USAGE OF ACCOUNTING SOFTWARE PACKAGES IN HIGHER LEARNING INSTITUTIONS IN TANZANIA: PERFORMANCE PERSPECTIVE

USAGE OF ACCOUNTING SOFTWARE PACKAGES IN HIGHER LEARNING INSTITUTIONS IN TANZANIA: PERFORMANCE PERSPECTIVE

By

Mwanjaa Said

A Research Dissertation Submitted in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Science in Accounting and Finance (MSc-A&F) of Mzumbe University.

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled ***Usage of Accounting Software Packages in Higher Learning Institutions in Tanzania: Performance Perspective*** in partial/fulfilment of the requirements for award of the degree of Master of Science in Accounting and Finance (MSc-A&F) of Mzumbe University.

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DECLARATION

I, Mwanjaa Said, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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DEDICATION

This study is dedicated to my loving husband, Mr. Lyezia ,my loving children Beny, Samia and Ibrahim who were always patient and understanding when I needed space for my studies.

LIST OF ABBREVIATIONS AND ACRONOMY

A/P	Accounts Payables
A/R	Accounts Receivables
ACCPAC	Accounting Package for Commercial
BOT	Bank of Tanzania
CAG	Controller and Auditor General
DHTML	Dynamic Hypertext Markup Language
DIT	Dar-es-Salaam Institute of Technology
DOS	Disk Operating System
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
G/L	General Ledger
GAAP	General Accepted Accounting Principles
GIGO	Garbage In Garbage Out
HILs	Higher Learning Institutions
HTML	Hypertext Markup Language
ICT	Information Communication and Technology
IFRSs	International Financial Reporting Standards
IT	Information Technology
MU	Mzumbe University
NAO	National Audit Office
NHC	National Housing Corporation
ODBS	Open Database Connectivity
OLE	Object Link and Embedding
OUT	Open University of Tanzania
PSTN	Public Switched Telephone Network
SQL	Structured Query Language
TZS	Tanzanian Shillings
UDSM	University of Dar-es-Salaam
UTT	Unit Trust of Tanzania
XLM	Extensible Mark-up Language
WAN	Wide Area Network

ABSTRACT

The study focused on the usage of accounting software packages in higher learning institutions in Tanzania with the view of understanding its relation to the financial performance. The study investigated the financial performance of higher learning institutions in using accounting software in managing financial activities. A panel study methodology was used to gather information. Research instruments such as questionnaires, observation and the institutions annual reports along with controller and auditor general's reports were used. Individual management members, Director of finance/Internal audit/Chief Accountants, accounting and audit staff and system analysts of the selected universities formed the units of enquiry. Descriptive statistics and linear regression were the tools used to analyze the data.

The findings showed that about 64.2% of respondents are experts in using the accounting software in performing accounting activities even without any formal training on the use of the software. There were other factors such as network availability, stable power supply and maintenance that handicapped the use of the software. Lack of linkages among computers dealing with the accounting activities as most connected computers were stationed only in the administration buildings (Finance and Internal Audit departments) was another problem.
Nevertheless, computerized accounting system enabled the production of accurate reports as per the International Financial Reporting Standards. Furthermore, it also enhanced financial performance of higher learning institutions as accurate records are kept, errors easily traced and modification made possible.

In order to attain the financial performance of higher learning institutions a combination of factors such as intensive training about the adoption and implementation of the whole system, proper internal controls, as well as appropriate technology in managing financial records should be in place. It is worth noting that to manage accounting records effectively there must be an intensive training of staff, reliable power supply, strong internal controls, more internal audit reviews as well as routine system maintenance.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the problem

Before the development of computerized system in Tanzania most public sectors, social services providers and different business organizations, used manual method of recording and control over every financial transaction and other activities (Ishengoma, 2010). With the expansion of those sectors the number of transactions increased and the manual method of recording, manipulating, producing, distributing and maintaining records lacked the capacity to manage them all.

For large organizations dealing with complex financial transactions when serving many stakeholders, there is need to have the most appropriate accounting system to match their needs, especially matters to do with integrating computerized accounting systems in their financial record keeping activities (Arens, 2008). According to Breen et al, (2003)**,** using information technology has become the target for many organizations including higher learning institutions. It accelerates preparation of financial statements and overcomes the human weaknesses in data processing (Adam et al, 1992). The technology, in many cases, has been developed faster than the advancement in control practices and has not been combined with similar development of the employees' knowledge, skills, awareness, and compliance. The rapid change in information technology, the wide spread of user-friendly systems and the great desire for organizations to acquire and implement up-to-date computerized systems and software have made computers much easier to use and enabled accounting tasks to be accomplished faster and accurately (Abu-Musa, 2005). Reports from a comparative survey conducted by Indra (2008) indicate that firms have greatly improved on the ways of reporting their financial statements.

A computerized accounting system therefore involves the computerization of established accounting information systems to facilitate decision making. These are associated with many benefits like carrying out routine transactions, timeliness,

quick analysis, accuracy and reporting (Meigs, 1986). According to Pajoohi et al, (1993), many organizations using manual accounting system experience significant problems in managing and controlling public funds. Problems such as untimely release of financial reports are common place. Others are inadequate financial management system which led to the misuse of funds and poor security. The manual accounting systems caused insufficient accountability at all levels of the organization, inadequate controls over expenditure, fraud or misappropriation of funds, poor processing of financial transactions and assets management.

Bank of Tanzania (BOT) monthly economic review of December 2012 reported that several organizations including higher learning institutions are faced with increasing challenges and thus a need for financial management and financial reporting are worth considering. Higher learning institutions do not enjoy the full benefit of a computerized accounting system. They release inaccurate records indicating a mismanagement of account receivables and payables. The performance of computerised accounting software in higher learning institutions therefore formed the basis of this research.

1.2 Statement of the problem

The need for accurate accounting records applies to all organizations regardless of size and scale of operations. Indira (2008) supported the improvement in business performance as a result of computerization of accounting system using a highly integrated application. The system should transform the business processes with performance enhancing features such as accounting, inventory control, reporting and statutory processes. To meet this emerging need, several kinds of computerized accounting systems have been developed (Arens, 2008).

According to Chacha, (2001) study showed that in years between 1985 and 2004, several HLIs in Tanzania used Manual Accounting System for budgetary purposes. This involved the use of vote book analysis aimed at controlling the receipts and expenditures. With the expansion of these higher learning institutions the manual system was later found to be tedious, inaccurate, time consuming and could not be

used to enhance proper control over funds. According to a report from the National Audit Office (NAO) for 2009/2010 financial year, delays were experienced in the submission of final accounts to the Controller and Auditor General by some of the higher learning institutions. Abu-Musa (2005), argued that most supporting accounting and financial publications further show that organizations are faced with computer related data errors, incorrect financial information, violation of internal controls, theft, burglaries and sabotage.

And he continued to argue that this anomaly in financial reporting is caused by the system failure or breakdown (CAG, 2003). For instance Mzumbe University (MU) had failed to customize about three accounting software packages (Cowbol, Hogia and Paymaster) because they could not interface with their accounting system. Dar es salaam Institute of technology (DIT) also faced a similar case in that they had installed the software and used it for sometime before it was stopped because the software could not be interface with one of their softwares (Survey conducted by MU Team, 2011). The Open University of Tanzania (OUT) used the accounting software for more than two years and yet could not produce any reports due to limited management support and the ignorance of end users. In view of the above information this study thus investigated the financial performance of higher learning institutions in relation to the usage of computerised accounting software.

1.3 Research questions

This study was guided by the following main and specific questions:-

1.3.1 Main questions

How does computerised accounting software usage influence the financial performance of higher learning institutions?

1.3.2 Specific questions

(i). What is the competence of accounting staff using computerised accounting software?

(ii). What are the factors affecting the application of accounting software in higher learning institutions?

(iii). How does higher learning institutions' use of accounting software differs from other institutions using manual system?

(iv). What are the challenges facing higher learning institution using computerised accounting software?

(v). Is there a policy governing the implementation of computerised accounting software in higher learning institutions in Tanzania?

1.4 Objectives of the study

1.4.1 General objective

The overall objective of this study was to investigate the performance of higher learning institutions using computerised accounting software in Tanzania.

1.4.2 Specific objectives

The following were the specific objectives used in this study:-

(i). To examine the competencies of accounting staffs use of computerised accounting software in higher learning institutions in Tanzania.

(ii). To identify factors affecting the application of computerised accounting software in higher learning institutions

(iii). To compare the financial performance of higher learning institutions that use accounting software package from those using manual system.

(iv). To identify the challenges facing the performance of higher learning institutions that use accounting software package.

(v). To examine the policy guiding the use of accounting software in higher learning institutions in Tanzania.

1.5 Significance of the study

The study was significant in that, it generated and added new knowledge to the exiting stock of knowledge on the implementation of accounting software in higher learning institutions. Various areas of weaknesses were also identified for the

responsible stakeholders to take corrective measures to overcome the problem. The study findings will also help policy makers formulate favourable policies for a successful implementation of computerised accounting software package. Finally, the findings are expected to be useful to interested schools, universalities and organisations.

1.6 Limitation of the Study

Limited financial resources hampered the research process because a lot of money was needed to collect the relevant information. The money was required also for other relevant research tasks such as travels, stationeries, and meals/allowances for the research team. Time was also not adequate to cover all the research requirements. Finally, lack of cooperation among some staff members also affected data collection exercise as some respondents kept doing other things, filled much later and a in a rush the questionnaires.

1.7 Delimitation of the study

The study was successful despite the fact that budget set aside for the research was not enough. Matters to do with the questionnaires were accomplished successfully as the researcher helped clarify to the respondents areas in the research questions that needed clarification. The study identified different accounting software packages adopted by various organizations based on their needs. These packages are Tally, Myob, Accpac, COBOL, Epicor, Hogia, Quick Book and FinPro. The studyr only concentrated on the accounting software packages used in selected higher learning institutions. The study found out that the selected HLIs use the same accounting package, the ACCPAC. This accounting package was designed to suit the needs of these institutions. Geographically, the study covered the University of Dar es salaam, main Campus, Mzumbe University and the Open University of Tanzania. These institutions were preferred as samples because they are using the same accounting software package as well as their sample size is large enough.

CHAPTER TWO

LITERATURE REVIEW

2.1 General Overview

2.1.1 Background of Mzumbe University

Mzumbe University (MU) is located at Mvomero District in Morogoro Tanzania. The geographical coordinates of Mvomero are 6^0 20'0" South, 37^0 25'0" East. The university provides education to various levels such as PhD, Masters, Bachelor Degree, Diploma and Certificate. It has campuses in Mbeya and Dar es Salaam, and centres in Morogoro, Mwanza and Tanga. Mzumbe University was established in the year 2001 by an Act of Parliament that has since then been repealed and replaced by the University Charter of 2007.It is a public University wholly owned by the Government of the united republic of Tanzania. Mzumbe University envisions of being the centre of academic excellence in management science for knowledge acquisition and adoption through training, research, consultancy, public service and outreach activities in Africa and beyond by the year 2015. The mission as started in its Charter is "to provide opportunities for acquisition, development, preservation and dissemination of knowledge and skills through training, research and technical and or professional services.

2.1.2 Background of the Open University of Tanzania

The Open University of Tanzania (OUT) is the third Government owned university to be established in Tanzania through an act of Parliament No.17 of 1992. Its Headquarters is on Kawawa Road in Kinondoni Municipality, Dar es Salaam, Tanzania. The geographical coordinates of Kinondoni Municipal are 6^0 47'0" South, 39^0 16'0" East. It is the first university in the whole of the East Africa region to offer educational programmes through Open and Distance Learning mode. This makes OUT peculiar from conventional residential universities. Through Open and Distance Learning (ODL), OUT allows flexible learning environment leading to protracted periods of course completion. Being an ODL institution OUT operates through a

network of 30 regional centres and more than 70 study centres in Tanzania and abroad.

The Open University of Tanzania wishes to be a leading world class university in the delivery of affordable, quality education through open and distance learning, dynamic knowledge generation and application. The mission of the Open University of Tanzania is to continuously provide quality Open and Distance Education, Research and Public Services for sustainable and equitable socio-economic development of Tanzania in particular and the rest of Africa.

2.1.3 Background of the University of Dar es Salaam

The University of Dar es salaam (UDSM) is the oldest and biggest public university in Tanzania. It is situated on the western side of the city of Dar es salaam, occupying 1,625 acres on the observation hill, and 13 kilometres from the city centre. It was established on 1st July 1970, through parliament act no. 12 of 1970 and all the enabling legal instruments of the constituent colleges. Prior to 1970, the university college, Dar es Salaam had started on 1st July 1961 as an affiliate college of the University of London. It had only one faculty- the faculty of Law, with 14 students.

In 1963 it became a constituent college of the university of East Africa together with Makerere University College in Uganda and Nairobi University College in Kenya. Since 1961, the University of Dar es Salaam has grown in terms of student intake, academic units and academic programmes. The vision of the University of Dar es Salaam is to become a reputable world-class university that is responsive to national, regional and global development needs through engagement in dynamic knowledge creation and application The mission of the University of Dar es Salaam is the unrelenting pursuit of scholarly and strategic research, education, training and public service directed at attainment of equitable and sustainable socio-economic development of Tanzania and the rest of Africa."

2.1.4 Organizational structure of Finance Department of the Institutions

The organisational structure of all universities under this study is the same as explained below.

The Finance Department is under the supervision of the Director of Finance (Mzumbe) and Bursar (OUT & UDSM) and the Accountants team categorized under different sections;

a) Revenue section

This section deals with accounting of all the University revenue from different income sources. All the collections of the University are entered in different income codes generated in the computerized accounting system and all the receipts are registered in the system in order to raise collection reports.

b) Expenditure section

This section accounts for all University expenditure including funds allocation to different University codes, payment vouchers, employee imprest vouchers, imprest retirements and expenditure reports.

c) Procurement and Supplies section

This section deals with the procurement and supplies issues of the University.

d) Student Section

This section deals with the accounting of the student funds. It includes records of student particulars, sponsors, program and tuition fee specifications and student financial reports.

e) Final Accounts Section

This section specializes in journal voucher posting, preparation of Trial Balance, Balance Sheet, Profit/Loss, and General Ledger statement Reports.

f) Payroll and Salary Section

Payroll and salary section deals with accounting of the payroll and salary of the employees. It includes employee particulars, monthly payroll data entry, employee benefits and payroll reports. Each section has a Section Head who reports to the Director of Finance or Bursar through the Deputy Director/Bursar. The Director of Finance/Bursar is the Chief Financial Officer of the University and is accountable for all financial matters of the University.

2.2 Conceptual definitions

The following are the definitions of the main concepts used in this study.

Accounting is defined as the systematic recording, reporting, and analysis of financial transactions of a business. The person in charge of accounting in an organisation is known as an accountant, and this individual is typically required to follow a set of rules and regulations, such as the Generally Accepted Accounting Principles. Accounting allows a company to analyze the financial performance of the business, and look at statistics such as net profit (Reid and Smith, 2002).

According to Lief (2000), *computerized accounting system* refers to the method or scheme by which financial information on business transactions are recorded, organized, summarized, analyzed, interpreted and communicated to stake holders through the use of the computer and computer-based systems such as the internet and accounting software. This also refers to the mechanized process of facilitating financial information flows as well as the automation of accounting tasks such as database recording and report generation.

Accounting software is the set of instructions designed to carry out different specified accounting tasks. Several common types of accounting software packages are Epicor, Quick Book Pro 2003, Sun Sage, Peachtree, Oracle E-business suite, Mind Your Own Business (MYOB), FinPro, Hogia, Tally and ACCPAC. All these are used by different organizations depending on their needs.

Effectiveness is defined as the degree to which an organization achieves its goals (Robbins 1990). It is the ability of a person to accomplish a given goal, purpose or mission. In short, effectiveness means performing the right things.

Efficiency is the ability of a person, function or organization to maximize productivity with the least amount of efforts, time, money and other resources Kenneth et al, (2003). In short, efficiency means doing things right.

2.2.1 Components of the Accounting System

According to Adams, M. (2000), accounting system can be compared to a wheel whose hub is the general ledger (G/L). Feeding the hub information are the spokes of the wheel. These include;

(i). Accounts receivable (A/R)

Accounts receivable (A/R) is one of a series of accounting transactions dealing with the billing of a customer for goods and services he/she has ordered. In most business entities this is typically done by generating an invoice and mailing or electronically delivering it to the customer, who in turn must pay for it within an established timeframe called "creditor payment terms." On a company's balance sheet, accounts receivable is the money owed to that company by entities outside the company. The receivables owed by the company's customers are called trade receivables. Account receivables are classified as current assets assuming that they are due within one year. To record a journal entry for a sale on account, one must debit a receivable and credit a revenue account. When the customer pays off their accounts, one debits cash and credits the receivable in the journal entry. The ending balance on the trial balance sheet for accounts receivable is always debit.

(ii). Accounts payable (A/P)

Accounts payable is a file or account that contains money that a person or company owes to suppliers, but has not paid yet (a form of debt). When you receive an invoice you add it to the file, and then you remove it when you pay. Thus, the *A/P* is a form of credit that suppliers offer to their purchasers by allowing them to pay for a product or service after it has already been received.

(iii). Order entry

This is the posting of the accounting entries from the vouchers to the computerized accounting system. Once the entry is wrongly posted at this stage it will result into errors at the end report (Garbage In Garbage Out).

(iv). Inventory control

Inventory Control is the supervision of the supply, storage and accessibility of items in order to insure an adequate supply without excessive oversupply. It can also be referred to as internal control - an accounting procedure or system designed to promote efficiency or assure the implementation of a policy or safeguard assets or avoid fraud and error.

(v). Cost accounting

Cost accounting establishes budget and actual cost of operations, processes, departments or product and the analysis of variances, profitability or social use of funds. Managers use cost accounting to support decision-making to cut a company's costs and improve profitability. As a form of management accounting, cost accounting need not follow standards such as the *Generally Accepted Accounting Principles* (GAAP), because its primary use is for internal managers, rather than outside users, and what to compute is instead decided pragmatically.

(vi). Payroll

Payroll is the sum of all financial records of salaries, wages, bonuses and deductions.

(vii). Fixed assets accounting

This is the accounting of all fixed assets of the University. It includes posting of the new fixed assets to the system at the specified location, removing of disposed assets, depreciation calculations and assets monitoring and controls. These modules are ledgers, and are also called sub ledgers. Each contains the detailed entries of its specific field, such as accounts receivable. The sub ledgers summarize the entries, and then send the summary up to the general ledger. For example, each day the receivables sub ledger records all credit sales and payments received. The

transactions net together then go up to the G/L to increase or decrease A/R, increase cash and decrease inventory. The balance of the sub ledger is checked so that it exactly equals the account balance for that sub ledger account in the G/L. If it does not, then there is a problem **(**Adams, M. (2000).

2.2.2 Accounting Cycle

The primary objectives of the accounting function in an organization are to process financial information and prepare financial statements at the end of the accounting period. Companies must systematically process financial information and must have staffs who prepare financial statements on a monthly, quarterly, and/or annual basis. To meet these primary objectives, a series of steps is required. Collectively these steps are known as the *accounting cycle*. The steps, applicable to a manual accounting system, are described below. Later, there will be a brief discussion of a computerized processing system (Henson, 2006).

2.2.3 The steps of an accounting cycle

According to the General Accepted Accounting Principle (GAAP) Guide all accounting system use nine steps to record, analyze and summarize business transactions and events. These steps are as follows:-

(i). **Collect and analyze data from transactions and events***:* As transactions and events related to financial resources occur, they are analyzed with respect to their effect on the financial position of the company. As an example, consider the sales for a day in a retail establishment that are collected on a cash register tape. These sales become inputs into the accounting system. Every organization establishes a chart of accounts that identifies the categories for recording transactions and events.

(ii). **Journalize transactions:** After collecting and analyzing the information obtained in the first step, the information is entered in the *general journal,* which is called the *book of original entry*. Journalizing transactions may be done continually, but this step can be done in a batch at the end of the day if data from similar transactions are being sorted and collected, on a cash

register tape, for example. At the end of the day, the sales of TZS 400,000 for cash would be recorded in the general journal like this.
Cash-400,000
Sales-400,000

(iii). **Post to general ledger:** The general journal entries are posted to the general ledger, which is organized by *account*. All transactions for the same account are collected and summarized; for example, the account entitled ‘‘Sales’’ will accumulate the total value of the sales for the period. If posting were done daily, the ‘‘Sales’’ account in the ledger would show the total sales for each day as well as the cumulative sales for the period to date. Posting to ledger accounts may be less frequent, perhaps at the end of each day, at the end of the week, or possibly even at the end of the month.

(iv). **Prepare an unadjusted trial balance:** At the end of the period, double-entry accounting requires that debits and credits recorded in the general ledger be equal. *Debit* and *credit* merely signify position— left and right, respectively. Some accounts normally have debit balances (e.g., assets and expenses) and other accounts have credit balances (e.g., liabilities, owners’ equity and revenues). As transactions are recorded in the general journal and subsequently posted to the ledger, all amounts recorded on the debit side of accounts (i.e., recorded on the left side) must equal all amounts recorded on the credit side of accounts (i.e., recorded on the right side). Preparing an unadjusted trial balance tests the equality of debits and credits as recorded in the general ledger. If unequal amounts of debits and credits are found in this step, the reason for the inequality is investigated and corrected before proceeding to the next step. Additionally, this unadjusted trial balance provides the balances of all the accounts that may require adjustment in the next step.

(v). **Prepare adjustments:** Period-end adjustments are required to bring accounts to their proper balances after considering transactions and/or events not yet recorded. Under accrual accounting, revenue is recorded when earned and expenses when incurred. Thus, an entry may be required at the end of the period to record revenue that has been earned but not yet recorded on the books. Similarly, an adjustment may be required to record an expense that may have been incurred but not yet recorded.

(vi). **Prepare an adjusted trial balance:** As with an unadjusted trial balance, this step tests the equality of debits and credits. However, assets, liabilities, owners' equity, revenues, and expenses will now reflect the adjustments that have been made in the previous step. If there should be unequal amounts of debits and credits or if an account appears to be incorrect, the discrepancy or error is investigated and corrected.

(vii). **Prepare financial statements:** Financial statements are prepared using the corrected balances from the adjusted trial balance. These are one of the primary *outputs* of the financial accounting system.

(viii). **Close the accounts:** Revenues and expenses are accumulated and reported by period, either a monthly, quarterly, or yearly. To prevent their not being added to or comingled with revenues and expenses of another period, they need to be closed out that is, given zero balances at the end of each period. Their *net* balances, which represent the income or loss for the period, are transferred into owners' equity. Once revenue and expense accounts are closed, the only accounts that have balances are the asset, liability, and owners' equity accounts. Their balances are carried forward to the next period.

(ix). **Prepare a post-closing trial balance:** The purpose of this final step is two-fold: to determine that all revenue and expense accounts have been closed properly and to test the equality of debit and credit balances of all the balance sheet accounts, that is, assets, liabilities and owners' equity (Henson, 2006).

2.2.4 The Computerized Accounting System

According to Henson (2006), computerized accounting system saves a great deal of time and effort, considerably reduces mathematical errors, and allows for much more timely information than does a manual system. In a real-time environment, accounts are accessed and updated immediately to reflect activity, thus combining steps 2 and 3 as discussed in the preceding section. The need to test for equality of debits and credits through trial balances is usually not required in a computerized system accounting since most systems test for equality of debit and credit amounts as they are entered. If someone were to attempt to input data containing an inequality, the system would not accept the input. Since the computer is programmed to post amounts to the various accounts and calculate the new balances as new entries are made, the possibility of mathematical error is markedly reduced.

Adam et al, (1992) reported that computers may also be programmed to record some adjustments automatically at the end of the period. Most software programs are also able to prepare the financial statement once it has been determined the account balances are correct. The closing process at the end of the period can also be done automatically by the computer. Human judgment is still required to analyze the data for entry into the computer system correctly. Additionally, the accountant's knowledge and judgment are frequently required to determine the adjustments that are needed at the end of the reporting period. The mechanics of the system, however, can easily be handled by the computer.

2.2.5 Development of Accounting Software Packages

Accounting systems software in the past was classified into high and low end systems. This differentiation worked well prior to the development of e-business, e-commerce and enterprise resource planning. The introduction of these new systems

coupled with the introduction of cheaper yet more powerful computers caused the development of a new breed of accounting systems that transcended the low and high end classifications. While the development of the new breed of computerized accounting systems technology does not come at a low price, potential functionality far exceeds the previous functions offered by the previous system versions. An important new function is the standardization of accounting systems covered by SQL-based client-server system. The enhanced functionality of new accounting computer systems means greater ease for organizations in moving databases from one system to another as well as in operating the chosen system (Raymond, 1992).

In comparing accounting software packages in the 1980s and 1990s and the twenty first century, several stark differences can be observed in terms of a criteria differentiating high and low end computers and in terms of robustness and functionality. Previously, accounting systems were focused on low and high end system since there were only a number of mid-range systems which were not considered as big sellers. High and low end accounting computer systems were differentiated based on these criteria: 1) operating system—DOS, Windows 3.1/95/98/NT, Mac or Unix; 2) networking capability; 3) user base; 4) price point; and 5) programming style relative to client-server dynamics. High end computerized accounting system were deemed more advanced in terms of these criteria while low end systems either do not comply with some of the criteria or deliver a lesser functionality when compared to high end systems (Yap, 1997).

Apart from these criteria, accounting computer systems were compared based on robustness and functionality with robustness referring to a powerfully built system developed for endurance and fullness in features while functionality pertains to the achievement of particular use or function. With the advancement of the Windows hardware, operating systems, networking systems, and database programs, there was a corresponding increase in the robustness and functionality integrated into computerized accounting systems. Due to these changes, the previously acceptable features of the DOS-based system became substandard when compared to the Windows environment. Moreover, since accounting systems needed to be in sync

with Microsoft products dominating the market such as Object Linking and Embedding (OLE) and Open Database Connectivity (ODBC) this resulted into the demise of DOS-based accounting systems and the shift towards Structured Query Language (SQL) and client server platforms (Feeney, 1998).

In the twenty first century, several changes have occurred in the area of accounting systems due to five major reasons. First, the span of the computer market has dramatically increased due to the popularization of Windows NT operating systems. Since then, there have been a number of enhanced Windows operating systems in the market. Second, are the expected problems at the turn of the year 2000 such as the inability to pay bills or post entries, inaccurate interest calculations, premature retirements of some applications, and the incorrect aging of some accounts receivable/payable. Software developers and organizations applying computerized accounting systems had to search date-sensitive codes in the software and manually reprogram the software and expand year fields from 2 to 4 digits. During the beginning of the year 2000, most companies were able to thwart the effects of the Y2K bug although some organizations were affected. Overall, accounting computerized systems were enhanced in time to meet this change. Third is the operation of the Maastricht Treaty that established a single currency for European Union members so that business transactions in Europe had to be restated using the *Euro* as well as legal national currencies. Fourth, is the achievement of SQL-based client server systems of becoming the high end database engine? Structured Query Language (SQL) comprise industry standard in database storage as well as information retrieval. Fifth reason is the entry of Enterprise Resource Planning (ERP) vendors such as SAP, PeopleSoft and Baan into the computer system market through the rewriting of their systems to be compatible with the dominant Windows format (Ibid).

At the beginning of the year 2000, internet based commerce flourished making it the ultimate medium of transactions especially since online transactions are fully supported by Structured Query Language (SQL) as the database and Open Database Connectivity (ODBC) as the method for transmitting information between different

applications. Due to the growing popularity of internet applications, many users of computerized accounting systems are moving away from DOS-based systems and moving towards web-based interfaces. Moreover, many internet applications are being linked to accounting computer systems. Hypertext Mark-up Language (HTML), Dynamic HTML (DHTML), Java and Extensible Mark-up Language (XML) together with similar technologies are becoming linked with accounting programming suites for the purpose of increasing customization, ease of use and the establishment of the accounting system in the world wide web (Thatcher, 2002).

2.3 Application of accounting software in higher learning institutions financial data management

Stephen (1989) stated that computerized accounting system allows the institution to build charts that match their structure. Charts of accounts establish the basis through which financial data can be collected and processed. Different types of accounting tasks can be coordinated and hence, compilation of financial statements made easier. Charts of accounts provide a linkage between different types of accounting transactions and stages in budget cycle. Lanier, N (1992) also noted that accounting system requires all transactions to be coded using different codes that can be broken down into a number of distinct segments and components that enable the analysis of data in numerous combinations to any desired levels of detail and aggregation. The validity of each code is tested by the system before acceptance of the input and any trial without valid code classification is rejected by the system.

2.3.1 Structure of Computerized Accounting System

According to Henson (2006), a computerized accounting system is composed of several functional and application aspects that define the effectiveness of the system relative to the needs of the organization. Based on the accounting process, three structural aspects arise in a computerized accounting system. First is *audit trail*. Many computerized accounting software manufacturers claim their system provide complete audit trails as criteria for effectiveness. Organizations have to test various software and programs to determine the system that offers the desired or expected level of audit trail. Audit trail refers to the system's ability to provide the accounting

personnel with the means to trace transactions from their document of origin through the journals and ledgers up to the resulting output documents or financial reports. A complete and effective audit trail includes two dimensions:-

First is as a test for effectiveness. The audit trail allowed by the computerized accounting system should be bidirectional. This means that while the accounting personnel are able to trace information from its document source to the report the personnel should also be able to start with the output documents and traces these to their data source. Second is the system's ability to ensure completeness of information and processes by providing distinctive references that permits the direct tracing items instead of involving a random search of journal or ledger information. Random searches constitute gaps in the audit trail indicating a weakness of the audit trail. Moreover, a complete and effective audit trail made through a computerized accounting system should be able to allow accounting personnel to track changes occurring in the account balance from different periods using ledgers. The system should be able to cover the essential elements of accounts, which are the beginning balance, every transaction that affects the account for a given period, and the ending balance. It also permits the development of the two vital accounting records journals and ledgers (Fowzia & Nasrin, 2011).

Since a journal is one of the vital accounting records, the effectiveness of an accounting system in the audit trail is measurable by how reliable the system is in producing and obtaining journals needed in the audit trail. Several modes are available for producing journals, using specific beginning and ending dates, transaction entry session, posting batch, and reporting period. The test of effectiveness is whether the system allows the acquisition of a journal printout for purposes of scanning errors in order for corrections to be made without the need for correcting data entries and whether the system allows the accounting personnel to obtain journals for specific periods only. This means, the system should be programmed in such a way that it assigns certain codes to various data entries so that it allows the acquisitions of specific data useful in the audit trail (Abu-Musa 2005).

Ledgers comprise the other important vital accounting document. Ledgers are characterized as being produced through a single report and that every account in the printout has a beginning balance, transactions affecting the account and the ending balance. Effectiveness of the system in generating ledgers is whether it allows for general and subsidiary ledgers to be acquired independently so that the system should be able to distinguish the various types of ledgers covering different periods and allow accessibility to specific data needed in the audit trail.

Second are *data controls*. These comprise of data entry controls, processing controls, and output controls. Data entry controls are comprised of several field checks. Code checks and account titles show if an account entered in a particular journal exists and if it does exists display the data related to the account on the screen. Check digits makes use of the account number to determine accuracy through an algorithm. This type of data control check determines keying errors such as in validating checking account and credit card numbers. Data type check ensures that the right type of data numerals or letters are accepted in the entry field. Batch totals control drives the journal making program to read the amounts entered in the field and generate totals for various groups of amounts. Hash totals (a sum obtained by adding together numbers having different meanings, McGraw Hill science and Technology dictionary) control supports the accumulation of account numbers and other numeric data and compares these data to computation applications. As a test of effectiveness, these data entry controls should exist in the computerized accounting system to allow the organization and retrieval of different kinds of data and data groups as required by the organization for various reports (Ibid).

Processing control works to ensure that accounting tasks are accomplished properly. These forms of controls are important in computerized systems because accounting personnel are not able to view records while the system is conducting data processing. The result of all these is that computerized accounting systems should be able to follow data processing sequences necessary to produce the desired output documents (Henson, 2006). Output controls pertain to the ability of the computerized accounting system to generate report documents. Basic output controls include the

system's ability to detect the occurrence of data printing and control the distribution of printouts. The purpose of output controls is to enable the accounting personnel to determine earlier and later document printouts especially in instances where there are corrections to the data on the document. The computerized accounting system should provide sequencing of the documents printed that distinguishes between the earlier and final versions (Mwamka, 2002).

Third is *reporting of data*. Another effective aspect of computerized accounting systems is the production of output reports that complies with the unique reporting needs of the organization. Every system provides the printing option to acquire a hardcopy and data storage system for later access. Apart from this, the system should also be able to allow the design and modification of output reports such as the general module. Moreover, there should also be a data comparison function for previous data and new data in order to derive meaningful conclusions from the reports. Lastly, the system should be able to calculate and produce outputs on financial ratios, accounts payable reports, inventory reports, and other significant reports (Adams, M. (2000).

2.3.2 Accounting software features

In order for the software to provide an effective and efficient control of financial transactions, it should enable the user to input the figures, provide user defined trials, error notices and reports that are automatically distributed via e-mail, it must have the ability to interface with the Electronic Data Interchange (EDI) translators, provide flexible communication methods like HTTP or e-mail, it should be able to provide an internal control like the use of passwords and reporting.

2.3.3 Benefits of accounting software

According to Kushiyo (1991) in today's modern business world, accounting software provides various advantages such as the elimination of human errors in the transmission of financial accounting data. It also provides built-in data validation rules, timely processing and reconciliation of business documents, error notices and reports for accurate tracking. It eliminates manual and duplicates data entry,

eliminates cost and unnecessary charges/ fines and it resolves issues quickly thus saving time and money. Other benefits of the accounting software package include well organized work quality through better presentation of reports, providing instant feedback as processing of transactions takes place. The software package has a built in procedures that prevent unauthorized voucher entry, authorization and protection of cheques since every user of the system is required to enter his username and password and access the financial data.

According to McBride (2000), computerized packages can quickly generate all types of reports needed by management, for instance budget analysis and variance analysis. Data processing and analysis are faster and more accurate meeting the managers' need for accurate and timely information for decision making. Frank wood (2002) consented to the speed with which accounting is done and further added that a computerized accounting system can retrieve balance sheets, income statement or other accounting reports at any moment. According to Carol (2002), it is easy to do accounting functions using computerized accounting systems. Posting transactions to the general ledger can largely be automated through the use of computerized system. According to Muhammad Sori, Z. (2010), some companies in the United States like Barry-Wehmiller design Group and Metastorm reported the following benefits of using accounting software (ACCPAC):-

(i). Access to real- time data and analytical supports forecasting and resource utilization.

(ii). Increased accuracy and efficiency in business reporting and ability to understand profitability at granular level.

(iii). Gives consolidated picture of financial and operational data which yields strategic advantage

(iv). Provides single-source solutions for financial and project-related data which yields strategic advantage.

(v). Provides electronic approvals of transactions and audit trail.

(vi). Controls expenditure entry and enables electronic reconciliation

(vii). Makes proactive business decisions to manage the cash flows of the organization more effectively. Cash management capabilities helps the

organization forecast future cash flows and lets the organization plan financing to minimize idle cash.

2.3.4 ACCPAC Package system

ACCPAC Accounting software System is the accounting system used by the UDSM, MU and OUT since 2005. This system had got several modules which were automatically combined together to formulate the main system.

These modules are:

(i). System Manager

This is the hub from which all other modules operate and it affects almost everything done in the system. This module includes effective tools that ensure data integrity and complete processing and security management as well as powerful reporting. Some key capabilities of system manager are the use of security groups to control access to applications and specific functions within them and set up different user permissions for different applications.

(ii). General Ledger

It is the foundation of the accounting system, designed to handle the most demanding budgeting needs of the organization. It consolidates transactions by account, fiscal period and source ledger. Also it creates fast, flexible, and customized analytical reports, statements, graphs and charts.

(iii). General Ledger Consolidations

This module transfer and merge general ledger account and transaction information between separate company and branch office locations. It is also designed to enable subsidiaries and holding companies to run without being on the same network or accounting database.

(iv). Intercompany transactions

This module simplifies intercompany accounting by processing intercompany general ledger journal entries and intercompany accounts payables, debit notes and credit notes.

(v). Accounts Payable

This module provides robust accounting features to streamline cash flow process. It organizes supplier records quickly and easily, and flag inactive records that are retained for historical reporting.

(vi). Accounts Receivable

It manages customers and fine-tunes customers' relations by keeping track of important sales information and outstanding balances. It is fully integrated with bank services, for complete bank reconciliation.

(vii). Purchase Order

This module provides a comprehensive, fully integrated purchasing system.

(viii). Inventory Control

This module keeps track of stock levels and processes inventory receipts, shipments, returns and adjustments. It screens inquiry and reports by giving detailed current information crucial for effective inventory management.

(ix). Student Finances

This module deals with records concerning with the student particulars, sponsors, programs and tuition fees specifications and student financial reports.

(x). Financial Link Professional

This is the flexible report designer with powerful formatting features that transforms general ledger data into perfect presentation, quality statements and reports. All the modules are automatically connected together to formulate the main system, to come out with all accounting and financial reports needed by these universities and other

stakeholders for making decisions. This system was formulated to suit the need of these Universities rather than other organizations. It was formulated to cope with the activities and reporting need of these universities.

2.3.5 Roles of key Actors in the ACCPAC accounting system

The ACCPAC instruction manual has stipulated the role of key actors in the system in order to maintain its efficiency and effectiveness. According to the system manual they are explained below:-

(i). System administrator

The system administrator has overall responsibility for granting application access to all users of the system that determines the specific functionalities to be allocated to each user and set up applications. He/she should never enter or approve any transaction on the system. In case of staffing constrains, specific individuals are required to perform system administration and other duties. Separate logons and passwords must be used. Entry or approval of transaction by a system administrator is a serious breakdown in internal control and active disciplinary measures against the system administrator should be instituted. System administrator under no circumstances should refuse to enter or approve any transaction regardless of who issue the instruction.

(ii). The system manager

He/she is responsible for system installation, setting up of user security rights, passwords and access to the network facilities, maintenance and backup of the databases, adding new network users and using the system management tools. An officer within the Finance department holds this position and can be helped by the system administrator with some activities like system installation and use of management tools.

(iii). Authorizing staff

The schedule of specimen signatures should clearly state, against each the types of transactions that the person may authorize, the limits and the range of charts of accounts codes. These specimen signatures should be retained in a master file by accounting unit and checked against the signatures of the various vouchers.

(iv). Accounts staff (operators)

They are responsible for accurate, reliable, timely and complete processing of all transaction/data into the system. They need to ensure:-

a) All transaction data are entered into the system and cleared on a daily basis. No backlog should be allowed to develop.

b) The secure production of cheques and regular production and distribution of financial reports.

c) An operator should never approve any transaction. Doing it is serious breakdown in internal controls and disciplinary action should be taken against the operator.

d) The computer equipment, media and security documentation are properly secured and all data bases are backed up on a daily basis.

e) Maintenance schedule for the equipment is strictly adhered to and all faults are reported immediately to the maintenance provider.

f) Certifying officers (Director of Finance/Chief Accountant or their deputies) are required to approve or disapprove individually all transactions on the system in order to maintain internal control; managers are accountable for ensuring any transaction entered into the system has complied with all the requirements of financial regulations. Certifying officers are not allowed to enter any transaction into the system.

2.4 Theoretical Literature Review

2.4.1 Competencies of accounting staff in using accounting software

According to Ricardo (2005), new workers in a firm are usually given an induction programme in which they meet other workers and are shown new skills. Staffs are

encouraged to attend continuous development programmes in order to learn new skills and get new qualifications. In accountancy for example, all accountants are expected to pass exams set by the regulatory bodies like National Board of Auditors and Accountants (NBAA) in Tanzania. Merton (1968), a prominent functionalist argued that professions can only emerge when a group of people are found to be practicing a definite technique founded upon specialized training (Greenwood, 1987). The staffs of the organization have a critical role in the standardization of the systems and the skills and knowledge of this group are very crucial in enhancing their competencies. Skills and knowledge are developed through education and training (Malian, 2004). It is the responsibility of the training departments within the organization to make sure that staffs within the same skills come up through the organization or are recruited from outside.

According to Carol (2002), organizations should make sure that staffs are ready before launching a new or revised site. If staffs are not well trained then they will not be able to undertake the functions relating to customers. Introduction of new system requires extra money for staff training and costs associated with training. There is the need of transforming the staffs by providing remedial training so that they are trained on the system use (Murphy, 2001). In order to attain the overall performance there is need for higher learning institutions to train their staffs with the necessary skills and knowledge on computerized accounting system. Staff with skills and knowledge can undertake effectively accounting functions. According to the accounting staff training curriculum, it instructs employees on how to comply with the latest rules and regulations regarding financial accounting and reporting systems. This program also helps accountants understand techniques used in preparing accurate and complete financial statements in accordance with professional standards, senior management's recommendations, industry practices and government rules.

Firms should ensure that they recruit skilled professionals to handle its accounting and offer routine training to the employees based on the changing environment (Michael, Miller, 2005). The NBAA as the professional board requires higher learning institutions to have qualified accountants and auditors. In these institutions

some accounting staffs have diploma, bachelors' degree, masters' degree and a few of them have passed their professional exams to be categorized as certified accountants and auditors. In this study the concept of staff competency was very important because staff with relevant qualifications and technical skills can enhance organizational financial performance by ensuring that financial activities are performed according to the accounting standards and regulations. In view of that, this study was done to examine the competencies of staffs in order to determine the relation to the work performance.

2.4.2 Factors affecting the application of accounting software packages in higher learning institutions

According to Abu-Musa (2005), technologies in many cases have been developed faster than the advancement in employees' knowledge, skills, awareness and compliance. The efficiency and effectiveness of operating the system rely mainly on human resources. It is required to fill multiple functions in each departments of accounting and computer centres and the scientific and practical qualifications, experiences, technical skills, and training are considered to be the most important specifications that must be available in the staff (Ishengoma, 2010). According to Breen, et al, (2003), some of obstacles that prevent the possibility of applying computerized accounting system in an organization are infrastructure and human resources. It has been found out that reasons like limited capital, non-availability of resources, poor management base, and absence of IT expertise do seriously affect the implementation and adoption of computerized accounting system in India and other similar Asian developing countries (Ismai and King,, 2007).

Jef Peerer (2008) identified some barriers to ICT in Vietnam. He mentioned them as lack of technical support, insufficient knowledge, gender and lack of innovation. The author stated that enthusiastic nature of teachers towards the usage of ICT, ICT policies, budget, educational management and skill training plays an important role in the integration process of ICT. His study acknowledged various factors which affected the application and adoption of computerized accounting system. In view of the above literature review these factors are also applicable in the higher learning

institutions. In this regard, the study was done to identify factors affected the application of selected accounting software in these institutions.

2.4.3 Efficiency and effectiveness of accounting software for performance measurement

According to Abu-Musa, (2005), the effectiveness of computerized accounting system depends upon the perspective of the parties involved in the accounting system computerization. Concurrently, determining the effectiveness of computerized accounting system also depends upon the parties concerned. Based on the perspective of the organization, effectiveness refers to the system which satisfactorily meets the needs and requirements of the organization. The needs of the organization are based on actual computerized accounting system, industry and legal standards. The point of view of the organization also involves the input and feedback from the accounting department and the personnel affected by the computerization because they are members of the organization with the best knowledge. Thus, computerized accounting system effectiveness depends upon the extent to which the needs and expectations of the organization are met by the computerization of the organization's accounting system (Abu-Musa, 2005). Higher learning institutions need computerized accounting system which is faster and efficient in processing of information. The system provide room for automatic generation of accounting documents like invoices, cheques and statement of account, with the larger reductions in the cost of hardware and software and availability of user-friendly accounting software package. It is relatively cheaper to maintain than a manual accounting system, more timely information can be produced, no more manual processing of the data- all automatically generated and posted to the various ledgers/account. Many types of useful reports can also be generated for Management to make decisions (Yap, 1997). The efficiency and effectiveness of computerized accounting system is realized when managers can easily identify and solve problem instantly (Frank wood, 2002). In this regard, the study was done to evaluate the efficiency and effectiveness of the computerized accounting system of HLIs in order to determine how the financial performances of these institutions are enhanced by the system.

2.4.4 The performance of higher learning institutions and the usage of accounting software

According to Fowzia and Nasrin, (2011) today's competitive environment information is crucial to the organizational success. It is essential to have an effective information system for long-term success o since the organization's quality of performance cannot be assessed without a proper monitoring tool. In order to make decisions, the manager requires information that is generally provided by the accounting information systems. Accounting reports are the main source of information for managers who require correct updates, and on time accounting information in order to success their operations. The computerized accounting system is the system that helps accounting information have both characteristics of relevancy (providing information on time) and reliability (accuracy) at the same time (Ismail & Mat Zin, 2009)

Indira (2008), emphasized that financial reports should provide information about financial performance during a period of management discharge. Ismail and King (2007) discovered a positive association between accounting information system and organization's performance via the varying strategies that may be adopted by the organizations. Ishengoma, (2010), highlighted the usage of ICT for administration in higher education institutions in terms of general administration, payroll and financial accounting, administration of students data, personnel records maintenance and library system. In view of literature review above, the performance of the HLIs is as follows; the audited annual accounts and reports (2006-2011) showed that MU performs well compared to the UDSM, and the OUT. From 2010-2012 MU was the first public institution to submit final accounts to the CAG. However, this study did another comparison in order to see how the institutions have continued to perform using computerized accounting system.

2.4.5 Challenges facing the performance of higher learning institutions when using accounting software system

Power failure, computer viruses and hackers are the inherent problems of using accounting software systems. Once data has been inputted into the system, the output

are automatically obtained hence the data being inputted needs to be validated for accuracy and completeness, it should not be forgotten thus the concept of GIGO (Garbage In (Input) Garbage out (Output), and if accounting system is not properly set up to meet the requirement of the business due to badly programmed or inappropriate software or hardware or personnel problems causing more havoc and (Yap, 1997).

According to Abu-Musa (2005), the changing technology makes the accounting software costly because improvements in the package occur regularly thus becoming expensive to buy the new versions of the package. The whole computerized accounting system is threatened by the loss of data through theft, fire, and other natural disasters, which can cause huge data losses. According to Wahab (2003), another threat and limitation of computerized system is a computer virus. The computer virus is a computer code (program) designed to damage or cause irregular behaviour in other programs on the computer. The adverse effect is that it may lead to breakdown of the hardware thus leading to loss of valuable information (for instance in higher learning institutions information such as students accounts, previous year report, information pertaining loans advanced to students from loan board) already saved on the computer.

Meigs (1986) study stressed that there is a risk of improper human intervention with the computer programs and files. Employees in the organization may temper with the computer programs and computer based records for the purpose of falsifying accounting information. This may result into distortion of information that would be essential for decision making. This challenge has been solved by instituting strong controls over the system; every operator is given a special password that should not be shared with another person and should be changed frequently. In view of the literature review above this study was done to identify the challenges facing the performance of HLIs that uses accounting software package.

2.4.6 ICT Policy in Higher Learning Institutions

The introduction of ICT in the higher education has profound implications for the whole education process ranging from investment to the use of technologies in dealing with key issues of access, equity, management, efficiency and quality (Gulavani, 2011). In the paper *Integration of ICT in Higher education Institutions*: *Challenges and best practice of Makerere University* and other organizations states that information infrastructure of African Higher Education is poorly developed and unevenly distributed. The major challenges faced are lack of awareness and mindset, lack of top-level commitment for the progress in ICT integration, a systematic method of ICT implementation, cost of bandwidth and efficient utilization of ICT.

According to the Tanzania national ICT policy 2005, there is no well established ICT professional profiles, and standardized process of evaluation or certification of the different courses offered by various training centres is lacking. At universities and other institutions of higher learning, few computers are available for use by students and academic staff. The management of these institutions addressed the problems by acquiring a number of desktop for students and laptop computers for academic staff. For instance at MU, the management guaranteed the staff to acquire laptop computers on credit and at affordable prices. By doing so, most employees were able to get laptops to facilitate their activities.

The lack of overall policy and poor harmonisation of initiatives, have led to random adoption of different systems and standards; unnecessary duplication of effort, and waste of resources, especially through the loss of synergies; therefore the National ICT policy deploys a broad-based national strategy to address Tanzania's developmental strategy (National ICT policy, 2005). Basing on the literature review above, this study ought to examine the policy guiding the use of accounting software in HLIs in Tanzania by assessing its strengths as well as its weaknesses.

2.5 Empirical Literature Review

This literature reviewed the usage of accounting software in higher learning institutions in Tanzania. The conclusion deduced is that few studies have been conducted in this area. One reason for this is that the area is relatively not well exploited. Several authors in different countries hold similar views on the lack of supporting studies accounting for lack of use of accounting information system (Amidu et al.2011). In some systems, reports generated for production are not read by line managers because they are regarded as worthless, and are full of figures with no effect on the process of decision-making or analysis (Yazdi et al. 2007). These managers are also not aware of the importance and role of information provided by computers in taking logical and correct decisions. Kennedy (2005), studied the potential challenges and benefits of implementing E-learning in Sri Lanka by reviewing the awareness and readiness of the selected high educational institutes. His findings revealed that these institutions have used e-mail and internet, in addition to developing web pages for students. Henry (1997) conducted a survey to determine the nature of accounting systems and security in use. The results indicated that 80.3% of the companies backed-up their accounting systems, 74.4% of the companies secured their accounting system with passwords, but only 42.7% utilized protection from viruses. Physical security and authorization for changes to the system were employed by less than 40% of the respondents.

In Australia, lack of IT knowledge and skills is one of the main reasons for non use of computerized accounting system (Breen et al, 2009). If managers had a high level of accounting knowledge and IT knowledge, they would be provided with the appropriate software for information requirements of the organization, since they are familiar with the new technologies (Ismail and King, 2007). There is need therefore to develop proficiency in ICT to supply internal demands for technology literate personnel. In poorer nations such as Tanzania business environments generally provide computer training as a necessity (Abu-Musa, 2005).

In a recent study (Nasrin, 2010); some attributes were identified on the influence of using computerized accounting software and their underlying perceptions. They believe using computerized accounting system would often come with it significant rewards. Social influence was identified as one of the most important factors affecting users' performance. Roszell,s (1995), surveyed urban district teachers and school-based administrators to estimate their level of IT use, the effectiveness of the IT they deployed, and the degree to which various organizational and personal characteristics affected the amount of IT used. Roszell identified five factors: the availability of time for teachers to prepare using computers in instruction; the availability of high quality software; the availability of hardware; personal knowledge about computers; and administrative support.

Though most organizations have not been doing well in financial reporting and accounting records, reports from a comparative survey conducted by Indra (2008) Uganda, indicated that firms have greatly improved the way of reporting their financial statements. The influence of computerized accounting systems on financial reporting has been linked to the benefits of applying computer systems while generating financial reports (McRae, 1998). Huber (1997) confirmed that accounting information systems provide financial reports on a daily and weekly basis and provide useful information for monitoring, decision-making process and performance. Philippine national policy has, therefore been formulated to advance the use of ICT in education (Roxas & Marinas, 1989). The study revealed that 46% of schools surveyed had fewer than five computer units, while 33% had more than ten.

According to the National ICT policy (2005), Tanzania has made remarkable progress in deploying ICT in schools. This progress has been well received by the citizens and service providers who strive to address Internet demand and competition in newly liberalized markets. Tanzania's tele-density is still low, with the number of fixed and mobile cellular lines currently standing at 12 telephone lines per 1000 people and the number of mobile phone subscribers currently standing at 81 per 10,000 inhabitants. Tanzania's Public Switched Telephone Network (PSTN), use of

fibre optic, microwave and satellite-based links, is now over 95% digital. This paves the way for allowing the provision of new services enabled by ICT.

The coverage of the network infrastructure is limited to urban areas and thus lack of telecommunications in rural areas remains a basic impediment to the provision of such new ICT services. There is no local manufacture of ICT equipment in Tanzania; all local dealers or agents import these ICT products. There are no standards guiding the imports of both hardware and software. In general, there is shortage of well-qualified professionals of ICT in Tanzania. According to the Bank of Tanzania monthly economic review of December 2012, for about 50 years government accounting and financial reporting were governed by the Exchequer and Audit Ordinance (1961) and implemented through financial orders. The introduction of accounting software packages between 1998 and 2000 rendered this regulation and related regulations out of date. The Public Finance Act, 2001 was passed by the National Assembly to replace the 1961 Ordinance and provides for control and management of public funds (National ICT Policy, 2005).

Advances in ICT have brought changes in financial management. It has impacted the way business is conducted, facilitates learning and knowledge sharing and generated global information flows. Computerized accounting system allows HLIs build accounts charts that match their structure. Accounts charts establish the basis through which financial data can be collected and processed.

2.6 Research gap

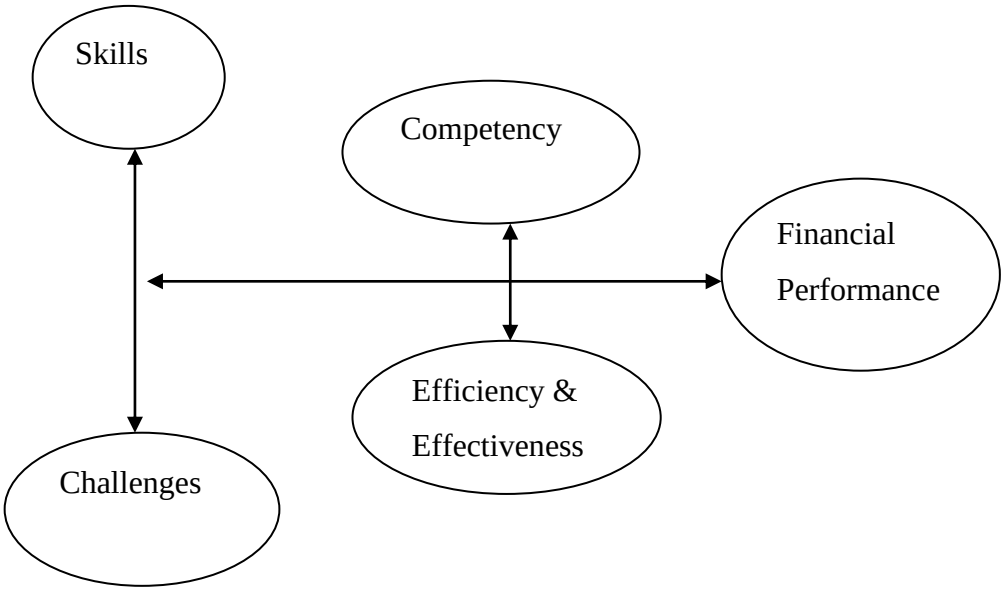
In view of the above literature review several studies have been conducted on computerized accounting system. There is no evidence however, of any research done on the usage of accounting software packages on higher learning institutions in Tanzania. In this regard, the study investigated the financial performance of higher learning institutions in relation to the usage of accounting software. The purpose was to determine how factors such as skills, trainings, efficiency and effectiveness, and challenges have influenced decisions when using accounting software in financial operations.

2.7 Conceptual framework

A framework is a process of identifying a core set of connectors within a topic and showing how they fit or relate to each other (Adam, 2008). It is aimed at indicating the most important areas covered by the study. The introduction of the ACCPAC Accounting software demanded extensive training for finance department staffs of higher learning institutions. Some of the trainings were provided by CATS Tanzania Ltd and, in house system administrators. System security requirements addressed application, and other technical and personnel risks. User administration is limited to a few key individuals and each user has a unique user ID with a confidential password that can be changed periodically.

To provide further system security against viruses and unauthorized access, full virus protection are installed. A set of manual controls are established to ensure ongoing business activity in the case of power outages while full back up procedures are implemented to include offsite storage. Back-ups of all system data are conducted on a weekly basis, and tapes are overwritten every six months. In addition, monthly back up are maintained for one year, while quarterly system back-ups are maintained for longer periods.

Figure 2.1: Conceptual Framework Model



Source: Author (2012)

The above conceptual framework model shows how the main concepts or variables are interrelated. In this model the independent variables are employees' skills and competency, efficiency and effectiveness, and challenges while the dependent variable is financial performance using computer software. The computerized accounting system is efficient and effective when it is operated by employees with relevant skills and competencies, given that the challenges are put under control. When these independent variables are interrelated the financial records are accurate and reliable and the financial performance of the organization is attained (Baisi, 2001). Based on the above conceptual framework model, an organization can attain sound financial performance, if it uses an accounting software in processing financial transactions.

Staff should also be well trained with the right professional qualifications and technical skills to operate the system. Furthermore, the system is efficient and effective when the required resources are well utilized and reports are produced at the right time as required by the International Financial Reporting Standards (IFRSs). The corrective actions should be addressed to tackle the challenges that the organization faces when using computerized accounting system. According to Venkatesh, (2000), information technology has played an important role in various fields. Reliable, correct, and accurate information determines the effectiveness and efficiency of an organization. Information makes it possible to take rational decisions that contribute in achieving the objectives of the organization. A computerized accounting system is composed of several functional and application aspects that define the effectiveness of the system relative to the needs of the organization.

According to Stephen (1989), human resource is the main element that can rely on the efficiency and effectiveness of the system operation. It is required to fill multiple functions in each department of accounting and computer centres. Practical qualifications, experiences, skills and competencies, and training are considered to staffs. Al-Mejey, (2003) showed that the concept of efficiency regarding any accounting system is a means to achieve the optimal relationship between inputs and outputs of the data and the accounting information. This relationship can be achieved

using the least possible amount of data to produce as much information as possible. According to Chacha**,** (2004), there is a direct link between employee's skills and their performance. The concept of effectiveness of the accounting system is the extent to which the accounting system achieves its objectives. Computerized accounting system increases overall effectiveness by improving both the quantity and quality of management information. Higher learning institutions across the world are thus faced with the challenge of lack of quality standards to measure their performance new knowledge is created and utilized (Chacha, 2004). Good accounting information systems can help evaluate the performance of the organizations and its managers. The organizations with a good and desirable accounting system are more successful in attracting various stakeholders (Amidu et al, 2011).

The system is critical as a primary source of information to help organizations manage their business successfully (Ismail & Mat Zin, 2009). The system which is efficient and effective with minimal challenges influences the financial performance of higher learning institutions, the quality of performance cannot be assessed without a proper monitoring tool (Heidari, 2006). The good relationship between variables (skills, competencies, efficiency and effectiveness, challenges) leads to a better financial performance of an organization. One of the key challenges of higher learning institutions is lack of quality standards to measure performance. In view of the above explanation one can conclude that there is a close relationship between the challenges facing higher learning institutions and their performance taking into consideration employee's skills, and competencies regarding the efficiency and effectiveness of computerized accounting system.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a way to systematically solve the research problem by collecting and analyzing data through sampling process and finally interpret research findings (Kothari, 2004).

3.2 Area of study

The study was carried out at the University of Dar es Salaam Main Campus, The Open University of Tanzania (OUT), in Dar es Salaam region and Mzumbe University Main Campus in Morogoro region. These institutions were chosen because they are among the top and fully accredited public universities in Tanzania. According to the Tanzania National Census 2002, Dar es Salaam region is located at 6^0 48" South, 39^0 17 East (-6.8000.39.2833). Mzumbe University on the other hand, is found in Mvomero district, Morogoro region. It is located on the eastern side of Tanzania mainland and lies between latitudes $5^0$58' and $10^0$00 South of the equator and between longitudes $35^0$25' and $38^0$30' east of Greenwich. The study centred on how information and communication technology enhances the financial performance of higher learning institutions in Tanzania.

3.3 Research design

This was a panel study. According Saunders et al, (2009), a panel study is the form of longitudinal research in which a panel of respondents is selected and then followed or interviewed over time. It offers the possibilities for examining the relationships between variables over time. Purposive sampling was also used to select the universities.

Primary data were obtained through self-administered questionnaires and observation. Self-administered questionnaires were distributed to respondents by the researcher and researcher assistants. Respondents were given enough time to fill the

research questionnaires. All the questionnaires were collected after two weeks. Participatory observation was as well used where the researcher made own direct observations on the functioning of computerized accounting systems of selected universities. Secondary data were obtained from audited annual reports and accounts from the years 2006 up to year 2011.

Data collected were analyzed by descriptive statistics in which variables were described and compared numerically. Collected data were analyzed by using linear regression in order to find out the relationship between usage of accounting software and the financial performance of these higher learning institutions. Analyzed data were presented by using frequency tables which showed the summaries of sample and their measurements.

3.4 Population under the study

This study covered all higher learning institutions in Tanzania. To represent the entire population three universities were selected and the emphasis was placed on employees using accounting software packages in processing financial and accounting data. The study covered the availability of facilities that facilitates the application of the software such as computers, internet connectivity, and power supply. Furthermore, the study examined the types of accounting software packages adopted by the selected universities. The study showed that the selected universities use the same accounting software, the ACCPAC. They decided to adopt this accounting software after a survey of various institutions using the same software, and discovered it was well within their requirements.

3.5 Sample size and Sampling Technique

3.5.1 Purposive Sampling Technique

The study used purposive sampling method. It is a sampling technique which selects the sample based on the specific characteristics of the identified populations (Indriantoro and Supomo 2002). This sampling technique was used to collect data from the three universities. It was used in order to explore the understanding of accounting software by choosing the right people for the purpose of the study.

3.5.2 Simple Random Sampling Technique

Respondents were chosen from target groups by simple random sampling method. Simple random sampling is a probability whereby all members in the population have equal chance of being selected to form a sample (Adam, 2008). The target groups were the top management, accounting staff, ICT staff as well as the auditing staff. During the study 6 members of each group were interviewed to find out factors that motivated their decision to adopt the system. Twenty (20) employees from the finance department of the selected higher learning institutions were taken into consideration for the purpose of obtaining accurate information. Among these six (6) accounting staff were the head of the departments who oversaw the operations of their departments. Moreover, twenty (20) employees from audit department were also interviewed in order to examine the capability in auditing computerized accounting system. During the study three (3) heads of ICT departments were questioned in order to find out how they administer the system. The selected samples provided relevant information on the performance perspective in respect to the usage of accounting software. The reason for selecting these samples was because these employees understood the accounting software together with the accounting process. Some ICT staffs were also selected because they administered the system. Some top management members were also selected because they ensured that controls procedures are in place. The summarised sampling distribution is shown in table 3.1:-

Table 3.1: Sampling Distribution

Directorate	**Questionnaire administed**	**Questionnaire collected**	**Methods used**
Top management-Finance & Administration	6	3	Purposive sampling
Finance/Audit-Directors, Heads of sections	40	36	Purposive sampling
ICT-Heads	6	3	Purposive sampling
TOTAL	**52**	**42**	

Source: Author, 2013

The table above shows that 52 questionnaires were distributed to selected persons working in different departments, and the results show that only 42 questionnaires were collected, which 81% of the sample space is.

3.6 Types of Data Collected

Both primary and secondary data were collected in this study.

3.6.1 Primary Data

Primary data are data which are collected afresh and for the first time from the field, and thus happen to be original in character (Kothari, 2004). Or primary data can be expressed as first-hand information collected through various methods such as questionnaires, observation interviews and the like. The primary data in this study was obtained through self-administered questionnaire and observation. The primary data were of great importance to the study because so far there is no study in usage accounting software packages in higher learning institutions that has been conducted.

3.6.2 Secondary Data

These are data from documentary reviews, collected by someone other than the user. Thus secondary data provide second hand information and include both raw and published ones (Saunders et al, 2009). Secondary data saves time that would otherwise be spent collecting data, and often provide a larger and higher quality database than would be feasible for any individual researcher to collect. These documentary reviews include; published statistics and texts, media, case studies and literature reviews. During the study the researcher reviewed the audited annual reports and accounts of these universities from the years 2006 up to year 2011. The researcher was able to highlight the financial performance for the above mentioned period of time.

3.7 Data collection Techniques

3.7.1 Self-Administered Questionnaire

According to Saunders et al, (2009), self-administered questionnaire is a data collection technique in which each respondent reads and answers the same set of questions in a predetermined order without an interviewer being present. This data collection technique was chosen in order to improve the reliability of data because the researcher could check who answered the questionnaires. The respondents were mainly employees from Finance department, internal audit department, ICT department and few from management level.

During the study questionnaires were distributed to the respondents by the researcher and researcher assistants and the respondents were given ample time to complete the questionnaires. These questionnaires were constructed according to research objectives. All the questionnaires were collected after two weeks as was the agreement between the researcher and the respondents.

3.7.2 Participatory Observation

This is data collection technique where the researcher makes own direct observation of the phenomenon and records what he/she observes. This technique is useful as the data obtained is independent of the respondents' unwillingness to respond or cooperation (White, 2002). The researcher observed how the accounting system of the selected universities works with the intention of seeing its functionality in processing financial transaction. During the study the researcher observed the operations of the system for 2 days in each university selected. The researcher had the chance to see the whole process from data entry to output. By doing so the study was able to analyze the system strengths as well as its weaknesses.

3.8 Data Processing

Data collected were examined and edited in order to identify errors and omissions before analysis takes place. The purpose is to clean the data and assure that data are accurate, consistency with other facts gathered. The coding operation followed

whereby data were coded by assigning symbols to answers so that responses were put into limited number of categories or classes which contain critical information required for efficient analysis. This was done by using SPSS version 20. After coding the data were interpreted to determine the frequencies and percentage of the variables used in the study.

3.9 Data analysis

Analysis means computation of the certain indices of measures along with searching the pattern of relationship that exist among the group of data, (Kothari, 2004).In order to meet the objective of the study and arrive at reasonable conclusion and recommendations, data collected were analyzed by using descriptive statistics. Descriptive statistics enable the researcher to describe and compare variables numerically (Saunders et al, 2009). Therefore, descriptive statistics were used to obtain frequencies, analyze and summarize data in order to have a comprehensive summary and conclusion in a manner that makes sense in the final report.

In order to examine the competencies of accounting staff, identify challenges faced when using accounting software and to measure the capability of the computerized system to trace back computed errors and its controls the data collected were presented by frequency tables. In order to examine the competencies of accounting staffs independent variables like trainings and skills were used as these are very crucial factors in enhancing employees' competencies. The comparison of the financial performance between the selected higher learning institutions was made by using independent variables like; system linkage, system capability, error tracing in relation to the dependent variable financial performance.

Also regression analysis was used to analyze data. According to Adam, (2008) regression analysis is the statistical tool for the investigation of relationships between variables to ascertain the causal-effect of one variable upon another. In the study the performance of higher learning institutions under consideration was compared based on different factors like the speed of submitting a draft of the final accounts to the controller and auditor general. The data that were analyzed using linear regression in

order to understand which among the independent variables are related to the dependent variable; and to explore the form of these relationships (Saunders et al, 2009). The relationship between revenue collection and the usage of accounting software was established by using linear regression. This was done to find out if there was any connection the two variables under the study. The findings showed that there is a strong positive relationship between the usage of accounting software and the financial performance. The regression equation for the above information is presented below:-

$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon$

Where;

Y= Financial performance in terms of average usage level of computerized accounting system by the three higher learning institutions.

x_1= Revenue generated of MU

x_2= Revenue generated of OUT

x_3= Revenue generated of UDSM

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This part of the research examines and discusses the findings made during the study. It is organized into four main sections. The first section presents the findings on the usage of accounting software in higher learning institutions in Tanzania in relation to the financial performance. The second section presents the strengths of the ACCPAC Accounting software. The third section highlights the main weakness of the ACCPACC Accounting software; and the fourth section presents the chapter summary.

Analysis of data and interpretation of the research findings were performed in accordance with the research objectives developed to guide the study. All data collected were analyzed and interpreted using both qualitative and quantitative methods in which tables were used to present the results. These two methods established the benefits of using ACCPAC software in enhancing financial performance, and facilitating efficiency of higher learning institutions.

4.1.1 Level of skills in accounting software applications

This refers to the level of skills of the respondents in using the ACCPAC software. The study showed that they have different technical skills in running the computerized accounting system and most of them are experts, while others have intermediate computer skills with the remaining few having just basic computer skills. This is depicted in table 4.1below:-

Table 4.1: Level of Skills in Accounting Software Applications

Skills in using the software	Frequency	Percent	Valid Percent
basic	2	4.8	4.8
intermediate	13	31.0	31.0
expert	27	64.2	64.2
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.1 above summarizes the respondent's skills in using the accounting software. The results show that 4.8% of the respondents had basic skills in using the software especially in data entry and doing printouts, 31% had intermediate skills in especially translation of data into sensible form, data entry and making sure that the data are correctly classified, coded and authorized by the appropriate officials. 64.2% were experts in using software in issues like data processing, interpretation, authorization and cash management in terms of accounts payables and accounts receivables. This implies that the system is reliable, accurate in data processing because the operators have required technical skills needed for effective operations of the organizations' financial activities.

4.1.2 The degree of regular trainings and seminars on the usage of software

The staffs should be trained seriously on the usage of Accounting Softwares in order to enhance their skills, knowledge and other contemporary issues on how to use Computers in Accountancy and Auditing in high learning Institutions in Tanzania.

Therefore firms should ensure that regular trainings are provided to accounting staff in order to keep them up to date with the system. Regular trainings and seminars are very important to accounting staffs and other staffs in general. Current issues do emerge frequently and the need to cope with any changes in the ICT field is always recommended. The study showed that most staffs had no regular trainings or seminars with respect to their professions as depicted in table 4.2 below:-

Table 4.2: Respondent's regular Training On the Usage of Software and Other Seminars on Continue Professional Development

Regular trainings/seminars	Frequency	Percent	Valid Percent
Yes	19	45.2	45.2
No	23	54.8	54.8
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.2 shows that 45.2% of the respondents questioned had regular trainings on the usage of accounting software and other seminars for continue professional development organized by NBAA; 54.8% of the respondents had no regular trainings apart from the induction course organized when the system was introduced. Some of them have never attended workshops/seminars organized by NBAA or any other organisation as identified by NBAA. The most obvious implication for lack of regular trainings to staffs is incompetence. Staff would not be fully competent in ICT to ensure full optimization of operations. This can have negative implication on the services that the end users receive with the end results being inefficient.

4.1.3 Factors affecting the application of accounting software

The study showed that there are some factors that affect the application of computerized accounting system. These are obstacles to the implementation of accounting system in higher learning institutions and if not addressed properly can hinder optimal utilization of the system. They can be categorised into different types as shown in table 4.3 below

Table 4.3: Factors Affecting the Application of Accounting Software

Parameter	Frequency	Percent	Valid Percent
Human	12	28.6	28.6
Infrastructure	20	47.6	47.6
Maintenance	5	11.9	11.9
Technology	5	11.9	11.9
Total	**42**	**100**	**100**

Source: Analyzed data, 2013

Table 4.3 shows that 47.6% of the respondents agreed that infrastructural factors, example, acquisition of computers, network availability, and stable power supply affect the application of computerized accounting system in their organizations. On the other hand, 28.6% of the respondents confirmed that human factors including training of staffs affect the application of the system. During the study it was observed that accounting staff have not had regular trainings or workshops on the computerization apart from the induction course conducted when the system was introduced and few staff had attended seminars conducted by the NBAA on general accountancy profession.

Also it was observed that maintenance and technological factors account for 11.9% each. This implies that OUT and UDSM incurred extra costs in order to keep the system updated in order. Thus, the benefits of computerized accounting system cannot be utilized by higher learning institutions since they need to take corrective actions to eliminate huddles. These huddles are the extra costs involved in incurring acquiring more computers, availability of network by acquiring wireless network routers and availability of standby generators.

4.1.4 Challenges faced in using accounting software system

The study revealed that the software is highly acceptable in higher learning institutions due to its efficiency in simplifying accounting tasks, accuracy, security and saving time. Some challenges though are experienced by the respondents when applying the software. These are budget, outdated version implementation, power supply, maintenance and repair challenges. Some of the challenges are addressed well by the management as depicted by tables 4.4a and 4.1.4b below:-

Table 4.4a: Power Supply Challenges

Power supply challenges	Frequency	Percent	Valid Percent
Yes	32	76.2	76.2
No	10	23.8	23.8
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.4b: Maintenance and Repair Challenges

Maintenance and repair challenges	Frequency	Percent	Valid Percent
Yes	27	64.3	64.3
No	15	35.7	35.7
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.4a shows that 76.2% of the respondents faced power supply challenges. Table 4.4b depicts that 64.3% of the respondents faced maintenance and repair challenges. The rational of this is that these challenges affect the operations of the computerized system as the financial performance of higher learning institutions cannot be fully realized unless the challenges are minimized.

4.1.5 Linkage between computers dealing with accounting activities

It was discovered that not all computers dealing with accounting functions are interconnected by the computerized accounting system. Computers which are connected are those which are in the administration buildings of these Universities, mainly in Finance Department and Internal Audit Unit. Vote holders have no access to the computerized accounting system to track their reports on funds usage and balances for their vote. Projects undertaken by the Universities rely on the Director of Finance/Bursar for all reports and trends of their votes/projects from the system. They only keep manual records for comparison. A case in point is Finance Officers of Mzumbe University who have no access to the system. At the end of the financial year all their financial transactions are sent to the Finance department at the main campus for consolidation. The above information is presented in table 4.5 below:-

Table 4.5: System Linkage between Computers Dealing With Accounting Activities

Parameter	Frequency	Percent	Valid Percent
System linkage	15	35.7	35.7
No system linkage	27	64.3	64.3
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.5 indicates that 64.3% of the respondents interviewed believed that there is no system linkage between computers dealing with accounting activities. The main reasons behind the linkage of computers dealing with accounting system are:

(i). Lack of funds to connect all departments doing accounting activities within the Universities is found as the main problem. To connect all staffs concerned with accounting activities a powerful booster satellite or internet to enable the system reach the user is necessary. Allocated funds are always insufficient.

(ii). Diversification of offices within the University makes it difficult for computerized accounting system to link up properly. Faculties and departments are located far from each other. This makes it difficult to distribute computerized accounting system ports to all offices.

(iii). Rapid expansion of these universities contributes to the above mentioned problems as the researcher found out that within one university there are many schools, colleges, faculties and campuses. This has brought about decentralization of accounting activities where at the end of the financial year, accounting transactions from each unit are consolidated in order to prepare financial statements for the whole university. Accounting systems of the units are not linked to each other though they are connected to the main server.

4.1.6 Timely production of reports

The study determined whether accounting software could produce the required reports on time. It was found out that the financial reporting module, which are prepared by reports and budget's office have made easier, quality and efficient production of financial reports. These reports are statements of comprehensive income, statements of financial position, statements of cash flows and statements of changes of equity and liabilities. The above information is presented in table 4.6 below:-

Table 4.6: Timely Production of Reports

production of reports on time	Frequency	Percent	Valid Percent
Yes	40	95.2	95.2
No	2	4.8	4.8
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.6 above shows that 95.2% of the respondents have agreed that computerized accounting system enabled reports to be produced in a timely manner without errors because the system is much quicker, consistent and accurate, hence enhances reporting. Any error is easily traced by the system and correction can be made regarding that error. The conclusion is that computerized accounting system speeds up the as it reduces the monotony of producing lengthy reports requiring extensive preparatory analysis of data.

4.1.7 Performance of higher learning institutions financial accounting software

The study was aimed at finding the outcome of using accounting software in processing accounting transactions. The researcher used revenue as one of the parameters used to measure the performance of these universities by establishing the relation between the two variables. The researcher found out that the university with higher percent in usage of accounting software was able to keep accurate records regarding revenue collections. In the UDSM 67 % of the accounting activities are performed by computerized accounting system and as a result the university reported about TZS 163,704,958,853 for three years .The situation is the same in OUT whereby 40 % of the accounting activities are done by computerized accounting system. The study further shows that only TZS 92,611,112.113 was reported for the same period of time as shown in table 4.7 below:-

Table 4.7: Performance (Revenue) of Higher Learning Institutions Financial Accounting Software

Institution	Revenue 2006-2011	Usage of Accounting software
	IN TZS	%
MU	105,523,516,805	0.53
OUT	92,611,112,113	0.4
UDSM	163,704,958,853	0.67

Source: Audited Annual Report and accounts, 2006-2011

The data presented in table 4.7 was analyzed by regression analysis in order to establish the relationship between revenue collections and the usage of computerized accounting. Findings show that there is a strong relationship between revenue collections and the usage of accounting software as represented by R^2 0.610941566. The normal R^2 lies between +1 and -1; + 1 means there is a positive relationship between variables and vice-visa. This implies that an increase in the usage of computerized accounting system leads to efficiency in revenue collections as all data are available, accurate and at the right time for decision making including investment decisions. The summary of the above data in table 4.7 are presented in appendices II.

4.1.8 ICT policy and usage of accounting software in higher learning institutions

The study aimed at examining the enhancement of the usage of accounting software by the national information and technology policy. The results are depicted in table 4.8 below:-

Table 4.8: The ICT Policy and Usage of Accounting Software

ICT Policy and accounting software	Frequency	Percent	Valid Percent
Yes	30	71.4	71.4
No	12	28.6	28.6
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.8 above shows that 71.4% of the respondents agreed that the national ICT policy requires higher learning institutions to use accounting software and other electronics like conducting business online, e-learning. This implies that computerization is important in today's business environment and will enable higher learning institutions to be sustainable in the competitive markets. Respondents only added that the national ICT policy requires staff to have frequent trainings on accounting software as shown in table 4.9 below:-

Table 4.9: ICT Policy Support Training of Staff on Software Usage

ICT Policy and Training for usage of software	Frequency	Percent	Valid Percent
Yes	25	59.5	59.5
No	17	40.5	40.5
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

The above table shows that 59.5% of the respondents interviewed indicated that the national ICT policy requires higher learning institutions to train their staff so as to be familiar with any changes in technology. This implies that training is a very crucial aspect for employees since they will have the necessary skills for effective operations of the organizations.

4.1.9 Strengths and weaknesses of the National ICT policy

The respondents were required to explain the strengths and weaknesses, if any in respect to policy governing ICT use in Tanzania. The results show that many of the respondents are not aware with the policy. They failed to explain neither the strengths nor the weakness. This is shown in table 4.10a and table 4.10b below:-

Table 4.10a: ICT Policy Enhances Performance, Incentives and Usage

ICT Policy and performance	Frequency	Percent	Valid Percent
Yes	13	31.0	31.0
No	29	69.0	69.0
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.10b: Weaknesses of ICT Policy

Parameter	Frequency	Percent	Valid Percent
non implementable	11	26.2	26.2
Indifferent	31	73.8	73.8
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

The above table 4.1.10a shows that 66.0% of the respondents do not believe the national ICT Policy enhances performances, incentives and usage of technology in the higher learning institutions. The respondents seem not to understand the strengths of the national policy. Table 4.1.10b depicts that 73.8% of the respondents were indifferent on the weaknesses of the ICT policy because of lack of access or ignorance. This implies that many respondents are not familiar with the national ICT policy.

4.1.10 System capability to accommodate changes

System capability to accommodate changes is very important since in accounting, the use and the reporting standards change several times. A great example is on the International Financial Reporting Standard that changes each passing day. 81% of the 42 respondents agreed that the system is capable of accommodating new changes and only 19% did not feel otherwise (moderate capable).

Table 4.11: System Capability in Accommodation of Changes

Parameters	Frequency	Percent	Valid Percent
very capable	34	81.0	81.0
moderate capable	8	19.0	19.0
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

4.1.11 Internal control measures by the system

Internal controls are the checks that are fixed by the management to ensure that employees are doing their jobs properly and ensure that the system runs properly. They are categorized into three main types; the first type is administrative controls

like division of duties, operation controls, files controls and hardware security. They are placed on the system in order to ensure proper organization and processing of data. The second type of internal controls is system development controls that ensure that the system is developed with a minimum number of errors examples standardization, involvement of management, training. The third type of internal controls is the procedural controls that are effective in detecting whether a system has been tempered with; examples input controls, output controls, processing controls and storage controls. All the respondents questioned believed the system has internal controls as shown by table 4.12 below:-

Table 4.12: Internal Controls Measures by the System

Internal control on the system	Frequency	Percent	Valid Percent
Yes	42	100.0	100
No	-	0.00	0.00
Total	**42**	**100.0**	**100**

Source: Analyzed data, 2013

Table 4.12 shows that 100 % of the respondents agreed with the study findings that computerized system provides internal control measures. During the study the researcher also observed the system operations at the OUT and found out that most internal control measures in the computerized accounting system were instituted in controls of payment of vouchers through cash or cheque. They were not on controls of non cash transactions like fixed assets registration, receipts of purchased items and inventory recording and controls. Lack of internal controls in non cash transactions in computerized accounting system often lead to poor posting of entries and hence, non-reconciliation between the Vote book reports and other manually maintained records. This would make it hard for the tasks of reconciling between reports hence delay in reporting. Users have password based on their level of authority and activities performed. Findings show that there are some staff who shared their passwords with others hoping to be assisted in their different takes. This one was dangerous and compromised privacy rules.

At MU and UDSM, the accounting software offers robust user security that maintains control and access to the accounting data only to authorized personnel. This was discovered through participation and observation. The software also gives extensive procedures to prevent unauthorized voucher entry and voucher authorization. The procedure requires that each user of the system possesses a user name and a secret network/system password chosen by the user and regularly changed. If the user wants to access the system it is always prompted to enter the user name and password. And every user is prohibited from sharing his/her password with another person.

Furthermore, the study discovered a separation of duties in accounting departments that ensured accounting records are safeguarded. No one, in that case, is allowed to perform both tasks of posting the data into the system and authorizing payments. This implies that internal controls in higher learning institutions are in place to provide reasonable level of assurance that all transactions are authorized, recorded, processed accurately and, the policies and procedures relating to control functions are in place.

4.1.12 Possibility of Audit trial (tracing back of errors)

Audit trial tests for effectiveness of the computerised accounting system, and should be bidirectional. While the accounting personnel are able to trace information from its document source to the report, the personnel should also be able to start with the output documents and trace them to their data source. This is supported by table 4.13 below:-

Table 4.13: System Capability to Trace Back Computed Errors.

System Capability	Frequency	Percent	Valid Percent
Yes	40	95.2	95.2
No	2	4.8	4.8
Total	**42**	**100**	**100**

Source: Analysed data, 2013

Table 4.13 shows that 95.2% of the respondents agreed that ACCPAC computerised system is capable of tracing back the computed errors. This is due to the internal controls that have been put into place in order to minimize the risks of errors and fraud. At OUT most errors were due to wrong posting of entries, errors of omission, over/under posting of amounts mostly due to lack of control measures within the system and lack of concentration of the entrants (human errors). The findings indicate that most errors and wrong reconciliations between reports were found and corrected by the staff responsible for reconciliations of reports.

4.2 ACCPAC System Strengths

During the study, the following strengths of the computerized accounting system were identified at MU, OUT and UDSM. The findings showed that in all three universities the software has the same strengths.

(i). The ACCPAC Accounting System saves a great deal of time. Since the introduction of the system, the accounting activities are conducted in timely basis, salaries are issued on time and reports are produced on due dates. Entries are automatically posted and there is a great reduction of paper works. As it was observed during the study as presented by table 4.1; 64.2% of the respondents are experts in using the computerized system meaning the accounting activities are performed within the time frame.

(ii). The system has reduced the cost of operation because of a reduction in the number of accounting staffs who can do the same tasks. The following costs are also reduced. Overtime payments, stationeries, and delays in reporting are also. The researcher found out that 95.2% of the reports are produced on time as presented in table 4.6.

(iii). Accounting documents such as invoices, receipts, pay lists, reports and statements of accounting are automatically generated. This speed up the activities of the Universities since timely operation of activities is enhanced.

(iv). All reports for accounting and auditing needs are found in the system and are produced on time, as supported by 95.2% of the respondents as presented in table 4.6. This is crucial for the management to make right decisions based on accurate reports. It also helps the universities to cope up with the International Financial Reporting Standards (IFRS).

(v). The system is user friendly and hence leads to efficiency in performing accounting activities as compared to manual accounting system. Errors are easily traced and corrected as it has been shown by table 4.12 in which 95.2% of the respondents have supported the findings. This technically enhances efficiency in operations since the system involves automatic posting of data into various ledgers/accounts. Posting of errors are greatly reduced and can be easily traced by checking the original vouchers for identification and correction.

(vi). The system emphasizes great internal control over accounting activities. Payment vouchers and financial transactions pass through a number of staffs before authorization for payments. Through the established system controls it's difficult to practice fraud or theft. This was supported by table 4.10 as 100% of the respondents backed internal controls.

(vii). The system facilitates control over students' finances including collections and payments made to them. All students' tuition fees records and other transactions are kept in the system. Reports are easily produced; highlighting the list of students owed by the universities and follow up for fees recovery is made easier. This enables the universities to raise revenue timely. The findings in table 4.7 further showed that there is a strong relationship of about 0.61 regressions square between revenue collection and the computerized system. This is possible because the system enables revenue from students to be tracked easily.

4.3 ACCPAC system challenges.

During the study the researcher observed the following challenges facing the system at MU, OUT and UDSM:-

(i). Power failure is the main problem affecting the operation of the computerized accounting system. Table 4.4a showed about 76.2 % of three universities face this problem. In operating the computerized accounting system power is the major source of energy for the system. During power failure, the system fails to run and results in to freezing of Universities financial activities.

(ii). Maintenance is also a problem of the computerized accounting system at UDSM. To cope up with the problem the University often outsource technical support from vendors other than the ones who sold the software. This is compounded by the shortage of staffs resulting from high employee turn-over at the university. University spending skyrockets as a result of that. The study shows that 64.3 % of all respondents are faced with maintenance and repair challenges which sometimes forces the university management to resort to manual operation. The findings were presented by table 4.4b.

(iii). Another noticeable weakness noted is the failure of the computerized accounting system to connect all computers dealing with accounting activities. This is confirmed by about 63.4% of the respondents as presented in table 4.5. Other offices dealing with accounting activities use manual system and incorporate it with the computerized system at the end.

(iv). Another weakness noticed at OUT is that although the software has been in use for close to two years no single report has been produced. Table 4.7 showed that 60% of the respondents attested that all reports are still being produced manually. In instances where the staffs are computer literate, the data is exported to an excel spreadsheet and reports produced from there.

(v). At MU findings show about 47% of accounting activities are performed manually. For instance receipts and invoices are not produced by the system because the system is still in its early stage of implementation. The University still issues Kalamazoo receipts for all it revenue transactions. The findings were presented by table 4.7.

4.4 Chapter Summary

4.4.1 Objective one: To assess the competencies of accounting staff in using accounting software in higher learning institutions in Tanzania.

Findings show that about 64.2% of staff questioned are experts in using accounting software in performing their tasks as indicated in table 4.1. This indicates that the system is reliable and accurate in data processing. Also the findings show that 54.8% staffs are not receiving regular trainings on the usage of software. This is not good for the institutions because technology is changing frequently so system operators need to be updated on all current issues so that they cannot be left behind with technological advancement. As the result they will be performing their tasks according to expertise.

4.4.2 Objective two: To identify factors affecting the application of accounting software

The findings show that infrastructure (47.2%), human factors (28.6%), maintenance and technology advancement (11.9%) as indicated in table 4.3 are the main factors that affect mostly the application of accounting software in their organization. The results are not good for the efficiency and effectiveness of computerized accounting system because they interrelate.

4.4.3 Objective three: To compare the financial performance of higher learning institutions using accounting software and those not using it.

The findings show that after introducing ACCPAC accounting system some of HLIs are now adhering to PF Act by submitting final accounts on or before due dates. This improvement is evidenced in preparation and timely submission to the CAG of final accounts. Also the availability of detailed annual reports and final accounts is one of the parameter used evaluate the performance of these institutions. ACCPAC accounting software has contributed successfully in the accounting tasks like processing of payments, managing accounts receivables and payables, and final statements preparations.

The above information can be evidenced by 95.2% of respondents who have said that with computerized accounting system reports can be produced timely as shown in table 4.6.

4.4.4 Objective four: To identify challenges facing the performance of higher learning institutions in Tanzania when using accounting software.

Findings show that there are many challenges that are facing HLIs when using accounting software but power supply and system maintenance were identified as the main challenges which these institutions are facing in using ACCPAC accounting software. In Tanzania power supply is not constant throughout the time as it depends on the availability of water in its sources. This software is associated with the internet, if there is no internet connection no tasks can be performed using this software. All institutions under consideration have been experiencing the same problem as power supply in our country is not reliable.

Also the findings show that these institutions are faced with maintenance challenges, for example UDSM had to find technical support from a vendor other than the one which sold the software (CATS) because of staff turnover in the vendor company, some five years ago many of the staff dealing with ACCPAC left the company.

4.4.5 Objective five: To examine the policy on the usage of accounting software in higher learning institutions in Tanzania.

The findings shows that the national ICT policy requires all learning institutions to use information technology in their training and operations in general like e-learning, e-commerce. The main problem observed during the study is that 73.8% of respondents questioned as indicated in tables 4.8 and 4.9 are not familiar with the policy to the extent that they were unable to evaluate its strengths as well as its weaknesses.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The study supported the research title that ACCPAC Accounting software System used by Mzumbe University, The Open University of Tanzania and University of Dar es Salaam is effective and saves its best purposes. Effectiveness of the computerized system is mostly measured by its capacity to fulfil the purpose it was made for. Findings confirm that the system is user friendly to the stakeholders; table 4.1 showed that 64.2% of the system operators can operate the system with expertise and the system can produce timely reports. The system is able to trace back errors and audit queries. Table 4.13 showed that 95.2% of the respondents believed so. Furthermore, the system can accommodate changes by 81% as presented in table 4.11. This is very important as technology is changing rapidly and to remain up to date any changes should be accommodated in the system. To ensure efficiency and effectiveness of daily operations, the study showed that the system is well instituted has the capacity to ensure controls on data entry, processing and output.

5.2 Conclusions

Based on findings, it is concluded that application of ACCPAC accounting software in higher learning institutions in Tanzania has made important changes in managing financial operations. The system plays a vital role in managing and administering finances in providing quality services to stakeholders by ensuring optimal resource allocation, financial management and financial reporting processes.

The optimal results of applying ACCPAC accounting software depend on the integrity of system users in observing discipline for managing funds properly in order to achieve effectively all system objectives. There is improvement in efficiency and effectiveness of institutions accounting framework. The system has brought better results in timely and detailed reporting as required by International Financial Reporting Standards.

With ACCPAC accounting software, the accountability in expenditure has been achieved as the system has permitted a substantial reduction in audit queries thereby alleviating problems associated with manual accounting system. The system has made easy tracking of transactions hence facilitated reduction of frauds and thefts. The controls measures instituted by high learning institutions are very strong, denying even access to the system by unauthorized personnel. Though the system has some weaknesses they remain insignificant.

5.3 Recommendations

The following are the study's recommendations:

(i). Intensive training should be conducted on the ACCPAC Accounting System. Training on the system will help the staff concerned to be more efficient on their day to day activities hence improving overall performance as well as confidence building and efficiency. Training will also update the staffs' knowledge on the system and helps the newly employed staff to heighten their knowledge to the required level.

(ii). System users should be consulted regularly to find out their opinions/needs about the system strengths and weaknesses. This will help them to act according to their suggestions and views. Management should also consult the system Programmer in order to accommodate those views suggested by the system users. This will make the system user friendly and help users work efficiently.

(iii). Concerning the linkage between computers dealing with accounting activities, the study recommends that universities install Wide Area Network (WAN) connecting only authorized staffs wherever they may be, provided they have access to the network. This will enable the system users to perform accounting activities in the system from anywhere. All faculties, campuses, departments and sections scattered away from the administration building will always be connected to the system.

(iv). The researcher suggested the internal control be kept in the system for non cash accounting transactions. This will help the OUT avoid time consuming reconciliations during the preparation of accounting reports and reduce queries during auditing exercises brought about by posting errors. Access should be given to more than one person to post non-cash items for control purposes in order to reduce human posting errors.

(v). Improvement is needed in the quality of both internal and external auditing with regard to ACCPAC Accounting software package. Internal auditors should be trained on how to use the system in performing their tasks. They ought to practice computerized auditing system in order to provide complimentary systems between auditing and accounting. All auditing must be computerised so as to make it possible to rely on audit reports, which provides regular, consistent, accurate and comprehensive financial reporting.

(vi). The use of the accounting system should be encouraged in the Finance departments of the universities, and reports produced adequately. Audited accounts should be made available on the website so that all stakeholders can use the information provided for decision making purposes.

(vii). The management of the universities should ensure that there is a standby generator with a great capacity which can ensure reliable power supply in case hydro electric power is off.

(viii). The vendor of the accounting package should provide after sale services like maintenance and repair to the universities so that the universities do not incur extra costs from outsourced technical experts.

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APPENDICES

Appendix 1: Questionnaire

NOTE: This questionnaire is strictly for academic purpose only and information obtained will remain confidential.

MANAGEMENT PESPECTIVE

1. What are the most appropriate strategies to improve financial performance in your institution? Select three of the following options.
   (i). Promoting the use of up to date International Financial Reporting Standards and ensuring compliance with the set standards ( )
   (ii). Promoting and ensuring adherence to International Standards of Auditing ( )
   (iii). Recruitment of highly skilled professionals to handle the accounting functions ( )
   (iv). Acquiring and developing software that can enhance financial performance ( )

2. Do you think regular trainings for employees are important for the organization's performance?
   (i). Yes ( )
   (ii). No ( )

3. How do you assess the computerized system in your organization for improving organization's performance? Tick where appropriate
   (i). Very strong ( )
   (ii). Strong ( )
   (iii). Weak ( )

HEADS OF FINANCE/AUDITING/ICT

1. What factors affect the application of computerized accounting system in your organization? Tick where appropriate

   (i). Infrastructure factors ( )

   (ii). Human factors ( )

   (iii). Technology factors ( )

2. Do you regularly ensure that controls measures over computerized system are place

   (i). Yes ( )

   (ii). No ( )

3. Does computerized accounting system improve business performance?

   (i). Yes ( )

   (ii). No ( )

ACCOUNTING AND AUDITING STAFF

1. Do you receive any regular training and seminars on software usage

   (i). Yes ( )

   (ii). No ( )

2. What levels of skills do you posses in software application?

   (i). None ( )

   (ii). Basic ( )

   (iii). Intermediate ( )

   (iv). Expert ( )

3. Is there a linkage with the system between all computers dealing with accounting activities?

   (i). Yes ( )

   (ii). No ( )

   Give short description.....

4. What are the challenges you are facing in using accounting software?

   (i). .....

   (ii). .....

   (iii). .....

5. Does the ICT policy require higher learning institutions to use accounting software?

   (i). Yes ( )

   (ii). No ( )

6. Does the policy support the training to ICT/Accounting staff on accounting software?

   (i). Yes ( )

   (ii). No ( )

7. What are the strengths and weaknesses of the policy?

   Strengths

   (i). .....

   (ii). .....

   (iii). .....

   Weaknesses

   (i). .....

   (ii). .....

   (iii). .....

8. Does the computerized accounting system enable you to produce the required reports on time without errors?

   (i). Yes ( )

   (ii). No ( )

9. Does the system have enough capability to accommodate new changes? (Circle the answer)

(i). Capable ( )

(ii). Moderate capable ( )

(iii). Incapable ( )

10. Does the computerized accounting system provide internal control measures?

(i). Yes ( )

(ii). No ( )

Give short description

.....

.....

.....

11. Does the system capable to trace back computed errors?

(i). Yes ( )

(ii). No ( )

Give short description

.....

.....

.....

12. How are the following accounting activities being performed in your institution? Tick the appropriate method.

(i). Manually ( )

(ii). Semi-manual ( )

(iii). Semi-computerized ( )

(iv). Computerized ( )

Appendix 2: Interview Guide

1. What strategies are used to improve financial performance?
2. Why is it important to train employees?
3. What is the overall assessment of the computerized accounting system in your organization?
4. Which factors can affect the applicability of accounting software in your organization?
5. How do you institute controls over computerized accounting system?
6. What skills are required for the application of computerized accounting system?
7. Why should there be a link between computerized accounting system and other computers?
8. Are there any challenges facing computerized accounting system?
9. Does the ICT policy require the application of accounting software in higher learning institutions?
10. If yes, what are the strengths and weaknesses of ICT policy?
11. What types of reports are produced by the computerized accounting system?
12. Is the system capable to accommodate changes?
13. Is the system capable to provide audit trial?
14. How are the accounting activities in your organization being performed?

Appendix 3: Performance (Revenue) of Higher Learning Institutions Financial Accounting Software

Institution	Revenue generated 2006-2011	Usage of Accounting software
	IN TZS	%
MU	105,523,516,805	0.53
OUT	92,611,112,113	0.4
UDSM	163,704,958,853	0.67

Source: Audited Annual Report and accounts, 2006-2011

SUMMARY OUTPUT

Regression Statistics	
Multiple R	**0.781627511**
R Square	**0.610941566**
Adjusted R Square	**0.221883132**
Standard Error	**33408050268**
Observations	**3**

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	**1**	**1.75262E+21**	**1.753E+21**	**1.570308**	**0.428779652**
Residual	**1**	**1.1161E+21**	**1.116E+21**		
Total	**2**	**2.86872E+21**			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	**3691732004**	**95277130789**	**0.0387473**	**0.975345**	**-1.20692E+12**
X Variable 1	**2.19228E+11**	**1.74946E+11**	**1.2531193**	**0.4287797**	**-2.00367E+12**

Upper 95%	*Lower 95.0%*	*Upper 95.0%*
1.2143E+12	**-1.20692E+12**	**1.2143E+12**
2.44212E+12	**-2.00367E+12**	**2.44212E+12**