of 4.25) organizational relationships as shown in the analysis. The respondents were asked to rate the level of organizational relationships, and the results are presented in Table 6 below.

**Table 6: Descriptive statistics on organizational relationship capability**

	Mean	Std. Deviation	N
Use of ICT department decisions	4.28	.597	81
IT department communicate well with management	4.19	.743	81
IT department and end-users communicate well	4.30	.660	81
Trust between IT and business	4.23	.638	81
<b>Average Mean and Std. Deviation</b>	<b>4.25</b>	<b>.660</b>	<b>81</b>

**Source: Research Data 2014**

The metrics that were used to measure this variable were use of ICT department decisions (M=4.28, SD=0.597), IT department communicate well with management (M=4.19, SD=0.743), IT department and end-users communicate well (M=4.30, SD=0.660) and finally existence of trust between IT and business (M=4.23, SD=0.638).

### 4.3.3 Vendor Management Capability

The study also sought to determine vendor management capability at KEMRI. The respondents that were drawn from the three branches generally agreed (M=4.32 and Std. Deviation=0.572) that the institution is able to manage its ICT outsourcing vendors. The following metrics were used to determine this particular variable: the existence of formalized processes of selecting vendors (M=4.32, SD=0.668), ability to evaluate IT outsourcing performance (M=4.31, SD=0.584), the existence of systematic processes to manage contracts (M=4.31, SD=0.664), the existence of management processes for ICT outsourcing (M=4.31, SD=0.665), there exist systematic processes to control outsourcing (M=4.35, SD=0.479) as shown in Table 7 below.

**Table 7: Descriptive statistics on vendor management capability**

	Mean	Std. Deviation	N
Existence of formalized processes of selecting vendors	4.32	.668	81
Ability to evaluate IT outsourcing performance	4.31	.584	81
Existence of management processes for ICT outsourcing	4.31	.664	81
Existence of systematic processes to manage contracts	4.31	.465	81
There exist systematic processes to control outsourcing	4.35	.479	81
<b>Average Mean and Std. Deviation</b>	<b>4.32</b>	<b>.572</b>	81

### 4.3.4 Intervening Variable – Communication Quality

Table 4.5 presents the results of communication quality as an intervening variable. The respondents also generally agreed that there exist effective and efficient communication between the participating companies. The metrics used to measure this variable are as follows: Timely communication between us and vendors (M=4.31.SD=0.664), accurate communication between us and the vendors (M=4.21.SD=720), complete communication between us and the vendors (M=4.31.SD=584), credible communication between us and the vendors (M=4.32.SD=0.668) as shown on Table 8 below.

**Table 8: Descriptive statistics on Intervening variable – Communication quality**

Descriptive statistics	Mean	Std. Deviation	N
Timely communication between us and vendors	4.31	.664	81
Accurate communication between us and the vendors	4.21	.720	81
Complete communication between us and the vendors	4.31	.584	81
Credible communication between us and the vendors	4.32	.668	81
<b>Average Mean and Std. Deviation</b>	<b>4.29</b>	<b>.659</b>	<b>81</b>

**Source: Research Data 2017**

#### 4.3.5 Intervening Variable – Information Sharing

The Table 9 below represents the results of information sharing as an intervening variable. Respondents generally agreed (mean of 4.22) that there exists good information sharing amongst the participants. The following metrics were used to measure the variable include: Share each other's own information (M=4.25.SD=0.582), sharing business knowledge of core businesses processes (M=4.14.SD=0.754), Information provision (M=4.16.SD=0.732) and sharing business and technical information (M=4.32.SD=0.588) as shown in Table 9 below.

**Table 9: Descriptive statistics on Intervening variable – Information sharing**

Descriptive statistics	Mean	Std. Deviation	N
Share each other's own information	4.25	.582	81
Share business knowledge of core businesses processes	4.14	.754	81
Information provision	4.16	.732	81
Sharing business and technical information	4.32	.588	81
<b>Average Mean and Std. Deviation</b>	<b>4.22</b>	<b>.664</b>	<b>81</b>

**Source: Research Data 2017**

#### 4.3.6 Intervening Variable – Collaborative Participating

The Table 10 below represents the results of collaboration participation as an intervening variable. Respondents generally agreed (mean of 4.24) that there exists good collaboration and participation amongst the participants. The metrics used to measure the variable included: Collaborative decision making (M=4.44.SD=0.500), Collaborative problem solving



(M=4.23.SD=0.576), Willingness to comply with requests (M=4.14.SD=0.802), general cooperation in conducting businesses (M=4.15.SD=0.853). The analysis is as shown on Table 10 below.

**Table 10: Descriptive statistics on Intervening variable – Collaborative participating**

	Mean	Std. Deviation	N
Collaborative decision making	4.44	.500	81
Collaborative problem solving	4.23	.576	81
Willingness to comply with requests	4.14	.802	81
General cooperation in conducting businesses	4.15	.853	81
<b>Average Mean and Std. Deviation</b>	<b>4.24</b>	<b>.683</b>	<b>81</b>

**Source: Research Data 2017**

#### **4.3.7 Dependent Variable – Quality Outsourced ICT Services**

The Table 11 below presents the results of dependent variable – quality outsourced ICT services. Respondents generally agreed (mean of 4.24) that there exists quality outsourced ICT services amongst the participants. The metrics used to measure the variable included: Timely availability of outsourced ICT services (M=4.31.SD=0.584), meeting expected cost of ICT outsourced services (M=4.41.SD=0.565), received services are up to Quality (M=4.25.SD=0.582), Minimized systems downtime experienced (M=4.14.SD=0.754), clients receives upfront correction of error and fixing of such errors (M=4.16.SD=0.732), correct advices regarding outsourced services (M=4.27.SD=0.707) and finally ICT services receives upfront response to emergencies (M=4.32.SD=0.588) as shown on Table 11 below.

**Table 11: Dependent variable – Quality outsourced ICT services**

Descriptive statistics	Mean	Std. Deviation	N
Timely availability of outsourced ICT services	4.31	.584	81
Expected cost of ICT outsourced services	4.41	.565	81
Quality outsourced ICT services	4.25	.582	81
minimized systems downtime	4.14	.754	81
Upfront correction of error and fixing of such errors	4.16	.732	81
Correct advices	4.27	.707	81
ICT services receives upfront response to emergencies	4.32	.588	81
<b>Average Mean and Std. Deviation</b>	<b>4.26</b>	<b>.645</b>	<b>81</b>

**Source: Research Data 2017**

## 4.4 Reliability Analysis

### 4.4.1 Cronbach's Alpha Reliability Analysis

This is the “degree to which an assessment tool produces stable and consistent results. This tested whether the instruments that were used to establish the effect of firms’ capability on delivery of quality outsourced ICT services in public institutions were reliable to collect data. A Cronbach's Alpha test and Composite reliability analysis were carried to test the reliability. In instances where coefficient was closer to one (1), it indicates that the tested factor was valid and consistent in measuring delivery of quality outsourced ICT services. George and Mallory’s (2003) similarly noted that the rule of the thumb is that any result above 0.7 is acceptable. The results of reliability tests are as shown in the Table 12 below.

**Table 12: Cronbach's alpha reliability analysis**

Variable	Reliability Statistics	
	Cronbach's Alpha	N of Items
IT Capability	.809	7
Organisational Relationship Capability	.689	4
Vendor management Capability	.823	5
Communication Quality	.525	4
Information Sharing	.705	4
Collaborative participation	.617	4
Quality Outsourced ICT Services	.809	7

**Source: Research data 2017**

### 4.4.2 Composite Reliability Analysis

The results of Cronbach’s Alpha reliability test showed that organizational relationship capability as an independent variable was 0.689. This was less than the acceptable level of 0.7. A further analysis was performed. This was the composite reliability analysis which showed different reliability scales from the ones of Cronbach’s Alpha. The results were as shown in Table 4.10 below.

**Table 13: Composite reliability analysis**

Component Matrix <sup>a</sup>	
	Component 1
Organizational Relationship Capability	.916
Vendor management	.944
IT Capability	.781
Communication quality	.878
Information Sharing	.874
Collaborative participation	.612
<b>Quality outsourced ICT services</b>	<b>.935</b>

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

#### 4.5 Correlation Analysis

The researcher conducted correlation analysis to test the relationship of independent and dependent variables using the Pearson Correlation method. This was carried out in order to quantify the strength and direction of the relationship between the variables. Pearson correlation coefficient measures the strength of a linear association between two variables i.e. independent variables and dependent variable and is denoted by  $r$ . Pearson correlation coefficients range from -1 to +1. Negative value indicates negative correlation and positive values indicates positive correlation. A positive  $r$  value expresses a positive relationship between the two variables (the larger the independent variable, the larger the dependent variable) while a negative  $r$  value indicates a negative relationship (the larger the independent variable, the smaller/lesser the dependent variable).

Furthermore, the rule is always If the Sig (2-Tailed) value is greater than 0.05, it can always be concluded that there is no statistically significant correlation between variables". The research findings showed that IT Capability, Organizational Capability and Vendor management had strong positive correlation coefficients of ( $r=.620^{**}$ ,  $r=.787^{**}$  and  $r=.845^{**}$ ) respectively. The intervening variable Communication quality, Information Sharing and Collaborative participation also strong positive correlation coefficients of ( $r=.762^{**}$ ,  $r=.956^{**}$  and  $r=.567^{**}$ ) respectively. All the independent and intervening variables had their levels of significance being

strong Sig. (2 tailed) of 0.000. This meant that the three independent variables were statistically significant to the delivery of quality outsourced ICT services in public institution and a case study of KEMRI. “Table 14 below shows the Pearson correlation analysis.

**Table 14: Correlations Table**

		<b>Correlations</b>						
		IT Capability	Organisational Capability	Vendor management	Communication quality	Information Sharing	Collaborative participation	Quality Outsourced ICT Services
<b>IT Capability</b>	Pearson Correlation	1						
	Sig. (2- tailed)							
	N	81						
<b>Organisational Capability</b>	Pearson Correlation	.753**	1					
	Sig. (2- tailed)	.000						
	N	81	81					
<b>Vendor management</b>	Pearson Correlation	.686**	.887**	1				
	Sig. (2- tailed)	.000	.000					
	N	81	81	81				
<b>Communication quality</b>	Pearson Correlation	.621**	.859**	.876**	1			
	Sig. (2- tailed)	.000	.000	.000				
	N	81	81	81	81			
<b>Information Sharing</b>	Pearson Correlation	.582**	.711**	.741**	.664**	1		
	Sig. (2- tailed)	.000	.000	.000	.000			
	N	81	81	81	81	81		
<b>Collaborative participation</b>	Pearson Correlation	.408**	.393**	.553**	.377**	.527**	1	
	Sig. (2- tailed)	.000	.000	.000	.001	.000		
	N	81	81	81	81	81	81	
<b>Quality Outsourced ICT Services</b>	Pearson Correlation	<u>.620**</u>	<u>.787**</u>	<u>.845**</u>	<u>.762**</u>	<u>.956**</u>	<u>.567**</u>	1
	Sig. (2- tailed)	<u>.000</u>	<u>.000</u>	<u>.000</u>	<u>.000</u>	<u>.000</u>	<u>.000</u>	
	N	81	81	81	81	81	81	81

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

**Source:** Research data 2017”

#### 4.6 Regression Analysis

The study used multiple regression analysis so as to establish the causal relationship of independent variables and dependent variable. The study used SPSS version 21 to code, enter and compute multiple regression.  $R^2$  is a statistical term saying how good one term is at predicting another. The rule is always if R-Square ( $R^2$ ) is 1.0 then given the value of one term, you can perfectly predict the value of another term. If  $R^2$  is 0.0, then knowing one term does not help to know the other term at all. More generally, a higher value of R-Square means that you can better predict one term from another. The rule of thumb is that, usually an R square of more than 50% is considered as better.

Combining the three independent variables (IT capability, Organizational capability and vendor management) contributed 0.721 as represented by R-square. This means that the three independent variables contribute 72.1% to the delivery of quality outsourced ICT services in Kenyan public sector. The analysis further showed that independent variables were highly significant in contributing to delivery of quality outsourced ICT services at significance level of 0.000 as shown in the Sig. F Change in the Anova and model summary. The regression analysis further showed that there are other factors (27.9%) contributing to delivery of quality outsourced ICT services.

**Table 15: Regression analysis Table**

<b>Regression Analysis</b>									
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Model Summary</b>			<b>Change Statistics</b>			
			<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>	<b>R Square Change</b>	<b>F Change</b>	<b>df1</b>	<b>df2</b>	<b>Sig. F Change</b>
<b>1</b>	.849 <sup>a</sup>	<b>.721</b>	.710	.23855	.721	66.412	3	77	<b>.000</b>

**a. Predictors: (Constant), Vendor management, IT Capability, Organisational Capability**

**Source: Researcher, 2017**

##### 4.6.1 ANOVA Interpretation

ANOVA table shows that the sum of squares of the regression is 11.37 at 3 degrees of freedom and a mean square of 3.779. The residual sum of squares is 4.382 with 77 degrees of freedom and mean square value of 0.057. The Total sum of squares is 15.719 with 80 degrees of freedom.

The test for the joint significant which is given by the F statistic is 66.412 and is seen in the table below it is statistically significant at .000 percent level of significance. This implies that the independent variables, that is, IT capability, organizational relationships capability and vendor management capability jointly explain the delivery of quality outsourced ICT services in Kenyan public institutions. The Anova analysis is shown in Table 16 below.

**Table 16: ANOVA Table**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
<b>1</b>	Regression	11.337	3	3.779	66.412	<b>.000<sup>b</sup></b>
	Residual	4.382	77	.057		
	Total	15.719	80			

**a. Dependent Variable: Quality Outsourced ICT Services**  
**b. Predictors: (Constant), Vendor management, IT Capability, Organisational Capability**

The output shown in coefficients in the table below is used to know which independent variables contributed to the prediction of the dependent variable – delivery of quality outsourced ICT services.

Vendor management makes a strongest unique contribution of .687 and the variable is statistically significant to the equation at **0.000**. Organizational relationship capability is the second largest contributing uniquely at 0.152. This was not statistically significant as shown in the sig table at 0.297. IT capability contributed positively at 0.034 and the contribution is not statistically significant .708 as it is greater than 0.05. The results of the analysis are as shown in Table 17 below.

**Table 17: Coefficients Table**

		Coefficients <sup>a</sup>				
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta		
1	(Constant)	.562	.271		2.072	.042
	IT Capability	.033	.087	<b>.034</b>	.376	<b>.708</b>
	Organisational Capability	.141	.135	<b>.152</b>	1.050	<b>.297</b>
	Vendor management	.688	.131	<b>.687</b>	5.256	<b>.000</b>

**a. Dependent Variable: Quality Outsourced ICT Services**

**Source: Researcher, 2017**

From the data in the Table above, the study established regression equation was  $Y = 0.562 + 0.034X_1 + 0.152X_2 + 0.687X_3 + \varepsilon$ . Therefore, delivery of quality outsourced ICT services =  $0.562 + 0.034 X$  IT capability +  $0.152 X$  Organisational relationship capability +  $0.687 X$  Vendor management capability +  $\varepsilon$ .

#### **4.7 Moderating effects of information sharing, communication quality and collaborative participation**

To explore whether the three intervening variables (information sharing, communication quality and collaborative participation) statistically significantly moderated the relationships between independent variables and dependent variable, moderated multiple regression was conducted. The following are the results of every moderating variable as shown in tables below.

##### **4.7.1 Effect of information sharing on the relationship between IT capability and delivery of quality outsourced ICT services**

The moderating effects of information sharing on IT capability and delivery of quality outsourced ICT services is that the change in R-square due to introduction of information sharing was .537. Thus the percentage increase in variation explained by introduction of effective information sharing in enhancing IT capability was 53.7%. This change was highly significant as shown in the Sig. F Change of 0.000 ( $p < 0.005$ ). Therefore Hypotheses H<sub>4a</sub> was accepted that



information sharing had a significant positive influence on the relationship between IT capability and delivery of quality outsourced ICT services. The results are as shown in Table 18 below.

**Table 18: Effect of information sharing on the relationship between IT Capability and delivery of quality outsourced ICT services**

<b>Model Summary</b>									
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>	<b>Change Statistics</b>				
					<b>R Square Change</b>	<b>F Change</b>	<b>df1</b>	<b>df2</b>	<b>Sig. F Change</b>
<b>1</b>	.620 <sup>a</sup>	<b>.384</b>	.376	.35013	.384	49.221	1	79	<b>.000</b>
<b>2</b>	.959 <sup>b</sup>	<b>.921</b>	.919	.12652	.537	527.023	1	78	<b>.000</b>

**a. Predictors: (Constant), IT Capability**

**b. Predictors: (Constant), IT Capability, Information Sharing**

#### **4.7.2 The Effect of Information Sharing on the Relationship Between Organizational Relationships and Delivery of Quality Outsourced ICT Services**

The moderating effects of Information sharing on organisational relationships and delivery of quality outsourced ICT services is that the change in R-square due to introduction of information sharing was .318. Thus the percentage increase in variation explained by introduction of effective information sharing in enhancing organizational relationships was 31.8%. This change was highly significant as shown in the Sig. F Change of 0.000 ( $p < 0.005$ ). Therefore Hypotheses H<sub>4b</sub> was accepted that information sharing had a significant positive influence on the relationship between organizational relationships and delivery of quality outsourced ICT services. The results are as shown on Table 19 below.

Table 19: The effect of information sharing on the relationship between organizational relationships and delivery of quality outsourced ICT services

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.787 <sup>a</sup>	<b>.620</b>	.615	.27514	.620	128.645	1	79	<b>.000</b>
2	.968 <sup>b</sup>	<b>.938</b>	.936	.11206	.318	398.199	1	78	<b>.000</b>

a. Predictors: (Constant), Organizational relationships

b. Predictors: (Constant), Organizational relationships, Information Sharing

#### 4.7.3 The effect of information sharing on the relationship between vendor management and delivery of quality outsourced ICT services

The moderating effects of Information sharing on vendor management and delivery of quality outsourced ICT services is that the change in R-square due to introduction of information sharing was .242. Thus the percentage increase in variation explained by introduction of effective information sharing in enhancing organizational relationships was 24.2%. This change was also highly significant as shown in the Sig. F Change of 0.000 ( $p < 0.005$ ). Therefore Hypotheses H<sub>4c</sub> was accepted that information sharing had a significant positive influence on the relationship between vendor management and delivery of quality outsourced ICT services. The results are as shown in Table 20 below.

**Table 20: The effect of information sharing on the relationship between vendor management and delivery of quality outsourced ICT services**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.845 <sup>a</sup>	<b>.714</b>	.711	.23846	.714	197.440	1	79	<b>.000</b>
2	.978 <sup>b</sup>	<b>.956</b>	.955	.09443	.242	425.735	1	78	<b>.000</b>

a. Predictors: (Constant), Vendor management

b. Predictors: (Constant), Vendor management, Information Sharing

## 4.8 Moderating effects of communication quality

### 4.8.1 The effect of communication quality on the relationship between IT capability and delivery of quality outsourced ICT services

The moderating effects of communication quality on IT Capability and delivery of quality outsourced ICT services is that the change in R-square due to introduction of communication quality was .231. Thus the percentage increase in variation explained by introduction of effective communication quality in enhancing IT capability was 23.1%. This change was highly significant as shown in the Sig. F Change of 0.000 ( $p < 0.005$ ). Therefore Hypotheses H<sub>5a</sub> was accepted that having good communication quality had a significant positive influence on the relationship between IT capability and delivery of quality outsourced ICT services. The results are as shown in Table 21 below.

**Table 21: The effect of communication quality on the relationship between IT Capability and delivery of quality outsourced ICT services**

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F
1	.620 <sup>a</sup>	<b>.384</b>	.376	.35013	.384	49.221	1	79	.000	
2	.784 <sup>b</sup>	<b>.615</b>	.605	.27848	.231	46.885	1	78	.000	

a. Predictors: (Constant), IT Capability

b. Predictors: (Constant), IT Capability, Communication quality

### 4.8.2 The Effect of Communication Quality on the Relationship Between Organizational Relationship and Delivery of Quality Outsourced ICT Services

The moderating effects of communication quality on organizational relationship and delivery of quality outsourced ICT services is that the change in R-square due to introduction of communication quality was .027. Thus the percentage increase in variation explained by introduction of effective communication quality in enhancing organizational relationships was 2.7%. This change was highly insignificant as shown in the Sig. F Change of 0.000 ( $p > 0.005$ ). Therefore Hypotheses H<sub>5b</sub> was rejected that having good communication quality had a

significant positive influence on the relationship between organizational relationships and delivery of quality outsourced ICT services. The results are as shown in Table 22 below.

**Table 22: The effect of communication quality on the relationship between organizational relationship and delivery of quality outsourced ICT services**

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F
1	.787 <sup>a</sup>	<b>.620</b>	.615	.27514	.620	128.645	1	79	<b>.000</b>	
2	.805 <sup>b</sup>	<b>.647</b>	.638	.26654	.028	6.178	1	78	<b>.015</b>	

a. Predictors: (Constant), Organizational Capability

b. Predictors: (Constant), Organizational Capability, Communication quality

#### 4.8.3 The Effect of Communication Quality on the Relationship Between Vendor Management and Delivery of Quality Outsourced ICT Services

The moderating effects of communication quality on vendor management and delivery of quality outsourced ICT services is that the change in R-square due to introduction of communication quality was .002. Thus the percentage increase in variation explained by introduction of effective communication quality in enhancing vendor management was 0.2%. This change was insignificant as shown in the Sig. F Change of 0.000 ( $p > 0.005$ ). Therefore Hypotheses H<sub>5c</sub> was rejected that having good communication quality had a significant positive influence on the relationship between vendor management and delivery of quality outsourced ICT services. The results are as shown in Table 23 below.

**Table 23: The effect of communication quality on the relationship between vendor management and delivery of quality outsourced ICT services**

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F
1	.845 <sup>a</sup>	<b>.714</b>	.711	.23846	.714	197.440	1	79	<b>.000</b>	
2	.846 <sup>b</sup>	<b>.716</b>	.709	.23912	.002	.559	1	78	<b>.457</b>	

a. Predictors: (Constant), Vendor management

b. Predictors: (Constant), Vendor management, Communication quality

## 4.9 Moderating Effects of Collaborative Participation

### 4.9.1 The Effect of Collaborative Participation on the Relationship Between IT Capability and Delivery of Quality Outsourced ICT Services

The moderating effects of collaborative participation on IT Capability and delivery of quality outsourced ICT services is that the change in R-square due to introduction of effective collaborative participation was .118. Thus the percentage increase in variation explained by introduction of effective collaborative participation in enhancing IT capability was 11.8%. This change was highly significant as shown in the Sig. F Change of 0.000 ( $p < 0.005$ ). Therefore Hypotheses H<sub>6a</sub> was accepted that having good collaborative participation had a significant positive influence on the relationship between IT capability and delivery of quality outsourced ICT services. The results are as shown in Table 24 below.

**Table 24: The effect of collaborative participation on the relationship between IT Capability and delivery of quality outsourced ICT services**

Model	R	R Square	Adjusted R Square	Model Summary						
				Std. Error of the Estimate	Change in R Square	F Change	df1	df2	Sig. Change	F
1	.620 <sup>a</sup>	<b>.384</b>	.376	.35013	.384	49.221	1	79	<b>.000</b>	
2	.709 <sup>b</sup>	<b>.502</b>	.490	.31665	.119	18.588	1	78	<b>.000</b>	

a. Predictors: (Constant), IT Capability  
b. Predictors: (Constant), IT Capability, Collaborative participation

### 4.9.2 The Effect of Collaborative Participation on the Relationship Between Organizational Relationships and Delivery of Quality Outsourced ICT Services

The moderating effects of collaborative participation on organizational relationships and delivery of quality outsourced ICT services is that the change in R-square due to introduction of effective collaborative participation was .078. Thus the percentage increase in variation explained by introduction of effective collaborative participation in enhancing organizational relationships was 7.8%. This change was highly significant as shown in the Sig. F Change of 0.000 ( $p < 0.005$ ). Therefore Hypotheses H<sub>6b</sub> was accepted that having good collaborative participation had a significant positive influence on the relationship between organizational relationships and delivery of quality outsourced ICT services. The results are as shown in Table 25 below.

**Table 25: The effect of collaborative participation on the relationship between organizational relationships and delivery of quality outsourced ICT services**

Model	R	R Square	Adjusted R Square	Model Summary						
				Std. Error of the Estimate	Change in R Square	Change in F	df1	df2	Sig. Change	F
1	.787 <sup>a</sup>	<b>.620</b>	.615	.27514	.620	128.645	1	79	<b>.000</b>	
2	.836 <sup>b</sup>	<b>.698</b>	.691	.24650	.079	20.422	1	78	<b>.000</b>	

a. Predictors: (Constant), Organizational Capability  
b. Predictors: (Constant), Organizational Capability, Collaborative participation

#### 4.9.3 The Effect of Collaborative Participation on the Relationship Between Vendor Management and Delivery of Quality Outsourced ICT Services

The moderating effects of collaborative participation on vendor management and delivery of quality outsourced ICT services is that the change in R-square due to introduction of effective collaborative participation was .015. Thus the percentage increase in variation explained by introduction of effective collaborative participation in enhancing vendor management was 1.5%. This change was highly insignificant as shown in the Sig. F Change of 0.000 ( $p > 0.005$ ). Therefore Hypotheses H<sub>6c</sub> was rejected that having good collaborative participation had a significant positive influence on the relationship between vendor management and delivery of quality outsourced ICT services. The results are as shown in Table 26 and 27 below.

**Table 26: The effect of collaborative participation on the relationship between vendor management and delivery of quality outsourced ICT services**

Model	R	R Square	Adjusted R Square	Model Summary						
				Std. Error of the Estimate	Change in R Square	Change in F	df1	df2	Sig. Change	F
1	.845 <sup>a</sup>	<b>.714</b>	.711	.23846	.714	197.440	1	79	<b>.000</b>	
2	.854 <sup>b</sup>	<b>.729</b>	.722	.23389	.014	4.113	1	78	<b>.046</b>	

a. Predictors: (Constant), Vendor management  
b. Predictors: (Constant), Vendor management, Collaborative participation

**Table 27: Hypotheses Testing and Summary Table**

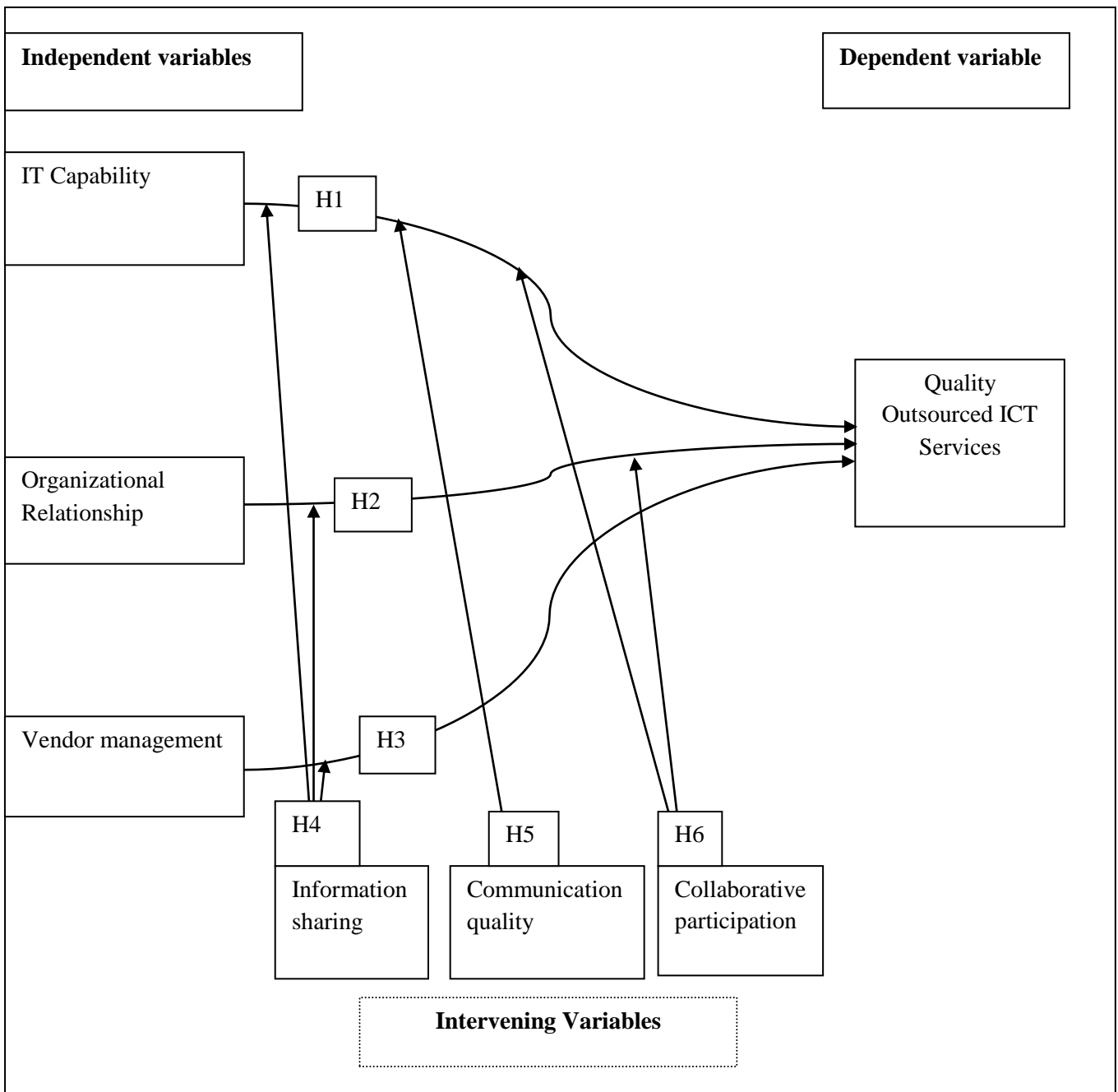
No.	Hypothesis	Failed to Reject/Failed
1	IT capability has a positive influence on delivery of quality outsourced ICT services in Kenyan Government institutions	<b>Failed to Reject</b>
2	Organizational relationship capability has a positive influence on delivery of quality outsourced ICT services in Kenyan Government institutions	<b>Accept</b>
3	Vendor management capability has positive influence on delivery of quality outsourced ICT services in Kenyan Government institutions	<b>Failed to Reject</b>
4	<ul style="list-style-type: none"> <li>a. “Information sharing has a positive significant influence on the relationship between IT capability and delivery of quality outsourced ICT services</li> <li>b. Information sharing has a positive significant influence on the relationship between organisational relationship and delivery of quality outsourced ICT services</li> <li>c. Information sharing has a positive significant influence on the relationship between vendor management and delivery of quality outsourced ICT services</li> </ul>	<p><b>Failed to Reject</b></p> <p><b>Failed to Reject</b></p> <p><b>Accept</b></p>
5.	<ul style="list-style-type: none"> <li>a. Communication quality has a positive significant influence on the relationship between IT capability and delivery of quality outsourced ICT services</li> <li>b. Communication quality has a positive significant influence on the relationship between organisational relationship capability and delivery of quality outsourced ICT services</li> <li>c. Communication quality has a positive significant influence on the relationship between vendor management and delivery of quality outsourced ICT services</li> </ul>	<p><b>Failed to Reject</b></p> <p><b>Failed</b></p> <p><b>Failed</b></p>
6.	<ul style="list-style-type: none"> <li>a. Collaborative participation has a positive significant influence on the relationship between IT capability and delivery of quality outsourced ICT services</li> <li>b. Collaborative participation has a positive significant influence on the relationship between organisational relationship and delivery of quality outsourced ICT services</li> <li>c. Collaborative participation has a positive significant influence on the relationship between vendor management and delivery of quality outsourced ICT services”.</li> </ul>	<p><b>Failed to Reject</b></p> <p><b>Failed to Reject</b></p> <p><b>Failed</b></p>

#### **4.11 Optional Model for Establishing the Influence of a Firms' Capability on Delivery of Quality Outsourced ICT Services**

IT capability, Organizational relationships and vendor management were all independent variables and were found to have strong, positive influence on delivery of quality outsourced ICT services. The intervening variables information sharing, communication quality and collaborative participation had moderating influence on the relationships between independent and dependent variables. However, communication quality was established to have non-significant moderating effect on the relationship between organization relationships and delivery of quality outsourced services as well as vendor management and delivery of quality outsourced services. Similarly, collaborative participation was also found not to have significant moderating effect on the relationship between vendor management and delivery of quality outsourced services.



Figure 8: Proposed model for establishing the influence of firms'



## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter summarizes the research findings and the implications based on the research objectives. Research conclusions were further drawn from the study followed by recommendations and suggestions for further study.

#### 5.2 Discussion of the Findings

This study investigated the influence of firms' capability on delivery of quality outsourced ICT services in Kenyan public institutions. The specific components of the firms' capability that this research focused on were; IT capability (management and technical capabilities), organizational relationship capabilities (effective and efficient involvement of IS department) and finally the vendor management capability that involved vendor selection, IT performance, outsourcing management processes and vendor process controls. This study further looked at the moderating effects of communication quality, information sharing and collaborative participation on delivery of quality outsourced ICT services.

##### 5.2.1 IT Capability

The IT capability has a positive influence on delivery of quality outsourced ICT services in Kenyan Public Institutions. This variable looked at the technical IT capability (IT standardization, ability to integrate IT and the ability to understand the trend of IT) as well as the Managerial IT capability (ability to integrate functional requirements, ability to leverage IT as strategic core competence, existence of IT strategy that supports the overall business strategy). This variable had a correlation coefficient of .620\*\* and at the significance of 0.000. The standardized Beta Coefficients obtained from performing a regression analysis also showed that IT capability had a coefficient of 0.034. These research findings corroborates the research findings of Han, Lee & Seo, (2008) who established that there existed a significant indirect relationship between IT capability and success of IT outsourcing.

### **5.2.2 Organizational Relationships**

This was the second independent variable. It consisted the ability of management to use IT advices in making decisions, existence of good communication platform between the IS/IT department and the management, the existence of good communication platform between the end users of IT and IT/IS department and finally the trust between the IT and business departments. The research finding showed that organizational relationship capability had a positive and strong correlation of 0.787 at significance of 0.000 with the delivery of quality outsourced ICT services. The Standardized Beta Coefficients also showed a value of 0.152. These findings were in tandem with the results of Han, Lee & Seo (2008) who noted that there is a positive strong and indirect relationship between organizational relationship capability and IT success.

### **5.2.3 Vendor Management**

Vendor management was the third independent variable that looked at existence of formalized processes of selecting vendors, evaluation of the performance of IT outsourcing, existence of ICT outsourcing management processes, existence of systematic processes to manage outsourcing contracts with vendors as well as the existence of systematic processes to control outsourcing vendors. The research findings showed that vendor management had the highest correlation coefficient value of .845\*\* and significance of 0.000.

The regression analysis further showed a standardized Beta Coefficient of 0.687. This concurs with the finding of Arshad, May-Lin & Mohamed, (2008) who notes that the “risk of excessive dependence on the outsourcer spurs the need for the vendor management group to improve on the measurement used to determine a vendor’s business performance, especially in terms of businesses outcomes and vendor performance. Moreover, the vendor or contractor from the outsourcing organization may be faced with the inability to respond rapidly to changing business needs owing to a lack of experience on the part of the vendor”. Han, Lee & Seo, (2008) in their research findings also established that there existed an indirect positive influence of vendor management capability on outsourcing success.

From the results, it is noted that amongst the three independent variables, vendor management was the most influential and having a significant determination on the delivery of quality outsourced ICT services, formalized processes of selecting vendors, evaluation of the

performance of IT outsourcing, existence of ICT outsourcing management processes, existence of systematic processes to manage outsourcing contracts with vendors as well as the existence of systematic processes to control outsourcing vendors. This is then followed by organizational capability and coming last according to the research is IT capability. This means that the respondents acknowledge that the key aspect in ICT outsourced environment is the ability to provide and manage vendors effectively and efficiently.

### **5.3 Intervening Variables**

This study further looked at the moderating effects of communication quality, information sharing and collaborative participation on delivery of quality outsourced ICT services.

Some of these variables also had significant moderating effect on the dependent variable while others did not show any significant moderating effects on the relationships between variables.

#### **5.3.1 Information Sharing**

This variable had a significant moderating effect on the relationships between all independent variables (IT capability, organizational relationships and vendor management) on the delivery of quality outsourced ICT services. This is interpreted to mean that all outsourcing organizations in Kenyan public institutions must and should encourage the sharing of each other's own information, sharing business knowledge of core businesses processes, encourage timely provision of information as well as sharing business and technical information between the outsourcing and outsourced company/business.

#### **5.3.2 Communication Quality**

This variable had a significant moderating effect on the relationships between IT capability and delivery of quality outsourced ICT services. The results showed non-existence of any significant effect on the relationships between organizational capability as well as vendor management on the dependent variable. These entails timely communication between the organization and vendors, accurate communication between the outsourcing organization and the vendors, complete communication between outsourcing organization and the vendors as well as credible communication between outsourcing organization and the vendors is mandatory in order for the outsourcing organization to exploit full potentialities of the service.

### **5.3.3 Collaborative Participation**

This variable had a significant moderating effect on the relationships between IT capability, organizational relationships and delivery of quality outsourced ICT services. The results also showed non-existence of any significant moderating effect on the relationship between vendor management and the dependent variable. The aspects of collaborative participation included inclusive process of making decisions, well analysed means of solving problems, willingness to comply with requests and the general cooperation in conducting businesses.

### **5.4 Summary of the Findings**

The main objective of this study was to examine the influence of a firm's capability on delivery of quality outsourced ICT services in Kenyan public institutions. The study used the variables of Process Theory namely: IT capability, organizational relationships and vendor management forming the independent variables. It further used information sharing, communication quality and collaborative participation as intervening variables. The dependent variable for this study was delivery of quality outsourced ICT services in Kenyan public institutions. The research findings indicated that up to 72.1% of quality outsourced ICT services could be attributed to the combined effects of all the variables that form firms' capability.

The IT capability, organizational relationships and vendor management were all established as having a significant influence on delivery of quality outsourced ICT services. The research further established that information sharing had a significant moderating effect on the relationships between all independent variables and the dependent variable. Communication quality had a significant moderating influence on only the relationship between IT capability and the dependent variable. This variable did not have any influence on the relationships between independent variables organizational relationships, vendor management on delivery of quality outsourced ICT services. Similarly, collaborative participation was the third intervening variable. This variable had a significant moderating influence on the relationships between IT capability and organizational relationships on the delivery of quality outsourced ICT services.

### **5.5 Recommendation for Practice**

The research findings indicated that the process theory can be used to provide insight into how firms' capability may influence the delivery of quality outsourced ICT services. Enhancing the capability of any firm means the encouragement and readiness for any organization to reap the benefits/potentiality of outsourcing other organizational operations and benefits. Based on the findings, the following recommendations were made to help improve organizations ability to exploit ICT outsourcing.

### **5.5 Recommendation for Policy**

The research findings have showed the critical importance of the independent variables as well as the intervening variables towards the success of an outsourcing arrangement. The research recommends that the policy makers to draft policies that lay down strategies on the IT infrastructure that need to be in place, the kind of relationship and how it should exist amongst the players as well as state how vendor (s) is/are ought to be managed.

### **5.6 Conclusion**

Many government organizations have moved towards outsourcing some their services from other external parties. This is with the thought of enabling the business/organization to fully focus on their businesses while leaving the support services to be delivered by external parties who are deemed to have expertise built over time. However, the research findings have shown that firms' capability has an influence on the delivery of quality outsourced ICT services. It is important for institutions to enhance their IT capability, organizational relationship capability as well as vendor management capability. The research findings further showed the imperative necessity to build and enhance information sharing, enhance communication amongst the stakeholders, and collaborative participation amongst the outsourcing stakeholders.

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## Appendix 1

### QUESTIONNAIRE

#### INTRODUCTION

Dear respondent, I am conducting a research on the effect of firms' capability on delivery of quality outsourced ICT services in Kenyan public institutions: A case study of Kenya Medical Research Institute (KEMRI). The research findings will be kept confidential and will be used for academic purposes only. Kindly complete sections that are entailed in this questionnaire with specific regard to the above enquiry, by placing a tick in the appropriate box.

Please provide the information as guided below

#### SECTION ONE: GENERAL INFORMATION

- Name of your station .....
- Job position .....
- Gender: MALE [      ] FEMALE [      ]

#### SECTION TWO: COMMONLY OUTSOURCED ICT SERVICES

Kindly place a tick where appropriate

<u>S.No</u>	<u>Services</u>	<u>YES</u>	<u>NO</u>
1	Internet and network service provision		
2	Software maintenance		
3	Hardware maintenance		
4	document imaging and archiving services		
5	Service desk solutions		
6	Network security solutions		
7	End user support		
8	ERP solutions		
	<u>Other outsourced services</u>		
	a.		
	b.		

### SECTION THREE: IT CAPABILITY INDICATORS

Rate the following IT capability indicators. Use the ratings as: **1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Uncertain [U], 4 = Agree [A], 5 = Strongly Agree [SA]**

S.No	IT capability indicators	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)
a.	We strongly encourage IT standardization has it improves delivery of quality outsourced ICT services					
b.	We have highly integrated our IT services to improve delivery of quality outsourced ICT services					
c.	We all understand IT trends (h/w, s/w) has it facilitates delivery of quality outsourced ICT services					
d.	Our managerial IT capability has enabled us to effectively integrate functional requirements					
e.	Our management understanding of IT has enabled us to leverage on IT as strategic core competence					
f.	Our management has enabled us to have blueprint of IT strategy that supports business strategy					
g.	Our management has enabled us to continuously update IT strategy according to the change of business environment					

### SECTION FOUR: ORGANIZATIONAL RELATIONSHIP CAPABILITY

Rate the following organizational relationship capability indicators. Use the ratings as: **1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Uncertain [U], 4 = Agree [A], 5 = Strongly Agree [SA]**

S.NO	organizational relationship capability	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)
a.	Our management uses opinion from ICT department to make decisions					
b.	Our management and IT department communicate well with each other					
c.	Our IT department and end-users communicate well each other					
d.	Our IT department and business departments trust each other					

## SECTION FIVE: VENDOR MANAGEMENT CAPABILITY

Rate the following Vendor management capability indicators. Use the ratings as: **1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Uncertain [U], 4 = Agree [A], 5 = Strongly Agree [SA]**

S.NO	Vendor management capability	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)
a.	There exist formalized processes of selecting vendors					
b.	We are able to evaluate the performance of IT outsourcing					
c.	The existence of ICT outsourcing management processes for outsourcing ICT projects					
d.	There exist systematic processes to manage outsourcing contracts with vendors					
e.	There exist systematic processes to control outsourcing vendors					

## SECTION SIX

### Communication quality

Rate the following Communication quality indicators. Use the ratings as: **1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Uncertain [U], 4 = Agree [A], 5 = Strongly Agree [SA]**

S.NO	Communication quality	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)
a.	The communication between us and our vendor is timely					
b.	The communication between us and our vendor is accurate					
c.	The communication between us and our vendor is complete					
d.	The communication between us and our vendor is credible					

### Information sharing

Rate the following Information sharing indicators. Use the ratings as: **1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Uncertain [U], 4 = Agree [A], 5 = Strongly Agree [SA]**

S.NO	Information sharing	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)
a.	We and our vendor share each other's own information					
b.	We and our vendor share business knowledge of core business processes					
c.	Information provided by us help our vendor's business execution					
d.	We and our vendor share information regarding business environment and technical change that affect each other's business					

### Collaborative participation

Rate the following Collaborative participation indicators. Use the ratings as: **1 = Strongly Disagree [SD], 2 = Disagree [D], 3 = Uncertain [U], 4 = Agree [A], 5 = Strongly Agree [SA]**

S.NO	Collaborative participation	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)

a.	We and our vendor make decisions for business objective and direction together					
b.	We and our vendor solve most problems together					
c.	We and our vendor are willing to comply with each other's request					
d.	We and our vendor are generally cooperative in conducting business					

### DELIVERY OF QUALITY OUTSOURCED SERVICES

Rate the following delivery of quality ICT services indicators. Use the ratings as: **1 = Strongly Disagree [SD]**, **2 = Disagree [D]**, **3 = Uncertain [U]**, **4 = Agree [A]**, **5 = Strongly Agree [SA]**

S.NO	Delivery of quality ICT services indicators	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)
a.	Outsourced ICT services are always available and timely due to limited out-of-hours availability					
b.	Provision of outsourced ICT services is always at expected cost					
c.	Delivery of outsourced services is at expected quality					
d.	System downtime has been minimized by outsourcing ICT services					
e.	Outsourced ICT services receives upfront correctness of error fixes					
f.	Outsourced ICT services promotes accuracy of advice					
g.	Outsourced ICT services receives upfront response to emergencies					