ENTERPRISE RESOURCE PLANNING IMPLEMENTATION AND ORGANISATION PERFORMANCE:
A CASE STUDY OF EGERTON UNIVERSITY

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OF KENYATTA UNIVERSITY

JUNE, 2016
Declaration:

This proposal is my original work and has not been presented for a degree in any other University

................................................ ................................................
Signature                                           Date

KARURI SIMON GITONGA
D53/OL/23528/2012

I/We confirm that the work in this proposal was done by the candidate under my/our supervision

................................................ ................................................
Signature                                           Date

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Abstract

Enterprise Resource Planning (ERP) is a complex system which is very useful in an organisation by making resources accessible from one interface hence improving efficiency, data integrity and customer satisfaction. However the implementation of ERPs is complex hence the need to evaluate relationships between ERP implementation factors and Organisational performance. ERPs can be viewed in a “4P model” composed of 4Ps namely Product representing software component or modules installed; Process flow representing business process; Person or customer mindset representing the users and Performance expectation represented by Top management through change management. These four factors implementations are further based on the several theories such as software development, technological acceptance model, theory of reasoned action and activity theory in addition to empirical research on ERPs. This study seeks to investigate the relationships between ERP implementation Factors as Independent variable and Organisation performance as dependent variable. ERP implementation Factors are represented by the following factors namely : Top management Support; Business process Reengineering; Education , Training & Organisation culture and module completed while Organisation performance is represented by operational efficiency which include improve revenue, improved productivity and strategic which include revenue growth and gains in market share. Egerton University is used as case study. The study seeks to interview the key users and implementers on Organisation performance based on the following factors namely : Operational efficiency which include improved Revenue, Improved production and strategic performance which include Improved revenue and improved market share . The questions will also handle ERP implementation factors. Exploratory research method is the preferred method. A target population of 60 are selected to present the various categories.
Acknowledgement

I would like to acknowledge the special support accorded by my supervisor Dr Nzuki with emphasis on quality and attention to detail. In addition I would like to extend special thanks to Ms. Gladys Kimutai (former COD management science) for her effort in the course completion, current COD, My lecturer Mr Kyalo and the entire Kenyatta University fraternity. More also I acknowledge special thanks to my family for their time and support.
Operational definition of terms

Enterprise Resource Planning (ERPs) is integrated software developed in the early nineties and emerged from manufacturing resource planning (MRP). MRP software was developed in the 1950’s to be used in manufacturing with functionalities such as sales, planning and scheduling. It was later observed that profitability and customer satisfaction required the participation of the entire enterprise and some functionalities were thus missing to have the entire organisation manipulated as one. This concept of full integration birthed the enterprise solution now called ERP (enterprise resource planning).

Technology Acceptance Model is a Model was developed in 1986 by Fred Davis based on the Theory of Reasoned Action. The TAM is based on two assumptions perceived usefulness and perceived ease of use.
Abbreviation and Acronyms

ERP  – Enterprise Resource Planning

MRP  – Manufacturing Resource Planning
CHAPTER ONE

INTRODUCTION

1.1 Background of the Problem

Enterprise Resource Planning (ERP) provides centralised IT applications for business processes, whereby information entered into the system is shared throughout the organisation. ERP is then customised to fit into the business process of the organisation. ERP’s thus promise major benefits in the organisations such as improved efficiency, improved customer satisfaction, standardised business processes, data integrity, cost reduction, eliminating complexities revolving around old independent legacy systems, ease of management of the organisation, improved communication and accurate decisions based on data. (Gupta, 2000; Gable, 2000; Galloway, 2005; Mehrjerdi, 2010; Nzuki, 2005; Shanks, 2003).

The organisations performance can be categorised in two categories Operational efficiency and Strategic factors. Operational efficiency include: improved cost reduction and improved production. Strategic factors include improved revenue and improved market share. These can be contributed by customer satisfaction and improved service quality (Shang and Wu, 2011). These are the benefits offered by ERP such as cost reductions, data accuracy and efficiency which have made ERPs popular. ERPs are now used globally with its use spreading in all the continents with higher populous in the USA, the UK, Canada, Germany, Cyprus, Bahrain, France, Africa, Japan, Australia, Ireland, Taiwan, Mexico, Greece and India (Shehab, 2010). These have recorded major improvements in customer management, product management, revenue and cost reductions. There is a strong need and continued demand for ERP. ERPs have in recent times
been introduced to the finance sector, education sector, insurance sector, retail and telecommunications sectors (Nizamani et al, 2014). The high uptake is influenced by Government decisions, global competition, customer satisfaction and efficiency amongst other factors. There is also high uptake of ERPs in higher education globally. However the ERPs for higher education are different from the ERPs used in the companies. The major difference is caused by the objectives of the universities which include both profit and non-profit objectives, learning systems, student management and examination management. Most research has covered commercial companies leaving the higher education implementations. The higher education has recorded major benefits in the ERP implementations that include customer satisfaction (Fard, 2012).

Addo-Tenkorang and Helo (2016) did a report on the ERP publications and highlighted there were few publications of ERP in Africa and parts of Asia. The implementation of ERPs in Africa is hindered by the high costs despite the high demand. Most ERPs research conducted in African countries include South Africa, Ghana, Egypt and Kenya amongst others.

ERP installations have issues related to ERP implementation. According to Nizamani et al (2014) ERPs implementation of higher education is being viewed as a very complex project in Pakistan universities environment. He further highlight that the university administrative staff and other stakeholders must know about the ERP implementation issues. This is due to complex nature of ERPs and various functionalities. According to the Model of DeLone & McLean, 1992, System quality, Information quality, User satisfaction and use are captured as major factors in successful implementation. These can be summarised as performance indicators.
ERP success can be gauged using performance indicators as highlighted above. Clyde et al (2009) indicate user satisfaction as one of the major indicators on performance, this relate to compatibility and task relevance.

El Sawah et al (2008) indicate that there is a gap on evaluating the ERP implementations, in developing countries. There thus need to conduct similar research local context since other factors such as training affect the ERP implementation. Rabaa'i et al (2009) also raised questions on the effective evaluation of ERP in higher education sector. It is, therefore, very significant to determine the relationships that could improve on success of ERP implementations. These factors have been listed as critical success factors but their relationship to success or performance has not been critically done.

Al-Mashari (2002) indicate that some of the major challenges in ERP implementation include flexibility assurance, top management support, resistance by users, infrastructure and technological aspect mainly relating to access. These form part of critical success factors in ERP implementation. Hence a need to evaluate the relationship between the critical success factors and performance indicators. Nah et al. (2001) did an investigation on CSF (critical success

Figure 1: Source (DeLone and McLean, 1992)
factors) for ERP implementation through a wide literature review. The following were highlighted as key organisational issues: teamwork, change, management, top management support, plan and vision, business process management and development, project management, monitoring and review, effective communication, software development and testing, the role of the project champion and appropriate business and IT legacy systems. He showed that the complex organisational change issues must be which points to matching business processes.

Kenyan Universities has embraced the ERPs implementations with a view of getting full benefits as promised by either ERP vendors or ERP developers like Microsoft Navision and SAGE Accpac. Nyandiere et al (2012) established that Kenyan universities have mostly implemented systems to support accounting & finance, student administration, examinations administration, and library services. Nyandiere et al (2012) also established that there are no significant differences in information systems needs among Kenyan universities, but there were significant differences in strengths and weaknesses among in the capabilities of systems implemented. Thus a case study in a selected university would thus suffice to investigate. The ERPs installations proof to be a difficult process with some universities redoing the process again. Some installations are now termed as failed projects.

Egerton University is a good example of ERP investment and implementation since it started the automation journey dating back in the early 2000 when the ICT centre was envisioned. However Egerton University like other Kenyan universities has not reaped the full benefits of ERPs as both promised and expected. There seems to be gaps in ERP implementation in Egerton University which could be unearthed by investigating any relationship between ERP
implementation and ERP performance. This forms the basis for this research proposal using Egerton University as a case study.

ERP systems refers to Enterprise Resource Planning systems which were introduced back in the early nighties and emerged from the manufacturing resource planning systems. According to Lucey (2005) ERP package is a fully integrated information system that spans most basic business functions required by a business organisation e.g Human resource, Inventory, Finance and purchasing hence the term Enterprise Resource Planning. The ERPs was a major achievement in the IS where ERPs replaced the legacy systems. Many companies in the US and Europe started to implement the ERPs in 2000.

A research conducted in Kenyan Universities reveal that most implementations were abandoned with challenges raging from connectivity, expertise to budgets. This shows ERP research is important for its ideal objective to be achieved. ERP however portray high benefits and hence the organisations tend to go for the benefits without taking time to check on current ERP research. (kyalo, 2014).

The MIS development techniques which are normally taught in the universities emphasise on the benefits of the MIS and use the common software engineering model. According to Kyalo (2014) MIS implementation include system analysis and design, system development, system testing and system Go live and change management. However the ERP include the software development as well as customer mindset, business process matching and change management as highlighted in the figure 2 below.
This makes the traditional software development methods deficient on business matching and customer mindset.

Universities in the US and Europe attempted to add ERPs to the course syllabi structure in order to cover ERPs implementation but unfortunately focused on specific ERPs such as SAP as opposed to developing an ERP curriculum based on ERP implementation. This has also generated a lot of publications in Education ERP courses (Ndungu, 2015).

There is thus a need to establish the relationship between ERP implementation and Organisational ERP performance. The ERP implementation factors considered as Independent variables are: Top management Support; Business process Reengineering; Education & Training and Organisation culture. The performance indicators considered as dependent variables to improve guaranteed success are: System Quality; Information Quality; Service Quality and User satisfaction.
1.2 Statement of the Problem

ERP implementation is being done globally due to the benefits expected after ERP installation which include efficiency, effectiveness and satisfaction. These promised benefits have seen most Kenyan Universities implement ERPs. Some Kenyan Universities have experienced ERP implementation challenges resulting to disappointing expectations regarding ERP benefits and have are contemplating to change or have changed ERPs (KENET 2015). There are thus mixed reactions on ERP implementation with a guaranteed success and associated expected benefits which have been dubbed “the false ERP promise” (Grant, 2013). This failure in reaping ERP benefits is due to the complex nature of ERPs. ERPs can be described as a combination of the Product or software component, Processes or business flow, people or the users and expected performance or use. This has prompted ERP research in various dimensions such as critical success factors in ERP implementation, ERP performance, challenges of ERP implementation (Wieder, 2004; Mashari, 2002). These ERP research however have not defined any relationship on ERP critical success factors and ERP performance. The lack of investigating relationship between ERP critical success factors and ERP performance in Kenyan universities could lead to wrong conclusions such as ERP failures based on may be one factor for example information quality. ERP implementation could be measured in terms of level of adherence to critical success factors. ERP performance could be considered either successful or failed depending on various expected benefits such as system quality, information quality, user satisfaction and service quality. This proposal attempts to investigate if there is any relationship between ERP critical success factors (independent variable) and ERP performance with a case study of Egerton University with intent to answer the question “Could establishing relationship between ERP CSF and ERP performance indicators improve ERP success?”
1.3 : Objectives of the Study

1.3.1 The study objective

The purpose of this study is to investigate the effect of ERPs critical success factors implementation on ERP performance in Egerton University.

1.3.2 Specific Objectives

1. To investigate relationship of Top management Support to Organisation performance.

2. To investigate relationship of Business process reengineering to Organisation performance.

3. To investigate relationship of Training to Organisation performance.

1.3.3 To investigate relationship of Modules completed to Organisation performance Research Questions

i. What is the relationship between Top Management support and Organisation performance?

ii. What is the relationship between Business process Reengineering and Organisation performance

iii. What is the relationship between Training and Organisation performance?

iv. What is the relationship between ERP implementation characteristics and Revenue?
1.4 Significance

This study will be useful to both the public sector and private sector with more intended use by the public universities. The study could be used by the universities which are currently implementing ERPs and the universities which are evaluating on changing the ERP. The study will also reveal the relationship between critical success factors in ERP implementation and ERP performance. Parr and Shanks (2000) and Kyalo (2014) acknowledge, ERP implementation is a complex lengthy process, and there are cases of unsuccessful implementations. Most of the Kenyan universities are currently implementing ERPs with cases of both failure and success being reported (Kenet, 2016). The failures however could be one component e.g user training. There is thus a justifiable need to evaluate the relationship between ERPs implementations critical success factors and ERP performance indicators.

1.5 Scope

This proposal targets Egerton University as a case study of ERPs implementation since Egerton University has implemented SAGE Accpac which is used by most Kenyan universities for example Nairobi University, Kenyatta University and Moi University. There is thus a need for investigating the ERP implementation status evaluation in Kenyan Universities and using Egerton University as a case study. The evaluation will be detailed since it will capture the details of module and associated critical success factors. Hence the case study would target Egerton University.
1.6 Limitations of the Study

The study assumes all the other factors necessary for systems implementation are available and it thus concentrates on system implementation evaluation and ERP performance. The study proposes an evaluation model based on various evaluation models available in literature.

1.7 Organization of the study

The study is organised into three chapters namely: Chapter one begin by highlighting the background of ERPs in section 1.1, the problem statement in section 1.2, the study objectives in section 1.3 and significance, scope and limitations in section 1.4, 1.5 and 1.6 respectively; Chapter two discuss literature review and chapter three discuss the research methodology. The budget and schedule are included the appendix.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter is divided into four sections namely: section 2.1 introduction; section 2.2 theoretical review, section 2.3 empirical ERP review and section 2.4 research gaps in ERP and Conceptual Framework.

ERPs implementations have experienced varying challenges that has generated a wide research in ERP which include performance measurement, Business process management, critical success factors, successful and failed implementations as indicated by Al-Mashari (2002). However a research to establish the relationship between ERP implementation critical success factors and ERP performance has not been done in Egerton University. Establish such a relationship would unearth what is required for a successful implementation to occur.

Most Kenyan universities have either implemented ERPs or are currently implementing ERPs (KENET 2015). The ERPs implementation has thus generated a lot of discussions on Legacy system replacement by ERPs. Pastor (2001) developed annotated bibliography of ERP publications and analysed the areas with most publications. He indicated ERPs replacement generated a lot of research publications majoring on implementation and education. There is thus a major issue on ERP implementation. The ERP implementation can be broken into four components namely: software or product component; Business process matching or reengineering; use of the system and user training & change management.

Nizamani (2014) suggest a model that captures a university setting with the critical success factors, and quality in terms of system, information and service. This model thus summarises the
major aspects of critical success factors and performance. The risk factor is added to the input in order to give a clear indication of expected progress. This model is partly adopted for the conceptual model in ERP relationship evaluation. The model is highlighted below.

Figure 3: Source Nizamani (2014)
2.2 Theoretical Review

2.2.1 Technology Acceptance Model

Technology Acceptance Model was developed in 1986 by Fred Davis based on the Theory of Reasoned Action. The TAM is based on two assumptions perceived usefulness and perceived ease of use. TAM is useful in predicting whether a particular system is unacceptable by users and identify why a particular system may be unacceptable. The TAM is illustrated in the figure 2 below. (Alharbi and Drew, 2014; Nzuki, 2005; Venkatesh and Davis, 2000).

![Technology Acceptance Model](image)

Figure 2.2.1: Technology Acceptance Model
Source: Alharbi and Drew (2014)

The perceived usefulness is a critical factor considered in line with the day to day work. This factor is thus an important consideration in the acceptance of ERP. In the conceptual framework its captured as quality of information under the ERP performance. The perceived ease of use influence the altitude and hence the acceptance. Thus is captured as part of user satisfaction in the conceptual framework. Both user satisfaction and information quality form part of the dependent variables. The TAM model is thus considered in the development of the conceptual framework.
2.2.2 Theory of Reasoned Action (TRA)

The Theory Reasoned Action (TRA) was developed in the 1960’s by Martin Fishbein. The theory argue that the person’s behaviour is determined by intention to perform a behaviour and this behaviour is a function of altitude and subjective norm. This is illustrated by the figure 2.2.2 below.

![Diagram of Theory of Reasoned Action (TRA)](image)


The theory thus contributes in a major way in the understanding of culture and education. In the context of ERP acceptance the two factors are captured as critical success factors under Top management support and Education, Training & Organisation culture. The Top Management support and education, training & culture are considered as independent variables. Thus the conceptual model captures top management support and the education, training & social culture and investigates the impact on service quality and user satisfaction respectively. The Theory of Reasoned Action thus contribute to the development of the conceptual model and is used to understand the altitude, subjective norm and intention.
2.2.3 Software Development Technologies

Software development methodologies are used in the development of software and have the following stages: Analysis & Planning; Design; Build or Development and Testing & Deployment. Some of the traditional software methodologies include water fall model, spiral and reuse but were rigid technologies. AGILE methodologies or light weight methodologies were an improvement of the traditional methods and are useful for light weight projects (Altwaim, 2016; Ihme, 2013). Hence for large projects the traditional methods still are used. According to Kyalo (2014) MIS implementation include system analysis and design, system development, system testing and system Go live and change management. He et al developed a software model for reuse which also has the same stages.

The software methodologies thus guarantee quality software which is a critical factor in the ERP performance. However the software methodologies lack customer mind set, change management and matching business processes. The figure 2.2.3 below highlights the ASD model.

ASD model: Figure 2.2.3

Source:
2.3 Empirical Review

2.3.1 Cheng et al

Cheng et al conducted an Empirical Research of Successful ERP Implementation Based on TAM. In their conclusion, it's highlighted that factors such as leadership support, change management, business process are critical to perceived use (PU) and perceived ease of use (PEU) of an ERP system. These factors are captured as critical success factors in the proposed conceptual model. The ERP performance in the model is based on user satisfaction as one factor. Usability is based on effectiveness, efficiency, and satisfaction in the specified context according to ISO standard 9241 (Cheng, 2007). The user satisfaction is considered an dependent factor under ERP performance.

2.3.2 Mehrjerdi (2010) and Yusuf et.al (2004)

In the case study of ERP implementation in Rolls-Royce as highlighted by Mehrjerdi (2010) and Yusuf et.al (2004), they focused on business processes, technical issues, and cultural issues and the following were captured as risks in the implementation:

- The possible failure or inability to align goals through conflicting directions within the organization.
- The non-delivery or non-availability of reliable IT hardware and infrastructure both before and during implementation.
- The resistance of change to new process methods by management and supervision.
- Management and supervision may treat the project as merely an IT implementation, rather than change in process methods.
- Inadequately educating the workforce to operate the new system properly.
- Possible failure to cut over to the new system through an inability to load data.
- Possible failure to cut over to the new system through the inappropriate systems testing of volume, stress and data conversion.
- Possible failure to give ERP adequate priority due to the number of existing and ongoing business improvements.
- Maintenance difficulties may occur on bridged legacy systems.
- The project may impact on company interim and end of year accounts.
- Possible changes to kitting demand during “go live” may stretch the new system and those operating it on a learning curve beyond capacity.

These risks have also been captured as critical success factors (CSF) hence the inclusion of CSF as part of the independent variable in investigating the relationship between critical success factors and ERP performance indicators.

2.3.3 Sundarraj (2003)

In the case of Texas Instruments as highlighted by Sundarraj (2003) the implementation was based on process oriented framework (Sarkis and Sundarraj, 2001) which include:

1. Strategy formulation, in which the visions, goals and objectives of the organization are defined and a technology strategy is adopted to fit these goals.
2. Process planning and systems design, in which processes are reengineered to meet business objectives.
3. System evaluation and justification, in which actual IT systems must be evaluated and justified.
4. System configuration, in which the system or the organizational process is configured to
produce an alignment between each other.

5. System implementation, in which actual implementation of the system takes place.

6. Post-implementation audit, in which we measure whether the goals set for the system have been accomplished.

These are also captured in the Critical Success Factors forming a good basis of evaluating relationships.

Critical success factors are considered in this proposal as part of the independent variables.

2.4 Summary of literature and Research Gaps

2.4.1 ERP implementation Critical Success Factors (Independent Variable)

Labuschagne (2005), Nzuki(2012), Kyalo (2014) and Wesson (2009) acknowledge that ERP is a complex system. There is a need to break it into components for the users, managers to understand it easily. Labuschage (2005) proposed a model based on the business 4P model that is easy to understand since each sphere represent a component on its own. The 4P business model is composed of People, Product, Process flow and Performance/ Use.

This model is represented in the figure 2 below.

![ERP model based on the 4P business model](image-url)

Figure 2: source Information Management & Computer Security, Vol. 13 Iss: 2, pp.144 - 155
The above model clearly illustrates that the software component is one component of ERPs the other components being users, process flow and expected performance or use. The model thus gives an overall picture of the ERP system and indicates that the ERP is not the software component only hence the ERP total performance (failure or success) should not be attributed to the software only but to the several contributing components that is Product, People, Process flow and Performance. This model can be extended further by incorporating the details on each component.

i. Product : Software Component (Modules completed)

   The software component includes the various functions or modules incorporated in the ERP. For instance in SAGE ACCPAC the following modules are incorporated under Finance module, General ledger, Bank services / Cash book sub ledger, Inventory, Customer sub ledger, Asset Register and purchase module. The modules are matched to the actual business flow of the organisation. This thus form one dimension of evaluation in terms of satisfaction and usage. Modules completed thus are considered to form part of the Independent variable. The modules completed is based on the software engineering methodologies adopted.

ii. Process Flow : Business process

   The actual process flow is matched to the business flow of the organisation. In an ideal setting the ERP assume all ERPs modules are fully matched to the business processes. Some ERPs may not fully match with the business processes hence there rises a need for business reengineering. For example the customer sub ledger in SAGE Accpac is matched with student’s database. The student are considered the
customers in a University setting. This forms an opportunity for evaluating the extent of business flow / process flow match. In some cases the business flow could be in other legacy systems or in manual form. Information flow is also captured and data integrity has to be maintained. This require a high level of collaboration between the User , the developer team and Top management.

iii. Customer mindset : Users

The user form a major component of the ERP success by both accepting the ERP and determine to leave other legacy systems. The Top management support , users , champions and project managers are captured in this component. The user mindset of the ERP is influenced by the perceived usefulness and perceived ease of use as captured in the Technology Acceptance Model (TAM) discussed above.


This refers to the systematic behavioural change in the organization. Education and training forms the major aspect of culture change . The culture is influenced by the altitude and subjective norm as highlighted in the Theory of Reasoned Action.

These factors are considered in critical success factors for ERP implementation which include : Top management Support; Business process Reengineering; Education ,Training & Organisation and modules completed. These factors are considered in the investigating the relationship and form the independent variables.
While methods discussed above are important in the ERP implementation they are not used as one package hence the need to determine the relationship of ERP implementation status and ERP performance.

2.2.2 ERP performance (Dependant Variable)

The ERP performance could therefore consist the four attributes and can be measured using the following: system quality; Information quality; System use; User satisfaction; Individual impact and Organisation impact as highlighted below.

It worth noting improved system performance is seen through the lens of organisational performance. Hence some attributes could be refined further to reflect organisational performance. The organisational performance is divided into operation efficiency which include improved cost reduction and improved production. Business strategic factor include improved
revenue and improved market share which is influenced by system quality; Information Quality; User satisfaction and System use.

In the case for Texas Instrument the evaluation is done as a post evaluation and also as a mid-evaluation. There is thus a gap of understanding the relationships. This proposal seek to investigate relationships between ERP implementation factors as independent variable and Organisation performance indicators as dependent variables.

2.5 Conceptual framework

The Conceptual framework highlight both the independent variables and dependent variables. The ERP implementation factors. The ERP performance indicators represented by Organisation performance

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERP Implementation characteristics</td>
<td>Organisation performance</td>
</tr>
<tr>
<td>Top management support</td>
<td>Organisation performance</td>
</tr>
<tr>
<td>Business process Reengineering</td>
<td>Organisation performance</td>
</tr>
<tr>
<td>Training</td>
<td>Organisation performance</td>
</tr>
</tbody>
</table>

Figure 3: Relationship Model
CHAPTER THREE

METHODOLOGY

3.1 Introduction
This research proposes to investigate the relationship between ERP implementation critical success factors and ERP performance indicators using Egerton University as case study. This will reveal new insights into ERP implementations based on CSF relationships with ERP Performance indicators.

3.2 Research Design
Exploratory research is the preferred method. Its confirmatory in nature and attempts to investigate if the ERP critical success factors have a relationship with ERP performance indicators which could cause either success or failure of ERP implementation.

3.3 Target Population
The target population will be 40 staff working with 4 staff per Module in Eerton university as per the target category. The modules will be distributed as per core vision of the university from both the division of academic affairs and division of finance.

3.4 Sampling design
Sampling refers to selecting the sample from the population. Non probabilistic method will be used using a subjective norm. A preliminary study of the documentation of the system will done to guide in the selection of the team to be interviewed. The team will follow model set.
3.5 Data collection instruments
The questionnaires and interviews will be the methods for collecting data. Data will be taken from sections in the Egerton universities who have or are implementing the ERPs. The data taken will be given with some form of evidence e.g system analysis documents, minutes of meeting and composition of the implementing committees. This will thus provide data validity and reliability.

3.6 Data collection procedure.
The data will be taken through questionnaire which target at least four users of the modules and capture both CSF and Module completion as per the following table.

Data analysis and presentation
An ERP critical success factors will measured against a likert scale of 1-5.

ERP performance will be based on the following attributes: System Quality, Information Quality, Service Quality, User satisfaction with a Rating of 1 – 5 each.

A relationship between ERP implementation CSF and ERP performance indicators shall be established.
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ACM New York USA


APPENDICES:

1. Questionnaires

INSTRUCTIONS

Please answer the following questions with utmost accuracy and refer to documentations or system information for clarity. Be honest in your answers and give a fair view as per the questions. You can choose from a likert scale of 1 (strongly disagree) to 5 (strongly agree).

Section A contains respondents information, section B contains implementation factors and Section C contains Performance indicators. The answers will be treated with utmost confidentiality.

SECTION A
Staff Details

Question One
a) Name of staff: ___________________________
  b) Position of Staff: _________________________
  c) Role of Staff in project: ____________________
  d) Module the staff is using __________________

SECTION B
ERP Factors

Question Two
ERP characteristic
a) How Many modules does the ERP have: _________________
  b) How Many Sub-Modules have for each module: _____________
  c) How Many Modules are completed: _________________________
  d) How Many Modules are in currently in use: _________________

Question Three
ERP CSF (1=strongly Disagree to 5 Strongly Agree)
  a) What is the level of Top management Support: Rating 1-5
  b) What is the level of Business process Reengineering Rating 1-5
  c) What is the level of ERP Education and Training: Rating 1-5
  d) What is structure of ERP Organisation culture: Rating 1-5
Question Four
Organisation Performance  (1=strongly Disagree to 5 Strongly Agree )
   a) What is the level of improved revenue  Rating 1 – 5
   b) What is the rating on customer satisfaction  Rating 1 – 5
   c) How is the Service Quality  Rating 1 – 5
   d) What is the level of decision making and reporting satisfaction  Rating 1 – 5
## Research Budget

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Printer standard size</td>
<td>3 in 1 printer</td>
<td>15,000.00</td>
</tr>
<tr>
<td>2.</td>
<td>10 reams paper</td>
<td>500 per ream</td>
<td>5,000.00</td>
</tr>
<tr>
<td>3.</td>
<td>Data collection and transport</td>
<td>Data collection</td>
<td>25,000.00</td>
</tr>
<tr>
<td>4.</td>
<td>Binding</td>
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### 3. Work Plan

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<th>No.</th>
<th>Milestone</th>
<th>Activities</th>
<th>Timeline</th>
<th>Remarks</th>
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<tr>
<td>1</td>
<td>Proposal Development</td>
<td>Introduction, Literature review and Methodology</td>
<td>June 2016 – August 2016</td>
<td>Defence September</td>
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<td>2</td>
<td>Data collection</td>
<td>Interview and study documentations</td>
<td>September 15 to October 15</td>
<td>Data analysis</td>
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<tr>
<td>3</td>
<td>Thesis</td>
<td>Develop thesis and include findings</td>
<td>October 15 to November 15</td>
<td>Submit</td>
</tr>
<tr>
<td>4</td>
<td>Graduation</td>
<td>Prepare for Graduation</td>
<td>December</td>
<td>MBA(IS)</td>
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