ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
FACULTY OF INFORMATICS
INFORMATION SCIENCE PROGRAMME

INFORMATION SYSTEM OUTSOURCING; RISKS, AND RISK MANAGEMENT PRACTICES: AN INVESTIGATION INTO SOME SELECTED HIGHER LEARNING INSTITUTIONS (HLIs) IN ETHIOPIA.

By: Daniel Beyene
Advisor: Lemma Lessa (MSc)

THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN INFORMATION SCIENCE

June, 2010
Addis Ababa, Ethiopia

Addis Ababa University
School of Graduate Studies

INFORMATION SYSTEM OUTSOURCING; RISKS, AND RISK MANAGEMENT PRACTICES: AN INVESTIGATION INTO SOME SELECTED HIGHER LEARNING INSTITUTIONS IN ETHIOPIA.

By: Daniel Beyene

Information Science Programme
Faculty of Informatics, Addis Ababa University

Approved by the Examining Board

_____ _____

Chairman, Department of Graduate Committee

Lemma Lessa

_____ _____

Advisor

Getachew Jemaneh

_____ _____

Examiner

PREFACE

Being a student and staff member my connection with the Addis Ababa University system affects me in a number of ways. In one way or another, there are some aspects that attract my attention as a member of the university community. IS outsourcing projects were on the top of these aspects; there were a number of fair-tales that I heard from several sources about unsuccessful IS outsourcing project stories in the past. For this reason, while I had to choose a subject for my thesis, IS outsourcing projects got my attention and I decided to investigate on how IS outsourcing projects are managed in the organization I work for and in other similar Higher Learning Institutions (HLIs) in Ethiopia.

ACKNOWLEDGMENT

In the first place, I would like to record my gratitude to Ato Lemma Lessa, the advisor on my thesis, for his supervision, advice, and guidance from the very early stage of this research whilst allowing me the room to work in my own way. Above all and the most needed, he provided me with extraordinary experiences throughout the work, which exceptionally inspire and enrich my growth as a student and researcher. I was very fortunate in having you! Thank you.

Where would I be without my family? My parents deserve special mention for their inseparable support and prayers. My Father, Beyene Sissay, in the first place is the person who put the fundament my learning character, showing me the joy of intellectual pursuit ever since I was a child. My Mother, Desta Dessale, is the one who sincerely raised me with her caring and gentle love. My elder brother Muluken Sissay, words are worth nothing to express my feeling to you. You are always my best!

Words fail me to express my appreciation to Nardos Biniyam whose dedication, love and persistent confidence in me, has taken the load off my shoulder. I owe her for being unselfishly let her intelligence, passions, and ambitions collide with mine.

Collective and individual acknowledgments are also owed to my colleagues and friends; many thanks go in particular to Ashenafi, Dawit, Melkamu, Alula, Temesgen (Bubu), Abrham, Ahmed (Habib), and Eshetu for giving me a pleasant time and creating such a great friendship. Thanks to Misrak Mengesha for your collaboration through out my study.

Who I certainly may not forget to thank are the people I have interviewed during this research. I couldn't have done this with out you. Thanks for your time, information and sourcing insight.

TABLE OF CONTENTS

PREFACE ---------- II
ACKNOWLEDGMENT ---------- III
LIST OF TABLES ---------- VI
LIST OF FIGURES ---------- VII
ABSTRACT ---------- VIII
ACRONYMS ---------- IX
CHAPTER ONE
INTRODUCTION ---------- 1
1.1. BACKGROUND TO THE STUDY ---------- 1
1.2. STATEMENT OF THE PROBLEM ---------- 3
1.3. RESEARCH QUESTION ---------- 5
1.4. SCOPE OF THE STUDY ---------- 6
1.5. LIMITATION OF THE STUDY ---------- 7
1.6. RESEARCH OBJECTIVE ---------- 7
1.6.1. GENERAL OBJECTIVE ---------- 7
1.6.2. SPECIFIC OBJECTIVES ---------- 7
1.7. RESEARCH APPROACH ---------- 8
1.7.1. RESEARCH DESIGN ---------- 8
1.7.2. RESEARCH MODEL ---------- 8
1.7.3. RESEARCH METHOD ---------- 10
1.7.4. THE CASE STUDY APPROACH ---------- 11
1.8. DATA COLLECTION INSTRUMENT ---------- 11
1.9. DATA COLLECTION AND ANALYSIS PROCEDURE ---------- 12
1.9.1. MODES OF ANALYSIS ---------- 14
1.10. TARGET POPULATION ---------- 15
1.11. SAMPLING TECHNIQUE ---------- 15
1.12. SAMPLE SIZE ---------- 16
1.13. DESCRIPTION OF CONCEPTS ---------- 16
1.14. CONFIDENTIALITY AND THE ETHICAL CODE ---------- 17
1.15. STRUCTURE OF THE RESEARCH ---------- 18
CHAPTER TWO
REVIEW OF RELATED LITERATURE ---------- 19
2.1. INTRODUCTION ---------- 19
2.2. INFORMATION SYSTEM OUTSOURCING ---------- 20
2.3. TRENDS IN INFORMATION SYSTEM OUTSOURCING ---------- 25
2.4. INFORMATION SYSTEMS OUTSOURCING TRENDS IN HLIS ---------- 27
2.5. INFORMATION SYSTEM OUTSOURCING DECISION PROCESS ---------- 29

2.6. INFORMATION SYSTEM OUTSOURCING CSFS ---- 36
2.7. RISKS ASSOCIATED WITH IS OUTSOURCING ---- 38
2.8. RISK MANAGEMENT AND IS OUTSOURCING ---- 42
2.8.1. RISK IDENTIFICATION ---- 46
2.8.2. RISK ASSESSMENT ---- 47
2.8.3. RISK CONTROL/MITIGATION ---- 48
CHAPTER TRHEE
CASESTUDY DESIGN ---- 49
3.1. INTRODUCTION ---- 49
3.2. CASE STUDY DESIGN ---- 49
3.2.1. DATA COLLECTION PROCESS ---- 49
3.2.2. CASE STUDY PROTOCOL ---- 52
3.3. CASE STUDY ENVIRONMENTS ---- 54
CHAPTER FOUR
DISCUSSION AND CASESTUDY RESULTS ---- 57
4.1. INTRODUCTION ---- 57
4.2. OUTSOURCING STRATEGY ---- 58
4.3. STAKEHOLDERS IN IS OUTSOURCING PROJECT ---- 62
4.4. IMPACT OF OUTSOURCING ---- 65
4.5. RISK MANAGEMENT (CONTRACT MANAGEMENT, ISSUE RESOLUTION, & PERFORMANCE MONITORING) ---- 67
CHAPTER FIVE
CONCULUSION AND RECOMMENDATION ---- 77
5.1. INTRODUCTION ---- 77
5.2. CONCLUSIONS ---- 77
5.2.1. OUTSOURCING STRATEGIES ---- 77
5.2.2. STAKEHOLDERS IN IS OUTSOURCING PROJECT ---- 78
5.2.3. IMPACT OF OUTSOURCING ---- 78
5.2.4. RISK MANAGEMENT ---- 79
5.3. RECOMMENDATIONS ---- 80
REFERENCES: ---- 82
APPENDIX: INTERVIEW QUESTION ---- 90

LIST OF TABLES

TABLE 2-1: Legacy and Modern Outsourcing (Hall, 2001) 21

TABLE 2-2: Outsourcing Relationship Classification 22

TABLE 2-3: Types of Sourcing Arrangements (Dibbern et al., 2004) 23

TABLE 2-4: Possibilities and limitations in IT outsourcing Based on Theories (Gottschalk and Hans, 2005) 33

TABLE 2-5: Key Activities and Issues within the Phases of the Outsourcing Process (Perunovic, 2007) 34

TABLE 2-6: Summery of IT Outsourcing Process in Higher Education 35

TABLE 2-7: Risk of Outsourcing and Possible Outcomes (Anne and Brian, 2006) 39

TABLE 2-8: Undesirable Consequences of IT Outsourcing (Auber et al., 1998) 40

TABLE 3-1: Outsourced IS functions and Number of Respondents per HILs 51

LIST OF FIGURES

FIGURE 1-1: Research Model (Cornelia and Kim, 2005) **10**

FIGURE 1-2: Data Collection and Analysis Procedure (Beverly, 2007) **13**

FIGURE 2-1: Evolution and Domain of Information Systems Outsourcing (Mesnita and Dumitriu, 2006). **26**

FIGURE 2-2: Outsourcing Decision Framework (Pati and Desai, 2005). **30**

FIGURE 2-3: IT Outsourcing Process Cycle in Higher Education (Kancheva, 2002) **35**

FIGURE 2-4: Project Risk Management Process (The Basics of Project Risk Management Handbook, 2003)..... **45**

FIGURE 4-1: Concept map of IS Outsourcing Decision process..... **60**

FIGURE 4-2: Project Team Members (Case1, IBFIS Project)..... **63**

FIGURE 4-3: Concept Map of Impact of Outsourcing..... **66**

FIGURE 4-4: Concept Map of Vendor Selection Criteria..... **71**

ABSTRACT

Background: IS outsourcing was one of the major business trends of the 1990s, and remains an important topic. Today, it is a much talked about topic. Organizations view outsourcing as a way to achieve strategic goals, reduce costs, improve customer satisfaction and provide efficiency and effectiveness improvements. However, like any organizational decision, outsourcing is not free of risk and requires effective management from the outset of the outsourcing evaluation through the life of the contractual relationship.

Objective: The main objective of this study was to investigate risks associated with Information Systems (ISs) outsourcing and the management of these risks within the context of HLIs in Ethiopia.

Method: The research follows a qualitative research method. For this reason, the research result draws largely from the analysis of the interviews conducted with the various stakeholders in the IS outsourcing process (i.e. executives and other committee members (such as, domain experts and users). After analyzing the interviews, an inductive qualitative research approach was used to draw conclusions.

Results: The findings revealed that although respondents of the surveyed HLIs in the country understand what outsourcing information system is about, all the surveyed HLIs have no documented and structured outsourcing strategy or/and policy, program and as well as risk management frameworks for IS outsourcing projects. As a result, their risk management practices depend largely on intuition and previous experience. Furthermore, the findings also revealed that that agreements on SLA requirements and the achievements of these requirements have a paramount significance in the performance monitoring of the outsourced IS functions.

ACRONYMS

HLI/s - Higher Learning Institution/Institutions

IS - Information System

IT - Information Technology

ICT/s - Information Communication Technology/Technologies

SLA - Service Level Agreement

RFP - Request For Proposals

CSF/s - Critical Success Factor/Factors

AAU - Addis Ababa University

JU - Jimma University

HU - Hawassa University

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND TO THE STUDY

Education is one of the keys to economic development and improvements in human welfare. As global economic competition grows sharper, education becomes an important source of competitive advantage, closely linked to economic growth, and a way for countries to attract jobs and investment. In addition, education appears to be one of the key determinants of lifetime earnings (Cairncross and Poysti, 2000).

However, there are many constraints on delivering education to the right people at the right time. Particularly in developing countries, there is frequently a shortage of qualified schoolteachers, people live in scattered communities in rural areas, money for books and teaching materials are scarce. All these factors have encouraged an interest in the use of information and communications technologies (ICTs) to deliver education and training (Ibid). In common with other developing countries, the use of Information and Communication Technologies (ICTs) in education is one of the main governmental strategies in order to improve the quality of education in Ethiopia.

For this reason, the government implements the ICT in education strategy and its corresponding action plan after the initiative forum called *"a wider Ethiopian national e-education initiative"* in 1994 (Hare, 2007). One of the major building blocks of the strategy is The National ICTs in Higher Education Initiative, which focuses on deploying ICTs within the universities, colleges, and research institutions.

Consequently, HLIs in Ethiopia follows the trend towards the adoption of ICT as a means to support and facilitate the teaching and learning activities. For example, the ICT Development Office of the Addis Ababa University was established in the late 1996 in order to develop, deploy, and manage ICT at the university and to support the university in its effort towards delivering quality education (**www.aau.edu.et/ict/index.php**).

Mekelle University also taking a big step in making ICT as one of its tools to achieve its educational objectives. Network Infrastructures (Intercampus connectivity, inter-building connectivity, and building data centers), e- administration, and connectivity to the Internet are some of the notable infrastructures (Mintesinot, 2005). Many other HLIs (such as Jimma University, Haramaya University, Bahirdar University) also follow the same trend towards the adoption of ICT as enabling tool to facilitate their teaching and learning activities.

However, despite the numerous success stories illustrating the advantages of bringing ICT into organizations, it is broadly accepted that the processes of designing, developing and implementing are cumbersome and not straightforward. Organizations are faced with a challenge to operate on global markets and to compete with more and more competitors. In those conditions, managers and organizational strategists are trying to find out the best way of organizing and managing ICT in a constantly changing environment.

As a result, many organizations are considering one of the possible ways of organizing and managing ICT departments within companies i.e. outsourcing all ICT department or some of ICT services to the external partners (Marco-Simo et al., 2007). HLIs lies in this category and IS outsourcing has been also manifested in HLIs.

Conversely, outsourcing does not come without risks. One of the main risks that are incurred when outsourcing is practiced is that, clients leave the supply of the product or service in the hands of someone whom they cannot control, contrary to controlling their own supply (Maynard, 2002). Other major failures in outsourcing deals are due to a breakdown in the overall relationship between the stakeholders in the outsourcing agreement, which includes loss of shared vision, operational concern dominant, and lack of good communication (Brain, 2000).

As a result, IS outsourcing is one of the major trends (McNurlin and Sprague, 2006) that influence IT management to the extent that a major responsibility of IS managers is developing and managing relationships with external service providers (EXSPs). Therefore, the central issue of this research is to address risks and risk management practices in some selected HLIs in Ethiopia in their information systems outsourcing practice.

1.2. STATEMENT OF THE PROBLEM

Information Systems are crucial for the operation of educational institutions in modern society. Moreover, a wide range of facts and researches confirm the status of Information Systems (ISs) outsourcing as a growing, increasingly global phenomenon, which also covers a wide range of IS/IT related functions, including software development, hardware maintenance, and constitutes a well-established and fast growing industry (Karyda et al., 2006).

Forrester (2006), (cited in Gonzalez et al., 2009) estimates that the value of the world's outsourcing market is 120 billion dollar per year. In addition, 87% of the companies interviewed by KPMG plan to maintain or increase their current outsourcing level and 42% of them thought that their outsourcing contracts improved their IS services.

Nevertheless, outsourcing is not a risk free activity, rather while practicing outsourcing; organizations may face problems and unexpected risks associated with outsourcing. Loss of control over the quality of the software and the project's timetable, reduced flexibility, loss of strategic alignment, and lock-in are some of the notable risks associated with IS outsourcing (Apte et al., 1997).

Inadequate service by contractors also can affect higher education institutions in myriad ways, such as inadequate teaching facilities and lack of skilled technical staff to manage network, which could slowly affect the core areas of the institution itself due to inefficiency (Kancheva, 2002).

Other research works also re-sound the same tone about outsourcing, outsourcing decisions and contractual arrangements of the type required by an IT outsourcing deal, do indeed entail risks. Therefore, like any other risky business ventures such as new product development, and capital investments, IS outsourcing requires proper risk assessment and risk management plan (Aubert et al., 1998). Accordingly, much research has been carried out so far with this context and have contributed a lot towards the success of information systems outsourcing (Saravanja, 2006). A large number of models and outsourcing frameworks have been also developed in order to mange information system outsourcing practices.

However, little or no formal research work has been done (Meresea, 2007) in understanding outsourcing trend in Ethiopia. Furthermore, as to the knowledge of the researcher, no researches could be found on risks and risk management practices of IT/IS outsourcing especially ones delving into the perspective of HLIs as clients. It is certain that the adoption of Information Communication Technologies (ICTs) is on the increase in Ethiopia, in line with the ICT Policy decision made by the government (www.eictda.gov.et/ictpolicy.Pdf).

Therefore, this gap initiates the researcher to conduct this research and investigate the risks and risk management practice currently adopted by HLIs in Ethiopia in their information system outsourcing practice. Since good information systems enhance the quality of information available to decision makers at all levels about the state of the University and enables the HLIs to meet the expectations from the technology, this research has a great significance towards identifying those hindrance and associated risks regarding the practice of information system outsourcing.

1.3. RESEARCH QUESTION

It is clear that research findings depend on the research questions asked and research methods used. Therefore, based on statement of the problem given above, the following general research question was derived.

How do Higher Learning Institutions in Ethiopia handle risks in relation to information systems outsourcing projects?

The following more specific issues, were examined in order to answer the primary research question stated above:

- What is the relevance of risk management procedures in IS outsourcing in HLIs?
- Do HLIs use risks management procedures or guidelines? Do these guidelines exist?
- Do HLIs in Ethiopia have written down policies and guidelines for outsourcing of information systems? Are they strictly adhered too?
- What is the role of top-level management in IS outsourcing decision-making process?

- Are end-users of information systems involved in the outsourcing decisions? And, if yes, to what extent are they involved?
- Do HLIs use performance-monitoring practices in assessing the quality of services delivered by external vendor?

1.4. SCOPE OF THE STUDY

The research deals with IS outsourcing risk management practices in HLIs. In fact, the research will be more inclusive and wide-ranging if the population under examination is formed by other organizations in addition to HLIs. Thus considering available time and to make the research more manageable and controllable the research was limited only to three selected HLIs. Moreover, the underlining interest in the choice of HLIs as a reference center for the study is threefold:

- First, educational institutions are information-intensive organizations, since their main objective is to generate all rounded and well-educated citizens in the process of creating and spreading knowledge, in one way or another they also often dedicate their attention related to the management and implementation of ITs in Universities. For example, they coordinate computer rooms for teaching or train academic staffs as well as other staffs responsible for administrative and services tasks. Therefore, taking the HLIs as a center of reference will be a very complex information system department which is mandatory for assessing and investigating risk and risk management procedures in information system outsourcing practice.
- Second, very few studies on organizations practice in outsourcing have been carried out in Ethiopia; and there are no previous studies on HLIs risk assessment and risk management practice in Information Systems outsourcing. Since one of the largest (funded or allocated by the government) budget in HLIs is for Information Systems (ISs),

assessing and evaluating the risks and risk management practices of IS outsourcing is an efficient alternative to restrict extra costs.

- Third, it is believed that HLIs are the house of research experts and academicians, gaining a clear understanding about their risk management practices in information systems outsourcing might be used as a point of reference for other organizations to learn from the experience.

1.5. LIMITATION OF THE STUDY

Although this study provides interesting insights into the risk management practice of HLIs in Ethiopia in their information system outsourcing practice, the study has some limitations that should be acknowledged. First, the study has given a picture of three HLIs and analyzed their risk management practice with regard to information system outsourcing. Since, the sample obtained during this study is too small; generalizing the research results to all HLIs in Ethiopia may not possible. This is mainly because case studies are usually based on small samples for in-depth study (Hung and Zhang, 2006). Second, outsourcing involves a vendor and a client. However, the results of this research are only one side of the story, from the service receiver's perspective.

1.6. RESEARCH OBJECTIVE

1.6.1. GENERAL OBJECTIVE

The general objective of this study is to investigate risks associated with Information Systems (ISs) outsourcing and the management of these risks within the context of HLIs in Ethiopia.

1.6.2. SPECIFIC OBJECTIVES

The specific objectives of the research are the following:

- Identify risk management practices currently adopted by HLIs in there IS outsourcing efforts.
- Investigate the adequacy of currently adopted risk management practices or otherwise exposes major inadequacies of such practices.
- Recommend how the decision-making processes in IS outsourcing can be supported in order to reduce the associated risks.
- Identify various categories of risks associated with IS outsourced by HLIs.
- Assess information systems outsourced in the HLIs in Ethiopia so far;

1.7. RESEARCH APPROACH

1.7.1. RESEARCH DESIGN

This study is divided into two parts. On the one hand, risks associated with information system outsourcing practices were analyzed. On the other hand, analyses of how risks associated with IS outsourcing practices are managed by HLIs in their information systems outsourcing was carried out**.** Furthermore, the study followed an inductive approach, which reasons the work from specific observation to broader generalization and theories (Burney, 2008) and enables 'a cause-effect link to be made between particular variables without an understanding of the way in which humans interpreted their social world'.

1.7.2. RESEARCH MODEL

This study adapts Cornelia and Kim (2005) research model in which they investigated the role of contract design and risk analysis for successful IS outsourcing in German banks. Their model is an extension of the model of Bahli and Rivard (2001; 2003), which consists three main elements of the chain of causation (i.e. Risk Factor, Undesirable Outcome and Negative Consequence). Cornelia and Kim (2005) extend this model by explicitly analyzing concrete risk mitigation contents of the outsourcing contract and they add risk analysis quality as an

important determinant of a sound contract. Therefore, the model consists of three main elements: the importance of risk, risk analysis and contract design.

In addition, Cornelia and Kim (2005) proposed that quality of risk analysis positively affects contract quality regarding risk mitigation. Contract quality moderates the relationship between a risk factor and an undesirable outcome (this research focused only on those risks which possibly could be mitigated by contract clause). For example, if the goal of an IT outsourcing project is to reduce costs. Within a risk analysis, a number of risks will be identified as a potential threat.

The severity of this risk factor can be partially mitigated by a high quality contract in which Service Level Agreements (SLAs) combined with a penalty system are defined. Thereby, the extent of the undesirable outcome can be limited. This implies that the actual extend of this risk is expected to be smaller than it would be without respective SLAs. As a consequence, the extent of the negative consequence Thus, the goal of cost reduction should not be affected to such a large extend as it could be without an effective risk analysis resulting in a high quality contract.

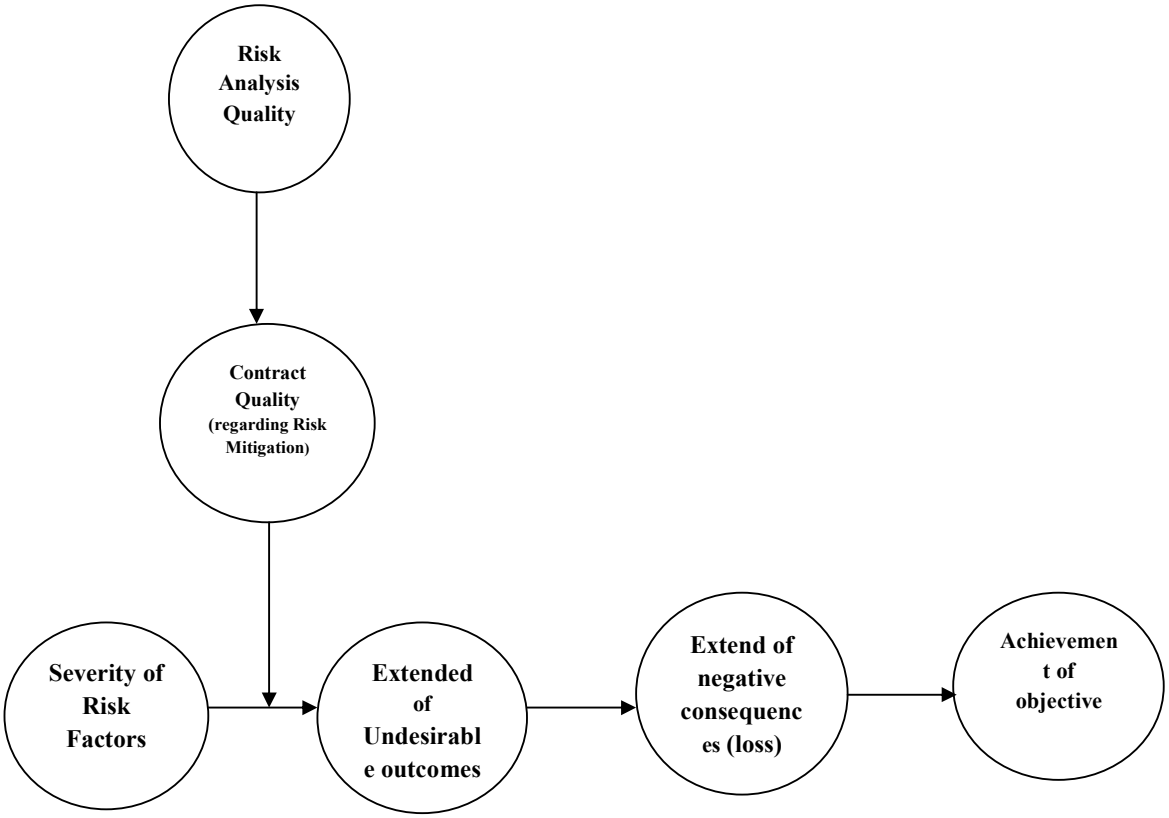

FIGURE 1-1: Research Model (Adapted from: Cornelia and Kim, 2005)

1.7.3. RESEARCH METHOD

It is evident that the strength of qualitative research method is its ability to provide complex textual descriptions of how people experience a given research issue. Furthermore, it provides information about the "human" side of an issue – that is, the often-contradictory behaviors, beliefs, opinions, emotions, and relationships of individuals (Lazaro and Marcos, 2006). Due to these underlining statements, it is obvious that a qualitative research method is suitable to answer the primary research question stated earlier. Hence, a qualitative research method is used.

1.7.4. THE CASE STUDY APPROACH

According to Creswell (2003) there are a number of research methodologies that are applicable for qualitative research paradigm. Among this, ethnography, case study, ground theory, discourse analysis and biography are at the leading front methodologies used in qualitative research approaches. Moreover, a case study research is useful when a phenomenon cannot be studied outside the context in which it occurs or where the boundaries between phenomenon and context are not clearly evident.

It is also mentioned by many researchers that the case study research method is particularly well suited to IS research, since the object of the discipline is the study of information systems in organizations, and interest has shifted to organizational rather than technical issues (Myers, 1997)**.** This research paper also adopted the case study approach, since a case study method enables the "reality" to be captured, the research will be more interpretive and critical.

1.8. DATA COLLECTION INSTRUMENT

According to Sow (2007) a case study method with interviews and observations can provide real-world insights about the subject under study compared to other methods like paper-and-pencil questionnaires, mailed questionnaires and electronic questionnaires. The research instruments for this research were based on the above premises.

The primary data was collected through observation and semi- structured interviews in order to provide the flexible necessary to obtain valuable qualitative data, whilst focus on the specific research questions. The interview questions were developed from a prior study by Buttleman (2002) in which he investigates risk management practices in the Nigerian banks.

The instrument was refined based on IT outsourcing risk management procedures outlined by the Canadian Institute of Chartered Accountants (CICA) Information Technology Advisor Committee (2005); "*20 questions directors should ask about information technology outsourcing*", to include contract management, issues resolution and performance monitoring practices. The interview question contains four dimensions of risk and risk management practices (i.e. outsourcing strategy, impact of outsourcing and risk management practices) that are deemed significant in investigating risks and risk management.

In addition, all the HLIs were investigated with equal degrees of intensity, to provide a substantial base for validating the research questions and assertions, and increasing the applicability of the findings. The secondary sources were books, journals, articles, white papers, websites, and contract documents.

1.9. DATA COLLECTION AND ANALYSIS PROCEDURE

The data collection and analysis procedures for this research adapted the following five basic steps of qualitative research analysis, which was proposed by Beverly (2007). According to Beverly, data collection, note taking, coding, sorting, and writing are the basic steps in any qualitative research analysis.

The following figure summarizes the steps and a more detailed insight into the contents of each step is given following the map.

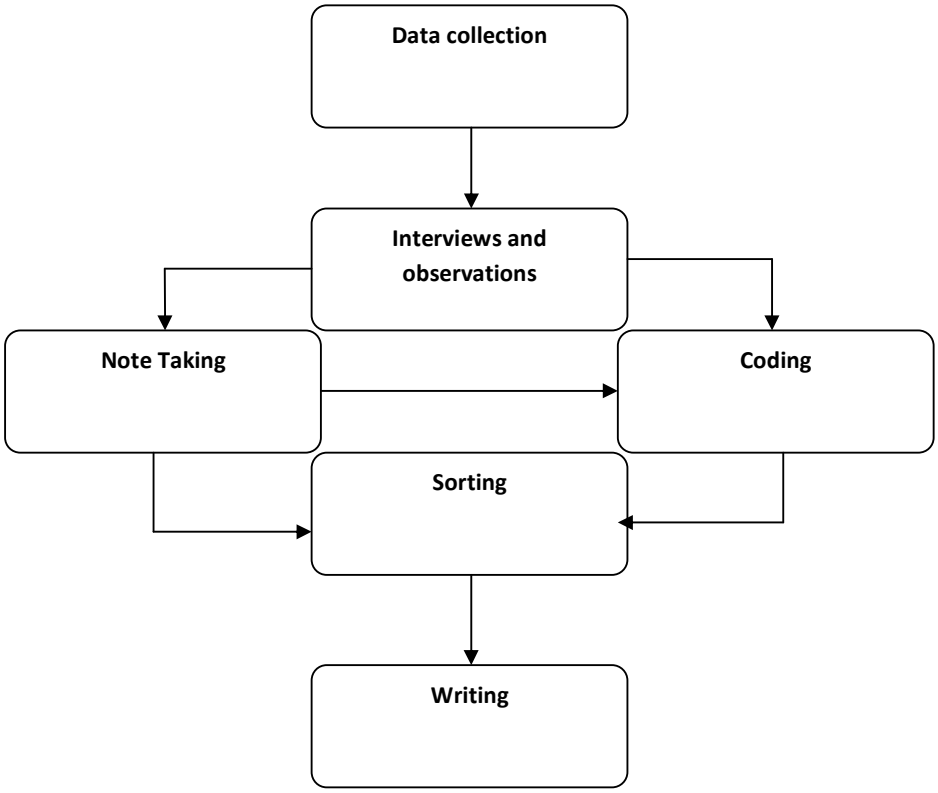

FIGURE 1- 2: Data Collection and Analysis Procedure (Adapted from Beverly, 2007)

Data collection: Through semi structured interviews and observations, primary data were gathered from each HLI in relation to their information systems outsourcing risk management practices. To guide and stimulate the thinking of the participants of the interview, prior to the meeting participants were given a copy of interview questions outlining four dimensions of risk and risk management practice in information systems outsourcing.

Note taking: In order to get the main ideas of the interview results, and the observations, notes were taken during data collection and immediately after data collection.

Coding: Themes (concepts that explain how ideas or categories are connected), illustrative quotes (verbatim text that exemplifies a particular code or theme), and potential themes or

relationships between categories that helps to answer the predetermined research questions were highlighted, categorized and identified.

Sorting: After getting a point of diminishing returns in the collection and interpretation of data that signals completion, codes, illustrative quotes, and concepts were compiled and arranged in to the outline of a narrative that explains the findings and the result of the research.

Writing: This is the final step where, the findings were introduced as a narrative.

1.9.1. MODES OF ANALYSIS

Although a clear distinction between data gathering and data analysis is commonly made in quantitative research, such a distinction is problematic for many qualitative researchers. The analysis affects the data and the data affect the analysis in significant ways. Therefore, it is perhaps more accurate to speak of "modes of analysis" rather than "data analysis" in qualitative research (Myers, 1999)**.** There are many different modes of analysis in qualitative research; however, the three common approaches are hermeneutics, semiotics, and approaches that focus on narrative and metaphor. Furthermore, the common thread is that all qualitative modes of analysis are concerned primarily with textual analysis (whether verbal or written) (Ibid).

Similarly, the findings of this research were introduced as a narrative. Narrative is defined by the Oxford English Dictionary as “Spoken or written account of connected events in order of happening”. The narrative provides a textual description of the key results and findings, which, includes important quotes from the interviewee. Furthermore, the main results and the findings of the interviews were summarized in the form of concept map.

Thus, the concept map allows (Lanzing, 1997) understanding the relationship between ideas by creating a visual map of connections, separate concept maps were produced to represent the main information gathered from the interviews.

1.10. TARGET POPULATION

The primary sources of information in this study were the strategic managers who are involved in outsourcing decision-making process in the HLIs, committee members who are working in association with the outsourcing service providers, and users.

1.11. SAMPLING TECHNIQUE

In order to determine the sample population for this study, a purposive/Judgmental sampling technique was used. Lagares and Puerto (2001) define purposive sampling as follows:

> "*It is the one in which the person who is selecting the sample is who tries to make the sample representative, depending on his opinion or purpose, thus being the representation subjective*".

Therefore, the motivation for using purposive sampling technique, as opposed to any other sampling techniques comes from the observation that, not all HLIs will have equal experience with regard to information systems outsourcing and some of the HLIs will not practice any information system outsourcing at all. Since, one of the basic advantages of purposive sampling technique is that it enables the researcher to neglect the non-significant representatives of the population under study (Lisa, 2008), after collecting pre-information about each HLIs; three HLIs has been selected purposely to conduct this research.

1.12. SAMPLE SIZE

In this research, three HLIs were investigated in accordance with their Risk management practice in their information systems outsourcing practice. The sample size was limited to three, because taking more than three HLIs is more likely uncontrollable and time consuming. Since, most of HLIs in Ethiopia are found in different regions of the country with long distance between each other, it is obvious that, taking more than three HLIs is not possible to get the desired output of the research within the given time frame. Above all, because a profound understanding of some selected HLIs was needed, the data collections instruments used in this research were observations and in depth interviews, which also requires a lot of time to investigate each respondents and the environment under study.

1.13. DESCRIPTION OF CONCEPTS

In order to understand the meaning of the concepts and terms that are used in this thesis, definitions are important.

IT/IS Outsourcing: Throughout this thesis, the adopted definition of IT/IS outsourcing is a firm's decision to turn over or transfer part or all of a firms' IT/ IS functions to one or more services providers (Moura and Grover, 2001).

Vendor: Any IT organization that provides IT outsourcing services (such as, project management, software development and network installation). All other common used terms such as third party, provider or supplier are identical to this one.

Client: Any organization that transfers its in-house IT activities to an IT/IS supplier. Another term with the same meaning is customer. All the three HLIs are also considered here as clients.

SLA: A Service Level Agreement is a legal document within (or attached to) an overall master contract for an outsourcing agreement. A SLA contains a description of the services to be provided and states the service level specifications, which clearly describe the level of performance and results the client expects to receive from the service provider.

RFP: Request for proposal, is an invitation for suppliers to submit a proposal on specific product or service through binding.

Risk Management: We will use the following definition of risk management partially derived from (Smith et al., 2001): Risk management is a forward-looking activity that makes the potential risk visible. It is a formal process whereby risk can be brought under control and whereby surprises are minimized.

1.14. CONFIDENTIALITY AND THE ETHICAL CODE

After having discussed the confidentiality and ethical considerations with the interviewees at the HLIs supplying the case study, the following ethical code has been adhered to throughout the research:

- The HLIs were not mentioned explicitly in the analysis and discussion part of the thesis.
- All participants in the research were remaining anonymous. The names of respondents were not to appear in the final report; and
- All confidential information was treated with discretion. Only the researcher was having access to data that associates an individual with any confidential comments.

1.15. STRUCTURE OF THE RESEARCH

This research has been organized in five chapters. This introductory chapter is followed by the second chapter, which presents an overview of information systems outsourcing and thereby presents the benefits and objectives of outsourcing, trends of information system outsourcing in HLIs, and information system outsourcing critical success factors (CSFs). Furthermore, the risks involved in IS outsourcing, the management of IS outsourcing risks, and the concept and components of risk management is described.

Having discussed the general overview of information system outsourcing and risk management practices in outsourcing of information systems, Chapter 3 provides the case study design and the profile of the HLIs taken as the case study.

In chapter 4 the results of the case study findings is fully explained and discussed. It further focuses on the relationship between each individual case and creates the bases for conclusions and recommendations. Finally, the fifth chapter of the thesis is all about conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. INTRODUCTION

The purpose of this chapter is to provide a review of the literature on IS outsourcing and IS outsourcing risk management practices. IS outsourcing was one of the major business trends of the 1990s, and remains an important topic. IS outsourcing denotes the shift that occurs when a business entity takes work traditionally performed internally and contracts with an external provider for the provision of that work (Karyda et al, 2006). Initially, IS outsourced functions were simple activities, such as tape cleaning and keypunching, but information system outsourcing has progressed to include many "higher order" functions, including software development, hardware maintenance, web hosting, e-commerce and remote data storage services (Fink and Shoeib, 1994).

One of the major turning points in the history of IS outsourcing experience is related to Eastman Kodak; at that time, Kodak made the decision to make a total IS outsourcing agreement with three large IS external service providers. According to Dibbern et al. (2004), Kodak's one billion outsourcing deals led to the widespread interest in outsourcing.

On the other hand, even if IS outsourcing is recognized as a potential source of competitiveness and value creation via decreasing costs, reducing delays in services, reducing equipment downtime, enabling access to new technologies and providing flexibility in positioning staff (Claver et al., 2002, Saravanja, 2006, Zakaria et al., 2008), it is not a risk free activity. For example, Claver et al. (2002) identified that, unexpected transition, management costs, lock-in, costly contractual amendments, disputes and litigation, service debasement, cost escalation and loss of organizational competencies as the most often cited

undesirable outcomes of IT outsourcing. For these reasons, a number of risk management frameworks, theories and models have been developed in the past to overcome these undesirable outcomes of information systems outsourcing (Saravanja, 2006).

Equally, risk management has been a central concern of the IT industry for more than a century. However, risk management cannot be effective unless it is understood in all its dimensions and seen as intrinsic to projects, operations, and business strategies (Smith et al. 2001).

2.2. INFORMATION SYSTEM OUTSOURCING

The term 'outsourcing' reflects the use of external agents to perform one or more organizational activities (Dibbern et al., 2004) and it is not specific to IS. As a result, numerous definitions for the term 'outsourcing' have been stated in the past. However, outsourcing in its most basic form was conceived as, contracting out the procuring of services or products from an outside supplier or manufacturer rather than having them provided by in-house facilities (Aubert et al. 1998).

Similarly, precise definitions of IS outsourcing differ in the literature; traditionally it referred to the conditions under which the organization's data were processed at an external computer service bureau (Fink and Shoeib, 1994). Now, however, it can mean much more and the current state of outsourcing is vastly different from its traditional forms. Hall (2001) has given a good overview between traditional (legacy) and modern IS outsourcing paradigms.

Legacy Outsourcing	Modern Outsourcing
Numerous computer platforms	Converging computing platforms
Proprietary (mostly incompatible) architectures	Open architectures
Domination by the mainframes	Distributed computing
High cost, low quality networking	Low cost, high quality networking
In-house software development and limited availability of packaged software	Mostly packaged software

TABLE 2-1: Legacy and Modern Outsourcing (Source: Hall, 2001)

However, though there are small different aspects considered in all the definitions, there seems to be a general agreement about outsourcing being a process of carrying out of IT functions by third parties. To list a few of them:

> *"Information Systems (IS) Outsourcing means that the physical and/or human resources related to one organization's Information Technologies (ITs) are supplied and/or administered by an external specialized provider",* Claver et al, 2002.

> *"Outsourcing of information systems (IS) functions is defined as a firm's decision to turn over or transfer part or all of a firms' IS functions to one or more services providers",* Moura and Grover, 2001.

> *"Information systems (IS) or information technology (IT) outsourcing can be defined as the transferring of an IS/IT function that was previously carried in-house, to a thir1 party provider",* Karyda et al., 2006.

"Information technology (IT) outsourcing is the practice of turning over all or part of an organization's IT functions to an outside vendor", Gottschalk and Solli-Saether, 2005.

"IT outsourcing is the transfer of an organization's staff, IT infrastructure, processes, applications, and other IT-related activities to an external entity that possesses the capability to provide such service", Pati and Desai, 2005.

In addition to these definitions of outsourcing, many authors also describe various outsourcing arrangements or options. For example, based on how many clients and vendors are involved in the outsourcing relationship, Gallivan and Oh (1999) identified four classes of outsourcing relationships, which is summarized in the following table;

Outsourcing relationship	Number of clients	Number of vendors
Simple Dynamic	One client	One vendor
Multi-Vendor	One client	Many vendors
Co-sourcing	Many clients	One vendor
Complex	Many clients	Many vendors

TABLE 2-2: Outsourcing Relationship Classification (Based on: Gallivan and Oh, 1999)

Other authors have also categorized the variety of outsourcing contract options. Pandey and Bansal (2003) used the following taxonomy to capture the range of outsourcing contract options: (a) In-sourcing - organizations use their own IT department to take the responsibility. (b) Value-added outsourcing – the organizations enter into a close and strategic alliance with supplier. (c) Short-term outsourcing - the activity is outsourced for a short period, and (d) Long-term outsourcing - the activity is outsourced to a vendor for a long period of time.

Dibbern et al. (2004) defines four types of fundamental parameters that determine the kind of outsourcing arrangement that a firm may enter into: degree (total, selective, and none); mode (single vendor/client or multiple vendors/clients); ownership (totally owned by the company, partially owned, and externally owned); and time frame (short term or long term). As illustrated in table 2-3, the combination of specific instances of these parameters yields different types of sourcing arrangements such as joint ventures, facilities sharing, spin-off, etc.

<table>
<tr><th></th><th colspan="3">Ownership</th></tr>
<tr><th></th><th>Internal</th><th>Partial</th><th>External</th></tr>
<tr><td>Total</td><td rowspan="2">Spin-offs
(Wholly Owned
Subsidiary)</td><td rowspan="2">Joint-Venture</td><td>Traditional Outsourcing</td></tr>
<tr><td>Selective</td><td>Selective Sourcing</td></tr>
<tr><td>None</td><td>In-sourcing/
Back-sourcing</td><td>Facilities
Sharing among
multiple clients</td><td>N/A</td></tr>
</table>

TABLE 2-3: Types of Sourcing Arrangements (Source: Dibbern et al., 2004)

Correspondingly, there are many reasons why a company may choose to outsource. That is why numerous motivations have been reported behind the adoption of IT outsourcing arrangements in the literature. For example, Karyda et al. (2006) argued that, the reasons for which companies turn to IS/IT outsourcing are primary financial; they include expectations of improved rate of returns on investments (ROI), reduced cost and economies of scale that could not be realized internally.

Ioan and Claudiu (2007) also emphasized that the appeal to an outsourcing operation in order to keep up with the technological innovations is often motivated by a financial reason.

Even though, only a small amount of IS/IT outsourcing studies have been conducted and reported in developing countries, a study of IS/IT outsourcing in the public sector in Kuwait has found the reasons for outsourcing to be cost savings and lack of required skills (Khalfan and Gough, 2004).

Contrary to this, the outsourcing motivation behind HLIs is not cost saving. According to the survey made by Phipps and Merisotis (2005) many of the respondents indicated that since, unlike business, the academy is not influenced by the profit motive, service improvement can stand alone as a reason for outsourcing, but cost would generally need to be at least equal to current cost.

Equally, according to EDUCAUSE Center for Applied Research (ECAR, 2002) the primary reasons to outsource IT functions in higher education in the US and Canada are reported to be: the lack of critical in-house IT skills; lack of access to more advanced technologies; and operating inefficiencies, while cost savings is not the most important reason to outsource IT functions. Gonzalez, et al (2005) identified the focus of IT strategic issues being the most important reason to outsource IT functions. Cost savings was ranked fifth in their survey.

In Ethiopia, the most cited reason behind information technology outsourcing is not cost saving. According to the survey done by Meresea (2007) the most expressed reasons for information technology outsourcing are improving service level, acquiring innovative ideas, allowing more focus on core business, increase flexibility to meet changing business conditions, and lack of internal expertise, while cost savings was the least expressed reason for outsourcing information technology services.

To bring these together, Kremic et al. (2006) identified three major categories of motivations for outsourcing: cost, strategy, and politics. While the first two commonly drive outsourcing by private industry, Political agendas often drive outsourcing by public organizations.

2.3. TRENDS IN INFORMATION SYSTEM OUTSOURCING

The history of information system outsourcing has numerous stories in the literature. For example, According to Klepper and Jones (1999) outsourcing of information systems began to evolve in 1963 when Ross Perot and his company Electronic Data Systems (EDS) signed an agreement with Blue Cross of Pennsylvania for the handling of its data processing services. This was the first time a large business had turned over its entire data processing department to a third party. Tinselboer (2005) also share the same idea about the history of information system outsourcing, with the introduction of huge mainframes in the 1960s the IT business came into existence so one could safely conclude that IT-outsourcing is not a new trend, but has been around in one form or another since the beginning of IT history.

On the contrary , Pati and Desai (2005) argued that, IT outsourcing as a special form of outsourcing was began in the early 1990s as a way to supplement in-house IT development activities and continues to be a growing economic phenomenon worldwide.

Similarly, Fink and Shoeib (1994) stated that, in the 1970s and most of the 1980s, the majority of outsourced IT work was for low-end services such as tape cleaning and keypunching. However, outsourcing significantly impacted the IT world in a major way in the late 1980s. At that time, Kodak selected three companies to perform a significant part of its internal information systems activities. As a result, Kodak's one billion outsourcing deal led to the widespread interest in outsourcing and following on from the success of the Kodak deal, other well known companies quickly followed the suit and benefits from this

arrangement, General Dynamics, Delta Airlines, Continental Bank, Xerox, McDonnell Douglas, Chevron, Dupont, JP Morgan, and Bell South signal the rise of outsourcing (Dibbern et al., 2004).

However, there is consensus in the literature that information system outsourcing is not a recent phenomenon, but the scale and scope of its occurrence has greatly increased over the last decades (Ioan and Claudiu, 2007). To bring these together, Mesnita and Dumitriu (2006) summarized the evolution and domain of information system outsourcing as follows.

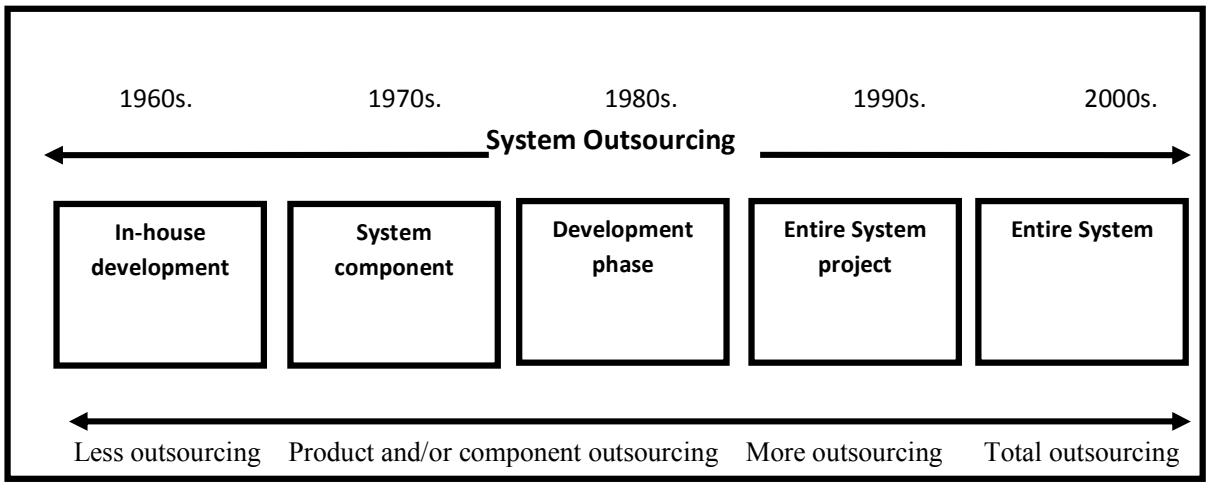

FIGURE 2-1: Evolution and Domain of Information Systems Outsourcing (Source: Mesnita and Dumitriu, 2006).

As it can be depicted from figure 2:1, IS outsourcing is not a young phenomenon, rather it pass through a considerable evolution over time and in to days business organization IS outsourcing is one of the major practices towards achieving the benefits of information technologies in organizations. That is why many organizations are deciding to take into consideration a possibility to outsource ICT to external partner(s) (2006, Zakaria et al., 2008).

2.4. INFORMATION SYSTEMS OUTSOURCING TRENDS IN HLIs

ICT have become commonplace entities in all aspects of life. Moreover, Information and communication technologies have potential values across all sectors, in both public and private enterprises, and at multiple levels. HLIs also fall into this category and have sought the status of first movers in relation to the development and implementation of information technology throughout the areas of academia (McClea and Yen, 2005).

A survey of colleges and universities by EDUCAUSE Center for Applied Research (ECAR, 2002), reveals that a number of factors will drive substantial growth in IT requirements in higher education, including:

- The transition to ERP software to link administrative, financial, and student-related records electronically;
- Internet-enabled interactive distance learning systems requires new IT capabilities, including enterprise Web portals for course management and student/faculty electronic interaction;
- Continued interest in and demand for postsecondary education by individuals, corporations, and government; and
- The continued pace of change in technology, including advance in speech recognition, video processing, collaborative working, advanced simulation, electronic books, and internet-enabled handheld devices.

Besides, the need for more and better technologies in the public sector raises the question wherefrom these technologies will come from and who will implement them (Gramatikov, 2002). To brace this idea Kremic et al. (2006) stressed that public sector services in many areas confront new challenges as cost pressures increase not only in the private sector but

also in the public sector. That is why many governments and public decision makers are identifying new ways of producing public services at a lower cost. Outsourcing is the one at the leading front of these options (Kulmala et al., 2006).

Therefore, IT outsourcing has also been manifested in HLIs. For example, Gupta et al. (2005) have given a good conclusion about outsourcing trends in higher education.

> *"When people think about outsourcing, they do not consider its impact on education; however, as budget restraints tighten and cost reduction initiatives are implemented, it means that even colleges and universities have to consider all of the options to get the most out of the operating capital."*

The survey made by EDUCAUSE Center for Applied Research (ECAR, 2002) also finds the same truth about the practice of IS outsourcing in HLIs.

> *"Outsourcing is a familiar practice to higher education institutions. More recently, with the emergence of reliable and secure high-speed networking and of Web-enabled services, IT outsourcing and the use of application services providers (ASPs) have become ways in which higher education institutions can meet IT resource demands*."

Furthermore, EDUCAUSE Center for Applied Research (ECAR, 2002) highlighted a number of findings about IT outsourcing and use of ASPs in higher education, often in comparison to the commercial and government markets. As explicitly stated in the report;

IT outsourcing is growing more slowly in higher education than in commercial and government markets: IT outsourcing activity in higher education is estimated to have been $782 million in 2001, compared to $57 billion for the U.S. commercial sector and $6.4 billion for the U.S. federal government.

A reluctance to consider IT outsourcing as a source of potential staff reductions, unclear outcomes from prior IT outsourcing initiatives, complex decision-making structures, the comparative small size of the higher education market and the lack therefore of vendors with significant industry-specific expertise are the major factors that stalling IT outsourcing in higher education.

Compared to commercial sector and federal government, higher education institution IT outsourcing engagements appeared to be characterized by a lower level of competitive bidding, detailed negotiations and project management/performance terms and conditions, and the most heavily weighed criterion in vendor selection is capability.

Finlay, the most outsourced IT functions by higher education are IT infrastructure, application management, and E-learning while Business process operations, and distributed services are least likely IT functions to be outsourced by higher education.

2.5. INFORMATION SYSTEM OUTSOURCING DECISION PROCESS

A number of researches emphasized that IS outsourcing is not a simple managerial decision making process. For example, Klepper and Jones (1999) emphasized the need to address several critical issues in the course of outsourcing process in order to achieve success; including identifying potential organizational problems, factoring in human resources and behavior, considering asset transfers and authorities, establishing and negotiating contracts, and overcoming political obstacles.

Blumberg (1998) also emphasized that, the issue of outsourcing and downsizing is much more complex than most authors and speakers on the subject have described. It is not simply a matter of deciding whether to outsource or not, rather the question of outsourcing requires

the firm and its consultants to carry out a full strategic assessment and evaluation in which a number of factors must be considered; including, but not limited to:

- The importance of service to the organization's customers and users.
- The market or use community's observed perception of the vendor's service quality and responsiveness.
- The current levels of service efficiency and productivity compared to other equivalent service organizations in the market.

As a result, to identify whether or not outsourcing is appropriate. Several outsourcing decision-making process, frameworks and models has been developed in the past (Saravanja, 2006). For instance, Pati and Desai (2005) proposed the following outsourcing decision framework to explore the variables that impact on strategic outsourcing decisions. The variables are internal IT capability of an organization, IT service opportunity being contemplated, and the potential strategic business value that can be obtained from the IT service.

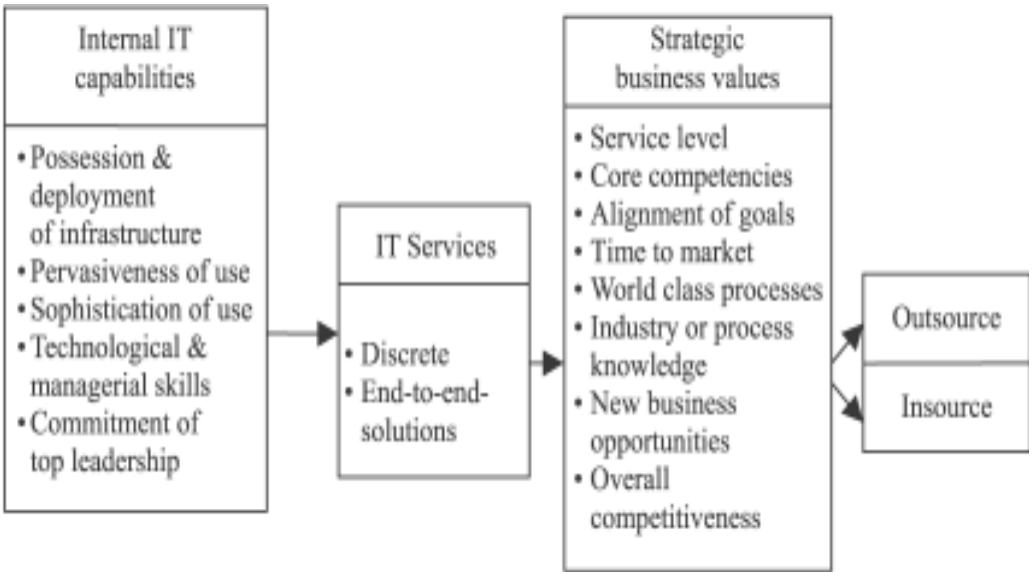

FIGURE 2-2: Outsourcing Decision Framework (Source: Pati and Desai, 2005).

As it can be depicted from figure 2-2, the model shows the structural relationships of the variables. The model illustrates the combination of internal capability, IT service opportunity and potential strategic business value that leads to an IT outsourcing decision. The relationship can be summarized as that an organization matches its internal capability against an IT service opportunity and the potential strategic business value that can be obtained from the engagement to make the decision as to whether the service is worthy of outsourcing or should be retained for in-sourcing. In addition, Pati and Desai (2005) stressed that understanding of these strategic relationships is vital before an organization decides to outsource, as the decision domain has shifted primarily from cost cutting to engagement of a strategic nature.

On the other hand, several authors have also adopted a variety of theoretical lenses to explain the phenomenon of outsourcing. After conducting an extensive literature review, Gottschalk and Solli-Seather (2005) identified a total of 11 IT outsourcing management theories; namely, theory of core competencies, resource-based theory, neo-classical economic theory, transaction cost theory, contractual theory, agency theory, partnership and alliance theory, relational exchange theory, stakeholder theory, social exchange theory and theory of firm boundaries. As is can be visible in the following table, each theory provides recommendations for what should be outsourced and when they should be outsourced for successful IT outsourcing implementation.

Theory	What should be outsourced?
Theory of core competencies	All IT functions, which are peripheral to the company's production of goods and services for the market
Resource-based theory	All IT functions where the company does not have sufficient strategic resources to perform in a competitive way. Strategic resources are unique, valuable, difficult to imitate, exploitable and difficult to substitute
Transaction cost theory	All IT functions where benefits for the company are greater than the transaction costs. Benefits include increased revenues and reduced costs
Contractual theory	Only IT functions where the company can expect and secure that vendor and customer will have the same contractual behavior. Common contract behavioral patterns include role integrity, reciprocity, implementation of planning, effectuation of consent, flexibility, contractual solidarity, reliance, restraint of power, proprietary of means and harmonization with the social environment
Neoclassical economic theory	All IT functions which an external vendor can operate at lower costs than the company
Partnership and alliance theory	Only IT functions where the company can expect and secure a partnership and alliance with the vendor that imply interdependence between the partners based on trust, comfort, understanding, flexibility, co-operation, shared values, goals and problem solving, interpersonal relations and regular communication
Relational exchange theory	Only IT functions, where the company can easily develop and secure common norms with the vendor. Norms determine behavior in three main dimensions: flexibility, information exchange, and solidarity
Social exchange theory	Only IT functions where each of the parties can follow their own self-interest when transacting with the other self-interested actor to accomplish individual goals that they

	cannot achieve alone and without causing hazards to the other party
Agency theory	Only IT functions where the agent (vendor) and the principal (client) have common goals and the same degree of risk willingness and aversion
Theory of firm boundaries	All IT functions that satisfy several of the other theories, mainly resource-based theory and transaction cost theory
Stakeholder theory	Only IT functions where a balance can be achieved between stakeholders. Stakeholders relevant in IT outsourcing include business management, IT management, user management and key IT personnel at the client, and business management, customer account management and key service providers at the vendor

TABLE 2-4: Possibilities and limitations in IT outsourcing Based on Theories (Source: Gottschalk and Hans, 2005)

However, success in outsourcing is not only dependent on the right decision made to outsource (pre-outsourcing decision). A decision to outsource is the first phase in the information systems outsourcing life cycle in which the organization determines the need for IS outsourcing and conducts a careful outsourcing plan (Chou and Chou, 2008).

The success of IS outsourcing is also dependent on creating a win-win situation that requires clearly defined expectations and flexibility on the part of both parties. Rajabzadeh et al. (2008) underlined the importance of appropriate contract type, once the decision to pursue an outsourcing project has been made; the acquisition strategy requires use of an appropriate contract type that provides an incentive to the vendor to continually improve service and to work with the outsourcing organization as a team. After carefully examining the content of stages proposed on outsourcing process frameworks in the literature, Perunovic (2007) aligned the frameworks and grouped the stages into the following sequence: preparation,

vendor(s) selection, transition, managing relationship and reconsideration. A more detailed insight into the contents of the phases is given below.

Phase	Key activities	Some key issues
Preparation	Strategy, Sourcing options, Approach , Configuration, Screening of potential vendors, Preferred relationship, Preferred length of the contract, Drafting the SLA	Underlining Philosophy, Why and what to outsource, Big Bang, Incremental, Piecemeal, Many suppliers, Preferred suppliers, Prime contractor with Subcontractors, Sole supplier (one stop shop), Contractual or collaborative
Vendor(s) selection	Announcing outsourcing , Choosing the vendor, Negotiating , Finalizing the contract	RFP, Evaluation, Creating a win-win situation, Type, flexibility and content of the contract
Transition	Defining communication and exchange of knowledge and information, Transferring assets, people, information, knowledge, hardware, software	Change management Reengineering, Adopting organizational structure and Processes
Managing relationship	Type of relationship, Maintaining relationship , Handling meetings and communicating, Performance monitoring and evaluation, Applying incentives and penalties, Solving problems, Re-negotiating and managing variations, Managing success factors	Reciprocal, Client dominant, Vendor, dominant, Preferred vendor, Contracts, Trust Hostages, Economic factors, Character of the exchange, Co-operation between buyer and supplier Distance between buyer and supplier

TABLE 2-5: Key Activities and Issues within the Phases of the Outsourcing Process (Source: Perunovic, 2007)

Kancheva (2002) identified five different phases of the outsourcing process cycle in higher education institutions based on a survey done by ECAR. The process and detailed activities of each process are summarized in table 2-6.

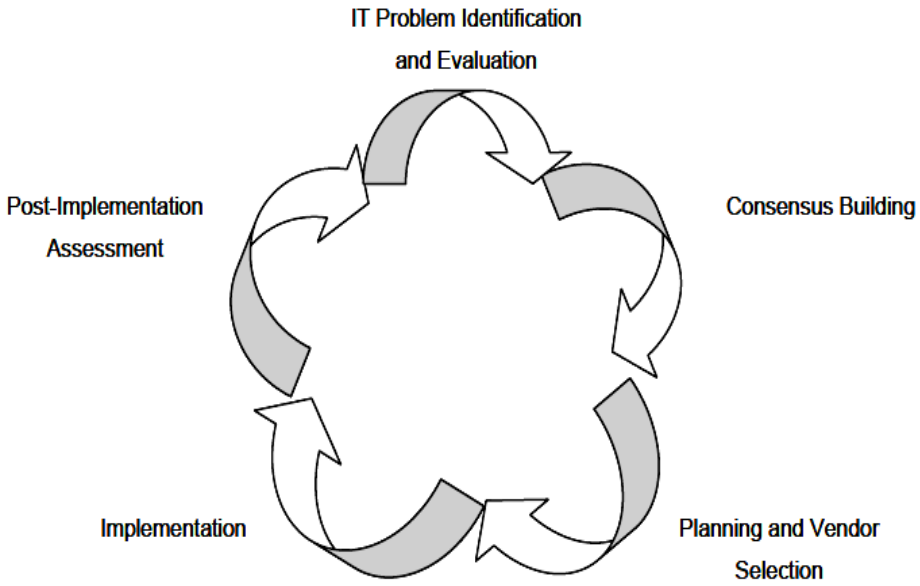

FIGURE 2-3: IT Outsourcing Process Cycle in Higher Education (Source: Kancheva, 2002)

Phase	Process
IT problem identification and Evaluation	Determine the IT functions which can be managed more efficiently through outsourcing and performing risk and benefit assessment on it.
Consensus Building	Reduce resistance towards the outsourcing decision by building consensus with all affected by it and including them in the process. Study on state and local policies regarding outsourcing.
Planning and Vendor Selection	Plan implementation schedule by evaluating operation timing and duration. Select vendor carefully by ensuring that their capabilities and experience meets institution needs.
Implementation	Prepare the Service Level Agreement (SLA) along with the contract. Responsibilities of both parties should be clearly identified and understood by both sides.
Post implementation assessment	Progressively evaluate the outsourcing execution and realign according to contract specification should the implementation deviates from its target.

TABLE 2-6: Summery of IT Outsourcing Process in Higher Education (Based on Kancheva, 2002)

2.6. INFORMATION SYSTEM OUTSOURCING CSFs

Most research findings indicated that IS/IT outsourcing is not a cure-all solution, and careful attention and evaluation are needed to ensure organizational success. In addition, there are several important factors that govern successful and less successful outsourcing decisions. For instance, Lin et al. (2007) outlined the following points as the major blocks of successful IS outsourcing ventures:

The focus of service level agreements (SLAs): A robust SLA must be well defined and balanced between the outsourcing organization and the contractor. In addition, the more complete the SLAs, the smaller the probability that costly renegotiations will be needed.

Contract negotiation: The decisions made during the contract negotiation process have profound, long-term consequences. The key to a good contract is clarity, and it is also important to tighten up the contract to ensure it considers new technologies. Successful contract negotiation is dependent upon;

- Careful selection of contractor/technology;
- Knowing the main features and benefits needed by the outsourcing organization;
- Knowing whether or not the outsourcing contractor is able to bring in valuable and unique competencies;
- Understanding how much bargaining power the outsourcing organization has.

Risk assessment/management: Proper risk assessment and management are critical to minimize the problems of embedded contract mentality. Risk assessment should be carried out before the signing of the IS/IT outsourcing contract and risks should be managed carefully throughout the life of the contract.

Relationship and contract management: Another key to successfully managing an outsourcing relationship is the ability to communicate status, monitor and evaluate performance, and document results. In addition, a well-managed outsourcing relationship can enhance the outsourcing organization's ability to manage and evaluate the contract.

Paravastu (2006) also identified a variety of CSFs for successful information system outsourcing ventures in the literature and grouped them in to the following five categories.

Determination of objectives: The outsourcing decision should be the first step for successful outsourcing process. Deciding the outsourcing objective is important since it is a very fundamental step, on which others depend. The terms of the contract, and the type of the relationship between the organization and its vendor(s) should be determined according to this initial objective.

Vendor Selection: Depending on the outsourcing objective, selecting potential vendors with different characteristics has also a paramount significance for the success of IS outsourcing projects. Outsourcing organization and its vendor(s) should have the right mix of competencies, know-how, organizational culture and work practices.

Outsourcing Contract: Well-managed contract is another important building block of successful outsourcing arrangements. Organizations should measure everything during the baseline period and not to sign incomplete contracts, since vendor(s) charge extra fee for the services not covered in the contract. Furthermore, the outsourcing contract should include "service level measures" to clarify what is expected from the vendor(s).

Psychological Contract: Outsourcing relationship is an inter-organizational relationship including at least two different organizations. Outsourcing parties use "written contract" to manage this relationship, but psychological contract should not be ignored for successful

outsourcing arrangements as well. Unlike formal written contract, "psychological contract consists of unwritten and largely unspoken sets of congruent expectations held by the transacting parties about each other's prerogatives and obligations.

Organizational Issues: Managing the internal personnel properly during and after the outsourcing process should be another main concern of the organization. Even if all previous steps are planned and taken successfully, organizational problems can cause the failure of the outsourcing process.

Mesnita and Dumitriu (2006) also identified, understanding company goals and objectives, strategic vision and plan, selecting the right vendor, ongoing management of the relationships, a properly structured contract, open communication with affected individual/groups, senior executive support and involvement, careful attention to personnel issues, and short-term financial justification as the most important factors that govern successful and less successful outsourcing decisions.

2.7. RISKS ASSOCIATED WITH IS OUTSOURCING

Despite the numerous success stories illustrating the advantages and benefits of information systems outsourcing, it is also broadly accepted outsourcing may result with undesirable consequences/risks. Furthermore, risk and risk management has been studied in many domains and each field addresses risk in a manner relevant to its object of analysis. For example Aubert et al. (2001) presented that risk as an undesirable event (risk is equated to a possible negative event), risk as a probability function (risk is the probability of the event occurring), risk as variance (risk is equated to the variance of the distribution of outcomes), and risk as expected loss (the possibility of loss or injury) as some of the notable different perspectives of risk.

Similarly, information system managers and researchers traditionally defining risk only in terms of negative consequences. However, viewing risk as something more than a hazard is highly applicable to risk management in IS (Smith et al., 2001).

IS outsourcing is a managerial decision that entails various risks and problems (Gonzalez et al., 2005). That is why numerous authors have identified various risks associated with information system outsourcing practices. For example, Anne and Brian (2007) classified the risks of outsourcing into five types as it is summarized in the following Table:

Type of risk	Possible outcomes
Financial risks	Risks of cost blowouts, Failure to obtain expected savings
Performance risks	The firm might not get the services it pays for at the quality level it needs.
Strategic resource risks	The risk of losing organizational knowledge/ key competencies
Lock in risks	The strategic consequences of having no alternatives to an unsatisfactory vendor and
Operational risks	Risks of IT failure, reduced customer service, or harm to organizational resources

TABLE 2-7: Risk of Outsourcing and Possible Outcomes (Adapted from: Anne and Brian, 2007)

This is because of that clients leave the supply of that product or service in the hands of someone whom they cannot control, contrary to controlling their own supply (Maynard, 2002, Benvenuto, 2005).

According to Wright (2004), total dependence on the services provided by the third-party outsourcing firm can become a major problem for organizations. Upon entering the outsourcing relationship, the organization turns over all control of its information systems to the outsourcing firm.

As a result, the organization's IT functions cannot be executed, nor can changes in technology be made, without the cooperation and participation of the outsourcing firm. Loss of shared vision, operational concern dominant, and lack of good communication are also other major failures in outsourcing deals due to a breakdown in the overall relationship between the stakeholders in the outsourcing agreement (Brain, 2000).

After reviewing a number of empirical literatures, Aubert et al. (1998) identified the following main undesirable outcomes that may result from an IT outsourcing deal.

Hidden costs	Hidden transition costs and management costs, Hidden service costs
Contractual difficulties	Costly contractual amendments , Disputes and litigation, Difficulties in renegotiating contracts, Lock-in
Service debasement	Diminished quality of service , Increased costs of services
Loss of organizational competencies	Loss of IT expertise, Loss of innovative capacity, Loss of control of the activity Loss of competitive advantage

TABLE 2-8: Undesirable Consequences of IT Outsourcing (Source: Auber et al., 1998)

Gramatikov (2002) argued that lack of motivation, formalism, and political bias are also some unique aspects that can contribute for the failure of information system outsourcing projects in public organizations and can attributed to either the administrators or the policy decision makers, in the case of outsourcing decisions.

On the other hand, there are also some common challenges that the outsourcing vendor may not be able to achieve the desired benefits. According to Benvenuto (2005), this may include understanding the hidden risks, meeting operational performance targets, achieving end-user satisfaction and achieving the promised cost savings.

Furthermore, as shown by Lacity and Willcocks (cited in Gonzalez et al., 2005), the unique, different nature of IT usually places customers in a disadvantageous position with respect to IS outsourcing providers, due to the following reasons:

- IT evolves so fast that the degree of uncertainty accompanying every outsourcing decision is very high;
- IT is involved in every business function, which is why an idiosyncratic knowledge of the organization is required to carry out many IT activities; and
- The costs derived from replacing one IT provider for another are very high, which is why fostering competition to discourage providers' opportunism is complicated.

Therefore, it is important to understand, quantify and mange all these elements through the outsourcing duration. Since, like any other innovative method of management, if not structured and managed properly; outsourcing can result in a number of inefficiencies and problems.

2.8. RISK MANAGEMENT AND IS OUTSOURCING

Outsourcing is the process of contacting out full or part of IS functions or services to a third party. Thus, analyzing outsourcing risk and taking appropriate risk mitigation actions in any outsourcing projects is important (Lin et al., 2007).

As a result, risk assessment should be carried out before the signing of the IS/IT outsourcing contract and risks should be managed carefully throughout the life of the contract. The concept of risk management has evolved in many years wherein many definitions were cited in the literature that aimed to explain the concept of risk management. For instance, Stoneburner et al. (2002) defines the term risk management as "…a systematic application of management policies, procedures and practices to the tasks of identifying, analyzing, assessing, treating and monitoring risk". The Canadian Institute of Chartered Accountants, (Information Technology Advisory Committee, 2003) also noted the process of risk management as "… the process whereby organizations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities".

Therefore, as it can be simply understood from these two definitions, the underlying notion or objective of good risk management is to add maximum sustainable value to all the activities of the organization. It marshals the understanding of the potential upside and downside of all those factors, which can affect the organization and it, increases the probability of success, and reduces both the probability of failure and the uncertainty **(**Stoneburner et al., 2002**)** by enabling the organization to accomplish its objective through the following three enabling attributes:

- By better securing the IT systems that store, process, or transmit organizational information;
- By enabling management to make well-informed risk management decisions to justify the expenditures that are part of an IT budget; and
- By assisting management in authorizing (or accrediting) the IT systems on the basis of the supporting documentation resulting from the performance of risk management

On the contrary, without risk management organization or project managers spent, more effort in correcting problems that could have been avoided sooner, success and failure can occur without warning, and decisions are made without complete information or adequate knowledge of future consequences (Smith et al., 2001).

As stated by Benvenuto (2005) 'The product or the service can be outsourced, but the risk can not.' Therefore, the outsourcing organization should ensure proper controls are in place to deal with the identified risks. For example, the outsourcing organization should ensure that staff involved with the outsourcing contract is able to evaluate and manage outsourcing relationships and performance in order to avoid the embedded contract mentality.

The Monetary Authority of Singapore (2005) guideline publication on outsourcing risk management also stressed that organizations board and senior management would need to be fully aware of and understand the risks in an outsourcing and their impact on the institution. Furthermore, a framework for systematic risk evaluation should be established and it should include the following steps:

- Identification of the role of outsourcing in the overall business strategy and objectives of the institution, and its interaction with corporate strategic goals;

- Comprehensive due diligence on the nature, scope and complexity of the outsourcing to identify the key risks and risk mitigation strategies;
- Analysis of the impact of the arrangement on the overall risk internal expertise and resources to mitigate the risks identified; and
- Analysis of risk-return on the potential benefits of outsourcing against the vulnerabilities that may arise, ranging from the impact of temporary disruption to that of an unexpected termination in the outsourcing, and whether for strategic and internal control reasons.

According to Aubert et al. (2001), risk analysis is also another important contributor towards outsourcing success. This becomes particularly present when identifying and implementing risk mitigation instruments such as the outsourcing contract. Therefore, a combined view of the activities associated with risk identification and assessment in the design of risk mitigation instruments can be contribute to an enhancement of the overall quality of an outsourcing deal.

Aubert et al. (2001) adopted a managerial perspective of risk and outline that a risk analysis requires questions to be addressed; a) What can happen? B) How likely is this outcome? C) If it does occur, what are the consequences? Using this definition, risk analysis compromises all activities taken to answer these questions. To perform these activities on a high quality level, appropriate staff has to be assigned for risk analysis. This takes up the proposition that building and retaining human resource capabilities is critical when managing risks.

Besides, the risk management process not only includes identifying and assessing the risks in terms of its impact but also involves developing suitable mitigation strategies, monitoring and communicating to control the risks and deal with it proactively. The basics of project risk management handbook (2003) proposed the following project risk management framework.

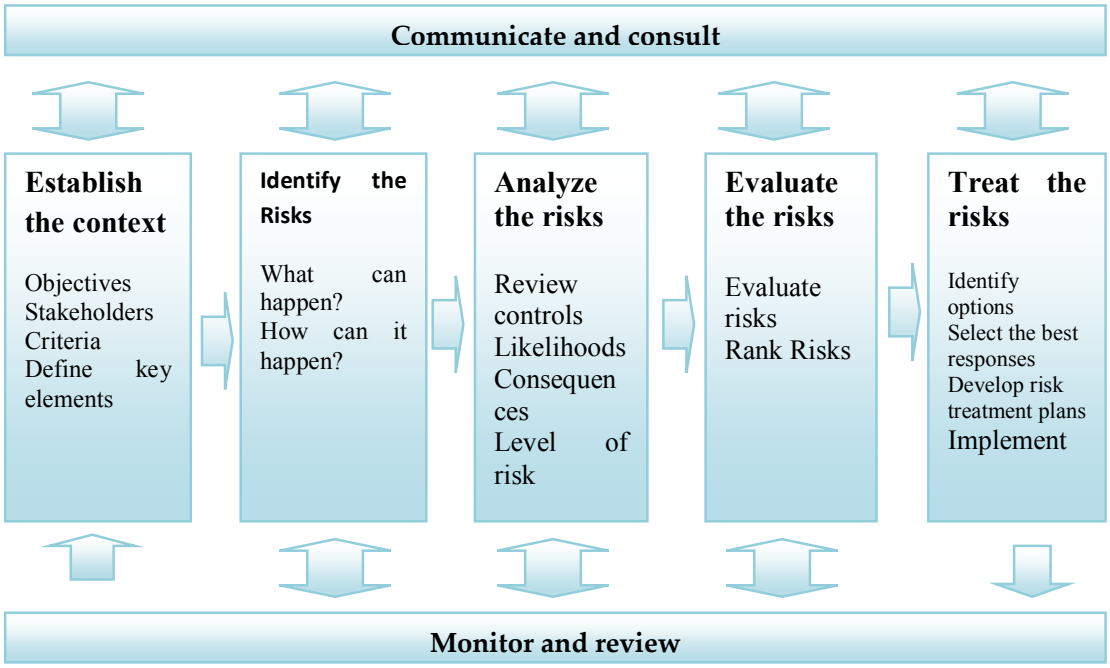

FIGURE 2-4: Project Risk Management Process (Source: The basics of Project Risk Management Handbook, 2003)

However, even if risk management is a central part of any organizations strategic management, because of the multi-faced nature of risks associated with IT a "one size fits all" risk management guideline is not a good practice; According to Fabian et al. (2007), this is more specifically difficult in IT project risk management practice. Since, a large number of risk management best practices are established, different organization view risk differently, and different individuals have differing scope to manage IT risks, the responsible IT professional with respect to the assessment and management of IT risks will depend on the organization within which they are working and on the role, they play within that organization.

On the other hand, most of the literature on risk management is clear and unambiguous about the importance of risk identification, risk assessment and risk control in any risk management practices (Smith et al., 2001) termed as 'general steps of risk management'. For the purpose

of this research, these three (i.e. risk identification, risk assessment, and risk mitigation) general risk management steps is considered.

2.8.1. RISK IDENTIFICATION

Risk identification determines what might happen that could affect the objectives of the project, and how those things might happen. The risk identification process must be comprehensive, as risks that have not been identified cannot be assessed, and their emergence at a later time may threaten the success of the project and cause unpleasant surprises **(**The Basics of Project Risk Management Handbook, 2003).

Smith et al. (2001) stated that risk identification approaches that are normally adopted in information systems risk identification process should include;

- Judgment – Individuals or groups follow a process aimed at helping them identify those unplanned events, which put the ability to meet objectives at risk.
- Scenarios – Qualitatively different alternatives are examined. Often used to examine corporate strategies and their associated risks. Particularly useful in the face of possible discontinuities.
- Model – A model is developed for the activities under review with a view to mathematically identifying risks. Used widely in financial industry, but only selectively in the IT industry.
- Check List – A checklist or taxonomy of possible risks is examined to identify the risks facing the activities under review. Can be a useful starting point, but some customization is usually required.

2.8.2. RISK ASSESSMENT

Risk assessment is the overall process of risk analysis and risk evaluation. Its purpose is to develop agreed priorities for the identified risks (The Basics of Project Risk Management Handbook, 2003**).** However, the challenge for IS managers is to determine how much risk they are facing with an initiative and to assess whether or not this level of risk is appropriate for their business. According to Benedikt and Frank (2009), four general approaches have been employed to respond to events that threaten achieving the organization's objectives. (a) Tolerate Risk (acceptance) – The organization may decide that it will just tolerate the risk. Often this will happen when the consequences are relatively easy to tolerate, or the cost of doing anything meaningful about the risk is too high. (b) Transfer Risk (sharing) – This is a transferring or sharing risk to other entity. However the challenge in any effort to transfer or share risks is to make sure that entity to whom the risk is being transfer is both ready and able to assume that responsibility. (c) Reduce Risk (reduction) – This requires that the activity giving rise to the risk be changed to reduce the risk or that other actions be taken which will reduce or counter balance the risk. (d) Eliminate Risk (avoidance) –The organization avoid performing the activity which gave rise to the risk but this is not a widely applicable response since any valuable activity will give rise to some risk.

According to The Basics of Project Risk Management Handbook (2003) risks assessment process has two basic components/activities (i.e. Risk analysis and Risk evaluation). While risk analysis is the systematic use of available information to determine how often specified events may occur and the magnitude of their consequences, risk evaluation is the process of comparing the estimated risk against given risk criteria to determine the significance of the risk.

Furthermore, the risk assessment process should:

- Determines the consequences of each risk, should it arise;
- Assesses the likelihood of those consequences occurring;
- Converts the consequence and likelihood ratings to an initial priority for the risk; and
- Develops agreed risk priorities and inherent risk levels.

2.8.3. RISK CONTROL/MITIGATION

Once risks have been identified and an appropriate level of exposure agreed on, the final step in risk management is to determine what to do about each risk. Thurston and Warren (2000) defines the term risk mitigation as: "...the process of formulating, selecting and executing strategies designed to economically reduce risk, and monitoring the effectiveness of those strategies". Risk control is a mitigation strategy, which requires an action to reduce, eliminate or avert the potential impact of risks.

CHAPTER THREE

CASESTUDY DESIGN

3.1. INTRODUCTION

This research is aimed at investigating the risk management practice in some selected HLIs in Ethiopia, in their information system outsourcing activities; including, outsourcing strategies, role of users, contract management, issue resolution, and performance measuring procedures. Therefore, the main objective of the research was to explore the risks involved in IS outsourcing projects and the management of these risks.

An Information Communication Technology development office of three HLIs has been used as a case study in this research. The HLIs have experience on outsourcing different IT related functions to Local Service providers (LSPs), including software development (such as finance and registrar systems) and network infrastructure. This chapter is organized, as follows; first, a detailed description about the case study design is presented. Second, a brief introduction about the profile of the case studies (in this case the HLIs) is projected.

3.2. CASE STUDY DESIGN

According to Kuo et al. (1999), there are two main phases of case study design, i.e. (1) data collection process and, (2) case study protocol. The case study design in this particular study was also designed in accordance with these two main phases of the case study design.

3.2.1. DATA COLLECTION PROCESS

The primary activities in the data collection stage were determining which HLIs should be carried out in this research. As a result, the researcher wanted to know about their experiences on information systems outsourcing. First, a search for information about this

practice on their official web sites, the researcher get their mission and vision descriptions with some extra statements but nothing about their information system outsourcing practice. In addition, we search for information about the practice informally from friends, classmates/colleagues and the researcher found a lot of information including but not limited about; Mekelle University, Jimma University, Hawassa University, Haramaya University, Adama University, and Addis Ababa University.

Lastly, by taking this information as initial account, interviews were conducted by telephone with IT department of six HLIs, whose names and addresses had been collected from various sources of information. Then they were informed about the study and asked whether or not they practiced information systems outsourcing. Five of the HLIs said that they outsourced some of their information system services in the past, while one did not outsource any information system.

After having this information, Addis Ababa University, Hawassa University, and Jimma University were chosen for the purpose of this research. The HLIs chosen have comparatively better outsourcing experience, significant contracts, and a history of ICT utilization and adoption in the teaching learning activities. In order to provide the necessary flexibility and to obtain valuable qualitative data, the primary data were collected through observation and semi- structured interviews.

Correspondingly, a total of 10 respondents were interviewed-most of who are committee members that were involved in the first outsourcing process and manage the contract afterward. These individuals were also concerned in the requirement definition and bid preparation (Request for Proposal preparation) process of the outsourced IT functions. However, the number of interviewed respondents per institution varies; because some committee members that were involved in the outsourcing decision process in the past were

not currently available in the institution (Case 1), the number of target respondents in the institution was very few (case 2) and some of the target respondents had other commitments that may have been on a higher priority than supporting student research projects (case 3). The number of respondents per institutions and their outsourced IS functions are summarized in the following Table.

Name of the HLIs	No. Respondents	Outsourced IS Functions
Addis Ababa University	**5**	Registrar System, Network Infrastructure, Finance System
Jimma University	**3**	Registrar System and Wireless Technology
Hawassa University	**2**	Network Infrastructure and Registrar System
Total	**10**	**-**

TABLE 3-1: Outsourced IS functions and Number of Respondents per HILs

Inevitably, the respondents skewed towards middle-aged men. They included Chief information Officer, Chief Network Officer, Chief Software Development Officer and other member of the outsourcing committee (such as users and other domain experts).

In all case studies, the researcher conducted semi-structured interviews with various members of the decision-making units. Participants were asked about the major issues relating to information systems outsourcing for outside service providers. They were asked about the outsourcing strategy, the impact of outsourcing, stockholders in the outsourcing process, the process of risk management (i.e. contract management, issues resolution and performance monitoring) approaches.

3.2.2. CASE STUDY PROTOCOL

According to Kuo et al. (1999), the case study protocol contains the instrument and the procedures, and general rules that should be followed in using the instrument. In addition to increasing the reliability, the case study protocol reminds the investigator what the case study is about and helps the investigator to carry out the case study. Furthermore, there are two major components of the case study protocol; the purpose of the research and the organization of the protocol.

(a) Purpose: As mentioned before, the purpose of this study is to investigate, "How do HLIs in Ethiopia handle risks in relation to information systems outsourcing?" The questions of interest include:

- Do the HLIs have an explicit outsourcing strategy?
- What is the role of top-level management in the IS-related decision-making?
- How are the risks identified and assessed in the decision making process?
- What are the most critical factors that should be considered in choosing an information systems vendor?
- Do the HLIs have risks management procedures or guidelines for the outsourcing of information systems?
- What is the procedure that the HLIs follows to measure the success/failure of any outsourced information systems?

(b) Organization of the protocol: The organization of the protocol outlines the procedure of designed case study questions, and the analysis plan. In the same line, these two main components of case study protocol were also considered in this research.

Case study questions: for the purpose of this research, the interview guide questions were developed from a prior study by Richard Buttleman (2002) in which he investigates information system outsourcing risk management practices in Nigerian banks. The instrument was refined based on the Canadian Institute of Chartered Accountants (2005) guideline;"*20 questions directors should ask about IT outsourcing*", to include contract management, issue resolution, and performance monitoring procedures. The interview question contains four dimensions of risk and risk management practices that are deemed significant in investigating the risk management practices of the HLIs in their information systems outsourcing practice.

The general structure of the interview questions was as follows: The first two sections of the interview guide were designed to understand the HLIs outsourcing strategies and the impacts of outsourcing. The third section investigated the roles of users and other stakeholders in the decision making process. The fourth section is consisted of several questions involved in the following aspects of risk management practice 1) contract management 2) issues resolution and 3) performance monitoring criteria.

Data analysis: There are two major steps included in data analysis: within-case analysis and cross-case analysis. Within-case analysis particular code or themes about each case were explored. In cross case analysis, similarities and differences across cases are explored. Two major steps, adapted from Beverly, (2007) were used in this study.

1. **Coding:** Themes (concepts that explain how ideas or categories are connected), illustrative quotes (verbatim text that exemplifies a particular code or theme), and potential themes or relationships between categories that helps to answer a predetermined research questions were highlighted, categorized and identified.

2. **Sorting:** After getting a point of diminishing returns in the collection and interpretation of data, that signals completion, codes, illustrative quotes, and concepts were compiled and arranged in to the outline of a narrative that explains the findings of the research.

3.3. CASE STUDY ENVIRONMENTS

The first one, Addis Ababa University (Formerly known as Haile Selassie I University) is one of the oldest and largest HLIs in Africa with current enrollment of over 45,000 students in its regular and continuing education program. AAU was established by Ministry of Education in 1949 as a Trinity College with 71 students and 9 academic staff. The various faculties of the University are distributed over eight major campuses and eight minor campuses, all within the capital, except one that is 45 km south of the capital.

The university has organized an ICT Development Office, reporting to the Office of the President, which overseas and coordinates all ICT activities throughout the University including three ICT departments that run undergraduate and postgraduate programs.

Previously, the university outsourced its Network Infrastructure for local service providers in order to connect the four major campuses (Main Campus, Business Campus, Technology Campus, and Science Campus) form the core network through fiber network. The remaining campuses are connected with virtual private network (VPN) provided by the Ethiopian Telecommunication Corporation (ETC).

On the application side, the University uses student record system, and library automation system. The registrar system was previously outsourced, which partly address the processing of students copies and grade reports. Currently, the university outsourced its Finance system

for external service providers to install the Integrated Budget and Finance Information system (IBFIS).

Internet and e-mail services constitute the major part of the network services. Both services are fully managed by the full time ICT staffs of the university. The Internet service is rendered through a chain of eight proxy servers that will give redundancy and ensure the availability. The university also has a mail service for each staff or student under the fully qualified domain name of its unit.

The second one, Jimma University (JU) is also one of the top HLIs in Ethiopia located in Oromia Region, Jimma Zone. It offers programs and researches, which lead toward degrees in different fields of studies. It was established in December 1999 with the amalgamation of the Jimma College of Agriculture (founded in 1952) and the Jimma Institute of Health Sciences (founded in 1983).

The campus is located in the city of Jimma 335 kilometers southwest of Addis Ababa within an area of 167 hectares. Furthermore, JU is Ethiopia's first innovative community-oriented education institution of higher learning, with teaching centers for health care in Jimma, Shebe, Agaro, and Asendabo.

The university has also integrated ICT in its system. Since its establishment, the Jimma University Information Communication Technology Development Director Office (JUICTDO) has been working closely with different sections of the university to create awareness of ICT, to introduce new technologies into the university and most importantly, to help students acquire basic computer skills, which is required in the market. Apart from these activities, the computer center is highly involved in developing specifications for purchase orders of computers and accessories, troubleshooting and maintenance of

equipments and purchase of software required for the academic and administrative tasks. The main mission of the office is to develop state-of-the-art ICT infrastructure and provide superior quality services whereby the teaching, research, and administrative activities of the university are carried out by utilizing the resources and services efficiently and effectively.

Previously, the university outsourced its Wireless technology infrastructure and its registrar system similarly for local service provider and plan to outsource other IT functions in the near future. The university has also plans to extend the ICT infrastructure and services to fully integrate the teaching-learning activities, research undertakings and service provisions. Including E-learning service, automation of core processes, introduce new technologies such as IP telephony and tele-medicine, and utilize ICT for income generations.

The last, Hawassa University (HU) was established in Hawassa on the 25th of April 2000, by merging three colleges in Hawassa, Southern Ethiopia: Hawassa College of Agriculture, Wondo Genet College of Forestry and Natural Resources, and Dilla College of Teachers Education & Health Sciences (DCTEHS). Currently, HU has 3 colleges, 11 faculties and 46 departments altogether. The University has outsourced its Registrar System and network infrastructure for outsider's and also there is a high intention to outsource additional IT functions in the future.

CHAPTER FOUR

DISCUSSION AND CASESTUDY RESULTS

4.1. INTRODUCTION

A number of issues were emerged from the analysis of the interview data. According to Yin (1989) (cited in Crosthwaite et al., 1997) a clear definition of the unit of analysis is necessary to firmly bound the subsequent study, develop relevant and precise propositions, and guide data collection. For these reasons, four constructor/measurement unites (i.e. outsourcing strategy, stakeholders in outsourcing project, Impact of outsourcing, and risk management methods (spastically, contract management, issue resolution and performance measuring) were taken from the instrument used to assess the risk management practice in their information system outsourcing practice. The results of the case study findings are presented as follows.

First, specific results were interpreted; we focused on each unit of analysis (measurements). Furthermore, we focused especially on those influences on HLIs IS-sourcing decision that came from individuals, groups, and the entire organization because of our interest in understanding the practice in which the decision took place. Because of particular interest in these aspects, we compared them and detected some interesting patterns, which allowed us to see different aspects with regarded to information system outsourcing practice.

Second, to compare these specific results afterwards with each of the researched HLIs cross-case analyses were used. This technique enables us to take a holistic approach to the problem under study and to integrate multiple sources of evidence. As a result, we used some common results to discuss and illustrate the more general side of information system outsourcing practice in those selected HLIs.

Since this is an exploratory research, this research would not give statistical information about each component in which it determines the success of information system outsourcing. Furthermore, the results and the findings were summarized in the form of concept map. Thus, the concept map allows understanding the relationship between ideas by creating a visual map of connections, separate concept maps were produced to represent the main themes of the information gathered.

4.2. OUTSOURCING STRATEGY

This section of the interview guide question was designed to investigate the availability of an outsourcing strategy and the components of the outsourcing strategy among the surveyed HLIs. As a result, respondents were asked the following questions.

(a) Does the university have an explicit outsourcing strategy? If not, does the university intend to put in place an outsourcing strategy? Why?

Given the level of use of IT in the HLIs, and the practice of outsourcing it is surprising to find that the HLIs do not have any explicit information system outsourcing strategy. One of the respondents who represent case 2 claimed that:

> *"...as to me it is better to say there is no any defined outsourcing strategy so far but depending on any outsourcing initiative/request the strategies will be planned or adopted in which the environment may affect the required outsourcing strategy."*

Other respondents also answered that there is no any defined information system outsourcing strategy so far but depending on any outsourcing initiative/request the strategies will be planned or adopted. However, as it was stressed by many authors, not having a strategy may affect the overall organization strategy and affect other categories of risk.

Berbee (2005) stressed the importance of outsourcing strategies and proposed that, an outsourcing strategy permit to answer the following questions:

- What does the organization expect out of the outsourcing agreement and what will the results of the agreement be?
- What is the basic reason (reasons) for pursuing an outsourcing contract?
- Who will manage the agreement and how will it be managed?
- How will the relationships enable the business?

Elmuti (2004) also emphasized that outsourcing strategies contribute to organizational goals of increased productivity, reduced cycle time, and improved quality of the goods and services. On the other hand, lack of a rigorous strategic sourcing methodology presents significant risks to an organization. Such as, inconsistent sourcing and selection criteria, lower quality, higher pricing, and loss of purchasing leverage (Vanlandingham and O'Keeffe, 2004).

(b) Is any IS functions the university currently outsources or are contracted to do so in the near future? If yes what was/is the outsourcing process that the university follows?

Most respondents revealed that, there is a high intention to acquire new information systems through outsourcing. The possible explanation for this can be the fact that all the HLIs intend to outsource a new information system soon is derived from the belief that technology is the driving force in the education equally with the business sector. In addition, to remain viable, HLIs will have to take advantage of the IT revolution made available through outsourcing. This is because IT is a specialized field, which is emerging, technical and Ethiopia, being a developing country, lacks the human resources and infrastructure to provide these in-house.

While answering the outsourcing process followed by the HLIs respondents stated that, the outsourcing process begins with an initiation by user departments, ICT office, or in some cases by external consultancies to implement technological solutions for managing different functions. A committee is established to capture the entire requirement both from the user departments and from ICTDO including other domain of experts. Based on the requirements, the established committee members prepare a document called Request for Proposal (RFP). On receiving the proposals, the committee members examine the quote proposed and select one vendor, which is most technical effective along with other benefits. Then, on the basis of the requirements, the vendor and the client prepare the Service level Agreement (SLA) document which technically describes the expected outputs of the project and the quality of each requirement. The process then goes to the next step of negotiation and the contract is signed with the selected vendor.

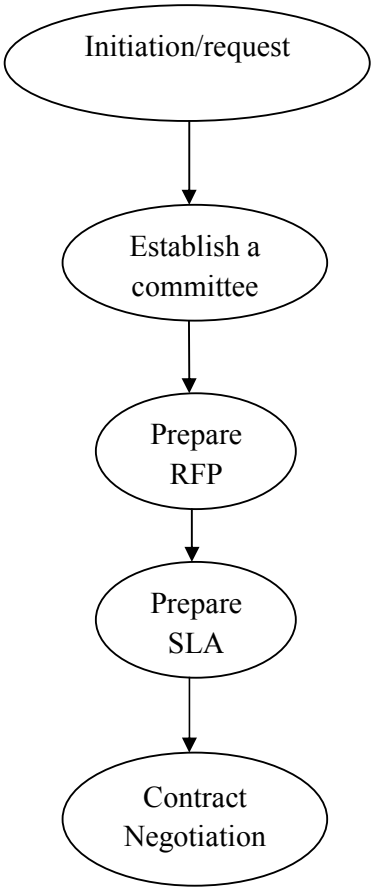

FIGURE 4-1: Concept map of IS Outsourcing Decision process

(c) Does the university have an ICT policy statement for Information Systems? If yes, to what extent is the university using this policy in the outsourcing process?

All Respondents agree that having ICT policy in place is quite necessary and important not only for Information system outsourcing but also in every ICT related practices of the office in particular and for the university in general. However, due to highly bureaucratic decision-making processes in the HLIs the ICT police cannot come into existence.

According to Quaryle (2001) (cited in Adeleye, 2002), having a policy in place would help control purchasing and put in place contingency plan, while not having a policy can lead to an unfulfilled aims and objectives. Similarly, a number of problems were revealed by the respondents, which can be generalized as follows:

- Redundancy and lack of standardizations,
- Lack of common understanding between the ICT office and other units of the University.
- Conflicts in roles and responsibilities with regard to ICT

In the same line, one of the respondents who represents case 1 strictly stressed that because of the lack of ICT policy in the university different units of the university adopt there own information systems and asked:

> *"…if different units of the university bought their own information systems without consulting the ICT office, what is the role and responsibilities of the office with respect to ICT*"?

However, currently, the ICTDO of case 1 developed a draft ICT policy, which articulates policy guidelines and describes critical areas for the development and application of ICT in the university, as partial requirement of the implementation of the ICT part of the Business Process Reengineering (BPR) in the university and all the respondents hope that it will be accepted. Other respondents also revealed they are on progress to develop an ICT policy and to implement in the near future.

4.3. STAKEHOLDERS IN IS OUTSOURCING PROJECT

In order to get an idea about the participation of different stakeholders in the information system outsourcing project, specific questions to evaluate the contribution of various stakeholders and their influence over the process were included in interview question guide.

(a) In the university outsource IS functions, who is/was the most important person in making the outsourcing decision?

The respondents argued that at the very beginning of the outsourcing projects the top-level managements are responsible to approve the outsourcing initiation. However, after the initiation is approved, the management of information system outsourcing is heavily dependent on collaboration and consensus among committee members. Multi-layered influences include affected users, process owners, divisions and departments, and technical/ domain experts.

The Integrated Budget and Finance Information System (IBFIS) Project is an ongoing automation outsourcing project in case 1. To this regard , a project team comprising five professionals was established, out of which four have expertise in IT and one having expertise in the domain area, has been put in place. The project team works hand-in-hand

with the vendor and users (employees in the budget and finance office) to achieve the desired goal. The figure below shows the structure of the project office.

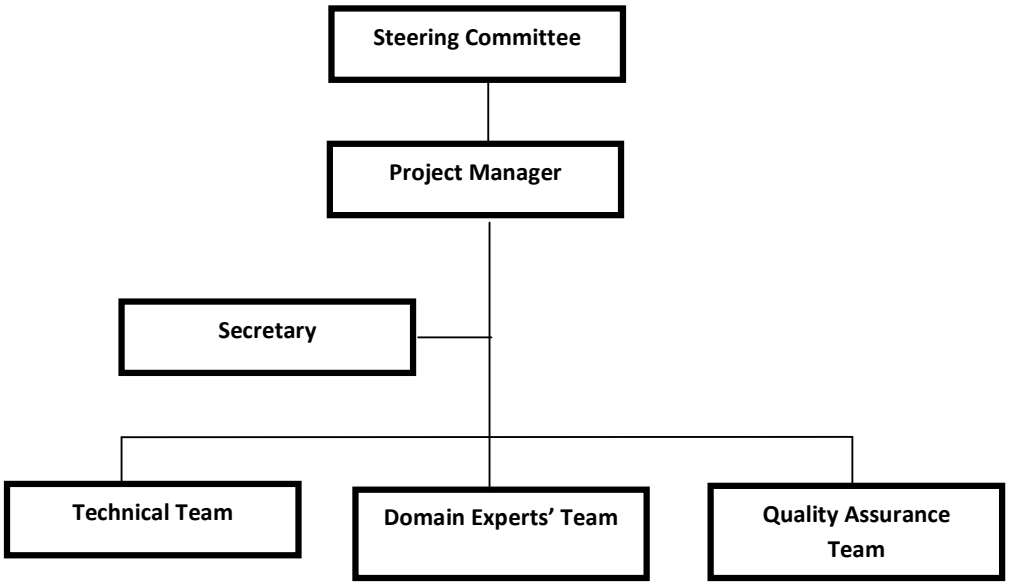

FIGURE 4-2: Project Team Members (Case1, IBFIS Project)

(b) Does the university involve users in the acquisition process? If yes to what extent?

Respondents unanimously agreed that there is an involvement of user departments in acquisition process and indicated that users are the most valuable assets in any information system outsourcing practice. As on of the respondents who represents case 2 indicated

"…since the intended IS function/ service is developed for various user departments of the university, they have a considerable involvement starting from the beginning step of the requirement analysis to performance evaluation/ system testing".

(c) What is the role of top-level management in the IS-related decision-making process?

The interviewees complained mostly about the limited and unsatisfactory participation of the top-level management in information system outsourcing practices. However, not all respondents reported this level of "unsatisfactory" but many felt that the participation of the top-level management is minimal. One of the respondents who represent case 3 claimed that:

> *"... when you come to the support of the top level management, it is very limited and I can say that it is below satisfactory not only in information system outsourcing practice but also in the over all ICT related support. They are not playing the expected role"*

While the involvement of the top management of the HLIs is minimal in the outsourcing project, the higher involvement of users is possibly caused by the believed that the success of an information system depends not only on making a decision and developing the right information systems but also on the suitability to its users.

However, According to Baker (2007) the involvement of top-level management in IS outsourcing is critical. At the higher levels of the organization, it is always desirable to get an executive support, and in cases that involve organizational politics such support is significant.

Gottschalk and Solli-Saether (2005) also emphasized that the outsourcing partnership has a much greater chance to flourish with the support of a C-level executive and an outsourcing initiative needs the support of people high enough to establish and enforce policies and procedures, and act as arbitrator and tiebreaker. For this reason, the relationship must be sponsored by an influential champion to see the opportunities that a high-value partner can capture.

4.4. IMPACT OF OUTSOURCING

(a) In which ways do you think outsourcing could affect the university?

Respondents recognized that outsourcing might have both negative and positive impact for the HLIs. However, Outsourcing decisions is strongly influenced by the expected benefits in all of the HLIs. Different organizations may outsource for different reasons, but it is important for the HLIs to recognize the differences in reasons when assessing the impact of outsourcing.

(b) Can you list the potential benefits with outsourcing?

Respondents answered that improved service availability, access to new technologies, solving management problems, better utilization of staff, Knowledge sharing/transfer, improved management information system and greater efficiency, (for example, speed in network traffic) appeared as having a positive impact in the HLIs outsourcing practice. One respondent in case 1 also argued that:

> *"Outsourcing has an impact on budget proven formulas, for example costs are highly priced with regard to the university but when you come to the local company there will be proven software relatively with considerable costs",*

However, cost saving was expressed as the lowest impact by other respondents, while; shortage of internal staff seems to be the most important determinant of IT outsourcing.

This finding is consistent with the study conducted by ECAR (2002) which reported that the reason given most often by higher institutes for IS outsourcing was that lack- of critical in-house IT skills. Kermic et al. (2006) also argued that historically public organizations are more restricted in their hiring and termination practices than private-sector organizations and

there are often strict guidelines on the number of civil servants that can be employed. As a result, Public organizations may be particularly impacted by lack of proper human resources.

(c) What are the drawbacks and perceived risks in information system outsourcing? Why?

Problems with regard to security, retaining loyalty of existing staff, vendors unwillingness to transfer knowledge, inability to get user requirements, in ability to increase reliance on the contractor, promptness of attending to possible problems, guaranteeing the loyalty of staff of the vendors, dependency and possible delay, vendors inability to meet deadlines, introducing a legal loop-hole, and delay in fault resolution, are all considered by the respondents to be the drawbacks and point of risks attributable to outsourcing.

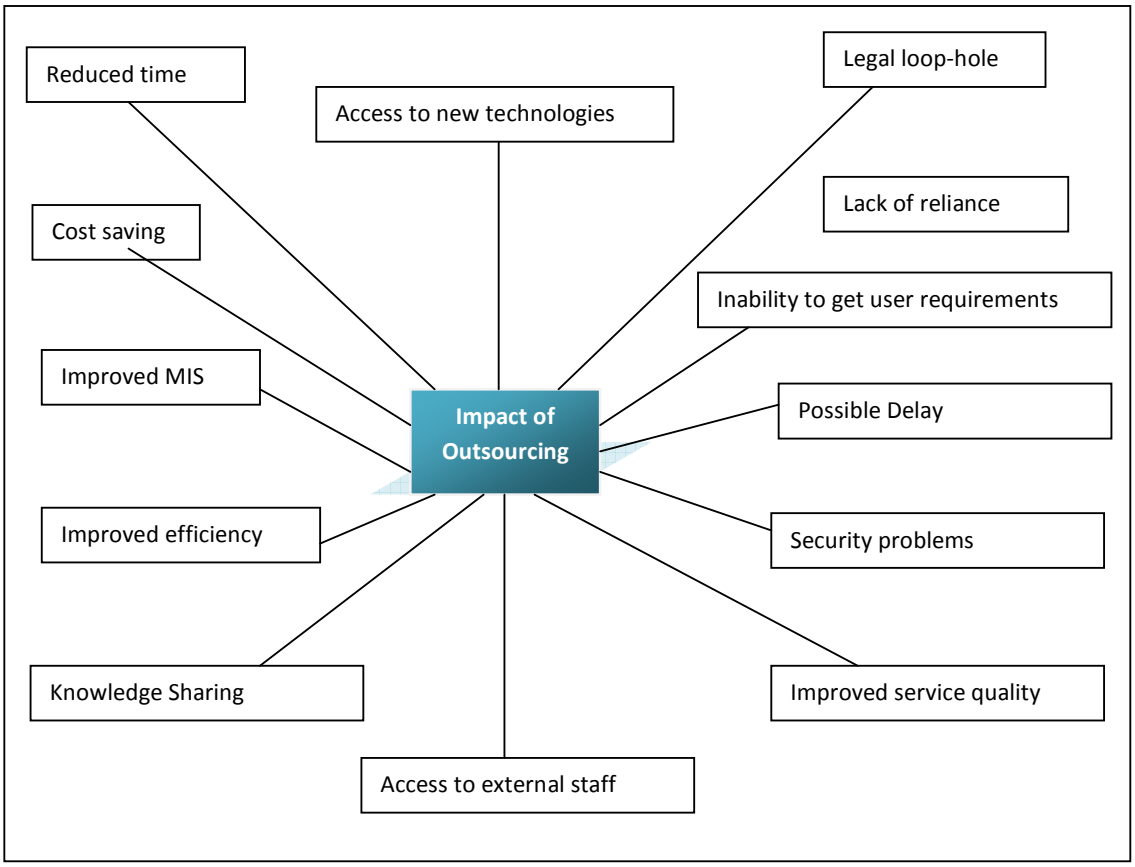

FIGURE 4-3: Concept Map of Impact of Outsourcing

4.5. RISK MANAGEMENT (CONTRACT MANAGEMENT, ISSUE RESOLUTION, & PERFORMANCE MONITORING)

Once the outsourcing decision has been taken it becomes necessary, to justify the decisions; identify the risks, plan for evaluate the performance of the vendor, set the criteria for selecting vendors, set the criteria for resolving disputes and as well as well as define how to manage the contract afterward . These activities are important as they help in finding out the possible difficulties that may arise during implementation and the definitions of strategic objectives.

To examine these aspects, data was collected from three different areas of risk management practice in IS outsourcing projects, (a) Contract management (b) Issues resolution and (c) Performance monitoring.

(a) Does the university have risks management procedures or guidelines for the outsourcing of information systems? If no how are the risks identified and assessed in the decision making process?

The respondents answered that, there is no an explicitly structured risks management procedures or guidelines for the outsourcing of information systems in place. As one of the respondents who represent case 3 explained that the risk management process followed in their information system outsourcing is a general project risk management approach. Thus, information system outsourcing project is managed like any other system projects, there is no any special framework for information system outsourcing Projects.

However, most of the participants have quoted intuitive assessments and prior experience as a means of identifying and managing risk. What this implies is that managers do not have a strategic view of information systems. Relying only on the intuition of the experienced

managers to identify risks has proven to be unsatisfactory in the past (Marsh et. al., 1996). There are various other methods suggested by researchers, which include organizing brainstorming sessions with the managers to discuss the problems in-depth and provide solutions, conducting structured interviews to initiate a risk revealing discussion and at times to use expert computer-based systems or outside specialists or consultants, thus bringing in additional experience in the field of concern.

(b) Has the university engaged any external support e.g. consultancy, software house etc, in outsourcing its information systems? If not, why not?

The respondents disagree in involving third party consultants in their information system outsourcing project. The respondents with this respect revealed two major reasons. First, since, HLIs are the house of experts and have many experienced people it can utilize its own domain experts. Second, since, service provider organizations have their own consultants there is no need to engage to a third party advisors. However, the management of vendors is a specialized job, which requires certain amount of skill and commitment on behalf of the organization it is not recommended to be dependent only on the service providers' consultants.

(c) Does the university determine the training needs of users before and after the outsourcing of an information system? If not, why not?

Training needs of users and executives are determined in all the case study environments. However, most of the respondents claimed that the training need of users is done after outsourcing. Furthermore, the vendors, vendors' partners or consultants could do this training at an external location or internally. When asked if they consider the training effective, one respondent from case 1 said "No, not deep enough". Another respondent from case 2 when

asked the same question said, “It is not since the training is not continuous” Along the same line a respondent from case 3 said “not effective because it is an introductory or a sensitivity training”.

(d) What are the previous trends in outsourcing of information systems? Are they success/failure?

Regarding the previous status of the outsourcing projects the research revealed both success and failure stories. One of the respondents who represent case 1 presently does not have an active role in outsourcing projects. However, the respondent was part of the outsourcing deal wherein the network infrastructure project of the university was outsourced to a vendor. He argued that,

> *“…even if there were no a cleaver risk management practice, we were work in collaboration and all the committee members and the vendor team were meeting and discussed about the progress of the project. As a result, it was a successful project”*

However, most of the respondents felt that the previous outsourcing practice of the universities was both failure and success.

(e) What are the most critical factors that should be considered in choosing an Information Systems vendor?

Supplier plays a crucial role in outsourcing success of failure. Because, switching supplier afterwards can be difficult and costly, it is important to select the right supplier from the beginning. In order to qualify, the supplier should possess the necessary processes, quality, technology, employees and equipment (Lee, 1998).

Regarding the importance of criteria by which the interviewee chose outsourcing providers, the following two evaluation criteria are the most adopted techniques in the Higher Learning Institutions:

1. Technical vendor aspect and
2. Non- technical vendor evaluation aspect

The emphasis is first on the technical aspect of the vendor. This technical assessment accounts around 70% of the over all assessment of the vendor. The possible explanation for this can be, first and for most, the vendor should be able to meet all the requirements of the RFP document. With this underlining notion the coming vendors are examined and assessed whether they can meet all the technical requirements or not.

On the other hand, the non-technical vendor evaluation method accounts the remaining 30% of the evaluation criteria. This is mainly for the assessment of the non-functional assessment of the vendor, including:

- Finance capacity
- Legality for the Bid
- Previous Experience and validity of presented references
- Staff composition (Educational background of the Staff)

The HLIs supplier/vendor selection criteria is consistent with the proposed decision making framework for an effective IT outsourcing supplier evaluation by Buyukozkan and Ersoy (2009) which emphasized six evaluation criteria; technological capability, profitability of supplier, relationship closeness, total cost, service quality, reputation of supplier.

Since selecting the right vendor is one of the main critical success factors (Embleton and Wright,1998) for successful IS outsourcing Projects, the purpose of IT outsourcing supplier selection is to determine the optimal service provider who offers the best all around each criterion.

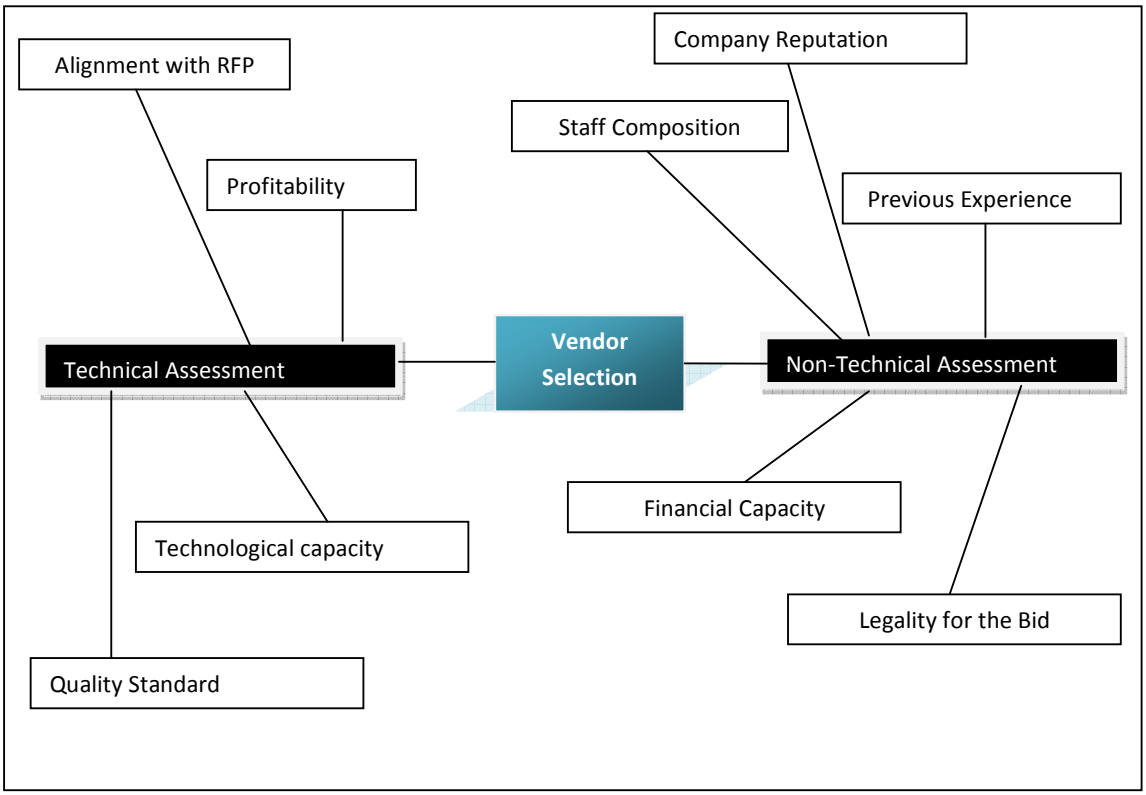

FIGURE 4-4: Concept Map of Vendor Selection Criteria

(f) Do you think that effective accountability and process exist to monitor and manage the relationship with the service provider, to maintain good communication between the practices, to ensure mutual understanding of service needs and service quality, and to resolve issues that may arise from time to time? If not, why not?

The respondents were very clear about the importance of managing the relationship with the service provider. However, respondents argued that there is no such detail communication

mechanism except that of the SLA and the contract negotiation. Everything will be resolved and managed based on the agreement they have during the contract negotiation. One of the respondents who represent case 1 indicated that:

> *"After a contract agreement is signed and we come in to negotiation, a joint project plan will be developed. This joint project plan is used to solve confusing issues (we can say some minor problems more over the concern of this contract and negotiation)*

However, Sweet et al (1999) stressed the importance of strong relationship management and issues resolution approach. After the client decides to outsource a specific application, client and provider together should design an approach to governing the relationship. This goes beyond the mere performance of contractual obligations and should focuses on proactive and collaborative management of the relationship, the evolution of services provided, communication processes, performance review standards, and overall relationship management.

Bays (2004) also proposed the issue resolution process should consist of the following steps:

- Each issue would be determined by the vendor staff and the company staff person responsible for delivery of the program component and for each issue, the IT/Business Process staff and the vendor staff should jointly determine the persons responsible for resolving the issue and the resolution date;
- Each party should be informed of their responsibilities and give confirmation of resolution date; and
- The most appropriate level of management should resolve issues depending on the nature of the issue. Unresolved or open issues that are past the due date should be

escalated to the company's Vendor Manager and the vendor's Program Manager during regularly scheduled status meetings.

(g) Does the university have any specific points of concern, perceived potential problems, or areas of possible conflict?

Respondents indicated that, in addition to the positive side of outsourcing, outsourcing could also cause some negative side effects and inherent problems. As a result, there are some problems posed challenges and concerns when managing IT outsourcing. The interviewee cited a number of points.

Most of the respondents were revealed two major potential point of concerns (i.e. users and vendors), with regard to user/departments, respondents claimed that users will not able to clearly define the requirement and while the project is on progress they will come up with some additional requirements which leads the university and the vendor to reconsider the requirements and this may have a great contribution for the delay of the project. On of the respondents who represent case 2 claimed that;

"*Most of the problems that we have face is that the user departments can't able to define a clear requirement which has a great impact on the definition of the service level agreement since the service level they require and the type and the function of the service is not clearly defined it is difficult to meet the expected objectives*"

As a result, the first point of concern reported by respondents was related to requirements. Most of the respondents identified several reasons why requirements definition receives a high-level attention in outsourcing arrangements. Sometimes they had no practical experience of the features a new IT system or service was to provide, particularly if these involved novel technologies.

Respondents also claimed that the user departments knew at an abstract level what was needed, but could not articulate the detailed requirements and performance levels expected because they no longer had staff experienced at an operational level with the technologies.

Second, respondents reveled that, opportunism behavior on the part of the vendor is likely to occur. Opportunism includes making unrealistic or untrue representations about vendor capabilities in the proposal phases of the process and shirking under the terms of the contract once the contract has been executed. One of the respondents who represent case 2 claimed that:

> *"Performance of the vendor will not be the same as it is expressed in the paper. When we assess vendors to outsource, our network-infrastructure we have got a number of false stories on their proposal about some vendors. For example, one vendors has been clearly cited a number of reference organizations/sites it successfully implement their network infrastructure. However, when we conduct a site visit none of the organization has any agreement with the vendor; even they didn't know its existence"*

Another respondent who represents case 1 also revealed that, security is the major concern of the university in its information system outsourcing practice. As a reason, the respondent explained that "…even if some failures can be tolerated, there are also some malfunctions that will not be tolerated at all and since the organization is an educational institution there is a great deal of security".

(h) Do you think that, the university have clear objective and reliable measures of performance and operating to benchmark the service provider's performance and assess the quality and cost of the service delivered? If yes, what are they?

Respondents identify the issue of the vendor's performance being measured mostly against the technical aspects mentioned in the contract SLA. This is consistent with Yu and Cheng (2007) in which they proposed effective service level agreements (SLAs) can be used to identify the expected results and the measures by which both parties will evaluate performance. However, depend only on formal control would not be efficient as governing the relationship in a partnering way to control opportunistic behaviors and to form relational commitment.

As a result, relational governance is another endogenous mechanism that can enhance exchange performance by embedding private and public information flows in a matrix of social ties rather than by resorting to contract or its enforcement by a third party (Steven et al., 2009).

Furthermore, Performance monitoring and improvement procedures ensure that performance standards are being meet through effective performance measurement and reporting Goolsby (2001) and successful performance management with a supplier depends on a clear understanding of the nature of the processes before they are outsourced.

(i) What are the mechanisms that the university follows to manage the progress of outsourced information systems?

In all case study environments, no formal IS/IT investment evaluation methodology was mentioned by any of the participants. Instead, several participants from both cases clearly

indicated that there was a pre-agreed set of evaluation and control mechanisms in the SLAs within the outsourcing contracts, such as metrics, reports, reviews, and regular meetings.

When asked if a qualitative criteria is being included in SLA and measured the performance against theses criteria , one respondent in Case 2 said: the use of scorecards and other quantitative contract evaluation mechanisms within the SLA was used in measuring and monitoring the performance of the results while they outsourced their network infrastructure. Other respondents' stated that presently it is not being practiced but agrees that it is a key issue to be considered in the department.

This result is also consistent with the findings of Ngwenyama and Sullivan (2006), the fact that public-sector organizations had to follow governmental contract guidelines had effectively stopped the adoption of a formal IS/IT investment evaluation methodology. As a result, public organizations were unable to get a more balanced and truthful picture of the performance of their contracts.

Dean and Kiu (2002) (cited in Lin et al, 2007), also argued organizations that rely solely on contract checklists for performance evaluation and monitoring do not necessarily achieve best practice.

Furthermore, as it was expressed previously, besides the concern for commitment to monitor the performance on the part of university, service level agreement (SLA) is another major challenge and concern facing the IT department in terms of outsourcing. In many cases, there is ambiguity, unclear and incomplete specifications as to the provision of an acceptable level of service. As a result, being dependent only on the SLA as major performance measuring criteria, cause the inability of the department to hold the vendor liable for any new problems.

CHAPTER FIVE

CONCULUSION AND RECOMMENDATION

5.1. INTRODUCTION

The goal of this research was to investigate the risk management practices of some selected HLIs in Ethiopia in their information system outsourcing practices. As a result, the research investigates the outsourcing process, risk and control practices being followed by the HLIs. Based on these underlining aspects of the research results, the following conclusions and recommendations per construct are prompted.

5.2. CONCLUSIONS

5.2.1. OUTSOURCING STRATEGIES

As it was revealed by most of the respondents, none of the HLIs have an explicit outsourcing strategy for information system outsourcing projects. Rather, the outsourcing strategy of the HLIs developed is varying based on the different types of information system outsourcing projects.

On the other hand, most of the respondents revealed that there is a high intention to acquire new information systems through outsourcing. However, while asked about the implication of the university to put in place an outsourcing strategy or an ICT policy, even if the department needs to adopt the ICT police, due to highly bureaucratic decision-making processes in the HLIs the ICT police cannot come in to existence. In line with this, there were also a number of problems mentioned by respondents due to the lack of proper ICT policy, including lack of proper control, redundancy, conflict in responsibilities etc.

Along the same line, none of the HLIs totally outsources their information systems or ICT related activities to external service providers. As a result their outsourcing approach can be termed as 'selective outsourcing' in which the institutions outsource some part of IS functions while another part of the IT functions remains within the institution. This is because of that, lack of internal skill in some areas of information system (such as software development and network infrastructure implementation) is the first reason for the HLIs to outsource some of their information systems.

5.2.2.STAKEHOLDERS IN IS OUTSOURCING PROJECT

In all the case study environments respondents revealed that the participation of users in any type of information system outsourcing project is very high while the involvement of the top level management is termed as 'un satisfactory'. Furthermore, the management of information system outsourcing is heavily dependent on collaboration and consensus among committee members.

5.2.3.IMPACT OF OUTSOURCING

Respondents recognized that outsourcing might have both negative and positive impact for the Higher Learning Institutions. However, Outsourcing decisions is strongly influenced by the expected benefits in all of the HLIs.

Improved service availability, access to new technologies, better utilization of staff, Knowledge sharing/transfer, improved management information system and greater efficiency, for example speed in network traffic appeared as a positive/benefits of outsourcing. While Security, retaining loyalty of existing staff, inability to get user requirements, in ability to increase reliance on the contractor, promptness of attending to possible problems (example, introducing a legal loop-hole), and delay in fault resolution, are

considered by the respondents to be the drawbacks and point of risks attributable to outsourcing.

5.2.4.RISK MANAGEMENT

As it was revealed by all of the respondents in all case study environments none of the HLIs has a structured risks management procedures or guidelines for the outsourcing of information systems in place. As a result, their risk management approach varies from project to project/ initiations.

In terms of identifying and assessing risks associated with information systems outsourcing, the respondents' points out that, there are no set methods being followed; rather, intuitive assessments and prior experience as a means of identifying risk.

User and management training is considered to be important in both HLIs but there is no continuity and most of the time the give an introductory/sensitivity training. As a result, respondents felt that the training is unsatisfactory.

On the other hand, the importance of criteria by which the interviewee chose outsourcing providers, the technical (the alignment of the vendor to the RFP criteria) and non-technical (financial capacity, Legality for the bid, previous experience, staff composition and validity of presented references) are the criteria used to evaluate the coming vendors. Furthermore, respondents identify the issue of the vendor's performance being measured mostly against the technical aspects mentioned in the contract SLA. In all case study environments, no formal IS/IT investment evaluation methodology was mentioned by any of the participants. Instead, several participants indicated that the contract control and evaluation mechanisms specified within the SLA are benchmarks to evaluative methodology or technique.

5.3. RECOMMENDATIONS

Outsourcing is a global phenomenon. With increasing competition, the established vendors and new entrants are offering more market-focused products and services. The HLIs should have in place an information system outsourcing strategies.

A powerful policy would help the HLIs to have a good outsourcing strategy since the policy is more likely to be followed in the outsourcing process. It is therefore necessary that managers in the HLIs develop an ICT policy. Furthermore, the HLIs needs to align Information Communication Technology (ICT) with their strategic objectives

The HLIs outsourcing forward team should contain a mix of managerial and technical talent, and include more representatives from user areas that will be directly and heavily impacted by the outsourcing under consideration. Furthermore, The HLIs must create efficient and effective communication with and between stakeholders to secure continued support from all stakeholders, to balance their interests and to make the IT outsourcing arrangement so that all stakeholders achieve their goals.

One interesting finding is that all HLIs institutions involved in outsourcing of certain IS functions, in an environment without a regulatory risk managment framework. However, not having a proper risk management approach can lead to an unfulfilled aims for the HLIs. Thus, the HLIs should seek to adopt a risk identification and assessment method that is suited to the culture and meets the depth of detail.

There is no “a one size fits all” vendor evaluation method but it will depend on the type of information system organizations outsource and the environment. As a result, outsourcing partners should be selected based on their willingness to cooperate with the HLIs in addition to their technical capacity in the operation being outsourced.

All the surveyed HLIs used a contract-based performance monitoring approach. However, it is recommended that along with contract agreements relational vendor management is also vital for the success of IS outsourcing projects. Therefore, it is important to base the management of service performances on relationship management in addition the SLA agreements set during the contract negotiation.

It was not possible to include other government organizations in addition to HLIs that have the potential to understand the practice of risk management practice in information system outsourcing in Ethiopia. For this reason, it is recommended that, further research can address this by replicating this study with samples form multiple government sectors and as well as private organizations.

Outsourcing involves a vendor and a client. However, the results of this thesis are only one side of the story, from the service receiver's perspective. Another intriguing topic for further research would be to interview those vendors that have opted for Ethiopian clients. The views from this "other side of the story" would present a full mix of ideas regarding outsourcing practice in Ethiopia.

REFERENCES:

1. **Khalfan and Gough (2004),** "*Comparative Analysis between Public and Private Sectors on the IS/IT Outsourcing Practices in a Developing Country*": A Field Study, Logistics Information Management, Vol. 15, No. 3, pp.212-222.
2. **Anne and Brain (2007),** *"Understanding Information Systems Outsourcing Success and Risks through the Lens of Cognitive Biases"*: Deakin Business School, Deakin University, Australia.
3. **Apte et al. (1997),** "*IS outsourcing practices in the USA, Japan and Finland a comparative study*": Journal of Information Technology.
4. **Aqil Burney (2008),** "*Inductive and Deductive Research Approach"*: Karachi. University, Journal of information Science.
5. **Aubert et al. (1998),** *"Managing the Risk of IT Outsourcing":* Scientific Series, CIRANO, http://www.cirano.qc.ca/pdf/publication/pd-98.pdf, [Accessed 14 January 2010].
6. **Aubert et al. (2001),** "*Managing IT Outsourcing, Risk: Lessons Learned*": Scientific Series, CIRANO, http://www.cirano.qc.ca/pdf/publication/2000s-39.pdf, [Accessed 14 January 2010].
7. **Ioan and Claudiu (2007),** *"Some Considerations about IT Outsourcing process"*: MPRA Paper No. 6687, http://mpra.ub.uni-muenchen.de/6687/, [Accessed on 12, April, 2010].
8. **Benvenuto et al. (2005),** "*Outsourcing—a Risk Management Perspective":* Information Systems Audit and Control Association, Information Systems Control Journal, Vol. 5.
9. **Berbee Information Networks Corporation (2005),"***An Insider's Guide to IT outsourcing"*: Research Park Drive, Madison, Wisconsin.
10. **Bryan Baker (2007),** "*Creating Outsourcing Success: Avoid the Pitfalls and through High Impact Customer Communications"*: A white paper, Xerox Technology Document Management consulting service.
11. **Bunmi Adeleye (2002),** *"Risk Management Practices In Information Systems Outsourcing: An Investigation into Commercial Banks in Nigeria":* The University of Sheffield, Masters Thesis.
12. ***Chou and Chou, (2008),*** "*IS Outsourcing: Its Quality and Risk Issues"*: Michigan University, Department of CIS, USA.

13. **Carl Colwill (2006),** "*Outsourcing: the Security Risk Management Challenge*": British Telecommunications PLC, United Kingdom**.**
14. **Catherine Wright (2004),** "*Top Three Potential Risks with Outsourcing Information Systems*": ISACA, USA.
15. **Claver et al. (2002***),"a Study of Information System Outsourcing Influential Factors"*: International Journal of Educational Management, MCP UP Limited, pp. 75-81.
16. **Creswell, J.W. (2003),** "*Research design. Qualitative, quantitative and mixed methods approach*", Thousand Oaks, CA, Sage.
17. **Crosthwaite et al. (1997),** "*Case Studies: Theory and Practice in Natural Resource Management"*: Proceedings of the Australian Association for Social Research Conference, Charles Sturt University.
18. **Fink and Shoeib (2003),** *"Action: The Most Critical Phase in Outsourcing Information Technology"*: Logistics Information Management, MCB UP Limited, Volume 16, No. 5, pp. 302-311.
19. **Dean Elmuti (2004),** "*The Perceived Impact of Outsourcing on Organizational Performance":* Mid-American Journal of Business, Vol. 18, No. 2.
20. **Dibbern et al. (2004),** *"Information Systems Outsourcing: A Survey and Analysis of the Literature"*: The DATA BASE for Advances in Information Systems Fall, Vol. 35, No. 4.
21. **EDUCAUSE Center for Applied Research (2002),** "*The Outlook for ASP and IT Outsourcing in Higher Education in the U.S. and Canada*": ECAR, Issue 13, Volume 2002.
22. **Emillia Kancheva (2002)**, "*Key considerations for Successful Outsourcing of IT Functions in Higher Education*," EDUCAUSE Centre for Applied Research, vol. 2002, Issue 13, pp. 1-13.
23. **Ethiopian ICT Development Agency**, **Ethiopia:** www.eictda.gov.et/ictpolicy: ICT Policy, [Accessed 14 January 2010].
24. **Donald Blumberg (1998),** "*Strategic Assessment of Outsourcing and Downsizing in the Service Market"*: Managing Service Quality, Volume 8, MCB University Press, pp. 5–18.
25. **Cairncross and Poysti (2004),** "*ICTs for Education and Building Human Capital*": Visions of the Information Society, ITU.

26. **Fabian et al. (2007),** *"Risk Management Practice Guideline"*: Canadian Information Processing Society (CIPS)**,** Risk Management Task Force.
27. **Buyukozkan and Sakir (2009),** *"Applying Fuzzy Decision Making Approach to IT Outsourcing Supplier Selection*": World Academy of Science, Engineering and Technology.
28. **Cornelia and Kim (2006),** "*Successfully Implementing It Outsourcing Strategy in German Banks: The Role of Contract Design and Risk Analysis*": University of Frankfurt, E-Finance Lab, Germany.
29. **Mesnita and Dumitriu (2006), "***Trends of Information Systems Outsourcing"*: A Romanian Perspective, University of Iasi.
30. **Gonzalez et al*. (2005),*** *"Information Systems Outsourcing Success Factors: A Review and Some Results"*: Information Management & Computer Security, *Vol*. 13 No. Emerald Group Publishing Limited, pp. 399- 418.
31. **Gonzalez et al. (2009),** *"Information Systems Outsourcing Reasons and Risks: An Empirical Study"*: International Journal of Social Sciences Vol.4 No.3.
32. **Gupta et al**. **(2005)**, "*Outsourcing in Higher Education: An Empirical Examination":* International Journal of Educational Management, Emerald Group Publishing Limited, Vol. 19 No. 5, pp. 396-412.
33. **Hall et al. (2001),** "*Analyzing Application Service Providers*": http://www.phptr.com [Accessed on 2, May, 2010].
34. **Harry Hare *(2007),*** *"ICT in Education in Ethiopia":* Survey of ICT and Education in Africa: Ethiopia Country Report.
35. **Ho Sow (2007),** "*Challenges and Concerns of IT Outsourcing: A Case Study of an IT Department in a Public University Library*": International Management Accounting Conference IV, Faculty of Business and Accountancy, University of Malaya, Kuala Lumpur.
36. **Moura and Grover (2007),** *"Examining the Outsourcing of Information Systems Functions from Diverse Theoretical Perspective"*: International Management Accounting Conference, the Darla Moore School of Business, University of South Carolina.
37. **ICT Development Office of Addis Ababa University, Ethiopia: www.aau.edu.et/ict/index.php** [Accessed on 17, February, 2010].

38. **Gallivan and Oh (1999),"***Analyzing IT Outsourcing Relationships as Alliances among Multiple Clients and Vendors"*: Proceedings of the 2nd Hawaii International Conference on System Sciences, IEEE.
39. **James Brian (2000)**, "*Outsourcing innovation: the New Engine of Growth*": Sloan Management Review; pp. 13-26.
40. **Hung and Zhang (2006),** "*Drivers and Obstacles of Outsourcing Practices in China"*: International Journal of Physical Distribution & Logistics Management, Emerald Group Publishing Limited, Vol. 36 No. 10, pp. 776-792.
41. **Ngwenyama and Sullivan (2006),** *"Secrets of a Successful Outsourcing Contract: A Risk Analysis*": School of Information Technology Management, Ryerson University, Toronto, Canada.
42. **Karyda et al. (2006**), "*A Framework for Outsourcing IS/IT Security Services*": Information Management & Computer Security, Emerald Group Publishing Limited, Vol. 14 No. 5, pp. 402-415.
43. **Kathleen Goolsby (2001),** "*A Guide for Establishing Service Level Specifications for Outsourcing Relationships*": A white Paper, Everest Group.
44. **KPMG (2007)**, "*Strategic Evolution. A Global Survey on Sourcing Today*", http://www.kpmg.com.au/Portals/0/rasita_strategic-evolution200701.pdf [Accessed on 18, January, 2010].
45. **Kremic et al. (2006),** "*Outsourcing Decision Support: A Survey of Benefits, Risks, and Decision Factors*": Supply Chain Management, Emerald Group Publishing Limited. p.467 482.
46. **Kulmala et al**. **(2006)**, "*Unit Cost Behavior in Public Sector Outsourcing*": International Journal of Public Sector Management, Emerald Group Publishing Limited, Vol. 19 No. 2, pp. 130-149.
47. **Kuo et al. (1999),** "*A Case Study Assessment of Performance Measurement in Distribution Centers"*: Industrial Management & Data Systems, MCB University Press.
48. **Lanzing, J. (1997),** The Concept Mapping Homepage http://users.edte.utwente.nl/lanzing/cm_home.htm [Accessed 28 February, 2010]
49. **Lin et al. (2007),** "*Issues and Recommendations in Evaluating and Managing the Benefits of Public Sector IS/IT Outsourcing*": Information Technology & People, Emerald Group Publishing Limited, Vol. 20 No. 2, pp. 161-183.

50. **Lisa M. (2008)**, "The *Sage Encyclopedia of Qualitative Research Methods*": Thousand Oaks, CA, Vol.2, pp.697-698.
51. **Benedikt and Frank (2009), "***Why Risk Management Matters in IT Outsourcing – A Systematic Literature Review and Elements of A Research Agenda***":** 17th European Conference on Information Systems, Scholar One Manuscript Central.
52. **Lazaro and Marcos (2006),** "An *Approach to the Integration of Qualitative and Quantitative Research Methods in Software Engineering Research*": María Lázaro and Esperanza Marcos Kybele Research Group, Madrid University, Spain.
53. **McClea and Yen (2005),** *"A Framework for the Utilization of Information Technology in Higher Education Admission Department":* International Journal of Educational Management, Emerald Group Publishing Limited, Vol. 19 No. 2, pp. 87-101.
54. **Marco-Simo et al. (2007),** "*Information Systems Outsourcing in Public Administration: An Emergent Research Topic*": Proceedings of European and Mediterranean Conference on Information Systems (EMCIS2007), Polytechnic, University of Valencia, June 24-26.
55. **Marianne Bays (2004),** *"Vendor Management, Best Practices For Successful IT and Business Process Outsourcing"*: A white paper, TBI, Sourcing Solution Management.
56. **Marsh, S. (1996),** *"Introducing RISKMAN: The European Project Risk Management Methodology*": The Stationery Office.
57. **Martin Gramatikov (2002),** "*Outsourcing of Public Information Systems*": Department of Public Administration, University of Sofia, Ohridski.
58. **Maynard (2002),** "*Outsourcing 101 - A Primer: Next press USA"*: Next press USA, http://www.theoutsourcerzone.com [Accessed on 14, December, 2009].
59. **McNurlin and Sprague (2006),** "*Information Systems Management in practice"*: 7th edition, Pearson Education international.
60. **Meresea Mulat (2007),** *"Outsourcing in Ethiopia":* Addis Ababa University, Faculty of Business and Economics, Masters Thesis.
61. **Milica Saravanja (2006),** "*ICT Outsourcing – Models and Experiences"*: IT Europe PLIVA Member of a Barr group Ulica grada Vukovara 49, Zagreb, Croatia.
62. **Mintesinot Behailu (2005),** "*ICT Infrastructure at Mekelle University, Ethiopia"*: Mekelle University.

63. **Monetary Authority of Singapore (2005),** "*Guidelines on O*utsourcing": Monetary of Singapore.
64. **Myers, M. (1997)**, "*Qualitative Research in Information Systems*": MISQ Discovery, http://www.qual.auckland.ac.nz/ [Accessed on 19, December, 2009].
65. **Pati and Desai (2005),** "*Conceptualizing Strategic Issues in Information Technology Outsourcing*": Information Management & Computer Security, Vol. 13 No. 4, Emerald Group Publishing Limited, pp. 281-296.
66. **Narasimha Paravastu (2006),** "*Management of IT Outsourcing Projects*"**:**The Project Management Institute, Newtown Square, Masters Thesis.
67. **O. lee (1998),** *"IT Outsourcing Contracts: Practical Issues for Management"*: Industrial Management & Data Systems, MCB University Press.
68. **Oxford University (1992),** "*The Oxford Dictionary of the Current English"*: Oxford University press, Walton Street, Richard clay Ltd.
69. **Gottschalk and Solli-Seather (2005),** "*Critical Success Factors From IT Outsourcing Theories: An Empirical Study*": Industrial Management & Data Systems, Emerald Group Publishing Limited, Vol. 105 No. 6. pp. 685-702.
70. **Lagares and Puerto (2001)**, "*Population and Sample, Sampling Techniques*": Management Mathematics for European Schools, http://www.mathematik.uniklde/mamaeusch, [Accessed on 4, April, 2010].
71. **Embleton and Wright *(1998),*** *"A Practical Guide to Successful Outsourcing":* Empowerment in Organizations, MCB University Press. Vol. 6 No. 3, pp. 94-106.
72. **Klepper and Jones (1999),**"*Outsourcing Information Technology Systems and Services*": http://www.businessforum.com/woj01.html, [Accessed on 24, March, 2010].
73. **Phipps and Merisotis, (2005), "***Is Outsourcing Part of the Solution to the Higher Education Cost Dilemma?"*: Institute for Higher Education Policy, Washington, DC.
74. **Rajabzadeh et al. (2008),** *"Designing a generic model for outsourcing process in public sector: evidence of Iran*": Management Decision, Emerald Group Publishing Limited, Vol. 46 No. 4.
75. **Scardino Beverly (2007)**, "A *Qualitative Research Paradigm*", http://www.quiel.com/DisplayDocument?id=393586 [Accessed on 22 February, 2010].

76. **Smith et al. (2001), "***Risk Management in Information Systems: Problems and Potentials":* Communications of the Association for Information Systems, CAIS, Volume 7, Article 13.
77. **Steven et al. (2009),** "*Contractual and Relational Governance of Software Outsourcing Projects: A Proposed Research Model and Research Agenda*": Department of Management and Marketing, Hong Kong Polytechnic University, Hong Kong.
78. **Stoneburner et al. (2002),** *"Risk Management Guide for Information Technology Systems"*: Recommendations of the National Institute of Standards and Technology, NIST, Special Publication 800-30.
79. **Sweet et al (1999),** "*Outsourcing: Evolving Toward Trust*": CSC Consulting
80. **The basics of Project Risk Management Handbook (2003),** http://www.businesforum.com/projectmanagment2.html: [Accessed on 18, March, 2010].
81. **The Canadian Institute of Chartered Accountants (2003),** *"Information Technology Outsourcing: Insights for a changing world*": A white Paper, Information Technology Advisory Committee, Wellington Street West, *Toronto*, Canada.
82. **The Canadian Institute of Chartered Accountants, (2005):** *"20 Questions Directors should ask about IT Outsourcing*" A white Paper, Information Technology Advisory Committee, Wellington Street West, *Toronto*, Canada.
83. **Thurston and Warren s (2000),** "*LAT Risk Management Plan"*: Large Area Telescope (LAT), GLAST LAT Project Management Plan.
84. **Tinselboer et al. (2005),** *"Outsourcing Decision Support: A Survey of Benefits, Risks, and Decision Factors*": Supply Chain Management, Emerald Group Publishing Limited, pp. 467–482.
85. **Pandey and Bansal (2003),** "*A Decision-Making Framework for IT Outsourcing Using the Analytic Hierarchy Process"*: Department of Industrial and Management Engineering, Indian Institute of Technology Kanpur, India.
86. **Vanlandingham and O'Keeffe (2004),** *"Managing the Risks of the Outsourcing: a survey of Current Practices and their Effectiveness"* APICS, www. Apics.org []
87. **Yu and Cheng (2007), "***Information System Outsourcing in Government: Public and Private Sectors Long-Term Alignment"*: Department of International Business, Southern Taiwan, University of Technology.

88. **Zakaria et al. (2008),** "*Exploring on Issues of Maintenance Management at Higher Learning Institutions In Malaysia*": International Conference on Civil Engineering (ICCE '08), University of Malaysia.
89. **Zoran Perunovic (2007),** *"Outsourcing Process and Theories":* POMS 18th Annual Conference Dallas, Texas, U.S.A.

APPENDIX: INTERVIEW QUESTION

Addis Ababa University
Faculty of informatics
School of graduate studies
Department of information science

1. **Interview Details**

Name of HLI _____

University Respondent Profile_____

Date of the Interview_____

Time of the Interview_____

Interviewee's Age_____

Interviewee's Sex_____

Duration of the Interview_____

2. **Contact for Future Correspondence**

Name_____

Email_____

Telephone_____

Dear, Interviewee's

This is a study initiated at the department of Information Science Studies at Addis Ababa University. This study aims at conducting a research on Risks and Risk Management Practices in the outsourcing of information systems by Higher Learning Institutions in Ethiopia, for the partial fulfillment of the requirements for the degree of Master of Science in Information Science.

This is a copy of interview question paper designed based on a prior study by Adeleye (2002) in which he investigates Risk management practices in information systems outsourcing in Nigerian banks. The instrument was refined based on the risk management procedures outlined by the Canadian Institute of Chartered Accountants (CICA) Information Technology Advisor Committee (2005) "*20 questions directors should ask about information technology outsourcing*" to include contract management, issues resolution and performance monitoring.

The interview questions contains four dimensions of risk and risk management practices in information systems outsourcing practices that are deemed significant to answer the research questions aimed to be answered.

I will be glad if you kindly answer all the interviewee questions patiently. All information gathered will be treated with utmost confidentiality. If you so indicate, a copy of the findings of this survey may be made available to you as soon as the analysis and write up are complete.

Daniel Beyene

Thank you for your sympathetic participation in this research work!

SECTION I: OUTSOURCING STRATEGY

1. Does the university have an explicit outsourcing strategy? If not, does the university intend to put in place an outsourcing strategy? Why?
2. Is any IS functions the university currently outsource or are contracted to do so in the near future? If yes what was/is the outsourcing process that the university follows?
3. Does the university have an ICT policy statement for Information Systems? If yes, to what extent is the university using this policy in the outsourcing process?

SECTION II: STAKEHOLDERS IN OUTSOURCING PROJECT

1. In the university outsource IS functions, who is/was the most important person in making the outsourcing decision?
2. Does the university involve users in the acquisition process? If yes to what extent?
3. What is the role of top level management in the IS-related decision making?

SECTION III: IMPACT OF OUTSOURCING

1. In which ways do you think outsourcing could affect the university?
2. Can you list the potential benefits and with outsourcing?
3. What are the drawbacks and perceived risks in information system outsourcing? Why?

SECTION IV: RISK MANAGEMENT

1. Has the university engaged any external support e.g. consultancy, software house etc, in outsourcing its information systems? If not, why?
2. Does the university determine the training needs of users before and after the outsourcing of an information system? If not, why?
3. Does the university have risks management procedures or guidelines for the outsourcing of information systems? If no How are the risks identified and assessed in the decision making process?
4. What are the most critical factors that should be considered in choosing an Information Systems vendor:
5. Do you think that effective accountability and process exist to monitor and manage the relationship with the service provider, to maintain good communication between the practices, to ensure mutual understanding of service needs and service quality, and to resolve issues that may arise from time to time? If not why?
6. Does the university have any specific points of concern, perceived potential problems, or areas of possible conflict? If yes, how does the university resolve the problems?
7. Do you think that, the university have clear objective and reliable measures of performance defined and operating to benchmark the service provider's performance and assess the quality and cost of the service delivered? If yes what are they?
8. What are the previous trends in outsourcing of information systems? Are they success/failure?
9. What is the procedure that the university follows to measure the success/failure of any outsourced information systems?
10. What are the mechanisms that the university follows to manage the progress of outsourced information systems

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university, and that all sources of materials used for the thesis have been fully acknowledged.

Name: .....

Signature: .....

Place: .....

Date of Submission: .....

This thesis has been submitted for examination with my approval as university advisor.

_____ _____

Advisor's Name Signature