

**EFFECT OF ELECTRONIC FINANCIAL SERVICES ON OPERATING
COSTS IN UNIVERSITIES IN KENYA
(A Survey of Universities in Mt. Kenya Region, Kenya)**

MAJORY W NYAGA

B211-0004/2013

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TECHNOLOGY**

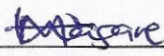
**A Thesis Submitted to the School of Business Management and Economics in
Partial Fulfillment for the Award of the Degree of Master of Business
Administration, Dedan Kimathi University of Technology**

January 2015

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DECLARATION

I declare that this is my original work and has not been presented in any other university or any institution of higher learning for examination/academic purposes.

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Student: Majory Nyaga
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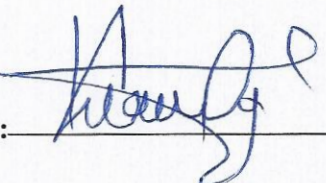
This thesis has been submitted for defense with my approval as the university supervisor.

Signature: 

30/4/2015

Dr. Riro Kamau.
Lecturer,
Department of Accounting & Finance
DeKUT, Kenya

Date

Signature: 

30/04/2015

Dr. David Kiragu.
Lecturer,
Department of Accounting & Finance
DeKUT, Kenya

Date

DEDICATION

I dedicate this thesis to my beloved husband and our wonderful sons. They remained a source of encouragement to me throughout this research. May God bless and preserve them under His love. Amen

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ABBREVIATIONS AND ACRONYMS

ATM	-	Automatic Teller Machines
ATO	-	Asset Turnover
CPRS	-	Computerized Patient Record System
ERP	-	Enterprise Resource Planning
HER	-	Electronic health records
KUSU	-	Kenya Universities Staff Union
LRS	-	Light Rail Transit
ROA	-	Return on Assets
ROI	-	Return on Investment
RTGS	-	Real Time Gross Settlement
SCM	-	Supply Chain Management
SME's	-	Small and Medium Enterprises
SPSS	-	Statistical Package for Social Sciences
TAM	-	Technology Acceptance Model
TPB	-	Theory of planned behaviour
TRA	-	Theory of Reasoned Action
UASU	-	Universities Academic Staff Union

ABSTRACT

This study sought to analyze the effect of electronic financial services on operating costs in universities in Mount Kenya region. The study was guided by four specific objectives; to establish how on-line banking services affects operating costs; to determine whether on-line inter-departmental financial communications affects operating costs; to investigate the effect of electronic financial documentation on operating costs and to determine the effect of e-financial statements on operating costs in universities. To achieve the objectives of the study, a descriptive research design was adopted. The target population was 80 employees drawn from 8 universities, four public universities and four private universities operating in Mount Kenya region. Census was used to collect the data from target population. A self-administered semi-structured questionnaire was distributed to the target population. Primary data was analyzed with the aid of Statistical Package for Social Sciences (SPSS) software to generate frequencies, mean and percentages graphs and tables were used to present various aspects of the variables. Content analysis was used to analyze qualitative data while quantitative data was analyzed using descriptive and inferential statistics. A regression model was used to show the relationship between the independent and dependent variables. The findings of the study indicate that online banking, online interdepartmental financial communication, online financial documentation have a significant effect on the operating cost of universities operating in Mount Kenya region and that online financial statements has an insignificant influence on organizational operating costs. This study concludes that electronic financing affects organization costs in the universities operating within Mount Kenya region. The study will therefore sensitize management of universities in general and of other organizations on the importance of electronic financial services because they could reduce operating costs

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Plunket (1979) noted that accounting is as old as mankind. It is the oldest profession with families in Europe required to account for food and clothing to face the cold seasons as early as 5000B.C. Evidence of accounting records can also be found in the Babylonian Empire (4500 B.C.), in pharaohs' Egypt and in the Code of Hammurabi (2250 B.C.). Eventually, with the advent of taxation, record keeping became a necessity for governments to sustain social orders.

Bushman and Smith (2001) asserts that a fundamental objective of governance research in accounting is to provide evidence on the extent to which information provided by financial accounting systems mitigate agency problems due to the separation of managers and outside investors, facilitating the efficient flow of scarce human and financial capital to promising investing opportunities. Osmond (2011) argued that manual accounting has been in practice since time in memorial and it's still being practiced to-date. Manual accounting implies that employees perform the whole accounting cycle manually on a periodic basis: they calculate trial balances, journalize transactions, and prepare financial statement reports and other routines which of course it takes much time, resources and effort in large organizations than electronic financing. World Bank (2000) noted that electronic accounting began around 1930 with adding machines and basic computers performing computerized mathematical functions in early 1930s. By the end of 1990s, e-finance technologies affected all aspects of the business of banking and financial intermediation.

Andrews, Strahab, and Allen (2011) defined e-finance as the provision of financial services and markets using electronic communication and computation. Shahrokhi (2008) defined electronic financial transaction as a transaction that depends on the internet or a similar network to which households or non-financial enterprises have access to bank. The key drivers of e-finance include technology, globalization, regulations etc. That e-finance has great potential to improve the quality and scope of financial services and expand opportunities for covering trading risks and can widen

access to financial services for a much greater set of retail and commercial clients by offering more cost effective services.

Robinson (2000) argued that the cost of an electronic financial transaction is dramatically less when done online as compared to when done manually. Sharma and Ahoya (2014) observed that operating costs are the expenses which are related to the operations of a business, or to the operation of a device, component, and piece of equipment or facility. They are the cost of resources used by an organization just to maintain its existence. They include expenditures for staffing, hardware maintenance, electricity, software procurement, storage rental and security and fall into two categories, fixed costs and variable costs. That operating costs are not unique to any organisation but may vary from profit to nonprofit making.

Bamford (2006) asserts that fixed operating costs are expenses that tend to remain the same whether the business or device is inactive or operating at full capacity. Examples of such expenses include employee salaries and rent of premises; leasing fees amongst others while variable are those that vary with level of production. Operating costs in public universities comprise of registration costs while admitting new students, rent of premises, water, electricity, stationery, transportation costs, processing the salaries paid to workers (the basic pay, allowances of all kind, bonus, overtime pay and all other costs related to employees), training and development of staff, repair and maintenance costs of fixed assets, depreciation of fixed assets, and so on.

Haddad (2014) defined a nonprofit making organization as an economic institution that operates like a business but does not seek financial gain. Examples are schools, churches, and community service organizations. They often provide goods and services to consumers while they pursue other rewards such as improving educational standards, seeing the sick become well, and helping those in need. Many are legally incorporated to take advantage of the unlimited life feature such as private welfare groups, adoption agencies, and youth or civic club. Thus universities fall under nonprofit making category.

Walter (2004) defined a university as an institution of higher education offering tuition in mainly non-vocational subjects and typically having the power to confer degrees. Pollock and Cornford (2004) referred to a university as a band of scholars coming together in pursuit and dissemination of knowledge, governed by a more or less collegiate model of organization, based around a complex structure of committees and with a high degree of individual and departmental autonomy. In this sense, a university has been regarded as a unique organization that is different from an organization in the corporate sector in the literature for several decades. Both above two scholars are of the opinion that universities should be viewed as more than non-profit organizations.

In Kenya Universities are established through institutional Acts of Parliament under the Universities Act, 2012 which provides for the development of university education, the establishment, accreditation and governance of universities. According to a 2004 report on reforming higher education in Kenya, the rapid expansion of university education in the country was a spontaneous response to the increasing demand for higher education necessitated by the increasing flow of students from schools. Commission for University Education (2014) there are (22) Public Chartered Universities, (9) Public University Constituent Colleges, (17) Chartered Private Universities, (5), Private University Constituent Colleges (11) Private Universities with Letter of Interim Authority (LIA) and (2) Registered Private Universities, a total of 66.

World Bank (2000) and Cheboi (2001) noted that financial resources directed to university education were inadequate. Cheboi (2006) observed that shortage of facilities affected the quality of higher education. In relative terms, the proportionate share of the Ministry of Education budget devoted to public universities declined steadily over the years from 20 percent in 1991 to 12 percent in 2000/2001. Mulunda and Ondari (2010) noted that public universities in Kenya continue to rely heavily on the government capitation, which is pegged at Kshs. 120,000 (approximately US\$1,445) comparative to estimated cost of about kshs.184,500(approximately US\$2,221) per student per academic year. However, the government contribution has increasingly diminished, leading to serious financial problems.

Mathenge, (2010) asserts that the rapid increase in student intake without corresponding expansion of facilities and recruitment of staff, calls to question the whole policy of widening access and massification. The Government of Kenya, through the Ministry of Higher Education and Commission for Higher Education has always portrayed false confidence in the sector, perhaps with the intention of not creating an alarm. The universities themselves have not wished to be portrayed in bad light and have tended to also play ball in downplaying the issue.

Wangenge-Ouma (2007) argued that the causes for this deterioration have been many including changing donor priorities, changing government rules and regulations to cope with national economic turbulence, international economic trends, legislation and political trends in the country. World Bank (2011) noted that allocation for Ministry of Higher Education had gone up by Kshs2.6 billion to Kshs 26 billion in 2010/2011 But even though the aggregate figure allocated to universities has gone up the capitation per head is still the same as was fixed in the early 1990s. This means the institutions are expected to take in more but have less allocation per head irrespective of loss of purchasing power of money. The shrinking allocation to public universities has led to insufficient facilities and stalled infrastructural projects in many universities in the country. Guguyu (2014) noted in the daily nation on April 22nd that Kenya university students community had warned of dire consequences if the government dared increase the school fees in September 2014 as earlier proposed by Commission for university Education (CUE). They further noted that the reduced capitation by the government to public universities is a sabotage of their training and cited lack of government commitment to supporting higher education.

Ngome, (2003) noted that private institutions are not any better since they depend on the tuition fees they generate from their students for their revenue; and such heavy dependence on tuition coupled with lack of alternative income sources have made these institutions expensive and thus unaffordable for most Kenyans, in effect, limiting their services to those of high socio economic status. As “profit-making institutions”, fees are charged strictly in accordance with market forces on the basis of full cost recovery. Therefore from the above studies it is clearly that universities are being faced with the problem of underfunding and yet they don’t want to openly

complain as was cited by Mathenge (2010). He noted that universities instead have adopted some strategies to try and cope with these problems such as adoption of enterprise resource planning (ERP) system, introduction of e-learning platform, amongst others. Genoulaz and Millet (2006) asserts that in the recent years, enterprise resource planning (ERP) software have become widely used in almost all sectors such as production, services, finance, transportation and public utilities.

Stevenson (2007) defined enterprise resource planning (ERP) as the generic term used for management software that include modules such as production, finance, marketing and human resources and that allow companies to plan their goods and services. Heikki (2004), noted that enterprise resource planning (ERP) systems integrate internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service, customer relationship management, etc. Shah (2011) noted that ERP has been used to gaining competitive advantage and reduce costs by improving its overall efficiency in managing inventory and sales.

Frantz (2002) observed that due to the decreased government funding and with the increasing in expectation by stakeholders, universities are currently under pressure to deliver higher quality educational services for lower costs. For these reasons, ERP systems can be very appealing to HEIs as a potential route to meeting these standards. King, Kvavik, and Voloudakis (2002) argued that some of the top reasons universities adopt ERP solutions are to replace legacy systems, improve customer service, and transform enterprise processes, correct year 2000 problems, modernize computer systems, improve administration, maintain competitiveness, increase operating efficiency, and adhere to regulatory compliance.

Most universities today both private and public have embraced e-finance through adoption of enterprise resource planning (ERP) system mainly aimed at assist them reduce costs as well as improve the quality of service delivery. Sadagopan (2003) asserts that some of the most ordinary accounting processes, which are incorporated in an ERP system, include: general ledger, accounts receivable, accounts payable, financial control, asset management, funds flow, cost centers, profit centers,

profitability analysis, order and project accounting, product cost accounting, and performance analysis. Electronic services rendered by most learning institutions include registration of students on-line, e-learning mode, e-bills, e-interdepartmental communications, e-checks, online banking, EFT payrolls, and e-books of accounts amongst other services.

Maggiotto and Rocco (2000) suggested that the degree to which emerging markets will be able to adopt Internet technologies will depend on their telecommunications infrastructure. Access to the Internet is much lower in emerging markets than in developed countries. He suggested that reforms to make telecommunications more competitive deserve priority.

The most immediate impacts will also differ by market. Allen (1999) noted that in especially the developing countries, where access to and the quality of financial services is limited, e-finance and globalization offers many important opportunities. That e-finance has great potential to improve the quality and scope of financial services and expand opportunities for trading risks, and can widen access to financial services for a much greater set of retail and commercial clients by offering more cost-effective delivery of services.

Bailey (2004) is of the opinion that the low efficiency and quality of financial services and the skewed profile of users favor migration toward e-finance in many emerging markets. In some emerging markets online brokerage is already on par with that in developed countries. In some countries a lack of regulatory barriers and initial markets has made new entry across a spectrum of services attractive. In other countries entry has been more specialized. Berger (2000) asserts that e-finance will require a reassessment of the approach to financial sector development. E-finance allows much easier access to global capital and financial service providers.

Miriam (2000) argued that for many countries, e-finance offers opportunities to quickly widen access to and improve financial services. Achieving such gains will require that emerging markets give far greater priority to improving the framework for financial and other information, modernizing and strengthening their legal systems,

and improving technology-related infrastructure such as telecommunications. Many of the recent trends in financial services have been driven by the globalization of financial markets. Financial services have also been reshaped by technological and structural changes, including the lowering of regulatory barriers. The above theories are mainly based on businesses established for profit making but there is no study so far done on the effect of electronic financial services on operating costs in a university context.

1.2 Statement of the Problem

Operating costs are a big hindrance to the achievement of the main objective of any firm. With the increased enrolment of government sponsored students in public universities and reduced capitation to the universities by the government, universities are faced with a challenge of how to cope with this high cost of operation.

To mitigate this problem universities themselves have tried to adopt some cost reduction measures such as adoption of Enterprise Resource Planning(ERP) system in their operations but there is no study so far indicating how ERP and e-financing affects their operating costs. The big question is whether the adoption of electronic financial services by universities such as online registration of students and communications, online banking, online financial documentation and online financial statement has had any impact on their operating costs.

A review of the existing literature on electronic financial services indicates that it is not only limited but mostly concerns the adoption of on-line banking, impact assessment and client outreach of financial services, use of e-commerce, challenges of adoption of ERP system while life after e-finance, remain relatively under-researched. There is no comprehensive study so far outlining the impact of electronic financial services on organizational operating costs. This study focus on the effect of e-financial services on the operating costs of universities operating in Mt. Kenya region.

1.3 General objective

The general objective of the study was to find out the effect of e-financial services on operating costs in a university.

1.3.1 Specific objectives

The study was aimed at achieving the following specific objectives;

- i. To establish effect of on-line banking services on operating costs of univesities
- ii. To determine influence of on-line inter-departmental financial communications on operating costs of univesities
- iii. To investigate the effect of electronic financial documentation on operating costs of univesities
- iv. To examine the effect of e-financial statements on operating costs of univesities

1.4 Research Questions

The study was guided by the following research questions.

- i. How does on-line banking services affect operating costs of univesities?
- ii. What are the effects of on-line inter-departmental financial communications on operating costs of univesities?
- iii. How does electronic financial documentation affect operating costs of univesities ?
- iv. What are the effects of e-financial statements on operating costs of univesities?

1.5 Significance of the study

This study will benefit the universities in Kenya since operating costs are not unique to one university but cuts across all types of universities both public and private .With the knowledge of how e-financial services affect the operating costs of an enterprise, the university management can reduce its costs and subsequently increase its surplus especially at such a time when public universities are being faced with reduced government funding. The information will also serve as reference material for policy makers, implementers, scholars, and researchers. The employees of universities will also benefit because with reduced operating costs, the surplus of the enterprise would increase salaries and wages and other improve other working conditions.

The study at hand contributes to previous research in that it seeks to promote greater understanding of the importance of electronic finance services and its contribution to operating costs reduction.

1.6 Assumptions of the study

This study assumed that the respondents would cooperate in giving information relating to the study and answer the questions both correctly and truthfully. It assumed that the respondents gave reliable and valid data that was used to make the right conclusion in relation to the study.

1.7 Scope of the study

The study examined how e-financial services affect operating costs of the universities operating in Mount Kenya region. The study used 80 respondents who were drawn from the four public and four private universities in operating in Mt.kenya region. The focus was on the four main elements of e-financing that are assumed to have significance influence on the operating costs of an enterprise namely, on-line banking services, on-line interdepartmental financial communications, e-financial documentation and e-financial statements. The study took seven months from July 2014 to December 2014.

1.8 Limitations of the study

The study was faced with various challenges. Some respondents feared that giving information to outsiders would lead to victimization by university management. This was overcome by giving assurance that the information given was to be used solely for academic purposes and shall be held in confidence. Formulating a suitable questionnaire was also a challenge but was overcome through advice from the supervisors. Administering questionnaires to the sampled population was also a challenge given that people were busy in their routine tasks. The researcher overcame this problem by administering the questionnaire during their breaks and the researcher availed herself for clarifications when called upon to do so. There was lack of time challenge which the researcher overcame by working late in the evenings and weekends when conducting the interviews.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter represents literature on electronic financial services and operation costs as presented by various writers. Relevant areas concerning the practices that have been discussed included. The literature was obtained from reference books, journals, magazines and the Internet.

2.2 Theoretical Literature

Many theories have been put forward in development and logical explanation of why organization would adopt a technology .These includes Theory of Reasoned Action, (TRA), Theory of Planned Behavior (TPB), and Technology Acceptance Model (TAM).

2.2.1 Theory of Reasoned Action (TRA)

Ajzen and Fishbein (1980) asserts that a person's attitude toward a behavior consists of belief that particular behavior leads to a certain outcome and an evaluation of the outcome of that behavior. If the outcome seems beneficial to the individual, he or she may then intend to or actually participate in a particular behavior. Whether or not a person participates or intends to participate in any behavior is influenced strongly by the people around them. These people may include friends or a peer group, family, co-workers, church congregation members, community leaders and even celebrities. Ultimately, one's attitude toward a behavior can lead to an intention to act (or not to act as the case may be).Others will never move past the intention stage.

This theory is connected to my study in that, effectiveness of electronic financial services depends on the attitude of employees towards use of computerized accounting and more so the benefits they expect from the system. That peer pressure also affects the performance other employees. If employees influenced one another to the view e-financing as unbeneficial to them they will frustrate it in whatever possible manner thus instead of electronic financing reducing costs it may increase costs instead.

In its simplest form, the TRA can be expressed as the following equation:

$$BI = (AB)W_1 + (SN)W_2$$

Where:

BI = behavioral intention

(AB) = one's attitude toward performing the behavior

W = empirically derived weights

SN = one's subjective norm related to performing the behavior (Hale, 2002)

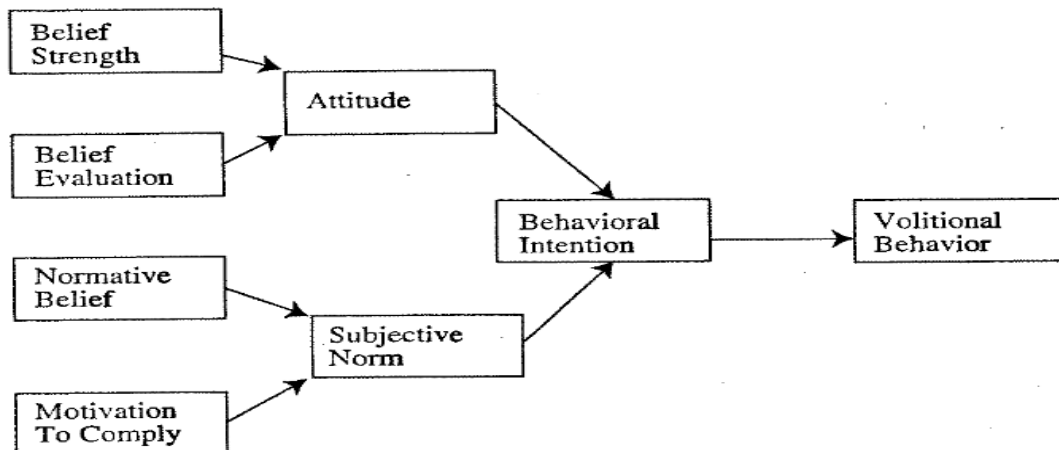


Figure 1: Theory of Reasoned Action (Ajzen and Fishbein (1980))

2.2.2 Theory of Planned Behavior (TPB)

This theory was developed by Ajzen in 1988 and proposes a model which can measure how human actions are guided. It predicts the occurrence of a particular behaviour, provided that behaviour is intentional. Ajzen and Fishbein formulated the theory of reasoned action (TRA) in 1980. This resulted from attitude research from the Expectancy Value Models. Ajzen and Fishbein formulated the TRA after trying to estimate the discrepancy between attitude and behaviour. This TRA was related to voluntary behaviour. Later on behaviour appeared not to be 100% voluntary and under control, this resulted in the addition of perceived behavioral control. With this addition the theory was called the theory of planned behaviour (TPB).

The theory of planned behaviour is a theory which predicts deliberate behaviour, because behaviour can be deliberative and planned. The model outlines three variables which the theory suggests will predict the intention to perform a behaviour attitude, subjective norm and perceived behaviour control. The intentions are the precursors of behaviour. Attitude toward the behaviour is a person's overall

evaluation of the behaviour. It is assumed to have two components which work together: beliefs about consequences of the behaviour and subjective norms. Subjective norms are a person's own estimate of the social pressure to perform the target behaviour. Subjective norms are assumed to have two components which work in interaction: how much a person has control over his behaviour and how confident a person feels about being able to perform or not perform the behaviour. It is determined by control beliefs about the power of both situational and internal factors to inhibit or facilitate the performing of the behavior.

In connection to this theory, the effective use of electronic financing is a deliberate action arising from employee's attitude towards adoption of e-financing, motivation levels from the management mainly perceived benefits and the extent to which they evaluate their ability to work with the system, that employees can plan deliberately to frustrate the e-financing if they do not understand how it will improve their performance or earnings or if they fear the change will force them to learn new skills which they are not willing to learn.

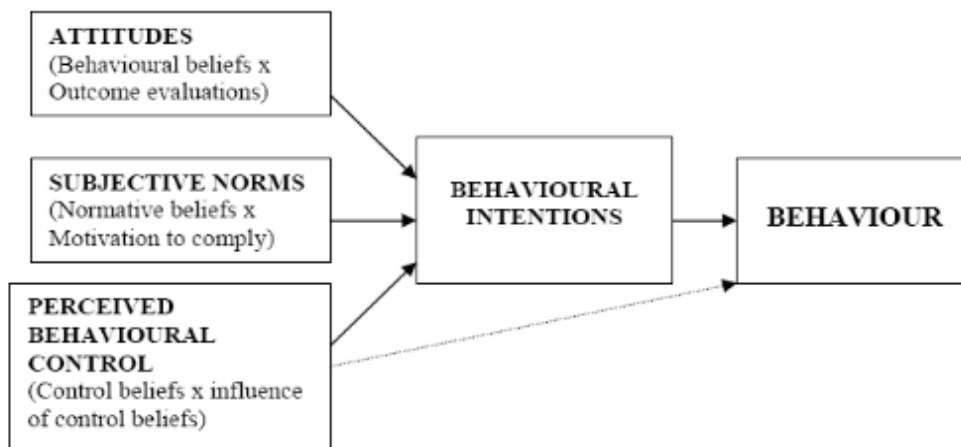


Figure 2: Theory of planned behaviour (Ajzen, 1991)

2.2.3 Technology Acceptance Model (TAM)

Technology Adoption Model propounded by Davis (1985, 1989) has been the foundation of many technology adoption and diffusion research and it is rooted in the Theory of Reasoned Action (TRA). As per TAM, the two important independent variables of actual use of technology are: Perceived ease of use, defined as 'the degree

to which a person believes that using a particular system would be free of effort’ Perceived usefulness, defined as ‘the degree to which a person believes that using a particular system would enhance his or her performance’. TAM was developed to explain and predict particular IT usages. However, this particular model has been used by many researchers in studying adoption and diffusion of various IS technologies.

Davis defined perceived use-fulness as’ the degree to which a person believes that using a particular system would enhance his or her job performance ’’ and defined perceived ease of use as’ the degree to which a person believes that using a particular system would be free of effort.’’ TAM postulated that computer usage is determined by a behavioral intention to use a system, where the intention to use the system is jointly determined by a person’s attitude toward using the system and its perceived usefulness.

This theory is connected to my study in that effective use of e-financing depends on whether employees perceive the use of electronic financing will enhance performance of their tasks and the ease their work. If they think e-financing will actually make their work difficult they will work against the system.

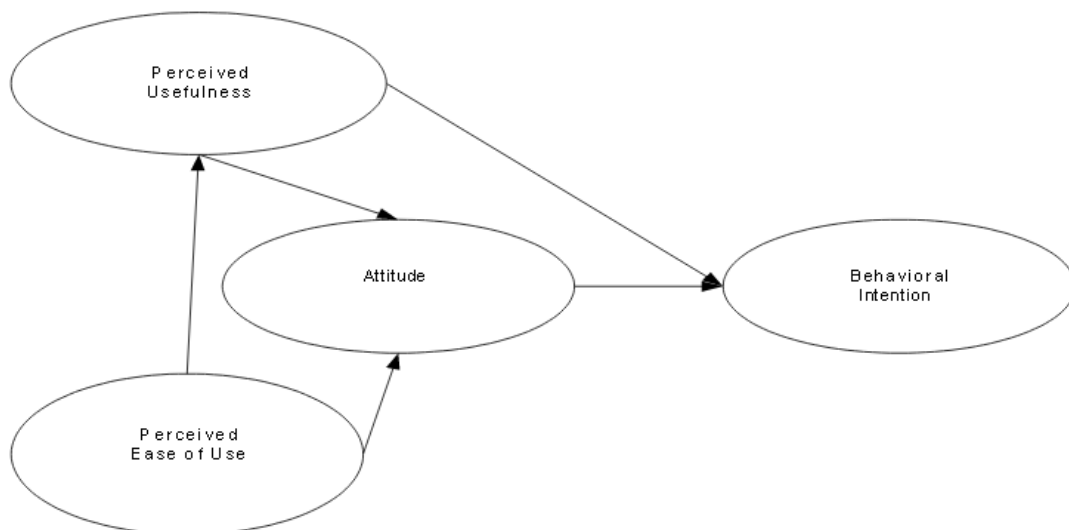


Figure 3: Technology Acceptance Model (Davis 1985, 1989)

2.3 Empirical Review

This section examines the studies already done upon which this study is anchored. It focuses on studies done on electronic financing and its effect on an organization's operating costs.

2.3.1 Enterprise Resource Planning.

Swartz and Orgil (2001) defined Enterprise Resource Planning (ERP) as a software solution that integrates business functions and data into a single system to be shared within a company. That although ERP originated from manufacturing and production planning systems it expanded its scope in the 1990's to other "back-office" functions such as human resources, finance and production planning. Nah and Kuang (2001) argued that the major goal of ERP is to increase operating efficiency by improving business processes and decreasing costs.

Dillard and Yuthas (2006) stated that most multinational firms are using ERP and that more small and midsize companies have begun to adopt ERP. That although ERP promises to benefit companies not all ERP implementations have yielded successful outcomes. Scott and Vessey et al., (2000) argued that ERP implementations have sometimes failed to achieve the organization's targets and desired outcomes. Much of the research reported that the failure of ERP implementations was not caused by the ERP software itself, but rather by a high degree of complexity from the massive changes ERP causes in organizations

Rabaa'i (2009) conducted a study on ERP Systems in the Higher Education Sector: A descriptive Case Study found out that in 60 to 80 percent of higher education contexts, ERP implementation failed to meet expected outcomes and results of implementation were found unsatisfactory

Hunton (2003) compared the Financial Performance of ERP adopters and Non-Adopters. The total sample size comprised 123 companies (63 ERP adopters and 60 Non-adopters). They compared the results of ROA, ROS, ROI and ATO in different periods of ERP pre-implementation (t-3 to t-1) and Post implementation (t+1 to t+3) for 3 years' time. The study found that that return on assets (ROA), return on

investment (ROI), and asset turnover (ATO) were significantly better over a 3-year period for adopters, as compared to non-adopters.

Maroofi (2011) investigated the impact of investment in Enterprise Systems (ERP &SCM) on long run stock price and profitability performance. Author used a big sample size of 978 firms 558 for the investment announcement in ERP and 420 for SCM there are two types of samples: the firms that have just plan or started implementing ERP or SCM System and second the firms have completed the implementation of ES (ERP, SCM). He used two different methodologies to find the effect: first methodology to find the effect of investment in Enterprise System on long run stock price and profitability and the second to measure the performance during the period of implementation of ERP system and post implementations performance the methodology as used by difference researchers for the measurement of the same thing. Maroofi found that ERP Improves abnormal return of the firm while ERP does not improve stock returns. The author also found that some firms have positive impact of Investment in Enterprise System on financial performance while others have negative due to high implementation cost and other implementation problems. On the other hand SCM has positive impact on stock returns.

Sale (2005) compared the actual with the expected performance to examine the impact of ERP on financial accounting measures. Author used case study of Texas Instruments, Inc. where ERP system is functional. Author Collected secondary financial data of ROI, ROE, ROA, Employees, Productivity and Inventory from 1998 to 2002. The study found negative values of ROE, ROI, and ROA after two years of implementation of ERP system while study also found increase in organizational productivity post implantation period. Author concluded that ERP system do not improved financial performance immediately after its installation in organization. They concluded that company may not be improving the financial performance immediate after ERP System implementation.

Bohorquez and Esteves (2008) investigated the impact of ERP system on SME's productivity. Authors used Cobb-Douglas production function to measure the impact of ERP implementation on SME's productivity. Authors used different indicators of

productivity to compare the pre and post implementation of ERP system in SME's and used SME's Size as a moderating variable between ERP impact and SEM's productivity level. They found that SME's size changes the impact of ERP on productivity level and they suggested the practitioners of ERP that they should consider the size of organization for the best results after deploying ERP system. They also found the positive impact of number of employees while negative impacts of income on SME's productivity while the negative impact of ERP usage on organizational productivity.

Leech and Grabski (2007) identified the relation of ERP system on financial performance of the business. Authors selected data from different data bases of disclosed ERP adoption from 1980 to 1997. They found no significant change in cost or administrative and selling expenses in the post implementation period of ERP system. Leech and Grabski (2007) argued that ERP system effect positively on firm's performance in two way: it reduce the cost by improving efficiency of business processes in a computerized way and it enhance decision making ability by providing accurate information in time.

2.3.2 On-line banking services

Oye (2008) conducted a study on e-banking a case study of Askari Bank, Pakistan. 40 staff members and four customers were selected as sample for the study. Both qualitative and quantitative methods are used to present the results. Descriptive statistics was applied to describe the demographic variables while for operational problems correlation was used. Analysis showed that customers were not ready to adopt new technology thus satisfaction level with e-banking was low. Internet speed and government policies were not supportive for e-banking in Pakistan. Due to lack of trust on technology and low computer literacy rate, customers hesitated from adopting new technology. The paper recommended that in order to promote IT culture in Pakistan, government had to reduce the internet rate, and promote the benefits of e-banking on media so that more users would embark on e-banking services. TAM model was used to judge the perception of customers to accept or reject technology.

Heikki (2002) conducted a study on factors underlying attitude formation towards online banking in Finland and found that the transformation from the traditional banking towards e-banking has been a 'leap' change. The increase in information access terminals, along with the growing use of information sensitive applications such as e-commerce and the promotion of online banking technology enabled the banks to enhance its operations with cost cutting effectively and efficiently in order to handle daily banking affairs via online banking channel.

Daniel and Sathye (1999) assert that customers are facilitated by reducing their visits in banks carrying out their transactions via internet or ATM Machines instead of personally visiting the branches. Online banking was a new phase in retail banking services. With the help of online banking several types of services through which customers can request information and carry out their banking transaction such as balance inquiry, inter account transfers, utility bills payment, request check book etc., via a telecommunication network or internet without physically visit the branches.

Tero et al (2004) were of the opinion that many activities are handled electronically due the acceptance of information technology at home as well as at workplace. Internet can be seen as a truly global phenomenon that has made time and distance irrelevant to many transactions. According to Heikki et al. (2002) argued that the evolution of electronic banking started from the use of automatic teller machines (ATM) and has passed through telephone banking, direct bill payment, electronic fund transfer and the revolutionary online banking. Internet banking offers many benefits to banks and their customers.

2.3.3 On-line inter-departmental financial communications.

Harrison (2004) argued that ERP allows different departments with diverse needs to communicate with each other by sharing the same information in a single system at a reduced cost. ERP thus increases cooperation and interaction between all business units in an organization on this basis. Abid et al., (2006) asserts that any use of information and communication technology and electronic means by a bank to conduct transactions and have interaction with the stakeholders. Karjaluoto et al, (2002) found out that electronic banking provides convenience to their customer to

use bank website for all kind of information and transactions in secure environment. There are few banks which charge their customers for using their online services but many banks provide free of charge online banking services to keep their customer intact with bank.

Polatoglu et al. (2001) suggested that there many benefits associated with online banking which include customers paying for their bills and loans online, credit and debit card facilities etc. In other words it provides freedom of location, saves time and cost. Electronic banking widens the horizon of business. Now business organizations and individuals can easily access global opportunities. In this digital media, even small businesses can use ICT to support their business.

Agenor (1999) noted that a revolution was under way in the way financial (and nonfinancial) contracts are traded. Those changes involved traditional exchanges as well as business-to-business (B2B) transactions. Electronic communication networks started out as pools of liquidity feeding into existing markets but now serve as alternative trading outlets in several developed and some emerging capital markets. In some markets these networks account for a large share of total trading. Baca (2000) asserts that other alternative trading systems are being set up around the world, often with links to existing trading systems where customers get automatic alerts on settlements made by their agents on financial matters on their behalf.

2.3.4 Electronic financial documentation

Gaffey (2009) argued that Electronic health records (EHRs) are here to stay and their use is expected to grow significantly in the future. It is incumbent on risk managers to ensure their use does not inhibit good provider-to-patient communication. Providing education and strategies on how to make the patient encounter meaningful while the provider uses an EHR may increase patient satisfaction and may contribute to a favorable professional liability loss experience. Risk managers also need to have an understanding of the capabilities of each specific EHR system in the facility, the implications of the ability to cut-and-paste information from one provider entry to another, and knowledge of how to control the risk that comes with both copying forward and delayed EHR documentation

Miller and Sim (2004) found that there are a few disadvantages to electronic health records that come into play with this new technology. One of the largest and most concerning issues is the possibility of losing records. A potential reason for this would be if a vendor company was to suddenly and forcefully close down. One would hope all the records and information held within that company would be stored and properly backed up, but it is doubtful. That loss of the records would result into disappointing many loyal patrons and ultimately having no concrete explanation for them as to why their records are lost. Such an enormous mishap would have a damaging effect to the business, resulting in a loss of customers, and eventually closure of the business.

2.3.5 E-financial statements

Barata et al (2001) found out that good practice for the management of financial records in computerized systems and analyses the optimal ways of creating the linkages between the manual (i.e. paper-based) and computerized parts of systems and provides tools to evaluate and monitor the performance of record keeping systems. It focuses on the transaction records that are used by and produced as a result of financial management functions, in particular the accounting function. Normally, these are required for audit purposes. Relevant administrative, operational and policy records are also taken into account, including tenders, contracts, accounting directives, loan agreements and so on.

Stephenie Meyer (2008) asserts that financial institutions and all other institutions, whoever needs to send you a statement monthly, quarterly, or annually, are moving towards eliminating paper statements and encouraging customers to subscribe or access statements online thus reduce operating costs. That some banks charge for paper statements upon switching from paper statements to online statements because they are easy to manage and keep organized. That paper statements cause piling of statements and sometimes failure to miss deadlines because some statements go missing or were underneath other statements. Online statements make life easier.

2.4 Research Gap

Widely available real-time market information lowers the cost of financial services by easing uncertainty, mitigating asymmetric information, and reducing transaction costs associated with paper processing or human error. In addition, new distribution channels have opened up, search costs have fallen for consumers, and new entities including telecom and utility companies are providing financial services. However, in looking at electronic financial services, research has generally emphasized on the adoption of e-financing but has neglected the effect of electronic financial services on operating costs.

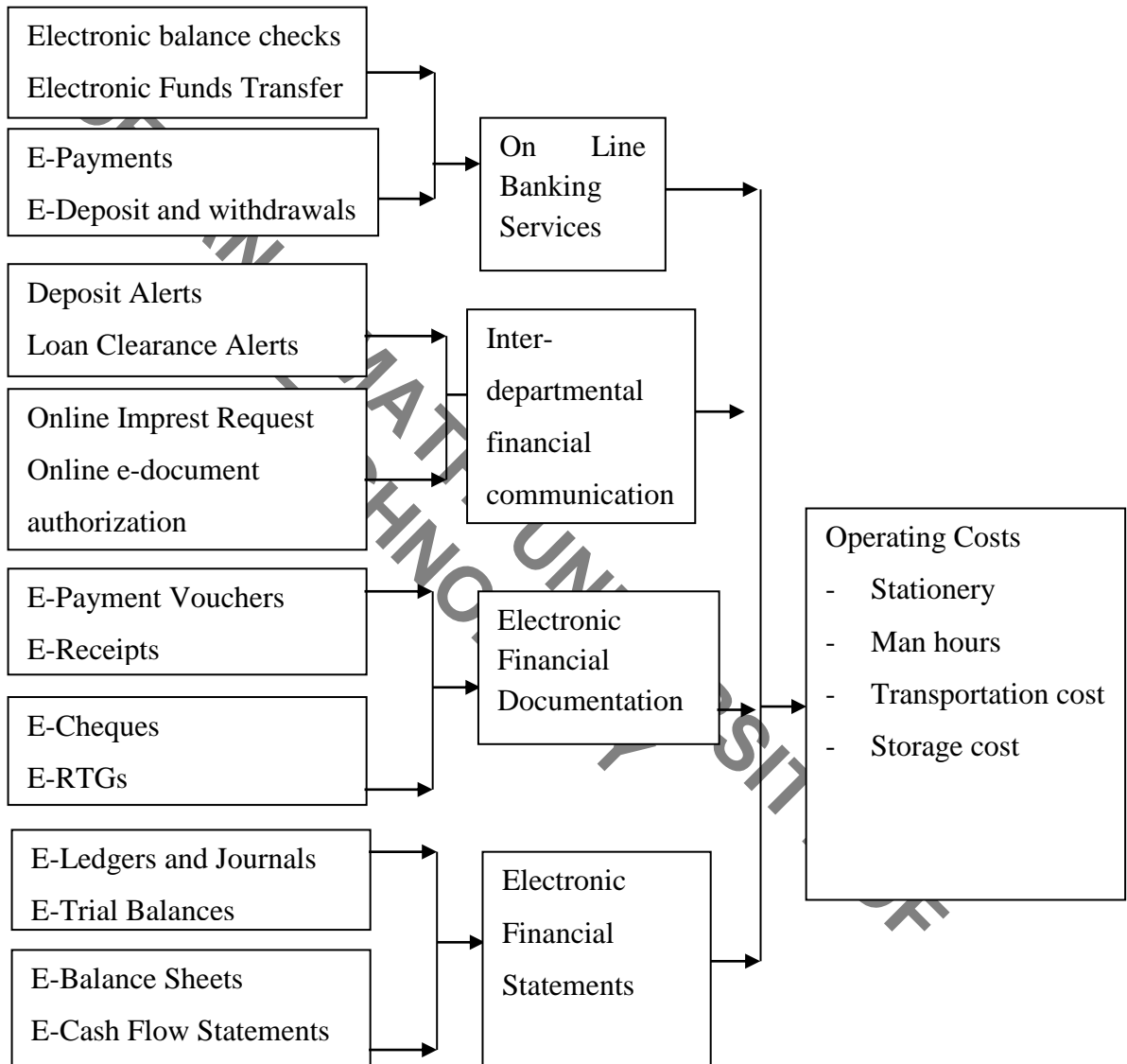
Research conducted have focused on, among other topics, on line banking, client outreach through electronic financial services, challenges of adoption of e-financing mainly for commercial concerns with little attention to the effect of e-financing in universities. The study at hand contributes to previous research in that it sought to promote greater understanding of the importance of electronic financial services to universities and its contribution to reduction in operating costs. The study was based on a seven months period of intensive quantitative research to be conducted between July and December 2014 at the eight universities operating in Mount Kenya region. The findings were derived from answers given by respondents in questionnaires to arrive at informed conclusions.

2.5 The conceptual Framework

This is a conceptual framework showing the relationship between independent variables and dependent variable. The conceptual framework is presented in Figure 2. The Figure represents the relationship between the dependent variable and the independent variables. In this case, various variables affecting an organization operating costs. The diagram further shows the conceptual model, which encompasses the major variables and their possible patterns of influences. What this structural model indicates is that on line banking services, interdepartmental financial communication, electronic documentation and electronic financial statements influence the firms operating costs. In the context of the above conceptual framework, the theoretical underpinning of the study was that the concept of operating costs is a

2.6 Operational Framework

The frame work presented in Figure 5 indicates how the researcher will measure the existence or the degree of the concept and variable. The framework explains how various electronic financial practices in the financial setup affect operation costs. Operating costs were measured using parameters such as stationery, manhours, and transportation cost and storage space.



Parameters

Independent Variables

Dependent Variable

Figure 5: Operationalization Framework for the effect of electronic financial services on operating cost of universities operating in Mount Kenya region, Kenya

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology that was used to meet objectives of the study. It stipulates the systematic research procedure and techniques the research applied in collection and analysis of data. It describes the target population, sample size and sampling techniques, data collection instruments, validity of the instruments and reliability of the data collection instruments.

3.2 Research Design

Ogula (2008) defines a research design as a plan structure and strategy of investigation conceived so to obtain answers to research questions. For the purpose of undertaking the study, a descriptive survey design was adopted, where both qualitative and quantitative data were collected. According to Orodho (2009), descriptive survey design is a technique in which detailed information concerning a social phenomenon is gathered by posing questions to respondents. The design is appropriate in collecting, classifying, analyzing, comparing and interpreting data (Kombo & Tromp, 2006).

3.3 Target Population and sample.

According to Mugenda and Mugenda (2008), the target population is the entire group a researcher is interested in or the group about which the researcher wishes in drawing conclusions. Mugenda and Mugenda (2008) further adds that a target population is any set of persons or objects that possess at least one common characteristic. The target population was 80 employees from the eight universities (four private and four public) who are engaged in financial transactions in their universities in Mount Kenya region. Ten respondents from every university were purposively selected who were comprised of five heads of section in the finance department, and five heads of departments; procurement, Human resource, ICT, Maintenance and Medical departments.

These are key departments and usually have a lot of correspondences with finance department. Since the respondents were purposively picked, all of them were questioned hence there was no need of sampling. Mt Kenya region was taken to include five counties in the current geographical demarcation namely Kiambu, Kirinyaga, Murang'a, Nyandarua and Nyeri. ICPAK also refers to these counties as Mount Kenya region. Out of the 67 universities in Kenya, 14 of them are from this region. Thus the sample region makes about a quarter of the population of universities in Kenya.

The region was selected because it is second from Nairobi County in terms of number of universities in Kenya yet the growth rate of these universities in terms of student enrolment and number of campuses is lower than that of those in Nairobi. Nairobi University has a student population of about 35,000, also going by the strikes trend in recent past it is more prevalence in universities within this region than in other regions. By the time of research Meru, Karatina, Dedan Kimathi and Jomo Kenyatta universities students went on rampage and when interviewed some of them cited proposal to raise school fees by some universities as a reason. Thus the study sought to establish whether e-financing reduces operating cost in a university which could be an alternative way of improving efficiency rather than increasing school fees.

Table 3.1 List of universities selected using purposive sampling

University	Population/Sample
Dedan Kimathi university of technology	10
Kirinyaga University	10
Kenyatta University	10
Karatina University	10
Zetech University	10
Gretsa University	10
Mt. Kenya University	10
Kenya Methodist University	10
Total	80

Source: Ministry of Education, Nyeri County

3.5 Data Collection

3.5.1 Data collection Instrument

Data was collected using questionnaires because they allowed the researcher to reach the whole population within a limited time. Borg and Gall (2003) observed that questionnaires are used to obtain descriptive information from a larger group. They also ensure objectivity due to its confidentiality. Questionnaires are commonly used to collect important information about a population (Mugenda & Mugenda 2008).

3.5.2 Data Collection Method

The standard questionnaires were administered through hand delivery to the respondents and collected after they are completed. This method was adopted because it covered all the areas that the researcher intended to research on and also assumed that the respondents were well versed with the subject under research, thereby required no guidance when responding to the questions.

3.6 Reliability of the data collection instruments

Reliability is a measure of the degree to which a research instrument yields consistent results after repeated trials; Nsubuga (2000). Reliability enhances the dependability, accuracy, clarity and adequacy of the instruments. To enhance reliability of the instruments, a pilot study was conducted among employees who formed part of the respondents in the main study. Test re-test method was used to examine the reliability of the instruments. Similar questions were administered and repeated after one week. The responses were summarized and compared to the earlier ones. The relationship between the two tests in the pilot study was calculated using the Pearson product moment correlation coefficient to establish reliability after which questionnaires were edited for completeness and consistency as recommended by Bryman and Cramer (2011), that data should be edited to ensure consistence across respondent.

3.7 Validity of data collection instruments

According to Kombo and Tromp (2009) validity of a test is a measure of how well a test measures what it is supposed to measure. The pilot study helped to improve the validity and content of the instruments. The researcher used content validity to check

whether the items in the questionnaire answer the research objectives. The questionnaires were given to the supervisors to critique it. The supervisors suggested the areas that needed changes in order to establish the content validity of the instrument. After the piloting the questions in the questionnaire were assessed and those found not clear were reframed for clarity. Care was taken to ensure that the structured questionnaire remained focused, accurate and consistent with the study objectives.

3.8 Data analysis and presentation

According to Marshal and Rossman (2011) data analysis is the process of bringing order, structure and interpretation to the mass of collected data. The collected data, with the aid of questionnaire was systematically organized specifically to facilitate analysis. Descriptive statistics and content analysis was used to analyze the collected data using the Statistical Package for Social Science (SPSS) version 20.0 by first coding the responses. Raw data was then entered into SPSS computer software and analyzed using descriptive statistics such as the percentages, means and frequencies. Content analysis technique was applied to analyze qualitative data by identifying patterns and themes. Cooper and Schindler (2005), states that content analysis may be used to analyze written data from experiments, observations, surveys and secondary sources.

In addition, the correlation was tested using inferential statistics which included regression analysis to establish relationship between the independent variables and the dependent variable. A study on e-banking by Oye and others (2008) used descriptive statistics to describe the demographic variables while for operational problems of e banking correlation analysis technique was used. Multiple linear regression was used to assess the combined effect of electronic financial services on operating cost in universities operating in Mt. Kenya region. The multiple linear regression model was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = operating cost

β_0 = Autonomous factors

$\beta_1, \beta_2, \beta_3, \beta_4$ = are beta coefficients

X_1 = online banking

X_2 = electronic interdepartmental financial communication

X_3 = electronic financial documentation

X_4 = electronic financial statements

ε is the error term

After data analysis, the results were presented with the aid of bar charts, frequency tables, percentages, standard deviation and mean score. The information was presented and discussed as per the objectives of the study. To establish the influence of the independent variable on the dependent variable Pearson Moment Correlation Coefficient was used.

3.9 Ethical Considerations

Five ethical issues were considered during the study which included voluntary participation, informed consent, confidentiality and anonymity, the potential for harm and communicating results. According to Strydom (2002), obtaining informed consent implies that all possible information regarding the aim of the investigation, the procedure to be followed during the investigation, the possible advantages, disadvantages and dangers to which participants may be exposed should be put to the potential participants in the research. Informed consent is also required in ensuring the confidentiality of identity (Kvale, 2007). Before the commencement of the study, the researcher sought permission from the relevant authorities. A letter of introduction was sought from the university. The researcher explained to the respondents the purpose of the study before involving them. The researcher also assured the

respondents that the information they provided was to be used for the purpose of the study and their identity would be treated with confidentiality.

With regard to voluntary participation, participants were not forced or pressured to participate in the study. For employees who were answering questions on behalf of the organizations they work for, the researcher sought consent from the university management before employees participated in the study and were informed that no penalties would be levied against any employee who refused to participate in the study.

To establish informed consent, participants were made fully aware of what they were being asked to do so that they understand what was required of them before participating in the survey. A cover letter from Dedan Kimathi University of Technology was appended together with the survey questionnaire so as to inform respondents that the study was an official university academic activity.

To ensure confidentiality and anonymity of staff in the targeted organizations, the questionnaires were distributed within the respective departments or sections and then had the employees return them confidentially/anonymously. In this way, neither the researcher nor the firm could identify who participated. When communicating results, information included in the proposal were cited and referenced where appropriately to avoid plagiarism.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The main objective of this study was to assess the effect of electronic financial services on the operating cost of a university in Kenya. This chapter presents the research findings and discussion.

4.2 Response Rate

Out of 80 respondents that the study targeted there were 71 respondents. This is 88.75% of the target group. The data was interpreted according to the research questions.

a) Response by Gender

One of the information sought in this study was the gender of the respondent. The researcher sought to establish whether there is gender representation in finance and head of departments. The results are presented in Table 4.1. Out of the 71 respondents 43 were men who constituted 60.6% and 28 female responded who constituted 39.4% of the total respondents. The higher percentage of male is in line with the fact that generally there are more men in accounting profession compared to women

Table 4.1: Gender of Respondents

Gender	Frequency	Percent (%)
Male	43	60.6
Female	28	39.4
Total	71	100.

b) Education level of respondents

This study sought to establish the level of education of respondents. The level of education was paramount in the study to enable the researcher to establish whether the

respondent were able to articulate issues under consideration. The results are presented in Table 4.2. The study revealed that majority of the people working in the universities as head of sections in finance department and other heads of departments are post graduates. Out of the 71 respondents 62% were post graduates, 25.4% were graduates, 7% diploma holders and only 5.6% were certificate holders.

Table 4.2 Level of education

Level of education	Frequency	Percent (%)
Certificate	4	5.6
Diploma	5	7.0
Degree	18	25.4
Post Graduate	44	62.0
Total	71	100.0

c) Employment Tenure of Respondents

The employment tenure of the respondents was also sought by this study. The period under which a respondent has been in the university intended to find out whether they are familiar with university financial processes. The results are presented in Table 4.3. The study revealed that majority of staff working as heads of sections in finance department and heads of departments from other departments had served the university for less than five years. Out of the 71 respondents 69% served for less than five years, 15.5% served between five to ten years, 9.9% served between eleven to fifteen years, 5.6% served for above fifteen years.

Table 4.3 Years have you been in university

Years have you been in university	Frequency	Percent (%)
Below 5 years	49	69.0
5-10 years	11	15.5
10-15 years	7	9.9
15 years and above	4	5.6
Total	71	100.0

d) Managerial Level of respondent

The managerial level of the respondents was also sought by this study. Majority of the respondents were members of KUSU. Out of the 71 respondents 80.3% were members of KUSU while only 19.7 % were members of management staff. There was no response of members of UASU because the respondents were purposively picked from non-academic departments, Finance, Procurement, Medical, Maintenance, Human Resource and ICT. The respondent of management staff was small because they are drawn from some of the heads of departments.

Table 4.4 Category

Category do you belong to	Frequency	Percent (%)
Management Staff	14	19.7
KUSU staff	57	80.3
Total	71	100.0

4.3 Analysis and interpretation per objective

This section provides results and discussions of the findings and data analysis of the study using mean scores obtained from parameters used to ascertain each objective and linear regression. The discussion is linked to the questions of the study and research objectives to establish whether on-line banking services, on-line inter-departmental financial communications, electronic financial documentation and e-financial statements amongst other factors affect the operating costs of universities.

4.4 Effect of Online banking on Operating Costs

The study sought to assess the effects of online banking on operating cost. The respondents were required to indicate the extent to which specific aspects of online banking affects operating cost. Table 4.5 shows that electronic balance checking was rated the highest with a mean score = 4.87, electronic funds transfer had a mean score = 4.56, while electronic payment system and online deposits and withdrawals had a mean score of 4.37 and 3.97 respectively. This could be explained by the fact that finance department check students balances from the system while invoicing them or when updating students' balances after they make payments. Likewise most

universities today are using the EFT system of payments such as paying for facilities, suppliers, and salaries amongst others.

Table 4.5 Mean on online banking

Online banking	N	Mean	Std. Error	Std. Deviation
Electronic balance checking affects university's operating cost	71	4.87	.04	.335
Electronic funds transfer impacts on university's operating cost	71	4.56	.06	.499
Electronic payment system reduces university's operating cost	71	4.37	.07	.615
Online deposits and withdrawals has an impact on the university's operating cost	71	3.97	.07	.632

4.4.1 Online banking regression model

The study sought to establish the relationship between online banking and on operating cost. The two variables were regressed to generate a model. The model fitness is presented in Table 4.6. The results show that the R value was 0.063 indicating that there is a slight positive relationship between online banking and operating cost in universities in Mount Kenya region. The R squared (R^2) value of 0.004 shows that only 0.4% of the variations in operating cost is explained by variations in online banking.

Table 4.6 Online banking Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
1	.063	.004	-.010	.38180

a Predictors: (Constant), Online banking

The ANOVA for the regression model is presented in Table 4.7. This table shows that the model has an associated F Value of .277 with p-value of $.600 > p = .05$. These two statistics imply that the model is not significant. This is an indication that although

online banking has a slight positive effect on operating cost of a university, the effect is not significant at 5 % level of significance.

Regarding the research question how on-line banking services affect operating costs of univesities, this study concludes that operating costs marginally increases with increase in online banking but the increase in not significant.

Table 4.7 ANOVA of online banking and operating costs

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.040	1	.040	.277	.600
	Residual	10.058	69	.146		
	Total	10.099	70			

a Predictors: (Constant), Online banking

b Dependent Variable: Operating Cost

The regression model coefficients were also generated. The results are presented in Table 4.8. Table 4.8 shows that the intercept of 4.344 and a slope of 0.06596 with a p value of 0.600. Considering online banking as the predictor of operating cost shows that online banking is insignificant with a p – value of .600 > p= 0.05. Online banking had a $\beta = 0.063$. This means that a unit change in online banking results into 6.596 times increase in Operating Costs in the University.

Table 4.8 Regression coefficient on online banking and operating cost

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	4.344	.559		7.772	.000
	Online banking	6.596	.125	.063	.526	.600

a Dependent Variable: Operating Cost

4.5 Influence Of Interdepartmental Communication On Operating costs

The study sought to assess the effects of online interdepartmental financial communication on operating cost. The respondents were required to indicate the extent to which specific aspects of online interdepartmental financial communication affects operating cost. Table 4.9 shows that electronic bank deposit alerts was rated highest with mean score = 4.63, Online transfers of financial documents mean score = 4.62, Online loans clearance alerts mean score = 4.32 while Online imprests mean score = 3.96. It's clear that the respondent felt that the banks should continue issuing deposits alerts as it enhances online interdepartmental financial communication.

Table 4.9 Mean on online interdepartmental financial communication

Online interdepartmental financial communication	N	Mean	Std. Error	Std. Deviation
Electronic bank deposit alerts impacts on university's operating cost	71	4.63	.06	.485
Online loans clearance alerts reduces university's operating cost	71	4.32	.08	.671
Online imprests request has an impact on university's operating costs	71	3.96	.13	1.127
Online transfers of financial documents affects university's operating costs	71	4.62	.06	.489

Interdepartmental Communication regression model

The study sought to establish the relationship between online interdepartmental financial communication and on operating cost. The two variables were regressed to generate a model. The model fitness is presented in Table 4.10. The results show that R value was 0.818 indicating that there is a positive relationship between online interdepartmental financial communication and operating cost in universities in Mount Kenya region. The R squared (R^2) value of 0.670 shows that 67% of operating cost is explained by online interdepartmental financial communication. The remaining 33% percent is explained by other factors put in place by the universities to enhance their efficiency

Table 4.10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818	.670	.665	.21993

a Predictors: (Constant), online interdepartmental financial communication

The ANOVA for the regression model is presented in Table 4.11. This table shows that the model has an associated F Value of 139.78 with p-value of $.000 < p = .05$. These two statistics imply that the model is significant. This is an indication that online interdepartmental financial communication has a positive effect on operating cost of a university and the effect is significant at 5 % level of significance.

Regarding the research question on how online interdepartmental financial communication affect operating costs of universities, this study concludes that operating costs increases with increase in online interdepartmental financial communication and the increase is significant.

Table 4.11 ANOVA on online interdepartmental financial communication
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.761	1	6.761	139.787	.000
	Residual	3.337	69	.048		
	Total	10.099	70			

a Predictors: (Constant), online interdepartmental financial communication

b Dependent Variable: Operating cost

The regression model coefficients were also generated. The results are presented in Table 4.12. Table 4.12 shows that the intercept of 2.291 and a slope of 0.535 with a p value of 0.000. Considering online interdepartmental financial communication as the predictor of operating cost shows that online interdepartmental financial communication is significant with a $p - \text{value of } .000 < p = 0.05$. Online interdepartmental financial communication had a $\beta = 0.818$. This means that a unit change in online interdepartmental financial communication results into 5.35 times increase in Operating Costs in the University.

Table 4.12 Regression coefficient on online interdepartmental financial communication

Model		Unstandardized	Std. Error	Standardized	t	Sig.
		Coefficients		Coefficients		
		B		Beta		
1	(Constant)	2.291	.200		11.447	.000
	Online interdepartmental financial communication	.535	.045	.818	11.823	.000

a Dependent Variable: Operating cost

4.6 Online financial documentation

The study sought to assess the effects of online financial documentation on operating cost. The respondents were required to indicate the extent to which specific aspects of online financial documentation affects operating cost. Table 4.13 shows that preparation of payment vouchers online was rated the highest cost saving parameter with a mean score = 4.62, Writing and signing of RTGS online mean score = 4.47, Generation of receipts online had a mean score = 4.22 while Writing and signing of cheques online mean score = 3.78. This can be explained by the fact that payments vouchers were previous filled on letter headed A4 size papers in triplicates which increased the cost of stationeries and printing to a greater extent. Furthermore every form of payment is supported by a payment voucher.

Table 4.13 Mean on online financial documentation

Online financial documentation	N	Mean	Std. Error	Std. Deviation
Generation of receipts online reduces university's operating costs.	58	4.22	.08	.594
Preparation of payment vouchers online impacts on the organization operating costs	58	4.62	.06	.489
Writing and signing of cheques online affects the university's operating costs	58	3.78	.09	.702
Writing and signing of RTGS online impacts on the university's operating cost.	58	4.47	.07	.503

4.6.1 Online financial documentation regression model

The study sought to establish the relationship between online financial documentation and on operating cost. The two variables were regressed to generate a model. The model fitness is presented in Table 4.14. The results show that the R value was 0.371 indicating that there is a slight positive relationship between online financial documentation and operating cost in universities in Mount Kenya region. The R squared (R^2) value of 0.138 shows that only 13.8% of the variations in operating cost is explained by variations in online financial documentation.

Table 4.14 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.371	.138	.125	.35521

a Predictors: (Constant), online financial documentation

The ANOVA for the regression model is presented in Table 4.15. This table shows that the model has an associated F Value of 11.035 with p-value of $.001 < p = .05$. These two statistics imply that the model is significant. This is an indication that online financial documentation has a positive effect on operating cost of a university, the effect is significant at 5 % level of significance.

Regarding the research question how online financial documentation services affect operating costs of universities, this study concludes that operating costs marginally increases with increase in online financial documentation but the increase is not significant.

Table 4.15 ANOVA on online financial documentation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.392	1	1.392	11.035	.001
	Residual	8.706	69	.126		
	Total	10.099	70			

a Predictors: (Constant), online financial documentation

b Dependent Variable: Operating cost

The regression model coefficients were also generated. The results are presented in Table 4.16. Table 4.16 shows that the intercept of 4.254 and a slope of 0.07461 with a p value of 0.001. Considering online financial documentation as the predictor of operating cost shows that online financial documentation is significant with a p – value of $.001 < p = 0.05$. Online financial documentation had a $\beta = 0.371$. This means that a unit change in online financial documentation results into 7.461 times increase in Operating Costs in the University.

Table 4.16 Regression coefficient on online financial documentation

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	4.254	.123		34.628	.000
	Online financial documentation	7.461E-02	.022	.371	3.322	.001

a Dependent Variable: Operating cost

4.7 Effect of Online electronic financial statements

The study sought to assess the effects of online electronic financial statements on operating cost. The respondents were required to indicate the extent to which specific aspects of online electronic financial statements affects operating cost. Table 4.17 shows that generation of online statement of financial statement was highly rated as a way of reduction of operating cost with a mean score = 4.51, Preparation of e-ledgers and e-journals mean score = 4.38, Extraction of trial balances online mean score = 4.32, Preparation of e-cash flow mean score = 4.08. This can be explained by the fact that statement of financial statement gives the summary of all other financial statements and mostly are prepared periodically or when need arises thus its not a routine practice.

Table 4.17 Mean on Online electronic financial statements

Online electronic financial statements	N	Mean	Std. Error	Std. Deviation
Preparation of e-ledgers and e-journals impacts on the university's operating cost	71	4.38	.11	.931
Extraction of trial balances online reduces the university's operating cost	71	4.32	.11	.922
Generation of online financial statement reduces the university's operating cost	71	4.51	.08	.673
Preparation of e-cash flow affects the university's operating cost	71	4.08	.08	.649

Online electronic financial statements regression model

The study sought to establish the relationship between online electronic financial statements and on operating cost. The two variables were regressed to generate a model. The model fitness is presented in Table 4.18. The results show that the R value was 0.018 indicating that there is a slight positive relationship between online electronic financial statements and operating cost in universities in Mount Kenya region. The R squared (R^2) value of 0.000 shows that none of the variations in operating cost is explained by variations in online electronic financial statements.

Table 4.18 Model Summary on Online electronic financial statements

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.018	.000	-.014	.38250

a Predictors: (Constant), Online electronic financial statements

The ANOVA for the regression model is presented in Table 4.19. This table shows that the model has an associated F Value of 0.024 with p-value of $.878 > p=.05$. These two statistics imply that the model is not significant. This is an indication that although online electronic financial statements have a slight positive effect on operating cost of a university, the effect is insignificant at 5 % level of significance.

Regarding the research question how online electronic financial statements affect operating costs of universities, this study concludes that operating costs marginally increases with increase in online electronic financial statements but the increase is not significant.

Table 4.19 ANOVA on online electronic financial statements

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.003	1	.003	.024	.878
	Residual	10.095	69	.146		
	Total	10.099	70			

a Predictors: (Constant), Online electronic financial statements

b Dependent Variable: Operating cost

The regression model coefficients were also generated. The results are presented in Table 4.20. Table 4.20 shows that the intercept of 4.594 and a slope of 0.011 with a p value of 0.878. Considering online electronic financial statements as the predictor of operating cost shows that online electronic financial statements is insignificant with a p – value of $0.878 > p= 0.05$. Online electronic financial statements had a $\beta = 0.018$.

This means that a unit change in online electronic financial statements results into 1.1 times increase in Operating Costs in the University.

Table 4.20 Regression coefficient on online financial documentation

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	4.594	.288		15.946	.000
	Online electronic financial statements	1.011E-02	.066	.018	.154	.878

a Dependent Variable: Operating cost

4.8 Multi – regression analysis on operation cost

The study sought to establish the relationship between online banking, online interdepartmental financial communication, online financial documentation, and online electronic financial statements on operating cost. These variables were regressed together to generate a model.

The model fitness is presented in Table 4.21. The results show that the R value was 0.884 indicating that there is a strong positive relationship between online banking, online interdepartmental financial communication, online financial documentation, online electronic financial statements and operating cost in universities in Mount Kenya region. The R squared (R^2) value of 0.781 shows that 78.1% of operating cost is explained by the factors under study.

Table 4.21 Model Summary on Multi – regression analysis on operation cost

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884	.781	.767	.18323

a Predictors: (Constant), online banking, online interdepartmental financial communication, online financial documentation, online electronic financial statements.

The ANOVA for the regression model is presented in Table 4.22. This table shows that the model has an associated F Value of 58.699 with p-value of $.000 < p = .05$. These statistics imply that the model is significant. This is an indication that online banking, online interdepartmental financial communication, online financial documentation and online electronic financial statements has a positive effect on operating cost of a university, the effect is significant at 5 % level of significance.

Regarding the research question on how online banking, online interdepartmental financial communication, online financial documentation and online electronic financial statements affect operating costs of universities; this study concludes that operating costs increases with increase in online banking, online interdepartmental financial communication, online financial documentation and online electronic financial statements and the effect is significant.

ANOVA

Table 4.22 ANOVA on Multi – regression analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.883	4	1.971	58.699	.000
	Residual	2.216	66	.034		
	Total	10.099	70			

a Predictors: (Constant), online banking, online interdepartmental financial communication, online financial documentation, online electronic financial statements

b Dependent Variable: COST

The regression model coefficients were also generated. The results are presented in Table 4.23. Table 4.23 shows that online interdepartmental financial communication had the highest positive and significant effect on operating cost at $\beta = 0.820$ with p-value of $.000 < p = .05$. This means that as online interdepartmental financial communication increased, operating cost reduced. Online financial documentation also had a positive and significant effect on operating cost at $\beta = 0.322$ with p-value of $.000 < p < 0.05$. This means that as online financial documentation increased, operating cost reduced. On the other hand Online banking had the highest negative and significant effect on operating cost with $\beta = -2.566$ with p-value of $.013 < p < 0.05$.

These were the only three factors with significant effect on operating cost. Online electronic financial statements had $\beta = -0.026$ with p-value of -0.446 $p > 0.05$ hence insignificant in the entire model.

Table 4.23 Coefficients on Multi – regression analysis

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	2.724	.317		8.589	.000
	Online banking	-.160	.062	-.153	-2.566	.013
	Interdepartmental communication	.537	.039	.820	13.877	.000
	Financial documentation	6.462E-02	.012	.322	5.450	.000
	Financial statements	-1.418E-02	.032	-.026	-.446	.657

a Dependent Variable: Operating cost

CHAPTER FIVE: SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings as discussed in chapter four. It also draws conclusions and recommendations based on the findings as per the objectives of the study. The objectives of the study were;

- i. To establish effect of on-line banking services on operating costs of univesities
- ii. To determine influence of on-line inter-departmental financial communications on operating costs of univesities
- iii. To investigate the effect of electronic financial documentation on operating costs of univesities
- iv. To examine the effect of e-financial statements on operating costs of univesities

5.2 Summary of Major findings

5.2.1 Effects of on-line banking services on operating costs

The study signifies that on-line banking services are an important factor that influences operating costs in universities. Electronic balance checking, electronic funds transfer, electronic payment system and online deposits and withdrawals were considered where electronic balance was found to have the highest mean score of 4.87. On-line banking services had a B value of -0.153 and a significance level of 0.013. This implies that on-line banking services was statistically significant and thus had influence on the operating costs of universities. When considered alone on-line banking services was insignificant, but when all the factors under the study were regressed together they affect each other affecting the influence of each factor.

5.2.2 Effects of on-line inter-departmental financial communications

On-line inter-departmental financial communications considered in the study included electronic bank deposit alerts, online financial transfers, online loans clearance alerts and online imprests request. Bank deposit alerts was rated highest with mean score =

4.63. On-line inter-departmental financial communications had a B value of 0.820 and a significance level of 0.000. This implies that on-line inter-departmental financial communications was statistically significant and thus had influence on the operating costs of universities. The results of on-line inter-departmental financial communications when considered alone indicated a strong positive and significant relationship between on-line inter-departmental financial communications and operating costs with $R=0.818$ and the R squared value were 0.670 at a confidence level of 95%.

5.2.3 Effect of electronic financial documentation on operating costs

Electronic financial documentation was considered in terms of preparation of payment vouchers, writing and signing of RTGS, generation of receipts, writing and signing of cheques online. Preparation of payment vouchers online was rated the highest aspect that may reduce operating cost significantly. Electronic financial documentation had a B value of 0.322 significance level of 0.000. This implies that electronic financial documentation was statistically significant and thus had influence on the operating costs of universities. The results of the linear regression indicated a weak positive but significant relationship between electronic financial documentation and operating costs with $R=0.371$ and the R squared value was 0.138 at a confidence level of 95%.

5.2.4 Effect of e-financial statements on operating costs

E-financial statements were considered in terms of generation of online statement of financial statement, preparation of e-ledgers and e-journals, extraction of trial balances online, preparation of e-cash flow. Generation of online of financial statement was highly rated as a significant as it would lead to reduction of operating cost with a mean score = 4.51. E-financial statements had a B value of -0.026 and a significance level of 0.657. This implies that e-financial statements was not statistically significant and thus had no influence on the operating costs of universities. The results of e-financial statements when considered alone indicated a weak positive but insignificant relationship between e-financial statements and operating costs with $R=0.018$ and the R squared value was 0.000 at a confidence level of 95%.

5.2.5 Operating cost

Multiple-regression revealed that the model was significant since the ANOVA had a significance value of 0.000. Further, for the model to be valid the following must hold $p \leq \alpha \leq 0.05$. Where p is the significant F change and α is the significance level in the ANOVA table. In this case $p=0.000$ and α is 0.000 which fulfills the condition. This also proves that the F value (F test) in the ANOVA table is valid. The result of the model was developed as: $Y = 2.724 - 0.160x_1 + 0.537x_2 + 0.0646x_3 - 0.0142x_4 + 0.317$. Based on the finding and discussion of specific objective the study revealed that e-financial statements had to be excluded from the model since it had no influence on operating costs of universities. Therefore the model was modified as follows:-

$$Y = 2.724 - 0.160x_1 + 0.537x_2 + 0.0646x_3 + 0.317.$$

Where:

Y = operating cost

β_0 = Autonomous factors

$\beta_1, \beta_2, \beta_3, \beta_4$ = beta coefficients

X1 = online banking

X2 = electronic interdepartmental financial communication

X3 = electronic financial documentation

X4 = electronic financial statements

5.3 Discussions

5.3.1 On-line banking services on operating costs

The findings revealed that On-line banking services affects operating costs of universities. The findings concur with earlier finding conducted by Heikki (2002) who conducted a study on factors underlying attitude formation towards online banking in Finland and found that the transformation from the traditional banking towards e-banking has been a 'leap' change.

Daniel and Sathye (1999) assert that customers are facilitated by reducing their visits in banks carrying out their transactions via internet or ATM Machines instead of personally visiting the branches. Polatoglu et al. (2001) suggested that there many benefits associated with online banking which include customers paying for their

bills and loans online, credit and debit card facilities etc. In other words it provides freedom of location, saves time and cost.

5.3.2 On-line inter-departmental financial communications

On-line inter-departmental financial communications was found to be one of the factor affecting operating costs of universities. The findings corresponds with earlier studies conducted by Harrison (2004) who argued that ERP allows different departments with diverse needs to communicate with each other by sharing the same information in a single system at reduced cost. ERP thus increases cooperation and interaction between all business units in an organization on this basis.

5.3.3 Electronic financial documentation on operating costs

The findings revealed that Electronic financial documentation affects operating costs of universities.

These findings confirms earlier findings by Barata et al (2001) who found out that good practice for the management of financial records in computerized systems and analyses the optimal ways of creating the linkages between the manual (i.e. paper-based) and computerized parts of systems and provides tools to evaluate and monitor the performance of record keeping systems.

The finding concurs with Theory of planned behaviour (TPB) which states that the effective use of electronic financing is a deliberate action arising from employee's attitude towards adoption of e-financing, motivation levels from the management mainly perceived benefits and the extent to which they evaluate their ability to work with the system, that employees can plan deliberately to frustrate the e-financing if they do not understand how it will improve their performance or earnings or if they fear the change will force them to learn new skills which they are not willing to learn.

5.3.4 E-financial statements on operating costs

E-financial statements were found to have no major effect on operating costs of universities. Sadagopan (2003) asserts that some of the most ordinary accounting processes, which are incorporated in an ERP system, include: general ledger, accounts receivable, accounts payable, financial control, asset management, funds flow, cost centers, profit centers.

Though E-financial statements was found to have no major effect on operating costs of universities under this study, Stephenie Meyer (2008) asserts that financial institutions and all other institutions, whoever needs to send you a statement monthly, quarterly, or annually, are moving towards eliminating paper statements and encouraging customers to subscribe or access statements online thus reduce operating costs.

5.3.5 Operating cost

Sharma and Ahoya (2014) observed that operating costs are the expenses which are related to the operations of a business, or to the operation of a device, component, and piece of equipment or facility. Findings from the study indicated that Online interdepartmental financial communication, online interdepartmental financial communication and Online financial documentation significant effect on operating cost reduction on universities in Mount Kenya .This concurs with earlier findings by Robinson (2000) who argued that the cost of an electronic financial transaction is dramatically less when done online as compared to when done manually.

Shah (2011) noted that ERP has been used to gaining competitive advantage and reduce costs by improving its overall efficiency in managing inventory and sales. King, Kvavik, and Voloudakis (2002) argued that some of the top reasons universities adopt ERP solutions are to replace legacy systems, improve customer service, and transform enterprise processes, correct year 2000 problems, modernize computer systems, improve administration, maintain competitiveness, increase operating efficiency, and adhere to regulatory compliance. Nah and Kuang (2001) argued that the major goal of ERP is to increase operating efficiency by improving business processes and decreasing costs. Leech and Grabski (2007) identified the relation of ERP system on financial performance of the business.

5.4 Conclusion

The research found out that majority of the respondents had served for less than 5 years. Only a very small percentage had served for over 10years. It was also established that majority of the respondents were members of KUSU with post graduate education. Only a small percentage was management staff. This is because

the target population was comprised of head of sections in Finance department plus some selected heads of departments.

5.4.1 On-line banking services on operating costs

The study concludes that Electronic balance checking was found to be the exercise that lead to efficiency while online banking service was found to be statistically significance and had an influence of the operating cost hence should be retained in the model.

5.4.2 On-line inter-departmental financial communications

The study concludes that electronic bank deposit alerts enhance efficiency. On-line inter-departmental financial communications was found to be statistically significance and had an influence of the operating cost hence should be retained in the model.

5.4.3 Electronic financial documentation on operating costs

Electronic financial documentation was found to be statistically significance and had an influence on the operating cost hence should be retained in the model.

5.4.4 E-financial statements on operating costs

The study shows that even though E-financial statements had a weak positive relationship with operating cost it was to be statistically insignificant and had no influence on the operating cost by the universities in Mount Kenya when considered independently and when regressed with other factors and can be eliminated from operating cost model.

5.4.5 Operating cost

Given the findings and the discussion of specific objectives of the study revealed that on-line banking services, on-line inter-departmental financial communications and electronic financial documentation have a significance influence on operating costs. Therefore the model was modified as follows:-

$$Y = 2.724 - 0.160x_1 + 0.537x_2 + 0.0646x_3 + 0.317.$$

The model concurred with earlier studies by Leech and Grabski (2007) who argued that ERP system effect positively on firm's performance in two way: it reduces the

cost by improving efficiency of business processes in a computerized way and it enhance decision making ability by providing accurate information in time.

5.5. Recommendations

The research recommends that the universities in Mount Kenya region should give attention to the online banking. This is because the online banking is one of the determinants of Organization operating costs. The stakeholders should also borrow a leaf from these research findings. They should develop financial plans that are relevant to the changing needs of Organization operating costs. The research further recommends that the stakeholders should consider carefully the factor Online Interdepartmental Financial Communication because it has significant influence on operating costs. Employees should be provided with the necessary skills required to enhance electronic financing because it helps reduce organization operating costs. Organizations should continuously improve their electronic financial processes because the considerably reduce the operating costs. The research recommends automation of financial services because it enhances financial performance of the organization.

The research as well recommends collaboration between program designers and the end-users of financial software. Employees usually receive detailed training on how to use an information system during adoption, but sometimes without further follow up to enhance ease of use.

The study further recommends top management support on the staff as they transit from manual to electronic financing..

5.6 Recommendations for Further studies

Due to limitations, this research was not able to cover some areas. It therefore recommended the following areas for further studies.

- i. Comparison of organization operating costs between various universities.
- ii. The effects of inadequate financial skills on the operating costs of an organization.
- iii. The role of management in controlling organization operating costs.

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