



USAGE OF ICT: IMPLICATIONS ON ACCOUNTING INFORMATION SYSTEM AND ORGANISATIONAL PERFORMANCE IN EAST AKIM MUNICIPALITY OF THE EASTERN REGION, GHANA

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ABSTRACT

The accounting information systems in businesses and government agencies has become a significant tool in the improvement of the efficiency of the organizations and support its competitiveness by providing management with financial, accounting and auditing information. Therefore, this study looked at the level of usage of ICT by accountants and auditors; assessed the state of the art of e-accounting systems use among some public organizations and financial institutions; identified barriers to the use of ICT and the adoption of e-accounting systems by accountants and auditors and their finance sections; and examined the impact of ICT on the performance of accountants and auditors as well as their organization.

The study was carried out in the East Akim Municipality of the Eastern Region of Ghana and adopted the case study approach using a descriptive research design. With help of a questionnaire, data was collected from 20 respondents (accountants, bankers and auditors) in the public agencies and financial institutions. Data were analysed using descriptive statistics and the summary of major findings in relation to the specific objectives of this study is as follows. It was concluded that respondents exhibited varying usage, knowledge and skill levels on ICT, were using varying number and kind of ICT devices, software, tools and components. Again, indicated their ICT systems were very effective and had variable system update regimen. They also perceived that ICT has great impact on accounting and auditing and identified some barriers to the use of ICT and adoption of e-accounting systems. And finally indicated the use of ICT comes with its own challenges. It was therefore recommended that though the use of ICT is associated barriers and problems, organization should be encouraged to make more investment in this infrastructure since there are on the other hand more benefits from the use of ICT.

CHAPTER ONE: GENERAL INTRODUCTION

Introduction

This chapter introduces this dissertation and it covers the background to the study, problem statement, the purpose of the study, research questions, significance of the study, delimitations and limitations, and definition of some key terms used in the study. It also captures how the study has been organised from chapter one to the last chapter or section.

Background of the Study

The art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof describes the concept of accounting (American Institute of Certified Public Accountants [AICPA], 1953). According to Stefanou (2006) the principal purpose of an Accounting Information System (AIS) is the collection and recording of data and information regarding events that have an economic impact on organizations and the maintenance, processing and communication of such information to internal and external stakeholders. The information is used for the evaluation of the financial position of the organization and for decision-making purposes. With the advent of fast changing business world resulting from increased competition, globalization and rapid pace of technological changes, manual system of accounting is not adequate enough in fast tracking the needed information in these competitive era (Frishammar, 2002).

In order to improve business performance in today's world, majority of firms and organization (manufactures, suppliers, retailers, and financial institutions) adopt business strategies such as information and communication technology (ICT) in achieving its goals. It has been noted that developing countries in which market failure is particularly diverse and widespread may require coordinated strategies, and as such ICT adoption (Lall, 2001). Technology, innovation and knowledge have become the key drivers of economic growth (Sravani, 2013), and so must be given the necessary attention by business organizations. Ismail and Mazlina (2012) have indicated that contemporary firms are making significant investments in ICT to align business strategies, enable innovative functional operations and provide extended enterprise networks. As a result, these firms have adopted ICT to foster changes in their activities such as managing customer relationships, manufacturing, procurement, the supply chain and all other key activities (Agarwal & Sambamurthy, 2002; Chen & Tsou, 2007) and to improve their competitive capabilities (Sambamurthy, Bharadwaj & Grover, 2003).

A number of information systems researchers have posited ICT as an important ingredient of innovation development (Corso & Paolucci, 2001; Dewett & Jones, 2001; Xu, Sharma & Hackney, 2005). Accounting, unlike other information systems, was one of the first functional areas to benefit from computerization when computers were initially introduced to organizations (Amidu, Effah & Abor, 2011). Moreover, it is a known fact that accounting package is usually one of the first major computer packages that a company

purchases and it is one of the two business applications often used, with word processing being the other (Tavakolian, 1995). This is due to the significant role accounting plays in the performance of organizations.

One of the current innovative system in the world is the emergence of information technology in accounting. These days, most business entities, ranging from large corporations down to micro enterprises, are aided by their Accounting Information Systems (AIS) in managing their operations. Information technology has engraved across all the aspects of recent activities ranging from small to medium and medium to large applications and operations. The trends of human centric systems which are more common and popular in the past are now slowly and gradually diminishing from our public and private corporate establishments. The new, most versatile, popular, advent, efficient technique wherein the basic approach is computer centric modus operandi (the way in which it operates or works) have overridden almost all the modern industrial practices from very basic step of requirement elicitation to final product outcome. Information and Communication technology is this computer centric system. ICT has thus increased efficiency, reliability, effectiveness, performance and other characteristics of modern commercial operations. ICT has increased and renovated financial structure both in quality and quantity. ICT has sophisticated the way transactions are catered in any financial system with optimal levels of performance and efficiency.

With a comprehensive use of modern information technology as computers, internet and intranet, and communication technology, accounting

information system is open to other business resource system, has a high degree of integration and shared information (Qiang, 2011) and makes deeper and more extensive use of accounting information resources, and real-time reporting can be achieved (Liyan, 2013). The advancements in information technology have dramatically improved accounting systems and transformed economic life (Lim, 2013). Computers and other digital technologies have increased office productivity facilitating the rapid exchange of documents, research, collaboration with far-flung partners and the collection and analysis of data. Information technology gave all sorts of individual economic actors the new valuable tools for identifying and pursuing economic and business opportunities (Ballada & Ballada, 2011).



CHAPTER TWO: DEFINITION OF THE INVESTIGATION**Introduction**

This chapter put out the statement and description of the issue or problem to be investigated.

Statement of the Problem/Issue

Recently, researches have become more interested in subject areas such as new accounting; e-commerce, and new information systems and so conduct more researches in these fields as a result of the many advancements that have occurred in the field of technology. As applying accounting information systems make the companies and organization face with new condition which leads to the data collection and analyses in shorter time and lower costs, many local government departments, firms and financial institutions utilize accounting information systems for data collection and analysis and providing on-time information for the decision-making of the managers and other beneficiaries. It is worth noted that modern accounting has to use these technologies which have significant role in the efficiency of modern accounting information systems and clarifying the high levels of complexities and covering different levels and parts of the organizations (Abadi, Kermani, Zoqian, Mollaabbasi, Abadi, Abadi, Fanaean & Farzani, 2013). The continuous changes and swift advancements in economical operation such as accounting and auditing are happening and have led to evolution in such a way that the role of accounting and auditing as well as auditors and accountants are changing. This situation has made the related financial information and data

collection and presentation, more reliable and comparable by the economical departments necessary.

There are quite a number of studies in this field and notable among them are Abadi, et al., (2013), Lim (2013); Amidu, Effah and Abor (2011); ALSarayreh, Jawabreh, Jaradat and ALamro (2011); Indahwati (2015); Hammour (2017) among others. These studies have all focused on specific areas such banks, hotels and other organizations and none has tried to look at different government agencies. This study intends to assess the impact of ICT on the district treasury, audit service, other government agencies and financial institutions. Therefore, this study seeks to look at the evaluation of the implication of the use of the continuous-changing technology on Accounting Information System and performance of some public agencies and financial institutions in East Akim Municipality of the Eastern Region.



CHAPTER THREE: DYNAMICS OF THE ANTICIPATED SOLUTION

Introduction

This chapter presents the general goal(s) and specific objective(s) of the investigation as well as the methodology for the study.

General Goal of the Study

To evaluation of the implication of the use of the continuous-changing technology on Accounting Information System and performance of some public agencies and financial institutions in East Akim Municipality of the Eastern Region.

Specific objectives

Specifically, the study sought to:

1. examine the usage, knowledge and skill level in ICT by accountants and auditors in the various agencies and or financial institutions
2. assess the state of the art of e-accounting systems use among some public organizations and financial institutions in Ghana
3. examine the impact of ICT on the performance of accountants/auditors and their agencies/institutions.
4. assess the barriers to the use of ICT and the adoption of e-accounting systems by accountants and auditors and their finance sections of the agencies and financial institutions.
5. identify the problems associated with the use of ICT by organization

Significance of the Study

The study will help us to know how effective the use of ICT has been to the Accounting profession in the municipality. It will also help us to know the level of ICT usage by accountants and various agencies and or institutions in the study area. It will also reveal the barriers to the use of ICT by accountants and finance sections of the agencies and financial institutions in the adoption of e-accounting systems.

Research Methodology

This section describes the procedures and techniques used to collect and analyse data for this study. It captures the study area, research design, the population, the sampling procedure, the sample size, the research instrument, data collection, data processing and analysis that were used as well as the rationale behind choosing these techniques for the study.

Study Area

The study was conducted in the East Akim Municipal which has its capital to be Kibi. It lies within longitude 0°56 West and 0°15 West and latitude 6°03 North and 6°35 North. It has a total land area of approximately 725km². It is bordered by Kwahu South District to the North, Atiwa District to the North West, Kwabibirem District to the South West; Fantekwa to the East and New Juabeng and Suhum-Krabo-Coaltar Districts to the South. About 42% of the municipal

labour force (population) are engaged in the Service, Commerce and Industry with the rest of them engaged in Agriculture.

Research and Study Design

The study adopted the case study approach using a descriptive research design to the conduct this study. According to Yin (2003), the case study seeks to investigate a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. Since the case study method is conducted in a natural setting with the intention to comprehend the nature of current processes in a previously area (Benbasat, Goldstein & Mead, 1987), it allows the researcher to grasp a holistic understanding of the phenomenon under investigation (Creswell, 1998; Eisenhardt, 1989). Orlikowski and Baroudi (1991) declared that, in the information systems research field, case study has demonstrated its appropriateness to generate a well-founded interpretive comprehension of human/technology interaction in the natural social setting.

Population for the Study

The target population/participants for this study was all accountants and auditors in the public agencies and financial institutions in the East Akim Municipality. These group of people was used because they directly involved the subject under investigation.

Sample Size and Sampling Procedure

The study used a census since the target number of respondents was not huge to be studied.

Purposive sampling method was used to select the finance section of public agencies (district treasury, audit service, Ghana Education Service, Ghana Health Service, Ghana Police Service, Judicial Services) and financial institutions.

Research Instruments

Two different data collection instruments were used for data collection. A combination of content-validated questionnaires and structured interview schedule were used to collect primary data for the study.

Pretesting of instrument for the study

The instruments for the study was pretested for reliability and validity and this was carried out in Kwabibirem District of the Eastern Region. Cronbach's Alpha (Likert-type scale) and Kuder-Richardson 20 coefficient for reliability (Nunnally, 1998) were used for the analysis and the results obtained were in a range of 0.637 – 0.944 which shows instruments were reliable (Pallant, 2013).

Data collection

The questionnaires were distributed to the respondents (accountants and auditors) after they were identified and were willing to participate in the study. The researcher personally distributed the questionnaires to the respondents. They

were asked to respond to the questions in the instrument and the filled questionnaires were collected later. It is worth mention, however, that 20 out of 30 questionnaires distributed were returned. The response rate from the survey was 66.7 percent.

Data Processing and Analysis

The data collected were entered into IBM Statistical Products and Services Solutions (SPSS) version 22. The data was cleaned prior to data analysis. The data were analysed into frequencies, percentages, means and standard deviations to describe the levels of usage, knowledge and skills by the accountants/auditors in the various organizations, state of the art of e-accounting systems use, impacts of ICT on the performance of organization, impact of ICT on the accounting and auditing, as well as problems associated with the use of ICT. Kendall's Coefficient of Concordance (Kendell's W) was used to measure the degree of agreement among respondents in ranking barriers to ICT usage.

CHAPTER FOUR: LITERATURE REVIEW

Introduction

This chapter of the study reviews current literature of related works gathered through published journals, articles and books. Among the topics covered include

Roles of the Accountant in Business

Subsequently to the invention of the double-entry bookkeeping by Luca Pacioli in 1492 (Stevelinck 1994), accountants have served businesses by keeping transaction records which permit the reporting of business performance. But for such information kept by accountants, companies are unable to evaluate their costs and profits, unable to measure their performance and thus unable to plan for success going forward (Brecht & Martin 1996). According to West (1996, p. 85) the growth in the demand for accounting services in the mid-nineteenth century, attributable to industrialisation and management information needs and the desire for economic rewards and occupational ascendancy, prompted accountants to organise into associations.

Over the last decade, accountants take up specialised business positions such as management accountants, financial controllers and auditors. They have become users of information and participate in the decision-making process and management of businesses (Tam, 2011). Accountants working in public accounting firms provide professional services to businesses. The web sites of the Big 4 international accounting firms (Deloitte Touche Tohmatsu, Ernst & Young,

KPMG and PricewaterhouseCoopers) give an idea of the diversity of services (audit and enterprise risk services, consulting, financial advisory, human resources, legal and tax services, growth enterprise services, advisory, assurance, transaction services, strategic growth, etc.) offered by the accounting profession today.

Present day accountants require a much wider knowledge base and skill set than simple bookkeeping to be able to provide these diverse services demanded from businesses. Besides acquiring accounting skills and knowledge, “today’s professional accountant, ... has to be an entrepreneur, financial analyst, global competitor, market analyst, excellent salesperson, good communicator, capable negotiator and public relations specialist, as well as a good manager” (Simyar 1993, cited in Adler & Milne 1997, p. 109). They need to have excellent analytical skills to be able to analyse and pinpoint the problematic areas of a company (Tam, 2011). Moreover, accountants need to understand and use computerised information systems as their use in businesses has become a norm rather than the exception.

Impact of ICT on the Role of the Accountant

The impact of ICT on organizations and on the role of the accountant is cannot be overemphasized (Larres, Ballantine & Whittington, 2003). Bookkeeping services which early accountants provided to businesses became obsolete as advances in ICT development gathered pace. The impact of IT on accounting is second only to Pacioli’s invention of double entry (Kulesza &

Siegel, 1997). Accounting in the 1960s was a system for communicating the economic events of an entity (Ijiri 1967) and was described by Joplin (1966, p.

44) as “the art of recording, classifying, summarising, evaluating, and communicating financial data”. Providing information depends on data collection. The use of computers in business allows cheaper and more efficient methods of data collection and record keeping, meaning that bookkeeping, essentially a data

collection activity, and one which used to be a highly valued skill of accountants, is no longer valued highly (Elliott, 2000).

Accounting academics and practitioners have been voicing the concern of the impact of ICT on the accounting profession and have written abundantly on this topic. For instance, Trites (2004) suggested that accountants have to shift from the ‘Pacioli paradigm’ to the ‘Google paradigm’ in order to meet the challenges of the technology-driven accounting world. It also been proposed that in order to maintain a major role in business organizations, accountants must involve themselves in management information systems (MIS) and extend their skills and techniques to embrace the new systems and technologies (Joplin, 1966).

Now, ready-made MIS systems are available under the name of enterprise resource planning systems (ERP) and are being adopted by many of companies. ERP systems integrate all aspects of a business and are designed to allow data-entry at source by the users of various departments. According to Caglio (2003), Scapens (2003) and Seethamraju (2005) this results in the reduction of routine data-entry jobs for accountants and the diffusion of accounting knowledge throughout the organisation. Accountants do not have a monopoly on accounting

knowledge and are not the only ones performing traditional accounting activities such as data collection and preparation of reports. As the use of computers increases in organisations, the distinction between accounting and other information becomes blurred. In order to retain their position as custodian of financial information, accountants need to be knowledgeable about information systems and their future development (Williams et al, 1984).

Caglio (2003) indicated that companies are increasingly looking for accountants who can use their expertise in more important activities such as strategic planning, business management and design and management of ICT systems. A new breed of managers coined as the ‘hybrid’ finance/ICT manager has emerged and is in great demand (Anonymous, 1998). Practising and new accountants will therefore need to acquire new skills and knowledge in order to survive in the information age.

To be able to do this, accountants have to understand and stay current with the latest information technology. “If you don’t stay current with the technology, your career is in jeopardy” (Anastas, 1997, p. 51). Accountants will become increasingly involved in information systems and this has implications for the tertiary education of new accountants (Williams, et al. 1984). Professional accountants are now required to possess the skills and knowledge to use various information technologies and IT has become a core competency for accountants (Larres, Ballantine & Whittington 2003). Given the strong argument that accountants need to embrace IT, the manner in which accountants are educated and trained naturally comes under scrutiny.

Impact of ICT on Traditional Accounting Cycle

According to Liyan (2013), accounting information system is based on and can as well do more than computerized accounting. Through a full utilization of modern information technology (such as computers, internet and intranet, and communication technology), accounting information system is open to other business resource system, has a high degree of integration and shared information (Qiang, 2011), and makes deeper and more extensive use of accounting information resources, and real-time reporting can be achieved (Liyan, 2013).

All the theories and methods of traditional accounting are based on manual accounting; however, these approaches will continue to change with the inference of information technology. It is no secret that accounting cycle includes the steps: (a) journalizing the transactions, (b) posting to ledger accounts, (c) preparing trial balance, (d) making adjustments and preparing adjusted trial balance, and (e) preparing financial statements and appropriate disclosure (Liyan, 2013). As a result, accountants have to perform the whole accounting cycle manually in this accounting era. Some basic theories in manual accounting include voucher classification and summary, control ledger and subsidiary ledger posting, and accounts checking are. Nonetheless, in the accounting information system (which make use of ICT), the accountants only record transactions into the computers which processes the other steps automatically without worrying about errors or mistakes.

Impact of ICT on internal control and audit

Internal control is attained by the separation of duties, by way of checking whether the numbers from different sources can be matched, and also by checking seals and signatures – in manual accounting (Liyan, 2013). Further, auditors then begin from source documents, auditing up to trial balance, otherwise begin from financial statements to source documents or carry out as elective examination to find errors and cheatings (Liyan, 2013). In the era of modern accounting information system, where more accounting processes are done by computers or through internet, anything wrong with application program or operation authority unreasonably set, will lead to serious consequences, the audit trail and focus has changed (Liyan, 2013).

Since most procedures are automatically finished during auditing, it is imperative to identify the operator and make appropriate sanction controls; hardware and software security, voucher auditing and the separation of duties are key points of internal control (Changfa, 2012). Currently, the accounting records storage has changed from paper to electronic memory which is easily corrected and altered. Thus, the important aspect to consider in accounting information system. Is how to prevent unauthorized modification of data and commit crime through computer. Again, the audit of internal control system is necessary, in order to ensure accounting information system safe, reliable, effective and inefficient use.

The impact of ICT on principles of accounting

The relevance to decision-making is the fundamental qualitative feature of accounting. This is however, limited by manual accounting, traditional accounting stresses materiality principle, or accountants must consider the relative importance of any transactions, which reduces the precision of accounting information and limits the service capability of accounting information to management. In this information era, the data collection, processing and utilization are all through computers, which have much greater data processing ability, and the accounting information resources are broadened and deepened, fine and detailed management is possible (Liyang, 2013). For example, Jianlan, (2011) indicated that traditional inventory system includes specific identification method, first-in-first-out method, last-in-first-out method, and average cost method, but specific identification method is only used to value expensive goods; in the accounting information system, specific identification method is possible for most goods except fresh commodities, and can bring more accurate information.

Notwithstanding these, accountants have to keep paper accounting files as well as digital accounting records in an information accounting system. From tangible to intangible files, digital records broken up means great damage to businesses (Liyang, 2013). Thus, management of accounting files is more complex and high demanding than before. Thus, information communication technology promotes the business information processing capability and capacity so much

that the functions as forecasting, controlling and management can be realized to some degree.

Information Communication Technology Impacts on Modern Accounting

The impacts of information communication technology on modern accounting and auditing are enormous. Some of these impacts include:

First impact of ICT is money saving and this can be seen in many areas. For instance, it saves cost to travel for collecting the application form and for physical presentation since this can be done online. Also, the potential wastage of paper is removed. Reducing paper consumption helps improve the quality of environment, reduce forest destruction since paper is produced from wood and reduce of waste processing. The utilization of electronic envelops and documents reduce the usage of papers in accounting processes. Thus, it reduces costs and of course it draws the entity away from the environmental issues regarding trees and paper usage. Again, time saving is an impact of ICT. The main time saving factor is the flexibility of scheduling when to engage on a process. For example, payments are made online with credit card thereby saving the time of passing through the cashier.

Further, communication by email is faster and costs less than sending a paper letter by post. The business communication in various commercial organizations has widely accepted email as main medium for information dissemination across platforms. Email systems not only carry out information in

textual formats rather provides the way to transmit multimedia information from customer to client and vice versa.

Moreover, in global financing, information technology allows finance to function on a global level. Financial markets can be thought of as the first organized, global information markets operating through network computers. Without ICT, financial markets could not react to global development and finance companies could not consistently acquire information at the same time as their competitors. For example, the internet allows continuous access to credit scores and credit rating to all lenders, insurance companies and businesses that need financially responsible customers.

It also leads to economic efficiencies hence ICT resources can significantly reduce accounting costs. Redundant tasks can be centralized in one location through the use of information technology infrastructure. Economic efficiencies are realized by migrating high-cost functions into an online environment. Organizations can also offer email support for customers that may have a lower cost than a live customer support call. Computerized accounting systems have also improved the functionality of accounting departments by increasing the timeliness of accounting information. By improving the timeliness of financial information, accountants can prepare reports and operations analyses that give management an accurate picture of current operations. The number of financial reports has also been improved by computerized systems; cash flow statements, departmental profit and loss, and market share reports are now more accessible with computerized systems. Cost savings could also be found through

outsourcing opportunities, remote work options and lower-cost communication options.

In addition to the above impacts are accuracy and reliability thus ICT assists in the computations – accuracy in recording and reporting is greatly valued because accounting work is very detailed. One of the positive effects of this system is the fact that it lessens the possibility of incurring mathematical errors which is one of the problems experienced in the manual system of accounting. Computer systems are insusceptible to boredom, tiredness or fatigue. Therefore, these can perform repetitive functions effectively and are highly reliable as compared to human beings.

Improved internal and external reporting is another impact because ICT leads to improved speed and accuracy in the processing of information, financial reports can be easily generated and reported to internal and external users. External users can then use these reports to assess the condition of the unit. Internal user which is the management benefits from this development for they need to know the details first in making economic decisions. For instance, with respect to accounting, Nickels et al. as cited in Yadav (2016) observed that most companies have found that computers greatly simplify the task, enabling managers and other employees to get financial reports exactly when they want them. Also, Yadav (2016) indicated that flexible technology like ICT is severely needed in accounting departments. The accounting system must have the capability to adapt with changes in business practices. ICT associated with

accounting creates flexibility to accommodate the changes. Some systems are capable for upgrade when the volume of transaction for an entity increases.

Graphics software used in accounting creates photos, graphs and charts from data input in order to facilitate better understanding of the topic. This is usually used in financial reporting. Computerized accounting systems also allow accountants to process large amounts of financial information and process it quickly through the accounting system. Quicker processing times for individual transactions has also lessened the amount of time needed to close out each accounting period. Month- or year-end closing periods can be especially taxing on accounting departments, resulting in longer hours and higher labour expense. Shortening this time period aids companies in cost control, which increases overall company efficiency.

Information technology creates electronic storage system to protect valuable records of companies hence storing and protecting information. According to Graziadio Business Report, published by Pepperdine University and reported by Yadav (2016), secure maintenance of the files of customers and patients is vital to business integrity, storage systems, such as vital vaults, keep information safe by only allowing certain users within the company to access, withdraw, add or change the documents and protect from being hacked, or wiped out during a technological disaster. Electronic security means your valuable records will remain safe. ICT may be used for data storage for business, inventory, sales, receivables and payable stored in excel, and open office or a

similar program keeps these figures at your fingertips. Accounting software stores your payroll information, tax records and specialized data for your business.

Problems of Using Information and Communication Technology

Several challenges have been documented in literature and these may or may not be a problem depending on the individual organization in question. Heavy cost of installation is one the many challenges as computer hardware needs replacement and software needs to be updated from time to time with the availability of newer versions. Another is the cost of training. For organizations to ensure effective and efficient use of computerized system of accounting, newer versions of hardware and software are introduced. This in most cases requires special training and cost is incurred to train the staff personnel as specialists.

Socially and economically, there is the fear of unemployment. This reflects the feelings of the staffs of any organization on the introduction of computerized accounting system. The staff fears redundancy and show less interest in computers. Also, when computerized system is introduced, there might be loss in the work time and certain changes in the working environment.

Again, system failure and time consuming are a challenge. The danger of a system crashing due to some failure in hardware can lead to subsequent loss of work. This occurs when no back-up is retained. On the other hand, in order to avoid loss of work at the time of system failure, there is a need for providing backup arrangements which is a time consuming process. At times to this situation tends to waste customers time during transaction of business. Sometimes

too, there are unanticipated errors not known. Unlike human beings, computers do not have the capability to judge or detect unanticipated errors in the system.

The danger of viruses and hacking into the system from outside creates a strong need for security of system hence breaches of security. Similarly, the person who has created the specific program can easily defraud by tempering with the original records. Extensive use of computers may lead to many health problems such as eyestrain, muscular complaints, backache etc. resultantly reducing working efficiency as well as increasing medical expenditure, thus health dangers.

Information Technologies Used in Accounting Information System

Organizations employ multiple forms of information technology in their accounting information system. Hurt (2008) contend that some of the information technology tools that are often used in accounting information system are:

Spread Sheets: The two most popular today are Excel and SPSS Spreadsheets can be for virtually any task that requires computations. A company's end-off period financial statements could be exported to a spreadsheet and presented graphically to the board of directors.

Relational Databases: An example of database software is the Microsoft Access.

Like spreadsheets, relational database can capture many different kinds of data.

They can perform some elementary types of analysis (such as calculating means)

and output various reports. Unlike spreadsheets, however, database users can create powerful queries to extract subsets of data based on certain criteria.

General Ledger Systems: General ledger systems are often organized into modules to facilities strong internal control. In a well-designed general ledger system, employees will have access only to the module that pertains directly to their job responsibilities. This helps in guarding against fraud. Peachtree First

Accounting package can effectively be used to manage general ledger system. On the impact of computer technology on accounting, Nickels et al.

(2002) observed that most companies have found that computers greatly simplify the task, enabling managers and other employees to get financial reports exactly when they want them. This to a large extent is responsible for the increasing dependent and deployment of information technology in the banking industry.

Empirical Evidence on Impact of ICT on AIS and Performance

The problems facing the accounting information systems in the use of electronic commerce have been identified by Zahir (2003). The study found that electronic commerce has affected all professional fields in general and on accounting and auditing professions in particular. E-commerce has been found to operate in a unique environment so that all the processes through which the intangible operations made lack the authentication mechanism in most stages (Zahir, 2003).

A study by ALSarayreh et al (2011) investigated technological impacts on effectiveness of accounting information systems (AIS) applied by Aqaba tourist

hotels. It was found that Aqaba tourist hotels apply effective accounting systems, but these systems do not provide quantitative information with predictive power, do not render output accounting system on an ongoing basis and are not flexible. The technology applied in Aqaba tourist hotels is advanced, but hotels do not keep pace with new inventions, where there is a direct correlation between the effectiveness of accounting information systems and technological advances in Aqaba tourist hotels (ALsarayreh et al., 2011).

Bakr (1995) investigated the extent and the impact of technology on the degree of centralization, formality and complexity, as well as the interest of Jordanian companies in the impact of technology on the various organizational elements, particularly the human component. The study found relationships between technology and the degree of centralization; between technology and the degree of the formality; between technology and the degree of complexity as a whole and between technology and the degree of geographical variation.

The qualitative features of management accounting information and its role in management decision-makings was evaluated by Baharmfar and Rassoli (2001) and concluded that accounting information is considered as a management tool for the decision-making and it is generated to help the management and improve its decision-making level. It was also stated that the management on lack of information applications means the low quality of the information (Baharmfar & Rassoli, 2001), because if accounting information one of good quality, they influence in the decisions, but without the same effect and size (Bakr, 1995)

Again, Amidu et al (2011) explored the e-accounting practices among SMEs in Ghana and their findings reveal that SMEs put in place accounting software to generate their financial information. Pyker and Nanh (1998) also measured the efficiency of computerized accounting information systems through a number of elements such as the software, hardware, data, personnel and procedures. The study found that there was a satisfaction about the equipment, operating procedures and personnel of information system maintenance, which increase the overall satisfaction of users.

According to a study by Hematfar and Ezadi (2010) on the evaluation of information technology applications in accounting and auditing, dealt with this topic and introduced the ICT and its different approaches and styles in accounting and auditing. From study, it was found that by developments of ICT, all the companies and organizations have to invest in ICT to keep their stability, and the accountants should determine and realize the new technologies and properly apply them to offer proper solution to decrease the risks and damages (Hematfar & Ezadi, 2010).

Another study by Etemadi, Elahi and Aqae (2006) on the influence of the information technology on the qualitative features of accounting information. However, before determining these influences, it was first evaluated the theoretical principles, and developed the logical network of ICT influences on each qualitative features of accounting information. According to Ed and Julie (2000), the findings from the study (Etemadi, Elahi & Aqae, 2006) revealed that information technology increases the relation of accounting information and

reduces its reliability capability and it also reduces the comparability. Mahmood (2009) in their paper on the influence of information technology on the work force productivity in manufacturing industries and users of information technologies in Iran., and found that the influences of ICT on the productivity growth and users are not statistically meaningful, but its effects on the work force productivity is greater than the other industries. Other studies such as Alqashi (2003); Steves, Carvalho and Stanton (2001); Dastan and Surmen (2004); Reyes, Rodrigues and Javier (2007); and Bazargan, Sarmad and Hejazi (2000) found similar results.

Dyker and Nanh (1998) also measured the efficiency of computerized accounting information systems via some variables like software, hardware, data, personnel, and approaches and found some satisfaction regarding the equipment, operational methods and information system maintenance personnel. which increase the general satisfaction of the customers. Similarly, Mahmood (2009) suggested that computer users should know its physical components in such a way that they become familiar with the operational requirements of the software and central processor units.

American Financial standard development leading committee, in their research in (2000) found that internet has transformed the monthly, quarterly and annual reporting into on-timely one. Therefore, based on the internet-based reporting, not only manager, analysts and experts, but also the users can have quicker and cheaper access to the information. Griffin (1998) studied on how hotels use the information through databases and found that hotels that applied the

information for the supporting of strategic market analyses (such as new target market, loyalty planning setup, sales analyses, administrative tendency analyses) had positive result. The result was that hotels' capability to collect and process a lot of data, and their accessibility aide them to provide competitive advantages.

CHAPTER FIVE: RESEULTS AND DISCUSSIONS

Introduction

This chapter presents and discusses the results of the study in relation to the specific objectives and the chapter is organized into five sections. Following this introductory section is the demographic characteristics of the respondents, followed by the information communication technology usage, knowledge and skills, the state of the art of e-accounting systems use among some public organizations and financial institutions, impact of ICT on the performance, accounting and auditing of accountants and auditors and their agencies and institutions. This is followed by the barriers to the use of ICT and the adoption of e-accounting systems by accountants and auditors and the finance sections of their agencies and financial institutions. Finally, problems associated with the use of ICT by the respondents' organization.

Background Characteristics of the Respondents

This section presents and describes the respondents' background characteristics such as occupation, current position, age, gender, marital status, work experience and educational qualification.

Occupation of Respondents

Table 1 presents the result on the occupation of the respondents in this study. The result reveals that majority (45%) of the respondents are accountants. Whiles a quarter of them are bankers, 20 percent of them are auditors and the remaining 10 percent are budget analyst in their respective organizations. This finding clearly shows that the respondents for this study were accountants dominated hence most of the other findings in the subsequent sections may be accountants biased.

Table 1 – Occupation of Respondents

Profession	Frequency	Percent
Accountant	9	45.0
Banker	5	25.0
Auditor	4	20.0
Budget Analyst	2	10.0
Total	20	100.0

Source: Komla (2018)

Position of Respondents in their Organization

On the respondents’ current position, the result is presented in Table 2 and subsequently discussed. The result shows that a quarter of the respondents are accounting clerks. The rest of the respondents hold various positions including chief financial officer (5%), chief accountant (5%), manager (10%), accounting assistant (5%), internal auditor (5%), budget analyst (5%), principal accountant

(5%), senior accountant (2%), branch manager of bank (10%), accountant (10%), and relationship officer (5%) in the organizations they work.

Table 2 – *Current Position by Respondents*

Position	Frequency	Percent
Chief Financial Officer	1	5.0
Chief Accountant	1	5.0
Manager of Accounting Department	2	10.0
Accounting Assistant	1	5.0
Accounting Clerk	5	25.0
Internal Auditor	1	5.0
Budget Analyst	1	5.0
Principal Accountant	1	5.0
Senior Accountant	2	10.0
Branch Manager of bank	2	10.0
Accountant	2	10.0
Relationship Officer	1	5.0
Total	20	100.0

Source: Komla (2018)

Age of Respondents

Table 3 presents the result of the age of the respondents and the result shows a mean of 41.5 years of age with a standard deviation of 7.4 years. From the result in Table 3, about three-quarter (75%) of the respondents are within the

40 – 55 years and this notwithstanding, most of this fraction of respondents are in their early 40s. The result shows that the respondents are relatively old since

majority are above 40 years since the United Nations describes the people with

age 35 and below as youth. However, these respondents are in their most productive stage of life.

Table 3 – Age of Respondents

Age	Frequency	Percent
27	1	5.0
32	2	10.0
33	1	5.0
34	1	5.0
40	1	5.0
41	2	10.0
42	5	25.0
43	2	10.0
44	1	5.0
48	1	5.0
51	1	5.0
55	2	10.0
Means		41.5
Std D		7.4
Total	20	100.0

Source: Komla (2018)

Sex of Respondents

Table 4 presents the gender of the respondents. The result indicates that all the respondents (100%) were males which means that the organizations under study is dominated by male accountants and auditors. This probably due the small nature of the sample size of the respondents.

Table 4 – Gender of Respondents

Sex	Frequency	Percent
Male	20	100.0
Female	0	0
Total	20	100.0

Source: Komla (2018)

Marital Status

Table 5 provides the frequency distribution of the marital status of the respondents and the result shows that 90 percent of them are married with only two (2) being single. This finding is not surprising at all since the average age (Table 3) is 41.5 years and this is because in Ghana many people (especially males) get married after 30 years. It will not be surprise if those who are not married are below 30 years or in early 30s.

Table 5 – Marital Status of Respondents

Status	Frequency	Percent
Single	2	10.0
Married	18	90.0
Total	20	100.0

Source: Komla (2018)

Working Experience

The working experience of the respondents was measured in years and the result is presented in Table 6. The result indicates a mean working experience of

14.7 years, minimum working experience of four (4) years and a maximum experience of 29 years. It also shows that majority of them (35%) have working experience of 6–10 years of working as either accounting or auditing. Nevertheless, nearly half of them have worked for about 11–30 years. Hence the result portrays that the respondents have adequate working experience in the work they do in their organizations.

Table 6 – *Years of Working Experience*

Years	Frequency	Percent
1-5	2	10.0
6-10	7	35.0
11-15	4	20.0
16-20	2	10.0
21-25	2	10.0
26-30	3	15.0
Total	20	100.0
Mean		14.47
Minimum		4
Maximum		29

Source: Komla (2018)

Educational Qualification of Respondents

The result on educational qualification of the respondents are presented in Table 7 and the result shows that 65 percent of the respondents have a first degree and 20 percent of them have postgraduate degree (master’s degree). Also, two out

of ten of the respondents have diploma and one person has a professional qualification.

Table 7 – *Educational Qualification of Respondents*

Qualification	Frequency	Percent
Diploma	2	10.0
Degree	13	65.0
Professional qualification	1	5.0
Postgraduate degree	4	20.0
Total	20	100.0

Source: Komla (2018)

Information Communication Technology (ICT) Usage, Knowledge and Skills

The result on the respondents' level of ICT usage, knowledge and skills in the various agencies and or financial institutions is presented in Table 8. The result in Table 8 shows that 65 percent of the respondents indicated that on accounting software their level or ability to use of MYOB, great plains, SAP, Oracle, tax return software, electronic working papers, time management and billing systems can be described as moderately high to high. Again, about 61 percent of them said with respect to accounting system they can describe their ability to understand business systems, ERP, CRM, GL reporting cycle, revenue cycle, purchasing cycle, HR/payroll cycle as moderately high to extremely high but high as majority (38.9%).

On data security, 75 percent of the respondents said they able to perform backup and recovery and rated this as moderately high to extremely high with majority rating it as moderately high (30%). Contrarily, in a study by Tam (2011)

the participants were of the opinion that data security that relates to the tasks of performing backup and recovery of data was clearly the responsibility of the IT department and not that of accountants and auditors.

With respect to database concepts, about 82 percent of them rated their capability of understanding database concepts as moderately high to extremely high but majority of rated it as moderately high (41.2%). On the database software, here too about 84 percent of them are able to use of database software, database search and retrieval but rated their ability to do so as moderately high to extremely high. However, about 42 percent were in the category of moderately high. Tougging on the documentation tools 85 percent of them can understand system flowcharts, document flowcharts, and data flow diagrams. The respondents however rated their ability to use documentation tools as moderately high to extremely high but again the majority of them are within moderately high level.

With regards to e-commerce, a little over half of the respondents (58) are capable of using and understanding electronic data interchange – B2B and B2C e-commerce – and rating this ability as moderately high to extremely high. On the other hand, about 63 percent rated their knowledge and skills on e-commerce as low to moderately high level. Unfortunately, this finding opposes what Tam (2011) found which indicates that e-commerce is regarded as unimportant by the majority of participants mainly because they are not involved in it.

For general systems knowledge, the respondents were again asked to rate their knowledge level on their understanding on transaction processing system

and end-user computing. The result shows that, 95 percent of them were between moderately high to extremely high but about 40 percent rated it high. The general systems knowledge refers to concepts in transaction processing systems and end-user computing. These concepts are regarded as required IT knowledge and an overall understanding is needed by accountants and auditors. These findings are consistent with a number of articles in the AIS literature including Tam, (2011); Bain, Blankley and Smith (2002); and Van Meer and Adams (1996).

Also, the study looked at the internet knowledge and the internet tools and

65 percent of the respondents rated their knowledge level on understanding communications technologies, firewall software or hardware as well as the use of e-mail, web browsing, SMS as high to extremely high. Nonetheless, 35 percent respondents rated the internet knowledge level as high while 40 percent rated the internet tools as extremely high. Internet tools refer to the use of e-mail, web browsing and SMS, and are quite intuitive and can be self-taught. These tools have become almost requisite skills required by any white-collar worker in these days. It is therefore not surprising that these have been clearly identified by a number of papers as necessary skills (Jackson & Cherrington, 2002; Wessels, 2005)

The study further assessed the IT audit software and the result revealed that about 59 percent of them rated the use of IT audit software (CAAT) as extremely low to low with most of them falling within the low (35.3%) category. More so, about 53 percent of the respondents rated their knowledge and skills on the IT controls – internal control, computer fraud, IT audit, and controls to

personal computers – as moderately high level. However, about 21 percent of them also rated the IT controls as high to extremely high level.

On the common software, their ability to use of utility software and anti-virus software (75%), use of presentation software (80%), use research tools (79%), use of spreadsheet (85%), use of word processing software (79%) were rated at moderately high to extremely high levels. This is similar to what is in literature, which posits all accounting practitioners today use a computer in their daily work, and the ability to use the operating system utilities to copy, save and organise files are skills that any accountant should possess (Tam, 2011).

About 90 percent of the respondents rated their ability to appreciate ethical standards as being moderately high to extremely high levels. On the time management, 85 percent of them also rated their ability to use time management systems that assist the professional in capturing, managing, and reporting time spent on professional duties as being moderately high to extremely high levels but half of them rated as moderately high levels. Ability to use billing systems that assist the professional in capturing, managing and billing was rated by 55 percent of the respondents as moderately high to extremely high.

Tam (2011) suggested that communication between accountants and IT practitioners would improve if the accountants possess some basic accounting knowledge because misunderstanding and confusion in discussions should be reduced. The findings indicate that accountants and auditors are satisfied with the level of their ICT knowledge and skills but would like to further develop their skills in spreadsheets.

Table 8 – Level of ICT Usage, Knowledge and Skills by Respondents

Statement	Percentage					
	EL	ML	L	MH	H	EH
Use of MYOB, Great Plains, SAP, Oracle, Tax return software, Electronic working papers, Time management and billing systems	-	15.0	20.0	55.0	10.0	-
Understanding business systems, ERP, CRM, GL reporting cycle, Revenue cycle, Purchasing cycle, HR/payroll cycle	-	16.7	22.2	16.7	38.9	5.6
Able to perform backup and recovery	5.0	5.0	15.0	30.0	25.0	20.0
Understanding database concepts	-	-	17.6	41.2	35.3	5.9
Use of database software, database search and retrieval	-	-	15.8	42.1	36.8	5.3
Understanding system flowcharts, document flowcharts, data flow diagrams	-	-	15.0	40.0	30.0	15.0
Understanding electronic data interchange, B2B, B2C e-commerce	-	10.5	31.6	31.6	21.1	5.3
Understanding transaction processing system, end-user computing	-	-	5.0	35.0	40.0	20.0
Understanding communications technologies, firewall software or hardware	-	5.0	10.0	20.0	35.0	30.0
Use of E-mail, web browsing, SMS	-	-	20.0	15.0	25.0	40.0
Use of IT audit software, CAAT	11.8	11.8	35.3	29.4	5.9	5.9
Internal control, computer fraud, IT audit, controls to PCs	10.5	5.3	10.5	52.6	15.8	5.3
Use of utility software, anti-virus software	-	10.0	15.0	35.0	20.0	20.0
Use of presentation software	5.0	-	15.0	35.0	30.0	15.0
Use research tools	-	5.3	15.8	26.3	42.1	10.5
Use of spreadsheet software	-	-	15.0	25.0	35.0	25.0
Appreciate ethical standards	-	-	10.0	35.0	35.0	20.0
Use of word processing software	-	5.3	15.8	26.3	26.3	26.3
Ability to use time management systems that assist the professional in capturing, managing, and reporting time spent on professional duties.	-	5.0	10.0	50.0	25.0	10.0
Ability to use billing systems that assist the professional in capturing, managing and billing	5.0	10.0	30.0	20.0	25.0	10.0

EL = Extremely Low, ML = Moderately Low, L = Low, MH = Moderately High, H = High, EH = Extremely High Source: Komla (2018)

State of the Art E-Accounting Systems Use Among Respondents'

Organization

This section presents and discusses the state of the art of e-accounting systems use among some public organizations and financial institutions in East Akim Municipal in Ghana. This is made up of the number of microcomputers and server computers, components of the Accounting Information System, ratings of current information systems, influence of ICT devices on the organizations and frequency of update of ICT systems.

Number of Microcomputers

Table 9 presents the number of microcomputers owned by the organizations of the respondents. The result as shown in Table 9 gives an idea about the total number of microcomputers the various organizations of respondents own as at the time of the data collection. As can be seen from Table 9, nearly half of the respondents indicated their organizations own 4-6 microcomputers. Also, six of the respondents indicated that their organizations have a total of 1-3 microcomputers for their entire organization. It must be stated that these microcomputers are made up of laptops and desktops. These computers are also distributed across the various departments of the organization and not only the accounting and or auditing sections.

Table 9 – *Number of Microcomputers (PCs) Owned by Respondent’s Organization*

Number of Computers	Frequency	Percentage
1-3	6	30.0
4-6	9	45.0
7-9	2	10.0
10-12	3	15.0
Total	20	100.0

Source: Komla (2018)

Number of server computers

Table 10 presents the number of server computers owned by the organization of respondents. The result shows that majority (60%) of the respondents indicated that their organization own 1-3 server computers whereas two out of every ten respondents (20%) indicated their organization own 4-6 and 7–9 server computers. The findings here mean that most of organizations in the study areas own less than five server computers and this is not surprising because these organization are small in size and do not need a lot of server computers. It is worth mention that, the study was even expecting less server computers to be owned by these organization but it turned out to be more than anticipated.

Table 10 – *Number of Server Computers Owned by Respondent’s Organization*

Number of computers	Frequency	Percentage
1-3	12	60.0
4-6	4	20.0

7-9	4	20.0
Total	20	100.0

Source: Komla (2018)

Components of the respondents' accounting information system

Table 11 presents the result on the components of the respondents' Accounting Information System (AIS). Majority (85%) of the respondents indicated that yes, their organizations use desktops as the type of PCs while a little over half of them (55%) said yes for laptop.

Table 11 – Components of the Respondents' Accounting Information System

Variables	ICT Tools	Response	
		Frequency	Percent
Type of PCs	Desktop	17	85.0
	Laptop	11	55.0
Type of operating system	Windows XP	5	25.0
	Windows 7	11	55.0
	Windows 8	5	25.0
	Windows 10	7	35.0
Type of network operating system	Windows Server 2000	1	5.0
	Windows Server 2008	8	40.0
	Windows Server 2012	1	5.0
	Windows Server XP	7	35.0
	Windows Server NT	1	5.0
	UNIX	2	10.0
	Linux	1	5.0
Commonly used software	Accounting software	12	60.0
	Audit software	4	20.0
	Word processing software	11	55.0
	Graphics software	2	10.0
	Electronic data interchange	5	25.0
	Spread Sheets	10	50.0
Type of accounting software	Sun business systems	1	5
	Tally	7	35.0
	QuickBooks	5	25.0
Platform of the accounting usage	Network	13	65.0
	Standalone	2	10.0

Peer-to-peer	1	5.0
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Source: Komla (2018)

From Table 11, the main type of operating system used are the windows 7, 8 and 10 while most of them are using Windows Server 2008 and Windows Server XP as the type of network operating system used by their organization.

Further, commonly used software by the respondents include accounting software, Microsoft word processing and spread sheets (excel) whereas the type of accounting software used by respondents is Tally. Moreover, the respondents indicated that they use a network platform for accounting.

Rating Current Information System of Respondents' Organization

The study also assessed the current information systems of the respondents using the level of effectiveness of these systems as a measure and the result is presented in Table 12 and discussed subsequently. The result discovers that most of respondents indicated that their information systems are very effective (60%) and somehow effective (35%).

Table 12 – *Level of Effectiveness of Current Information System of Respondents' Organizations*

Measure/Level	Frequency	Percent
Not Effective	1	5.0
Somehow Effective	7	35.0
Very Effective	12	60.0
Total	20	100.0

Source: Komla (2018)

Influence of ICT devices on respondents' organizations

Under the state-of-the-art e-accounting system use among respondents' organization, the study also wanted to find out the level of influence of ICT devices on their organizations and the result is presented in Table 13. Here, the respondents were asked to rate some influences ICT can have on their organization from "very low" to "very high" and it was found from the result that majority of them rated all the given options from "moderate" to "very high".

From Table 13, they rated the influences of ICT as moderate to very high for: information system security in your institution (95%); influence of ICT on time saving (100%); influence of ICT devices on error rate reduction (90%); influence of ICT on management decisions (90%); influence of ICT on speed of operation (95%); and ICT/IS investments in the past three years (90%). Nonetheless, nearly half of the respondents rated all the options "high" as can be seen from Table 13. It can also be observed that but for "ICT/IS investments in the past three years" (5%) none of them rated the various of influence of ICT device. This is an indication that ICT devices have high influence on the organizations of respondents hence the need to invest in modern technologies to increase the productivity of the employee of the various institutions and departments as well as banks that accountants and auditors discharge their duties.

Table 13 – *Level Influence of ICT Devices on Organization of Respondents*

Statement	Percentage				
	V High	High	Moderate	Low	V Low
Information system security in your institution	20.0	35.0	40.0	5.0	-
Influence of ICT on time saving	20.0	60.0	20.0	-	-
Influence of ICT devices on error rate reduction	20.0	55.0	15.0	10.0	-
Influence of ICT on management decisions	25.0	40.0	25.0	10.0	-
Influence of ICT on speed of operation	30.0	55.0	10.0	5.0	-
ICT/IS investments in the past three years	25.0	45.0	20.0	5.0	5.0

Source: Komla (2018)

ICT systems update of the respondents’ institution and department

Table 14 presents the frequency at which the organizations of respondents update their ICT systems. As can be seen, more than a quarter of the them indicated they update their system once in a year (35%) and twice in a year (30%). Also, two out of every ten of the respondents indicated they update their system quarterly, monthly and, as and when needed. However, one of them said the update is done every day. The findings reveal that the respondents have varying ICT system update regime.

Table 14 – *Frequency of ICT Systems Update of the Respondents’ Organization*

Rate of Update	Frequency	Percent
Once a year	7	35.0
Twice in a year	6	30.0
Quarterly	2	10.0
Monthly	2	10.0
Everyday	1	5.0
As and when needed	2	10.0
Total	20	100.0

Source: Komla (2018)

Impact of ICT on the Performance, Accounting and Auditing of Accountants and Auditors and their Organization

Another objective of the study was to find the impacts of ICT on the performance and accounting and auditing by accountants’ and auditors’ organization and the results are presented and discussed in the subsequently after this section.

Impact of ICT on the performance of accountants’ and auditors’ organizations

Table 15 presents the level of agreement on impacts of ICT on the performance of organization. From the result, all the respondents (100%) overwhelmingly agreed that timely information management, economic

efficiencies and easy access to accounting information were some the impact of ICT on the performance of their organizations.

In addition, other impacts of ICT agreed on by at least three-quarters or more of the respondents include large storage capacity (80%), reduction of clerical works (80%), cost effectiveness (90%), maintain a competitive advantage (95%), improved equipment (85%), reduces operating expenses (75%), increases profits (75%), positive effect on return on asset (85%), fast and timely presentation of financial reports (95%), promoting better comparability among department (95%), improved employee satisfaction and efficiency (95%).

However, 40 percent of the respondents were not sure whether “increases market share of deposits” especially for the banks was as result of ICT usage by their corresponding organizations.

The findings here make it clear that the impact of ICT cannot be underestimated in any organization especially those of the respondents. It obvious the ICT play crucial role in the organizations of the respondents and hence a lesson to other organizations that are not using ICT to go ahead and adopt these modern technologies. For instance, Saleh (2011), found that a computerized accounting information system helps an organization to undertake its activities along with offering information to a variety of users. It can be said therefore that human interaction and technological combination in institutions can make the use of ICT more beneficial through accomplishment of excellent and efficient operation.

The role accountants and auditors play cannot be downplayed and is critical in the decision-making process linked with ICT, and the result is the affluence of the duty of accountants and auditors such as keeping records and customized account management. Due to this reason, ICT is seen contributing toward time efficiency and information accuracy, consecutively leading to the effectiveness of cost. Information communication technology revolution has elevated the efficiency of accounting since the accounting and auditing software can help in making things more cost effective and smart, aligning with the target of the organization of respondents to have improved productivity.

Similar findings were found by Apulu and Lathan (2010) but reported by Taiwo and Agwu (2016), and they indicated that ICT allows customers to receive quick feedback that allow companies to respond fast to customers' requests and further be able to see new market opportunities. This provides that organizations able to exploit the advantages offered by ICT can deal with different kinds of innovative procedures in their businesses since ICT has effect on the performances of an organization in various ways. Moreover, ICT has also been reported to have enhanced all performance measures such as profit, efficiency, effectiveness, productivity and quality and has made way for organizations to enjoy the numerous benefits listed below (Dumitru, Glavan, Dumitru & Glavan, 2010).

Table 15 – Level of Agreement on Impacts of ICT on the Performance of Organizations

Impact of ICT	Level of Agreement				
	SD	Disagree	Neutral	Agree	SA
Timely information management	-	-	-	16(80.0%)	4(20.0%)
Large storage capacity	-	2(10%)	2(10.0%)	11(55.0%)	5(25.0%)
Reduction of clerical works	-	-	4(20.0%)	12(60.0%)	4(20.0%)
Cost effectiveness	-	-	2(10.0%)	12(60.0%)	6(30.0%)
Maintain a competitive advantage	-	-	1(5.0%)	15(75.0%)	4(20.0%)
Economic efficiencies	-	-	-	14(70.0%)	6(30.0%)
Improved equipment	-	2(10%)	1(5.0%)	15(75.0%)	2(10.0%)
Reduces operating expenses	-	1(5.0%)	4(20%)	10(50.0%)	5(25.0%)
Increases market share of deposits	1(5%)	-	8(40.0%)	7(35.0%)	4(20.0%)
Increases profits	1(5%)	-	4(20.0%)	10(50.0%)	5(25.0%)
Positive impact on return on asset	-	-	3(15.0%)	10(50.0%)	7(35.0%)
Fast and timely presentation of financial reports	-	-	1(5.0%)	12(60.0%)	7(35.0%)
Promoting better comparability among department	-	-	1(5.0%)	11(55.0%)	8(40.0%)
Improving employee satisfaction and efficiency	-	-	1(5.0%)	16(80.0%)	3(15.0%)
Easy access to	-	-	-	14(70.0%)	6(30.0%)

accounting
information

Source: Komla (2018)

Impact of ICT on accounting and auditing

On the impact of ICT on the accounting and auditing by the respondents, Table 16 presents the result from the data collected from the respondents. The result reveals that at least three-quarters or more of the respondents unanimously agreed that increases labour productivity (85%), making accounting data and information security safe (90%), reliability and accuracy of financial statements (90%), better and extensive analysis of financial reports (100%), and convenience in communicating financial reports (100%) were some of the impacts of ICT on the accounting and auditing.

The findings show that there is no doubt that ICT has enormous importance and play vital role in many organizations in Ghana and abroad. The implication here is that organization should invest in ICT systems and equipment since most of the respondents perceive that ICT has impact accounting and auditing activities in their respective organization. From the finding it can be deduced that ICT is not always about technology development, but also influential on a new business, social and cultural environment. Looking at the rapid development of the internet, the flourishing e-commerce and relative forces, there rise a greater demand for new accountants, with the knowledge of accounting and

laws, mastering the skill of modern information technology, and having excellent self-learning ability (Liyan, 2013).

The implication from the result in Table 16 is that ICT has indeed caused obvious changes in many organizations relating to their accounting systems and organisational performance, which has been of great concern and interest (Francis, 2013). ICT has proven to be a relevant and inevitable component in accounting system and organizational performance. The implication here is that ICT has been able to increase the speed in preparation of accounting reports, reliability and accuracy of such reports, which has an effect of transparent and honest dealings of the organization with customers, partners and outsiders, thereby boosting the overall success of such organization (Taiwo, 2016). ICT has had great effects on both accounting system in an organization and their organizational performance. It has been provided advantages on communication, globalization and creation of jobs. The efficiency of accounting practice and increased productivity and high turnover as well as the profit of any organization is as a result of the impact of ICT (Taiwo, 2016).

Table 16 – *Level of Agreement on Impact of ICT on Accounting and Auditing*

Impact of ICT	Level of Agreement				
	SD	Disagree	Neutral	Agree	SA
Increases labour productivity	2(10.0%)	-	1(5.0%)	14(70.0%)	3(15.0%)
Making accounting data and information security safe	-	-	2(10.0%)	7(35.0%)	11(55.0%)
Reliability and accuracy of financial	-	1(5.0%)	1(5.0%)	9(45.0%)	9(45.0%)

statements					
Better and extensive analysis of financial reports	-	-	-	13(65.0%)	7(35.0%)
Convenience in communicating financial reports	-	-	-	12(60.0%)	8(40.0%)

Source: Komla (2018)

Barriers to the use of ICT and the adoption of e-accounting systems

The study also sought to find the barriers to the use of ICT and the adoption of e-accounting systems by accountants and auditors and the finance sections of their agencies and financial institutions. The result is presented in Table 17 and it shows that the top five barriers to the use of ICT and adoption of e-accounting systems are high cost maintenance being the number one barrier, followed by frequent breakdowns of channels, frequent breakdown of the system, the fact that some transactions cannot be done through e-medium, and lack of constant supply of electricity or energy crisis – in decreasing order of scale. This means that for institution to use ICT and adopt e-accounting system these five factors should be addressed. For instance, lack of constant supply of electricity or energy crisis has been one of the major challenges facing many industries and organization in Ghana. As result it has also affected the productivity of ICT usage and e-accounting productivity in many institutions.

On the other hand, the bottom or below average ranked barriers were inability of the system to support large volume of data, inability to import and/or export data, inaccuracy of reports, and inability to fully comprehend and interpret the results – in decreasing order of magnitude. Looking at these least ranked, one

could easily tell that these factors cannot be a barrier to ICT usage in this modern era of many advance technology.

The finding has some similarity with what was reported by Syed (2012) which revealed that most of the SMEs business owners are not familiar in using internet and in many cases, they are not computer literate. Again, Chau (2001) Mehrtens, Cragg, and Mills (2001), in their study identified three major factors. Those are perceived benefit, organizational readiness to e-commerce and pressure from external factors. Alignment of business processes with website strategy is also an important factor for launching online trading by SMEs (Poon & Swatman, 1995; Cragg, 1998). According to Syed (2012) lack of awareness, lack of training, and perceived risk work negatively for adopting e-commerce by SMEs. Similarly, lack of power supply, lack of ICT infrastructure, lack of finance, lack of training and trained manpower, and security issues online payment have also been reported by Syed (2012) as some of the barriers to the use and adoption of ICT by organisations in Pakistan.

Table 17 – *Ranking of Barriers to the ICT Usage and Adoption of e-Accounting Systems*

Constraint Variables	Mean Rank	Overall Ranks
High cost maintenance	7.44	1
Frequent breakdowns of channels	7.21	2
Frequent breakdown of the system	6.65	3
Some transactions can't be done through e-medium	6.38	4
Lack of constant supply of electricity or energy crisis	6.06	5
Lack of skilled personnel in this field	5.21	6

Inability of the system to support large volume of data	4.71	7
Inability to import and/or export data	4.44	8
Inaccuracy of reports	3.53	9
Inability to fully comprehend and interpret the results	3.38	10

Source: Komla (2018)

Testing the degree of agreement among respondents

The result of the Kendall’s W test statistics as presented in Table 18 shows that an agreement exists among farmers on the ranking of constraints to ICT usage and adoption of e-accounting systems at 1% alpha level with 9 degrees of freedom. However, Kendall’s coefficient of concordance (W) of 0.314 indicates a less degree of unanimity among respondents which could be attributed to different institutions or agencies they belong. In order words, respondents in the study areas agreed on the rankings of the barriers that limit them in the usage of ICT and adoption of e-accounting systems in finance and audit department but at lower degree.

Table 18 – Kendall’s Coefficient of Concordance (W) Test Statistics

Test Statistics	
N	17
Kendall’s W	0.314
Chi-Square	47.991
Degree of freedom	9
Asymptotic Significance	0.000

Source: Komla (2018)

Problems Associated with the Use of ICT by Organization

This study also sought to find the problems that come with the use of ICT by the respondents' organization and the result is presented in Table 19. The result indicate that majority of the respondents disagree that inaccuracy of reports (75%), inability of the system to support large volume of data (70%), inability to import and/or export data (75%), inability to fully comprehend and interpret the results (85%), lack of skilled personnel in this field (55%) and some transactions cannot be done through e-medium (55%) are problems associated with the use of ICT by their respective organizations.

However, only two of the problems identified in literature to be some of the challenges association with ICT use were agreed on by at least half or more of the respondents and these are high cost maintenance (65%) and frequent breakdowns of channels (50%). The findings in Table 19 indicate that thought these are general problems confronting the ICT work but the respondents do not see these as problems facing their respective organization.

The findings of this seem to support what Ezeani and Akpotohwo (2014) found and reported that some problems to inhibit the effective utilization of ICT tools in the teaching and learning of accounting education. Among these problems are the environmental factors (heat, dust, humanity vibration and mechanical shock), high cost of equipment, insufficient copies of accounting software, inadequate telephone lines and low percentage of accounting educators with ICT skills.

Other studies have indicated that high cost of equipment and poor funding of education in Nigeria makes IT facilities out of reach of many institutions, students and accounting educators (Nnaji & Ahmed, 2012; Adiole & Igboanugo, 2012; Shehu, 2011; Sanusi, 2011). These authors added that most lecturers do not have the knowledge and skills of ICT in order to promote the uniqueness of the content and skills relating to particular curricula areas. As a result, when these graduates go to the field of accounting they these challenges.

Table 19 – *Problems Associated with the use of ICT by Respondents’ Organization*

Problems/Challenges	Level of agreement				
	S. D	Disagree	Neutral	Agree	S. A
Inaccuracy of reports	9(45.0%)	6(30.0%)	3(15.0%)	2(10.0%)	-
Frequent breakdown of the system	2(10.0%)	7(35.0%)	4(20.0%)	5(25.0%)	2(10.0%)
Inability of the system to support large volume of data	4(20.0%)	10(50.0%)	2(10.0%)	3(15.0%)	1(5.0%)
Lack of constant supply of electricity or Energy crisis	4(20.0%)	6(30.0%)	3(15.0%)	4(20.0%)	3(15.0%)
Inability to import and/or export data	4(20.0%)	11(55.0%)	2(10.0%)	2(10.0%)	1(5.0%)
Inability to fully comprehend and interpret the results	5(25.0%)	12(60.0%)	2(10.0%)	3(15.0%)	-
High cost maintenance	1(5.0%)	4(20.0%)	2(10.0%)	11(55.0%)	2(10.0%)
Frequent breakdowns of channels	-	7(35.0%)	3(15.0%)	8(40.0%)	2(10.0%)
Lack of skilled personnel in this field	4(20.0%)	7(35.0%)	7(35.0%)	2(10.0%)	-
Some transactions cannot be done through e-medium	2(10.0%)	9(45.0%)	2(10.0%)	7(35.0%)	-

Source: Komla (2018)

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter is the concluding part of the study and presents the conclusions and recommendations of the study. Conclusions have been organized based on the specific objectives of the study and some recommendations were made based on the conclusions drawn from the study.

Conclusions

On objective one it can be concluded that this study has provided a holistic and comprehensive view of the relevant IT knowledge and skills required by accounting and auditing professionals. The respondents exhibited varying usage, knowledge and skill levels on areas such as on accounting software, accounting system, data security, database concepts and software, e-commerce, documentation tools, general systems knowledge, internet knowledge and the

internet tools, audit and common software, and time management. It was clear that most of them have use ICT and have some knowledge and skill on it.

It also concluded on objective two that the respondents in the study area are using varying number and kind of ICT devices, software, tools and components. Again, they rated the level of effectiveness of their ICT systems as very effective and have variable system update regimen.

On objective three it can be concluded that respondents perceived that ICT has great impact on accounting and auditing theory, accounting and auditing profession, and also persons performing the accounting and auditing process.

It again concluded on objective four that the top five barriers to the use of ICT and adoption of e-accounting systems in the study area are high cost maintenance, frequent breakdowns of channels, frequent breakdown of the system, some transactions cannot be done through e-medium, and lack of constant supply of electricity or energy crisis. With respect to the level of agreement on these barriers, it was concluded that there was less degree of unanimity among them.

Finally, it was concluded on objective five that though the use of ICT has proved to be a relevant and inevitable factor in accounting and auditing and organizational performance, it however comes with several challenges associated with its utilization in any organization.

Recommendations

It is therefore recommended that, though there are various barriers and problems associated with the use of ICT, organizations should be encouraged to make more investment in this infrastructure since there are on the other hand more benefits from the use of ICT.

Again, organizations should train their staff from time to time to keep them updated to be able to use new technologies.

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APPENDIX

**ATLANTIC INTERNATIONAL UNIVERSITY SCHOOL OF BUSINESS AND ECONOMICS
HONOLULU, HAWAII**

**USAGE OF ICT: IMPLICATIONS ON ACCOUNTING IN FORMATION
SYSTEM AND
ORGANIZATIONAL PERFORMANCE IN EAST AKIM MUNICIPALITY
OF THE
EASTERN REGION, GHANA**

Questionnaire for Staff of Account or Financial Department

Dear Sir/Madam,

You have been chosen as a respondent in the above titled survey which is being undertaken as part of an educational research in partial fulfilment of the Doctorate degree in Accounting and Auditing at Atlantic International University, Honolulu, Hawaii.

The purpose of this study is to evaluation of the implication of the use of the continuous-changing technology on Accounting Information System and performance of some public agencies and financial institutions in East Akim Municipality of the Eastern Region.

Your cooperation in filling this questionnaire will contribute to the success of the study. Please feel free to give your views on the items given by answering all the questions and indicate your choice by putting a tick in the checkbox before the answer you feel most appropriate or Fill in the gaps by giving reasons or information in relation to a particular question.

Confidentiality Statement: The data obtained from you would be treated confidentially. Only the researcher, the supervisors and the enumerators will have access to data. Your personal identity will be kept anonymous and be shielded from any other persons or organizations.

Instructions: Please, tick the appropriate answer for the close-ended questions and answer the open-ended questions to the best of your knowledge.

PART I: GENERAL FARMER INFORMATION

Questionnaire number _____ Date _____
Name of Village or Town _____
District _____ Region _____
Name of respondent _____ Phone number _____
Name of agency or institution _____

PART II: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENT

2.1 Your Occupation (a) Accountant [] (b) Banker [] (c) Auditor []
(d) Finance Officer [] (e) Others _____

2.2 Title of your position

- (a) Chief Financial Officer [] (b) Finance Director []
 (c) Financial Controller [] (d) Chief Accountant [] (e) Manager of
 Accounting Department (f) Accounting Assistant []
 (g) Accounting Clerk [] (h) Audit Manager [] (i) Chief Audit Officer []
 (j) Internal Auditor [] (k) Others _____ []

2.3 Sex: (a) Male [] (b) Female []

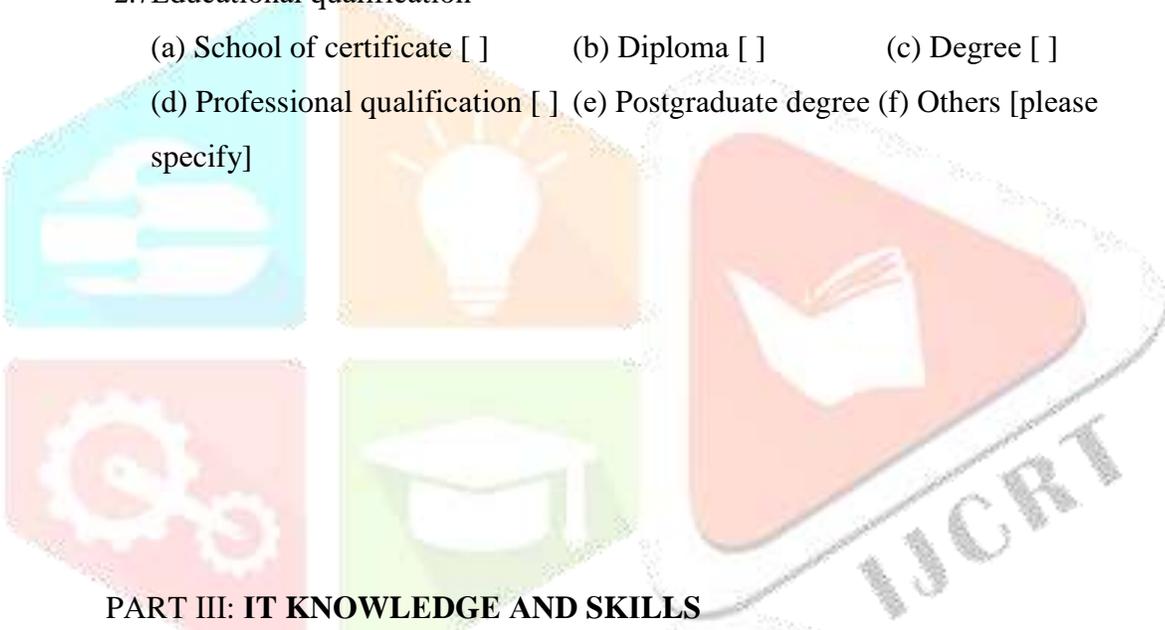
2.4 Age (at last birthday) _____ years

2.5 Marital Status: (a) Single [] (b) Married []

2.6 Working Experience _____ years

2.7 Educational qualification

- (a) School of certificate [] (b) Diploma [] (c) Degree []
 (d) Professional qualification [] (e) Postgraduate degree (f) Others [please
 specify]



PART III: IT KNOWLEDGE AND SKILLS

3.1 For each of the following questions, please circle the number that best describes your level of ICT knowledge and skills.

[1=Extremely Low, 2=Moderately Low, 3= Low, 4=Moderately High, 5=High, 6=Extremely High]

Topic	I am able to	Rating					
Accounting software	Use of MYOB, Great Plains, SAP, Oracle, Tax return software, Electronic working papers, Time management and billing systems	1	2	3	4	5	6

Accounting systems	Understanding business systems, ERP, CRM, GL reporting cycle, Revenue cycle, Purchasing cycle, HR/payroll cycle	1	2	3	4	5	6
Data security	Able to perform backup and recovery	1	2	3	4	5	6
Database concepts	Understanding database concepts	1	2	3	4	5	6
Database software	Use of database software, database search and retrieval	1	2	3	4	5	6
Documentation tools	Understanding System flowcharts, Document flowcharts, Data flow diagrams	1	2	3	4	5	6
e-commerce	Understanding electronic data interchange, B2B, B2C e-commerce	1	2	3	4	5	6
General systems knowledge	Understanding transaction processing system, end-user computing	1	2	3	4	5	6
Internet knowledge	Understanding communications technologies, firewall software/hardware	1	2	3	4	5	6
Internet tools	Use of E-mail, web browsing, SMS	1	2	3	4	5	6
IT audit software	Use of IT audit software, CAAT	1	2	3	4	5	6
IT controls	Internal control, computer fraud, IT audit, controls to personal computers	1	2	3	4	5	6
Operating systems	Use of utility software, anti-virus software	1	2	3	4	5	6
Presentation software	Use of presentation software	1	2	3	4	5	6
Research tools	Use research tools	1	2	3	4	5	6
Spreadsheet	Use of spreadsheet software	1	2	3	4	5	6
Values	Appreciate ethical standards	1	2	3	4	5	6
Word processor	Use of word processing software	1	2	3	4	5	6
Time management systems	Ability to use time management systems that assist the professional in capturing, managing, and reporting time spent on professional duties.	1	2	3	4	5	6
Billing systems	Ability to use billing systems that	1	2	3	4	5	6



assist the professional in capturing, managing & billing							
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PART IV: INFORMATION COMMUNICATION TECHNOLOGY USAGE Basic information technology issues will be determined in this section. The emphasis will be on how information technology is used to carry out certain operations and also the benefits derived from using information technology.

4.1 Do you use computers in the operations of your department? (a) Yes []
(b) No []

4.2 How many microcomputers (PCs) does your department have? _____

4.3 How many server computers does your agency/institution have? _____

4.4 What is the name of the database management system that your institution is using? _____

4.5 Indicate whether your accounting information system has the following components

Variables	ICT Tools	Usage	
		Yes	No
Type of PCs	Desktop		
	Laptop		
Type of operating system	Windows XP		
	Windows 7		
	Windows 8		
	Windows 10		
	Vista		
	Others		
Type of network operating system	Windows Server 2000		
	Windows Server 2008		
	Windows Server XP		

	Windows Server NT		
	UNIX		
	Linux		
Commonly used software	Accounting software		
	Audit software		
	Word processing software		
	Graphics software		
	Electronic data interchange		
	Spread Sheets		
Type of accounting software	Pastel		
	Sun business systems		
	Tally		
	Sage		
	QuickBooks		
Platform of the accounting usage	Network		
	Standalone		
	Peer-to-peer		

4.6 How would you describe the current information system in the institution?

(a) Not Effective [] (b) Somehow Effective [] (c) Very Effective []

4.7 Please rate the level of the following in your institution or agency or department

Statement	V High	High	Moderate	Low	V Low
Information system security in your institution					
Influence of ICT on time saving					
Influence of ICT devices on error rate reduction					
Influence of ICT on Management decisions					
Influence of ICT on speed of operation					
ICT/IS investments in the past three years					

- 4.8 How often do you update your ICT systems? (a) Once a year [] (b) Twice in a year [] (c) Once in two years [] (d) Once in five years [] (e) Others _____
- 4.9 How much do you spend in training your staff each year? GHC _____
- 4.10 Are there any plans to bring improvement or change in the current information systems? (a) Yes [] (b) No []
- 4.11 What are some of the ICT related items that in the future you will investment in?
- _____
- _____

PART V: IMPACT OF ICT ON ACCOUNTING, AUDITING AND OR PERFORMANCE OF INSTITUTION

5.1 Please indicate your level agreement on the impact of ICT to your institution/department

Variable	Level of agreement				
	S. Disagre	Disagree	Neutral	Agree	S. Agree
IMPACT ON PERFORMANCE					
Timely information management					
Large storage capacity					
Reduction of clerical works					
Cost effectiveness					
Maintain a competitive advantage					
Economic efficiencies					
Improved equipment					
Reduces operating expenses					
Increases market share of deposits					
Increases profits					
Positive impact on Return on Asset					
Fast and timely presentation of financial reports					
Promoting better comparability among department					
Improving employee Satisfaction and Efficiency					
Easy Access to Accounting					

Information					
<i>IMPACT ON ACCOUNTING/AUDITING</i>					
Increases labour productivity					
Making accounting data and information security safe					
Reliability and accuracy of financial statements					
Better and extensive analysis of financial reports					
Convenience in communicating financial reports					

5.2 How much has your institution invested in your IT systems in terms of hardware and software in the past three (3) years and what has been the effect on the its operations?

Year	Software Cost	Hardware Cost	Impact on operations
2015			
2016			
2017			

PART VI: FUNCTIONALITY OF ICT IN YOUR DEPARTMENT

6.1 Please tick [] where appropriate to indicate whether ICT is used for the following

Functions	Responses
Account receivables	
Account payables	
Inventory management	
Pay roll	
General ledger	
Fixed assets management	
Reconciliation and cash management	

PART VII: PROBLEMS ASSOCIATED WITH THE USE OF ICT

7.1 Please tick [] where appropriate to indicate whether the usage of ICT is associated with the following challenges

Problems/Challenges/Barriers	Level of agreement				
	S.	Disagree	Neutral	Agree	S.

	Disagree				Agree
Inaccuracy of reports					
Frequent breakdown of the system					
Inability of the system to support large volume of data					
Lack of constant supply of electricity/Energy crisis					
Inability to import and/or export data					
Inability to fully comprehend and interpret the results					
High cost maintenance					
Frequent breakdowns of channels					
Lack of skilled personnel in this field					
Some transactions can't be done through e-medium					

Thank You Very Much

