

01
**FACTORS CONSIDERED IN SELECTION AND
IMPLEMENTATION OF ACCOUNTING INFORMATION
SYSTEMS: A CASE OF COMPANIES QUOTED IN NAIROBI
STOCK EXCHANGE**

BY
RUTO S. YANO


**UNIVERSITY OF NAIROBI,
LOWER KABETE LIBRARY**

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION, FACULTY OF COMMERCE, UNIVERSITY OF NAIROBI

August 2003

DECLARATION

This project is my own original work and has not been submitted for a degree in any other university.

Signed:  Date: 03/10/2003
Ruto S. Yano

This project has been submitted for examination with my approval as a university supervisor

Supervisor

Signed:  Date: 3.11.03

Mr. Julius K. Kipnetich
Lecturer
Department of Management Science

UNIVERSITY OF NAIROBI
LOWER KABETE LIBRARY

Co-Supervisor

Signed:  Date: 3.11.03

Mr. Nixon Muganda
Lecturer
Department of Management Science

DEDICATION

To my darling wife Felistus and sons: Kimutai and Kilimo

ACKNOWLEDGEMENT

My special gratitude goes to my supervisor Mr. Julius Kipngetich for the invaluable advice and guidance from the project proposal through to the final write up of the project. Also to my co-supervisor Mr. Nixon Muganda for reading through my project and providing useful corrections that improved quality of the project.

A lot of thanks go to the respondents of the questionnaires for their willingness and patience to answer the questions in time and their high response rate.

Special thanks goes to my wife Felistus for her constant support and encouragement through the MBA programme and my dear sons Kimutai and Kilimo for their patience.

I also appreciate the effort of my Parents: Mum, Mary Yano and Dad, Kamla arap Nanika, whose inspirations and support through my schooling brought me to search levels of accomplishment.

My appreciations go to my workmates and classmates for their support in one way or the other towards successful completion of this project.

UNIVERSITY OF NAIROBI
J. KWES KARETE LIBRARY

ABSTRACT

This study had two objectives: to determine the factors considered when selecting Accounting information systems and to establish the accounting information systems in use, that is, a survey on the products, the acquisition procedures, sources, costs, their utilization, benefits, problems experienced, hardware and software sources employed. The rationale for this study was that many organizations experience problems with accounting systems already acquired due to poor selection procedures and lack of relevant factors to consider in the selection process. The second objective of the survey is to assist software developers, marketers or agents, who need to know how the software products fair with Kenyan organizations and therefore identify the relevant needs of users and software demand with the interest to develop or supply relevant solutions and advice to meet the specific needs of the accountants. It also contributes knowledge to accountants and those responsible in software acquisitions for companies since useful tips on quality acquisitions can be derived.

To facilitate this study, a census survey of all the quoted companies in Nairobi stock exchange was chosen. Data was collected using a questionnaire personally administered by the researcher.

Results show the following factors considered important in the selection process: software versatility, software flexibility, software compatibility, software multi-capability, vendor expertise, software integrateability, need to know basis information provision, user organizational support and software system quality and control. Survey results show poor acquisition procedures not based on policy framework and influence by top management. Software products are obtained mainly from developed world hence bought at high prices, expensive maintenance, under utilization of some modules, quality compromise and poor or no training after implementation. Some companies also experience hardware and software problems, platform problems, rigid internal procedures and others though most respondents regard the problems minor than the benefits achieved.

LIST OF FIGURES

Figure 2-1: Sage Accounting System Integration.....	10
Figure 2-2: A Finance and Accounting System in the Context of Enterprise Resource Planning System	13
Figure 2-3: Functional Area Interaction Diagram	14
Figure 4-1: Industry Sector.....	27
Figure 4-2: Company Branches in Kenya	28
Figure 4-3: Number of Companies' Employees.....	30
Figure 4-4: Comparison of ERP Accounting Modules with Pure Accounting Software	32
Figure 4-5: Comparison of the problems experienced to the benefits achieved.....	45
Figure 4-6: Type of Computer Hardware used.....	45
Figure 4-7: Comparison of Computer Hardware used to those that are replacements from the old	46

UNIVERSITY OF NAIROBI
LOWER KABETE LIBRARY

LIST OF TABLES

Table 2-1 Summary of six widely used accounting Information systems modules/subsystems	12
Table 2-2: Checklists for selecting accounting packages:.....	18
Table 2-3: Recommended software selection steps.....	19
Table 4-1: Period of Organizations' Existence in Kenya	26
Table 4-2: Company ownership	27
Table 4-3: Organization use of Accounting Information Systems.	28
Table 4- 4: Extent of use of Accounting Software in Organisations.....	29
Table 4-5: Qualifications of the Users in the Accounting Department.	30
Table 4-6: Company Turnover	31
Table 4-7: Whether Company has written Computer System Acquisition Policy.	32
Table 4-8: Accounting function fully or partially computerized.....	33
Table 4-9: Major Accounting Software Implemented.....	34
Table 4-10: When the accounting software was implemented.....	35
Table 4-11: The Software Vendors	36
Table 4-12: Expenditure on Accounting Information System.....	37
Table 4-13: Accounting Information System that currently use E-commerce facility.....	37
Table 4-14: Cost elements incurred with the Accounting Information System	38
Table 4-15: The Accounting modules currently in use	39
Table 4-16: Benefits of Computerization of Accounting System	40
Table 4-17: Sources that contributed to the Selection of the Accounting Software.....	41
Table 4-18: Problems Experienced with Accounting Software	42
Table 4-19: Areas Attributed to the Problems Experienced.....	43
Table 4-20: Companies operating in a Network.....	46
Table 4-21: Rating factors about the Accounting Information System in operation.....	47
Table 4-22: Descriptive Statistic of Mean and Standard Deviation	47
Table 4-23: Varimax Rotated Component Matrix.....	53

TABLE OF CONTENTS

	Page No
DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMNT	iii
ABSTRACT	iv
LIST OF FIGURES	v
LIST OF TABLES	vi
TABLE OF CONTENTS	vii
CHAPTER ONE	1
INTRODUCTION	1
1.0 Background of the Study.....	1
1.1.1 Importance of Accounting Information Systems.....	1
1.1.2 Problems Associated with types of Accounting Information Systems.....	2
1.1.3 Typical Examples of Failures with Accounting Information Systems	2
1.1.3 Implication on quoted Companies in Nairobi stock exchange	4
1.2 Statement of the Problem.....	5
1.3 Objectives of the Study	8
1.4 Importance of the Study	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Overview of an accounting information system	9
2.2 Factors considered in selection of accounting software.....	15
2.2.1 Selection Criteria and Evaluation for suitable Accounting Software	17
2.2.2 Automated approach to software selection.....	20
2.3 Other related Research.....	21
CHAPTER THREE.....	23
RESEARCH METHODOLOGY.....	23
3.1 Research Design.....	23
3.2 Population	23
3.3 Data Collection	23
3.4 Data Analysis	24
CHAPTER FOUR	26
DATA ANALYSIS AND FINDINGS.....	26
4.1 Introduction.....	26

4.2 Companies' Profile Findings.....	26
4.3 A Survey on the Accounting Information Systems in use	32
4.2.3 Computer Hardware Resources used	45
4.2 Factors considered when Selecting Accounting Information System.....	47
4.2.1 Factors Ranked in order of Preference.....	47
4.2.2: Factor Analysis: Factors Summarized and Grouped into components.....	51
CHAPTER 5.....	58
SUMMARY AND CONCLUSIONS	58
5.1 Conclusions of the Findings.....	58
5.1.1 Conclusion on the Survey of Accounting Information Systems.....	58
5.1.2 Conclusion of the factor analysis.....	60
5.2 Recommendation	62
5.3 Limitations of the study	63
5.4 Suggestion for further Research.....	63
BIBLIOGRAPHY.....	65
APPENDICES.....	I
APPENDIX I.....	I
APPENDIX II	X
APPENDIX III.....	XI

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

1.1.1 Importance of Accounting Information Systems

Accounting function is critical in the operations of today's businesses as it provides individuals and groups both inside and outside a company with relevant information for planning, decision-making and control (Moscove, Simkin and Bagranoff, 2001). Information Technology is a core competence of accountants since Information Technology is not necessarily to change the traditional accounting system but can be used to do the same old things faster, (O'Brien, 1993). Automation of accounting function will help achieve the efficiency and effectiveness of company operations (Skidmore, 2003) and therefore facilitate higher productivity. Auditing will be much easier by using Computer Assisted Audit Techniques, which not only save auditor's time but also are more accurate and can easily reveal fraud. Accounting information System being part of corporate information system is a strategic issue, as it enables a company achieve the competitive corporate governance standard and production of quality financial reporting that can attract investors. This will help quoted companies compete in the liberalized stock market with other companies all over the world. Moscove, Simkin and Bagranoff, (2001), further indicates that Information Technology (which include accounting information systems) strategy should therefore be aligned to the business objectives/goals.

1.1.2 Problems Associated with types of Accounting Information Systems

The right choice of the accounting information system has always been the challenge of most organizations. Some organizations management still recommend the in-house development of software products (bespoke) which demands a lot of money in terms of workforce, time and other project expenses while there are ready made solutions that are far cheaper and time saving to implement (Skidmore, 2001). Developed software can also be so large that thorough testing can be almost impossible and so bugs in the software can go unnoticed. An example of this was when an Atlas-Agena rocket veered off-course when it was ninety miles up. Ground control had to destroy the \$18.5 billion rocket. The reasons for this - a missing hyphen (Pancham, 2002). Also the accounting information system bought off-the-shelf can be a major blow to an organization if the right choice is not made during purchase. It is cheap to acquire but challenging to select among them. This is because a software product can never be guaranteed to be 100% reliable (Mattingly, 2001). Also acceptance testing by the user staff may not be exhaustive enough hence leading to purchase of poor accounting software.

The management influential capacity coupled with commercial/political pressures can lead to purchase of software that may not meet the user needs of the organization yet it has incurred the organization a lot of money. Example is the Kenya Commercial bank Infosystem banking software that was valued to cost KCB Ksh1.5 billion yet it could not meet the requirements of the bank. This failure was attributed to irregular/ biased management decisions (Wandera, 2002).

1.1.3 Typical Examples of Failures with Accounting Information Systems

Poor accounting systems have also led to giant companies collapse. Poor accounting systems that do not have proper controls and integrity procedures can be manipulated to

conceal fraud. Such a system was used by Xerox (the photocopying and printing giant) to overstate its revenues over five years to \$ 2 billion, a case that caused a major blow to the share price in the stock market and consequently to the US economy (Prately and Treanor, 2002). Another major recent corporate accounting scandal occurred in Europe when the world's third biggest food retailer Ahold admitted vastly overstating earnings through manipulation of financial accounting reports using their accounting system for two years. Its shares plunged 63 per cent in Amsterdam trading after the company said it had inflated earnings in the last two years by at least \$US500 million (\$825 million) (Deutsch, 2003). The WorldCom Inc that admitted 'cooking' its books to the tune of \$3.8 billion, and failure of Andersen Consulting (audit client) to detect the fraud was all because of poor accounting information systems. Giant Conglomerates like Tyco and Enron lost in stock markets immensely because of its poor accounting methods. Huge, and potentially fraudulent, misreporting of financial performance, in a way that deceived investors like the case of WorldCom were due to poor accounting information systems nature and use (Kurt and Romero, 2002).

While accounting information systems can help an organization stay on top of its finances and save time and money along the way (Fisher, 2003), it is practically difficult to make a choice of the right accounting information system among the hundreds available for sell (Mattingly 2001). Poor accounting information systems selection can not only be a loss in capital expenditure but also can contribute to poor operations; fraud and bad reputations to external stakeholders. A Company can therefore collapse due to loss in investor confidence.

1.1.3 Implication on quoted Companies in Nairobi stock exchange

Quoted companies in Nairobi stock exchange are faced with the same challenge: to have high standards to maintain/increase investor confidence. Also the regulatory framework that exists by the Capital Markets Authority, the Nairobi Stock Exchange and the International accounting standards requires that all companies have good management and quality reporting standards. One major contributor to these demands is by automating organization's systems for instance the accounting function.

1.2 Statement of the Problem

Despite the effort to automate accounting systems by organisations in Kenya, there have been serious problems on which selection criteria should be used to select the variety of the many accounting solutions available. There are abundant vendors and resellers of the various accounting information systems in the market, hence causing confusion or challenges in selection (Mattingly, 2001). Some companies have implemented computerised accounting systems and are unsatisfied with the performance of the current accounting system. Justification by Kipngetch (1991), for further research of his project on 'management satisfaction on computer systems' suggests a study on user- satisfaction among other end-users in an organisation and this can also apply to the accounting department users. The dissatisfaction on accounting information systems could be as a result of lack of knowledge on how to utilise the software product modules, using the software for some routine processing only, poor hardware and/or network infrastructure incapable of supporting the accounting system, wrong operating system platform supporting the accounting system, knowledge deficiency among the users/staff responsible for selection (Mattingly, 2001).

The managers of most companies may not have knowledge on how to evaluate software products available in the market and therefore cannot ascertain or justify the expenditure on the right accounting system (Mattingly, 2001). Some of them end up spending too much on a software product that is too big or some modules are irrelevant for the organisation. It is even more challenging when choosing big solutions like the ERP (Enterprise Resource Planning System). Thorough evaluation of the individual module requires time and knowledge in each functional area of the organisation. Nyandiere (2002), in his project on "challenges faced on implementation of ERPs" suggested a further

research on challenges faced on a single ERP module for instance the accounting system module of an ERP, to find out on costs incurred, complexity of the system, training, utilisation of the system, benefits derived from it, acquisition procedure, selection and other resources supporting the system.

UNIVERSITY OF KENYA
LOWER KARENTE LIBRARY

Most personnel entrusted on decisions of choice/selection, purchase, implementation and management of accounting information systems are employees who may be pure accountants who may have little or no knowledge in information systems, or managers of high authority without knowledge of accounting or professional background in information systems, or they may be professionals in other areas without IT or accounting knowledge hence they may not be aware of current software products that can give the organisation a competitive edge. It is likely therefore that they end up acquiring software that is outdated and the supplier may have withdrawn support or the software production has stopped (Skidmore, 2001). The organisation's expected quality of reporting/information will therefore be affected and the stakeholders or the users of the information will not be satisfied. Some companies may seek for consultancy service for computerised accounting systems from wrong consultancy firms basically because of lack of knowledge of how much help they can get hence ending up implementing poor accounting systems (Odedra-Staub 1992). Some firms consult with agents of international accounting software products, whose interest are mainly to sell as much accounting software as possible, but may not have personnel who are acquainted with sufficient knowledge and experience in operational accounting and information systems (Bhaun and Wobser, 1995).

The consequences of poor selection and implementation of accounting information systems have therefore resulted in high costs incurred on systems that do not give a value, (white elephant projects), inefficiency and ineffectiveness in accounting operations,

acquisition of systems that the supplier no longer support and poor quality financial reporting hence unattractive to stakeholders particularly the investors.

This study is intended to establish the challenges faced in practice on the implemented accounting systems that is the acquisition procedures, sources/vendors, costs incurred, the utilisation of accounting systems, benefits derived from it, problems experienced and the hardware & software resources employed. Also factors to consider in accounting information system selection from the knowledgeable users (the accountants). These factors will help in acquisition of better-computerised accounting systems and minimise on regrets & problems that can be avoided early in the process.

1.3 Objectives of the Study

1. To establish the Accounting Information Systems in use by organisations quoted in Nairobi stock exchange
2. To determine the factors considered when selecting an Accounting Information System.

1.4 Importance of the Study

This research study will be beneficial to the following

1. To those in authority in acquisition of accounting information systems for an organisation, to help them in making good choices for accounting information systems.
2. To software developers, marketers or agents, who need to know specific problems, experienced by organisations with accounting information systems, identify the relevant needs of users and software demands in the market so as to develop and/or supply relevant solutions that can meet the specific needs of accountants and also set their strategies for marketing well.
3. To academicians to serve as stimulus to carry out research in the same and related areas so as to increase the volume of knowledge existing.

CHAPTER TWO

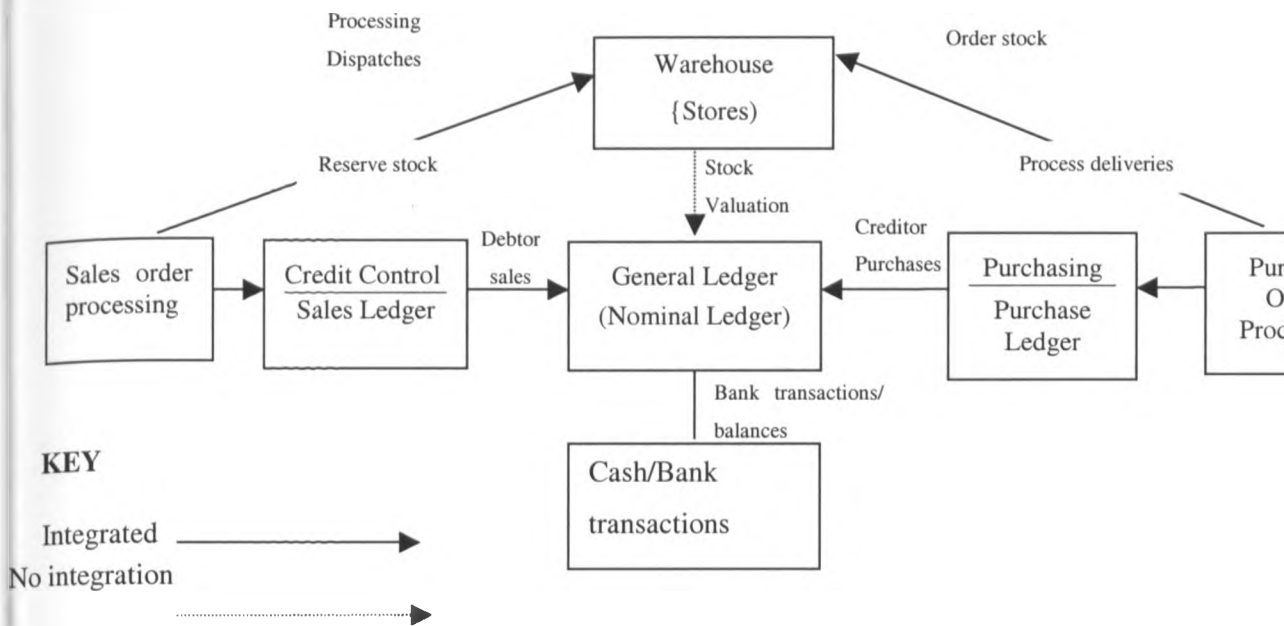
LITERATURE REVIEW

2.1 Overview of an accounting information system

The structure of the Financial Accounting System is almost similar in every organization (large & small) but only may differ in transactions depending on the type of industry a company is operating in (O'Brien, 2002). An accounting information system is responsible for gathering the raw data necessary for the transaction processing system, and making the information available to users, whether aggregate information or external reports (Turban, 1999). Different software developers come up with software products to meet the accounting functional needs as much as possible. Jay (1997) illustrated the model of how Sage accounting system works and the interrelationships of its constituent modules. According to the model, there is integration between the other modules except the stores module to the general ledger for the reason that stock experience periodic discrepancies (because of maybe: theft, expiry, revaluations, miscalculations of records) hence requiring adjustments after stock take before its posted to the general ledger and hence reflected on the financial reports.

UNIVERSITY OF HARARE
LIBRARY

Figure 2-1: Sage Accounting System Integration



[Stephen Jay, 1997]

Bahun and Wobser, (1995) conducted a research and found out that despite the availability of sophisticated accounting systems in the market, firms who have implemented accounting systems software vary in the utilisation of the accounting systems modules. Some companies utilise some modules particularly the transaction level modules for routine data capture and processing. The other modules are not used, however, they have expansion plans to utilise the other more sophisticated modules.

Recent developments in accounting systems have been enhanced by the Internet technologies (internet, extranets, intranets and other networks). Sub systems like order processing; inventory control, accounts receivable and accounts payable can be operated on-line (O'Brien, 2002). Order processing systems now have capabilities of tracking customer orders until goods are delivered, capturing and processing customer orders and produces data needed for sales analysis and inventory control (O'Brien, 2002). Websites

can be developed further by integrating within the buying and selling processes and within the corporate customer and marketing systems (Talbot, 2000). Talbot further explains how to ease the problem of time delay between the preparation and ultimate receipt of the annual reports by organisation stakeholders. Preliminary company results can be placed on the web and emailed directly to each member. Its argued that by adopting such methods, the time delays currently being experienced will be removed leading to 'equality of information between the users of accounts. Internet reporting significantly saves costs in production time, publication & distribution but there are risks that all recipients to the web are willing to accept this method of receiving corporate information, also there may be unauthorised interception (Talbot, 2000).

Kenyan companies particularly in banking, hospitality and airline industries are taking the lead in e-commerce. Commercial bank of Africa has a home banking product that allows its customers to access their accounts from their offices, make enquires and obtain bank balances on-line. Hotels & airline bookings are done online through the Internet. However, Most companies are in the early stages where they have 'brochure webs' that contain company products or services devoid of interactive facility (Ochieng, 2001).

The table below shows an overview of how the six common modules of accounting systems have been improved.

Table 2-1 Summary of six widely used accounting Information systems modules/subsystems

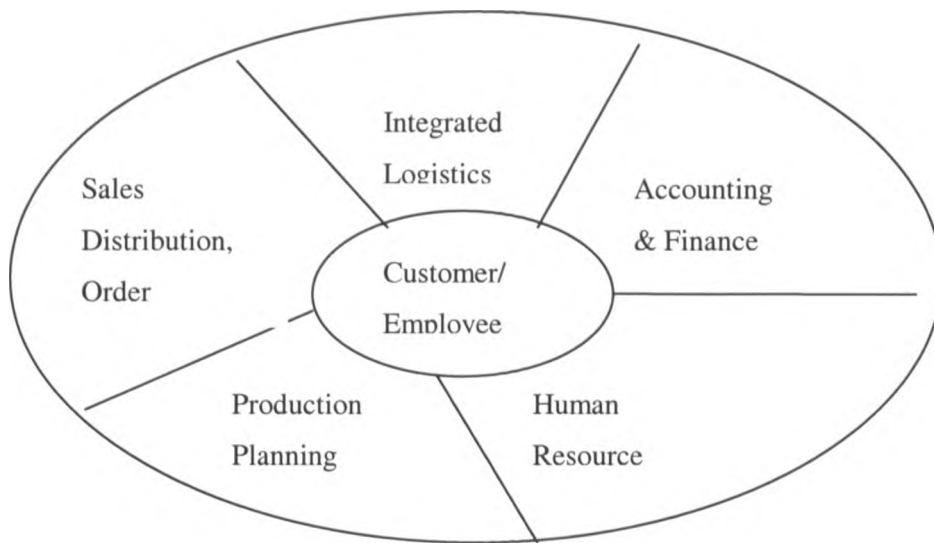
Order processing	Captures and processes customers' orders and produces data for inventory and accounts receivable. Recent improvements include keeping track of the status of customer orders until goods are delivered. They're fast, accurate and efficient for its purpose.
Inventory Control	Processes data reflecting changes in inventory and provides shipping and reorder information. Hence providing high quality service and minimal carrying costs.
Accounts Receivable	Records amounts owed by customers and produces customer invoices, monthly customer statements and credit management reports.
Accounts Payable	Records purchases from, amounts owed to and payments to suppliers, and produces cash management reports.
Payroll	Records employee work and compensation data and produces pay checks and other payroll documents and reports
General Ledger	Consolidates data from other accounting systems and produces the periodic financial statements.

[Source: O'Brien, J. (2002)]

An accounting information system is always acquired as an integrated suite of its constituent modules. Furthermore there is availability of Enterprise Resources Planning Systems (ERPs) which is a fully integrated collection of information systems; accounting and financials, human resources, sales and procurement, inventory management, production planning and control and so on (Whitten & Jeffrey, 2001). According to O'Brien, (2002), ERP is a cross-functional enterprise system that serves as a framework to integrate and automate many of the business processes including logistics, distribution, accounting, finance and human resource functions.

The diagram below illustrates accounting information system being part of an ERPs (O'Brien 2002).

Figure 2-2: A Finance and Accounting System in the Context of Enterprise Resource Planning System

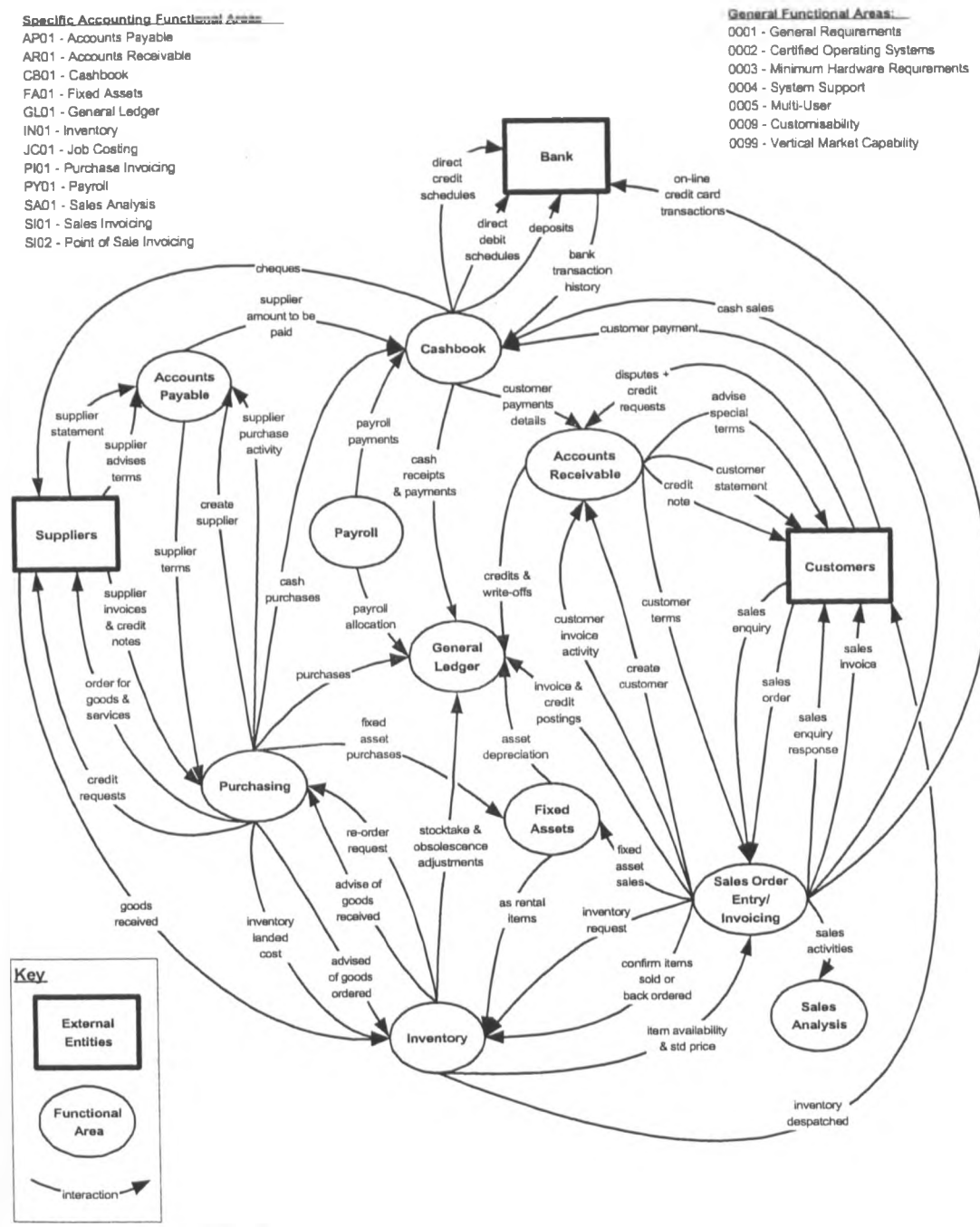


[Source: O'Brien, 2002]

This has therefore enabled the transaction level modules of accounting systems e.g. the inventory modules, the purchase order processing, sales order processing systems and the cashbook be integrated to other external systems & therefore ease capturing of transactions. O'Brien goes further to indicate the benefits, that ERPs not only enables an enterprise to succeed in the dynamic world of E-commerce but has improved the back office systems which increase customer service, production and efficiency. The cross-functional information system enables managers to quickly make better business decisions across the enterprise. An accounting module (subsystem) in an ERP can be integrated with other functional area systems for instance sales and marketing, Human resource management system, manufacturing system and also vertically to other management modules that is knowledge level systems, tactical level systems and strategic level systems (Laudon & Laudon, 2000).

The data flows within the accounting system's modules in an integrated environment are shown in the diagram below.

Figure 2-3: Functional Area Interaction Diagram



Not shown here are:

- Direct relationships between Job Costing and any of these functional areas
- Possible specialisations of these functional areas, for example Bill of Materials for Inventory, Point of Sales for Sales Invoicing etc

[Source: EasiMatch Systems NZ Directory as quoted by Alan Maxwell (2001).]

2.2 Factors considered in selection of accounting software

Most organisations do have a formal way of procurement particularly on expensive projects like the acquisition of a software system. This always starts with planning. A plan formally articulates the actions necessary to achieve organisation's goals (O'Brien, 2002) or should help define the overall scope of the system required i.e. planning ensures that the accounting software to be acquired should be aligned to the business goals and objectives. Maxwell, (2001) asserts that because of the high costs incurred in accounting software training, installation, set up and other costs in addition to purchase price, demands that organisations should plan as a first step beforehand to minimise the risk of choosing the wrong software.

The greatest challenge facing managers is how to select the accounting software that is suitable and cheap for the organisation needs. In considering an accounting package Daunt (2001) indicates that an organisation should state its present and future needs in advance. Also identifying the major areas of activity for the business and any relationships, between the core financial areas will guide for the better choice of an accounting system (Maxwell, 2001). However, organisations vary in their needs and therefore the accounting software features required differ. A company should therefore analyse its specific needs e.g. whether a firm has multiple locations or not, volume of transactions of sales and purchases, the type of industry its in, for the right choice of the software to be made and the power of specific modules needs to be well established. (Mattingly, 2001). Mattingly cautions not to be pre-occupied with the technological bells and whistles (latest technological improvements and additions in a software) because it brings confusion in the selection process but comparing systems features with the results of a business-needs analysis will lead to a better choice. It is important also to consider

non-functional areas, these include: technology/computer/operating system requirements, number of users, security, nature of integration required with other systems, support and other things (Maxwell, 2001). According to Maxwell, missing one of them would leave a big gap in the requirements and substantially increase the risk of choosing the wrong system.

With many accounting software packages available and the diverse features with each one of them becomes very difficult to match to the requirements of an organisation's accounting system easily. Mattingly (2001), conducted a research and found out that typical existing software might accommodate 70% of most users' needs. A well-designed system might handle 85% - 90% of a user's needs. This makes it very difficult & involving to make a choice of purchase of accounting software. The users therefore have to be actively involved in the selection process i.e. to make sure that the package at least meets the important requirements.

According to a study of relevant literature, Maxwell (2001), states that the user knowledge of the high level areas that need to be supported and with a few selected really important evaluation criteria, the user can quickly shortlist the accounting packages for a more detailed review. Maxwell goes further to state that at this stage, a consensus is reached on the importance of each requirement to the organisation, and typically a weighing applied (like Essential, Useful and Not required). They should be set in light of the organisations objectives and plans and is typically an iterative process with changes and fine-tuning carried out.

There is so much user expectation from a developed system or an acquired system. According to James Wetherbe as quoted by Whitten, Jeffrey and others, (2001), an

information system is required to improve performance, quality of information, control costs and increase profits, improve security controls, efficiency of people and processes and better services to customers, suppliers, partners employees etc. Accounting information system like other applications therefore requires a definite commitment to get most value from it e.g. from top management, a commitment to incur whatever cost on research, purchase and installation and time (Maxwell 2001). Managers should understand (the importance/use) of office automation systems since it involves high costs, changes employees work lives, it makes work easier and without proper security can be a disaster (Reynolds, 1995). Strassman as quoted by Shrage, (1997) found out that organisations base their computer investment on cultural and political concerns/influences instead of basing on added value or return. This can cause problems for example increase the stress level of workers causing stress related problems and Information systems used for non business purpose among other problems (Reynolds, 1995).

2.2.1 Selection Criteria and Evaluation for suitable Accounting Software

Grudnitski & Bunch (1989) indicated two main criteria for consideration in selecting an accounting system i.e. the range of functionalities the software has and the availability of particular accounting functions suited to a particular business.

Table 2-2: Checklists for selecting accounting packages:

a)	What computer and operating system is the software designed for?
b)	Is the package for single or multi-user environment? Can single user software be upgraded to multi-user?
c)	Can the package be integrated with software from other suppliers?
d)	What memory capacity is required?
e)	What security facilities does it possess, i.e. access control via passwords and automatic backup facilities for file security?
d)	What is the purchase cost?
e)	What are the terms for multiple copies for internal use at different sites?
h)	Is software maintenance provided and at what cost?
i)	Does the software have a reliable history of use in similar types of business?
j)	Does the package contain the latest leading edge technology?
k)	Could the package be adapted to meet specific internal requirements and at what cost?

[Source: R.G. Anderson 1991]

Table 2-3: Recommended software selection steps

General software selection steps	EasiMatch Professional	An EasiMatch Directory
1. Review your business plan		
	1a Set up a new evaluation exercise 1b Enter basic assignment and budget information	1a Set up a new evaluation exercise 1b Enter basic assignment and budget information
2. Identify your requirements	2a Set up all high level business areas required 2b Set up all detailed criteria required	2a Confirm scope of pre-researched high level business areas is satisfactory * Select high level business areas required
3. Prioritise Requirements	3 Prioritise detailed criteria	3 Prioritise detailed criteria
4. Collect information on suitable packages	4a Enter basic package profile information 4b Generate QuickMatch style high level business Area evaluation analysis * Enter detailed assessment results for key criteria * Review Assessments for a Specific Criteria and QuickMatch results to short list packages. 4c Enter complete detailed assessment results for short listed packages	
5. Evaluate Package Capabilities	5 Rank packages by functionality and cost * For top 3 packages - Print detailed criteria evaluation - Print poorly supported criteria - Print package profiles and costings	5 Rank packages by functionality and cost * For top 3 packages - Print detailed criteria evaluation - Print poorly supported criteria - Print package profiles and costings
6. Check with vendors and confirm suitability and costs	6 Check with vendors and confirm suitability + costing	6 Check with vendors and confirm suitability + costing
7. Make a decision	7 Fine-tune priorities * Record decision	7 Fine-tune priorities * Record decision
8. Negotiate terms with Vendor	8 Print package assessment results for the package selected to include as Appendix to contract (if relevant)	8 Print package assessment results for the package selected to include as Appendix to contract (if relevant)
9. Implement System		
10. Carry out a post-implementation review	10 Confirm organisation's priorities. * Copy info for chosen package as a new one, but update with your assessment of its capabilities. * Reevaluate old/new priorities to old/new package assessments. * Evaluate course of action required.	10 Confirm organisation's priorities. * Manually document your assessment of chosen package's capabilities and the differences. * Evaluate course of action required

[Source: Alan Maxwell 2001]

UNIVERSITY OF NAIROBI
LOWER KADUNDA LIBRARY

ACCA BPP manual (1998) stated that when making accounting software choice, the software cost should outweigh the costs of the software purchase and support. Skidmore (2001) added that organisations can only realise these cost savings if they choose to buy off the shelf software rather than develop a bespoke solution since the suppliers of the

software have spread the cost across all the potential purchases of the software system. Other factors to consider include availability of support & maintenance, compatibility, of the software to organization's systems, possibility of modifications if necessary and possibility of updating, good controls inbuilt, user friendliness, proper documentation of the system, higher response time and can be able to meet the user requirements (ACCA BPP manual, 1998). However, there are disadvantages using an off the shelf system which may be detrimental to the organization. The fact that the supplier owns the software system means that future development of the software is not in control of the organization (customer), and the vendor may withdraw support on earlier versions at their own discretion or the supplier may go out of business (Skidmore, 2001). Skidmore continues to state that ready-made software products never fit the user requirements 100% nor used to gain a competitive edge since the software is open to all competitors and potential competitors. Also they are very rigid to the changing needs of users.

2.2.2 Automated approach to software selection

Hegstad, (1988) came up with Matchware software for selecting accounting software. The Matchware software has ten different modules that are designed to examine client requirements in specific accounting areas. Each module has a softcopy questionnaire that enable the client to fill in relevant needs that meet their requirements in different weights. A variety of reports can then be generated which can identify all the software products that satisfy the client's requirements. Matchware can print out a report showing the features of a specified software product relative to the Matchware questionnaire form. It can also provide a vendor report containing vendor and product profile, as well as a description of the product documentation and support facilities. However, Hegstad indicated that the Matchware product has limitations. The number of products contained in the database is limited to specific numbers in each accounting module.

Holt (1998) explains how the use of Select modeling tool (for business process analysis and data modeling) can be useful in software development /selection. Select enables end users define and understand current business processes, and from that identify areas, which could be modified to give productivity and efficiency improvements. Select helps build systems that accurately match user requirements since it enables effective analysis and verification of current business process through high levels of user interaction during the analysis and design stages.

2.3 Other related Research

Different research studies have been done in Kenya focusing on different aspects of information systems; Nyandiere (2002) study was on investigation of the challenges facing enterprise resource planning systems (ERPs) implementation. His area of further research is on challenges facing a particular module of the ERP, which could be the accounting module. He found out 10 important challenges as follows: high costs incurred, problems in data integration, complexity of the systems, poor user training, major organizational results and layoffs, compromise on the system security, vendor unreliability, poor vendor support and underutilization of the systems. These may also apply to the accounting information systems. Kipngetch (1991), studied management satisfaction with information systems and found out that computer users in Kenya consider the following factors as important in weighing satisfaction with information systems: that is cost benefit of the system, prestige and image of the company as a result of the system acquisition, good company policy on acquisition, compatibility of the computer system to its needs, good inter-personal relationships in the acquisition of computer systems. Mwithiga (2002) did a case study of Kenya Shell Company on survey of user satisfaction in corporate information technology. His exceptional findings were that wrong information technology training was used and

therefore management and users require regular information technology training programmes, staff enjoy learning new systems, there is good management support and that Kenya shell top management support and approve new information technology projects.

Nyambati (2001), in a study on "Information technology plans practices in Kenya banks" found out that majority of the organizations consider planning for information technology important and have information technology plans in place. He further found out that information technology plans are updated more regularly: on a quarterly basis for most companies. Abwao (2002), study on information technology application in business management within Kenya insurance companies in Nairobi found out that insurance firms use different applications that cannot integrate well within the organization. Different user groups acquire software differently with the focus on increasing efficiency of that functional area.

It can therefore be deducted from the literature that accounting systems are improving, with certain processes streamlined to make the overall accounting function efficient, effective and simple to operate. This is because of the improvements on the current accounting software in the market. The literature also gives the challenges and factors considered in selection of accounting systems in developed countries where the companies are based. Some illustrations are given on the selection criteria and evaluation of accounting software used as well as the automated approach to software selection. Research projects in Kenya have been done on different systems but there is need to know the accounting systems in use, that is, accounting software products used, their acquisition procedures, sources, costs incurred, their utilization, benefits derived from it, problems experienced and the hardware and software resources employed to support the system and whether the factors considered in selection of accounting systems in the literature apply to Kenyan accounts users.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The study was a census survey aimed at surveying the accounting software products in use by public companies in Kenya and determining the factors considered when selecting an accounting information system for an organization. The survey gave information about the Companies, accounting information systems already in use and the software costs, benefits enjoyed, their utilisation, how they were acquired, the problems experienced, qualifications of the accounting department staff and the necessary resources employed to support the Accounting information system.

3.2 Population

The target population of interest in the study was all the companies quoted in Nairobi stock exchange, as at July 2003. This gave a total of 48 companies. This is because quoted companies are required by statutory regulatory bodies and shareholders to achieve a certain level of corporate governance and financial reporting.

3.3 Data Collection

The nature of data used is primary data. This is because primary data is more focused on the area of study and give up to date data, which is more reliable.

The data was collected by use of drop and pick later method. The respondents were given the questionnaires to fill and I personally collected them later when they had been

completed. The target respondents were the persons in charge of accounting information systems. The questionnaire consisted of three sections:

Section 1: Company profile

This gave a review of the companies surveyed. It was mainly for classification purposes.

Section 2: Survey on the Accounting information systems implemented in organizations.

This section captured information on the accounting software products used, their acquisition procedures, sources, costs incurred, their utilisation, benefits derived from it, problems experienced, hardware and software resources employed to support the accounting information system.

Section 3: Factors considered in accounting software selection

This section consisted of questions about the factors considered in accounting software selection. The scale used is a 5-scale likert – type, ranging from strongly agree to strongly disagree. The questions were asked to solicit responses on factors accountants consider important when selecting accounting software. The questions were simplified for ease of understanding and randomised so that the respondents may not guess the underlying factor being sought.

3.4 Data Analysis

Section 1 and 2 of the questionnaire data was analyzed through the use of descriptive statistics: that is, data was summarized and presented in form of frequencies in percentages and proportions in tables, pie charts or bar charts. The mean was also used to find out on average the number of respondents in favour of a particular item in comparison with other items.

Section 3 of the questionnaire responses was analyzed using the mean and standard deviation to rank the factors in order of preference. Factor analysis method was then used to group together the factors with the same characteristics and reduce the responses to manageable factors. Also factor analysis ranked the factors to indicate which factors are considered more important than others.

This enables the data to be summarized and organized in an effective meaningful way as they provide tools for reducing information to an understandable form.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

A total of 48 questionnaires were distributed to all the companies quoted in Nairobi Stock Exchange as at 1st July 2003. There were a total of 48 companies listed. All the companies' personnel in charge of accounting information systems served with questionnaires out of which 35 questionnaires were received. The response rate (73%) was found to be adequate for the analysis.

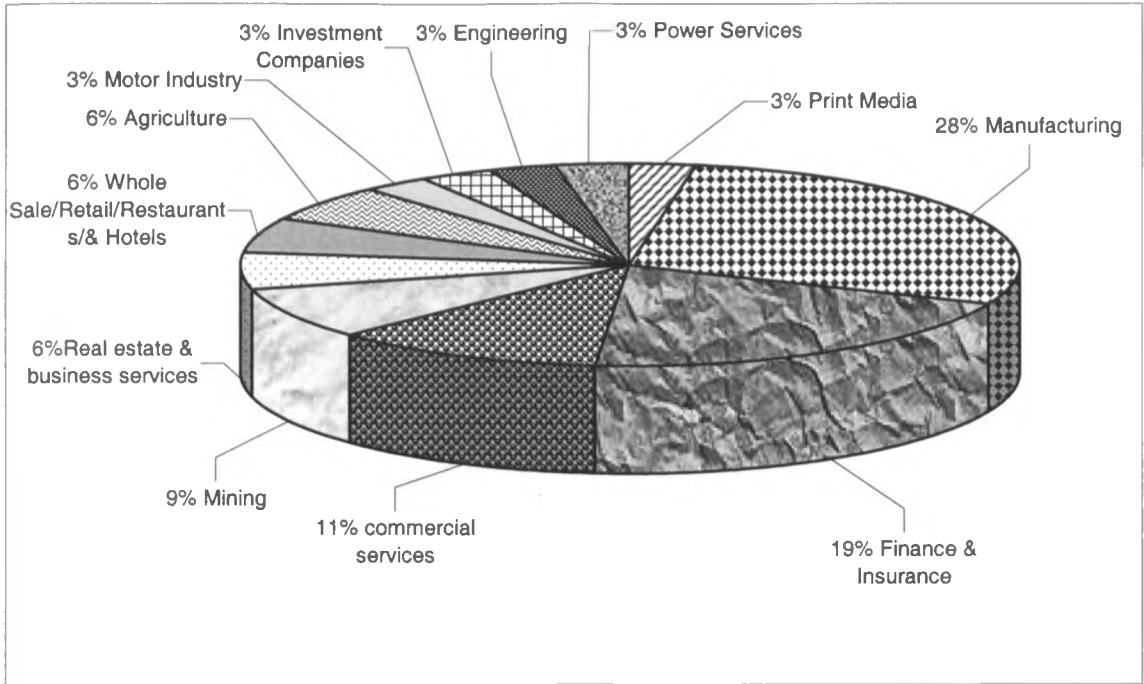
4.2 Companies' Profile Findings

Table 4-1: Period of Organizations' Existence in Kenya

Period organization has been in Kenya	Frequency	Percent
Less than 5 years	4	11.4
Less than 20 but more than 10 yrs	2	5.7
Over 20 years	29	82.9
Total	35	100

Most organizations indicated that they have been in existence in Kenya for over 20 years. The table shows the highest representation of 82.9% of the respondents. 11.4% have been in existence for less than 5 years while 5.7% have been in existence for less than 20 years but more than 10 years. This indicates that most quoted companies have been in existence over a long period of time and therefore established ways of improving their operational systems.

Figure 4-1: Industry Sector



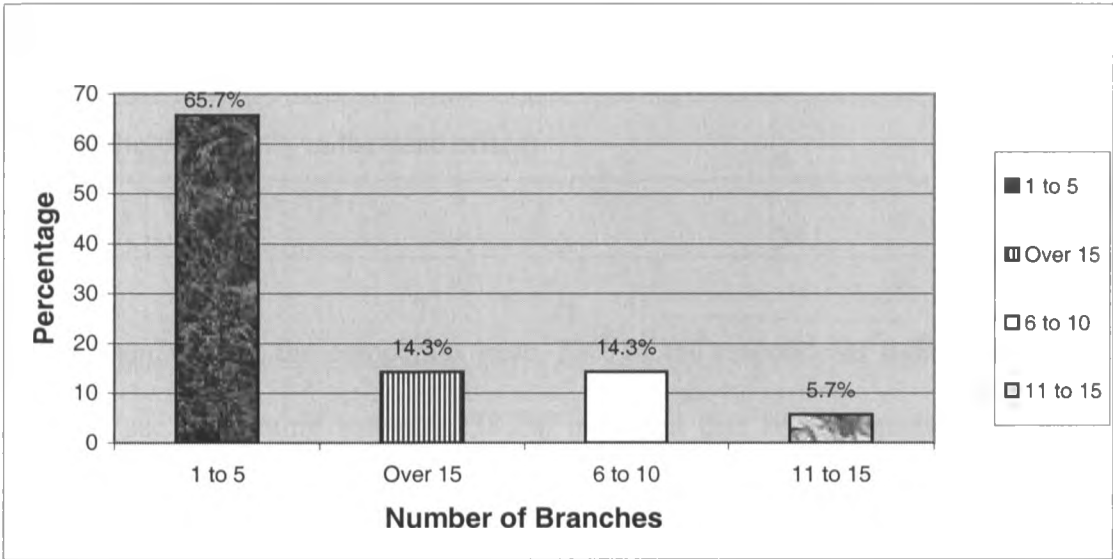
The Pie chart above indicates that the Manufacturing industry consisted of the highest percentage: with 28% of the respondents, indicating most quoted companies are in manufacturing sector. Finance and insurance companies consisted of 19%, and Commercial services consisted 11% of the respondents. The others included Mining (9%), Real Estate and Business services (6%), Wholesale/Retailers/Restaurants and Hotels (6%), Agricultural (6%). Motor Industry, Investment Companies, Engineering, Power Services and Print Media had the same representation (3%).

Table 4-2: Company ownership

	Frequency	Percent
Partly foreign & partly local	18	51.4
Wholly local	14	40.0
Wholly foreign	3	8.6
Total	35	100.0

Majority of the quoted companies are owned partly locally and partly foreign (51.4% of the respondents), followed closely with 40% response indicating their companies were wholly locally owned. Only 8.6% were wholly foreign owned.

Figure 4-2: Company Branches in Kenya



65.7% of the companies in the survey had company branches in the lowest range of 1 to 5 branches in Kenya. 14.3% had 6 – 10 branches range, 5.7% had 11 – 15 branches range and 14.3% had over 15 branches in Kenya. This shows that most companies have their operations concentrated within the main cities where communication infrastructure and hence possibility of automation is reliable.

Table 4-3: Organization use of Accounting Information Systems.

	Frequency	Percent
Yes	33	94.3
No	2	5.7
Total	35	100.0

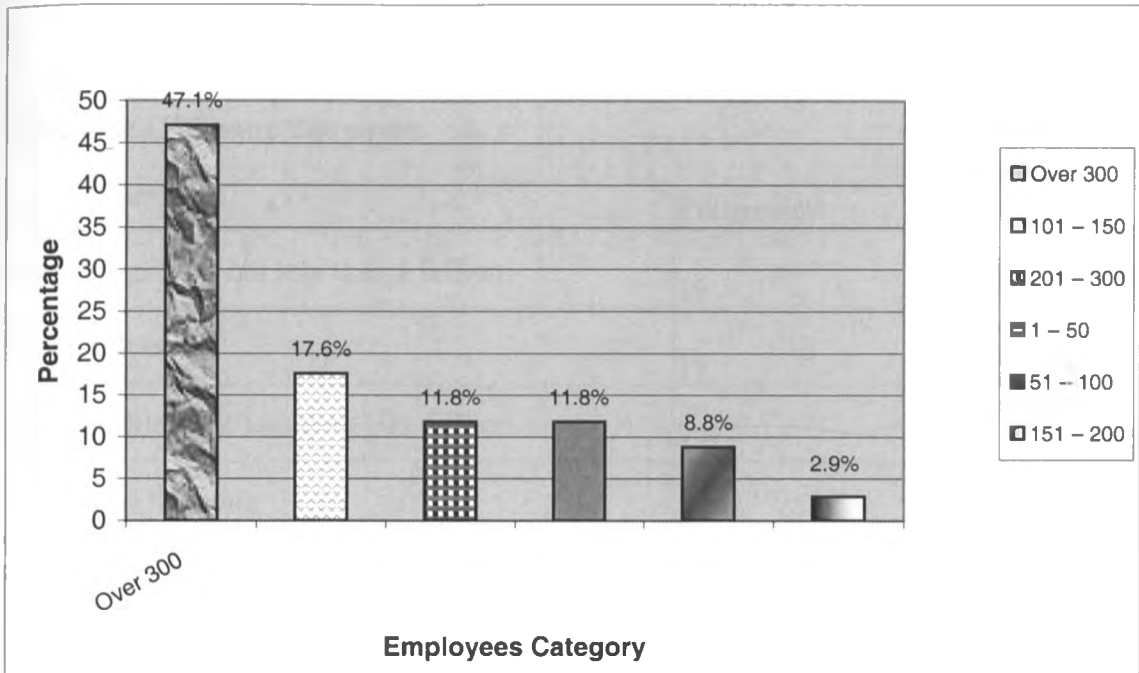
94.3% of the respondents use accounting information system compared to only 5.7% that indicated that they do not use accounting Information systems. This shows that most public companies in Kenya are already aware of accounting information systems.

Table 4- 4: Extent of use of Accounting Software in Organisations

	Frequency	Percent
All branches	17	50.0
Some branches	13	38.2
None of them (but only in the head office)	4	11.8
Total	34	100.0

Of the branches that the companies have, 50% of the respondents indicated that all their branches use accounting software, 38.2% indicated that some branches use accounting software, while 11.8% indicated that the software is used only in the head office & none of their branches.

Figure 4-3: Number of Companies' Employees



47.1% of the respondents indicated that they have over 300 employees, 17.6% indicated that they have employees in the range 101 to 150. 11.8% indicated that their employees in 201 to 300 range while 11.8% indicated that their employees are in the range of 1 to 50 employees. 8.8% indicated that their organizations have 51 – 80 employees and 2.9% indicated that they have 151 200 employees.

Table 4-5: Qualifications of the Users in the Accounting Department.

	Frequency	Percent
Hybrid (accounting & IT)	18	52.9
Purely professional accounting	12	35.3
It only	4	11.8
Total	34	100.0

52.9% of the respondents indicated that the users of the accounting information systems were hybrid, that is, they have both accounting and IT qualifications. 35.3% indicated that their users have purely professional accounting qualifications while 11.8% of the

respondents indicated that their users have IT qualifications only. However, the IT literacy was mainly on proficiency in basic software packages in use.

Table 4-6: Company Turnover

	Frequency	Percent
Over 100 million but less than 1 billion	16	45.8
Over 1 billion	13	37.1
Over 5 million but less than 100 million	4	11.4
Less than 5 million	2	5.7
Total	35	100.0

From the responses received, 45.8% indicated that their company turnover was over Kenya Shillings 100 million but less than 1 billion and 37.1% indicated that their turnover was over 1 billion Kenya Shillings. 11.4% indicated that their turnover was over 5 million but less than 100 million Kenya Shillings. Only 6.1% indicated that their turnover was less than 5 million.

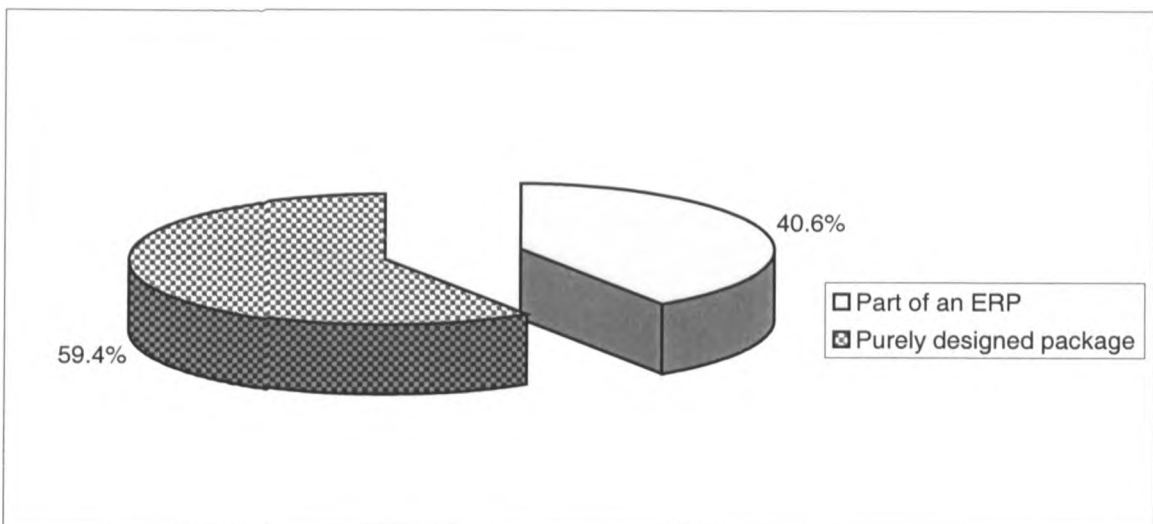
4.3 A Survey on the Accounting Information Systems in use

Table 4-7: Whether Company has written Computer System Acquisition Policy.

	Frequency	Percent
Yes	21	60.0
No	14	40.0
Total	35	100.0

60% of the respondents have a written company software and hardware acquisition policy while 40% do not have a policy. However, 67.9% of the respondents with a policy indicated that they follow the policy when acquiring software for the organization and 32.1% do not follow the policy that they have. This indicates that most companies have some influence from management when acquiring systems that make them not to follow the established policy framework.

Figure 4-4: Comparison of ERP Accounting Modules with Pure Accounting Software



The Pie Chart above shows that most of the accounting information systems are purely designed accounting packages than the accounting systems that are part or module of an

Enterprise Resource Planning System. However ERP systems being more current in the market, the percentage of 40.6% indicates a big proportion already and it can be predicted that very soon most public companies are going to implement ERP systems or modules because of their advantages associated with integration.

Table 4-8: Accounting function fully or partially computerized

	Frequency	Percent
Partly computerized	17	50.0
Fully computerized	17	50.0
Total	34	100.0

From the responses received, 50% of the respondents have their accounting function fully computerized and 50% are partially computerized. The respondents that have partial computerization of their systems imply that they have poor systems or have rigid internal procedures not enabling some operations to be automated.

Table 4-9: Major Accounting Software Implemented.

	Frequency	Percent
SAP	3	8.6
Sun Systems	2	5.7
Scala	2	5.7
Omicron	1	2.9
FoxPro Accounting System	2	5.7
BAAN	2	5.7
Access (Runs of Macintosh Platform).	2	5.7
Willow Finance System	1	2.9
Tally	1	2.9
Systematic Accord	1	2.9
Sage	1	2.9
Pastel	3	8.6
Oracle Financials	3	8.6
Navision	2	5.7
Micro Banker System	2	5.7
Laytson	1	2.9
Great Plains Dynamics	1	2.9
Equinox	1	2.9
Data Flex	1	2.9
Bank Master	1	2.9
Aims	1	2.9
Accpac	1	2.9
Total	35	100

The major Accounting Software implemented by the companies includes: - SAP software implemented by 8.6% of the respondents, Sun Systems implemented by 5.7%, SCALA by 5.7%, Omicron by 2.9%, Foxpro based accounting system is used by 5.7% of the respondents, BAAN used by 5.7% and ACCESS used by 5.7% of the respondents. The

others include Willow Finance system (2.9%), Tally, Systematic Accord (2.9%), Sage (2.9%), Pastel (8.6%), Oracle Financials (8.6%), Navision (5.7%), Micro Banker (5.7%), Laytson (2.9%), Great Plains Dynamics (2.9%), Equinox (5.7%), Data Flex (2.9%), Bank Master (2.9%), Aims (2.9), and Accpac (2.9). It can be deduced from the table that Enterprise Resource Planning (ERP) systems are prominently featuring with SAP being on the lead.

Table 4-10: When the accounting software was implemented

	Frequency	Percent
1998	5	15.2
2003	4	12.1
2002	4	12.1
2000	3	9.1
1999	3	9.1
2001	2	6.1
1995	2	6.1
1986	2	6.1
1980	2	6.1
1996	1	3.0
1993	1	3.0
1992	1	3.0
1991	1	3.0
1985	1	3.0
1981	1	3.0
Total	33	100.0

15.2% of the respondents implemented their accounting information systems in 1998, in 2003 and 2002, 12.1% of the respondents implemented accounting systems each year. In the years, 2000 and 1999, 9.1% implemented accounting systems in each year. In each year of 2001, 1995, 1986, 1980, 6.1% of the respondents implemented their software. The other respondents (3.1% each year) implemented their software in the years, 1996, 1993, 1992, 1991, 1985, and 1981. This indicates that computerization of most accounting systems took place very recently. This could be as a result of upgrading existing old accounting systems or replacing the previous accounting systems with most likely Enterprise Resource Planning systems accounting modules. Its most likely that year 2003 will take the lead in accounting systems computerization since the year is half way through yet has the second largest percentage.

Table 4-11: The Software Vendors

	Frequency	Percent
ACL ltd	3	10.0
Illanga systems, South Africa	3	10.0
Scala E.A. Ltd	2	6.7
SAP Africa	2	6.7
Oracle plc	2	6.7
Others (stated below)	23	59.9
Total	35	100

The major vendors of the Accounting software as indicated by the respondents include the Internal developers of the accounting software as indicated by 10% of the respondents. These are the accounting systems that were implemented in the 1980s. ILLANGA Systems of South Africa had 10% representation of the respondents, SCALA E.A. Ltd indicated by 6.7% of the respondents, SAP Africa, indicated by 6.7% and Oracle Plc as indicated by 6.7% of the respondents. The others include Solit Plc, Software technologies agents,

Software Designs Westlands Ltd, Software Applications Ltd, Software Support Consultants – S. Africa, SAP Germany, Quantum Solutions, Navision Belgium, Lakematek, IQ Plus, Future Kenya, Enterprise Software Pty – S.Africa, Data Centre, Computer Point, Bynx (South Africa), Asyst International, ACL Computers Ltd, and Access Accounting – UK. All these have their systems implemented by 3.3% of the respondents. It can then be deducted that most accounting software are bought off the shelf and are mainly obtained out of Kenya except for some that are acquired through sales agents established in Kenya.

Table 4-12: Expenditure on Accounting Information System

	Frequency	Percent
Over 5 million	18	52.9
Less than Ksh. 1 million	9	26.5
More than Ksh. 1 million but less than 5 million	7	20.6
Total	34	100.0

52.9% of the respondents have spent over 5 million Kenya Shillings on Accounting Software, 26.5% have spend less than Kenya Shillings 1 million and 20.6% of the respondents have spent more than 1 million and less than 5 million shillings. This implies that accounting information systems can be very expensive depending on its functionalities. The most expensive systems are most likely due to the fact that the accounting module was bought as part of an Enterprise Resource Planning (ERP) system, which rank the most expensive in the market because of its functionalities.

Table 4-13: Accounting Information System that currently use E-commerce facility

	Frequency	Percent
No	31	91.2
Yes	3	8.8
Total	34	100.0

Currently only 8.8% of the respondents use E-Commerce Facility through the Internet while 91.2% indicated that they do not use the facility. This is an indication that most organizations in Kenya are at initial stages of making use of the Internet an E-commerce facility. Even though the E-commerce facility may be available with the accounting information system, some companies have not ventured to utilize it.

Table 4-14: Cost elements incurred with the Accounting Information System

Costs	Mean
Training costs	2.81
Implementation & conversion costs	2.12
Software set up costs	2.26
Consultancy costs	2.26
Software purchase costs	2.09
Testing costs	2.71
Maintenance costs	2.74
Other costs	2.79

By using the mean where the highest on the scale was 1 and the lowest on the scale was 5: where 1 implied very high, 2 high, 3 satisfactory, 4 low and then 5 being very low, the various costs incurred with the accounting system were computed as detailed in Appendix IV. The Table above shows the summary of the computations of the mean. From the table above, cost elements with an average mean of 2 imply that the costs were high, that is, software purchase costs, implementation and conversion costs, consultancy and software set up costs. The cost elements with an average mean of 3 were felt by all respondents that the costs were satisfactory, that is on; maintenance costs, testing costs, and training costs and on other software costs. This shows that organisations have the understanding and readiness to spend on information systems that can give them higher productivity.

Table 4-15: The Accounting modules currently in use

Module in use	Mean
General ledger	1.18
Accounts receivable	1.45
Accounts payable	1.47
Invoicing	1.52
Cash management/cashbook	1.53
Payroll	1.80
Electronic fund transfer	2.00
Comprehensive vat	2.06
Data import/export	2.09
Inventory	2.12
Financial analysis	2.24
Purchase order	2.28
Order entry	2.32
Fixed assets register	2.41
Foreign currency capabilities	2.43
Report writer	2.53
Job costing	2.70
E-commerce and EDI capabilities	3.13
Executive advisor	3.25

By using the mean where the highest on the scale was 1 and the lowest on the scale was 5 where 1 implied very high, 2 high, 3 satisfactory, 4 low and then 5 being very low. Table 4-21 provides a listing of the software modules most commonly used. General ledger, accounts payable and receivable modules emerged as the most popular applications as used very highly by the firms. Invoicing, cash management/cashbook, Payroll, Electronic fund transfer, Comprehensive VAT, Data import/export, Inventory, Financial Analysis, Purchase Order, Order entry, Fixed assets register, Foreign currency capabilities are indicated to be highly useful while Report writer, Job costing modules, E-commerce and EDI capabilities and Executive advisor modules are satisfactorily used in average. The data indicate that the majority of the firms are using the computer to handle only routine accounting applications. More sophisticated usage of the computer, such as using report writer function to prepare reports, using Electronic Data Interchange and Electronic-

commerce capabilities, job costing and executive advisor was not evidently used, but most respondents rather indicated the degree of usefulness of such modules if its made available to them. However, such usage is likely to follow soon in these firms since many of them indicated that they had expansion plans and commented that, but for time constraints, they would already be experimenting with expanded usage of their computer.

Table 4-16: Benefits of Computerization of Accounting System

	Mean
More timely statements/reports	1.36
Speed/time saving	1.41
Better integration	1.64
Record keeping easier	1.76
Know where information is	1.78
Quick response to the need of information	1.80
Better/more detailed information	1.82
More overall efficiency	1.83
Different kind of analysis possible	1.84
Better internal control	1.87
Better traceability/audit trail	1.91
More accuracy/less error	1.91
Reduction costs/personnel	2.00
Ability to expand	2.04
Data transfer	2.25
Better paper and workflow/less paper work	2.34
Nice report formats/presentation	2.35
Forecasting	2.43
Scheduling	2.75

Table 4-16 lists the benefits of computerization identified by the respondents. The mean was used to classify the benefits of computerization. The highest on the scale was 1 and the lowest on the scale was 5: where 1 implied very high, 2 high, 3 satisfactory, 4 low and then 5 being very low was ticked by the respondents. The speed/time saving and more timely statements/reports facilitated by computers emerges as the most valued benefits from computerization. Better integration, record keeping easier, know where information is, quick response to the need of information, better/more detailed information, more

overall efficiency, different kind of analysis possible, better internal control, better traceability/audit trail, more accuracy/less error, reduction in costs/personnel, ability to expand, data transfer, better paper and workflow/less paper work, nice report formats/presentation, forecasting, were rated highly valued in that order while scheduling was rated as a satisfactory benefit. It is evident that the benefits identified in this list are the typical first-stage benefits of computerization, and there are few references to more sophisticated uses of computers such as scheduling, forecasting, etc. The respondents indicated that they were either moving in these directions or had decided that their level of operations did not warrant a higher level of sophistication.

Table 4-17: Sources that contributed to the Selection of the Accounting Software

	Yes	No	Total
Visiting and talking to the local dealers and store of the software product	67.6	32.4	100.0
Consultants who specialise in the area of interest	67.6	32.4	100.0
Firm took advice of accounting/audit firm	47.1	52.9	100.0
Company relied on management decision	47.1	52.9	100.0
Company took advice from other users	41.2	58.8	100.0
Through conducting systematic research	35.3	64.7	100.0
Product/service directories	29.4	70.6	100.0
Vendor advertisements	14.7	85.3	100.0
Advertising your need via requests for information and requesting replies from interested vendors	14.7	85.3	100.0
Review specialist journals or articles that cover the area of interest	11.8	88.2	100.0
The internet	5.9	94.1	100.0
Database searches	-	100.	100.0

When asked to indicate the sources that contributed to the selection of the accounting information used, Visiting and talking to the local dealers and store of the software product and sourcing information from consultants who specialise in the area of interest emerged as the most favoured research ways that contributed to the selection of the software (67.6%). However, there was significant proportion of firms who took advice from other users (41.2), accounting / audit firms (47.1%) and reliance of management decision (47.1). Other sources of information that were lowly used by the respondents include: conducting systematic research (35.3%), use of product/service directories (29.4%), making use of vendor advertisements (14.7%), advertising needs via requests for information and requesting replies from interested vendors (14.7%), review of specialist journals or articles that cover the area of interest (11.8%), and the Internet (5.9%). No respondent made use of database searches in the process of choosing the software.

Table 4-18: Problems Experienced with Accounting Software

	Frequency	Percent %
Breakdowns (crushing)	6	8.7%
Support problems	4	5.8%
Report writing	4	5.8%
Customization problems	4	5.8%
Rigidity	3	4.3%
Lack of training for users	3	4.3%
Flexibility	3	4.3%

Table 4-18 above shows the major problems that are experienced with the Accounting Software. 8.7% of the respondents indicated that they experience Breakdowns or Crushing problems. 5.8% of the respondents experience support problems, 5.8% indicated that they experience report writer problems, 5.8% experience Customization problems, 4.3% indicated that they experience rigidity problems, 4.3% indicated lack user training and 4.3% indicated that they experience flexibility problems. The other problems experienced

include: - Operating system compatibility, Software not fully exploited, Software limitation in scope, Integration problems with other modules, difficulties to troubleshoot, complications in operation, bank reconciliation problems, vendors are far (from other countries), Suitability of the software to the respective functions, stock entries errors and difficulties in maintaining stock records accurate, slow speed of some softwares, reports not in format needed with some softwares, unreliability with some softwares, lack of proper security in some systems, Poor implementation made, poor authorization procedure, platform incompatibility, Some systems not user friendly, low internal controls compared to those provided by the software, Some systems cannot operate in a network, limitation on licenses, limited capability/functionalities in some systems, unpopular systems and hence difficulties in technical support, slowness in some systems, high maintenance costs, data transfer problems, lack of cross functional acceptance, hectic changeover process, and lack of audit trail in some systems.

Table 4-19: Areas Attributed to the Problems Experienced

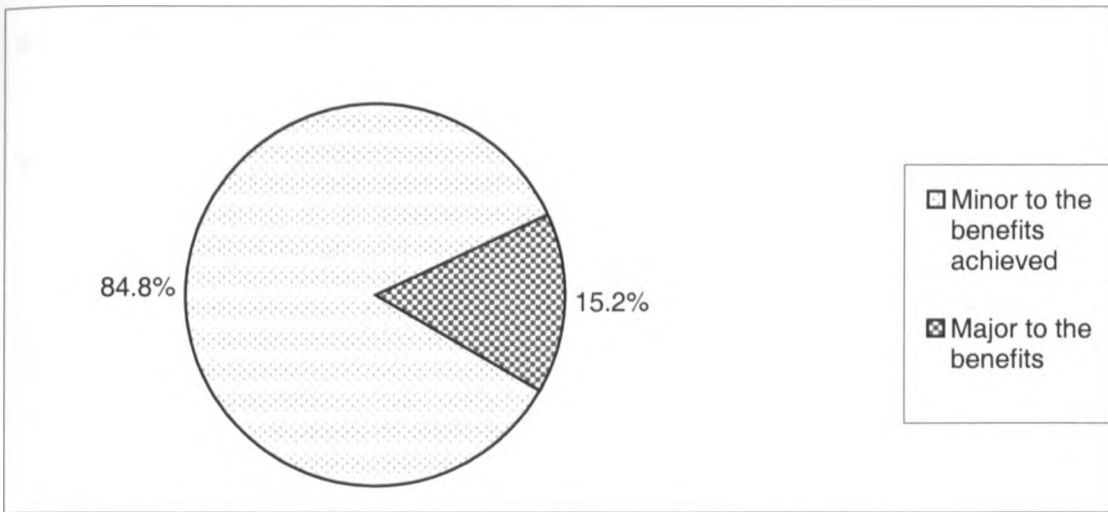
	Yes	No	Total
Lack of adequate training of the employees	48.5	51.5	100.0
Rigid internal procedures	45.5	54.5	100.0
Normal operator errors	45.5	54.5	100.0
Process that is too complex to computerize	36.4	63.6	100.0
Lack of good vendor support	33.3	66.7	100.0
Hard disks failures	18.2	81.8	100.0
Conflicting user requests	18.2	81.8	100.0
Parallel manual & computer runs	9.1	90.9	100.0

As shown in Table 4-19, 48.5% of the respondents attributed the problems experienced to lack of adequate training of the employees. 45.5% attributed to rigid internal procedures, 45.5% attributed to normal operator errors, 36.4% attributed to processes that are too complex to computerize in the organization, 33.3% attributed the problems to lack of good vendor support, 18.2% attributed to hard disk and failures, 18.2% attributed their problems to conflicting user requests and 9.1% attributed their problems to parallel manual and computer runs. However, most respondents indicated a combination of these problems. It can then be deducted that most organizations have problems in sourcing for suitable hardware, sufficient technical support and software requirements for their accounting information systems.

Comparison of Problems Experienced (from Accounting Software) to the Benefits achieved.

As seen in Table 26 below 84.8% of the respondents indicated that the problems they experienced are minor in comparison to the benefits that they have achieved. 15.2% indicated that the problems are major as compared to the benefits achieved. However, majority of the respondents (84.8%) of the respondents indicated that the problems they experience are minor in comparison to the benefits derived from the software as opposed to only 15.2% who indicated that the problems are major compared to the benefits achieved. This is illustrated by the pie chart below.

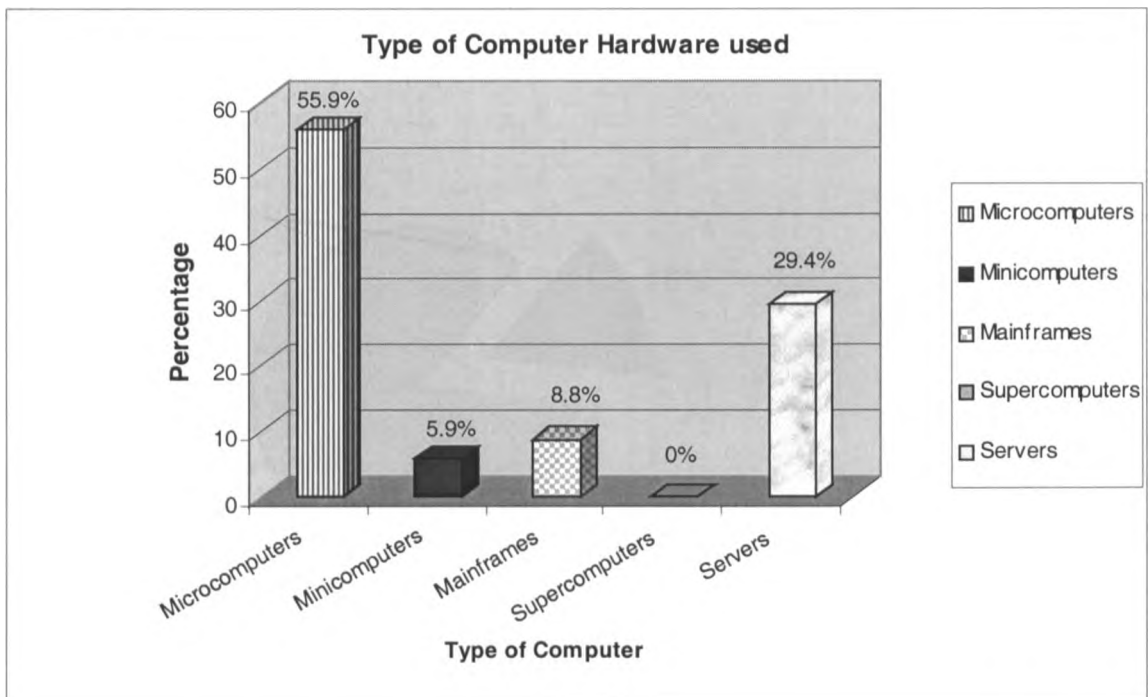
Figure 4-5: Comparison of the problems experienced to the benefits achieved



4.2.3 Computer Hardware Resources used

56% of the respondents (19 out of 34 indicated that they use microcomputers. 2.9% indicated that they used minicomputers, 8.8% indicated that they use mainframes, 5.9% indicated that they use supercomputers and 26.5% indicated that they use servers.

Figure 4-6: Type of Computer Hardware used



Most respondents: 97.1% as opposed to only 2.9% indicated that they operate in a network. This indicates that most organization accounting information systems operate in a network. This is shown in the table below.

Table 4-20: Companies operating in a Network

	Frequency	Percent
Yes	33	97.1
No	1	2.9
Total	34	100.0

From the pie chart below, 15% of the respondents indicated that the computer hardware they use was acquired for the first time while a majority 85% indicated that the hardware they use is a replacement from the old. This shows that most public companies keep up to date computer hardware requirements. It also shows that majority of the organizations upgrade their software systems which consequently demand the latest computer hardware specifications.

Figure 4-7: Comparison of Computer Hardware used to those that are replacements from the old

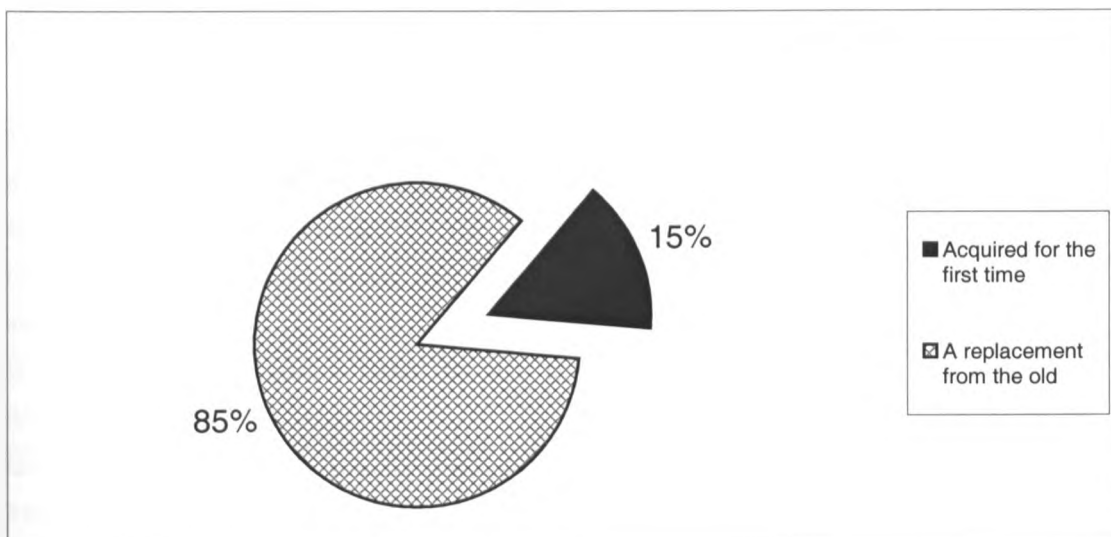


Table 4-21: Rating factors about the Accounting Information System in operation

Operating system support	1.91
System security	2.00
System support to the number of users	2.12
Software fit for its requirements	2.15
User satisfaction	2.26
Nature of integration required	2.29

From a rating of 1 to 5, where 1 is excellent, 2 good, 3 fair, 4 poor and 5 very poor, the mean rating for the factors about the accounting software in operation were rated with an average of 2 (nearest to a whole number). This implies in average all the factors were rated good. The factors were as follows: operating system support, system security, system support to the number of users, software fit for its requirements, user satisfaction and nature of integration in order of preference.

4.2 Factors considered when Selecting Accounting Information System.

4.2.1 Factors Ranked in order of Preference

Table 4-22: Descriptive Statistic of Mean and Standard Deviation

Which of the following factors do you agree or disagree as important in selecting accounting Information System (Software).	N	Maximum	Minimum	Mean	Std. Deviation
Q9: The accounting system should have good controls and privacy of data	35	1	2	1.17	0.38
Q11: The accounting system should be able to avail detailed information if needed	35	1	2	1.23	0.43
Q21: The system should provide for good audit trail of transactions	35	1	2	1.23	0.43
Q12: The overall efficiency of the accounting system must be excellent	35	1	3	1.26	0.51

Q13: The accounting system should provide flexibility in financial reporting	35	1	2	1.26	0.44
Q23: The s/ware should justify expenditure on cost benefit analysis	35	1	3	1.26	0.51
Q24: The accounting system should have good documentation	35	1	2	1.26	0.44
Q30: The software should allow operation in multi-user environment or a single user upgradeable to multi user	34	1	2	1.26	0.45
Q10: The accounting system should reduce time pressure from staff	35	1	2	1.29	0.46
Q19: The accounting system should facilitate sharing & increased information flow within the organization.	35	1	3	1.34	0.54
Q22: The software vendors should be able to give quality training on the s/ware product	35	1	2	1.34	0.48
Q26: The system should have the capability to customise report formats if need be	35	1	2	1.37	0.49
Q1: The software should fit the requirements of the accounting department.	35	1	4	1.4	0.77
Q18: The accounting system should provide the capability to drill down on information	35	1	2	1.4	0.5
Q25: The system should provide for future expansion plans	35	1	3	1.43	0.7
Q28: The s/ware should allow for updating by the developer for any omission of an important functionality or a fault is discovered	35	1	3	1.46	0.66
Q15: The accounting system should provide flexibility in financial reporting	35	1	3	1.49	0.56
Q3: The accounting s/ware should have top management support	35	1	4	1.57	0.65
Q16: The accounting system should integrate well with other non accounting modules in the org.	35	1	4	1.63	0.77
Q27: The system should provide for multi-currency capability	35	1	4	1.77	0.73
Q31: The software should be acquired based on company software acquisition policy	35	1	4	1.86	0.81
Q17: The accounting system should provide for integration with the customers and suppliers	35	1	4	1.89	0.93
Q29: The software should contain the latest leading edge technology	35	1	4	1.89	0.83

Q14: The system should improve the image of the company	35	1	4	2	0.77
Q6: The accounting s/ware should be compatible to the network infrastructure in place	35	1	5	2.2	0.93
Q2: The software or/ and software vendor should be popular & has been in the market for long	35	1	4	2.23	0.91
Q7: The accounting software should be compatible to the operating system in place	35	1	4	2.37	0.88
Q32: The software should promote interpersonal relationship in the organization.	35	1	4	2.49	0.92
Q5: The accounting software should be compatible to the personal computers in place	34	1	5	2.5	1.02
Q8: The accounting system should have maintenance contract from the vendor without considering maintenance cost	34	1	5	2.74	1.24
Q4: The accounting software to be selected depends on if the users are trained or knowledgeable in it	35	1	4	3.17	1.12
Q20: The system should give much power to accountants over other departments	35	2	5	3.43	1.17

Table 4-22 above, shows the summary statistics relating to the factors in the second part of the questionnaire. N shows the number of respondents who answered a particular question, **Maximum** and **Minimum** indicate the range of acceptances (ranking) by the respondents in each question with **1** being the strongly agree, **2** agree, **3** satisfactory, **4** disagree and **5** strongly disagree as shown in the likert scale of section 3 of the questionnaire. Factors in the mean range 1.17 to 1.43 average to 1 and are strongly agreed factors, factors in the mean range 1.46 to 2.37 average to 2 meaning agreed on factors while factors in the range 1.46 to 3.43 average 3 and are satisfactorily agreed. Results indicate that all the 32 factors were acceptable in the selection process. The table also shows the standard deviations.

The factors strongly agreed in the order of preference are: the accounting system should have good controls and privacy of data, the accounting system should be able to avail

detailed information if needed, the system should provide for good audit trail of transactions, the overall efficiency of the accounting system must be excellent, the accounting system should provide flexibility in financial reporting, the software should justify expenditure on cost benefit analysis, the accounting system should have good documentation, the software should allow operation in multi-user environment or a single user upgradeable to multi user, the accounting system should reduce time pressure from staff, the accounting system should facilitate sharing and increased information flow within the organization, the software vendors should be able to give quality training on the software product, the system should have the capability to customise report formats if need be, the software should fit the requirements of the accounting department, the accounting system should provide the capability to drill down on information for further details and the system should provide for future expansion plans.

The factors agreed on by the respondents on average in the order indicated by the means as follows: The software should allow for updating by the developer for any omission of an important functionality or a fault is discovered, the accounting system should provide flexibility in financial reporting, the accounting software should have top management support, the accounting system should integrate well with other non accounting modules in the organization, the system should provide for multi-currency capability, the software should be acquired based on company software acquisition policy, the accounting system should provide for integration with the customers and suppliers, the software should contain the latest leading edge technology, the system should improve the image of the company, the accounting s/ware should be compatible to the network infrastructure in place, the software or/and software vendor should be popular and has been in the market for long and the accounting software should be compatible to the operating system in place.

However, respondents indicated the following factors as satisfactory for the software selection process in order of preference: the software should promote interpersonal relationship in the organization, the accounting software should be compatible to the personal computers in place, the accounting system should have maintenance contract from the vendor without considering maintenance cost, the accounting software to be selected depends on if the users are trained or knowledgeable in it and at least, the system should give much power to accountants over other departments.

4.2.2: Factor Analysis: Factors Summarized and Grouped into components

This session will group the 32 statements/variables into nine factors in a summarised way and will rank the variables falling under each factor in order of preference.

Out of 32 variables accepted by the respondents that they apply in selection of accounting information systems; nine factors were extracted using Varimax rotation. Eigen values: which is the sum of the squares of its factor loadings were set at greater than 1. The factors being uncorrelated to all previous factors are assigned a decreasing proportion of total variance to a minimum set cut of point of greater than 1 as shown in the table in appendix II. (Table of Total Variance Explained). For example factor 1 explains 21.499% of the total variation, factor 2 explains 13.575 of the total variation and so on. The factors with Eigen values of greater than 1 were then picked, that is a total of 9 component factors. From this table, a component matrix table in appendix III was created to assign each of the variables to be considered for selecting an accounting information system a factor loading showing the loading the variable has on each of the 9 factors.

The component matrix table in appendix III was then rotated orthogonally using varimax to extract variables with the maximum or near maximum loadings. These are shown in the table below.

Table 4-23: Varimax Rotated Component Matrix

Variables	Component Factors								
	1	2	3	4	5	6	7	8	9
The system should provide for future expansion plans	0.85	0.17	0.18	0.15	-0.09	-0.01	-0.18	-0.03	0.02
The accounting system should have good documentation	0.79	0.10	-0.12	-0.09	0.05	-0.01	0.33	-0.05	0.17
The accounting system should reduce time pressure from staff	0.78	0.10	0.03	-0.00	-0.02	-0.06	-0.05	-0.08	0.20
The software should allow operation in multi-user environment or a single user upgradeable to multi user	0.74	0.22	-0.07	-0.07	0.02	-0.13	-0.06	0.35	-0.08
The system should have the capability to customise report formats if need be	0.68	0.16	-0.09	0.43	0.15	0.09	0.09	0.20	-0.03
The system should provide for good audit trail of transactions	0.55	-0.02	0.31	0.02	-0.30	-0.09	0.45	0.22	-0.18
The software should contain the latest leading edge technology	0.47	0.13	0.36	0.32	0.24	-0.04	0.36	0.08	-0.07
The overall efficiency of the accounting system must be excellent	0.46	0.28	-0.14	-0.30	0.09	0.27	0.36	-0.08	-0.38
The accounting system should provide flexibility in financial reporting	0.18	0.88	0.04	0.04	-0.05	0.00	0.16	0.17	-0.05
The software should allow for updating by the developer for any omission of an important functionality or a fault is discovered	0.40	0.76	0.06	0.14	-0.17	-0.07	-0.24	-0.04	-0.20
The accounting system should provide flexibility in financial reporting	0.14	0.64	0.17	0.12	0.11	0.26	0.22	0.05	0.28
The system should give much power to accountants over other departments	-0.11	-0.62	0.32	0.00	0.37	0.28	0.14	-0.03	-0.10
The software should justify expenditure on cost benefit analysis	0.21	0.46	-0.24	0.01	-0.33	0.11	0.44	0.11	0.16
The accounting software should be compatible to the network infrastructure in place	0.05	0.13	0.93	0.01	-0.08	-0.00	-0.09	-0.02	-0.03
The accounting software should be compatible to the operating system in place	0.02	-0.25	0.81	-0.20	0.10	0.19	0.05	-0.12	0.04
The accounting software should be compatible to the personal computers in place	-0.02	0.08	0.79	0.27	0.20	-0.05	0.00	0.04	0.16
The system should provide for multi-currency capability	0.07	0.06	0.19	0.73	-0.09	-0.09	0.15	0.04	-0.13

The accounting system should provide for integration with the customers and suppliers	-0.15	0.00	-0.21	0.70	-0.07	-0.04	-0.15	0.31	0.16
The software should promote interpersonal relationship in the organization.	0.03	-0.09	0.26	0.65	0.43	0.28	0.08	0.04	-0.20
What of the following factors do you agree or disagree as important in selecting accounting software - the software should fit the requirements of the accounting department.	-0.26	-0.17	0.07	-0.60	-0.12	0.35	-0.18	0.20	-0.02
The system should improve the image of the company	0.21	0.28	0.14	0.41	0.18	0.36	0.30	-0.21	0.37
The software or software vendor should be popular & has been in the market for long	0.03	-0.12	-0.11	0.21	0.80	-0.32	0.09	0.13	-0.00
The accounting system should have maintenance contract from the vendor w/out considering maintenance cost	0.00	-0.09	0.26	-0.29	0.65	0.17	0.03	0.07	0.10
The accounting software to be selected depends on if the users are trained or knowledgeable in it	0.04	-0.33	0.38	0.17	0.50	0.29	-0.25	0.01	0.21
The accounting system should integrate well with other non accounting modules in the org.	0.09	-0.12	-0.00	-0.10	-0.14	0.87	0.03	0.20	-0.03
The software should be acquired based on company software acquisition policy	-0.22	0.13	0.07	-0.01	0.11	0.82	0.07	-0.06	0.02
The accounting system should provide the capability to drill down on information	-0.15	-0.03	-0.03	0.32	0.17	0.09	0.80	0.25	0.16
The accounting system should be able to avail detailed information if needed	0.39	0.38	-0.04	0.02	-0.47	0.11	0.52	0.27	0.14
The accounting software should have top management support	0.04	0.09	-0.02	0.00	0.16	0.05	0.12	0.85	0.12
The accounting system should facilitate sharing & increased information flow within the org.	0.19	0.15	-0.07	0.45	-0.08	0.13	0.32	0.65	0.06
The accounting system should have good controls and privacy of data	0.26	0.08	0.11	-0.10	0.06	0.01	0.16	0.23	0.82
The software vendors should be able to give quality training on the software product	0.34	0.15	0.01	0.20	0.48	0.13	0.03	0.44	-0.48

Extraction method: principal component analysis.

Rotation Method: Varimax with Kaiser Normalization.

The table above shows 9 factors by 32 variables matrix. The rotated matrix gives the revised initial factor matrix after it had been orthogonally rotated using Varimax rotation.

This attempts to simplify the columns of factor matrix by making all values close to either 0 or 1. The coefficients in the matrix represent both regression weights and correlation coefficients. The loadings in a given row represent regression coefficients of factors that describe a given variable. From this table we can now group together the variables into the nine factors that were extracted according to how heavy these variables load on each factor, for example, the first variable on the table, that is, the system should provide for future expansion plans has 85% loadings on factor 1 and is the highest loadings for the variables grouped within the same principle factor as shown by the shaded figures within the column. The shaded figures ranked under each factor on the table, that is, ranked from the highest factor loading to the lowest indicates which variables fall under each of the principle factors and in order of preference within the principle factor. The variables extracted under the nine factors are as follows:

Factor 1 named **Software Versatility** consists of: -

1. The system should provide for future expansion plans
2. The accounting system should have good documentation
3. The accounting system should reduce time pressure from staff
4. The software should allow operation in multi-user environment or a single user upgradeable to multi user
5. The system should have the capability to customise report formats if need be
6. The system should provide for good audit trail of transactions
7. The software should contain the latest leading edge technology
8. The overall efficiency of the accounting system must be excellent

Factor 2 named **Software Flexibility** consists of: -

1. The accounting system should provide flexibility in financial reporting
2. The software should allow for updating by the developer for any omission of an important functionality or a fault is discovered

3. The accounting system should provide flexibility in financial reporting
4. The system should give much power to accountants over other departments
5. The software should justify expenditure on cost benefit analysis
6. The accounting software should be compatible to the network infrastructure in place

Factor 3 named **Software Compatibility** consists of: -

1. The accounting software should be compatible to the network infrastructure in place
2. The accounting software should be compatible to the operating system in place
3. The accounting software should be compatible to the personal computers in place

Factor 4 named **Software Multi-Capability** consists of: -

1. The system should provide for multi-currency capability
2. The accounting system should provide for integration with the customers and suppliers
3. The software should promote interpersonal relationship in the organization.
4. The software should fit the requirements of the accounting department.
5. The system should improve the image of the company

Factor 5 named as **Vendor Expertise** consists of: -

1. The software or software vendor should be popular & has been in the market for long
2. The accounting system should have maintenance contract from the vendor without considering maintenance cost
3. The accounting software to be selected depends on if vendor can provide the users with training to be knowledgeable in it

Factor 6 named **Software Integrateability** consists of: -

1. The accounting system should integrate well with other non-accounting modules in the organization.
2. The software should be acquired based on company software acquisition policy

Factor 7 named **Need-to-Know-Basis Information Provision** consists of: -

1. The accounting system should provide the capability to drill down on information
2. The accounting system should be able to avail detailed information if needed

Factor 8 named **User Organizational Support** consists of: -

1. The accounting software should have top management support
2. The accounting system should facilitate sharing & increased information flow within the organization.

Factor 9 named **Software System Quality and Control** consists of: -

1. The accounting system should have good controls and privacy of data
2. The software vendors should be able to give quality training on the software product.

CHAPTER 5

SUMMARY AND CONCLUSIONS

5.1.1 Conclusions of the Findings

5.1.1 Conclusion on the Survey of Accounting Information Systems

Automation is a more current innovation than it is in western countries from where the literature is based hence most Kenyan companies implement systems at a low scale at functional levels and rarely an information system that computerizes the entire organization. This explains why some organizations do not have system acquisition policies. Most management of Kenyan companies owns the businesses they manage hence, even if there is acquisition policy, they may influence the acquisition of software products a case that contributes to system problems.

Kenyan public companies are relatively small compared to the companies in the developed world where the literature is based, that is, they are more established over longer time, bigger in size, higher turnover and more spread in all the industries. There is therefore more demand for higher standards of corporate governance with the companies of the literature because of stiffer market competition than it is with Kenyan companies. Hence there is better software systems implemented across the organizations and keener procedures in acquisition process.

Firms in Kenya do not utilize fully the current software systems acquired because some feature of the current competitive software products require effective Internet and telecommunication infrastructure. Many organizations are implementing modern Enterprise resource planning systems as from 1998. It's not possible therefore in Kenya to utilize the current systems because of the poor telecommunication infrastructures in place.

It's only available in the major cities and not widely spread in the country. This makes some modules of the accounting system that use electronic commerce and electronic data interchange facilities not to be used. It has also made the companies to use the software system only in some branches that support the installation of the system, that is, where there is electricity and telecommunication network. Furthermore, with the popularity of the enterprise resource planning systems (ERPs), most public companies in Kenyan are in an increasing trend implementing the ERP systems. This implies that there are increased modules not being utilized as they incorporate a lot of features using the Internet, beside the high costs incurred to purchase such systems. The benefits therefore enjoyed by Kenyan companies are typical first stage benefits of computerization. Some organizations are contented with these benefits because they have no knowledge of more benefits or the level of competition in the market does not warrant more computing benefits while others desire more benefits than what they already enjoy.

Most software vendors that sold the accounting systems to the public companies in Kenya are in foreign countries mainly in developed world with a few of them having agency sales offices in Kenya. This implies that software systems are acquired at high costs because of other costs added to the purchase price, for example, taxation and other import charges. Software systems are therefore more expensive to Kenyan companies than it is with the companies from which the literature is based since they do not have to import. Maintenance of the software systems is also very difficult considering the far location of the experts in addition to the high costs associated with the maintenance contracts, valued in consideration to proximity (the further the expert the higher the cost), this shows that there is little training done after system implementations with users of Kenyan companies. The unavailability of the vendor in the country has also made companies compromise on quality requirements and therefore choose a software system with available vendor support

within the country because some quality products may lack support given that the experts are not in the country.

Kenya companies rely on limited sources for software research in the selection process. They rely heavily on management and consultants selling the software products. This gives them some limitations in their effort to acquire a suitable software product because of their narrow research.

Many companies in Kenya experience problems with their implemented systems, mainly due to hardware problems, technical knowledge deficiency, rigid internal procedures, normal operator errors, complex processes not properly computerized, poor operating system support, lack of vendor support and training among others. However, most respondents considered the problems minor to the benefits achieved.

5.1.2 Conclusion of the factor analysis

The factors are as important to the accountants in Kenya as to the accountants the literature is from. However, the software standards in the minds of professional accountants in Kenya is not as advanced and thorough as those suggested by the literature based in developed countries, for example, the United States, United Kingdom and others. All the factors accepted by the respondents, that applies in the selection of accounting information systems were then summarized into nine factors.

The most important factor is the **Software Versatility**, that is, the system should provide for future expansion, capable of being used by many users if required, allow changes of report formats, have good documentation, make it easy for staff to meet datelines and have good audit trail. It should also be the competitive leading cutting edge technology, besides improving the overall efficiency of the accounting function.

The next important factor is **Software Flexibility**, that is, the software should provide flexibility in financial reporting, easily updated, and justify expenditure on cost benefit analysis.

The third factor is **Software Compatibility**. The software should be compatible to the network infrastructure, the operating system and the computer hardware in place.

The fourth factor is the **Software Multi-Capability**, that is, the software should be able to use different currencies when necessary, promote interpersonal relationships, satisfy user needs and improve the company image.

The fifth factor is **Vendor Expertise**. The software vendor should be popular in selling quality products, have quality and reliable maintenance contracts and be able to provide quality user training.

Factor six is **Software Integrateability**, that is, integrate well with other systems as intended in the software acquisition policy requirement.

The seventh factor is the **Need-to-Know-Basis Information Provision**, that is, the software capability to drill down for detailed information from a report figure to transaction record details if need be.

The eighth factor is **User Organizational Support**. The software should have top management support and should facilitate sharing and information flow demands within the organization.

Factor nine Software System Quality, Control and privacy of data.

Also, unlike in Kenya, there is availability of professional consultancy firms and use of sophisticated selection software for use in the selection process in the developed countries where the literature is based.

5.2 Recommendation

Acquisition policy

Organizations should have information system acquisition policy that state in a procedural manner the steps to be under taken during system acquisition, the stakeholders to be involved and ensure that the system is aligned to the organisational goals and objective. System acquisition team should involve top management and user department staff.

System Justification and Evaluation

Organisations should not just purchase expensive latest hardware and software for the sake of keeping up to the latest technology without proper justifications on cost benefit analysis. Companies should have factors already laid down in their plan that should be considered before they can make the purchase choice. Systems should therefore be acquired on the basis of its contribution to the organisation.

Quality

Companies' system acquisition team should conduct extensive search for software using different sources, for example the Internet, database searches, conducting systematic research, consult with specialists, advertise their needs, review of journals, product directories, talking to local dealers and other ways. This will exhaustively research on the software system that meet the organisation's needs.

Cost

Organisations should try as much as possible to purchase systems from vendors who develop software or manufacture the hardware as opposed to purchasing from sales agents who add a mark-up hence making the product expensive. Also companies should try to look for a supplier who can develop for them a good quality tailor made system to avoid extra costs associated with purchase of unutilised modules.

5.3 Limitations of the study

The study had the following limitations:

- Some respondents did not want to participate by filling the questionnaire. Some respondents just answered some questions and left others unanswered while others intentionally feared to answer some questions for confidentiality purposes.
- Some of the respondents did not have enough knowledge in information systems and therefore could not understand some technical information technology terms in the questionnaire.
- Time constraint was also a major limitation. There was no time to guide the respondents to respond certain questions properly. Also coming up with the research document was time consuming.

5.4 Suggestion for further Research

Information systems change over time at the same time organizations continue to acquire information systems for various functional areas in the organizations. Future researchers may find it necessary to research on the following areas:

- Research on other information systems in an organization in specific areas, for example on human resource management system, sales and marketing information systems, manufacturing information systems and so forth.
- Research on survey of user satisfaction of accountants on accounting information systems
- Research on Implementation problems of information systems in organizations
- The same research topic may be done again after some time.

BIBLIOGRAPHY

ARTICLES

Bryne A. J. "Joe Berardino's Fall from Grace: Anderson's former CEO Presided over the biggest scandals ever and the demise of a legendary firm" **Business Week Online** 12th August 2002.

Daunt C. "Choosing The Right Technology" **A Research on Education** (Learning) Technology. www. Learntel.au page 1

Deutch A. "Food Giant Accounting Scandal" **News .com.au** 27th May 2003.

Fisher Liz "Manage your Accounts with Accounting Software" **Microsoft Corporation: B Central for Small Business**, 2003.

Hegstad L.P. "Matchware System" **A Journal of Information Systems**. Spring 1988.

Holt E. "Selecting the Best System" **IMIS Journal**. Vol.8 issue 2 May '98. page 26.

Karl Jonathan "Cooking the Books is an old Recipe for uncle Sam" **Wall Street Journal**. 22nd July 2002.

Kurt E and Romero S. "WorldCom, The Latest Corporate Accounting Scandal" **New York Times**, June 2002.

Mattingly T. "How to Select Accounting Software" **CPA (USA) Journal**. Nov. 2001. page 49-50

Maxwell A. "Accounting Software General Selection Steps" **General Software Selection**, May 2001 page 4, 12, 13.

- Ochieng G. "E-commerce Strategic Challenges". **Market Intelligence A Journal of Business & Finance**, MI Feb 2000. Page 12-21.
- Pancham B. "Why Software Systems Fail" **Information Systems Free Essays** www.4freeessays.com . 1999
- Pratley N. & Treanor J. "Xerox in 2 billion Scandal" **The Guardian Business Week**. Saturday June 29th, 2002.
- Raghunathan, Bahun, Wobser, Suzzane L. " Accounting Software Selection by Small Business Organisation" **A Journal of National Public Accountant**. Sept. '95, Vol. 40 issue 9 page 9.
- Shrage M. "The Real Problem with Computers" **Harvard Business Review**. Vol.75 No.5. Sept. – Oct. 97. Page 178.
- Skidmore S. "Information Technology in the Accounting Curriculum", **ACCA Student Accountant Journal**. Jan. 2003 page 22 – 26.
- Skidmore S. "The Software Package Approach to Information Systems Development" **Student Accountant ACCA**, March 2001. Page 59.
- Talbot P.A. "Accounting for E-commerce" **IMIS Journal** Oct.2000. Vol.10 issue 5 page23
- Tiernan C. "Realising Benefits from IT" **IMIS Journal**. Feb.2002, vol.12 issue1 page 15
- Wandera N. "Kenya Commercial Bank Cuts Costs of I.T Project" **East African Standard** www.allafrica.com, Nov. 2002.

BOOKS

- ACCA BBP Text, **Information Analysis**. 6th edition. BPP Publishing. June 1998. Page 166.

- Anderson R. G. **Data Processing** . Vol. 1 Principals and Practice. 7th edition.
Pitman Publishing 1991 page 354.
- Babbie, Earl R, 1979. **The Practice of Social Research**, 2nd ed. Belmont,
California. Wadsworth Publishing company Inc
- Dittman K.C , Bentley L.D., Whitten L.J., **Systems Analysis & Design
Methods**. 5th edition McGraw-Hill Irwin, page 85.
- Grudnitski G., Burch J.. **Information System Theory & Practice** 5th
edition 1989
- Laudon C.K., Laudon J.P., **Management Information Systems**. 6th edition.
Prentice Hall. 2000 page 37-40.
- Moscove S. A., Simkin M.G., Baganoff N.A., **Core Concepts of Accounting
Information Systems**. 7th edition, John Willy & Sons INC. 2001 page
- O'Brien J.A. **Management Information System**. 4th edition. McGraw –Hill
Irwin page 424
- O'Brien J.A. **Management Information Systems**. Managing Information
Technology in the E- Business Enterprise. 5th edition. McGraw –Hill
Irwin. Page 148 – 151.
- Reynolds W. G. **Information Systems for Managers** . 3rd edition, West
Publishing Company, 1995 page
- Stephen Jay, 1997. **Sage Sterling for Windows**. Computer step
- Turban E., McClean E., Wetherbe J. **Information Technology for
Management**. Making connection for strategic advantage. 6th edition.
John Willy & sons INC. 1999. page 356-364.

OTHER PUBLICATIONS.

Abwao V. Information Technology Application in Business Management within Kenya Companies: A survey of Insurance firms in Nairobi Kenya. **Unpublished M.B.A Project**, 2002.

Kipngetich, J. K.; “ Management Satisfaction with the Performance of Computer- Mediated Information Systems: The Case of Clients of Selected Computer Vendors” , **Unpublished M.B.A Project.** June 1991.

Mwithiga L.T “ A Survey of user Satisfaction in Corporate Information Technology. The Case of Kenya Shell Ltd.” Unpublished M.B.A Project, 2002.

Nyandiere C. M.; “An Investigation of the Challenges Facing Enterprise Resource Planning Systems (ERPs) Implementation in Kenya.” **Unpublished M.B.A Project.** September 2002.

Nyambati N.R. “Information Technology Planning Practices in Kenya Banks” **Unpublished M.B.A Project**, 2001.

Odedra-Staub M.; “Critical Factors Affecting Success of Computer Based Information Systems: Cases from Africa. Unpublished Research Paper. **National University of Singapore.** 1992.

APPENDICES

APPENDIX I

Department of Management Science,
Faculty of Commerce,
University of Nairobi,
P.O Box 30197,
Nairobi.
15th July 2003.

To the respondent

Dear Sir/Madam,

RE: QUESTIONNAIRE

I'm a postgraduate student in the faculty of commerce, University of Nairobi. I'm carrying out a research on **FACTORS CONSIDERED IN SELECTION AND IMPLEMENTATION OF ACCOUNTING INFORMATION SYSTEMS.**

I would therefore like to request for your assistance to complete the questionnaire attached to enable me complete the research. The information you will provide will be treated with strict confidence and it will only be used for academic purpose (research.).

Your cooperation in completing the questionnaire will be highly appreciated.

Yours faithfully,

Ruto Yano

M.B.A II Student

Supervisor:

Mr. Julius K. Kipnetich, Lecturer,

Department of Management Science, University of Nairobi

QUESTIONNAIRE

SECTION 1: COMPANY PROFILE.

1. Name of your Company _____
2. How long has your organisations been in existence in Kenya
 - Less than 5 years ago
 - Less than 20 but more than 10 years ago
 - Over 20 years ago
3. Industry / sector (Please tick as appropriate)

Manufacturing <input type="checkbox"/>	Finance / Insurance <input type="checkbox"/>
Construction <input type="checkbox"/>	Wholesale / Retail trade / Restaurant and Hotels <input type="checkbox"/>
Real Estate / Business services <input type="checkbox"/>	Commercial Services <input type="checkbox"/>
Mining <input type="checkbox"/>	Agricultural <input type="checkbox"/>
Other (please state) _____	
4. Please indicate the company ownership
 - Wholly foreign owned
 - Wholly owned locally
 - Partly foreign & Locally (jointly) owned
 - Other (Please state) _____
5. No of branches the company has in Kenya

1 – 5 <input type="checkbox"/>	11 – 15 <input type="checkbox"/>
6 – 10 <input type="checkbox"/>	Over 15 <input type="checkbox"/>
6. Does your organisation use an accounting information system?
 - Yes
 - No
7. If yes, of these branches how many are using the accounting software?
 - all branches
 - some branches
 - none of them
8. No of company employees

No of Employees	Please Tick as appropriate
1 - 50	<input type="checkbox"/>
51 - 100	<input type="checkbox"/>
101- 150	<input type="checkbox"/>
151 – 200	<input type="checkbox"/>
201 – 300	<input type="checkbox"/>
Over 300	<input type="checkbox"/>

9. What are the qualifications of the users in the accounting software department?

- 1. Purely professional Accounting.
- 2. Hybrid (Accounting & IT).
- 3. IT only.
- 4. No training.

10. What is your Company Turnover (per year)

- Less than 5 million
- Over 5 million but less than 100 million
- Over 100 Million but less than 1 billion
- Over 1 billion



SECTION 2: SURVEY ON ACCOUNTING INFORMATION SYSTEM IMPLEMENTED

1. Does your company have a written computer (hardware or software) acquisition policy?

- Yes No

2. If yes, is the acquisition policy followed when acquiring software for the organization?

- Yes No

3. Is your accounting function fully or partly computerised?

- Partly computerised
Fully computerised

4. Which of the following is true of your accounting information system.

- Part of an ERP system (Enterprise resource planning system).
Purely designed suite for accounting function only
Other (Please state) _____

5. What is the name of the accounting software implemented? _____

6. When was the accounting software implemented? (State the year) _____

7. Who is the vendor (supplier) of the accounting software?

8. Approximately how much have you spend on your accounting software?

- Less than Ksh 1 Million
- More than Ksh 1 Million but less than 5 Million
- Over Ksh 5 Million

9. Does your accounting Information system currently use an E-commerce facility through the Internet connection?

- Yes No

10. How would you rate the following cost elements incurred with the accounting information system?

Cost element	Very high	High	Satisfactory	Cheap	Very cheap
a) Training costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Implementation & conversion costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Software set up costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Consultancy Costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Software Purchase Costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Testing Costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Maintenance Costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Other Costs (state)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Please tick against the accounting module (subsystem) currently in use by your organisation and the degree of importance placed on the module.

Module	Module Used	Degree of Importance				
	Tick as Appropriate	Very high	High	Satisfactory	Low	Very Low
General Ledger						
Accounts payable						
Payroll						
Accounts Receivable						
Order entry						
Job costing						
Inventory						
Cash Management / Cashbook						
Purchase Order						
Financial analysis						
Invoicing						
Executive Advisor						
Report writer						
Fixed Assets Register						
E- commerce and EDI capabilities						
Electronic Funds Transfer						
Comprehensive VAT						
Foreign currency capabilities						
Data import / export						

12. What according to you are the benefits of computerisation of your accounting system? (Tick all that apply and Rate in accordance to the degree of value to the accounting department).

Benefit	Benefit Valued	Degree of Value				
		Tick as Very High	High	Satisfactory	Low	Very Low
Speed/time saving						
Better/more detailed information available						
Better traceability /audit trail						
More overall efficiency						
More timely / statements / reports						
More accuracy / less error						
Reduction of costs/ Personnel						
Quick response to the need of information						
Different kind of analysis possible						
Know where information is						
Better paper and workflow/ Less paper work						
Nice report formats / Presentation						
Record keeping easier						
Better integration						
Ability to expand						
Better internal control						
Scheduling						
Forecasting						
Data transfer						

State other benefits? _____

13. Which of the following sources contributed to the selection of the accounting software?

<i>Source</i>	<i>Tick</i>
The Internet	<input type="checkbox"/>
Vendor Advertisements	<input type="checkbox"/>
Review of specialist (software) journals or articles that cover the area of interest	<input type="checkbox"/>
Product/service directories	<input type="checkbox"/>
Database searches	<input type="checkbox"/>
Consultants who specialise in the area of interest	<input type="checkbox"/>
Advertising your need via requests for information and requesting replies from interested vendors	<input type="checkbox"/>
Visiting and talking to the local dealers and store of the software product	<input type="checkbox"/>
Conducting a Systematic Research	<input type="checkbox"/>
Company took advice from other company users	<input type="checkbox"/>
Reliance on Company decision	<input type="checkbox"/>
Company advice from the audit firm	<input type="checkbox"/>

Other (please state) _____

14. How would you rate your satisfaction from the accounting software?

- Extremely satisfied
- Very satisfied
- Fairly satisfied
- Unsatisfied
- Very unsatisfied
- Don't know

15. What problems (if any) do you experience with the accounting software?

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____

SECTION 3: FACTORS CONSIDERED IN SOFTWARE SELECTION.

What of the following factors do you agree or disagree as **important** when selecting accounting software to implement in your organisation’s accounting system?

	Strongly Agree	Agree	Satisfactory	Disagree	Strongly Disagree
1) The software should fit the requirements of the accounting department					
2) The software or software vendor should be popular & has been used in the market for long					
3) The accounting software should have top management support					
4) The accounting software to be selected depends on if the users are trained or knowledgeable in it					
5) The accounting software should be compatible to the personal computers in place					
6) Accounting software should be compatible to the network infrastructure in place					
7) The Accounting software should be compatible to the operating system in place					
8) The accounting system should maintenance contract from the vendor without considering maintenance cost					
9) The accounting system should have good controls and privacy of data					
10) The accounting system should reduce time pressure from staff (speed and time saving)					
11) The accounting system should be able to avail detailed information if needed					
12) The overall efficiency of the accounting system must be excellent					
13) The accounting system should be able to increase the quality of reporting (achieve financial accounting standards					
14) The system should improve the image of the company					
15) The accounting system should provide flexibility in financial reporting					
16) The accounting system should integrate well with other non accounting modules in the organisation					

17) The accounting system should provide for integration with the customers and suppliers					
18) The accounting system should provide the capability to drill down on information (to transaction documents e.g. an invoice)					
19) The accounting system should facilitate sharing & increased information flow within the organisation					
20) The system should give much power and to accountants over other departments.					
21) The System should provide for good audit trail of transactions					
22) The Software Vendors should be able to give quality training on the Software product					
23) The software should justify expenditure on cost benefit analysis					
24) The accounting system should have good documentation					
25) The system should provide for future expansion plans					
26) The System should have the capability to customise report formats if need be					
27) The System should provide for multi-currency capability					
28) The software should allow for updating by the developer for any omission of an important functionality or a fault discovered					
29) The software should contain the latest leading edge technology					
30) The software should allow operation in multi-user environment or a single user upgradeable to multi-user					
31) The Software should be acquired based on Company software acquisition policy					
32) Software should promote interpersonal relationships in the organisation					
33)					

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX II

Total Variance Explained									
Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.880	21.499	21.499	6.880	21.499	21.499	4.577	14.303	14.303
2	4.344	13.575	35.074	4.344	13.575	35.074	3.144	9.826	24.129
3	2.964	9.263	44.337	2.964	9.263	44.337	3.066	9.582	33.711
4	2.690	8.406	52.743	2.690	8.406	52.743	3.046	9.517	43.228
5	2.194	6.858	59.601	2.194	6.858	59.601	2.649	8.277	51.505
6	1.724	5.386	64.987	1.724	5.386	64.987	2.359	7.371	58.877
7	1.441	4.503	69.490	1.441	4.503	69.490	2.263	7.070	65.947
8	1.377	4.303	73.793	1.377	4.303	73.793	2.066	6.455	72.403
9	1.241	3.877	77.670	1.241	3.877	77.670	1.686	5.267	77.670
10	.972	3.038	80.708						
11	.870	2.718	83.426						
12	.823	2.572	85.998						
13	.665	2.077	88.075						
14	.598	1.870	89.945						
15	.578	1.807	91.752						
16	.494	1.543	93.295						
17	.459	1.435	94.729						
18	.381	1.191	95.920						
19	.320	.999	96.919						
20	.225	.704	97.623						
21	.206	.643	98.267						
22	.180	.561	98.828						
23	.149	.464	99.292						
24	9.098E-02	.284	99.577						
25	6.545E-02	.205	99.781						
26	3.588E-02	.112	99.893						
27	2.131E-02	6.658E-02	99.960						
28	1.029E-02	3.217E-02	99.992						
29	2.527E-03	7.898E-03	100.000						
30	4.468E-16	1.396E-15	100.000						
31	-5.564E-17	-1.739E-16	100.000						
32	-1.327E-16	-4.146E-16	100.000						

Extraction Method: Principal Component Analysis.

APPENDIX III

Component Matrix (a)

	Component								
	1	2	3	4	5	6	7	8	9
The system should have the capability to customise formats if need be	0.759	0.161	-0.144	-0.169	0.211	9.52E-02	8.78E-03	-0.126	0.211
The accounting system should be able to avail detailed information if needed	0.734	-0.318	4.65E-02	0.391	-0.134	-0.184	-0.229	-2.59E-02	-4.19E-02
The accounting system should have good presentation	0.674	-0.106	0.252	-5.74E-02	0.344	-0.26	8.44E-02	-0.275	-1.88E-02
The system should provide for future expansion plans	0.673	4.06E-03	0.366	-0.384	6.21E-02	3.77E-02	-2.08E-02	-9.08E-02	0.312
The accounting system should provide flexibility in financial reporting	0.665	-0.246	1.81E-02	0.121	-0.271	0.26	0.249	0.284	-0.258
The software should allow operation in multi-user environment or a single user upgradeable to multi user	0.664	-0.158	0.16	-0.241	0.364	2.41E-03	-5.18E-02	0.226	0.142
The software should contain the latest leading edge technology	0.628	0.431	4.28E-02	-0.157	1.45E-03	-3.79E-02	-0.101	-7.45E-02	-0.198
The accounting system should facilitate sharing & used information flow within the org.	0.614	0.141	-0.457	0.278	5.25E-03	-4.95E-02	-0.238	0.2	0.162
The software should allow for updating by the user for any omission of an important functionality or a bug discovered	0.603	-0.314	0.174	-0.278	-0.278	0.436	0.183	0.166	1.30E-02
The system should provide for good audit trail of transactions	0.602	1.97E-02	0.238	-2.08E-02	3.63E-02	-0.174	-0.56	-2.98E-02	-0.135
The accounting system should reduce time pressure on staff	0.574	-7.16E-02	0.339	-0.283	0.173	-0.178	0.109	-0.151	0.224
The accounting system should provide flexibility in financial reporting	0.564	0.107	8.55E-02	0.301	-0.29	6.42E-02	0.387	8.19E-02	-0.101
The s/ware should justify expenditure on cost benefit analysis	0.546	-0.405	-6.28E-02	0.388	-0.115	-9.43E-02	2.85E-02	-8.44E-02	-0.111
The system should improve the image of the company	0.479	0.361	-1.77E-02	0.226	-0.255	-4.15E-02	0.35	-0.372	4.42E-02
The s/ware vendors should be able to give quality feedback on the s/ware product	0.453	0.351	-0.182	-0.107	0.444	0.451	-7.78E-02	0.258	-0.102
The overall efficiency of the accounting system must be excellent	0.451	-0.162	0.295	0.19	0.396	0.319	-2.49E-02	-0.193	-0.338
The accounting software to be selected depends on if the users are trained or knowledgeable in it	-0.133	0.741	0.129	-5.67E-02	0.103	-1.57E-02	0.194	7.21E-04	0.285

2: The software should promote interpersonal relationship in the organization.	0.198	0.735	-0.293	-6.85E-02	-4.95E-02	0.323	-3.97E-02	-0.178	3.25E-02
3: The system should give much power to accountants in other departments	-0.327	0.676	0.1	0.113	0.264	-4.68E-02	-0.225	-0.178	-3.33E-02
4: The accounting s/ware should be compatible to the personal computers in place	0.161	0.657	0.195	-0.156	-0.448	-0.106	-3.47E-03	0.21	-6.55E-02
5: The accounting system should have maintenance contract from the vendor w/out considering maintenance cost	-9.20E-02	0.523	0.243	0.105	0.34	-4.92E-02	0.304	0.186	-0.186
6: The s/ware or s/ware vendor should be popular & has been in the market for long	3.84E-02	0.449	-0.415	-0.338	0.404	-0.125	0.303	9.11E-02	-0.274
7: The accounting system should provide for integration with the customers and suppliers	0.129	9.70E-02	-0.674	-6.39E-02	-0.226	1.57E-02	-1.50E-02	6.36E-02	0.398
8: The accounting s/ware should be compatible to the existing accounting system in place	-0.136	0.59	0.604	4.82E-02	-0.168	-0.115	-0.188	3.91E-02	-7.73E-02
9: The accounting s/ware should be compatible to the existing network infrastructure in place	0.115	0.452	0.539	-0.142	-0.504	2.82E-02	-0.197	0.266	-7.52E-02
10: The accounting system should provide the capability to drill down on information	0.305	0.328	-0.478	0.453	-9.96E-03	-0.297	-0.114	-0.155	-0.356
11: The system should provide for multi-currency capability	0.357	0.276	-0.384	-0.212	-0.375	0.104	-0.253	-0.162	3.39E-02
12: The accounting system should integrate well with other accounting modules in the org.	7.13E-02	0.165	0.222	0.678	0.19	0.304	-0.148	-0.113	0.385
13: The software should be acquired based on company software acquisition policy	-5.26E-02	0.286	0.128	0.657	-7.04E-02	0.396	0.186	-0.153	0.105
14: What of the following factors do you agree or disagree with? Important in selecting accountings/ware - the s/ware should meet the requirements of the accounting department.	-0.424	-8.96E-02	0.373	0.435	0.186	6.53E-02	-9.37E-02	0.298	0.117
15: The accounting system should have good controls and security of data	0.352	0.116	0.132	0.248	-2.85E-02	-0.668	0.334	0.146	0.221
16: The accounting s/ware should have top management support	0.333	0.159	-0.289	0.311	0.256	-0.14	-8.90E-02	0.607	9.98E-02

Extraction method: principal component analysis.

Components extracted.