

MIDLANDS STATE UNIVERSITY



FACULTY OF COMMERCE DEPARTMENT OF ACCOUNTING

**A RESEARCH INTO THE ROLE OF ENTERPRISE RESOURCE PLANNING IN
FINANCIAL DECISION MAKING AT MIDLANDS STATE UNIVERSITY**

BY

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R15379R

This dissertation is submitted in partial fulfilment of the requirements of the Bachelor of Commerce in Accounting Honours Degree in the department of accounting at Midlands State University.

Gweru ,Zimbabwe (2017)

DECLARATION

I, Masea Yvonne Tsungai, declare that this research project is my own work and has not been copied from any source without acknowledging it.

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DEDICATION

I would like to dedicate this research project to my family who have given me tremendous support during the period of research.

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Firstly I would like to thank God for the health and wellbeing that were necessary to complete this research.

I am grateful to my supervisor Mr Ngirazi, a lecturer in the department of Accounting. I am thankful and indebted to him for sharing knowledge, valuable guidance and encouragement. I am obliged to all those who responded to interviews and questionnaires for this research for the relevant information they provided. Their cooperation for the duration of my research is greatly appreciated. Without their valuable input, this research would not have been possible.

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ABSTRACT

The study was based on the challenge that arose in the reconciliation of student income in the finance section. The researcher found related literature on all the set objectives where the main research objective required the researcher to find out the effect of having two separate system manipulating accounting data and to assess if the introduction of an ERP would bring solutions to the challenges being faced by decision makers at Midlands State University. Questionnaires and interviews were used as the research instruments. The information obtained from the data collected was analyzed and presented by making use of simple tables, charts and graphs. From the research conducted the research findings indicate that there is an urgent need to educate employees and employ an ERP system as the variances were linked to system malfunctioning. The use of two separate information systems has a significant negative bearing on decision making as this was one of the research objectives of the study. The research study ultimately reflects that the implementation of ERP system was arguably chosen as the best practice of integration, through application integration.

TABLE OF CONTENTS

DECLARATION	ii
APPROVAL FORM.....	iii
RELEASE FORM	iv
DEDICATIONS.....	v
ACKNOWLEDGEMENTS	vi
ABSTRACT.....	vii
TABLE OF CONTENTS	viii
LIST OF FIGURES	xiv
LIST OF TABLES	xv
LIST OF ACRONYMS	xvi
LIST OF APPENDICES	xvii
CHAPTER 1: INTRODUCTION.....	1
1.0 Introduction	1
1.1 Background of the study	1
1.2 Statement of the problem	3
1.3 Research questions	4
1.4 Research objectives	4
1.5 Delimitation of the study	4
1.6 Limitations of the study	5
1.7 Assumptions of the study.....	5

1.8 Significance of the study	5
1.9 Definition of key terms	6
1.10 Abbreviations and Acronyms	6
1.11 Summary	7
CHAPTER 2: LITERATURE REVIEW.....	8
2.0 Introduction.....	8
2.1 Theoretical Literature Review	8
2.1.1 Theory 1: ERP system.....	8
2.1.2 An agency Model.....	9
2.1.3 Relevance of ERP in decision making.....	10
2.1.4 Risks associated with decision making	11
2.1.4.1 Delay in decision making.....	11
2.1.4.2 Inaccuracy of reported information	11
2.1.4.3 Poor segregation of duties	12
2.1.4.4 Sharing of information	13
2.1.4.5 Redundancy and duplication of data and effort	13
2.1.5 Integrated systems and their ability to produce reliable data	14
2.1.5.1 Data relevance during manipulation of data	15
2.1.5.2 Data availability	16
2.1.6 ERP systems versus Integrated systems	16
2.1.7 Organization and adopting ERP systems.....	18

2.1.7.1 Cost	18
2.1.7.2 Spreadsheets are equally good	18
2.1.7.3 Ignorance	19
2.1.7.4 Organization Culture	19
2.2 Empirical list review	20
2.2.1 Effects of Pastel software in Zimbabwe	23
2.3 Benefits associated with the adoption of ERP.....	24
2.3.1 Competitive advantage	24
2.3.2 Assistance in decision making	24
2.3.3 Retaining market share	24
2.4 Summary	25
CHAPTER 3: RESEARCH METHODOLOGY	25
3.0 Introduction	26
3.1 Research methodology	26
3.2 Research design	26
3.2.1 Case study	26
3.2.1.1 Justification for the use of a case study.....	26
3.3 Research population	27
3.4 Sampling Techniques	28
3.4.1 Sample.....	28
3.4.2 Sampling techniques.....	28

3.4.3 Quota sampling technique	29
3.4.4 Justification for the use of Quota	29
3.5 Research instruments	30
3.5.1 Interviews	30
3.5.1.1 Justification of interviews	30
3.5.2 Questionnaires	31
3.5.2.1 Justification of questionnaires	31
3.6 Data collection procedures	32
3.7 Data presentation and analysis	32
3.8 Validity and reliability	32
3.9 Summary	32
CHAPTER 4: DATA PRESENTATION AND ANALYSIS	33
4.0 Introduction.....	33
4.1 Response rate	33
4.2 Analysis of responses from questionnaires	32
4.2.1 Gender	34
4.2.2 Educational Qualifications	34
4.2.3 Age analysis	35
4.2.4 Analysis by employee departments.....	36
4.3 Effect of introducing an ERP on decision making.....	36

4.3.1 ERP in decision making	37
4.3.2 Effect of information produced by AIS on decision making.....	38
4.3.3 Effect of having two systems on accounting information and student statistics.....	39
4.3.3.1 Student statistics.....	39
4.3.4 Financial loss	40
4.3.5 The extent to which information system produce reliable information.....	40
4.3.6 ERP addresses system variances.....	42
4.4 Interview analysis.....	43
4.4.1 Interview response rate.....	43
4.4.2 Challenges of using data from Changamire in financial reporting.....	44
4.4.3 ERP system.....	44
4.4.4 Organisation and adopting ERP systems.....	44
4.4.5 Benefits of ERP system for MSU.....	45
4.5 Summary.....	46
CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	47
5.0 Introduction.....	47
5.1 Summary to the research	47
5.1.1 Major findings.....	48
5.2 Conclusions	48
5.3 Recommendations	48

5.4 Areas of further study	50
5.5 Summary.....	50
References	51
Appendix 1	56
Appendix 2	57
Appendix 3	62

LIST OF FIGURES

Fig 4.1	Departments	36
Fig 4.2	ERP systems	37
Fig 4.3	AIS information results	37
Fig 4.4	Student statistics	38
Fig 4.5	Financial loss	39
Fig 4.6	Changamire system data reliability	40
Fig 4.7	Sage evolution system data reliability	40
Fig 4.8	System variances	42

LIST OF TABLES

Table 1.1	Student statistics variance	3
Table 3.1	Research population	28
Table 4.1	Questionnaire response rate	33
Table 4.2	Gender	34
Table 4.3	Educational qualifications	34
Table 4.4	Age analysis	35
Table 4.5	Work experience	35
Table 4.6	Interview response rate	42

LIST OF ACRONYMS

ERP-	Enterprise Resource Planning
AIS-	Accounting Information System
IS-	Information System
MSU-	Midlands State University
SAP-	Systems Applications and Products
GAAP-	Generally Accepted Accounting Practice
ITS –	Information Technology Services

LIST OF APPENDICES

Appendix 1	Cover Letter	56
Appendix 2	Questionnaire	57
Appendix 3	Interview Guide	62

CHAPTER ONE

INTRODUCTION

1.0 Introduction

(ERP) Enterprise Resource Planning is a term that refers to systems and software packages used by organizations to manage business activities to assist management in decision making. To such organisations like Midlands State University (MSU) which manage ‘Big Data’, ERP is as indispensable. Financial reporting is necessary for the university’s decision making to be effective, relevant, complete and faithfully represented. Midlands State University has been facing challenges in reconciling registered students from the Changamire system against invoiced students from the Sage Evolution system where huge unexplained variances were noted and attributed to system errors resulting in misguided decision making. This study seeks to assess the role of ERP in decision making at the university. This chapter basically focuses on background of the study, statement of the problem, delimitations and limitations of the study. It also goes on to the research objectives and questions as well as significance of the study and assumptions made for the study.

1.1 Background of the study

The world over, organisations revolved from the utilisation of manual systems to computerisation in the early twentieth century. As systems were developed, each software developer began to incline their development to the line of knowledge they had studied thus the vast spectrum of application systems. Universities on the other hand manage data that is updated and accessed on a daily basis thus the dire need for sound systems that perform and produce timeous, reliable and complete data as is a requirement by the Generally Accepted Accounting Practice (GAAP). Deloitte (1998) says an ERP system is a packaged business software system that allows an organisation to automate and integrate the majority of its business processes, share common data and practices across the entire enterprise, and produce and access information in real-time.

Across the continents, Africa seemed to trail behind in terms of technology however the University of Hull in England faced a challenge to maintain security and integrity of data and therefore embarked on ERP development. About the Ping and Proof-ID ERP systems, Jarvis (2017) the Chief Architect in the ICT Department says “they deliver substantial improvements and developments that we didn’t think possible. They have over-delivered and exceeded expectations.”

In Africa, a number of universities still use multiple systems and also face challenges in terms of variances in statistics across systems among other challenges. According to jkuat.ac.ke (2017) The Jomo Kenyatta University of agriculture and technology embarked on an ERP development project whose proposal was submitted on the 24th of April 2017 after facing challenges with use of different systems across its fourteen departments.

In Zimbabwe, a number of universities are not using sound ERP solutions. A particular example is that of Great Zimbabwe University which uses Evolution in the finance section and an in-house developed system for registry. Tagwireyi (2017) said that the university is also looking to employ an ERP solution as they also face challenges of systems integration with statistics variances among them. At MSU, The 12th bursar’s board management committee (2014) which was chaired by the bursar suggested and minuted that the Evolution system and Changamire system were not agreeing in terms of student statistics. The student accounts section report highlighted that “Variances on student statistics should be reconciled with the ITS Department (Changamire system) before the commencement of the interim audit.”

Internal Audit report (2016) identified variances in the systems by identifying cases of students’ accounts carrying different balances in Evolution and on the Changamire Registry system. Statistics of the registered students were seen not to agree with invoiced students in Evolution. This indicates potential weaknesses inherent in the system and how management has in the past actually made decisions based on wrong or erroneous information.

The following is a table that shows the variance trend in terms of statistics for 2015 and 2016 at MSU.

Table 1.1

Period	Changamire Registered students	Sage Evolution Invoiced students	Variance
2015 (1 st semester)	23 120	22950	170
2015 (2 nd semester)	22 856	22702	154
2016 (1 st semester)	22 422	22 259	163
2016 (2 nd semester)	19 654	19608	46

These variances were extracted from Income Reconciliations carried out by the Student Accounts office in the Bursar’s department. The Variances have since reduced as a result of integration between the two systems, in the form of automatic billing where now all registered students are automatically billed upon registration. The table highlights in the first semester of 2015 a total of 23 120 registered students in the Changamire system, however upon doing an income reconciliation in Evolution the income corresponded with 22 950 registered students leaving an unexplained variance of 170 students. In the second semester the variance reduced slightly by recording 22856 registered students in Changamire and 22 702 invoiced students in Evolution. In the second semester of 2016, the variance reduced to 46 students.

1.2 Statement of the problem

The system being used in the Bursar’s department is Sage Evolution Version 7.20.2.000, whilst registry uses Changamire system. It is a requirement for all students to pay at least three quarters of their fees before they can register. A student can register using any of the three forms of registration namely online, manual and chairman’s action. The only method that does not consider the threshold is the chairman’s action where a student is registered in retrospect. Before August 2016, all registered students were manually invoiced in the Evolution system thereafter automatic billing was introduced but it did not seem to address the variances in student statistics between the Changamire system and the Evolution system. On semester intervals, the Accounts section does reconciliations of registered students against the fees invoices to confirm if all

registered students are invoiced. It has been noted that this reconciliation is always unbalanced with the major reconciling items attributed to system errors. The cause of these imbalances has not been identified thus the current study seeks to research the role that ERP can play in alleviating these variances and enhancing financial decision making.

1.3 Research objectives

The study is anchored on the following objectives:

1. To assess if the introduction of an ERP would bring solutions to the challenges being faced by decision makers at Midlands State University.
2. To analyse the effect of having two systems on accounting information and their ability to produce reliable information with the current status of systems.
3. To justify the introduction of ERP systems over integration of Changamire system and Sage Evolution.
4. To investigate what is causing MSU not to adopt an ERP system?

1.4 Research questions

The following are research questions derived from the research objectives:

1. Will the introduction of an ERP system bring solutions to the challenges in operations and decision making at Midlands State University?
2. What are the risks involved in having Sage Evolution and Changamire system interacting with the accounting data and is the information from these systems reliable?
3. What pros and cons of introducing an ERP system?
4. What is causing MSU not to adopt an ERP system?

1.5 Delimitation of the study

The Study is expected to be carried out in the second semester of 2017 which runs from July to September. The research will be confined to one organisation in Gweru, Zimbabwe known as Midlands State University. The targeted population will be the Bursar's, Registry and ITS

departments with the sample population namely Assistant Bursars and Deputy Bursar's in the Bursar's department, Administrative assistance in the registry office and the ITS director. The main research objective is to look at the role of an ERP in financial decision making. Its main aim is to identify the role of ERP systems and seek to justify the need of implementing it over the use of multiple systems and the effect on decision making thereof.

1.6 Limitation of the study

- Budgetary constraints, the researcher had to set aside an amount specifically for the research.
- Research time was limited as the researcher had to do research and at the same was working, however the researcher scheduled to do research outside working hours.
- Sample respondents were not eager to offer information in interviews and questionnaires and the responses were not conclusive as only a sample was used.
- Difficulties in obtaining systems documentation as the system administrators seem not to keep this documentation. The researcher made use of available information given orally.

1.7 Significance of the study

This research was carried out in partial fulfilment of the Bachelor of Commerce in Accounting Honours Degree at MSU. The research will serve as reference point to other scholars interested in the area. The researcher will also benefit from this research as she will gain technical expertise in terms of manipulation of systems involved. The researcher will also benefit and improve on inter-personal skills from the interaction with respondents. The research is an eye opener to the management and the organisation so that they can appreciate the risks involved in employing more than one information system for example consultation fees to a number of system vendors and the advantages missed out on by not employing ERP systems.

1.8 Assumptions of the study

The researcher assumed that:

- All respondents will respond objectively, honestly, factually and timeously.

- Sampling errors will be minimal.
- Systems would not change during research.

1.9 Definition of key terms

For the purpose of this study, the following key terms are taken to mean the respective meaning:

Vendor- Oxford dictionary defines a vendor as “someone who is selling something and Wikipedia (2017) defines it as a person or company offering something for sale, especially a trader or seller in the street. However for this study, the researcher will define a vendor as a person or company offering information systems for sale.

Big data- the researcher will adopt the definition according to Anon (2017) says “extremely large data sets which may be analysed computationally to reveal patterns, trends or associations especially relating to human behaviour and interactions”.

Primary data – the oxford dictionary defines it as “Facts and statistics collected together for reference or analysis. Primary is “data collected by getting it directly from the subjects they are interested in”, however for this study primary data will be taken to mean those which are collected afresh and for the first time, and thus happen to be original in character. (lwh.on.ca, 2017)

1.10 Abbreviation and Acronyms

ERP-	Enterprise Resource Planning
AIS-	Accounting Information System
IS-	Information System
MSU-	Midlands State University
SAP-	Systems Applications and Products
GAAP-	Generally Accepted Accounting Practice
ITS –	Information Technology Services

1.11 Summary

This chapter considered the background of the study, the limitations and delimitations of the study together with the statement of the problem, research objectives and research questions, significance of the study, definition of key terms and abbreviations and acronyms. The following chapter will focus on literature review.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter intends to give an insight on the literature related to this study supporting the objectives listed in the first chapter. The main objective is to assess if the introduction of an ERP system would bring solutions to the challenges being faced by decision makers at MSU. The purpose of this review is to look at what other researchers have found out in other researches and studies similar to this one. The study is anchored on two theories which are discussed in this chapter.

2.1 Theoretical literature review

The study is anchored on the theories “Enterprise Resource Planning systems” and “An Agency theory model of ERP implementation”.

2.1.1 Theory 1: Enterprise Resource Planning Systems

This theory was proposed by Ojala (2013) of Oulu University of Applied Sciences Hintanmutka, Oulu Finland to justify the reason why an enterprise should implement and use ERPs. This theory informs the current study and its purpose is to construct understanding of why ERP systems exist, how they are built as well as giving an understanding of the value, cost and benefit of the ERP systems generally. According to this theory, advantages inter alia of using ERP over un-integrated systems are namely:

- Provides better information and support for business learning and building of organizational visions and strategies.
- ERP systems user’s better ability to provide real-time data, monitoring and control.
- Over different business operations including production, resources, inventories, financial situation, customers, and geographic businesses.

This theory has a theoretical part of the research paper which discusses constructively about the needed concepts of the Enterprise Resource Planning system. The purpose of this discussion is to come up with an understanding of why ERP systems exist and how they are built. After constructing an understanding of the ERP systems, the paper continues on revealing an understanding of the value, cost and benefit of the ERP systems generally. This is relevant to the study as the researcher intends to assess the implications of implementing an ERP system at MSU. The research outlines all possible means of acquiring an ERP system and this will enlighten the researcher on these means and assist in making an informed choice.

This theory is relevant to this study because of the managerial benefits seen to be as a result of the ERP system user's deeper and better customer understanding, daily and long-term decision making as well as business process management. The paper also addressed the hardware requirements to host a basic ERP system. This was a research gap identified by the researcher as it was not included in the research objectives of this research.

The practical part of the theory bases on an industrial case study. The purpose of the case study has been to discuss in the industrial context about the theoretically stated beliefs, benefits and possible problems associated with ERP systems, to see whether they exist in real life as well. It also looks to the change resistance related problems and constructs understanding on how different industrial personnel groups see the benefits of ERP systems. This is also relevant to this study as the researcher intends to find out what is causing MSU not to adopt an ERP system?

2.1.2 Theory 2: An Agency theory model of ERP implementation

The current study is anchored on the findings of the theory by Basu and Lederer (2012) at University of Kentucky, USA. This theory focuses on development of a model of testable propositions for agency theories looking into the relationship between implementation consultants and client organisations like MSU in the case of the researcher's survey. This theory states how the relationship affects the implementation success of an ERP system. This theory is necessary in this research as it highlights the pros and cons of outsourcing systems from different system vendors and the impact it could have on accounting data.

The theory describes ERP systems as rapidly becoming indispensable in order for large and medium sized organizations to run their operations. Therefore, management needs to know the factors that drive successful ERP implementation, a product of the continuous interaction between the implementation consultants and client firms.

Daily et al (2003) defines agency theory as a management and economic theory that attempts to explain relationships and self-interest in business organisations. It describes the relationship between vendors and agents and the respective delegation of control. This theory has been successfully used by different researchers to explain relationships between two parties seeking a common result. This paper develops a model of testable propositions for applying agency theory to study the relationship between implementation consultants and client organizations deploying the ERP systems, and to consequently evaluate how the relationship affects the implementation success.

In the theory, the authors describe the views of management in organisations as biased towards systems outsourcing as an attractive option as it leaves the responsibility for systems operations and success in the hands of the vendor. At MSU, most systems being used currently are being outsourced and the Changamire system was developed in-house. The theory is relevant to this study as it will assist the researcher in establishing more advantages and disadvantages of implementing an ERP system in terms of outsourcing the system.

2.1.3 Relevance of ERP in decision making

According to the journal on Decision Support Systems by Karsak and Özogul (2009), ERP provides insights into the decision-support systems of organisations. The study also examines relationships between the importance of various objectives in ERP planning and the subsequent realization of decision-support benefits from an ERP system. Karsak and Özogul (2009) describe the integration of systems as dependent on the choice of ERP and its ability to address the planning objectives of the organisation.

Most systems have tended to concentrate on their transactional and operational aspects, rather than on their decision-support capabilities. Holsapple and Sena (2005) explore connections between ERP systems and decision support based on the perceptions of ERP system adopters. It offers new insights into the important objectives that are considered in ERP plans and benefits.

Both senior managers and middle managers will have unified real-time information that will facilitate the process of decision making and help make realistic estimates and forecasts anticipating future scenarios.

2.1.4 Risks associated with the use of two systems on accounting information

2.1.4.1 Delay in decision making

Delay of decision making is present when strategic or tactical management goes through the data verification processes. Keizer (2009) states how it takes longer to make important decisions that impact on productivity and revenue when it takes time to correct and update the data errors. The end result of the delay in decision making will affect processes like month end accounting procedures and valuation of inventory translates resultantly into inflated costs. The fact that data from Changamire system is used to update the Sage Evolution system means at monthly intervals, the two systems have to do reconciliations to ensure that the data matches. This usually results in discrepancies and time taken to try and reconcile the differences means a delay in reporting and also a delay ultimately on decision making.

McCullough (2009) says “it will take a long process before decisions are made when it takes longer to collect data and construct manual spreadsheets.” These spreadsheets could represent the manual reconciliations done every month on student income. A significant delay arises when these decisions affect important organizational practices like sales, inventory and payment schedules. A loss in revenue and an incurring of high costs are the end results of delayed decisions (Keizer, 2009).

2.1.4.2 Inaccuracy of reported information

The 12th bursar’s management committee meeting (2016) stated that the reconciliation of registered students against their income at MSU always brings about variances attributed to the use of the two systems. Somehow the communication between the two systems is such that the student statistics vary. The same information is used to update management and therefore this

displays a bias in the information produced in the form of financial reports and management performance reports.

Wu et al (2006) in a conference paper they presented on improving the accuracy of execution data of ERP systems say that “Finding ways to achieve high execution data is an important and pressing issue for ERP practitioners”. Their research was a case study on a Chinese corporate where ERP was being implemented and it impressed upon the ability of ERP systems to produce data with improved accuracy as compared to non-integrated systems which they referred to as logical or disparate systems in their research.

According to Logan (2013), bad data can and almost certainly will result in timely and costly re-work down the line. It can cause customer dissatisfaction and can consume hours and hours of back office administration to fix. Accuracy of data is important primarily to decision makers at any organisation and MSU is not any different. Associate solutions (2014), a renowned Microsoft partner says on their website “An integrated solution that is easy to use can provide more accurate data and put it in a context that you can use to make the swift, smart decisions that drive growth.”

Therefore in this light it is important to consider ERP system implementation at MSU as other researchers have highlighted its advantages as far as accuracy of data is concerned.

2.1.4.3 Poor segregation of duties

According to Russo (2012), “A single integrated system allows for more effective management of access permissions and data security. This ensures that only the appropriate staff can take particular actions, as well as providing visibility that enables management to improve financial control and manage risks.” This is arguably one of the most overlooked ERP benefits and a present risk being faced at MSU by exchanging data across more systems and users than one.

The fact that the same data is manipulated by more than one person poses a risk of manipulation and responsibility is shared. When student statistics are being verified, the registry office extracts an excel sheet of all registered students from the Changamire system and this excel sheet is reconciled against student invoices that are also extracted from Sage Evolution again into an excel csv file.

Associate solutions (2014) say disparate solutions create silos of data that delay one's ability to find, review, and use business data. One doesn't have to waste valuable time double-checking data anymore with the advent of ERP systems. Introduction of ERP will enhance customer service as the accountants will have more time to deal with students rather than reconciliations.

2.1.4.4 Sharing of information

According to Saudi (2016) the ERP suppresses information barriers between departments by integrating and improving internal communication. This ability to share information between all components of the organization is an advantage to the organization as it reduces use of 3rd party systems like the use of excel as a reconciling tool. It would mean all users with access to the system can get reports or any data they want straight from the system.

Systems are developed in different programming languages and these vary depending on preference of the programmer, therefore there is need for data transformation to cater for compatibility of the system output. The information shared amongst departments has to be changed in terms of format for it to be acceptable in another department's system. This poses a risk of distortion or corruption of data during importing and exporting of data across the systems.

2.1.4.5 Redundancy and duplication of data and effort

Because all efforts are centralised and data is managed from one solution, it means previously duplicated efforts of reconciling in the registry department and the student accounts section is a thing of the past. Currently the departments operate somewhat independently of each other so they end up creating duplicate records and reports. This could also mean that more than one person is being paid to do the same job that only one person can be doing in an ERP system which is an extra cost to the university.

According to Inside-ERP.com (2015) eliminating duplicate entries caused by the use of several software programs is one way that an ERP software system can immediately decrease your labour costs. Making one entry into a system that automatically flows through to every area of your operation, rather than two or three, obviously saves entry time. The decrease in errors due to inaccurate or incomplete information provides another huge savings which aren't easily calculated, but the benefits will show over time.

2.1.5 Integrated systems and their ability to produce reliable data.

Accounting Information systems like Sage Evolution are employed to assist in producing reliable accounting information which ultimately assists in decision making. However, the system is receiving secondary data from the Changamire system. When compared to information that is captured within the system as primary data, the secondary data is proving to be less integral than primary data. Russo (2012) says ERPs are a robust and scalable solution to Big Data institutions like MSU as it gives confidence that as transaction volumes grow, the business activities can readily scale to support it.

As far as system data is concerned, the current status of systems has proved that both Changamire and Sage Evolution systems seem not to produce reliable data. This is because the data produced does not match yet it is supposed to report information concerning the same number of students. According to Stephen and Coleen (2004), data reliability is a state that exists when data is sufficiently complete and error free to be convincing for its purpose and context. In addition to being reliable, data must also meet other tests for evidence. These other tests could be for validity and verification of data.

Data reliability refers to the accuracy and completeness of computer-processed data, given the intended purposes for use. Reliability does not mean that computer-processed data is error free. It simply means that any errors found were within a tolerable range not significant enough to cause a reasonable person, aware of the errors, to doubt a finding, conclusion, or recommendation based on the data (Stephen and Coleen, 2004). Reference to this, MSU has been experiencing data reliability challenges. Although computer processed data is never said to be error free, the variances being experienced at income reconciliations at MSU are significant to doubt a conclusion and to reach a conclusion

Data can refer to either information that is entered into a system or information generated as a result of computer processing. Data is considered reliable when it is at least $\frac{3}{4}$ complete, includes all of the data elements and records needed for the engagement. There are simple steps that provide the basis for making a preliminary assessment of data reliability namely collecting known information about the data, performing initial testing of the data, and assessing risk related to the intended use of the data.

2.1.5.1 Data relevance during manipulation of data

Three rivers district council in the UK embarked on a study to analyse data quality strategies. In the research, three rivers (2008) discuss six characteristics of data quality that MSU can also adopt in order to have reliable data. At the stage of data collection which is done in the Changamire system, data should be accurate, valid, reliable, timely, relevant and complete.

Accuracy - Data should be sufficiently accurate for the intended use and should be captured only once, although it may have multiple uses. Data should be captured at the point of activity.

Validity - Data should be recorded and used in compliance with relevant requirements, including the correct application of any rules or definitions. This will ensure consistency of data.

Reliability - Data should reflect stable and consistent data collection processes across collection points and over time. Progress toward performance targets should reflect real changes rather than variations in data collection approaches or methods.

Timeliness - Data should be captured as quickly as possible after the event or activity and must be available for the intended use within a reasonable time period. Data must be available quickly and frequently enough to support information needs and to influence service or management decisions.

Relevance - Data captured should be relevant to the purposes for which it is to be used. This will require a periodic review of requirements to reflect changing needs.

Completeness - Data requirements should be clearly specified based on the information needs of the organisation and data collection processes of these requirements. (Three rivers, 2008)

In the research the council needed information fit for purpose in order to manage services and account for performance. Information is used throughout the organisation to make judgements about the efficiency, effectiveness and responsiveness of services and in making complex decisions about priorities and the use of resources. Service users and in the case of MSU, the students, staff community and management need accessible information to make informed decisions and reliable data must satisfy their responsibilities for making judgements about performance and governance.

2.1.5.2 Data availability

Once data has been captured and stored securely in an information system, it then must be made available to users in a way that does not allow undue access to the data or possibility of data corruption. Whitford (2016) says there are two main components to ensuring data availability thereby minimizing the risk in entrusting valuable data to technology. These are ensuring that systems operate to deliver data as needed, and backing up data to guard against system failure or data loss.

One of the main purposes of an information system is to make data available to users at the required time and in the desired state. At the same time, however, ensuring the integrity of data is of key importance. When dealing with sensitive data like student income at MSU, access should be restricted only to those users that need it by using passwords, login permissions or other available controlling mechanisms.

Whitford (2016) goes on to say that when data can be shared more widely, a difference may have to be made between users that need to access data for information and those that need access to change or update the data. Similar mechanisms, such as password and login permissions can be used to limit those users who are able to change data to those who have a need to do so. In addition, where users are permitted to change data, verification techniques can be used to minimise the chance of errors occurring.

2.1.6 ERP system versus integrated systems

According to Lohrey (2016) an integrated accounting system and an ERP system incorporate a number of business processes into a single business system. An integrated accounting system on its own however, incorporates functions specific to the line of business for example accounting, while an ERP system is a scalable system that can incorporate far more functions. Depending on the modules a business chooses to start with or incorporate, an ERP system can include business functions and in the case of MSU a student registration function.

The Changamire system is in-house developed and therefore easy to manipulate to suit user needs, however when it comes to Evolution, the developers have to be consulted therefore exposing university information to possible manipulation by non-intended users. Wikinvest (2009) says “System security risks and systems integration issues could disrupt our internal operations or information technology services provided to customers and any such disruption could reduce our expected revenue, increase our expenses, damage our reputation and adversely affect our image.”

A non-integrated system is not favourable but however for smaller organisations it may prove to be sufficient, however, as the organisation grows an ERP becomes the best to determine and improve efficiency and accuracy. Lohrey (2016) goes on to say that unlike an integrated accounting system, an ERP system incorporates data from a variety of different business processes into a comprehensive, enterprise-wide information system. The main objective is to facilitate the day-to-day management of business operations. Information stored in ERP data warehouses allows a both management and certain employees to access information on the go. ERP systems will go a long way in assisting managers in controlling the progress of their employees as they no longer depend on word of mouth progress as they can also check the system for progress themselves and monitor.

Davies (2017) says ERP software is basically a business management system with various integrated comprehensive systems that can be used to manage and integrate all business functions within the organisation. On the other hand, standalone business applications refers to applications designed for specific customer needs but have limited functionality and are isolated from other applications like the Sage Evolution and Changamire systems which each have specific functions in the organisation. ERP present ease of integration, flexibility and cost effectiveness among other advantages over integrated systems. Interfaced systems do not share the same database, so integration often requires maintaining mappings between systems.

An accounting package handles only individual business functions of accounts whereas an Enterprise Resource Planning package handles the entire range of business functions of an organization. ERP system is a fully integrated business management system covering functional

areas of an enterprise. It organizes and integrates operation processes and information flows to make optimum use of resources such as labour, material, money and machinery. ERP is a tightly integrated closed loop business solution package.

2.1.7 Organisations and not adopting ERP systems?

Most organisations like MSU shun the idea of implementing ERP systems for a number of reasons. According to Max (2015), for most organisations with limited resources to take on new projects, it might seem like a good idea to avoid taking on new projects especially one as sweeping as implementing a new ERP system. A university's most valuable assets are the faculties, students and members of staff. In this sense, a university has been regarded as a unique organization that is different from those in the corporate sector. (Lockwood & Davies, 1985)

2.1.7.1 Cost

Both universities and corporations are facing the common challenges of survival in competitive environment thereby increasing needs to improve efficiency and performance in administrative services (Allen & Fifield, 1999). It may seem as though the choice to make a capital expenditure comes down to either new production equipment or implementing an ERP system. Most institutions think that implementing multiple independent systems is cheaper than implementing of an ERP system as the ERP may have modules that would not be utilised but the reality is that ERP systems improve margins and profitability. Independent systems are user specific when compared ERP systems.

2.1.7.2 Spreadsheets are equally good

MSU uses MS Excel to do the reconciliation of student income and the general belief is that the use of such spreadsheets assists the users in getting the desired results. The users do not see a need to implement ERP systems as they are already achieving their goals using Excel. Max (2015) says spreadsheets are great tools but they cannot take the place of an integrated ERP system that gives you more complete control over your data. The reality is that spreadsheets alone don't deliver the time-phased, netted material plan that is required for income reports at MSU.

2.1.7.3 Ignorance

A number of people believe that big ERP systems are meant for big companies, but not all ERP systems are big ERP. The reality is that some vendors tailor ERP systems for small and mid-sized companies. Users are also ignorant of the advantages that come with implementation of ERP systems. Max (2015) says many companies have small or non-existent IT teams, and management may have concerns that ERP requires a large increase in headcount to run effectively. However, the reality is that ERP can be implemented and maintained even in companies that don't have any dedicated IT personnel on staff. Such organizations could consider ERP vendors with strong support offerings.

2.1.7.4 Organisational culture

Organizational cultures heavily affect ERP implementation. Tsihritzis (1999) says that universities have been forced to admit that education is a business and students are the customers. ERP implementation encourages universities to take a business like approach to education, resulting in cultural changes including the use of managerial language and techniques (Allen, Kern & Havenhand, 2002). There can be resistance to ERP implementation at universities because it involves a holistic change in organizational culture.

While there are diverse forms of management hierarchy from university to university, Birnbaum & Edelson (1989) describe that there exist two sources of authorities within a university namely administrative and academic authority. ERP implementation is believed to reinforce administrative authority as a model of governance. For academics, this may lead to fear that use of a new system that results in increased transparency of their transactions would result in a loss of control. On the other hand, administrative staff may fear for their job security when redundant processes are eliminated work functions are automated across a university (Allen et al., 2002).

2.2 Empirical literature review

In this section the researcher refers to past studies similar to the present study. The researcher identifies from the previous studies all related literature with the aim of identifying the gap not previously addressed by the studies.

In a research carried out at the University of Aberdeen documented to embark on the implementation of an ERP. In the research, MacAskill (2015) analyses the findings of the investigation and highlights points for consideration by those leading the implementation of an ERP at the University of Aberdeen and elsewhere in Scotland. The researcher did site visits to four universities in South Africa namely University of Pretoria, University of Free State, University of Stellenbosch and University of Cape Town each with an average student population of 30000. The findings of this research were such that information architecture at an institutional level should agree at the beginning of the process with all relevant stakeholders. That is agreeing the framework in which the system will operate. MacAskill (2015) concluded that ERP is an opportunity to achieve process efficiencies and improve the way business is undertaken at the University. The researcher identified a research instrument gap in the form of site visits.

Yet in another research at the University of Pretoria with a student population of 50,000 students based across 7 campuses. Eksteen (2010) carried out a research on ERP Investigation, Optimization and Implementation and says of ERP, "Information integration in a large business is a critical factor for achieving a competitive advantage and the importance of ERP and the implementation of the appropriate system cannot be stressed enough; however, the success rests in the approach to and research into the implementation process." The university procured Oracle PeopleSoft as an ERP resource and successfully implemented it. The research recommended for the future, a change impact analysis and a training plan. The first is used to facilitate and overcome the aspect of resistance to change which follows the implementation of the new software. The second is a necessity when implementing, and include technical, functional and end-user training,

Majed Al-Mashari of the Department of Information Systems, College of Computer and Information Sciences at King Saud University in Saudi Arabia also conducted a research on

ERP implementation at the King Saud University. What makes this technology appealing to organizations like MSU is the increasing capability to integrate with advanced electronic and mobile commerce technologies. However, as is the case with any new IT field, research in the ERP area is still lacking and the gap in the ERP literature is huge. Attempts by the researcher to fill this gap are proposing a hands-on approach for ERP research which involves interaction with the direct users of the system. Also by presenting the current status with some major themes of ERP research relating to ERP adoption, technical aspects of ERP and ERP in IS curricula. The discussion presented on these issues should be of value to researchers and practitioners.

In another research, the American Accounting Association also embarked on a research at Michigan State University, The University of Melbourne and Wayne State University. Severin (2011) says their research was centered on these firms and individuals are extensively impacted, and many problematic issues remain to be researched thus a research gap that the researcher will fulfill in the form of researching on the effects of ERP on large data centers like MSU. The review of ERP research carried out by the American Accounting Association is drawn from an extensive examination of the breadth of ERP-related literature without constraints as to a narrow timeframe or limited journal list, although particular attention is directed to the leading journals in information systems and accounting information systems.

The University of Stellenbosch is recognised as one the top research University in South Africa. It has over 27,000 students and around 3000 staff. Early research consisted of descriptive studies of firms implementing ERP systems, and then researchers started to address other research questions about the factors that led to successful implementations. This research encouraged the development of several major ERP research areas namely critical success factors, the organizational impact and the economic impact of ERP systems. The researcher had not researched on the financial impact of ERP systems development therefore this presented a research gap. The objective of the research at university of Stellenbosch is to synthesize the extent to which ERP research reported without regard to publication domain and make this readily available to accounting researchers.

Yet in another research carried out by Manga Tobie Armand of University of Yaoundé in Cameroon, the use of questionnaires and interviews was observed. The research study englobes mainly the aspects of ERP implementation, life cycle and the relationship existing between ERP systems and the african context of information systems. Armand (2016) says the origin of bias in this research is in the selection of ERP systems. The research looked at the use of ICT in controlling staff and payroll in the Cameroonian public service. Organizations frequently choose general ERPs and try to manipulate them to suit their needs. However it is advisable to choose an ERP system closest to the organization's needs from the start. This research highlighted to the researcher that the choice of an ERP system is therefore equally important as the data that is being safeguarded.

In another research on problems and paradigms in ERP research carried out by Gaillard (1988), the ERP technique may provide non-invasive measures that are associated with the processing of psychological information during the performance of a task. Some investigators even regard ERPs as direct manifestations of the psychological processes induced by the demands of the task. This research paper discusses the definition and identification of the components in the ERP development fraternity, the separation of endogenous components from exogenous components, and the different ways in which inferences can be made about psychological processes on the basis of ERP measures. The researcher recognised a gap by excluding these components of ERP measures and therefore will be included in this research.

Tome and Alison (2014) in the African Journal on barriers to Open Source ERP Adoption say this research was initiated after organizations in South Africa and other economically developing countries were seen not to be maximizing the use of ERP systems. While the costs associated with ERP implementation have always been a major factor, the African Journal sells the idea of using Open Source Software (OSS) ERP systems which are available offering the benefits of an ERP system at a reduced cost to organizations. This research paper investigates the adoption factors of Open Source Software Enterprise Resource Planning Systems in economically developing countries like Zimbabwe. This research is relevant to the researcher's study in that MSU is a cost sensitive university and would embrace any cost reducing measure in terms of implementing the ERP system.

Sontakke (2014) created the PowerPoint presentation on a case study carried out in the case of ERP system implementation at FoxMeyer which went bankrupt in 1996 after three years of unsuccessful implementation of SAP ERP system.

This illustrates what can happen in large organisations like MSU if implementation goes wrong especially when outsourcing. ERP facilitates information flow between all business functions inside the organisation and manages connections to outside stakeholders. The researcher noted the reporting type of using PowerPoint presentations which was used in this research as a research gap but however will not be implemented in this research.

2.2.1 Effects of Pastel software in Zimbabwe

Sage software in Zimbabwe on www.chips.co.zw (2017) states that the range of Sage ERP ensures sustainability and support of continued growth for large enterprises such as MSU. Intowely (2010) reflects that with Sage one can analyse trends, produce accounts as well as generate and print complete financial statements with notes which can then save time on financial reporting and decision making. Automatic downloads of bank statements which have been internally mapped to reconcile and post the transactions to one's business cash book and ledger accounts is possible among other integrations. Intowely (2010) says this integration saves time while eliminating data capture errors during reconciliations. However, Roomes (2011) indicated that Sage is batch-based which is not a good idea for large businesses as it then involves human intervention and also the backing up procedure is tedious as it needs to be bulletproof.

2.3 Benefits associated with the adoption of ERP

2.3.1 Competitive advantage

“ERP is an important enabler to help achieve sustainable competitive advantage. Ali et al (2012) stated that investing in information systems and ERP give a competitive advantage to organisations as it helps them to achieve better results. ERP systems make data processes and financial transactions easy to execute and make available to the organisations’ decision makers prepared and readily available information necessary for planning, controlling and operating the business effectively.

2.3.2 Assistance in decision making

The effectiveness of ERP systems is acceptable when providing management information to assist concerned decisions. The effectiveness is a measure of success to meet the established goals. Profitability when applied to the major concern area of the organization is the definition of a success implementation of an ERP system, which can then be used by more satisfied users and there is room for improvement of the quality of their performance.

2.3.3 Retaining of market share

“Effective ERP systems, in terms of providing timely and errorless information through quick data retrieval can support competition dynamism of a business to complete and survive in today’s rapid and volatile economy” Ali et al (2012). The danger of not keeping pace with the use of latest business technology may not only cause businesses to lose market share but also they may cease from the market. With regard to ERP systems, failures of organisations have been found to be highly related to uses that are made out of multiple information systems and not the ERP itself.

A generalized opinion in most sectors in Spain imposes that using information technology enables business market expansion and the saving of commercial costs of management. Santamaria et al (2010) demonstrated that the implementation of ERP systems has made possible a decrease in costs through decreased labour time.

2.4 Summary

In this chapter, the researcher outlined and intended to produce supporting authoritative sources on the objectives of the study being carried out. Different authors have had their say in regard to the impact of using ERP systems in huge organisations such as MSU. The next chapter will discuss the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter aims to present the research methodology by focusing on how data was collected in order to answer the research questions and objectives outlined in previous chapters. Research design, population, research instruments, data collection methods and sampling techniques are clearly explained and justification for their use is given. The chapter goes on to elaborate on the validity and reliability of the collected data, the intended data presentation and analysis and the summary of the chapter.

3.1 Research methodology

According to Kothari (2009) methodology refers to the way in which research was done to obtain, organise and analyse data in its logical sequence. Howell (2013) defines methodology as a strategy that shows the way in which a project research was done identifying the methods used defining the means and modes of collecting data.

3.2 Research design

Trochim & William (2006) define the research design as referring to the overall strategy that you choose to integrate the different components of a particular study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data. There are a number of research designs to choose from namely the action research design which is described by De Vaus (2001) as following a characteristic cycle whereby initially an exploratory stance is adopted then an understanding of the problem is developed and plans are made for strategy to carry out the "action" in Action Research during which time, pertinent observations are collected in various forms.

According to Healy & Devane (2011), the cross-sectional research design has three distinctive features namely it has no time dimension, a reliance on existing differences rather than change following intervention and groups are selected based on existing differences rather than random

allocation. Another example of research designs is the casual design which may be thought of as understanding a phenomenon in terms of conditional statements. This type of research is used to measure what impact a specific change will have on existing norms and assumptions. This study adopted the case study research design.

3.2.1 Case study

The research design is a case study approach of the MSU Bursar's department. A case study is defined by the oxford dictionary as "a process or record of research in which detailed consideration is given to the development of a particular person, group, or situation over a period of time." A case study is a descriptive research design which is defined by Kowalczyk (2013) as a study designed to depict the participants and help provide answers to the questions of who, what, when, where, and how associated with a particular research problem. The case study approach is defined by Kemmis et al (2013) as an in-depth study of a particular research problem rather than a statistical survey or comprehensive comparative inquiry.

3.2.1.1 Justification for the use of a case study

A case study cannot conclusively ascertain answers to why but is used to obtain information concerning the current status of the phenomena and to describe what existed with respect to variables or conditions in the situation. A case study was used for the purpose of this research and MSU was used as the case at which research was carried out.

It was used to narrow down a very broad field of research into one or a few easily researchable topics. A researcher using a case study design can apply a variety of methodologies and rely on a variety of sources to investigate the research problem however, a small number of cases offer little basis for establishing reliability or to generalize the findings to a wider population. The study helped in reducing the population size. However, it was a bit expensive and time consuming in doing the case study.

3.3 Research population

According to Amviko (2011) "Research population is the total of all the individuals who have certain characteristics and are of interest to a researcher." UNISA guide (2014), refer to population as the total number of objects, subjects or members that are conformed to set

specifications. The targeted population for this study was the management and employees of MSU.

Table 3.1: Research population

Department	Targeted population	Total Population	Percentage (%)
Bursar's	<ul style="list-style-type: none"> • Assistant Bursar- Student Accounts • Assistant Bursar-Accounting & finance • Administrative Assistant 	5	60
ITS	<ul style="list-style-type: none"> • ITS Director • ITS Deputy Director- Software 	3	67
Registry	<ul style="list-style-type: none"> • 3 Administrative assistants 	4	75
Management	<ul style="list-style-type: none"> • Deputy Bursars 	2	100

3.4 Sample and sampling techniques

3.4.1 Sample

A sample is defined by the Cambridge English dictionary as a small amount of something that shows you what the rest is or should be like. A sample can be called a population research subset. Therefore for purposes of this study, a sample of 3 employees from the Student accounts section in the Bursar's department, 2 from the ITS department, and 3 employees from the Student Registry department were chosen from a population of 5, 3 and 4 employees respectively. The two deputy Bursars as part of management staff were chosen from a total population of four.

3.4.2 Sampling techniques

According to Boyd (2014) "sampling is a process used to study a response to an intervention in a small population that can be applied to a larger population." Cohen and Manion (2001) say of sampling, "Sample size depends on the style of research, numbers of variables to be used and on scales of measurement e.g. surveys may require large samples whilst ethnographies may require

smaller samples and the larger the scale, the larger the sample. There are a number of sampling techniques namely random, systematic, stratifies, cluster and quota sampling. This research will employ the quota sampling technique.

3.4.3 Quota sampling technique

Cohen and Manion (2001) say of Quota sampling, “Identify the group of factors to be sampled, and obtain one respondent or more for each group”. Quota Sampling is a sampling method of gathering representative data from a group. The researcher takes into account several characteristics and must ensure that there is at least one person in the study representing each of the chosen characteristics. In this research, the researcher identified four characteristics or groups namely; accounts, registry, IT and management and these are the groups which will be used for sampling purposes.

3.4.4 Justification for use of Quota sampling technique

This is a non-probability sampling technique used by most scholarly researchers as it is cheap and saves time when compared to other sampling techniques. According to Saunders et al (2012) Quota sampling emerges as an attractive choice when you are pressed for time, since primary data collection can be done in shorter time with this method compared to many alternatives. Quota sampling is not dependent on the presence of the sampling frames. In occasions where suitable sampling frame is absent, quota sampling may be the only appropriate choice available.

However in some cases it is not representative of the total population and other traits in the sample may be overrepresented as only the selected groups of the population were taken into account in forming of subgroups but care was taken by the researcher since the groups are small to include every representation.

3.5 Research Instruments

Denzin & Lincoln (2005) define instruments as the generic term that researchers use for a measurement device (survey, test, questionnaire, etc.) The researcher employed interviews and questionnaires in this research and they will be outlined below.

3.5.1 Interviews

Different scholars have defined interview differently. According to Chand (2016), an interview is a purposeful exchange of ideas, the answering of questions and communication between two or more persons. Bingham et al (2015) define an interview as a conversation with a purpose. Thus interview can be defined as an attempt to secure maximum amount of information from the candidate concerning a subject. The researcher conducted interviews both physically and over the phone in order to collect primary data. The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses. This method was used through personal interviews and through telephone interviews.

3.5.1.1 Justification of interviews

Research studies have firmly established that among all research methods, interview has been the most researched and carefully documented method. Interviews are advantageous in that more information in greater depth can be obtained. Interviewer by his own skill can overcome the resistance, if any, of the respondents and the interview method can be made to yield an almost perfect sample of the general population. There is greater flexibility under this method as the opportunity to restructure questions is always there, especially in case of unstructured interviews. Interviews allow for controlling of samples more effectively as there arises no difficulty of the missing returns and non-response generally remains very low. The interviewer can usually control which person(s) will answer the questions. This is not possible in mailed questions.

However, it is an expensive method, especially when large and widely spread geographical sample is taken. There remains the possibility of the bias of interviewer as well as that of the respondent and there also remains the headache of supervision and control of interviewers. Certain types of respondents such as important officials or executives or people in high income

groups may not be easily approachable under this method and to that extent the data may prove inadequate. This method is relatively more-time-consuming, especially when the sample is large and recalls upon the respondents are necessary.

3.5.2 Questionnaires

Questionnaires were used as one of the research instruments in this research. According to Conway (1998) a questionnaire is defined as a “concise, preplanned set of questions designed to yield specific information about a particular topic from one or more groups of people”. As noted by Williaman (2005) using questionnaires facilitated the researcher to establish questions and obtain replies devoid of essentially having to talk to every single respondent. These were drafted by the researcher and circulated amongst the sample made up of the various system users in the university circle. Questionnaires are classified into four basic types of questions thus open-ended questions, closed ended questions, partially open-ended question and Likert rating scale questions. The researcher used Likert rating scale questions and partially open-ended questions in collecting data.

3.5.2.1 Justification of questionnaires

The advantageous feature of questionnaires is that they are impersonal, the questions are fixed that is they do not change according to how the replies developed and they are the same for each respondent, and the person imposing the questions is remote Williaman (2005). There is low cost even when the university is large and is widely spread geographically. Questionnaires are free from the bias of the interviewer as answers are in respondents’ own words and respondents have adequate time to give well thought out answers. Such respondents as not easily approachable, can also be reached conveniently and large samples can be made use of and thus the results can be made more dependable and reliable. However, questionnaires display low rate of return of the duly filled-in questionnaires and bias due to no-response at times. Questionnaires can be used only when respondents are educated and cooperating and control over questionnaire may be lost once it is sent. There is also the possibility of ambiguous replies or omission of replies altogether to certain questions. Whilst interpretation of omissions is difficult, this method is likely to be the slowest of all.

3.6 Data collection procedures

The researcher came up with relevant questions and typed them and printed copies which were handed out to the respondents. The researcher emphasised on quick response so that ample time would be taken analysing the responses. The data collected was qualitative therefore the researcher edited, verified and summarised the collected information from the questionnaires and interviews and checked for errors and omissions made either by the researcher or by the respondents. Data was then classified into groups according to similar traits in responses.

3.7 Data Presentation and Analysis

Myers (2009) defined data analysis as a systematic explanation of research findings. The collected data was analysed by way of narrative description and summaries were also used in analysing qualitative data that was collected. Pie charts, bar and column graphs were used in the presentation of data because these can easily be understood when analysing qualitative and quantitative data. It then also included graphical presentations to give an overview of data collected and the researcher used MS Excel as a tool to analyse data making use of basic graphs and charts.

3.8 Validity and reliability

In order to ascertain the data validity and reliability, the researcher used data triangulation. Data triangulation is a technique of verifying information from more than one source to mitigate some irregularities in the research process (O'Donoghue and Punch 2003). The researcher used questionnaire as the main data collection method for the research and also used interviews by making use of a sample so as to verify the data for validity and reliability of data obtained through questionnaires.

3.9 Summary

This chapter was on the introduction, research methodology, research design, research population, sampling and sampling techniques. The research design, instruments and sampling techniques used were also justified. The researcher also detailed the data collection procedures as well as the data analysis and presentation procedures.

CHAPTER 4

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter focuses on the presentation and analysis of data collected. Binder and Roberts (2003) define data analysis as the process of developing answers to questions through the examination and interpretation of data. The data gathered from questionnaires and interviews is presented, analysed and interpreted. Explanations and interpretations are given so as to enhance understanding of data presented.

4.1 Response rate

Table 4.1 Questionnaires response rate

Departments	Questionnaires issued	Questionnaires returned	Percentage response rate (%)
Student accounts	3	3	100%
Registry	3	3	100%
ITS	2	2	100%
Management	2	2	100%
Total	10	10	100%

The response rate was 100% and therefore a true presentation of the sample and implying the results can be depended upon to make conclusions in this research.

4.2 Analysis of responses from questionnaires

Background information:

Ten (10) questionnaires were distributed to the Planning and Systems department, Accounting and finance department, ITS directors and the Registry department. From the questionnaires distributed, all respondents returned the questionnaires. There was a 100% response rate.

4.2.1

Table 4.2 Gender

Male	3	30%
Female	7	70%
Total Sample size	10	100%

It would appear that most of the respondents at the university are females based on the results of the findings as far as gender is concerned.

4.2.2 Educational Qualifications

Table 4.3 Educational qualifications

Academic Qualification	Frequency	(%)
Certificate	0	0
National Diploma	1	10%
ACCA, CIS or CIMA	2	20%
Degree	4	40%
Masters	5	50%
Doctorate	0	0

The above results seem to suggest that the respondents who use the data in question are quite educated. The least educated holds a national diploma in their relevant area of study, representing 10% of the sample size. Another 40% are degreed and the remainder of 50% holds masters degrees. Among the masters' degree holders another 2 respondents had professional qualifications as additional qualifications. It would appear that the respondents are capable of minimum understanding and therefore have the ability to make reliable responses and relevant contributions to the research study. Onias et al (2014) supports the educational levels by saying that education increases the knowledge of the employees in the various accounting fields and the chance of the success of such a business is higher.

4.2.3 Analysis by employee age

Table 4.4 Age analysis

Age	(%) of responses (Age)
18-25	0
26-35	30%
36-45	70%
46-55	0%
Above 55	0%
Total	100%

According to the table above, the implication is that most employees in the departments in question are between ages 26 to 45 which are the strong workforce. It is assumed that this age range is the most productive therefore the results from these findings would appear to be a representation of the active age group. It would appear that the data collected can be relied on since the respondents form the strongest and vigilant workforce.

Table 4.5 Work experience

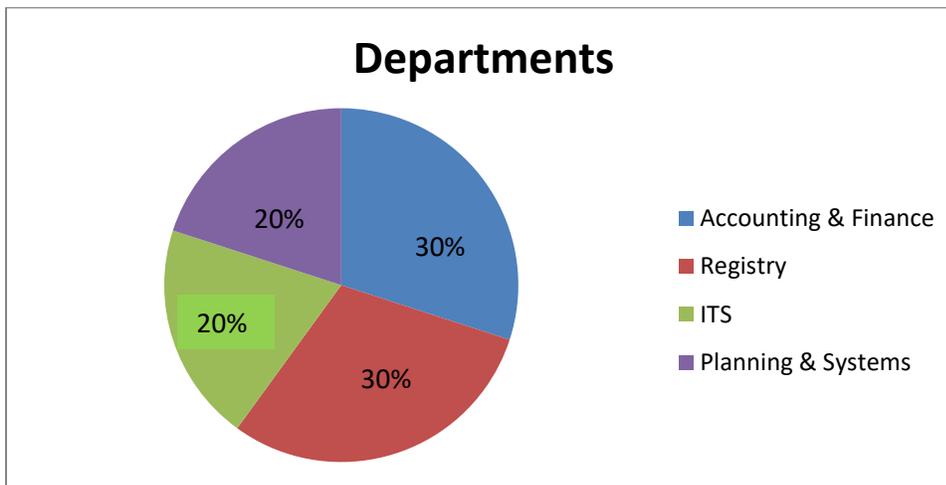
Work experience	% Responses (Work exp)
Less than 1 year	0
1-5 years	30%
6-10 years	50%
Above 10 years	20%

The researcher also noted that the employees' work experience was approximately directly proportional to the working experience with 30% employees aged between 26 and 35 having working experience of not more than 5 years. The remaining 70% aged between 36 and 45 have worked for more than 5 years at the university with 20% of them having worked for more than 10 years.

4.2.4 Analysis by employee departments

The departments were fairly represented to promote information independence. As 30% of the respondents were from the accounting and finance department, another 30% represented the registry department whilst the remainder of 40% was made up of 20% ITS and 20% Planning and systems department. These results seem to suggest that the respondents were evenly spread and not skewed to one department therefore displaying a reliable response rate in terms of employee departments.

Fig 4.1



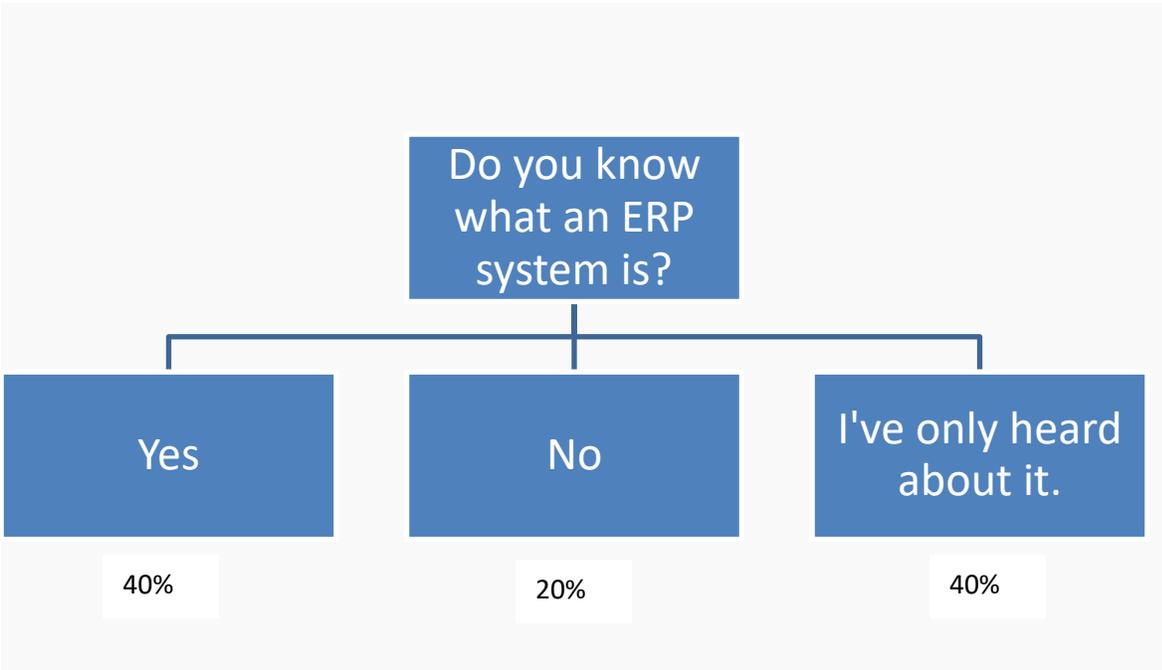
4.3 Effect of introducing an ERP system on decision making.

The questions asked by the researcher attempt to identify the best practice on ERP systems to solve problems that the organization is facing of using two separate systems which are not integrated therefore bringing about statistical variances. The Sage Evolution and Changamire systems both are used to manipulate the financial data and as a result have an effect on the decision making of the university.

4.3.1 ERP in financial decision making

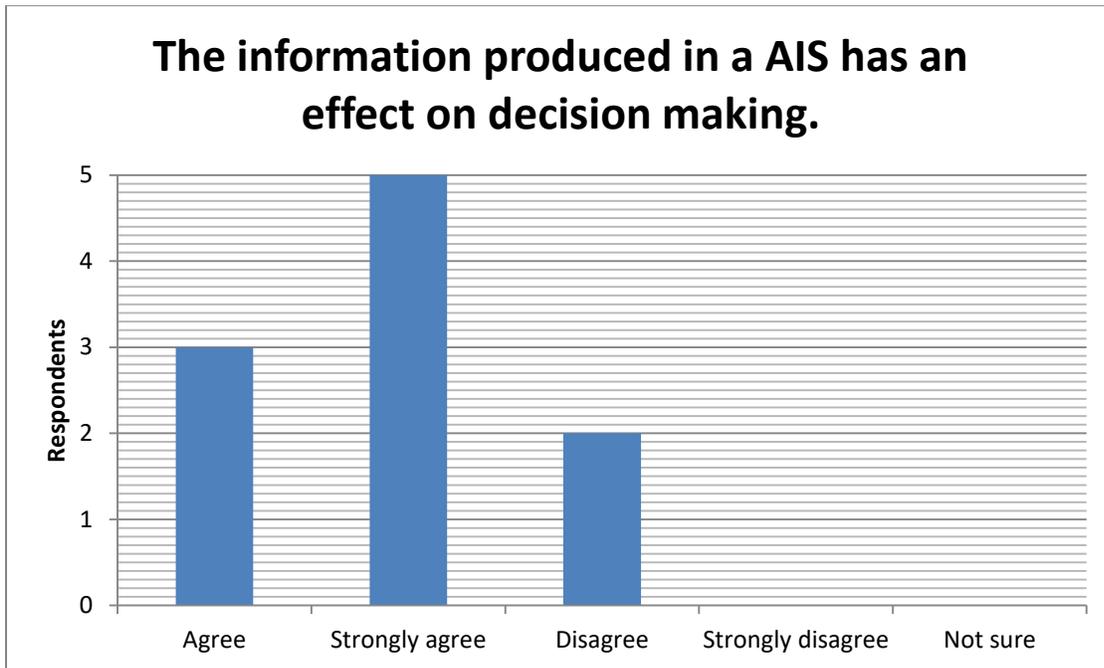
When asked if they knew what ERP is, the respondents displays to a minimal extent the knowledge of ERP systems. The researcher noted when conducting interviews that all ITS employees knew what an ERP is and the researcher matched this knowledge to the field they operate in. on the other hand, employees from the bursar’s and registry departments did not show keen interest in the knowledge of ERP systems. The questionnaires showed only 40% admitted to knowing what an ERP system is and the remainder had varied responses as shown in the figure below. 20% of the respondents related to totally not knowing what an ERP system is and another 40% had only heard about it.

Fig 4.2



4.3.2 Effect of information produced by Accounting Information Systems(AIS) on financial decision making.

Fig 4.3



The respondents on Fig 3 above shows that 30% of the respondents agreed, and 40% strongly agreed to the notion that AIS information has an effect on decision making. Results also seem to suggest that 10% of the respondents disagreed to that effect and 20% are not sure of their position about whether the type of an accounting information system used within the organization has an effect on the decision making within the organization. The overall position confirms that 70% of the respondents agreed and 10 % disagreed whilst 20% are not sure. (Hongjiang Xu, 2010) noted that within an AIS, the quality of the information or data provided is imperious to the success of the systems. These results enlightened the researcher that most respondents are aware that the information from AIS does have an effect on decision making hence the probability of supporting the move to introduce an ERP system.

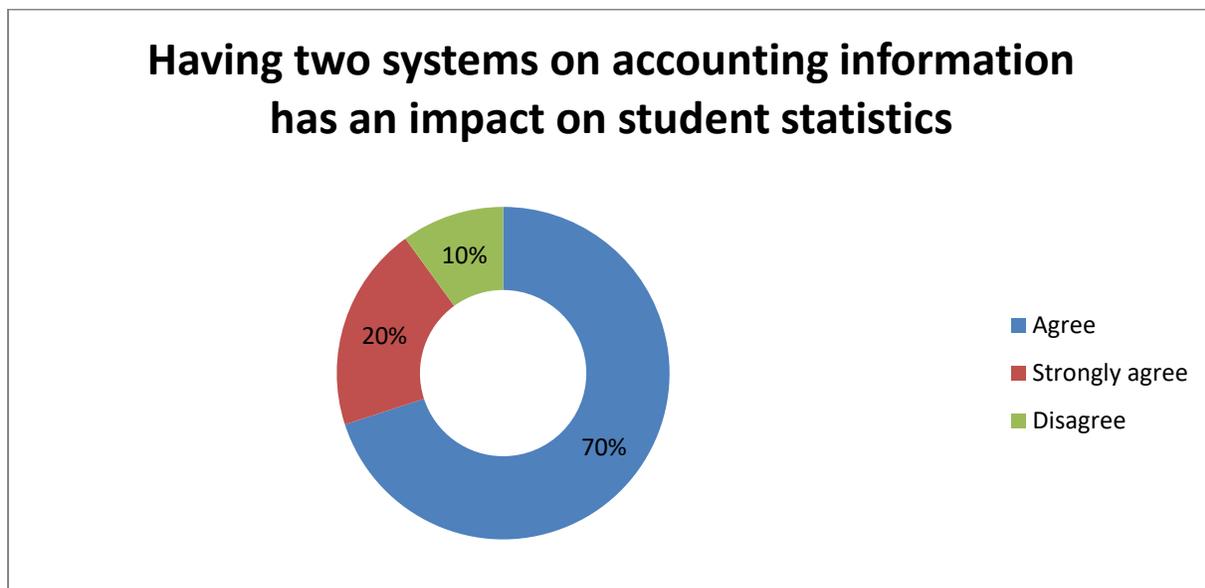
4.3.3 Effect of having two systems on accounting information and impact on student statistics.

4.3.3.1 Student statistics

The questions asked in relation to this idea of thought centred on inquiry of the extent to which the use of separate accounting information systems can result in financial loss, loss of revenue and qualified audit reports due to imbalances in statistics. When asked how having two different systems interacting with accounting data has an impact on student statistics, it was interesting to note that the majority of the respondents agreed to this notion. 30% of the respondents agreed and 50% strongly agreed whilst on the other hand 20% disagreed. The analysis of the respondents is clearly outlined in the chart to follow.

According to (Jackson and Sawyer, 2002) the use of non-integrated accounting systems can result in bad publicity as it does not provide useful information concerning transactions, such as the quality of materials manufactured and the timeliness of delivering or customer satisfaction. Therefore apart from misguided reports based on false statistics, the effect of having these two systems extends to customer satisfaction as highlighted by Jackson and Sawyer.

Fig 4.4



4.3.4 Financial loss

The question posed on this research pointer sought to inquire the extent to which the use of separate information systems manipulating accounting data can result in financial loss. The fig below shows that only 3 response criteria were responded to. Most respondents agreed that financial loss was a result of using two systems to manipulate accounting data. A total of 30% disagreed with the notion that the use of separate information systems on the same accounting data may result in financial loss.

Fig 4.5



4.3.5 The extent to which the information systems produce reliable information with current status of systems.

The question posed on this research pointer sought to inquire the extent to which the use of the two separate information systems manipulating accounting data can produce reliable information. Respondents were asked on reliability of Changamire and Sage Evolution separately. Changamire being the source of data as student registration begins in this system and the invoicing follows in Sage Evolution. The results are shown in the histograms below.

Fig 4.6

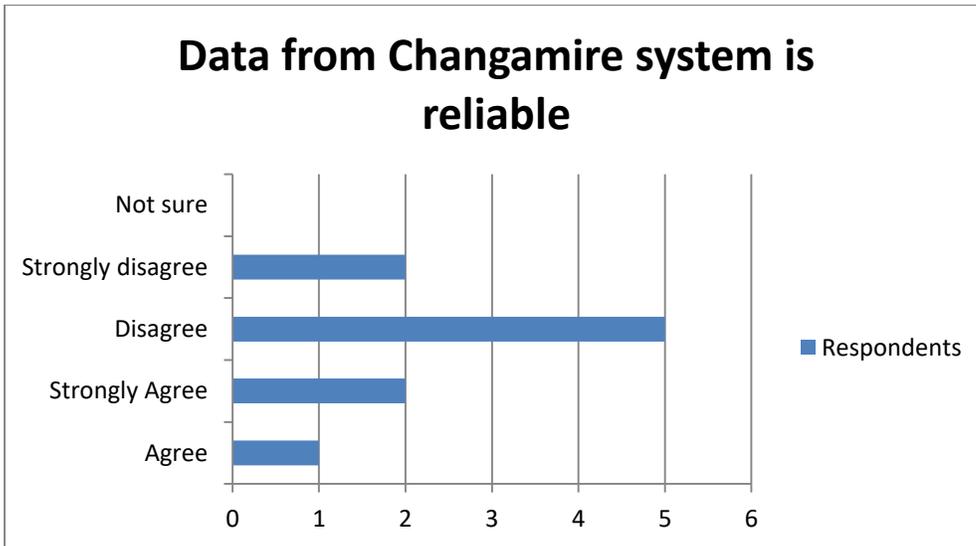
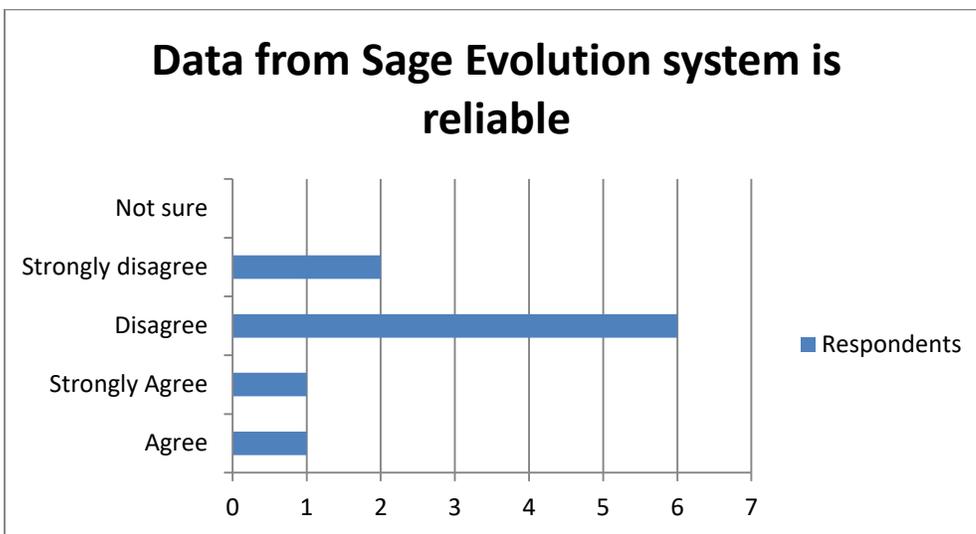


Fig 4.7



Reliability of data in the individual system was assessed against the source data which is the Changamire database. Respondents were asked to respond in this light and the results seem to represent the notion that most employees disagree with their reliability. 50% of the respondents disagreed with reliability of Sage Evolution data whilst 60% disagreed with reliability of Sage Evolution data. Generally 20% agreed to reliability of Sage Evolution data whilst another 20% strongly disagreed. Only one respondent agreed to data reliability in the Changamire system whilst 20% strongly agreed. It would appear that only 2 respondents strongly disagreed to reliability of Changamire system data.

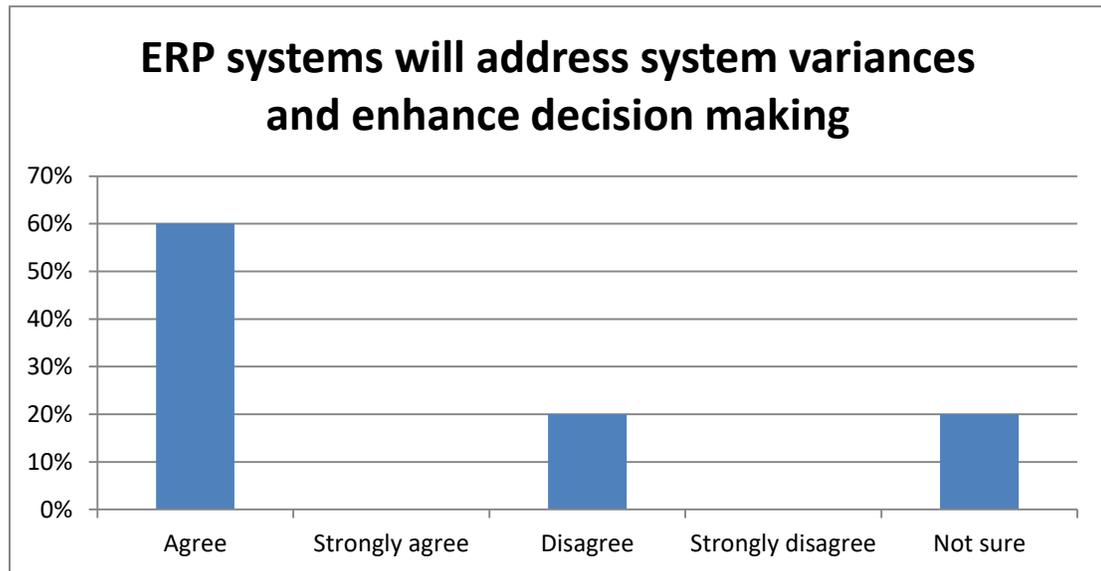
According to Stephen (2004) “Data reliability is a state that exists when data is sufficiently complete and error free to be convincing for its purpose and context. In addition to being reliable, data must also meet other tests for evidence. Computer-processed data must meet evidence standards before it can support a finding.”

4.3.6 **ERP systems address system variances and thus enhance decision making.**

The above idea was posed to respondents with room for them to comment. One respondent commented and said “ERP systems focus on integration of information which can indeed help reduce variances.” Other respondents just responded to the given possible responses and did not comment. 60% agreed that ERP systems will address system variances and enhance decision making at the university. 20% disagreed whilst the remaining 20% were not sure if ERP systems would address the system variances. No respondents strongly agreed nor strongly disagreed to the notion that the introduction of ERP systems will assist in addressing system variances and thus enhance decision making. The distribution of responses to this idea is shown in Fig 8 following.

The researcher moved an idea that there is a correlation between an accounting information system and an organisation’s performance, in this case performance in the form of accurate income reconciliations in Sage Evolution with reliable statistics from registry.

Fig 4.8



Ali et al (2012) provided that ERPs make execution of data processes and financial transactions easy to provide the decision makers of organisations with the information needed in planning, controlling and operating business effectively. Thus it would appear that assistance in decision making is a benefit of the adoption of ERP systems as more than half of the respondents were in agreement to that.

4.4 Interview analysis

4.4.1 Interview response rate

Table 4.6

Respondents	Scheduled interviews	Conducted interviews	Response rate (%)
Planning & Control	1	1	100%
Accounting & Finance	1	0	0%
ITS	1	1	100%
Total	3	2	67%

Three interviews were scheduled and two of them were successful. One of the interviewees cancelled the interview due to a busy schedule. The interview response rate is therefore 67% as shown in the table below.

4.4.2 The risks and challenges of using data from Changamire system in financial reporting?

The first interviewee highlighted that there was lack of data consistency and they cited student statistics as an example where the number of registered students at a time does not tally with the number of invoiced students in Evolution for the same period. The interviewee said this risk was married to system lapses in terms of updating Evolution thereby giving rise to a risk of data integrity from the Changamire system. The second interviewee said the risk of using data from the Changamire system is that the finance employees are not custodians of the database therefore there is no control of the system and its components in terms of input, processing and output. The second interviewee also mentioned that the two systems are linked through a web service which can be affected when internet is down thereby locking some updates meant to occur on the evolution side.

4.4.3 ERP system

100% of the interviewees said that they know what an ERP system is. This knowledge of ERP systems will go a long way in trying to spread the knowledge among the university community on the road to implementing it. Sumathi & Sumathi (2017) say about ERP systems, “ERP software otherwise is a business automation software which helps to integrate core business processes in one single application. Basically this application helps different departments in the organization to communicate, share information, manage, and analyze data from various business activities.”

4.4.4 Organization and adopting ERP systems?

The interviewee highlighted a number of concerns that give rise to the organization not adopting an ERP system in such turmoil characterized by system variances in debtors’ reconciliations. The first interviewee said that most employees and members of management are ignorant of ERP

systems. Mere ignorance and lack of research in the area would seem to suggest that the employees are not exposed to availability of such systems.

The second interviewee highlighted the fear of the unknown saying that employees are just resistant to change. Many of them ask themselves “what if it does not work?” and forget to ask themselves “what if it works?” In a journal of “Factors affecting ERP system implementation effectiveness” Maditinos (2011) says about his study that consultant support and knowledge transfer are the two key factors for ERP system success.

The second interviewee also brought about the issue of finances saying that the organization will not easily sponsor ideas like this one or any other for that matter saying that the organization is “stingy”. These responses really opened the researcher’s mind to some of the beliefs that are in the organization that even the management are aware of which could be a hindrance to successfully implementing this proposed solution.

4.4.5 Benefits associated with adoption of ERP systems at MSU?

The interviewees suggested that an adoption of ERP systems would benefit the organization in making decisions on a timely basis since there wouldn’t be any time wasted trying to reconcile data from two systems. ERP systems would mean one database that the different views of the system would be feeding to and extracting data from. Saudi (2016) in the Saudi ERP & Website Solution blog outlines the following as the benefits associated with ERP systems that MSU can also benefit from if ERP systems are implemented.

- Optimization of business processes.
- Accurate and timely access to reliable information.
- The ability to share information between all components of the organization.
- Elimination of unnecessary operations and data.
- Reduction of time and costs of litigation

- Then, as each module of the ERP system enters the same real-time database, another advantage is that no duplicate records or playback operations, therefore redundancy is avoided and system variances are avoided.
- The performance of all work units is improved because better use time is increased. If you previously had to make reports and take them from one place to another, now the time is spent on other activities.
- To improve performance and save time, optimize the control and analysis of management decisions there in the long term, reduced costs for the company.
- Another obvious advantage is in terms of customer service, because the response time is reduced attention to them.
- When a company has an ERP system is more competitive in the environment in which it operates.

The above responses linked the interview to the following question which requested to ascertain if ERP systems can be used to integrate accounting and registration information of the organization thereby expelling system variances. The results from the interviews seem to suggest that indeed the variances being faced at reconciliation of student income will be eradicated by the introduction of an ERP system.

4.5 Summary

In this chapter, the researcher analysed the data collected from the research instruments and the presentation of the data in the way of tables, column and bar graphs, as well as pie charts. In the following chapter, the researcher will be making a conclusion on this research, giving recommendations and areas for further study.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter of the research, the researcher will summarise the research problem tackled, the research methodology and its limitations as well as the major findings of the study and their implications if put into practice. The researcher will conclude after summarizing and then give recommendations for further study. The conclusion will sum up answers to the research questions stated in chapter one drawing them from findings in chapter 4.

5.1 Summary

The main research objective was to assess if the introduction of an ERP system would bring solutions to the challenges being faced by decision makers at Midlands State University. The challenges being faced were those of variances between student statistics in the Registry department against student income in Sage Evolution system. The need to produce reliable reports from the two independent systems that can inform management when making decisions is what moved the researcher to embark on this research. Based on findings in the chapter four, the researcher found out that most employees had observed the system variances but fell short of the knowledge, expertise and understanding of a solution that could address them.

In the first chapter, the researcher outlined the background of the study, statement of the problem, delimitations and limitations of the study. The chapter also looked on the research objectives and questions as well as significance of the study and assumptions made for the study. In the chapter following the researcher gave an insight on the literature related to the study supporting the objectives listed in the first chapter. The purpose of the literature review was to look at what other researchers found out in other researches and studies similar to this one. The researcher went on to chapter three where research methodology was done to explain how data was collected in order to answer the research questions and objectives. Research design, population, research instruments, data collection methods and sampling techniques were clearly explained and justification for their use was given.

5.1.1 Major findings

It was discovered during the research that at times the Changamire system lapses when updating the Sage Evolution system. When a student registers, an automatic invoice is supposed to be posted into the student's account in Evolution. At times this invoice fails to update the student account and this position may be true when the accountant in the student accounts department is doing their income reconciliation. Another instance that was discovered is that when some of these invoices eventually debit the student account, they duplicate thus having a double effect on Evolution whilst Changamire has one registration record for that student. Credit notes can be done both from Changamire and Evolution therefore posing a control threat in terms of any user being able to process from the two systems.

ERP systems present an ability to share information between all components of the organization as highlighted in chapter four on the analysis of advantages that ERP systems would bring to the organization. ERP systems optimize business processes, eliminate unnecessary operations and data such as the duplication of duties by both systems being able to pass the credit notes on the same student accounts. The researcher also found out that the performance of all departments is improved because better use time is increased. Where previously reports had to be made and taken from Registry to ITS and across to Student accounts department, now the time is spent on other activities thus reduction of time and costs of litigation.

The researcher also found out that ERP systems will be embraced by the employees when coupled with training, knowledge and skills transfer by the ERP system developers or vendors as they agree to the fact that ERP systems will go a long way in eradicating the system variances being faced. As each module of an ERP system enters the same real-time database, another advantage is that no duplicate records or playback operations occur, therefore redundancy is avoided and system variances are avoided. In terms of customer service response time will be reduced therefore students will not suffer delay in being invoiced as this could hinder them from viewing their results online.

5.2 Conclusion

MSU is a university of choice and it can then maintain this status by employing an ERP system and become more competitive in the environment in which it operates. The study found out that although both sexes are involved, more females are involved more than males. This could be because females are more tolerant and have been doing reconciliations with these variances without thinking of addressing the root cause. While the challenge of system variances was quite prevalent, nothing was being done by management to try and address the issue. Decision makers agreed to having used this information for decision making in the way it was extracted from the two systems. Although the two systems are integrating well in other areas and with other systems at large, the issue of student statistics and income reconciliation has remained an unresolved evil.

The research aimed investigating the role of ERP systems in decision making at MSU. Looking at how the introduction of an ERP system would assist in eradicating the system variances affecting financial decision making at the university. Since the current systems' reliability was questionable, the following recommendations were made.

5.3 Recommendations

In the light of the above conclusions, it is recommended that the university adopts an ERP system of their choice and implement it so as to try and address the variances being faced due to the use of two independent systems. This could be achieved by inviting tenders for ERP systems vendors or developers from where informed technocrats and procurement officers can then make a choice.

While the employees have genuine reasons not to have interest in ERP systems, the researcher recommends the university to embark on an awareness campaign that could inform and educate other employees that seem to be ignorant of the effects of having the two separate systems manipulating financial data. This could be done by inviting knowledgeable personnel to speak on ERP systems and highlight the advantages they could be to the university.

The researcher recommends that the employees at the university be trained and educated on an ERP system of choice. Not only the departments involved in the production of reports to do with

the variances but the university staff at large as they might end up using the ERP system at some point.

The researcher recommends that the university source for funds from banks, credit facilities and the government. This will go a long way in attaining a growth in technological advancements for the university. Kannabiran and Dharmalingam (2012) say that lack of financial resources is one of the major constraints in adopting accounting information systems, hence sourcing for financial help.

5.4 Areas for further study

This research was on analysing the role of ERP systems in decision making at MSU. Further studies can be carried out on the analysis of the impact of outsourcing or developing ERP systems in-house.

5.5 Summary

The chapter was focusing on the major findings of the research and the recommendations thereon. The chapter summarised the whole research from the first chapter to the fourth.

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APPENDIX 1: COVER LETTER

**Midlands State
University**
Established 2000



FACULTY OF COMMERCE

P O Box 9055

Gweru

20 September 2017

To whom it may concern

Dear Sir/Madam

REQUEST TO CARRY OUT RESEARCH

Name..... Reg No..... Is a bonafide student at this institution in the department of Accounting. He/she is carrying out research on.....
.....
.....

Any information you give him/her will be solely used for academic purposes. Please assist him/her in any way possible.

Yours faithfully

K MAZHINDU

CHAIRPERSON

APPENDIX 2: QUESTIONNAIRE

My name is Yvonne T Masea, a final year Bachelor of Commerce Accounting Honors degree student at Midlands State University. This questionnaire is part of my research into the role of Enterprise Resource Planning in financial decision making at Midlands State University. I therefore kindly request for your valued contribution by responding to every question

Instructions

- Do not write your name on the questionnaire
- Please tick where applicable
- Please fill in the appropriate response in the spaces provided

1. What is your gender?

Male

Female

2. What is your age?

18 – 25

26 – 35

36 – 45

46 – 55

Above 55

3. What is your department?

Accounting and finance

ICT

Planning & systems

Registry

4. Tick your highest academic qualifications

Certificate HND Degree

ACCA/CIS/SIMA Masters Doctorate

Other (Please specify)

5. What is your working experience?

< one year 1-5 years 6-10years Above 10 years

6. Do you know what Enterprise Resource Planning (ERP) is?

Yes No I've only heard about it

7. The information produced in a AIS(Accounting Information System) has an effect on management decision making.

Agree Strongly disagree

Disagree Strongly agree

Not sure

Comments:.....
.....
.....
.....

8. The introduction of an ERP system will address system variances and thus enhance decision making at Midlands State University.

Agree	<input type="checkbox"/>	Strongly disagree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>	Strongly agree	<input type="checkbox"/>
Not sure	<input type="checkbox"/>		

Comments:.....
.....

9. Having two different systems interacting with the accounting data has an impact on student statistics?

Agree	<input type="checkbox"/>	Strongly disagree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>	Strongly agree	<input type="checkbox"/>
Not sure	<input type="checkbox"/>		

Comments:.....
.....

10. The information from Sage Evolution system is reliable?

Agree	<input type="checkbox"/>	Strongly disagree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>	Strongly agree	<input type="checkbox"/>
Not sure	<input type="checkbox"/>		

Comments:.....
.....

11. The information from Changamire system is reliable?

Agree	<input type="checkbox"/>	Strongly disagree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>	Strongly agree	<input type="checkbox"/>
Not sure	<input type="checkbox"/>		

Comments:.....
.....

12. There was financial loss due to discrepancies in Income against registered students' statistics.

Agree	<input type="checkbox"/>	Strongly agree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>	Strongly disagree	<input type="checkbox"/>
Not sure	<input type="checkbox"/>		

Comments:.....
.....

13. ERP can be used to integrate accounting and registration information of the organization thereby expelling system variances.

Agree

Strongly agree

Disagree

Strongly disagree

Not sure

Comments:.....
.....
.....

Thank you for your valued cooperation, it is very much appreciated.

APPENDIX 3: INTERVIEW GUIDE

ANALYSING THE ROLE OF ENTERPRISE RESOURCE PLANNING (ERP) IN FINANCIAL DECISION MAKING AT Midlands State University.

- What are the risks and challenges of using data from Changamire system in financial reporting?
- What components do you think can make up effective financial reporting in terms of student debtors?
- Do you know any ERP system?
- What ERP system do you prefer to adopt that is suitable for the organisation?
- What are the possible challenges causing the organisation not to adopt ERP systems?
- What are the benefits associated with the adoption of ERP systems?
- Will the introduction of an ERP system address the system variances currently being faced?
- Do you think having two different systems interacting with the accounting data has an impact on student statistics?