

**FACTORS INFLUENCING THE IMPLEMENTATION OF HOSPITAL
MANAGEMENT & INFORMATION SYSTEM AT
LUBAGA HOSPITAL,
KAMPALA, UGANDA.**

BY

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LIST OF ABBREVIATIONS

CEO	Chief Executive Officer
CSFs	Critical Success Factors
DHIS	District-oriented Health Information System
ERP	Enterprise Resource Planning
FRD	Functional Requirements Document
GST	General Systems Theory
HIS	Health Information System
HIV	Human Immune Virus
HMIS	Hospital Management & Information System
IT	Information Technology
KCCA	Kampala Capital City Authority
MBA	Master's in Business Administration
MoH	Ministry of Health
MTUHA	Mfumo wa Tarifa za Uendeshji wa Huduma za Afya
TOR	Terms of Reference
UAT	User Acceptability Test
UTAMU	Uganda Technology & Management University
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study focuses on examining the factors influencing the implementation of a Hospital Management and Information System at Lubaga Hospital. In this study the factors influencing the successful implementation of HMIS will be the independent variable while successful implementation of the HMIS is the dependent variable. This chapter will present the background to the study, the statement of the problem, the purpose of the study, the objectives of the study, research questions, hypotheses, conceptual framework, scope of the study, the significance, justification and operational definition of terms and concepts.

1.2 Background to the study

This sub section presents the background of the study divided into the historical, theoretical, conceptual and contextual.

1.2.1 Historical Perspective

The processes used to collect, process, and store patient information to aid clinical treatment are probably as old as medicine itself (Ayodele, 2011). Hippocrates in 400BC attempted to explain disease occurrence from a rational rather than a supernatural viewpoint basing on information from study of patterns. As early as the 17th century health information was considered to play an important role in the planning, management and decision-making, in 1662 John Graunt published a landmark analysis of mortality data, this publication was the first to quantify patterns of birth, death, and disease occurrence, noting disparities between males and females, high infant mortality, urban/rural differences, and seasonal variations (Snow, 1936).

In 1800 William Farr built upon Graunt's work by systematically collecting and analyzing Britain's mortality statistics. Farr established many of the basic practices used today in biostatistics and disease classification. He focused his efforts on collecting vital statistics and evaluating those data, and reporting to responsible health authorities and the general public (Thacker, 2002).

In the mid-1800s John Snow after carefully analyzing epidemiological data on the location of water sources in relation to the households with cases during the London cholera outbreak in 1854, was able to convince local politicians to remove the pump handle, interrupting the devastating outbreak. His book, "On the Mode of Communication of Cholera" republished in 1936 is a Public Health classic because in it he demonstrated how health information could help resolve issues of public health concern (Snow, 1936). From the mid- and late-1800s, epidemiological data methods began to be applied in the study of disease incidence initially focusing on infectious diseases.

In the 1930s and 1940s, health data studies were extended to noninfectious diseases. The post-World War II era saw the explosion in the development of research methods and the theoretical foundations of health care information use. Doll(1950)in a study linking lung cancer to smoking and the study of cardiovascular disease among residents of Framingham, Massachusetts (Kannel,2000),are two examples of how pioneering researchers applied health information data methods to understanding chronic disease since World War II.

During the 1960s and early 1970s, health workers applied health information methods to eradicate smallpox worldwide (Fenner, 1988), this was one of the greatest achievements of health information of all time. It took some time to come up with the technology near to the current information systems (Were, 2016). In the late 1970s with the advent of computers, we

recognize that there was a remarkable shift from paper-based processing and storage to computer-based systems. This shift had its advantages such as a significantly higher functionality and much better opportunities in using patient data and disadvantages which were related mainly a higher technological complexity (Haux, 2006).

In the 1970s, 1980s and 1990s, hospital information systems evolved as part of health information systems with a hospital as the health care environment. System developers were initially focused on small applications in special departments of the hospital, for example, in a laboratory, radiology or the administration department. Information systems gradually moved to data processing in the hospital as a whole. This helped to ease the records work in most hospitals worldwide (Kalega, 2015). At the beginning, computer-supported health information systems were largely intended to support health care professionals, mainly doctors, nurses, as well as administrative staff in hospitals (Haux, 2006), however, we recognize that health information systems now also will have a role in directly supporting patients, their relatives and all people with health questions and problems otherwise referred to as health consumers (Nelson, 2004).

Development of health information systems in Africa was not as smooth largely because the national health systems were grappling with other critical challenges including: unacceptable disparity and inequity, resource scarcity in the health sector, deepening poverty, burden of disease and poor indicators, weak and inappropriate health systems, and the shortage of human resource crisis in the health sector (Kaseje, 2006).

The Kenyan National Health Management Information System department was created in 1975 as one of the first on the continent with the functions of collecting, processing and analyzing health and management data and to provide other departments within the MoH with information necessary for planning purposes. (Odhiambo, 2005).

The Health Information System in Mozambique was created in 1979, the Ministry of Health established a mechanism of data collection at every health facility of the national health system. Despite the various data collection efforts, limited human resources for health and weak informatics infrastructure impaired the systematic and timely collection of health information. The MHIS was revised in 1989 due to constraints related to lack of defined objectives, complexity of the forms, and data duplication (Mukama, 2003).

Following the Alma-Ata Declaration of 1978 most low-income countries started to implement health sector reforms, among which the utilization of routine health information was recognized as being important for reference and evidence (WHO, 1978).

The World Health Organization (WHO) played a leading role in helping low-income countries develop Health Information Systems (HIS) by providing technical and financial support to assess, design and develop such systems (WHO, 2000). The WHO emphasized district-oriented health information systems (DHIS) as the priority (WHO 1988). This was following the acknowledgement by most member states that efforts to strengthen national health information systems had often produced little improvement or even made the problems worse at times (WHO 1994). Specific problems that faced the development of HIS in Africa included: duplication of data, multiple data pathways, inadequate quality control measures, human resource incompetence in data analysis, interpretation, and use. African systems had weak monitoring and evaluation, and managerial capacity, absence of strong central coordinating institutional framework, datasets were too restricted and not meeting the reporting needs of programs, data was not used to inform decision making and there was hardly any feedback to the health institutions (Tossy, 2014)

Tanzania's health information system is called MTUHA, which is an acronym for the Kiswahili meaning of Health Management Information System - "Mfumo wa Tarifa za Uendeshaji wa Huduma za Afya." MTUHA came into existence in 1993 replacing the previously existing systems from the 1980s that had been found with multiple problems that rendered them ineffective and unreliable. During the design stage of the MTUHA system in 1989-1990, the major objective was to have a decentralized, integrated, functional, and reliable system.

Uganda had a centralized health information system (HIS) developed in 1985 focusing on morbidity and mortality reporting, with data flowing only from individual health units to the district and national level (Schaufeli, 2006). In 1993 the Ministry of Health (MoH) implemented a health management information system that emphasized use of information at the point of collection (Gladwin, 2003). The system is paper-based at the health unit level where the information is collected using various HMIS forms and registers then computerization takes place at the district headquarters and at the national level. The information collected by the system includes health indicators, notifiable diseases, patient attendance and available resources (Gladwin, 2003).

1.2.2 Theoretical perspective

The study will be underpinned by the General Systems Theory (GST) by Von Bertalanffy (1968). The basic principle of General Systems Theory is that all systems share certain features that allow them to operate as systems rather than a collection of parts, regardless of their type or level of organization. Bertalanffy (1968) proposed that a system is characterized by the interactions of its components and the complexity of those interactions. The fundamental concept of the GST is its focus on interactions; this focus reflects on organizations' ability to adapt to changes in environmental conditions (Katz and Kahn, 1978). The GST provides an analytical

framework for viewing an organization in general, looking at it as a living organism. The GST is applicable to many situations, however in reference to HMIS, the system developers and users ought to be cognizant of the fact that every organization has unique characteristics that enable it to thrive within its environment, and these should be studied and preserved during the development, design and implementation of the HMIS for it to be successful.

Emery and Trist (1960) developed the systems theory further by considering organizations as socio-technical systems, highlighting the two main components of a firm that form a system: the social component (people), and the technical component (technology). This would imply that for the establishment of a successful HMIS, there has to be a match between the technology and its targeted beneficiaries or users.

Some elements of the systems theories have been highlighted and their application in implementation of a HMIS. System developers and implementers should become familiar with the concept of systems and the associated way of thinking.

Successful implementation of a HMIS would benefit this theory when the implementers commit to developing institutional memory through continuous review of significant events taking away the lessons learnt without necessarily focusing on the details of the event itself. The process of implementing a new HMIS should be subjected to the various understandings of the systems theory for it to be successful.

1.2.3 Conceptual perspective

Hospital Management & Information System (HMIS) according to Vegoda (1987), is defined as an integrated information system which improves patient care by increasing the user's

knowledge and reducing uncertainty, enabling them make rational decisions from the information provided.

Haux(1996) considered the HMIS as the entire information processing and storage subsystem of a hospital, whereby it is not just about computer systems, networks and the software that are installed on them, but it is about the information in a hospital as a whole. HMIS consists of integrated software designed to capture data in different sections of the hospital (Garrido, 2004), handle the workflow of routine medical services and also support financial, administrative and clinical data management. Hospital Management and Information Systems are supposed to make the right information available to the right people, at the right time.

The definition and measurement of success depends on the point of view from which you measure it, Project managers and ERP consultants often define success in terms of completing the project implementation plan on schedule and within budget. However system users tend to emphasize having a smooth operation with system and achieving demonstrable business improvements (Axline, 2001). These improvements could take the form of operational excellence, cost reduction, capital stewardship, profitable growth and organizational capability.

Foxil (2014) notes that implementation is the activity of putting in place what has been planned. Aodi (2011) noted that implementation may involve utilization of available resources to have an activity successfully put in place. The successful implementation of HMIS will be measured in terms of timely completion, achieving scope and quality, internal business process perspective, external business process perspective, customer service perspective and cost saving.

1.2.4 Contextual Perspective

Lubaga Hospital is the second oldest hospital in Uganda having been in existence for 117 years as a private not for profit hospital owned by the Catholic Archdiocese of Kampala, located in the suburban Lubaga division of Kampala district. The hospital handles over 200,000 patients in a year and has a number of government programs running within its services such as, child immunization, HIV care, sickle cell and rota virus disease surveillance etc. These services are provided alongside the general health services at the level of a regional referral center.

Following the rollout of the National Health Management Information System program at the district level in 1993, the hospital found itself with the urgent need for accurate data to meet the reporting requirements of the Ministry of Health and its own information needs. A consultant programmer was contracted in 1996 who designed a customized HMIS serving the need of compiling Ministry of Health data reports. The system served the hospital well for almost eighteen years until 2014 when it was condemned as being obsolete and could no longer meet especially the hospital's management and information needs. The external auditors of the hospital observed that the system was unable to integrate the various aspects of hospital like financial, administrative and clinical functions hence creating implementation gaps. None of the staff had a good understanding of the system, there was absence of real time data processing and the service provider was unable to meet required support for the system. The hospital auditors recommended acquisition of a robust integrated HMIS addressing the needs of hospital and those of the MoH in a timely and efficient manner (Lubaga Hospital Annual Report, 2014).

In November 2014 the hospital Board of Governors undertook the procurement exercise bringing on board new ERP software known as Navision 2016 from Microsoft Dynamics. The vendors of the system were HRP solutions, a consultant-Project Manager was hired to support the hospital

management in the implementation of the new HMIS, however, till today there are still gaps in the implementation of the HMIS at Lubaga Hospital.

1.3 Statement of the problem

The HMIS implementation project is a complex one since it involves multiple interdependent steps and touches most operations of the hospital, bringing together a large team of implementers and stakeholders (Redo, 1997). The implementing team members at Lubaga Hospital have probably not worked together on a project before and they include, the system vendors, the Consultant, Project Manager and representatives from all departments within the organization such as IT, finance, Human resources, records and statistics, clinical departments (pharmacy, lab, nursing, Outpatients etc.), and general operations. HMIS based tools could be useful to work with for information, supporting the information and information-processing needs of the organization. Successfully implementing HMIS would have a significantly positive impact on the hospital, in contrast, failing on this project would have a major negative impact on all the stakeholders (Lillian, 2014). Implementing ERP systems poses the challenge of solving the silo type of operations usually found in large organizations such as Lubaga Hospital. Since the recommendation by the external auditors and procurement of the software system in 2014, implementation of the HMIS at Lubaga Hospital has continued to encounter a number of challenges in the way to its full operation. This is reflected in terms of the cost overrun, failure to commission some modules, failure to meet go live date and system down times. Whether cultural, strategic, tactical factors are influencing the successful implementation of HMIS is the question subject to debate that prompted the study. It is against this background that the researcher sought to examine the factors influencing the successful implementation of HMIS at Lubaga Hospital.

1.4 Purpose of the study

The purpose of this study is to examine the factors influencing the implementation of Hospital Management Information Systems at Lubaga Hospital.

1.5 Specific Objectives

The study will be guided by the following specific objectives:

1. To examine the cultural factors influencing the implementation of the HMIS project at Lubaga Hospital.
2. To establish the strategic factors influencing the implementation of the HMIS project at Lubaga Hospital
3. To examine the tactical factors influencing the implementation of the HMIS project at Lubaga Hospital

1.6 Research Questions

1. What are the cultural factors influencing the implementation of the HMIS project at Lubaga Hospital
2. What are the strategic factors influencing the implementation of the HMIS project at Lubaga Hospital
3. What are the tactical factors influencing the implementation of the HMIS project at Lubaga Hospital

1.7 Research Hypotheses

The study will test the following research hypotheses

1. Cultural factors significantly influence the implementation of the HMIS project at Lubaga Hospital

2. Strategic factors significantly influence the implementation of the HMIS project at Lubaga Hospital
3. Tactical factors significantly influence the implementation of the HMIS project at Lubaga Hospital

1.8 Conceptual Framework

Figure 1: shows the conceptual framework adopted for the study. This is the scheme of concept that was operationalized in order to achieve the set objectives. It is the hypothesized model identifying the concepts under the study and their relationships.

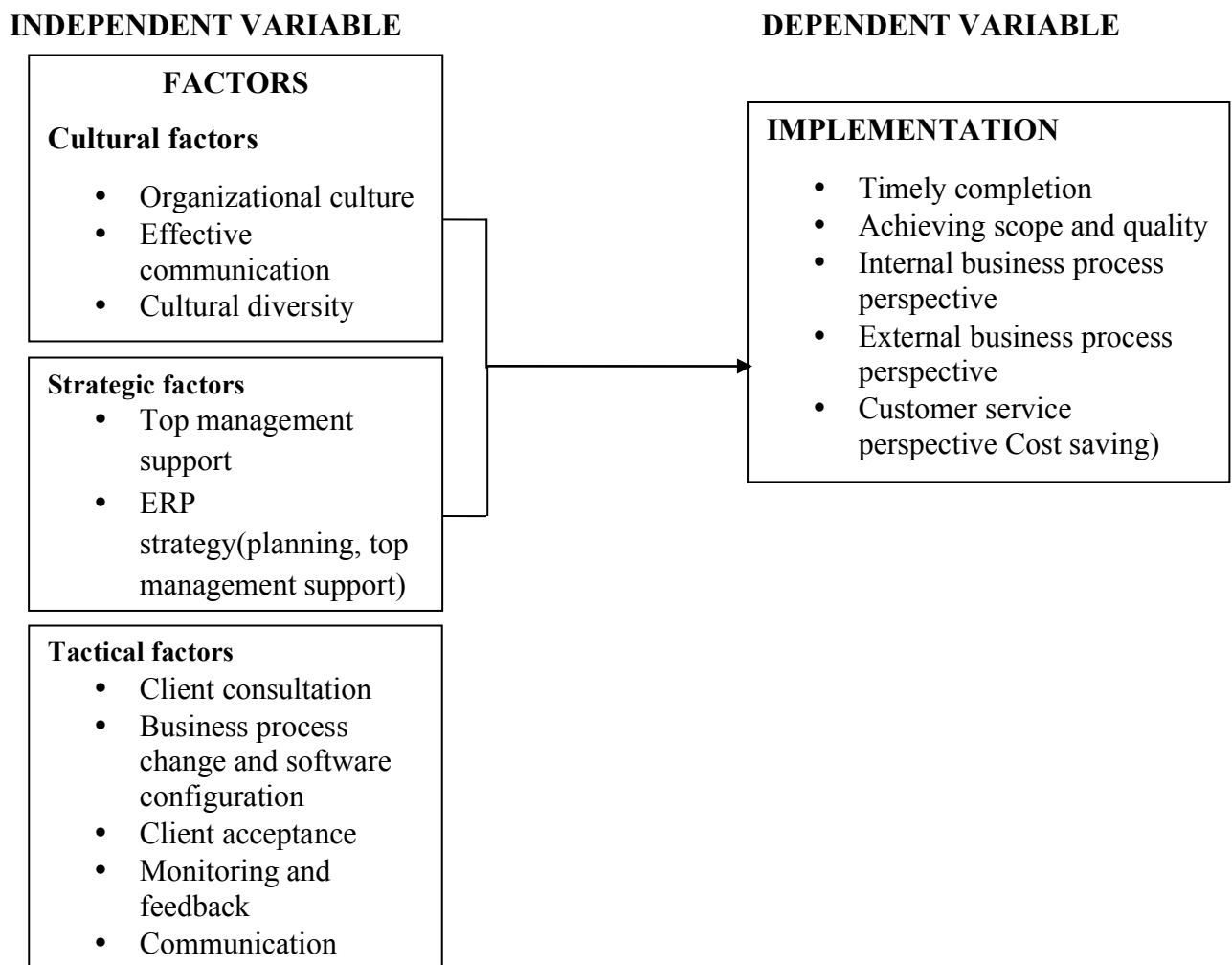


Figure 1: A conceptual framework illustrating the relationship between the study variables
 Source: Adopted from Source: Adopted from Armstrong (2006) and modified by the researcher

This conceptual framework in figure 1 explains the relationship between the independent variable (factors affecting the successful implementation of Hospital Management & Information Systems) and the dependent variable (implementation of HMIS). The factors here will be cultural, strategic and tactical. Cultural factors will refer to organizational culture, effective communication and cultural diversity. Strategic factors will refer to top management support and ERP strategy. Tactical factors will be measured in terms of client consultation, business process change and software configuration, client acceptance, monitoring and feedback. The independent variable is the successful implementation of HMIS which will be measured in terms of timely completion, achieving scope and quality, internal business process perspective, external business process perspective, customer service perspective and cost saving.

1.9 Justification of the study

The success or failure of HMIS implementation is closely related to how the companies understand the risks or opportunities involved in the process. The HMIS implementation process may differ in every organization, however, there are some general factors that are vital to all and that would strongly impact on the success or failure in the implementation. Those important facts will be identified in this study as the factors affecting successful implementation. With an investment of almost a billion shillings made by the hospital on the HMIS, understanding the success factors for HMIS is requisite for the implementers. Until today there are gaps identified in the implementation of the HMIS at Lubaga Hospital. No much linkage has yet been done empirically to demystify the issues surrounding the implementation of HMIS at Lubaga Hospital; this has inevitably created a knowledge gap. Therefore there is an urgent need for a study on the factors influencing the successful implementation of HMIS at Lubaga Hospital.

1.10 Significance of study

The findings of this study may be of major significance to a number of stakeholders, including, hospital management, policy makers and planners, future researchers and the researcher.

Hospital Management: The hospital management is likely to use the findings of this study to improve their management and support strategies for the HMIS project.

Planners and Policy makers: Ministry of Health and other hospitals are likely to benefit from the findings of the study in that the study will explore the bottlenecks and knowledge gaps experienced during the implementation of HMIS projects within the health sector, and suggest strategies for making the system even better. This knowledge may help the functionaries in devising better strategies for dispensing HMIS.

Future Researchers: Future researchers will use this study as a source of reference, and to be motivated by the same study to undertake further research on the HMIS subject area.

Researcher: The study will lead to the award of an Executive Master's in Business Administration of Uganda Technology and Management University.

1.11 Scope of the Study

1.11.1 Geographical scope

This study will be carried out at Lubaga Hospital located in Lubaga Division of Kampala District. Kampala district is made up of five divisions namely Central division, Kawempe Division, Makindye Division, Nakawa Division and Lubaga Division.

1.11.2 Content Scope

This study will focus on the factors influencing the successful implementation of HMIS at Lubaga Hospital. The independent variables will be factors influencing the successful

implementation of HMIS and the dependent variable will be successful implementation of the project.

1.11.3 Time Scope

The study will cover the period 2014 to 2016, this is the period when HMIS has been implemented in Lubaga hospital despite the existing number of gaps in HMIS implementation. In 2014, the hospital auditors recommended acquisition of a robust integrated HMIS addressing the needs of hospital and those of the MoH in a timely and efficient manner.

1.12 Operational Definitions

Hospital Management & Information System (HMIS) the term used interchangeably with **Health Information Management Information System** depending on the context of operation; An HMIS is a process whereby health data are recorded, stored and processed for policy-making, planning, implementation and evaluation of health programs (Chawla, 1997).

Success Factors are the aspects or elements that need to be considered carefully in order to have a successful project (Ruthrock, 2014).

Healthcare informatics is defined by Hans (2012) as the intersection of information science, medicine and health care. It deals with the resources, devices and methods required to optimize the acquisition, storage, retrieval and use of information in health, using tools including not only computers but also clinical guidelines, formal medical terminologies, and information and communication systems.

In conclusion, this chapter reviews the factors influencing the successful implementation of HMIS with regard to the study objectives, problem statement, research questions, hypotheses, conceptual framework, significance of the study and study scope. The parameters of the study scope and limitations were also highlighted in this chapter. The next chapter provides an overview of the literature on factors influencing the successful implementation of HMIS

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of literature on the factors influencing the successful implementation of HMIS. The presentation of this chapter begins with the theoretical review, review of related literature and the summary of the literature reviewed. The main purpose of a literature review was to establish the academic and research areas that are relevant to the subject under investigation. Ragin (2011) defines a literature review as a systematic, explicit and reproducible method for identifying, evaluating, and interpreting an existing body of recorded work that was produced by researchers, scholars and practitioners. This chapter also presents a discussion of literature on theories that underpinned the study and a review of literature about other studies carried out on factors influencing the successful implementation of HMIS. The literature is presented in relation to the objectives of the study. This chapter further presents the identified research gap which the study seeks to address. The literature reviewed is from journals, textbooks, working papers, dissertations and internet websites.

2.2 Theoretical review

The GST has its origins in biology, however it has influenced many sciences, including technological fields, management science, mathematics, political science, psychology, and sociology. GST is particularly an approach in which problems are solved from a holistic perspective (Systems theory, 2014).

In the GST, a system exists to convert inputs into outputs through a transformation process. The function of any system is to convert or process information, or materials into a product or outcome for use within the organization, or outside of the organization or both. In the

implementation of a new HMIS, all participants need to appreciate the different functions of the organization as parts of a single system designed to achieve a common outcome, in this study respondents will be encouraged to use a systems approach. All systems have common features these include: input output, throughput or process, feedback, control, environment and goal. (Gillies1982).

O'Rourke (2011) argues that Bertalanffy developed the GST as a general model, one which can be adapted to any discipline; however, it was not meant to be a one-size-fits-all model, and must be modified to accommodate the discipline-specific requirement(O'Rourke, 2011).

Criticisms: The GST was popular in the 1960s and 1970s however it attracted a number of criticism from authors who found it inadequate such as Meyer who felt that it lacked the aspect of intersystem relationships and Goldstein who thought that the theory was too abstract for practical application (Drover and Shragge, 1977).

Implementation of the new HMIS does not only affect Lubaga Hospital but also the stakeholders outside of the organization such as KCCA, MoH and WHO, these utilize the data from the different health facilities, this consideration brings to light the intersystem interactions which among the dependent variables were named as “external business process perspectives”.

2.3 Review of Related Literature

This sub section presents literature reviewed according to the study objectives which are cultural, strategic and tactical factors.

2.3.1 Cultural factors in the successful implementation of the HMIS

Schein (2000) defines the culture of an organization as “a pattern of shared basic norms that a group learns as it solves its problems, that have worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to approach those problems”. For purposes of this study, cultural factors will refer to organizational culture, effective communication and cultural diversity

McLaughlin (2015) describes organizational culture as a system of shared assumptions, values, and beliefs, which governs people’s behavior within organizations. McLaughlin further explores seven elements that make up an organization's culture including, risk orientation, attention to detail, emphasis on outcome, emphasis on people, teamwork, competition orientation and orientation to rules. Ford and Markus (2005).Argued that in order to be able to act together, people must understand and be aware of the differences between cultures.

According to Bean (2004), cultures incorporate all good things in peaceful co-existence. Also many other authors eager to appeal to practitioners focus on highly positive-sounding virtues, attitudes, and behavior claimed to be useful to the achievement of corporate goals as defined by management. They are largely instrumental in character, without considering any ambiguity of the virtue of culture or what it supposedly accomplished in terms of goal realization. The assumption that culture can be simply evaluated in terms of right and wrong come through in embarrassing statements such as that ‘the wrong values make the culture a major liability’ has already been mentioned. Similarly, Bean (2004), argues that ‘corporate values have a positive impact on employee performance when it points behavior in the right direction. Alternatively, a corporate value has negative impact when it points behavior in the wrong direction.

The researcher under this study looked at culture as an integrated system of learned behavior patterns which are characteristic of the members of a society and which are not a result of biological inheritance.

Literature strongly suggests that organizational culture plays a critical role in ERP implementation success. Skok and Döringer (2001) argue that there has been an increase in reported ERP implementation failures and suggested that the issues were not just technical, but encompassed wider behavioral factors within the organization. Undeniably ERP project implementations have also proved challenging even in well-developed organizations, often due to the underestimated requirement for change management and the repositioning of roles and their meaning for actors (Boersma and Kingma, 2005). Numerous studies have identified critical success factors for ERP implementation, however cultural fit has remained a particularly neglected factor (Willis and Chiasson, 2007). What seems to be missing from conventional research into the success of ERP implementations from the cultural aspect is the understanding of the readiness of organizations for ERP implementations.

According to Braxton, (2000), the values and ideas to which organisational culture research pays attention are primarily connected with the means and operations employed to achieve pre-defined and unquestioned goals on a given IFMIS. A second problem is that subordinating organisational culture thinking narrowly defines instrumental concerns as it also reduces the potential of culture to aid managerial action. Corporate values calls for considerations under the assumption that employee performance may decline if the values set by the organization are not upheld. The above author's do not show some problems associated with poor corporate culture and places the concept into a limited version of the technical cognitive interest. The researcher

argues for ‘softer’ version of this interest as well as for thinking following the other two cognitive interests.

Molla and Loukis (2005) note how ERP success depends on a match between the host culture and the ERP inherent system culture. ERP technology is known for imposing rigid norms of workflows and particular practices upon organizations and it is well noted that ERP demands changes to organizational culture. The milieu in which an ERP system is developed, implemented and eventually used, constitutes a “social context” (Zaglago, 2013) or an ecosystem. This “ecosystem” includes several stakeholders, right from the developers of the system, to the vendors, the consultants, the project team, and end users. Every single one of these players holds a particular cultural notion towards the ERP implementation process (Rasmy et al., 2005). Otieno(2010) proposed that when the cultures of developers are different from those of users, it results in a cultural clash. He further built on the same argument to stating that, adopting an ERP that had been invented in one culture, country, or region to another diverse culture involved more than simply providing information on the technical features of adopting the software. The above study is silent on how cultural factors influence the implementation of Hospital Management Information Systems.

Organizations that have successfully adopted ERPs recognize the importance of adequate education and training for end-users in using the new system (Bajwa et al., 2004). Buy in from users is recognized as an important requirement for implementation success however data suggests that end-users are often not involved in the planning for the implementation. Similarly adherence and readiness for the ERP system implementation by the end-users seemed to be neglected (Motwani et al., 2002). The proposed study will focus ERP and their influence on the successful implementation of HMIS

Shehab (2004) stated that lack of organizational culture fit led extensive customizations that in turn caused increased project time, disrupted schedules, and created new bugs in the system, they further argue that customization within any culture should therefore be minimized, in order to achieve the full benefits of an ERP system.

Accordingly, much research on corporate values and organizational symbolism is dominated by a preoccupation with a limited set of meanings, symbols, values, and ideas presumed to be manageable and directly related to effectiveness and the implementation of HMIS. This is in many ways understandable, but there are two major problems following from this emphasis. One is that many aspects of organizational culture are simply disregarded. It seems strange that the (major part of the) literature should generally disregard such values as bureaucratic-‘meritocratic’ hierarchy, unequal distribution of privileges and rewards, a mixture of individualism and conformity, male domination, emphasis on money, economic growth, consumerism, advanced technology, exploitation of nature, and the equation of economic criteria with rationality. Instrumental reason dominates; quantifiable values and the optimization of means for the attainment of pre-given ends define rationality Stohn (2005). The literature above does not create a linkage between corporate values and the implementation of HMIS which is the centre of focus in the proposed study.

2.3.2 Strategic factors in the implementation of HMIS

The commonly mentioned strategic CSFs in ERP implementation from literature include: the top management support, presence of a business plan and vision, project management, change management program and implementation strategy.

ERP Strategy

Planning

Lyson (2006) observed that quality planning can help shape and improve accountability in governments. The governments have time and again compelled workers to follow the existing laws and the corresponding regulations for purposes of effective performance. However, Lyson(2006) is silent on the quality planning process which will be the subject of investigation in this study.

Poor planning may sometimes give rise to poor accountability. First there is an agency problem, or conflict of interest, involving members of the organization these might be owners, managers, workers or consumers (Lyton, 2011). Second, costs that accrue during operation can become a problem to the agency and this will necessitate dealing with them through a contract. In the absence of problems, all individuals associated with an organization can be instructed to maximize profit or net market value or to minimize costs. Individuals will be prepared to carry out their instructions since they do not care per se about the outcome of the organization's activities (Lyton, 2011). In relation to KCCA and other programmes, quality planning is being used as a tool to ensure project success. However the researcher is critical of that view, quality planning in KCCA still has gaps that this research intends to investigate.

According to Meckling (2006), if the existing systems are not properly planned employees may be reluctant to perform some works because they know the systems are not in place or are in place but they are weak. Or they may believe that they are the best people to run the company when in fact they are not. In view of the managers' ability to pursue their own agenda, it is obviously important that there exist checks and balances on managerial behavior (Safi, 2011). The study will create a nexus between the quality planning process and project success and assess the degree of correlation between the two.

Top management Support

Many of the development programmes require a good planning approach to satisfy the growing aspirations of the nation's people (Mulumba, 2011). The decisions therefore centre on all projects that require to be evaluated by the audit function on the basis of mature judgment and appreciation of the wide spectrum of objectives. In order to meet public quality planning standards, there is need to mobilize resources for that purpose (Mulumba, 2011). In filling the gap, the researcher in his findings will bring out the components of quality planning and why it is important to pay attention to it when handling big projects in public entities

Omaha (2014) noted that proper quality assurance systems are most effective in promoting administrative accountability when they are channeled through organizations that provide services or bring services near the people. However, international experience also shows that regulation of funding to programmes can be effective if well-designed; backed by effective sanctions, and accompanied by a parallel diffusion of appropriate ethics and norms. However, this will be effective if the projects can effectively be monitored and evaluated. This requires reliable quality systems to be in place within the institution.

Improving Quality

Following the uncertainties prevailing in the public entities today, managers and stakeholders have poised and prepared to compete favorably under the rapidly shifting conditions (Onyacha, 2014). In order to survive under these environmental complexities and vagueness managers and stakeholders of all sectors have time and again required sharp tools, proven management techniques such as strong quality assurance tools to forecast the major changes which are likely to affect the projects while they choose future direction and dimension of resources needed to attain selected goals. This in Uganda has called for formulating or drawing budgets annually in the public sector organizations meant for ensuring quality standards.

Project management

According to Lubaale (2009), control is a function of management that influences project success. There is no single definition of control that has been agreed upon. However, Musenge (2002), control as the ability to coordinate, establishing strategies to achieve set goals and developing plans to integrate and coordinate activities. While Lubaale (2009), supplements by looking at control as an activity that involves making decisions about ends like setting organizational aims, objectives, means, conduct (policies) and results. He also adds by categorizing control as either being long term (corporate control) or short term.

However, this study will take cognizance of the fact that to deal with control in a bid to improve project success, there is need for identification of the key components of quality control and parties concerned in addition to establishing the reasons for the shortfall, deciding on the action to be undertaken and all the aspects of control needed to be taken into consideration for effective project success.

Green (2015) recognizes top management support as one of the most important critical success factor of ERP implementation. Top management is defined as the CEO and his/her direct team all of them, responsible for corporate policy (Green, 2015). In the HMIS project at Lubaga Hospital top management is represented in the figure of the Steering Committee and the project sponsor who is the hospital board. Welti (1999) considered an accomplished and influential steering committee as being absolutely crucial to project implementation, as it has to fulfill the very important responsibilities, such as, offering leadership, taking ownership, managing the project policy issues, deciding on organizational issues, making resources available, supporting the project manager and motivating the management. The proposed study will use a cross sectional survey design compared to the earlier study that applied a case study design.

In addition, project sponsor leadership skills play a significant role in the success of the implementation, because the sponsor must be able to resolve conflicts, deal with resistance, and spearhead change management.

The complexity of ERP implementation projects often requires employees working extended hours, over and above their regular duties and this may result in stress and lower morale. So the role of sponsor is to promote ERP implementation project through entire organization and increase morale and commitment of all team members.

Curko (2012) assert that the project goal should not only focus on implementing ERP system but on achieving specific business objectives that feed into the long term vision. Holland & Light (1999) placed their emphasis for ERP success on the need for specific goals and benefits that are easy to identify and measure. Rosario (2000) stresses the importance of having a business plan, while Wee (2000) argues that the business plan must provide an overview of the strategic benefits, resources required, cost involved, risks and schedule. From his research it was found that the relationships among these variables are strongly negative. This denotes that decrease in implementation may occur due to a number of factors.

According to Wee (2000) project management is recognized in some literature as a strategic factor in the implementation of ERP projects while others may classify it under the tactical factors. Project management involves initiating, planning, executing, controlling, and closing project activities to achieve specific goals. ERP implementation usually touches the entire organization affecting all aspects of a company including employees, processes and technology. The above recommendations by Wess (2000) may not be easily applicable to Uganda due to the limited availability of funds for formulation, implementation and evaluation of HMIS

Complexity of this magnitude requires that every project needs solid and effective Project Management if the project objectives are to be achieved this is because of the high levels of risks involved. An experienced project manager is crucial in ensuring that risks are identified and responded to throughout the project lifecycle. According Jiang (1996) a competent project manager is the second most important factor in the implementation of information systems. Mousseau (1998) states that in ERP implementation, project managers should be sound in technical and business knowledge, remain calm in stressful situations, be decisive, and demonstrate good people skills. The Project Manager's tasks range from managing expectations of stakeholders, clarifying project goals, defining and controlling project scope, define project milestones and change management. An empirical literature on the effectiveness of HMIS is mixed. Earlier studies have pointed out that the strategic factors are a good determinant of HMIS. Many other studies also tried to see how effective HMIS is by comparing the costs and benefits

Rosario (2000) revealed that ERP implementation involves structural changes that include employees, organization and cultural change which have to be managed. There is little information in literature on implementation strategy however Bradford M. (2008). Identifies two strategies namely, the phased approach and the "the big bang" approach. The phased approach is a stepwise way of implementation in which the ERP system is introduced by function (module by module) or by geographic locations while the big bang is the approach where implementation of the entire scope of the project is handled throughout the entire organization at once. It is not clear from literature which approach is most suited for the various situations.

2.3.3 Tactical factors in ERP implementation

Pinto and Slevin (2015) describe the tactical factors as consisting of communications amongst all stakeholders, having the necessary personnel within the project team and obtaining the necessary technology and expertise for technical activities; while other tactical factors include user acceptance, monitoring and troubleshooting at all stages. However, the data for this study will be analyzed using mixed approaches that falls short of what was done in the previous study whose analysis was based on qualitative approaches. Using a mixed approach, data will be cross-validated and captured using different dimensions of the same phenomenon

Sharma and Patterson (1999) define effective communications as the formal and informal sharing of meaningful and timely information between the client and consultants in an empathetic manner. The communication is intended at enhancing the understanding of users' requirements as well as keeping them informed about system operations in a language that they are familiar with. Effective communication further enables the modification and continual redefinition of each individual's view as they interface with others (Wang, 2001). Project implementation teams use effective communication to generate agreed perceptions of the desired outcomes.(Sussman and Guinan, 1999:26) maintain that conflict resolution in ERP implementation teams, requires highly effective coordination mechanisms to increase communication within the team so as to mitigate the adverse effects of the complexity of high volume of information. Conflict resolution practices during system development and implementation are directly associated with project success (Robey, Smith, and Vijayasathy, 1993). Top management has a significant role to play in improving communication among ERP stakeholders and act as a change agent to create a more conducive environment for learning in ERP implementation (Wang, 2001).The results from the survey indicated that their

ranking had not changed over the study period with regards their collective perception of the HMIS. This shows that they had a very inaccurate perception of what role HMIS plays in the success of an entity.

According to Wang (2001) user consultation and support is important because the probability of a successful ERP implementation is very much influenced by the collaboration between consultant and users. If users are not consulted in implementation, the project is very unlikely to succeed due to low user readiness, low willingness, and low acceptance of the new ERP system. Such attitudes McLachlin, (1999) argues, will keep them from absorbing and exploiting system knowledge and skill from consultants during ERP implementation. The core project team should be composing do fulltime personnel including a project manager and others representing the core areas. The study above adopted qualitative data analysis techniques compared to the proposed study that will analyze data statistically using the SPSS and R packages through tabulation, proportions and logic analysis.

Tadinen(2005) reveals that the project team's business and technological competence is critical for success or failure of the project. Tadinen(2005) further notes that project team's role is more important during the earlier stages of the implementation and less important post-installation. O'Donnell (2011) builds on the subject by say each team member should be committed to the success of the project and accountable for specific tasks, i.e. developing a timeline, finalizing objectives, formulating a training plan. Make sure you include first line workers as well as management on your team. This study thus provides useful information on the factors that influence the successful implementation of HMIS.

Soh, Kien and Tay-Yap (2000) reported that in practice, few ERP consultants have sufficient company-specific or industry-specific knowledge to handle all critical areas of

misfit problems (Soh, Kien and Tay-Yap, 2000). This is because implementing an ERP system demands both user involvement and direct contacts between consultants and users, the importance of consultants should be underscored.

In the literature reviewed, client acceptance is measured by three perceptions namely performance expectancy, effort expectancy and social influence. Venkatesh et al(2003) define performance expectancy as “the degree to which an individual believes that using the system will help them to attain gains in job performance”. this definition is supported by Amaoko-Gyampah (2004) who noted that end-users usually concern themselves with whether an ERP system can help them perform their daily job functions.

Kuang (2001) proposed that achievements should be measured against the project goals. Subsequently monitoring system performance is needed to identify any alignment problems that may have occurred and were not apparent. O'Donnell (2011) recommends that it is important to develop a structured evaluation plan which ties back to the goals and objectives that were set in the planning stage. In addition, a post-implementation audit should be performed after the system has been up and running for the first week for reconciliation purposes and thereafter, three to six months following to test. Comparing actual numbers with previously established benchmarks will reveal if the software tool adds value to the business. It is important to periodically review the system's performance to maximize return on investment.

Lastly in every software implementation one is likely to experience some people and process issues post implementation, this is because in most organizations it is a one time, major project and even though it may have been planned well, it is virtually impossible to foresee all the problems. Problems are even more likely to arise in ERP systems because they are not stand-alone applications, and therefore problems in one area will often cause issues in another. This

makes troubleshooting problems a more complex task than correcting issues with stand-alone applications (ERP Troubleshooting, 2017)

Empirical Studies

Wang (2001) observes that the knowledge gaps are usually significant among implementation personnel. Such gaps, Wang adds, could be reduced by frequent interactions among these personnel as well as excellent consultant services. High open communication helps stakeholders in conflict management through reaching agreement and consensus more rapidly (Wang 2001). In bridging the gap between the past and current study, it is imperative to note that as a result of this change of dynamics, proper HMIS has become the main competition tools

Donagher (2013) recognizes four things that need to happen to ensure that senior management supports the project including, understanding their role in driving the project, and in selling it to the wider organization, providing the necessary resources, plan realistically and having a mechanism to deal with the unexpected difficulties. One of the tasks of top management is to assist in project review meetings, the purpose of project review meetings according to (Jurison 1999), is "to assess progress and identify areas of deviation from the plan so that corrective action could be taken". Jurison 1999 further states that project review meetings offer visibility to goals and progress creating opportunities for obtaining commitments from the participants. Dong and Ivey (2000) defined two forms of top management commitment, these were: commitment to resource and commitment to change management.

Zaglago (2013), list several culture factors could affect the implementation of ERP systems to include: mismatch with local culture, lack of ownership culture, management culture, cultural change, cultural fragmentation in the marketplace, cultural readiness, subculture diversity, information flow, communication culture, sectoral differences i.e public versus private and

gender segregation. Reflecting on the role of culture in the implementation of ERP based HMIS, awareness of the spectrum of cultural differences and preferences will certainly lead to improved assessment of ERP suitability and any subsequent implementation success (Davison, 2002). The literature examined did not clearly bring out the characteristics of those cultures that ought to be developed in an organization so as to foster an environment in which ERP Implementation is likely to succeed. Therefore, there is a need of examine ERP implementation different culturally contexts.

2.4 Gap Identification and Synthesis

Much has been written and documented by earlier authors and scholars relating to critical success factors for the implementation of ERP systems however the following gaps were found within the above literature. A great deal of literature has been reviewed from institutions in the developed countries but very little was from the developing countries especially with regard to pre-existing cultures and how they impacted the implementation process. This study will therefore explore existing organizational cultures that may have an influence on the success of the implementation within a low developed country context. This earlier studies therefore adopted the notion of examining MIS without special focus on a particular field which gap this study will bridge. The earlier works drew conclusions and recommendations based on specific fields of MIS. The researcher widened the scope as he drew his conclusions and recommendations. Some findings were based on qualitative methodological approaches as compared to the proposed study that adopted mixed methodological approaches. On the other hand, there has been less empirical investigation on the phenomenon of integration between deliberate and emergent perspectives on HMIS. The literature survey basically indicates a qualitative approach for data analysis for most of the literature reviewed compared to the proposed study whose data will be analyzed statistically using the SPSS package through tabulation, proportions and log it analysis.

CHAPTER THREE

METHODOLOGY

3.1. Introduction

This Chapter presents and describes the approaches and techniques the researcher will use to collect data and investigate the research problem. They include the research design, study population, sample size and selection, sampling techniques and procedure, data collection methods, data collection instruments, data quality control (validity and reliability), procedure of data collection, data analysis and measurement of variables.

3.2. Research Design

A descriptive cross sectional survey design will be adopted for the proposed study. It entails collecting data from a cross section of respondents at a single point in time. Kothari(2004) states that cross sectional survey; contain multiple wealth of details, totality and variation which allows the author to understand fully how and where intervention may have worked collectively with correlated general effects. The descriptive cross sectional survey designs validate emerging constructs and proposition in the data set; guiding the study of various units within the identified case by underlining the mechanism by which an incident is brought to being (Kothari, 2004). A cross sectional survey contributes significantly to a researcher's own learning process by shaping the skills needed to do a good research. Though proof may be hard to come by owing to absence of hard theory, learning is certainly possible (Kothari, 2004). The above design is usually the simplest and least costly alternative. The study will also apply both quantitative and qualitative approaches. Creswell (2009) notes that quantitative methods are more objective and help to investigate the relationships between the identified variables. This study will apply qualitative

approaches which will involve in depth probe and application of subjectively interpreted data. As pointed out by Kothari (2004) qualitative researchers aim to gather an in-depth understanding of human behavior and the reasons that govern such behavior. The quantitative and qualitative approaches will be adopted in sampling, collection of data, data quality control and in data analysis.

Triangulation will be adopted for purposes of getting quality data. Triangulation means using more than one method to collect data on the same topic (Somekh & Lewin, 2005). Elsewhere triangulation is defined as a way of assuring the validity of research through the use of a variety of methods to collect data on the same topic, which involves different types of samples as well as methods of data collection (Groves, Fowler, Couper, Lepkowski, Singer, Tourangeau&2009). However, the purpose of triangulation is not limited to cross validation of data but also to capture different dimensions of the same phenomenon (Kothari, 2004).

3.3. Study Population

The population under study is 95 comprising of all members of the HMIS steering committee, medical and clinical officers, cashiers, IT staff, hospital records and biostatistician, department heads and nursing representatives within Lubaga Hospital, Kampala, Uganda. Representatives of the vendor company providing the ERP and the project consultant will be included as well.

3.4. Sample Size and Determination

The study will be based on a sample size of 79 that will be drawn from a population of 95. The sample size is estimated or determined using the Krejcie and Morgan (1970).

Category	Target Population	Sample Size	Sampling Techniques
HMIS steering committee	10	08	Purposive
Medical and Clinical officers	10	08	Purposive
Cashiers	10	08	Purposive
IT staff	03	02	Purposive
Hospital Records /Biostatistician	02	01	Purposive
Heads of Department and Nursing representatives	60	52	Simple Random
Total	95	79	

Source: Human Resource Records Lubaga Hospital Kampala (2017)

3.5. Sampling Techniques and Procedure

Probability sampling, or random sampling, is a sampling technique in which the probability of getting any particular sample may be calculated (Ragin, 2007). The advantage of probability sampling is its lower cost compared to non-probability sampling. Simple random sampling will be adopted in sampling Heads of Department and Nurses representatives within Lubaga Hospital. According to Creswell (2009), simple random sampling ensures that every member

has an equal chance of being recruited into the sample. A sample frame will be constructed and then the members will be randomly sampled. The study will adopt purposive sampling techniques to sample HMIS steering committee, Medical and Clinical officers, Cashiers IT staff, Hospital Records Department and Biostatistician. According to Bill (2011) purposive sampling enables a researcher to choose participants of his own interest based on education and experience.

3.6. Data Collection Methods

3.6.1 Questionnaire Survey

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. Although they are often designed for statistical analysis of the responses, this is not always the case. The researcher will use the questionnaire survey because it is practical, large amounts of information can be collected, questionnaires data can easily be quantified, it is also a cheap way of collecting data, a large group of respondents is covered within a short time, it also allows in-depth research, to gain firsthand information and more experience over a short period of time (Kothari, 2004). The questionnaire will be designed in a way that will help the researcher get information on success factors for HMIS implementation.

3.6.2 Interviews

According to Kothari (2004), interviews describe the life events and experiences of the respondents with respect to analysis of the significance of the portrayed phenomena. As Groves, Fowler, Couper, Lepkowski, Singer & Tourangeau (2009) argue, interviews are basically the correct technique to use when exploring sensitive topics, to create conducive environment for

respondent to take part. This method will constitute the fundamental part of the data collection for this study where two types of interviews will be used. These will consist of; face-to-face interviews and telephone interviews. Both structured interview and semi structured interviews will follow the why and how questions. Interviews will be used because they have the advantage of ensuring probing for more information, clarification and capturing facial expression of the interviewees (Somekh and Lewin, 2005). In addition they also give an opportunity to the researcher to revisit some of the issues that have been an over-sight in other instruments and yet they are considered vital for the study. The researcher will use the interviews to explore issues on the study variables.

3.6.3 Documentary Review

In the secondary analysis of qualitative data, good documentation cannot be underestimated as it provides necessary background and much needed context both of which make re-use a more worthwhile and systematic endeavor (Kothari, 2004). Secondary data is obtained through the use of published and unpublished documents (Jonker and Pennink, 2010). Various publications including, Project Management documents, contracts, annual reports and minutes will be reviewed by the researcher. According to Ragin (2011), secondary data can be helpful in the research design of primary research and can provide a baseline with which the collected primary data results can be compared to other methods. The issues that will be explored will be as indicated in the study objectives and as laid down in the independent and dependent variables of the study.

3.7 Data collection Instruments

The key data collection instruments will be the questionnaire and interview guide, the details are presented below in sub section 3.7.1 and 3.7.2

3.7.1 Questionnaire

A questionnaire is a reformulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives (Kothari, 2004). The questionnaire will be used on the basis that the variables under study cannot be observed, for instance, respondents' views, opinions, perceptions and feelings. The questionnaire will be equally used because the information will have to be collected from a large sample in a short period of time yet the respondents can read and write (Bill, 2011). In this research, a self-administered questionnaire will be used to draw information regarding the study. The researcher will use the questionnaire as an instrument because the study is virtually descriptive and the tool is an easy method of data collection. The questionnaire will consist of closed ended questions purely structured in nature whose variables will be measured on a 5 point Likert scale(5 Strongly Agree, 4 Agree, 3 Not sure, 2 Disagree and 1 Strongly Disagree). The 5 point Likert scale is the most appropriate way to formulate the different questions for measuring different items from different variables (Bill, 2011).

3.7.2 Interview Guide

The researcher will also conduct interviews. An interview is a dialogue between an interviewer and interviewee. It is an organized conversation aimed at gathering data about a particular topic (Jonker and Pennink, 2010). The interview guide will be used because it has the advantage of ensuring probing for more information, clarification and capturing facial expression of the interviewees (Ragin, 2007).

3.7.3 Documentary Review Check list

The documentary review list will be used for purposes of reviewing documentary data. Documentary data will be obtained through the use of published and unpublished documents. According to Groves, Fowler, Couper, Lepkowski, Singer & Tourangeau (2009), documents can be helpful in the research design of subsequent primary research and can provide a baseline with which the collected primary data results can be compared to other methods. Amin (2005) notes a documentary review checklist shows the documents that the researcher will review. Documentary data supplements primary data.

3.8 Quality Control of Data Collection/Pretesting (Validity and Reliability)

Data quality control techniques will ensure that data collected is valid and reliable; the instruments will be first tested to ensure validity and reliability.

3.8.1 Validity

Validity refers to the truthfulness of findings or the extent to which the instrument is relevant in measuring what it is supposed to measure (Earl-Babbie, 2013). The validity of the instrument quantitatively will be established using the Content Validity Index (CVI). This will involve the expert scoring of the relevance of the questions in the instrument in relation to the study variables. The instruments that will yield a CVI above 0.7 will be within the accepted ranges. Index (CVI) will be computed using the formula below:

$$CVI = \frac{\text{Number of relevant items}}{\text{Total number of items}} \times 100$$

To establish validity qualitatively , the instruments will be given to the experts (supervisor) to evaluate the relevance of each item in the instrument to the objectives and rate each item on the scale of very relevant (4), quite relevant (3), somewhat relevant (2), and not relevant (1).

3.8.2 Reliability

Qualitatively, the reliability of the instruments will be established through a pilot test of the questionnaire to ensure consistency and dependability and its ability to tap data that would answer the objectives of the study. The results will be subjected to a reliability analysis (Creswell, 2003). Quantitatively, reliability will be established using the Cronbach's Alpha Reliability Coefficient test. Upon performing the test, if the value is 0.7 and above, the items in the instrument will be regarded reliable. Based on Cronbach's Alpha Coefficient, the scales for the variables will be reliable. In the case of psychometric tests, must fall within the range of 0.7 above for the test to be reliable (Bill, 2011).

3.9 Data collection Procedure

The researcher through proper channels will ask for an introductory letter from Uganda Technology and Management University which he will use for purposes of introduction before the participants when collecting data from the field. The researcher will ensure confidentiality of the survey sheets since the identities are not important. Participants receiving the questionnaire will be given time to respond and the researcher will collect the survey instruments on the next day. Participants for the interviews will be provided with an appointment during which the researcher will conduct the interview in a private environment, a tape recorder will be used to aid memory. The researcher will not offer any incentives for participating in the research.

3.10. Data Analysis

The researcher will use both qualitative and quantitative methods of data analysis. Data Analysis follows an inductive content analysis that permits identification of themes and patterns of explicit word used in raw data and literature reviews (Ragin, 2007).

3.10.1 Quantitative Data Analysis

Data will be sorted using the Statistical Package for Social Sciences (SPSS) method. Both Excel and SPSS have a similar feel, with pull-down menus, a host of built-in statistical functions and a spreadsheet format for easy data entry. SPSS has faster and easier basic function access, it has a wider variety of graphs and charts and it is easier to find statistical tests (Junker and Pennink, 2010). The analysis will rely on both descriptive and inferential statistics. Quantitative data got from the questionnaires will be computed into frequency counts and percentage. The descriptive statistics will include use of frequency tables, mean, and standard deviation. The researcher will adopt univariate analysis techniques in analyzing his data. Univariate analysis is the simplest form of quantitative (statistical) analysis. In this case, Pearson Correlation coefficient will be used to analyze and test the hypotheses of the study. In addition to frequency distribution, tables, mean, standard deviation and other measures of central tendency will be used in data analysis.

3.10.2 Qualitative data analysis

To grasp the meaning of all qualitative data produced by the interviews and document analysis, explanation building through content analysis as an interpretive technique will be adopted. The case content analysis is informed by deducing the inference of contextual data holding on to naturalistic patterns. These are; direct content analysis, conventional and summative content analysis (Earl-Babbie, 2013). The proposed study will take on a summative content analysis whose basis will be to understand why certain opinions are held. Summative content analysis

describes studied keywords to construct meaning to the themes being studied in a broader context. All primary data will thus be structured through formation of categories and examining the theories fully to understand the variables of the study (Creswell, 2009). It is through this lense that meaningful concepts and themes informed by the research questions will be extracted to generate credibility to raw data to meaningful processed data and draw conclusion.

3.11 Measurement of Variables

The independent variable and the dependent variable will be measured on a five point Likert type scale (1- strongly disagree, 2-Disagree, 3-Not sure, 4- Agree and 5-Strongly agree). The choice of this measurement is that each point on the scale carries a numerical score which is used to measure the respondents' attitude and it is the most frequently used summated scale in the study of social attitude. According to Bill (2011), the Likert scale is able to measure perception, attitudes, values and behaviours of individuals towards a given phenomenon..

3.12 Ethical Considerations

Honesty: There are several reasons why it is important to adhere to ethical norms in research. First, norms promote the aims of research, such as knowledge, truth, and avoidance of error. For example, prohibitions against fabricating, falsifying, or misrepresenting research data promote the truth and avoid error. Second, since research often involves a great deal of cooperation and coordination among many different people in different disciplines and institutions, ethical standards promote the values that are essential to collaborative work, such as trust, accountability, mutual respect, and fairness (Amin, 2005). To avoid plagiarism, works of different authors will be acknowledged whenever they are used.

Informed Consent: The ethics framework is essential as it entails the voluntary informed consent of the participants. This requires giving the participants adequate information about what the study will involve and an assurance that their consent to participate would be free and voluntary rather than coerced. According to Sekaran(2003) participants informed consent may be obtained either through a letter or form that clearly specifies what the research involves, includes clearly laid down procedures the participants can expect to follow and explain the ways in which their confidentiality will be assured. In this case, a letter will be obtained for this purpose. It may also be imperative to describe possible risks and benefits of the research (Sekaran, 2003). The signing of the voluntary informed consent by each individual participant will be confirmation that the respondents are not coerced to participate in the study but are doing so willingly. The researcher will explain to the participants that an audio tape will be used to record interviews. The researcher will make the respondents aware of their right to opt out of the study if they so wish and that recording would only be done with their approval. In all the interviews, the participants will consent to the use of audio tape. Some respondents will require further verbal assurance that the tapes will under no circumstances be handed over to their supervisors.

Anonymity: Respondent's names will be withheld to ensure anonymity and confidentiality in terms of any future prospects. In order to avoid bias, the researcher will interview the respondents one after the other and ensure that he informs them about the nature and extent of his study and on the other hand he will give them reasons as to why is interviewing them.

Confidentiality: The researcher will protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records.

Justice and beneficence: The researcher will explain to respondent's use of certain gadgets that they do not understand or have little knowledge about e.g camera and tape recorders. Some respondents will require further verbal assurance that the tapes will under no circumstances be handed over to their supervisors

Objectivity: The researcher will avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, expert testimony, and other aspects of research where objectivity is expected or required. He will avoid or minimize bias or self-deception.

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APPENDICES:

APPENDIX (i) QUESTIONNAIRE

QUESTIONNAIRE FOR TOP ADMINISTRATORS, STAFF AND SUPPORT STAFF AT LUBAGA HOSPITAL

My name is Ssekitooleko Andrew a student of Executive Masters in Business Administration at Uganda Technology and Management University. In partial fulfillment of the requirements for the degree, I am required to conduct a research in an area of my interest. My interest in this study is **to examine the factors that influence the successful implementation of HMIS at Lubaga Hospital**. You have been sampled to participate in this study and the information you give will be used strictly for academic purposes and will never be used against you or your office. The information got from you will be kept confidential. You are also requested not to write your name on this questionnaire. After filling out the questionnaire, put in the provided envelop and seal it and return to me. Your participation in this study is entirely voluntary. Your consent to participate is implied by your decision to complete this questionnaire. I greatly appreciate your assistance in this exercise.

Thank you for your cooperation.

SECTION A BIO-DATA

Please tick in the column below the specified variable.

Age	20-29	30-39	40-49	Above 50	
Gender	Male	Female			
Marital status	Married	Single	Widowed	Divorced	
Level of Education	Masters	Bachelors	Diploma	Certificate	Others Specify

Instructions from question 1-25 tick the number that best indicates your opinion on the questions using the following scale.

Scale	1	2	3	4	5
	Strongly disagree	Disagree	Not sure	agree	Strongly agree

SECTION B

CULTURAL FACTORS

		1	2	3	4	5
1.	There is innovation at Lubaga Hospital					
2.	There is risk taking on matters of HMIS					
3.	The beliefs have influenced the success of HMIS					
4.	The culture of the organization has been created through communication, symbols, and competing metaphors that have impacted on ERP.					
5.	There values of hard work are upheld at Lubaga hospital when it comes to HMIS					

STRATEGIC FACTORS

		1	2	3	4	5
6	There is top management support and commitment when it comes to HMIS					
7	The working policies are very favorable to the smooth implementation of HMIS					
8	The use of ERP implementation consultant					
9	Project team composition possess the required skills					
10	There is good monitoring and evaluation of performance					
11	Minimal customization of packages in relation to HMIS					
12	There is integration of business planning with ERP planning					
13	There is effectiveness of management in reducing the users' resistance					

TACTICAL FACTORS

		1	2	3	4	5
14	There is ease of system's use and users' acceptance					
15	Communication among the implementation team members is proper					
16	There is clear vision, goals and objectives of the ERP system					
17	There is careful change management					
18	There is formalized project approach and methodology					
19	There are formalized project plan on HMIS in place					

SECTION C

SUCCESSFUL IMPLEMENTATION OF HMIS

		1	2	3	4	5
20	All the HMIS Project plans in place have been successful					
21	HMIS implementers work with a lot of commitment					
22	There is timely accomplishment of tasks when it comes to HMIS					
23	Every employee is zealous to finish work on time					
24	Problems are anticipated and solved.					
25	I play an active role in formulating programmes					

APPENDIX (ii):

INTERVIEW GUIDE FOR TOP ADMINISTRATORS, STAFF AND SUPPORT

STAFFAT LUBAGA HOSPITAL

Q1: Can you please explain your role or position on the HMIS project

Q2: What do you think are the critical success factors in ERP implementation?

Q3: Why do you think they are critical?

Q4: According to our research from reference books and journals, we have identified some critical success factors in ERP implementation, what you think of these factors (listed below). Do you agree or not? Why?

Q5: How important is each factor according to your opinion? Why?

APPENDIX (iii):

DOCUMENTARY REVIEW CHECKLIST AT LUBAGA HOSPITAL

	Document	Status
1	Project Management Documents (TORs, contract, FRD, progress reports, UAT report, training report)	
2	Lubaga Hospital Annual Reports 2014-2016	
3	Steering Committee Minutes	
4	Management Letters by External Auditors	
5	Ministry of Health Annual Reports 2014-2016	

APPENDIX (iv):

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size

"S" is sample size.

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