

**INFLUENCE OF INFORMATION COMMUNICATION
TECHNOLOGY ON THE ROLE OF ACCOUNTANTS
IN NIGERIA**

BY

**ANIEFOR, SUNDAY JONES
PG/M.Sc/09/54498**

**PRESENTED TO THE DEPARTMENT OF ACCOUNTANCY
FACULTY OF BUSINESS ADMINISTRATION
UNIVERSITY OF NIGERIA,
ENUGU CAMPUS**

DECEMBER, 2015

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**BEING A DISSERTATION PRESENTED TO THE DEPARTMENT
OF ACCOUNTANCY
FACULTY OF BUSINESS ADMINISTRATION
UNIVERSITY OF NIGERIA,
ENUGU CAMPUS**

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SUPERVISOR: PROF. (MRS.) UCHE, MODUM

DECEMBER, 2015

DECLARATION

I, ANIEFOR, Sunday Jones, a Post-Graduate Student in the Department of Accountancy with Registration Number PG/MSc/09/54498 has satisfactorily completed the requirements for research work for the Degree of Masters of Science (M.Sc) in Accountancy.

The work embodied in this dissertation is original and has not, to the best of my knowledge, been submitted in part or in full for the award of any other Degree or Diploma of this or any other tertiary institution and any liability that may arise from this work is borne by me.

PG/M.Sc/09/54498
(Researcher)

APPROVAL PAGE

This is to certify that Aniefor Sunday Jones is a postgraduate student in the department of accountancy and with registration number PG/M.Sc/09/54498, has satisfactorily completed the requirement for this dissertation in partial fulfilment for the award of Masters of Science (M.Sc) in accountancy.

PROFESSOR (MRS.) UCHE MODUM

DATE

ASS. PROF. OSITA AGUOLU
(Head of Department)

DATE

DEDICATION

This work is dedicated to God THE FATHER ALMIGHTY – through whom every good and perfect gift comes from.

It is also dedicated to the entire members of my family for their love, concern, prayers and financial support and of course for my selfless struggle.

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LIST OF TABLES

	Page
Table 4.1: Response Data Table - - - - - -	77
Table 4.2: Age Bracket Classifications - - - - -	78
Table 4.3: Educational Qualification - - - - -	78
Table 4.4: Professional Qualification - - - - -	79
Table 4.5: Question 1 - - - - - - -	79
Table 4.6: Question 2 - - - - - - -	80
Table 4.7: Question 3 - - - - - - -	81
Table 4.8: Question 4 - - - - - - -	82
Table 4.9: Question 5 - - - - - - -	83
Table 4.10: Question 6 - - - - - - -	84
Table 4.11: Question 7 - - - - - - -	85
Table 4.12: Question 8 - - - - - - -	86
Table 4.13: Question 9 - - - - - - -	87
Table 4.14: Question 10 - - - - - - -	88
Table 4.15: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis - -	89
Table 4.16: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis - -	92
Table 4.17: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis - -	95
Table 4.18: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis - -	98
Table 4.19: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis - -	101

ABSTRACT

The study was to substantiate the influence of ICT on the role of accountants and find out if Accountants are still relevant. In this study, five performance proxies were considered. The main objective was to determine the extent to which Information Communication Technology has influenced the role of Accountants and the specific objectives sought were to: ascertain the relevance of Accountants, ascertain the impact of ICT on Accountants performance, evaluate the degree to which ICT had influenced their involvement in decision making process, examine if Accountants still add value to their work. The requisite data for this study were extracted from the questionnaire administered to four sectors of the economy. Other data were collected from books, journals and websites. Data were analysed using correlation coefficient, T-test and use of simple regression analysis at 0.05 probability level of acceptance. The Cronbach's alpha was used to test the reliability of instrument and a value of 0.635 was derived. The result revealed that Information Communication Technology has influenced the role of Accountants in Nigeria and it was recommended among others that for Accountants to remain relevant in the information age, they must embrace ICT. The contribution to knowledge was that inspite of the impact of ICT on Accountants, yet we still need Accountants with knowledge, skill and abilities to interpret data for informed decision making.

TABLE OF CONTENTS

	Page
Title - - - - -	ii
Declaration - - - - -	iii
Approval - - - - -	iv
Dedication - - - - -	v
Acknowledgements - - - - -	vi
List of tables - - - - -	viii
Abstract - - - - -	ix
Table of contents - - - - -	x

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study - - - - -	1
1.2 Statement of the Problem - - - - -	6
1.3 Objectives of the Study - - - - -	7
1.4 Research Questions - - - - -	7
1.5 Research Hypotheses - - - - -	8
1.6 Scope of the study - - - - -	9
1.7 Significance of the Research- - - - -	10
1.8 Limitations- - - - -	12
1.9 Operational Definition of Terms - - - - -	12

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction - - - - -	14
2.2 Conceptual Framework - - - - -	14
2.2.1 Accounting Information System (AIS) - - - - -	14
2.2.2 Computerized Accounting Information Systems (CAIS) - - - - -	15
2.2.3 Data input function - - - - -	16
2.2.4 Data processing- - - - -	16
2.2.5 Data Output (Information) - - - - -	16
2.2.6 The Balanced Score Card - - - - -	17
2.2.7 Emerging and Development of the Accounting Profession- - - - -	18

2.2.8	The accounting profession from its generation until industrialized economy	-	-	-	-	-	20
2.2.9	From Industrialized economy until "21st century"	-					23
2.2.10	Information Age and the Accounting Profession	-					30
2.2.11	Future Accounting Professionals	-	-	-	-		34
2.2.12	An Overview of Traditional Accounting	-	-	-	-		38
2.2.13	Structure of Accountancy and Business Services	-					40
2.2.14	External Providers of Accounting Information-	-					40
2.2.15	Internal Providers of Accounting Information	-					42
2.2.16	Challenges in Manual Accounting-	-	-	-	-		43
2.2.17	Information System	-	-	-	-	-	46
2.2.18	Accounting Information System	-	-	-	-	-	46
2.2.19	Appraisal of Specific Accounting Information Technology Tools	-	-	-	-	-	47
2.2.20	Key Features of Accounting Packages	-	-	-	-	-	49
2.2.21	Benefits Of Automation	-	-	-	-	-	50
2.2.22	Accountants and Information Technology	-	-	-	-	-	51
2.2.23	IFAC IT Requirements for the Accountant	-	-	-	-	-	53
2.2.24	International Education Practice Statement (I.E.P.S.2.1)	-	-	-	-	-	53
2.2.25	Challenges relating to information technology-	-					54
2.3	Theoretical Framework	-	-	-	-	-	54
2.3.1	Theoretical Underpinning	-	-	-	-	-	54
2.3.1.1	Innovation diffusion theory	-	-	-	-	-	54
2.3.1.2	The Theory of Reasoned Action and its Derivatives in Users Acceptance	-	-	-	-	-	55
2.3.1.3	Theory of Planned Operational Control	-	-	-	-	-	56
2.3.1.4	Activity Theory	-	-	-	-	-	56
2.3.1.5	Socio-Technical System Theory of Information Technology Acceptance	-	-	-	-	-	57
2.3.1.6	Contingency Theory	-	-	-	-	-	58
2.3.1.7	The Impact of ICT on Accountancy Profession	-					59

5.4	Recommendations	-	-	-	-	-	-	-	112
5.5	Contribution to Knowledge	-	-	-	-	-	-	-	115
REFERENCES		-	-	-	-	-	-	-	116
APPENDIX 1		-	-	-	-	-	-	-	120
APPENDIX 2		-	-	-	-	-	-	-	121
QUESTIONNAIRE		-	-	-	-	-	-	-	122
APPENDIX 3		-	-	-	-	-	-	-	135

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Businesses all over the world continuously seek to improve the efficiency of their operations in order to achieve higher profitability. Information systems and technologies are some of the most important tools available to managers for achieving higher levels of efficiency and productivity in business operations, especially when coupled with changes in business practices and management behaviour.

Kenneth and Jane (2010), defined information technology as one of many tools that managers use to cope with change. From the above, it means that Accountants who are also managers need information technology, not only to cope with changes but also to enhance their performances and make informed decisions.

Modum (2005) stressed also that changes in technology have altered the role of Accountants. Traditionally, accounting information has its own set of specific functions and has relied on its own devices such as journals and ledgers, and its own procedures, double-entry book-keeping.

Kenneth and Jane (2010), also emphasized that A continual stream of information technology innovations is transforming the traditional business world. Exactly how do information systems enhance accounting process? Information systems automate

many steps in accounting processes that were formally performed manually, such as checking of clients' credit, or generating an invoice and shipping order. But today, information technology can do much more. New technology can actually change the flow of information, making it possible for many more people to access and share information, replaces steps with tasks that can be performed simultaneously, and eliminating delays in decision making.

Why are businesses investing so much in information systems and technologies? In Nigeria today and most African countries, information systems are essential for accounting for day-to-day business as well as achieving strategic business objectives (Kenneth and Jane, 2010). This means that accounting as a service activity can not operate without information communication technology. In as much as information technology helps the Accountants to perform efficiently and at a faster rate, yet organizations need Accountants to interpret the information and implications to management members for decision making. What is the essence of generating figures without interpreting their implications?

According to Modum (2005), the original use of computers in accounting focused on automating the record keeping function manual books were replaced by computer "books". The automated system retained the same functions, orientation towards the

accounting cycle and retained an emphasis on financial statement as in the traditional view.

However, today there has been tremendous growth in the number of computer-generated transactions and greater level of automation. Automated application for payroll, pension, accounting, human resources and other sophisticated accounting software have been installed over the years to handle the various operations involved.

In the words of Adeoyin, (2010) Also, connection of computers over local area network (LAN) and wide area network (WAN) have been implemented in various offices for efficiency. Moreover, accounts information and balances and data on staff are kept in computer databases and systems such that information has become strategic resource and leverage for competitive advantage.

It is pertinent to know that the world has been "flattened" by information technology Kenneth and Jane (2010). Electronic commerce and internet has enabled applications with complex interface and different accounting software and enterprise resources planning systems to be installed in offices and different organizations in both the public and private sector. This has resulted in dependence of businesses and establishments on information technology and its tools for daily operations (Adedoyin 2010).

From the above, it can be inferred that Accountant performs a lot of different activities or combinations of activities Jablonsky, Kenting et al, (1993). These different activities which Accountants perform come in different ways – recording, classifying, sorting analyzing, and interpreting business data to produce information for decision making. Before now, emphasis on these functions were purely financial measures in the form of profit determination, control of resources, facilitation of decision making, proper accountability – stewardship Talabi Adedoyin (2010). Colin Drury (2013) also said that traditional Accountants role was then based on cost control, revenue growth and asset utilization.

In some organizations, we have the Financial Accountant and the Management Accountant. The Financial Accountant prepares information for both internal and external use while the Management Accountant prepares information for internal use. In some other organizations, we have a situation where one Accountant performs both functions – hybrid Accountant. For the purpose of this study, we shall refer to all of them as simply Accountants since the raw product of their work is the provision of information for decision making.

The roles of Accountants are going under considerable changes as a result of Information and Communication

Technology (Burns and Baldvinsdottir, 2005), Caglio 2003, Vestegen De Loo et al 2007).

ICT has shifted the traditional Accountants activities to newer and more value-adding activities, that is, from financial historians to business partners (Russel, Siegel and Kulesza, 1999).

In today's business world, the Accountants function is no longer based on financial performance measures only but on both financial and non-financial measures of performance known as the balanced score card. In order to compete successfully in a global economic environment in which ICT has taken a centre stage, financial and non-financial performance measures that provide feed back on key variables, have been introduced by most organizations (Colin Drury 2013). Accountants are now involved in so many activities of the organizations such as competitor performance appraisal, competitor cost assessment strategic costing, value chain costing, Brand value monitoring, attribute costing, Brand value budgeting, competitive position monitoring and strategic pricing. (Colin Drury 2010).

The reporting requirements of most organizations have changed and expanded due to rapid growth and globalization and what has really reduced some of the work load on the database is the use of ICT (Accounting packages). ICT has made it easier to

cross-examine data far more efficiently now compared to what it used to be.

1.2 Statement of the Problem

In this information age, there have been dramatic changes in the nature of industry and it is likely that the future will bring even more changes. The environment and industrial activities have become volatile. There is equally increasing usage of computers in industries and service-oriented organizations in generating information to make an informed decision. Accountancy profession is not left out in this change.

According to Lucey (2003), the role of Accountants as the sole or primary suppliers of information to management is being challenged by other information specialists including systems analysts, operation researchers, managerial economists, computer scientists and information technology experts etc. This means that the role of Accountants are changing from traditional function to a more complex and challenging role as a result of information technology.

Sequel to the above, there is this perception among the general public that in this era of information technology, Accountants are no longer relevant. The possible reason for this perception might be that since it is believed that computer "can do anything" if given the appropriate command using a program, then why hire an Accountant? To what extent is the

perception_true? Are these manual jobs for which the traditional Accountants are known for no longer exist? The focus of this study therefore is to offer an empirical evidence to substantiate the impact of ICT on the performance and role of Accountants and also ascertain if Accountants are still relevant.

1.3 Objectives of the Study

The main objective is to determine the extent to which ICT has influenced the performance of Accountants.

The specific objectives sought are to:

- (i) Ascertain the relevance of Accountants in this information age.
- (ii) Ascertain the impact of ICT on Accountants performance.
- (iii) Evaluate the degree to which ICT has influenced Accountants involvement in the decision making process of the organization.
- (iv) Examine if ICT is sufficient on its own to be depended upon for information decision making.
- (v) Investigate if Accountants still create added value in this information era.

1.4 Research Questions

In the light of the above the following research questions have been formulated to guide us.

- 1) To what extent would you agree that Accountants are still relevant in this information age?
- 2) To what degree would you agree that Information communication technology skill has impact on the performance of Accountants?
- 3) To what extent would you agree that Information Technology influenced the involvement of Accountants in the decision-making process of organisations?
- 4) How far will you agree that information communication technology is sufficient on its own to be depended upon for informed decision making by end users?
- 5) To what extent would you agree that Accountants can not create added value in this information era?

1.5 Research Hypotheses

Our hypotheses for the study are as follows:

- H₁:** Accountants are no longer relevant in this information age
- H₂:** There is no significant relationship between Information Technology and the performance of Accountants.
- H₃:** There is no significant relationship between Information Technology and Accountants involvement in decision making process.
- H₄:** Information Technology is not sufficient on its own to be depended upon for informed decision making.

H₅: There is no positive and significant relationship between ICT and added value creation by Accountants.

1.6 Scope of the study

This research covers the perception of both Accountants in practice and in employment at senior management levels. This study would be restricted to four organisations representing Academic-Delta State University Abraka; Banking-First Bank of Nigeria Plc, Asaba; Service-oriented Organisations-SAO & Co (Chartered Accountants) and Manufacturing-Suiming Nig. Ltd., Asaba.

While this limitation has to a large extent be eliminated by the population selection and method of data collection and analysis, it remains an absolute fact that 100 responses can hardly be said to be truly representative outcome.

Also, this study focused mainly on organizations in the private sector as a survey apart from the academic sector. For the purpose of an indebt analysis, it would have been interesting to adopt the approach of a comparative study of organizations in both private and public sectors.

Again, the study was limited to a survey of four organisations due to difficulty in accessing other organizations. The researcher acknowledges the limitation of this approach and that an extended study may well be benefited from an examination of organizations on both sectors of the economy.

The data for statistical analysis will be based largely on questionnaire and interviews.

1.7 Significance of the Research

This study will be of great significance to the organisations surveyed, the society, analyst and other researchers and it will serve as a data bank for further study.

a) Significance to the Government, and specified Surveyed Organisations and Accountants

It is evident from the growth in our economy, influx of foreign investment and globalisation that a great number of additional qualified Accountants will be required in the financial services and accountancy profession in the economy, both private and public. This includes professional to work in banking, telecommunications, oil and gas, pension funds, micro finance, mortgage institutions, insurance, accountancy practice, ministries, parastatals and non-governmental agencies etc. The key factors that will influence the sector are likely to be information technology regulation and compliance requirements. Accountants will therefore, have to demonstrate advanced IT and software skills as well as the softer skills of communication, teamwork and management (Adedoyin, 2010). This study will be an eye opener to every Accountant - both in practice, employment and students as

well, to embrace information technology. Small and Medium Scale Enterprises (SMEs) are required to have skilled Accountants that can keep accurate and complete records of its operations before they have access to loan by the Bank of Industry.

b) **Significance to analyst and researchers**

In the academic arena this study will prove to be significant in the following ways:

- (i) It will contribute to the enrichment of the literature on changing role of Accountants in this information age in Nigeria.
- (ii) It will throw more light to those in the academic like lecturers, staff or bursary departments and students to embrace information technology.
- (iii) It will suggest ways (of interest to academics) based on empirical evidence of knowing the importance and impact of information technology not only in accountancy but in other professions as well as business generally.
- (iv) The study will serve as a body of reserved knowledge to be referred to by researchers.

c) **Significance to the Society**

Most people believe (perception) that since the computer can do anything with the assistance of computer programme, then there is no need for an Accountant since

we have computer engineers, system analysis and scientists that can operate computer using the appropriate commands. This study will help us to know the extent to which this perception is true in this information age.

1.8 Limitations

The following are some of the limitations encountered in carrying out this study.

- (i) Slow response to questionnaire by the respondents.
- (ii) Secrecy on the part of respondents: Most respondents do not give out some information they feel is personal or secret to them.

1.9 Operational Definition of Terms

1. **Information:** This is a processed data that guides one or an organization to make an informed decision.
2. **Technology:** This is scientific knowledge used in practical ways in industry. It also means machinery or equipment designed for a purpose. e.g. computer technology.
3. **Information Communication Technology:** This is the study or use of electronic equipment, especially computers for sorting, analyzing and sending out information.
4. **Perception:** An idea, a belief or an image one has about a thing as a result of how one sees or understands something or situation.

5. **Function:** A special activity or purpose of a person. It also means duty for which one is known. Here, it means the duties that Accountants carry out.
6. **Role:** The function or position that someone has or is expected to have in an organization.
7. **Influence:** To have an effect on the way that something on the way a person things or behave or does things or on the way that sometime works or develops. It also means to become different from what used to be.
8. **Accounting:** The art of recording, analyzing, summarizing and interpreting in a systematic manner so that the financial position of an organization can be ascertained.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Today, information technology has become the fuel that powers business success. In contemporary corporate world, information technology has been defined as the processing and distribution of data using computer hardware, software, and telecommunications. Barnabas (2007:6). The accounting profession is not left out in this process. The developments in information technology are rapid and these developments pose challenges to Accountants. This chapter is arranged as follows:

- (i) Conceptual Framework
- (ii) Theoretical Framework
- (iii) Empirical Studies
- (iv) Summary

2.2 Conceptual Framework

2.2.1 Accounting Information System (AIS)

Accounting information systems are information systems that record and report business transactions, the flow of funds through an organization and produce financial statements (Oforum & Ogbonna, 2008). They are designed to make the accomplishment of accounting function possible. AIS processes data and transactions to provide users with the information they

need to plan, control, and operate their businesses (Romney et al, 1997). An accounting information system can be a manual system, or a computerized system.

2.2.2 Computerized Accounting Information Systems (CAIS)

The revolution in the information systems, which started in the early 1950s when the first business computers became available, is still in progress (Nash, 1989). Large mainframe computers have been replaced by small and fast personal computers at lower costs. As a result, accounting information systems that were previously performed manually are now performed by computers in most companies (Romney et al, 1997).

According to Wu (1984), quoted in Ofurum & Ogbonna (2008), computers do not change the objective or function of AIS which is to provide information relevant to the needs of users of information, but do alter the method AIS processes data to generate information and these methods are developed. For instance, companies can now capture, process, store and transmit data with the help of computers quickly with little or no error(s). Whereas data collections and processing were performed manually in historical systems, on-line collection and processing of data are now being performed by computerized systems (Grabski & Marsh, 1994). Basic components of a computerized accounting information system, according to Grabski & Marsh (2000) are discussed below:

2.2.3 Data input function

With this function, data are captured and converted into machine-readable, as against manual AIS where data are captured from source documents, directly processed through journals to ledger accounts (Trunk, 2000; Romney et al., 1997). For example, bar code scanners used in retail stored automatically records sale transactions into the accounting information systems as scanning devices read the codes on the products.

2.2.4 Data processing

Data collected and entered into computers are processed. The most common data processing activity is data maintenance. Data maintenance is the processing of transactions to update stored data (Trunk, 2000; Romney et al., 1997). For example, when sales transaction takes place, data are entered into the computer which in turn immediately updates sales and accounts receivables files, thus avoiding the rigours of having to manually update sales records, accounts receivable records.

2.2.5 Data Output (Information)

Data processed into information should meet the needs of the users (Nash, 1989). Information is presented in three forms: a document, a report, or a response to a query. Documents are records of transactions or company data such as invoices. These documents can be printed out using printers. Reports are

prepared for internal and external users – accounts payables, potential investors etc. With computerized AIS, all the information is gathered in relational tables, making it quite easy for records to be updated or produced at anytime (Nash, 1989); a feature that will be difficult to achieve with a manual accounting system (Trunk, 2000).

2.2.6 The Balanced Score Card

The balanced score card seeks of encourage behavior that is consistent with an organizations survival strategy in a competitive environment. It comprises of an integrated frame work of performance measurements that aim to clarify communicate and manage strategy implementation. (Colin Drury 2013). The balanced score card which integrate both financial and non-financial performance measure was devised by Kaplan and Norton in 1992 (Colin Drury, 2013).

The balanced score card is the translation of organizations mission and vision statement into four perspectives.

1. Financial perspective (how do we look to shareholders?)
2. Customer perspective (how do customers see us?)
3. Internal business perspective (what must we excel at?)
4. Learning and growth perspective (can we continue to improve and create value Colin Drury (2013). How then does the Accountant come into this balanced score card using ICT?

ICT has enabled the Accountant to key into these different activities or perspectives of organizations which has become the major goals of organizations. Accountants now provide information on supplier reliability, set-up times, cost of quantity report, prevention cost appraisal costs, environmental cost, internal failure cost, external failure cost, customer value propositions (Colin Drury, 2013). These requirements had led to the application of ICT tools (accounting packages) in performing these functions by Accountants which is dependent on personal factors such as creativity or financial expertise skill (Sathe 1983). Freedman and Lyne (1997) claimed that there is an impact of ICT development on the role of Accountants.

Some researchers have also argued that there is no direct relationship between ICT and Accountants role but rather indirect relationship between ICT development and Accountants role. They argue that the impact is on through the control system changes (Jack and Kholief 2008).

2.2.7 Emerging and Development of the Accounting Profession

Until comparatively recently accounting historians seeking the history of accounting vocation were reliant on celebratory and often Whiggish statements which were invariably authored by the retired presidents and former secretaries of the professional organizations (Carnegie and Napier, 1996). The emergence and evolution of the accounting profession has been an issue of

considerable debate in the accounting literature Sivakumar and Asheq, (2000). Different theoretical approaches developed in the sociology discipline have been used to explain its formation and development. Structural-functionalist approach was dominant in the literature until recently (Wilensky, 1964; Carey, 1969; Buckley and Buckley, 1974). Traditionalist accounting historians assert that developments in accounting can be and need to be explained by reference to changes in the economic environment. The last quarter of century a new search for the evolution of accounting profession has started, the central component of this venture has been the wresting of accounting from the purely technical towards the behavioural, social and contextual Willmott, (1986); Kedsle. (1990); Manicas, (1993); Arrington and Francis, (1993). Many practitioners of the "new accounting history" would claim that their approach is to regard accounting as predominantly a cultural phenomenon rather than a technique or tool whose characteristics are neutral if not benign Carnegie and Napier, (1996).

Before beginning these topics on emergence and advancement of the accounting profession, it should be noted that the description of the evolution and changes of accounting profession is based mainly to accounting history written in English, and addressing the history of accounting in English speaking countries. This is not to denigrate the contribution made

to the evolution of accounting profession by other traditions (countries), but the problem was with the availability of information and the problem of language.

2.2.8 The accounting profession from its generation until industrialized economy

Previts and Merino (1998) have supported that there is a lack of certainty regarding the origin of double entry and bookkeeping. Despite the disagreements for the origin of accounting, accounting with the double-entry technique becomes a necessary condition in forming increasingly large amounts of capital for ventures and later, administrative entities and control of these entities activities and costs. Hongren and Harrison (1989) summarized the emergence of accounting as follows: "Accounting records date back to the ancient civilizations of China, Greece, and Egypt, the rulers of these civilizations used accounting to keep track of the cost of labour and materials used in building structures like the great pyramids'. Accounting developed further as a result of the information needs of merchants in the city states of Italy during the 1400's. In that commercial climate the monk Luca Pacioli, a mathematician and friend of Leonardo da Vinci, published the first known description of double entry bookkeeping in 1494".

According to Ballas (1994) the origin of accounting and bookkeeping remains in doubt. The original "inventors" of

bookkeeping and in particular double entry bookkeeping, were either the Ancient Greeks or the Phoenicians (from whom the Greeks could have learnt it).

Double entry bookkeeping, the most sophisticated form of accounting was a much simpler affair than the term connotes today. Double entry bookkeeping at this time involved the recording of coming cash and outgoing cash, and the listing of receivables, or those who owed one money, and payables, those to whom one owed money. The complexities of cost allocations, and profit or loss accounting, were not a feature of this early bookkeeping Hines, (1989). Several works on double entry bookkeeping are known to have been published in English and in other languages as well, during the sixteenth century Peele, (1553); Weddington, (1567) and Eldridge, (1954). All are direct or indirect translations of Pacioli's Summa (1494) Previts and Merino, (1998). By the late seventeenth century double-entry bookkeeping "seems to have become the centre piece in the education of young men and women in the trading classes.

A notion has been proposed that identifies the period roughly between 1500 and 1800 as one of little change from the methods found in Pacioli's treatise; that is, that it was a period of "accounting stagnation" (Winjun 1970). The issue of accounting stagnation need to be separated from the importance of accounting during this time. Double-entry system had become

important to the merchant and trader who had experienced the commercial expansion of the 1700s. Accounts were a useful adjunct to personal record-keeping and provided important information as commerce became more complex. Contemporary views of colonial accounting include the following: "Accounting in 1760 was essentially what it was to Pacioli - a set of arithmetical techniques to assist the businessman to conduct his affairs in an orderly purposeful and well-informed fashion. There was no theory, and no deeply felt need for any; its only immediate use would have been to lighten the labour of mastering double entry in books or in school by substituting knowledge of principles for the hard grind of learning detailed rules by rote, and such consideration for the student was a thing for the future" (Lee, 1995 p.6).

Critical historian Accountants (Hoskin and Maeve, 1986; Carruthers and Espeland, 1991; Miller and Napier, 1993) have rejected the functionalist approach in the examination of double entry and adopted a classic Foucaultian framework to examine double-entry as a new type of discourse that created new categories of control. They argued that double entry system is a new technology that provides Accountants with a mean for the formulation of asymmetric power/knowledge relationships.

Despite the debates on the origin and the role of double entry, the view of accounting as a social instrument, as a device

that enabled humans to better comprehend and control the work of business, made it a symbol of rational utility in an ever more complex world, nobody can deny. Seen in a larger context, along with time management and broader skills in literacy and mathematics, accounting enabled business persons to quantify, summarize, and interpret the abstract process of business that could be evidenced by transactions and captured within the double-entry system (Previts and Merino, 1998).

2.2.9 From Industrialized economy until "21st century"

The birth of the accounting profession

The accounting historian community has revealed the extraordinary expansion of the accounting occupation in industrial economy. They have pointed out the colonization of new forms of accounting work, the construction and reconstruction of its knowledge base, inter-organizational politics and status seeking and the location of the profession in the class structure on the profession-commercial divide (Briloff, 1990; Walker, 1995; Lee, 1995; Edwards, 2001). The economic and organizational changes of the Industrial Revolution were the main reason for the professionalization of Accountants (Kedslie, 1990; Miranti, 1990). "It was the burgeoning of the industrial revolution that created the demand for Accountants. The new work was much more capital intensive than the craft work shops that preceded them and in many cases the investment needed was too large for an

individual or a small group. These new companies needed more sophisticated bookkeeping and also since numbers of shareholders were involved, an independent audit" (I.C.A.E.W, 1997, p.8).

During the second quarter of the nineteenth century, Peter Harris Abbot's study helped explain the rising status of accounting's occupational group and adds to understanding of an important feature of the professionalization process (Edwards), (2001). Abbot (1988) has supported that the evolution of the professions results from their interrelations. These interrelations are in turn determined by the way these occupational groups control their knowledge and skills. There are two different ways of accomplishing this control. One emphasizes techniques per se and the other form of control involves abstract knowledge.

Abbot (1988, 8-9) reasoned that 'is essential for an occupational group to control its abstract system of knowledge in order to claim professional stature'. According to Covalleski et al. (2003), it is necessary for the accounting profession to continually re-generate its abstract system of knowledge, thereby extending its jurisdiction to possible encroach upon that of adjacent professions. Important attributes of such knowledge are that they are storable, controllable, indeterminable and deployable to convince constituents that the profession has expertise that is of utility of them (Drazin, 1990; Larson, 1990). Blackler et al. (1993)

argued that knowledge is a strategic resource for gaining power. Covalleski et al. (2003) observed that once a knowledge based becomes standardized and rendered into a commodity a profession can no longer earn high profits by applying it. What is needed is to become "symbolic analysts" who have the "skills of abstraction" and ability to "get behind the data and ideas" to develop a "holistic understanding" of the client by melding a "deep understanding" of economic changes and information technologies. The professional was perceived as an independent and knowledgeable practitioner with an explicit obligation to act in the public interest Lee, (1995).

However, there is an alternative view that professionals are perceived as organizing to gain market control of an occupational service, by means of monopolistic exclusion of individuals deemed unworthy or unqualified to provide it (Larson) (1977). Professionals create explicit mechanisms to operationalize this strategy including entry prerequisites, institutionalized programmes of academic education and work related training and experience. Unless an individual satisfies these criteria, professional membership is impossible and certain service opportunities denied Richardson, (1997). The professional monopoly is established when the state grants exclusive rights of service only to certified professionals (see certified public Accountants and chartered Accountants).

This general discussion for the development of professions so far has highlighted the logic and the mechanisms under which accounting profession has emerged as a commercial occupation and has taken the structure of an established profession.

Historians of individual professions supported that the nineteenth century saw the first development of professions as we know them today Larson, (1977; Abbot, (1988).

The first professional society of Accountants was born in Edinburgh in 1853, by a small number (61) of eighteenth century Accountants (Brown, 1905a). Accountants were stated to need to unite into one body to ensure their legal and actuarial work was completed by appropriately qualified individuals for the benefit of the public. Brown didn't give explanations regarding the accounting professionalization in Scotland, but other historian accounting authors support a catalyst was a proposed change in bankruptcy law which would have allowed lawyers to undertake work then dominated by Scottish Accountants Kedslie, (1990); Parker, (1986); Walker, (1988). They are perceived as reacting to protect their economic self-interest. They are described as organizing to form institutions which justified the term profession, as had done previously-established bodies in other areas as law and medicine Kedslie, (1990); Walker, (1988). Also Walker (1988) and Kedslie (1990) provide evidence of the strengthening of the

Scottish professionalization process by entry, education, examination and tanning requirements.

A different pattern of professional Accountant emerged in the USA in the late 1880s, which reflect the economic and social conditions in USA between 1870 and 1900. This period witnessed population expansion, industrialization, railroad competition, agriculture boom and decline, population drifts from country to city and the emergence of a professional middle class. Economic opportunities for investment by UK companies and individuals opened the way for a significant influx of experienced Scottish and English chartered Accountants Lee, (1995). They quickly organized as firms of Accountants and sought the professional credibility to which they were accustomed in the UK. They found no institutionalized bodies in the USA devoted to public accountancy, and began to form institutions similar to those of the Scottish and English chartered Accountants. In 1882 the Institute of Accounts was the first US body of professional Accountants. The Institute was open to all professional Accountants and its main function was the education of Accountants. In 1887 the American Association of Public Accountants was founded which was concerned solely with a public accountancy membership. In 1895 and. 1896 the Institute and the Association sought to create legislation in the state of New York to license professional Accountants who met prescribed

educational and residential requirements. With the passage of the first CPA law in the state of New York in 1896 to recognize the qualification known as Certified Public Accountant and the subsequent passage of similar laws a demand arose for qualified individuals to perform attest or audit services for businesses Previts and Merino, (1998). Prior to the 1930s, no laws or regulations obliged corporations to have their financial statements audited Zeff, (2003a). By the beginning of the twentieth century, the accounting profession worldwide had laid its institutional foundations and established a relationship with the state.

One of the most characteristic features of the accountancy profession in most countries is the malleability of its occupational boundaries Mathews, (1998); Parker, (2001). This has enabled Accountants to compete for new jurisdictions when such opportunities have arisen Walker, (1999). Many researchers provide evidence for the role and different activities of Accountants during the industrial age until the new information age. From the earliest days of the profession (1850) the information produced by the accounting system used to affect an improved co-ordination of company's operations and as an aid to strategic decision making Boyns and (Edward) (1996). By the 1910s, they included the installation of factory cost systems, studies of organizational efficiency, investigations in connection with possible investments in other businesses and an array of

other services to management Previts and (Merino) (1998). Carey (1969) and Miranti (1990) documented Accountants' involvement with audit, tax and management advisory service. Parker (1984) noted that the exponential growth in membership of British professional accounting bodies during the 20th century is due the growing calls for service from creditors, shareholders, managers and taxpayers as the driving forces behind this growth. (Kedslie) (1990) examined how Scottish Accountants developed a menu of services beyond those existing at the time of foundation, including accounting and auditing for entities and municipalities. Arnold and Hope (1983) supported the three dynamic and inter-related areas of business in which accounting plays an important role: decision making, planning and control. Hussey (1995) described accounting as "the technique used to collect, process and present financial and quantitative data within an organization to enable effective scorekeeping, cost control, planning, pricing and decision making to take place".

Previts (1985) confirmed that the American accounting profession as split between those who proactively advocated the expansion of the range of accounting services (particularly in the business advisory area) in response to markets demands and more conservative elements who wanted the accounting profession to be 'confirmed in legislation' before embarking upon an expanded range of practices. However, in the USA accounting

developments follow the development in economic and business environment. With the development of multi-unit business enterprise (MBE) at the end of nineteenth century and the emergence of a new economic function "administrative co-ordination and allocation" the use of accounting information to "control and evaluate the work of many managers" had been a necessity Chandler, (1977).

McMillan (1999) and Maltby, (1999) concluded that in the USA, UK, Canada and Australia despite the diversity of experiences in different socio-political and cultural context Accountants have expanded their range of accounting services, and entered new fields of work as strategic management, assurance services, investment advice and all kinds of consulting. In addition they have achieved positions of power, status and authority and they have advanced their professionalisation Hines, (1989).

2.2.10 Information Age and the Accounting Profession

Although the accounting researchers' opinion may differ on some of their specific predictions about how accounting profession will be transformed over the next years, there has been a general agreement that as the new century get underway, the changes in the accounting professions' practices would not only be major in a structural sense, but also these changes would occur at a quicker rate than before IMA, (1999); Albrect and Sack,

(2000); ICAA, (2001); Howieson, (2003). The most significant developments occurred this time are the increasing reliance placed on accounting information and the interpretation of this information in the fields of business advisory services Parker, (2001); Elliott and Jacobson, (2002); Howieson, (2003). Many researchers have identified information technology, globalization, and the changing economic environment as major influences that have accelerated the changes on the accounting profession Albrecht and Sack, (2000); Olivier, (2001); Parker, (2001); Holtzman, (2004).

The rise of information technology has changed the global economy from a manufacturing to a service knowledge-based economy and the way that business was conducted. The global marketplace is changing. Businesses rely more and more on changing technology. Technology has provided many tools that increase efficiency in most businesses Olivier, (2001).

The massive development of information technology has affected the accounting profession, has minimized the time required for traditional accounting jobs- bookkeeping, taxation and auditing- and it has created the need for the accounting profession's expansion in new broader scope business activities Olivier, (2001); Holtzman, (2004). Computers with the right accounting software do routine accounting work (bookkeeping) once performed manually by Accountants and few entry level

accounting positions will be needed as these responsibilities are taken over by computers and lower level other employees. Traditional paper-based financial reporting is becoming increasingly less timely and thus less useful to decision-makers Koreto, (1997); Lymer et al., (1999). Computers help Accountants in both auditing and tax decision making, generate reports for those needing the information, and much of the preparatory work in financial-statement audits is eliminated by automated work papers, thereby 'freeing up' Accountants for more advisory, finance and decision-making roles Parker, (2001); Elliot & Jacobson, (2002).

The globalisation of economy is another important factor that has altered the way that business is conducted. "Globalization is a child of communication technologies" Olivier, (2000). Hirst (1992) argued that "globalisation affects every aspect of life economy, politics, culture and society". Within the last three decades, with the development of information technology and communication, the transformation of national business to global business independence has become a reality Holtzman, (2004). Location is becoming increasingly irrelevant and accounting work is becoming increasingly multidisciplinary ICAEW, (1997); Simister et al., (1998). Accounting profession is a necessary condition for industrial development and globally competitive industrial performance. Auditors perform audits and give advice

for mergers and acquisitions of international businesses and must be knowledgeable of the laws and practices of other countries. Accountants must also be aware of these issues as well as the customs and business environment of the countries in which their companies do business. The accounting profession is also heavily implicated in the globalization of industry. Accounting itself is probably the prime exemplar of service sector globalisation. International accounting firms are global suppliers of a wide range of professional and financial services Walker, (2004).

In addition, the economic and business environment has undergone massive changes in the last thirty years. More complex regulatory framework, mass production, increasing competition, saturation of the audit service market and the emergence of investment powerhouses and global individuals investors that require real time flow of relevant financial information and accountability of publicly held companies, has introduced new dimensions in the contemporary business environment Holtzman, (2004); Parker, (2001); Albrecht and Sack, (2000); Olivier, (2000). In particular, clients of Accountants and accounting firms place much less value on traditional accounting, tax and audit services. They evaluate product and services via more sophisticated performance indicators, rather than simply relying on traditional financial measures (Alepa, (1988); Simister et al., (1998); Albrecht

and Sack, (2000). Today corporate governance issues are of utmost importance as it has been recently demonstrated by the scandals of Enron, Parmalat, MCI etc. For all publicly held companies, the momentum for enhanced corporate democracy is stronger than ever. Mutual-fund investors, investors in employee stock plan, or just an individual investor in single securities, are demanding more than ever full boardroom disclosure. Add to this the increasing role of accountability in social and political life Fogarty, (1997); Williams, (2004); Walker, (2004). Taxpayers, voters, consumers of goods and services, all are stakeholders who demand accountability from those whose actions affect their lives. Many accounting authors indicated that in recent years accounting profession seems to be more susceptible to accommodation and compromise on questionable accounting practices, when compared with its more stolid posture on such matters in earlier years Zeff, (2003); Williams, (2004).

2.2.11 Future Accounting Professionals

All of the above major factors are interrelated and, to a large extent, have affected the business environment, have contributed in creating a different structure of organizations and an enormous competitive pressure on businesses and require new forms of personal competences and skills in the all business professions. The change-drivers have a profound effect on contemporary accounting profession and those entering in the accounting

profession today Albrecht and Sack, (2000); Parker, (2001). The broadening of accountancy profession is taking two forms, a broadening of the scope of the profession itself and of individual Accountants. The role Accountants is continually expanding as they have redefined their activities from primarily information processors to strategic business advisors Albrecht and Sack, (2000); Parker, (2001); Holtzman, (2004). This involves the Accountant moving from a number cruncher to a business and financial strategist and from a cost oriented scorekeeper to a market oriented business partner Grundy, (2000).

While traditional accounting compliance work (bookkeeping, taxation and auditing) persisted in their importance to the accounting profession, technology, globalization and new business environment yields opportunities and challenges for the Accountants and have created the need for diversity in the profession. Less time is being spent in traditional roles because technology automated many time-consuming tasks. Instead, Accountants were spending increasing amounts of time in new roles as an internal consultant, analyst, and valued business partner IMA, (1995). The new Accountant is one who is working on cross-functional teams and becoming more heavily involved in strategic planning and business decision making Howieson, (2003).

All the changes in the economic and business environment suggest that the major "products" of the early 21st century may not be physical goods or even many existing services but rather knowledge and the ability to manage knowledge. If knowledge is the commodity of the future, then Accountants are ideally placed to seize the opportunity to be the main player in this commodity Elliot and Jacobson, (2002); Howieson, (2003). Accounting has always been an information system designed to collect, analyse and disseminate knowledge in a way that is useful to various decision makers. Accountants have a competitive advantage in knowledge management relative to many other professionals because they tend to understand the interrelationships between different segments of a business ICAA, (2001, p.8). Accounting is a professional service activity concerned with the provision and analysis of information for a variety of decision making, managerial, regulatory and resource allocation purposes (Walker, 2004). A growing number of studies have identified the expanding array of business activities where Accountants and other business professionals have been involved see IMA, (1999); Albrecht and Sack, (2000); Parker, (2001); Messmer, (2001); Howieson, (2003). Drawing on the work of Albrecht and Sack (2000), Parker (2001) and Wilder and Stocks (2004) suggested that the important emerging accounting and business activities in the new millennium are management consulting services, strategic

management and advice, changing management, knowledge management, risk management, environmental management, expanded assurance services, business planning, registered investment, brokers and advisory services, personal financial planning and business valuation.

In recent times another important issue has attracted considerable interest in professional accounting practices, this is the social responsibility of Accountants. Accounting scandals such as Enron, WorldCom, Parmalat and others worldwide have severely damaged public perceptions of Accountants. Various trust and competency issues have arisen regarding Accountants. In the name of public benefit, regulators across the globe have stepped up their scrutiny of the accounting profession and have released laws (most notably the Sarbanes-Oxley Act in the United States) and new auditing standards. Abbot (1983) argued that "ethics codes are the most concrete cultural form in which professions acknowledge their societal obligation". A code of ethics has been the traditional means by which a profession assures the public and its clients of its responsibilities and thereby the maintenance of its integrity and reputation Sivacumar, (2003). The accounting profession began the process of establishing and continually updating ethical standards as early as 1894. The 20th century brought a clearer and more consistent set of standards Previts and Merino, (1998). Cooper and Sherer (1984), Chua

(1986), Willmott (1993) have stressed the significance of accounting as a technology for social and organizational control. Walker (2004) argued that accounting profession involves the provision of information for control, governance, regulatory (including tax assessment), and stewardship purposes.

The fundamental responsibility and the primary concern of Accountants must be to protect investors, creditors and personnel from being misled by financial statement that embraced unacceptable accounting and inadequate disclosures Wyatt, (2004). Future Accountants should appreciate the importance of ethical behaviour throughout the organizations and understand their role in achieving the appropriate level of social responsibility.

2.2.12 An Overview of Traditional Accounting

Accounting is the record keeping process by which property and transactions connected to a business are controlled. Generally, it is the systematic and regular recording, classifying, sorting, analysing and interpretation of business data to produce information for decision making.

Lucey, (2003: 10) sees financial accounting as Evolving from the stewardship function and is concerned with such matters as financial record keeping/ with preparation of final accounts, dealing with debtors and creditor, raising of finance and dealing with all aspects of taxation.

Accounting exists because at anyone time the resources available to satisfy the needs of human beings are limited. These resources have to be allocated or managed in order to secure their best use and avoid waste. Accounting is an aid in this management of resources. Harold (1979: 10).

Accounting itself has also been defined by Modum (2005:195) *as a system of principles and techniques, which permits a series of interrelated activities that form a progression of steps, beginning with observation, then collecting, recording, analysing and finally communicating information to its users. The Accountant has the task of transforming raw data into information.*

From the above, one would want to know the function of an accounting. According to Talabi, (2010:3) accounting performs the following functions:

- Accounting enables businesses to determine the profitability or otherwise of an enterprise by finding all the revenue and income accruing to the organization and deducting all expenses incurred in the course of carrying out the business.
- Accounting makes it possible to carry out proper control of resources put into the business. Example, when money (capital) is introduced into a business, it is used to purchase an assets. A permanent record is used to monitor the use and movement of these assets.

- Accounting also facilitates decision making in both private and public establishments. For example, consolidated performances of different businesses in an economy facilitate planning as it helps in determining where resources should be channeled into.
- Proper accountability to owners of the business is possible through accounting. At the end of a definite period the stakeholders in a business are interested in knowing how well their business managers have managed the resources entrusted to their care.

2.2.13 Structure of Accountancy and Business Services

These days, the term "Accountant" is becoming rarer and adviser as multi-skilled business managers and consultants. This is reflected in the way accountancy firms sell their services and the way in which the accountancy function within companies is viewed (Adedoyin, 2010:30).

The accounting sector can be divided into those firms that provide advice and accounting services to a range of clients in the public and private sector (this area has traditionally been called private practice) and those working in one particular organization in the public or private sector.

2.2.14 External Providers of Accounting Information

Big Firms: The "Big" accountancy firms - Deloitte/Akintola Williams, KPMG and PricewaterhouseCoopers (PWC) now style

themselves to clients as professional advisers offering solutions to all their business problems. They aim to help businesses and organizations to improve their effectiveness and achieve their objectives. To do this successfully, they need to have an excellent understanding of their clients businesses and most of these businesses have fully computerized their operation. Some of these services include:

- **Assurance and audit:** This involves inspecting the accounting records and procedures of a business, government unit or other organizations for the purpose of verifying the true and fair view of the accounting records.
- **Corporate finance:** Mergers, acquisitions, fund-raising, public/private partnership.
- Corporate recovery/insolvency
- **Forensic accounting:** As a result of losses arising from theft, frauds and accidents, Accountants now look deeper to quantify losses, tracing and recovering of assets.
- **Tax issues:** Advising clients on the most tax efficient way of conducting their affairs within current legislation to enable them minimize their tax liability and liaising with FIRS on their behalf.
- **Financial outsourcing:** Provide the total finance function for their clients and running payroll.

- **Other services:** In addition to these financial services, they also offer other services like pension services, human resources, insurance and IT solutions.

Large to medium sized firms: There is a whole range of large to medium sized firms that offer a similar range of services like those of the big firms e.g. SOA & CO. which will be one of the case studies.

Small local practices: These are the accountancy practices found everywhere, usually near business offices often servicing local clients in small business. They tend to concentrate on audit, taxation and financial accounting work.

2.2.15 Internal Providers of Accounting Information

This is by far the biggest sector of employment for accountancy professionals, multinationals, banks, telecommunications, federal, state and local government, pension funds, insurance companies and manufacturing companies, whether large or small all have an internal accounting function.

They provide some or all of the following services:

- Internal audit - producing reports and recommendations
- Financial accounting – keeping track of all financial transactions and preparing the accounts, preparing financial statements including monthly and annual accounts.

- Management accounting - providing management with information needed to make decisions, preparing and controlling budgets, preparing financial management reports including financial planning and forecasting.

2.2.16 Challenges in Manual Accounting

According to Modum (2005:193), *traditionally accounting information has had its own set of specific functions and has relied on its own devices such as journals and ledges and its own procedures, double-entry book-keeping. Traditional function of an accounting information system includes recording/ storing, processing and reporting financial information and related non-financial information. Traditionally, accounting has focused on periodic historical and aggregate data/ primarily in the form of financial statements. It has been limited largely to financial transactions which are self contained and standard. Accounting information is restricted to stewardship and analysis decision that use the financial accounting model. Emphasis is on objectivity and reliability of information.*

There are several challenges inherent in manual accounting system and they are:

- **Paper work:** With the tremendous growth on businesses, organizations and government agencies, the amount of paper work generated through transactions regularly has grown drastically. The result will be that information may be

difficult to get from the pile of paper and may not be available on a timely basis.

- **Records management:** Another consequence of manual record keeping is difficulty in the storage and later retrieval of documents and transaction history for use.
- **Managing growth and real-time decisions:** Many organizations, both large and small have offices dispersed in many locations due to growth, competition, regulation emerging markets etc. this requires having information on a timely basis for effective decision making for the business. With competition becoming very stiff, organizations without timely information cannot compete. This is a challenge for the Accountant as the custodian of financial information required for decision making.
- **Reporting and presentation format:** In a manual system, reporting may be an issue as generating manual reports is painstaking and prone to errors which may result in delayed reports. Also, flexibility in terms of format may be restricted.
- **Manpower requirements:** Manpower requirements of manual systems are usually higher than in a computerized system. You may need different levels and number of staff to control the daily operations.

- **Data validation and control:** Manual systems are prone to errors, since we are depending on the integrity and carefulness of staff involved.
- **Budget and accounts tracing:** In a manual system, tracing like payables and budgets, particularly in an active organization generating many transactions daily is a big challenge for the Accountant and the auditor.
- **Inventory control:** The control of inventory levels in a growing organization is critical for cost control. A manual system is not prone to theft and fraud, the organization may be carrying stock it does not require and be tying down capital.
- **Bank account reconciliation:** Bank accounts and other accounts need to be reconciled regularly for proper management and control of finance.
- **Backup:** It is very critical to backup our data and documents. Many private and public institutions have been affected by fire outbreaks which destroyed all business documents for which there were no backup copies.
- **Other challenges:** Other challenges in a manual environment include improper separation of duties, slow speed of decision making and non-standardization of business process (Talabi, 2010:31-32).

2.2.17 Information System

According to O'Brien (2002:8) *a system can be most simply defined as a group of interrelated or interacting elements forming a unified whole. He further argues,*

A system is a group of interrelated components working together towards a common goal by accepting inputs and production process. Such a system can be described as dynamic and has three basic components or functions: Input processing and output.

Based on the above definition, inputting involves capturing and assembling elements that enter the system for processing.

A system does not exist in vacuum but functions as it exist in an environment containing other systems. Thus information system is one of the components of a larger system, and then it is a subsystem of the larger system, in the environment. Sharma

2.2.18 Accounting Information System

These are the offset and most widely used information systems in businesses they record and report business transactions and other economic event.

According to O'Brien (2002:148) *Accounting Information Systems are based on the double-entry bookkeeping concept, which is hundreds of years old, and other more recent accounting concepts such as responsibility accounting, and activity based costing.*

Yet, Modum (2005:194), sees accounting information system as *all the policies, rules, procedures and practices as well as the physical elements that are used to record, process and communicate the financial information of a firm, that is a collection of resources such as people and equipment designed to transform financial and other data into information.*

Thus, computer-based accounting systems record and report the flow- of funds through the organization on a historical and produce important financial statements such as balance sheets, and income statement such systems also produce forecasts of future conditions like projected financial statements and financial budgets. A firm's financial performance is measured against such forecasts by other analytical accounting reports. (Oladele, 2009:1).

2.2.19 Appraisal of Specific Accounting Information Technology Tools

Over the years, accounting has become more sophisticated. This increase in complexity is reflected in the difficult many companies have to automate their accounting function satisfactorily. The various tools used to automate these functions range from simple, single use applications to complex multi user packages and tools. Technically, there are two basic ways to automate the accounting function, one way is to develop the application in-house using available programming skills and experience or buy it off-the-shelf. (Talabi, 2010:33).

There is a growing tendency towards the purchase of off-the-shelf packages due to a number of reasons which include globalization, such that organizations do not have to re-invent the wheel but can benefit from experience of other users and vendors in the finance industry located anywhere in the world. This has its own drawbacks, which include high cost of the software, maintenance, customization costs and availability of local skills.

Small Scale Accounting Packages

These are accounting packages that can handle small scale organizations. Such applications come with different modules to handle specific company information and maintain daily transactions using the general ledger cash management accounts payable, accounts receivable, non-current assets management, inventory account reconciliation, payroll and generating financial statement and reports. Example of such package include: Quick Book, and Peachtree.

Medium Scale Accounting Packages

This kind of accounting handle the basic function listed in small scale packages but includes much more. The additional modules may have; time and billing, job costing modules, extensive financial reporting and analysis, project accounting, e-order, purchase order, warehouse management, inventory replenishment modules, material planning, integrated HR & payroll and customer relationship management. Examples of such

packages are the Sage, Sun accounting, Microsoft dynamics, tally accounting etc.

Large Scale Accounting Packages

These are large accounting packages that handle enterprise-wide operations and are generally referred to enterprise resource planning application (ERP). This is because they handle basically all types and various business processes and operations in the organization. Example includes SAP, STIX, EDIUS and ORACLE e-business failure.

2.2.20 Key Features of Accounting Packages

According to Talabi (2010:34) the key features of accounting packages include:

- Ease of data entry and control
- Accounts Tracking/reconciliation
- Network Ready
- Modules integration
- Interface to other systems
- Reporting facilities
- Budget monitoring
- Multiple data entry channels
- Inventory control
- Multi-currency & Multi-level accounting
- Internet and other charges
- Backup and archive of company data

- Audit trail
- Access control and security

2.2.21 Benefits Of Automation

The benefits accruable from the automation of the accounting functions are many and varied and they include:

- **Large volume of transactions:** Automation allows large volumes of transactions to be processed at minimal time and cost with speed and ease.
- **Focus on Analysis and reporting:** Accountants are able to focus more on business data analysis and reporting instead of transaction processing.
- **Records management:** Accounting transaction and records are easily managed and stored for later use and compliance purposes.
- **Optimised manpower use:** Personnel deployment is optimised as job functions are not unnecessarily duplicated across the organization.
- **Efficiency and Effectiveness:** The business process and operations are carried out in an efficient and effective manner.
- **Competitive Advantage:** With up-to-date data, correct decisions can be taken by the business for competitive advantage in the face of stifling competition.

- **Response to changes:** The organization is able to respond to changes in the environment quickly based on information available.
- **Comprehensive Accounting Solution:** Accounting packages enable the production of comprehensive accounting reports for the management of the different parts of the enterprise, saving cost and improving the bottom line.
- **Manage Internal and External relationships:** Accounting packages and enterprise resource planning solutions ease the management of internal relationships (staff) and external relationships (suppliers and customers).
- **Increase in Productivity:** Automation increases the productivity of employees and the business, motivates the staff to acquire new skills to improve their status in the organization.

2.2.22 Accountants and Information Technology

Information technology, its tools and techniques have affected every profession. The accounting profession is not left out in these profound changes to business operations and methods of communications. Today, it presents us with opportunities that have never been available before. However, Accountants need to understand the use of the tools and equip themselves with the necessary and required skills to utilize the different technologies

for the benefit of clients, organizations and the economy at large (Talabi, 2010:30).

In the present information age, if Accountants must remain successful and relevant, they must embrace information technology. Information technology has made possible many things that were not possible before to be possible and has globally embraced in a manner that have not only brought innovation into management processes but made the work of Accountants more complex (Barnabas, 2007: 10).

If Accountants must continue to fulfill their fiduciary obligations to the society, they must keep abreast of changes in Information Technology world. It is now the expectation of the society that Accountants in paid employment or in practice should have a reasonable level of competence in Information Technology related issues. These days for any civil servant (Accountants inclusive) to qualify to attend any advance training, he or she must be Information Technology literate. That is to show the importance being attached to Information Technology (Barnabas 2007:10).

It is important to note that information technology has changed the competitive environment in which Accountants participate. It is now common to appoint Accountant as Chief Information Officers (CIOs), Chief Information Security Officers, IT

Auditor, System Analyst and Certified Financial Analysts, Certified Information System Auditor (CISA) etc.

2.2.23 IFAC IT Requirements for the Accountant

There is a knowledge gap that has affected the utilization of these Information Technology tools and techniques. This issue has in fact been identified by the International Federation of Accountants (IFAC) and members bodies have been mandated to improve on the IT contents of their syllabus to ensure that members are highly computer literate and can work effectively in this information age.

This syllabus is divided into three:

1. Pre-IT requirement
2. Post-IT requirement
3. Audit professional

All these are to show how important IT is to the Accountant. (Jaiyeola, 2010).

2.2.24 International Education Practice Statement (I.E.P.S.2.1)

The IEPS 2.1 provides detail of the knowledge and competences required of professional Accountants in the IT environment to prepare them to:

Use it, work on IT environment and or reply on IT. It defines competence as being able to perform a work role to a defined steward with reference to real working environments. Individuals are expected to develop the appropriate IT competences required

to qualify as professional Accountants and then to maintain these and develop further appropriate IT competences throughout their careers. Adedoyin (2010: 10).

2.2.25 Challenges relating to information technology

Information technologies affect how organizations are structured, managed and operated. Entities can no longer develop business strategy separate from IT strategy, because IT is an integrate sound business and IT planning, and to incorporate effective financial and management controls within new systems.

The traditional role of professional Accountants; evaluating investments in business systems designs; and reporting on potential weaknesses within these initiatives, need to be preserved and enhanced through IT. Jaiyeola (2010).

2.3 Theoretical Framework

2.3.1 Theoretical Underpinning

2.3.1.1 Innovation diffusion theory

Shy (1997), as quoted in Kabiru Dandago et al (2014), diffusion theory has five characteristics of innovations that affect their diffusion: relative advantage; that is the extent to which a technology offers improvements over currently available tools; compatibility, that is its consistency with social practices and norms among its users; complexity, (its ease of use or learning); trial ability ; this is the opportunity to try an innovation before

making use of it and observation); the extent to which the technology's outputs and its gains are clear to users.

This theory of diffusion has demonstrated that innovations bring advantages and compatibility with existing practices and beliefs. Low complexity, potential trial ability and observance will be more extensively and rapidly diffused than an innovation with cluster of opposite characteristics (Shy 1997).

2.3.1.2 The Theory of Reasoned Action and its Derivatives in Users Acceptance

Theory of Reasoned Action (TRA) defines relationships between beliefs, attitudes norms, intentions, and behaviour. According to this theory, an organisational behaviour (e.g., use or rejection of technology) is determined by one's intention to perform the behaviour, and this intention is influenced jointly by the organisational attitude and subjective norm, defined as "the organisation's perception that most businesses/clients who are important to it, think it should or should not perform the behaviour in question" (Zozak, 2005).

According to TRA, attitude towards behaviour is determined by beliefs about consequences of the behaviour and the affective evaluation of those consequences. Belief is defined, by Zozak (2005), as the organisational subjective probability that performing a given behaviour will result in a given consequence. Effective evaluation is "an implicit evaluation" to the consequence;

thus the attitude construct in TRA is general in nature and is not anchored on any given belief set. This approach represents an information processing view of attitude formation and change which states that external stimuli influence only through changes in the organisation's belief structure (Zozak, 2005).

2.3.1.3 Theory of Planned Operational Control

According to Model M.E (1996), the Theory of Planned Operational Control (TPOC) is a descendant of the theory of reasoned action (TRA) and adds a third antecedent of intention, perceived optional control, to the TRA model. Perceived operational control is determined by the availability of skills, resources, and opportunities, as well as the perceived importance of those skills, resources, and opportunities to achieve outcomes. The Theory of Planned Operational Control (TPOC) holds that attitudes, subjective norms and perceived operational control are direct determinants of intentions, which in turn influence accounting operations. This is where the Accountant needs to demonstrate his knowledge, skill and ability in performing his functions.

2.3.1.4 Activity Theory

Activity theory is an approach to understanding human work and technology which emphasizes the long-term well-being of workers or users. Eschewing "one best way" task design for user-determined task procedures, action theorists seek to design

work practices that are enriching and that lead to development of skills and knowledge. Activity theorists argue that acceptance of technology is contingent on the extent to which it meets these goals in the context of the user's own work. Activity theory largely aligns itself with the broad humanistic aims and the methods of the socio-technical approach. It is at least partially distinguished by its emphasis on the product of the organisational process which characterized socio-technical systems thinking (Martin and Leben, 1989).

2.3.1.5 Socio-Technical System Theory of Information Technology Acceptance

The socio-technical systems perspective has become influential in the analysis of the organisational impact of information technology. The theory views an organisation as an open system of interdependent sub-units transforming inputs to desired outputs. The gainful employment of any technology hinges on the ability and willingness of users to employ it for worthwhile tasks (i.e., those deemed central to the organisation's goals). Socio-technical systems theory has given birth to a framework for technology design that emphasizes holistic job satisfaction (rather than just task performance) and user participation throughout the development process.

Thus, socio-technical theorists recommend the analysis of all stakeholders, not just the direct users of a technology, the

formation of planning groups to oversee the design, the performance of prototyping exercise, and the analysis of likely impact the technology will have on the organisation. In studying technology acceptance, socio-technical theorists conceptualize acceptance in terms of two competing forces: control and enhancement. Control factors are those that impose rules or structures upon the users, thereby removing autonomy (control over their own actions) from them. Among the control issues raised with respect to technology design are: access, reliability, confidentiality, monitoring, pacing, stress, social contact. Low or high presence of certain factors (e.g., low reliability, high pacing) with the introduction of a new technology is likely to reduce the user's perception of control and thus increase the risk of resistance (Connor, 1997).

Enhancement factors include sense of mastery, growth of knowledge, discretion, ability to act informally, requirement for certain skills, and enabling worker cooperation. A technology that is designed to support such factors is likely to increase user acceptance in an organisation.

2.3.1.6 Contingency Theory

This theory suggests that an accounting information system should be designed in a flexible manner so as to consider the environment and organisational structure confronting an organisation (<http://www.rhsmith.umd.edu.faculty/gordon>).

Accounting information systems also need to be adapting to the specific decisions being considered. In other words, accounting information systems need to be designed within an adaptive framework. Key theories in Management information system include; cognitive theory and Task-Technology theory (Hall, 2010).

From the above theories underpinning, the theories that will guide this study are innovation diffusion theory and the theory of planned operational control. In innovation diffusion theory, diffusion studies have demonstrated that innovations affording advantages, compatibility with existing practices and beliefs, low complexity, potential trial ability, and observable ability will be more extensively and rapidly diffused as a result of influence information technology on the role of Accountant in Nigeria. Also, the theory of planned operational control holds that attitudes, subjective norms, and perceived operational control are direct determined of intentions which in turn influences Accountants Performance in the Nigerian. (Kabiru I. Dandago and Abdullahi Sani R, 2014).

2.3.1.7 The Impact of ICT on Accountancy Profession

With the rapid development of information technology and increasingly matured e-commerce, in accounting information system, data processing is highly automatically, information is open to insider and outsiders under control and highly shared, there is no routine works, and journalizing may be automatically

done when transactions happened. For example, in supermarkets when goods is sold, records is made at the same time to reflect the increase of cash and revenue, the cost of goods sold and decreased of inventory. Which means the need for traditional Accountants who do just accounting will be greatly reduced, and more accountants will focus on analyzing and utilizing the accounting information.

One the other hand, the quality of accounting information depends on the reliability of hardware and software (ICT), as well as the personal proficiency in accounting software. An Accountant with only the knowledge of accounting and economic laws may not meet the demand of information era. People who are familiar with accounting theory and skillful in practice, knowing about economic laws that can make good use of information technology are more welcomed.

In summary, in the accounting information system, the job structures has been affected and the quality of Accountant is more demanding.

2.3.1.8 Impact of Accounting Information System on Accounting Theory

The theory and methods of traditional Accountants are based on manual accounting. However, they are and will go on changing with the influence of information technology. It is known that accounting cycle includes the following steps: journalizing

the transactions, posting to ledger accounts, preparing trial balance, making adjustments and preparing adjusted trial balance, preparing financial statements and appropriate disclosures. In manual accounting era, Accountants have to perform in the whole accounting cycle manually. Basic theories in manual accounting include: voucher classification and summary, control ledger and subsidiary ledger posting, and accounts checking (Liu Liyan, 2013).

Accounting information system is based on and can do more than computerized accounting. With a comprehensive use of modern information technology as: computer, internet and intranet and communication technology, accounting system is open to other business resource system, has a high degree of integration and shared information (Wang Juan, 2011).

According to Kenneth and Jane (2010) information technology consists of all the hardware and software that a firm needs to use in order to achieve its business objectives. This includes not only computer machines, disk drives and handheld mobile devices, but also software such as the windows or Linux operating systems, the Microsoft office desktop productivity suite and the many thousands of computer programs that can be found in typical large firms.

According to Xiao, Powel and Didyson (1996), "ICT use is very likely to improve cooperate financial efficiency and

effectiveness and also maintains that prior works on the impact of information Technology on Accountants suffer from a lack of theoretical evidence”.

Also, Spathis and Constantinide (2004), in their work concluded that overall the benefits achieved by ICT development strongly influences accounting information and practice.

There is equally a trade off between traditional control based on accounting numbers and a system of management control based on operational non-financial data can take place when ICT developments occur (Dechow and Mouritsen, 2005).

2.4 Empirical Review

Under this we shall be discussing both past and current studies in information technology and the Accountant. Accounting has been described as the language of business, but in this information age can the Accountant still speak the universal language i.e. are they still relevant?

Oliver (2000), stressed that in this information age, change in Accounting profession is ongoing and accelerating. The identity of the Accountants in the twenty-first century is a major concern for the practitioners and their institutes. The traditional tasks of an Accountant based on his exclusive competence in book-keeping and financial reporting have dropped significantly since computers replaced the manual process. Oliver’s study addressed

the issue of using computer in the place of manual aspect of accounting.

(Russell and Siegel, 1999): (Howieson, 2003) emphasized that the specialization in accounting standards requires dialectic closeness to the interpretation of laws and regulations than to the economic analysis. They believe that with a new business environment and more self-reliant clients who are focused on their business activities, accounting practices will have to become more multi-disciplinary. This study emphasized on the need for Accountants to be vast on other area of business other business related aspect since accounting is the language of business.

Adedoyin (2010:30), opined that these days, the term “Accountant” is becoming rarer and adviser as multi-skilled business managers and consultants. This is reflected in the way accountancy firms sell their services and the way in which the accountancy function within companies is viewed. Adedoyin emphasized on the new titles for Accountants.

Barnabas (2007:10) believes that in the present information age if Accountants must remain successful and relevant, they must embrace information technology. Information technology has made possible many things that were not possible before to be possible and has globally embraced it in a manner that has not only brought innovation into management processes but made the work of Accountants more complex. This work emphasized on

the new for an Accountant to embrace information technology because of the complex nature of business.

According to studies carried out by Eleni & Giannis (2010), the new emerging business and accounting services have a profound effect on the knowledge and skills, employers are looking for in potential Accountants in order to proceed into the next millennium. Analyzing and evaluating each company's financial information and doing business consultancy in today's complex environment requires a wider range of knowledge, skills and abilities than the basic accounting competence the traditional Accountant can provide. It requires a new information professional Accountant that, while well trained in financial and management accounting techniques, has a wider understanding of the global business environment and needs and who is able to identify correctly the problems and information that is necessary in different business settings. Here also, emphasis is on skill and wide range of knowledge.

Several studies (IMA 1999; Albrecht and Sack, 2000), as cited by Eleni & Giannis (2010), have supported that Accountants need to develop the required skill competencies and adapting quickly enough to the demands of the changing accounting professional job. Various organizations have recently performed competency assessments studies (Kullberg et al., 2002). Competency studies are outcome based in terms of Accountants'

ability to perform professional services and responsibilities, based on knowledge and skills (Palmer et al., 2004). Their results revealed that these professional studies have commonalities. The knowledge, skills and abilities (KSAs) that were found to be important for the competency of Accountants were: general business knowledge, communication skills, interpersonal skills, problem solving-skills, accounting knowledge, information technology and computer skills, personal attitudes and capabilities. The results from the above studies present the need for a new and broader business background and skills for Accountants. These studies revealed that general business knowledge and information technology is necessary for the Accountant. The question still remains, are Accountants still relevant in this information technology age?

According to Baraba Bell quoted in Henry Ehi Egbiki (2010), the future looks very promising as the core skills of Accountants to synthesize, analyze and interpret information will be a key requirement in the knowledge age.

Also, a report by Elliot of the American Institute of certified Public Accountants (IACPA 2005), also emphasized that the shift of an information economy will place greater value on workers who are skilled at identifying and solving complex problems and acquiring marketable knowledge. The knowledge workers who add

value through interpretation, analysis and presentation of information will become more service-based (Ehi 2010).

It means that Accountant in the future will face competition and is in many instances, already facing competition from tax agents, business advisers, financial planners, engineers, and various consultants.

For Accountants to be successful in their new challenges, they will need to diversify their skill base beyond traditional analysis into areas such as Information technology, non-financial performance measurement and general management. Chief executives will increasingly expect their accounting and finance people to take on a strategic involvement well beyond the numbers. Ehi (2010).

An empirical work carried out by Bormann – Rute, Grumbknow and Herst 2015 demonstrated that the roles of Accountants do not change as fast or as much as is sometimes suggested as a result of the implementation of ICT. This study was carried out on twenty management Accountant employed in mid-sized Deutch companies that had implemented ICT system.

Also, Scapens and Jazaroyi (2003), Jack and Kholeif (2008) had similar views that there are no fundamental changes in management accounting and control procedures when ICT developments occur.

Therefore, it is obvious that prior works show conflicting evidences on the relationship between ICT development and the role of Accountants.

Also, sequel to the above review not much has been said as to whether Accountants are relevant or not.

This research gaps form the basis of carrying out this empirical study, that is to substantiate on the extent of the impact of ICT development and the roles of Accountants and to equally ascertain if Accountants are still relevant.

2.5 Summary

From the above empirical review, not much had addressed the issue as to whether Accountants are still relevant in this information age and also whether the traditional function of Accountants has been eroded or not and to what extent has information technology influenced accounting function. This research gap forms the basis of carrying out this empirical study.

The history of the emergence and development of the accounting profession all over the world has illustrated that the role of Accountants are changing. A review of relevant literature showed that the profession's development articulated of Accountants' interests with shifts in the demands for Accountants at the level of the market. The profession of accountancy has experienced significant changes in its competencies, responsibilities and services due to changes in technology,

globalization and business environment. Accounting is becoming a "knowledge services" profession. Instead of placing focus solely on the historical reporting of financial data, Accountants are being asked to provide a forward-looking and giving a predictive interpretation of that information Messmer, (2001).

In carrying out this empirical study, 5 main performance indices of Accountants will be addressed before and after the implementation of ICT. First we shall determine the extent to which Accountants are involved in different activities of the organizations, secondary is the extent to which their reports are relied on, thirdly is the time spent on these different activities, fourthly is the on accounting policies used before and after the ICT implementation and fifthly is the degree of their overall impact on the goal of the organization.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter takes a look at the research design, population of the study, sample size, sampling technique, source of data, data collection instrument, validity test, technique of analysis, and as well as specification of variables/model.

3.2 Research Design

This study was conducted with a survey and descriptive research design. We designed a questionnaire to improve the presentation of evidence collected and data analysis. These suit our purpose and are appropriate for this study. These methods are advantageous for assessing large and small population especially where a small population is to be derived from a large one. Also cost is effective when these methods are adopted and employed.

3.3 Population of the Study

This topic is a global issue and because of the nature of the topic, the target population is directed at all Accountants in both practice and employment at senior management levels and lecturers starting from lecturer 1 and above. The rational for this,

is because of the technical nature of the topic and so the following organizations were used as a survey areas:

- Delta State University Abraka.
- First Bank of Nigeria Plc, Asaba Branch.
- Suiming Nig. Ltd. Asaba.
- SAO & Co, (Chartered Accountants).

3.4 Sample Size

The sample size of this study as drawn from the selected organisations as follows:

(1)	Delta State University Abraka.	-	29
(2)	Suiming Nig. Ltd. Asaba.	-	18
(3)	First Bank of Nigeria Plc.	-	18
(4)	SAO & CO.	-	35
	Grand total	=	100 staff

See appendix 1

The rationale for selecting the above organizations is based on the following:

- Delta State University, Abraka offers accounting that acts as one of the training grounds for Accountants. It represents the academic sector.
- Suiming Nig. Ltd, is an emerging company that represents the industrial sector.
- First Bank of Nigeria Plc. is one of the foremost banks in Nigeria and it represents the financial sector.

- SAO & Co. (Chartered Accountants) is one of the emerging service-oriented firms that represents those in the practice.

It is believed that these selected organizations will be a good representation and the result can be used to generalize.

3.5 Sampling Technique

The samples for this study were selected from the largest population using multi cluster random sampling technique. Under this technique, samples were selected in three stages: In the first stage, Asaba (Delta State capital) was selected as sampling area, in the second stage, the selected organisations within the sampling area were chosen, and at the third stage, the respondents that participated in the study were selected from the organisations.

Respondents consist of Accountants at senior management positions. Out of the total population of respondent Accountants in Asaba city a sample size of 100 was selected. Eventually 91 participants responded to the questionnaire yielding a 91% response rate. After eliminating responses due to large proportions of missing data a final sample of 80 cases were obtained.

3.6 Sources of Data

Data for this study were based on primary and secondary data.

The primary data comprised from responses from the respondents, while the secondary data included textbooks, journals and websites

3.7 Data Collection Instrument

The data for this study were collected using questionnaire and personal interview. (see appendix 2)

3.8 Validity Test

The data collection instrument for this study is by means of questionnaire and interview with response options graduated into five Likert scale designed to capture information on the degree to which information technology has influenced the performances of Accountants. Before the actual research, the research questionnaire was validated using theoretical validity and content validity. Theoretical validity of this study was established by developing the measures of the variables under study from well grounded theory and literature from prior works. The content validity was established by giving a set of the draft questionnaire to professional and research methodology experts for criticisms and contributions. These experts reviewed the content of items in each of the instruments and affirmed that the items comply with the following content, criterion, related, validity and construct validity. The instrument was given to some experts including Lecturers and professional service providers for criticisms and

contributions, and it was discovered that the instrument complies with the following – content, criterion related validity and construct validity.

* **Test of Reliability:** The Cronbach's alpha test was used for reliability test and a value of 0.635 was derived. See appendix 3.

3.9 Techniques of Analysis

The following test statistics were used for the purpose of this study.

The Pearson Product Moment Correlation Coefficient (r) which is a parametric statistical tool was used to test the formulated hypotheses.

Correlation Coefficient

The Pearson Product Moment Correlation Coefficient measures the strength of the linear relationship to test the relationship between two variables that are both measured on interval or ratio scale. The formular is given as:

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{\{N\sum X^2 - (\sum X)^2\} \{N\sum Y^2 - (\sum Y)^2\}}}$$

Where:

$\sum$ = summation

N = number of pairs

X = Independent variable

Y = Dependent variable

The value of r will always lie between -1 and $+1$. A correlation coefficient of:

- 1) Less than 0.2 represents almost negligible relationship
- 2) 0.2 to 0.4 represents a low correlation definite but small relationship
- 3) 0.4 to 0.7 represents a moderate correlation, substantial relationship
- 4) 0.9-1.0 represents a very high correlation very reliable relationship
- 5) -0 to -1 represents no relationship

T- Test

The test of significance was also used to test further in order to justify the stated hypothesis. A test of significance was carried out on the value of r . The formular is given by

$$T_{\text{cal}} = \frac{r}{\sqrt{\frac{1-r^2}{N-2}}}$$

With $(n-2)$ degrees of freedom at 0.05% level of significance. The decision rule here is to reject H_0 if T_{cal} is $> T_{\text{tab}}$, otherwise, accept if reverse is the case.

Also, simple regression analysis was used to test the hypotheses. This is to show the direction and magnitude of impact. The r and p values were obtained at 0.05 probability level of acceptance. The Decision was to accept null hypothesis if $P > 0.05$ or accept the research hypothesis if $P < 0.05$ alpha.

3.10 Specifications of Variables/Models

Two sets of variables were used in the econometric models applied in the study, namely dependent and independent variables. The two variables here are Information Communication Technology which is the independent variable, and the Accounting role which is the dependent variable.

Here the model is

$$Y = f(x)$$

The implication is that Information Technology causes variation in Accountants role/function. This is a case of unidirectional relationship.

Regression Analysis

For the purpose of this study, the ordinary least square (OLS) simple regression analysis was also used to show the magnitude and direction of impact (influence) of ICT on Accountants.

Assuming a linear regression model of the form

$$Y = a + bx + e$$

Where:

Y = dependent variable, which is the responses

a = intercept

b = slope parameter

x = is the 5 point likert scale

e = error terms associated with the model.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents analyzes and interprets the result obtained so far in this work.

4.2 Data Analysis

This comprises the detailed examination of the result from field survey.

Primary Data Presentation

Table 4.1: Response Data Table

No. Questionnaire Distributed	No. of Questionnaire Returned	Returned Percentage
100	80	80%

Source: Field Survey, 2013.

From the table above, 100 copies of questionnaire were sent out to respondents, only 80 were returned. This gives a favourable response rate.

Table 4.2: Age Bracket Classifications

Accountant/ Professional	Frequency	Valid Percent	Cumulative %
25-29	20	25	25
30-40	35	43.75	68.75
41-50	20	25	93.75
51-Above	05	6.25	100
Total	80	100	

Source: Field Survey, 2013.

The table above shows respondents and their age bracket as received from the questionnaire distributed. 25% (25-29), 35% (30-40), 20% (41-50) and 6.2% (51 and above).

Table 4.3: Educational Qualification

Accountant/ Professional	Frequency	Valid Percent	Cumulative %
HND/B.SC	24	30	30
MBA/M.SC	53	63	96.63
PH.D	3	0.038	100
Total	80	100	

Source: Field Survey, 2013.

The above table shows 30% of the respondents are B.Sc/HND holders 66.63% have Master's Degree while only 0.038 have Ph.D and that is from academic sector.

Table: 4.4: Professional Qualification

Accountant/ Professional	Frequency	Valid Percent	Cumulative %
ACCA	4	5%	5
CPA	-	-	-
ACA	61	76%	81
CIMA	1	2%	83
ANAN	5	6%	89
None	9	11%	100
Total	80	100	

Source: Field Survey, 2013.

Section B

Table 4.5

Question 1: To what extent do you agree that Accountants are still relevant in this information age?

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	40	50%	50
Agree	25	31.25	81.25
Undecided	9	11.25	92.50
Strongly Disagree	4	5	97.50
Disagree	2	2.50	100
Total	80	100	

Source: Field Survey, 2013.

This result revealed that Accountants are still relevant in this Information age. Although it is surprising to also know that some respondents do not agree with this.

Table 4.6

Question 2: To what degree would you agree that the implementation of Information technology has influenced your role and performance as an Accountant?

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	38	47.50	47.50
Agree	26	32.50	80
Undecided	7	8.75	88.75
Strongly Disagree	5	6.25	95
Disagree	4	5	100
Total	80	100	

Source: Field Survey, 2013.

From the above table 47.5% of the respondents strongly agree that information technology has altered the traditional role of Accountants. 32.50% agree, 8.75% of respondents were undecided, 6.25% strongly disagree while 5% disagree with this view.

Table 4.7

Question 3: To what extent would you agree that the implementation of Information Technology in your organization has increased your involvement in decision-making process.

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	42	52.50	52.50
Agree	30	37.50	90
Undecided	1	1.25	91.25
Strongly Disagree	6	7.50	98.75
Disagree	1	1.25	100
Total	80	100	

Source: Field Survey, 2013.

From the table above 52.50% of the respondents strongly agree that information technology has increased their involvement in decision making: 52.50% strongly agree, 37.50% agree, 1.25% undecided, 7.50% strongly disagree while 1.25% disagree with this view.

Table 4.8

Question 4: How far will you agree that information technology output is sufficient on its own to be depended upon for informed decision making?

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	2	2.5	2.5
Agree	6	7.5	10
Undecided	5	6.25	16.5
Strongly Disagree	26	32.5	48.75
Disagree	41	51.25	100
Total	80	100	

Source: Field Survey, 2013.

From the above results, 2.5% shows strongly agree, 7.5% agree, 6.25% undecided, 32.5% strongly disagree, 51.25% disagree meaning that information technology is not sufficient on its own. It is only a tool for Accountant to work with.

Table 4.9

Question 5: To what extent would you agree that ICT has helped Accountants to create added value in their performance.

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	44	55	55
Agree	28	35	90
Undecided	2	2.50	92.50
Strongly Disagree	5	6.25	98.75
Disagree	1	1.25	100
Total	80	100	

Source: Field Survey, 2013.

Table 4.9 shows that 55% of the respondents strongly agree that ICT implementation has helped Accountants to create an added value their organisations. 35% agree, 2.50% undecided, 6.25% strongly disagree while 1.25% disagree with this view.

Table 4.10

Question 6: To what extent you agree that you are involved in the key activities of your organization?

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	40	50%	50
Agree	32	40%	90
Undecided	1	1.25	91.25
Strongly Disagree	5	6.25	97.50
Disagree	2	2.50	100
Total	80	100	

Source: Field Survey, 2013.

From the above table 50% of the respondents strongly agree that they are involved in the key activities of their organization, while 40% agree, 1.25% are undecided, 6.25% strongly disagree and 2.5% disagree.

Table 4.11

Question 7: How far would you agree that your report is not relied on for decision making.

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	2	0.03	0.025
Agree	7	0.11	0.113
Undecided	2	0.03	0.1375
Strongly Disagree	40	0.5	0.64
Disagree	29	0.36	100
Total	80	100	

Source: Field Survey, 2013.

From the above table 0.03% strongly agree that their reports are not relied on. 0.11 agree, 0.03 undecided 50% strongly disagree while 0.36 disagree. It shows that the reports of Accountant are relied upon for decision making to a reasonable extent.

Table 4.12

Question 8: To what level would you agree that you don't spend the same time on your activities before and after the implementation of ICT?

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	45	51.25	51.25
Agree	31	38.75	90
Undecided	2	3.75	93.75
Strongly Disagree	1	1.25	95
Disagree	1	5	100
Total	80	100	

Source: Field Survey, 2013.

From the above table, 51.25% of the respondents strongly agree that ICT has reduced time spend on activities, 38.75% agree, 2.5% undecided, 1.25% strongly disagree 1% disagree.

Table 4.13

Question 9: To what extent would you agree that information technology has no significant relationship with choice of accounting policies after the implementation of ICT?

Options	Frequency	Valid Percent	Cumulative %
Strongly Agree	3	3.75	3.75
Agree	6	7.50	11.25
Undecided	2	2.5	13.75
Strongly Disagree	45	56.25	70
Disagree	24	30	100
Total	80	100	

Source: Field Survey, 2013.

From the above table, 56.25% and 30% represent strongly disagreed and disagree respectively showing that there is a relationship between ICT and choice of Information Communication Technology?

Table 4.14

Question 10: To what degree would you agree that you have an impact on the overall goals of the organization?

Option	Frequency	Valid Percent	Cumulative %
Strongly Agree	39	48.75	48.75
Agree	27	33.75	82.50
Undecided	6	7.50	90
Strongly Disagree	4	5	95
Disagree	4	5	100
Total	80	100	

Source: Field Survey, 2013.

The table above shows that 48.75% of the respondents strongly agree that their impact is felt in achieving organizational goals; 33.75% agree, 7.50% undecided 5% strongly disagree and 5% disagree with this view.

4.3 Hypotheses Testing

The test of hypotheses seeks to further analyze research questions which relate to the influence of ICT on role of Accountants as stated already. The five hypotheses of this study were formulated to provide a clear direction for the conduct of this research work and these were tested, using the Pearson Product Moment Co-efficient Correlation, the test of significance in order

to justify the stated hypotheses and the simple regression analysis, to show direction and magnitude.

The decision rule is that H_0 will be rejected if the T_{CAL} is greater than T_{TAB} at 0.05 level of significance and the research hypothesis is accepted if T_{CAL} is lesser than T_{TAB} at 0.05 level of significance.

4.3.1 Testing of Hypothesis One

H₁: Accountants are no longer relevant in this information age.

In order to test the hypothesis, question 1 was used.

As already stated in chapter three (3) the formula for the Pearson Product Moment Correlation Co-efficient is:

$$r = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{\{N\Sigma X^2 - (\Sigma X)^2\} \{N\Sigma Y^2 - (\Sigma Y)^2\}}}$$

Table 4.15: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis

Options	X	Y	XY	X ²	Y ²
	Points	Responses			
Strongly Agree	5	40	200	25	1600
Agree	4	25	100	16	625
Undecided	3	9	27	9	81
Strongly Disagree	2	4	8	4	16
Disagree	1	2	2	1	4
Total	15	80	337	55	2326

A 5 point Likert type scale was used with the following response categories:

Strongly Agree	(SA)	=	5 points
Agree	(A)	=	4 points
Undecided	(UD)	=	3 points
Disagree	(D)	=	2 points
Strongly Disagree	(SD)	=	1 point

$$r = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{\{N\Sigma X^2 - (\Sigma X)^2 (N\Sigma Y^2 - (\Sigma Y)^2)\}}}$$

$$r = \frac{5(337) - (15)(80)}{\sqrt{(5 \times 55) - (15)^2 (5 \times 2326 - (80)^2)}}$$

$$r = \frac{1685 - 1200}{\sqrt{(275-225) (11630-6400)}}$$

$$= 0.9484$$

Hypothesis 1

Correlation

H₀: True correlation is equal to 0

H₁: True correlation is not equal to 0

r = 0.9484313, t = 5.1824, df = 3 p-value = 0.01395, alpha = 0.05

Decision: since the p-value is less than value of alpha, we reject the null hypothesis and accept the alternative that true correlation is significantly different from zero.

Regression

Assuming a linear regression model of the form:

$$Y = a + bX + e$$

Where the dependent variable Y is the responses, the independent variable X is the Likert scale points, e is the error terms associated with the model, a is the intercept term and b is the slope parameter.

$H_0: a = b = 0$

H_1 : At least one of a or b is not equal to zero

Coefficients: $a = .13.100$ $b = 9.700$

Multiple R-squared: 0.8995, Adjusted R-squared: 0.866

F-statistic: 26.86 on 1 and 3 DF, p-value: 0.01395

Therefore the model is given by

$$Y = -13.1 + 9.7X$$

Decision: Since the p-value (0.01395) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 90% of the variations in the dependent variable.

The above result shows that Accountants are still relevant in this information age.

But there is a greater need to test further in order to justify the stated hypothesis. In doing so, test of significant will be employed.

$$T_{cal} = \frac{r}{\sqrt{\frac{1 - r^2}{N - 2}}}$$

$$= \frac{0.9484}{\sqrt{\frac{1 - 0.9484^2}{5 - 2}}}$$

$$T_{cal} = 5.1808$$

$$T_{tab} = df \ 0.05$$

$$T_{tab} = n - 2, 0.05 = 5 - 2, 0.05 = 3, 0.05$$

$$T_{tab} = 2.35$$

The decision rule here is to reject H_0 if T_{cal} is $> T_{tab}$

Since T_{cal} is $> T_{tab}$, H_0 is rejected which means that Accountants are still relevant in this information age.

4.3.2 Testing of Hypothesis Two

H₂: There is no significant relationship between information communication technology and the performance of Accountants.

In order to test this hypothesis, question 2 was used.

Table 4.16: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis

Options	X	Y	XY	X ²	Y ²
	Points	Responses			
Strongly Agree	5	38	190	25	1444
Agree	4	26	104	16	676
Undecided	3	7	21	9	49
Strongly Disagree	2	5	10	4	25
Disagree	1	4	4	1	16
Total	15	80	329	55	2210

Source: Field Survey, 2013.

$$\sum X = 15, \sum Y = 80, \sum XY = 329, \sum X^2 = 55, \sum Y^2 = 2210$$

$$r = \frac{5(329) - (15)(80)}{\sqrt{(5 \times 55) - (15)^2 (5 \times 2210 - (80)^2)}}$$

$$r = \frac{1685 - 1200}{\sqrt{(275-225) (11050-6400)}}$$

$$= 0.9228$$

Hypothesis 2

Correlation

H₀: True correlation is equal to 0

H₁: True correlation is not equal to 0

$r = 0.922887$, $t = 4.1512$, $df = 3$ $p\text{-value} = 0.02541$, $\alpha = 0.05$

Decision: since the p-value is less than value of alpha, we reject the null hypothesis and accept the alternative that true correlation is significantly different from zero.

Regression

Assuming a linear regression model of the form:

$$Y = a + bX + e$$

Where the dependent variable Y is the responses, the independent variable X is the Likert scale points, e is the error terms associated with the model, a is the intercept term and b is the slope parameter.

H₀: $a = b = 0$

H₁: At least one of a or b is not equal to zero

Coefficients: $a = -10.700$ $b = 8.900$

Multiple R-squared: 0.8517, Adjusted R-squared: 0.8023

F-statistic: 17.23 on 1 and 3 DF, p-value: 0.02541

Therefore the model is given by

$$Y = -10.700 + 8.9X$$

Decision: Since the p-value (0.02541) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 85% of the variations in the dependent variable.

From the above analysis, the result implies that there is significant relationship between information technology and Accountants performance. But there is also need to test further so as to justify the stated hypothesis. In doing so, test of significant will be employed.

$$T_{cal} = \frac{r}{\sqrt{\frac{1-r^2}{N-2}}} = 0.9228$$

$$T_{cal} = \frac{\sqrt{1-0.85155^2}}{\sqrt{5-2}} = 4.11492$$

$$T_{tab} = n - 2, 05 = 5 - 2, 0.05 = 3 \text{ } 0.05$$

$$T_{tab} = 2.35$$

Reject H_0 if T_{cal} is $> T_{tab}$

Since T_{cal} is $> T_{tab}$, H_0 is rejected which means that there is positive and significant relationship between information technology and Accountants performance.

4.3.3 Testing of Hypothesis Three

H₃: There is no significant impact of information technology on the involvement of Accountant in decision making process.

In order to test this hypothesis, question 3 was used.

Table 4.17: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis

Options	X	Y	XY	X ²	Y ²
	Points	Responses			
Strongly Agree	5	42	210	25	1764
Agree	4	30	120	16	900
Undecided	3	1	3	9	1
Strongly Disagree	2	6	12	4	36
Disagree	1	1	1	1	1
Total	15	80	346	55	2702

Source: Field Survey, 2013.

$$\sum X = 15, \sum Y = 80, \sum XY = 346, \sum X^2 = 55, \sum Y^2 = 2702$$

$$r = \frac{5(329) - (15)(80)}{\sqrt{(5 \times 55) - (15)^2 (5 \times 2702 - (80)^2)}}$$

$$r = \frac{1730 - 1200}{\sqrt{(275-225) (13510-6400)}}$$

$$= 0.8889$$

$$T_{\text{cal}} = \frac{r}{\sqrt{\frac{1-r^2}{N-2}}}$$

$$= 0.8889$$

$$= \frac{0.79014}{\sqrt{\frac{1-0.79014^2}{5-2}}}$$

$$= 0.8889$$

$$= \frac{0.20986}{\sqrt{\frac{1-0.20986^2}{3}}}$$

$$= 0.8889$$

$$0.2644$$

$$T_{\text{cal}} = 3.3619$$

$$T_{\text{tab}} = n - 2, 05 = 5 - 2, 0.05 = 3 \text{ } 0.05$$

$$T_{\text{tab}} = 2.35$$

Hypothesis 3

Correlation

H_0 : True correlation is equal to 0

H_1 : True correlation is not equal to 0

$r = 0.8889065$, $t = 3.361$, $df = 3$ $p\text{-value} = 0.0437$, $\alpha = 0.05$

Decision: since the p-value is less than value of alpha, we reject the null hypothesis and accept the alternative that true correlation is significantly different from zero.

Regression

Assuming a linear regression model of the form:

$$Y = a + bX + e$$

Where the dependent variable Y is the responses, the independent variable X is the Likert scale points, e is the error terms associated with the model, a is the intercept term and b is the slope parameter.

$H_0: a = b = 0$

H_1 : At least one of a or b is not equal to zero

Coefficients: $a = -15.80$ $b = 10.60$

Multiple R-squared: 0.7902, Adjusted R-squared: 0.7202

F-statistic: 11.3 on 1 and 3 DF, p-value: 0.0437

Therefore the model is given by

$$Y = -15.8 + 10.6X$$

Decision: Since the p-value (0.0437) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 79% of the variations in the dependent variable.

The decision rule here is reject H_0 if T_{cal} is $> T_{tab}$

Since T_{cal} is $> T_{tab}$, H_0 is rejected which means that there is significant and positive impact of information technology on the involvement of Accountants in the decision making process of organisations.

4.3.4 Testing of Hypothesis Four

H₄: Information Technology is not sufficient on its own to be depended upon for informed decision making.

In order to test this hypothesis, question 4 was used.

Table 4.18: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis

Options	X	Y	XY	X ²	Y ²
	Points	Responses			
Strongly Agree	5	2	10	25	4
Agree	4	6	24	16	36
Undecided	3	5	15	9	25
Strongly Disagree	2	26	52	4	676
Disagree	1	41	41	1	1681
Total	15	80	142	55	2422

Source: Field Survey, 2013.

$$\sum X = 15, \sum Y = 80, \sum XY = 142, \sum X^2 = 55, \sum Y^2 = 2422$$

$$r = \frac{5(142) - (15)(80)}{\sqrt{(5 \times 55) - (15)^2 (5 \times 2422 - (80)^2)}}$$

$$r = \frac{710 - 1200}{\sqrt{(275 - 225) (12100 - 6400)}}$$

$$= \frac{-490}{\sqrt{(50) (5710)}}$$

$$= \frac{-490}{534.32}$$

$$r = -0.9171$$

The above result shows that there is no relationship between information technology on its own and decision making. This simply means that information technology is not sufficient on its own. It is not an end in itself but a means to an end.

Let us also test further using T test.

$$\begin{aligned}
 T_{\text{cal}} &= \frac{r}{\sqrt{\frac{1-r^2}{N-2}}} \\
 &= \frac{-0.9171}{\sqrt{\frac{1-(-0.9171)^2}{5-2}}} \\
 &= \frac{-0.9171}{\sqrt{\frac{1-(-0.8411)}{3}}} \\
 &= \frac{-0.9171}{\sqrt{1.841}} = \frac{-0.9171}{1.3568} \\
 T_{\text{cal}} &= -0.6759
 \end{aligned}$$

Decision rule is to reject H_0 if $T_{\text{cal}} > T_{\text{tab}}$

Since, T_{cal} is (-0.6759) less T_{tab} (2.35)

Hypothesis 4

Correlation

H_0 : true correlation is equal to 0

H_1 : true correlation is not equal to 0

$r = 0.91705$, $t = 3.9832$, $df = 3$ p-value = 0.02832, $\alpha = 0.05$

Decision: Since the p-value is less than value of alpha, we reject the null hypothesis and accept the alternative that true correlation is significantly different from zero.

Regression

Assuming a linear regression model of the form:

$$Y = a + bX + e$$

Where the dependent variable Y is the responses, the independent variable X is the Likert scale points, e is the error terms associated with the model, a is the intercept term and b is the slope parameter.

$$H_0: a = b = 0$$

H₁: At least one of a or b is not equal to zero

Coefficients: a = 45.40 b = -9.80

Multiple R-squared: 0.841, Adjusted R-squared: 0.788

F-statistic: 15.87 on 1 and 3 DF, p-value: 0.02832

Therefore the model is given by

$$Y = 45.40 + 9.80X$$

Decision: Since the p-value (0.02832) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 84% of the variations in the dependent variable.

We shall accept H₀ which means that information technology is not sufficient on its own for informed decision by

end users; therefore, Accountants need to interpret the information.

4.3.5 Testing of Hypothesis Five

H₅: There is no positive and significant relationship between ICT and value added creation by Accountants.

In order to test this hypothesis, question 5 was used.

Table 4.19: Calculation using Pearson Product Moment Correlation co-efficient, T-Test and Regression Analysis

Options	X	Y	XY	X ²	Y ²
	Points	Responses			
Strongly Agree	5	44	220	25	1936
Agree	4	28	112	16	784
Undecided	3	2	6	9	4
Strongly Disagree	2	5	10	4	25
Disagree	1	1	1	1	1
Total	15	80	349	55	2750

Source: Field Survey, 2013.

$$\sum X = 15, \sum Y = 80, \sum XY = 349, \sum X^2 = 55, \sum Y^2 = 2750$$

$$r = \frac{5(349) - (15)(80)}{\sqrt{(5 \times 55) - (15)^2 (5 \times 2750 - (80)^2)}}$$

$$r = \frac{1745 - 1200}{\sqrt{(275 - 225) (13750 - 6400)}}$$

$$= 0.8990$$

In doing so, the test of significant will be employed.

$$\begin{aligned}
 T_{\text{cal}} &= \frac{r}{\sqrt{\frac{1-r^2}{n-2}}} \\
 &= \frac{0.8990}{\sqrt{\frac{1-0.80820^2}{5-2}}} \\
 &= \frac{0.8990}{\sqrt{\frac{0.1917}{3}}}
 \end{aligned}$$

$$T_{\text{cal}} = 3.5575$$

$$T_{\text{tab}} = n - 2, 05 = 5 - 2, 0.05 = 3 \text{ } 0.05$$

$$T_{\text{tab}} = 2.35$$

Hypothesis 5

Correlation

H_0 : true correlation is equal to 0

H_1 : true correlation is not equal to 0

$r = 0.8990168$, $t = 3.5558$, $df = 3$ $p\text{-value} = 0.03793$, $\alpha = 0.05$

Decision: since the $p\text{-value}$ is less than value of α , we reject the null hypothesis and accept the alternative that true correlation is significantly different from zero.

Regression

Assuming a linear regression model of the form:

$$Y = a + bX + e$$

Where the dependent variable Y is the responses, the independent variable X is the Likert scale points, e is the error terms associated with the model, a is the intercept term and b is the slope parameter.

$H_0: a = b = 0$

H_1 : At least one of a or b is not equal to zero

Coefficients: $a = -16.70$ $b = 10.90$

Multiple R-squared: 0.8082, Adjusted R-squared: 0.7443

F-statistic: 12.64 on 1 and 3 DF, p-value: 0.03793

Therefore the model is given by

$$Y = -16.7 + 10.9X$$

Decision: Since the p-value (0.03793) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 81% of the variations in the dependent variable.

The decision rule here is to reject H_0 if T_{cal} is $> T_{tab}$

Since T_{cal} is $> T_{tab}$, H_0 is rejected which means that there is significant and positive relationship between ICT implementation and an Accountants adding value in the organization.

4.4 Discussion of Result

Hypothesis one, since the p-value (0.01395) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 90% of the variations in the dependent variable.

The above result shows that Accountants are still relevant in this information age.

Hypothesis two, since the p-value (0.02541) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 85% of the variations in the dependent variable.

From the above analysis, the result implies that there is significant relationship between information technology and Accountants performance.

Hypothesis three, since the p-value (0.0437) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 79% of the variations in the dependent variable.

The decision rule here is reject H_0 if T_{cal} is $> T_{tab}$

Since T_{cal} is $> T_{tab}$, H_0 is rejected which means that there is significant and positive impact of information technology on the

involvement of Accountants in the decision making process of organisations.

Hypothesis four, since the p-value (0.02832) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 84% of the variations in the dependent variable.

We shall accept H_0 which means that information technology is not sufficient on its own for informed decision by end users; therefore, Accountants need to interpret the information. Here, the Accountants knowledge, skill and ability is brought to bear in delivering professional services which is the provision of quality information for users.

Hypothesis five, since the p-value (0.03793) for the model is less than 0.05, we reject the null hypothesis and accept the alternative that the model is significant in explaining the distribution of the data. Multiple R-squared indicates that the model explains 81% of the variations in the dependent variable.

The decision rule here is to reject H_0 if T_{cal} is $> T_{tab}$

Since T_{cal} is $> T_{tab}$, H_0 is rejected which means that there is significant and positive relationship between ICT implementation and an Accountants adding value in the organization.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is all about the summary of findings, conclusion, recommendation and contribution to knowledge.

5.2 Summary of Findings

From the above historical review, the researchers have addressed the issues that accounting profession is of social and economic significance and that the accounting profession activities have a broader business scope through the 20th century. The review indicated: Firstly, that the accounting profession plays a central role in the regulation of economy and business affairs in respect of the calculation of national, business and personal income, the costing of government expenditures, the administration of taxation and credit facilities and the appraisal of investments and corporate reporting to capital (Willmott, 1986). Secondly, that the accounting profession plays an important role, on budget for and allocate costs, measure performance and manage information (Earl, 1983).

Thirdly, the accounting profession has expanded in new business areas and the stereotypical bookkeeper image does not accord with the management advisory services and consultancy role taken by Accountants over the past 100 years Parker, (2001).

Today professional accounting bodies in developing countries seek to expand the domain of accounting practice, even if such exceeds the limits of their technical competency Fogarty et al., (2004). Accounting professional leaders suggest that every aspect of our profession must change (AICPA, 2000a). These leaders went on to specifically list changes required in skills and capabilities, services, business models, production processes, relationships with clients, managing employees, and the preparation of new entrants to the profession (Fogarty et al., 2004).

The following observations were made in the course of this study.

Accounting is not as straight ward as in textbooks some issues are very complex and need several options.

1. The study established the existence of a significant relationship between Accountant and information technology. This relationship is in positive direction implying that Accountants are still relevant in this information age. This is supported by the studies of (Koreto 1997); (Lymer et al 1999) (ICAEW 1997) Simster et al (1998). The people

stated that accounting profession is a necessary condition for industrial development and globally competitive industrial performance. Accounting is the language of business and so the Accountant speaks of the language in the form of information generated.

2. These findings also agrees with Spathi's and Constantinives 2004 that ICT development strongly influences accounting information and practice. These also aligns with (Freedman, and Lyne 1997) who claimed that there is an impact on the role of Accountants.
3. Accountants involvement in decision making. From the study, we established that Accountant are now more involved in decision making process because of ICT development another also agrees with Colin Drury 2013 idea that the translation of mission and vision statements into strategies portion in the global environment involve Accountants in all activities of the organisation.
4. Findings of this study reveal that there is a relationship between information technology and the role of Accountants. This is supported by (Talabi 2010). Accounting has become more sophisticated. This increase in complexity is reflected in the difficulty many companies have to automate their accounting function satisfactorily. Accountants need to understand the use of information

technology tools and equip themselves with the necessary and required skills to utilize the different technologies for the benefit of clients, organizations and the economy at large in the present information age if Accountants must remain successful and relevant, they must embrace information technology.

5. The study also established that ICT has made it possible in the involvement of Accountants in decision making process.
6. It has been established from this work that although, information technology is very important tool in managing accounting function, yet, it is not sufficient on its own to be depended upon for decision making. This means that there is still a need to interpret the information generated and is implication to end users – this is where the Accountant comes in again to bring his professional skill expertise to bear on the job. This agrees with Sathen 1983 that the use of ICT tool in the performance of Accountants job is dependent on the personal factors like creativity or financial expertise of the Accountant. It also aligns with Elliot (2005) and Ehi Egbiki (2010). This finding is in line with the theory of Planned operational control because here, the Account's knowledge, skill and ability is brought to bear on the job.
7. In the course of this study, the findings revealed that there is a positive relationship between ICT development and

value-added creation by Accountants in organizations. This finding is supported by (Ima, 1999). Albiecht and Sack 2000), Adedoyin 2010 Jaiyeola 2010). If Accountants must continue to fulfill their fiduciary obligations to the society they must continue to keep abreast of changes in information technology. Organization emphasizes so much on IT skill in order to cope in the competitive business environment. Again, this also aligns with the theory of Innovation Diffusion.

8. ICT development makes it possible for organisation to handle all her operations holistically by linking up all systems in all parts of an organization including financial and non-financial operations. The study concludes that organization attains her overall objective through ICT implementation with the skill of an Accountant. This agrees with (Spraaakman, 2007).
9. It was also discovered that manual aspect of accounting has not been completely eliminated.

5.3 Conclusion

The research attempts to investigate and find out how accounting function is managed through information technology and the changing role of Accountant. From the study we can convincingly conclude that Accountants are very relevant in the society. In spite of the advancement of information technology in

information processing, Accountants are still very relevant because they interpret these information (Accounting language) for users of the information to make an informed judgement.

From the study also we have been able to deduce that the roles of Accountants are changing because of information technology.

Again even though we still have some manual aspect of accounting functions, we can say that information technology has greatly impacted on the way Accountants perform their jobs now. Information technology is a sine qua non for the management of accounting function. Qualified Accountants (ACCA, ACA, CPA, ANAN), internal auditors, corporate and governmental Accountants no longer sit alone behind a desk doing traditional accounting work-auditing, bookkeeping and taxation-but instead, must be part of a business team. Accounting work requires substantial social interaction and economic entities would benefit from more creative, imaginative and open minded Accountants. Therefore, the accounting profession has changed dramatically in recent years resulting in a demand for a new model of Accountant to help economic and business development.

Above all, we can conclude rightly that Accountants need to adequately equip him/herself with information technology skill as the study has revealed.

There is therefore a great need for the Accountants to acquaint themselves with development in information technology in order to be able to cope with the challenges of modern business activities and still remain the custodian of accounting as the language of business. Accountants must migrate to higher-value activities, developing broader skills and being committed to lifelong learning.

In general, this study concluded on two positive effects regarding the relationship between Information Communication Technology (ICT) and the role of Accountants. ICT has influenced Accountants performance greatly and has also helped the Accountants to add value to organisations.

5.4 Recommendations

Based on the findings of the study, the researchers would like to make the following recommendations:

1. Acquisition of computer literacy skills. The Accountant is expected to know all aspects of business in order to manage well. Accountants have to work fast to convince their clients and organizations that they can still provide the advice they need. It is expected in the near future that the source of most transactions generated will be external to the organization. Information will also be changing at the speed of light and will reside in the business unit rather than the finance department. The Accountant needs to understand

the technical language and be able to ask the right questions and offer the right business advice. Information technology training should therefore be a priority for professional development even among those in the academic sector.

2. For Accountants in practice the acquisition of information technology audit skills is mandatory. IT auditors need to acquire IT audit skills to audit through and with the computer. Electronic data processing results in the increase of the demand on knowledge of people handling the information systems including the auditors. Auditors should acquire and have enough skills in computer technology and information systems to plan and execute the audit duty and communicate with experts on information technologies – now we have (CISA) certified information systems auditor certification program.
3. Developing an information technology and IT audit plan. The IT priorities of the organization should be determined in conjunction with the senior management and aligned with the overall business strategy. IT audit priorities should also be based on the organization's business objectives and management requirements and should be consistent with internal audit's overall strategies. Without a formal approach, there is a significant danger that the acquisition

and implementation of technology will be ineffective with a consequential loss of time and money.

4. Continuous education: The importance of self improvement through continuous education cannot be overemphasized. Experienced managers recognize the importance of increasing staff capabilities through continuing education. Effective on the job supervision and guidance material are two important elements of continuing education programme. These may be supplemented in some circumstances by formal continuing education sessions presented by the accounting and internal audit function staff itself by external or professional bodies such as ICAN or ANAN. Accounting is not as straightforward as in textbook. Some issues are very complex and need several opinions. Also the standards keep on changing and tomorrows answers may be different from todays. For example in the global scene and Nigeria, we now talk of IFRS instead of SDS. To be technically sound, you have to read a lot.
5. The government through the Ministry of Education, National University Commission (NUC), National Board for Technical Education (NBTE) should provide adequate accountancy laboratory and equipped with the necessary facilities so that students of accountancy will gain practical information technology skill before they graduate so that they will be

useful and employable and can even be on their own as an entrepreneurs.

6. With Nigeria adopting the International Financial Reporting Standards (IFRS) in 2012 and subsequently the establishment of Financial Reporting Council of Nigeria (FRCN) which replaced Nigeria Accounting Standard Board (NASB), the Federal Government should ensure that full application of IFRS is strictly adhered to, in all financial reporting in both private and public sectors. This will go a long way in making financial information relevant to the end users in order to enable them make informed decision. This enforcement will make the Accountant very relevant in the economy because it takes an Accountant to interpret the information generated through information technology.

5.5 Contribution to Knowledge

From the study, it showed that though ICT has significant impact on the performance of Accountants in Nigeria, yet the knowledge, skill, and ability on the side of the Accountant, is still needed to be able to interpret data and offer professional services for informed decision making. It means that a knowledge of ICT is not an end in itself but a means to an end, that is the ability to use accounting skill to interpret data.

REFERENCES

Journals:

- Ali, T.M., Seyed, J.H.B., Rohollah, R. and Meysam, V. (2012), *The Impact of Information Technology on Accounting Scope in Iran*. Middle-East Journal of Scientific Research. 12(10): 1344-1348.
- Banabas, O.A. (2007), *Accountants, Internet and Information technology*, ICAN Students' Journal, April-June 6-11
- Bursn J. and G. Baldvinsdottir (2005) *An institutional perspective of Accountant new role an interplay of contradictions and praxis* European Accounting Review.
- Caglio A (2003) *Enterprise resource planning systems and Accountants: Towards hybridization* European Accounting Review.
- Dechow, N. and J. Mouritsen (2005) *Enterprise resources planning systems management control and the quest for integration* Accounting, organisation and society.
- Eleni, T.G. & Giannis, K. (2010), *The Changing Nature of Contemporary Accounting Profession*. Faculty of Organization and Management. UK: Sheffield Hallam University.
- Ehi Henry Egbiki (2010) *The changing roles of chartered Accountants on the global economy*, Lagos ICAN induction paper unpolished.
- Elliot (2005) *Drivers of change* (visioning project) USA, AKPA
- Gabski, Severin V., Marsh, Robert J. (2010), Integrating accounting and manufacturing information systems: An ABC and REA-Based Approach, *Journal of Information Systems*, Pp 61-81.
- Jablonsky, S.F.P.J. Keating et al (1993) Business Advocate or corporate policeman? Assessing your role as a financial executive. Morris town, financial Executive Research foundation.
- Kabiru, I.D. and Abdullahi S.R. (2014), *Information Technology and Accounting Information System in the Nigerian Banking Industry*. Asian Economic and Financial Review, 4(5):655-670.
- Kayode, .A. (2003) *Accounting Processes in a Computerised Environment*, ICAN Students Journal, April-June: 14-15

- Liu, L. (2013), *The Impact of Information Technology on Accounting Theory, Accounting Profession, and Chinese Accounting Education*. Wuhan International Conference on e-Business. WHICEB 2013 Proceedings. Paper 103.
- Oladele, O.K. (2009), *Computer-Based accounting System in the Private Sector*; ICAN Students' Journal 7-12
- Onatuyeh, E.A. & Aniefor S.J. (2013), Impact of computerized accounting information systems (CAIS) on the Just-in-time (JIT) technique: a study of selected manufacturing firms, *International Journal of Investment and Management in process*. Pp 99-109.
- Talabi, A. (2010), *IT productivity tools for managing the Accounting Functions*. The Nigerian Accountant, October-December; 30-36
- Verstegen De Loo (2007) *Classifying controllers by activities: An Exploratory study* "Journal of Applied Management Accounting Research".
- Wang, J. (2011), *Current Situation and Development of Chinese Accounting Information System*. Economics Research Guide. (18): 93-94.
- Xiao Z. J.R. Dyson et al (1996) *The impact of Information Technology on corporate financial reporting: A contingency perspective*. The British Accounting Review.
- Zozak, S. (2005). *The Role of Information Technology in the Profit and Cost Efficiency Improvements of the Banking Sector*. Journal of Academy of Business and Economics, February 1.

Books

- Asika N. (2005) *Research Methodology in the Behavioural Sciences*, Lagos Nigeria, Longman Nigeria PLC.
- Colin Drury (2013) *Management and cost Accounting*, China RR Donnelley
- Connor, D. (1997), *Information System Specification and Design Road Map*. Englewood Cliffs New Jersey: Prentice-Hall.
- Finger, P., Kumar, H. & Sharma (2000), *Enterprise e, commerce*, Tamp FI: Meghan - Kiffer press

- Harold, C.E. (1979), *Introduction to Accounting*, London, Hutchinson & Co Publishers Ltd.
- Hongren, .C. & Harrison .W. (1989). *Accounting*. Englewood Cliffs, New Jersey: Prentice Hall.
- Hoskin, K.W., & Maeve, R. H. (1986). *Knowing more as knowing less? Alternative Histories of Cost and Management Accounting in the US and the UK*. *Accounting Historians Journal*, 27 (1), 91-149.
- ICAN Study pack (2010), *Information Technology*; Lagos Nigeria VI Publishing Ltd.
- IFAC (1998), *The Measurement and Management of Intellectual Capital: An introduction*, <http://www.ifac.org/standards> and Guidance/FMAC /IMAS7.html
- IFAC (2001), *A Profession Transforming: from Accounting to Management*, International Federation of Accountants.
- Jaiyeola, R.A. (2010), ICAN - Technology competence Initiative (Lecture note) Lagos (unpublished).
- Kenneth, C.L. & Jane, P.L. (2010), *Management Information System*. New Jersey, Pearson Education Upper Saddle River.
- Lucey, T. (2003) *Management Accounting*, Great Britain, Biddies Ltd.
- Martin, J. and Leben, J. (1989), *Strategic Information Planning Methodologies*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Model, M.E. (1996), *A Professional's Guide to System Analysis*. New York: McGraw Hill.
- Modum, C. (2005) *Management Information System*, Enugu Nigeria, Precision Publishers Ltd.
- Napier, C.J. (2006), *Accounts of change: 30 years of Historical Accounting Research, Accounting, Organizations and Society*. In Press.
- Nash, J.f. (1989), *Accounting information systems*, Second Edition, Plus Kent Publishing Company.
- O'Brien, J.A. (2002), *Management Information System, Managing Information Technology in the e-business Enterprise*, New York, Irwin McGraw Hill.

- Ofurum, C.O. & Ogbonna G.N. (2008), *Accounting information systems: A functional approach*. Owerri: Bon publications.
- Onwumere, J.U.J. (2009), *Business and Economic Research Methods*. Enugu Nigeria: Vougasen Ltd.
- Romney, Morshall B., Sterinbart, Paul J., Cushing, Barry E. (1997), *Accounting information system. seventh Edition*. Addison-Wesley.
- Russel, K.A. Siegel G.H and Kulessa C.S (1999) "Counting more, counting less strategic finance.
- Trunk, C. (2000), Manufacturing systems software: Budging the information gap, material handling management PP 57-61.
- Parker, L.D. (2001). *Back to the future: The broadening accounting trajectory*, British Accounting Review 33 (4), pp. 421-453.
- Parker, R.H. (1986), *The Development of the Accountancy Profession in Britain to the Early Twentieth Century*, London: Academy of Accounting Historians.
- Shy, O. (1997), *Industrial Organisation: Theory and Practice*. The MIT Press.
- Walker, S.P. (1999), *Introduction. Accounting, Business & Financial History*, 9 (1), 1-6.
- Wilensky, (1964), *The Professionalisation of Everyone?* Harold L. Wilensky American Journal of Sociology, Vol. 70, No. 2 (Sep., 1964), pp. 137-158
- Willmott, H. (1986), *Organizing and the profession: A theoretical and Historical Examination of the Development of the major Accountancy Bodies in the UK*. Accounting, Organizations and society, 11 (6), 555-580.

Websites

- Hall, S. (2010), *Management Information System Theories*. Retrieved on 20th from <http://www.ehow.com/facts-5030594>
(<http://www.rhsmith.umd.edu/faculty/gordon>)

APPENDIX 1

(1)	Delta State University		
	Bursary Department	10	
	Accountancy Department (Teaching Staff)	15	
	Internal Audit Department	4	
		29	29
(2)	Suimming Nig. Ltd.		
	Finance & Accounts	12	
	Internal Audit	6	
		18	18
(3)	First Bank of Nigeria Plc.		
	Finance and Accounts	10	
	Operations	8	
		18	18
(4)	SAO & CO.		
	Consultancy (Advisory)	10	
	Audit & Investigation	15	
	Taxation	10	
		35	35
	Grand Total	=	100 staff

APPENDIX 2

Faculty of Business
Administration,
Department of Accountancy,
University of Nigeria,
Enugu Campus,
20th January, 2013.

Dear Sir/Madam,

RESEARCH QUESTIONNAIRE

I am a post graduate student of the above named University conducting a research on “Influence of Information Technology on the role of Accountants in Nigeria”.

The purpose of the attached questionnaire is to obtain all relevant information necessary for the analysis of the topic. The research is in partial fulfillment for the award of M.Sc in Accountancy of the University.

Please, kindly complete the questionnaire sincerely and honestly as your opinion would be used purely for the purpose of the study and the information will be treated confidentially.

Thank you.

Yours sincerely,

Aniefor, Sunday Jones

QUESTIONNAIRE

SECTION A

Bio Data:

Please, kindly tick (√) inside the boxers provided for each question you feel is the most appropriate.

1. Sex: Male [] Female []
2. Marital status: Single [] Married []
3. Age bracket: 18-29 [] 30-40 [] 41-50 [] 51 & above []
4. Educational qualification: HND/BSC [] MSC/MBA [] PHD []
5. Professional qualification: ACCA [] CPA [] ACA [] ICAN []
CIMA [] ANAN []
6. What sector are you: Academic [] Manufacturing []
Banking [] Service []
7. Which unit are you: Final accounts [] Internal audit []
Management account [] Teaching []

SECTION B

Please kindly tick (X) in the box you feel suggest the correct answer in the questions below.

1. Read the following question and know the meaning of relevance and then consider your current profession as relevant or not in the information age:

A relevant staff supports and advises the management of an organization in reaching its Economic and financial goal. Management includes planning, control and decision-making. Support is interpersonal in terms of the design and maintenance of accounting information systems and the procurement and distribution of information using ICT.

To what extent do you agree that Accountants are still relevant in this information age taking the following issues into consideration?

- (1) Supporting the goals of the top management of the organization.
- (2) Maintaining accounting information systems.
- (3) Exchanging information vertically up and down the hierarchy.
- (4) Presenting reports for third parties.
- (5) Protecting organizational assets through internal control
- (6) Reporting financial and non-financial information.
- (7) Participate in policy making supporting change process.
- (8) Leading the administrative department of the organization.

(9) Interpreting analyzing of factors influencing business result.

(10) Designing control systems of the organizations like budget.

(11) Exchanging information horizontally between hierarchical equivalent.

(12) Processing information from formal financial systems.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

2. In your opinion, to what degree would you agree that the implementation of Information Communication Technology has influenced your performance as an Accountant using the following parameter as basis.

(i) Reporting is purely ICT tools

(ii) Error free report

(iii) Reduction of time for closure of monthly accounts.

(iv) Reduction of time for closure of quarterly accounts.

(v) Reduction of time for closure of annual accounts.

- (vi) Reduction of time for transaction processing (input time).
- (vii) Improved quality of reports.
- (viii) Improved decision-making process.
- (ix) Improved internal audit function.
- (x) Improved working capital management
- (xi) Reduction of time for payroll activities.
- (xii) Increased flexibility in information processing.
- (xiii) Increased integration of accounting applications.
- (xiv) More timely accounting information.
- (xv) Better and reliable inform.
- (xvi) Reduced time for reporting non-financial issues.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

3. In your opinion to what extent would you agree that the implementation of ICT in your organization has increased your involvement in decision-making process.

- (i) Decisions outcome are based on your report.
- (ii) Your reports are relied on for policy implementation.

- (iii) You are part of management team.
- (iv) Providing information on the need to know basis.
- (v) Strategy formulation for the organization.
- (vi) Discussing strategy of the organization.
- (vii) Managing the risks connected with business conduct (risk management).
- (viii) Processing information form informal systems (social systems like gossip)
- (ix) Making recommendations for the improvement in the organizations even when there are no problems.
- (x) Supporting the goals of external parties (auditors shareholders), the government.
- (xi) Providing information to those who may be interested.
- (xii) Exchanging information vertically (up and down in the hierarchy).
- (xiii) Reporting non-financial information.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

4. In your opinion how far would you agree that information output is sufficient enough to be depended upon for decision making.

- (i) Reports are not analysed and strategized.
- (ii) Accounting software (off shelf) are not amended before use.
- (iii) Reports are used without your further input or interpretation.
- (iv) Non-financial don't need information further analysis and interpretation.
- (v) Financial ratio analysis does not need further interpretation and implication.
- (vi) There are no facts behind printed figures.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

5. To what level would you agree that ICT development has helped your organization to achieve their goals?

- (i) Profit has increased.

- (ii) Customers are happy because of good service delivery like ATM usage on Sundays and Saturdays.
- (iii) Supplies are on schedule.
- (iv) Better management of Account receivables and payable.
- (v) Better analyses of market position.
- (vi) Customer feed-back analysis.
- (vii) Improved training of staff.
- (viii) Realizing mission and vision statement objectives.
- (ix) Improved non-financial performance measures

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

PERFORMANCE INDICES

6. Activities in your organization

In your daily work, you perform certain activities, the way you do them and techniques you use for the purpose.

In your opinion, to what extent do you agree that you are involved in key activities of your organization taking the following issues into consideration?

- (i) Historical report – financial information.

- (ii) Reporting non-financial information.
- (iii) Maintaining accounting information system.
- (iv) Designing the accounting information system.
- (v) Reporting information retrospectively.
- (vi) Supporting change process.
- (vii) Representing your organization outside the organization.
- (viii) Reporting financial and non-financial information.
- (ix) Participate in policy making supporting change process.
- (x) Leading the administrative department of the organization.
- (xi) Interpreting analyzing of factors influencing business result.
- (xii) Designing control systems of the organizations like budget.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

7. Reliability on your report

The end product of your work is the report which will be used as a basis for decision making. How would you assess the extent of reliability on your report?

Auditors rely on your report as a reliable information.

- (1) Except on some exceptional cases, decisions based on your report were successful.
- (2) Improved quality of report.
- (3) Providing information on the need to know basis.
- (4) Strategy formulation for the organization.
- (5) Discussing strategy of the organization.
- (6) Managing the risks connected with business conduct (risk management).
- (7) Processing information form informal systems (social systems like gossip)
- (8) Making recommendations for the improvement in the organizations even when there are no problems.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

8. Time spent on activity one major advantage of ICT implementation as alleged is speed and accuracy, to what Extent would you agree that you don't spend the same time on your activities before and after the implementation of ICT?

- (i) Reduction of time for closure of accounts monthly, quarterly and annually.
- (ii) Reduction of time for transaction processing (input time)
- (iii) Reduction of time for reporting non-financial information.
- (iv) Improved quality of report.
- (v) Improved decision making process.
- (vi) Improved interval and it functions.
- (vii) Improved working capital management.
- (viii) Increased use of financial ratio analysis.
- (ix) Increased flexibility in information processing.
- (x) Reduction of personnel of Accounting department.
- (xi) Increased integration of accounting department.
- (xii) More timely accounting information.
- (xiii) More reliable accounting information.
- (xiv) Timely preparation of annual reports.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

9. Accounting policies are the principles, bases concept, rules and practices applied by an entity which specify how the effects of transactions and other events are reflected in the financial statements.

IAS 8 requires an entity to select and apply appropriate accounting policies must comply with IFRS and interpretations to ensure that financial statements provide information that is:

- relevant to the decision-making needs of users.
- reliable in that they:
- represent faithfully the results and financial position of the entity.
- reflect the economic substance of events and transactions and not the legal form
- are neutral, free from bias
- are prudent
- are complete in all material respects.

In your opinion, to what extent would you agree that ICT has no significant relationship with the choice of accounting policies after the implementation of ICT.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

10. How would you assess your impact on the over all objective of the company's goal.

- (i) Reporting on non-financial information.
- (ii) Profitability analysis per customer/client.
- (iii) Balanced scored card.
- (iv) Production of cash budget.
- (v) Production of capital expenditure budgets.
- (vi) Part of decision making body that shops the policy of the organization.
- (vii) Report on performance measures.
- (viii) Production of master budget.
- (ix) Internal audit.
- (x) Prepares the annual report.
- (xi) Profitability analysis product.

Strongly Agree []

Agree []

Undecided []

Strongly disagree []

Disagree []

11. After the implementation of ICT, could you tell us if all manual aspect of accounting has been eliminated

.....

If yes, could you explain?

.....

If No, could you give a reason?.....

.....

.....

12. Any body could be trained on ICT and could become efficient, do you think, that employers of labour should employ accounts when computer can do the job?

.....

If yes, please explain

.....

If No, please explain as well.....

.....

Thank you.

APPENDIX 3

Cronbach's Alpha Reliability Test

Cronbach's alpha measures the level of internal consistency of the items used in a questionnaire. As such, it is a test of reliability of the scale use in a questionnaire.

The Item Statistics presented in Table 1 shows the mean, standard deviation and the number of respondents for each item in the questionnaire.

Table 1: Item Statistics

Item Statistics			
	Mean	Std. Deviation	N
Question 1	4.21	1.002	80
Question 2	4.11	1.125	80
Question 3	4.33	.925	80
Question 4	4.36	.903	80
Question 5	4.16	1.096	80
Question 6	4.22	1.031	80
Question 7	1.78	.826	80
Question 8	4.29	.957	80
Question 9	1.99	.987	80
Question 10	4.47	.729	80

Table 2 presents the Inter-Item Correlation Matrix which gives the level of association between responses to the different items been measure.

Table 2: Inter-Item Correlation Matrix

Inter-Item Correlation Matrix										
	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10
Question 1	1.000	.293	-.007	.375	.256	.186	.196	.107	.131	.016
Question 2	.293	1.000	.013	.370	.252	.338	.136	.017	.195	.088
Question 3	-.007	.013	1.000	.145	.010	-.025	.113	.122	.032	.031
Question 4	.375	.370	.145	1.000	.247	.278	.111	-.020	.119	.062
Question 5	.256	.252	.010	.247	1.000	.214	.209	.015	.213	.045
Question 6	.186	.338	-.025	.278	.214	1.000	.120	.165	.090	.176
Question 7	.196	.136	.113	.111	.209	.120	1.000	.259	.338	.117
Question 8	.107	.017	.122	-.020	.015	.165	.259	1.000	.138	.038
Question 9	.131	.195	.032	.119	.213	.090	.338	.138	1.000	.114
Question 10	.016	.088	.031	.062	.045	.176	.117	.038	.114	1.000

The Cronbach's Alpha reliability coefficient is presented in Table 3.

The reliability coefficient for the test is 0.631 which represents good and substantial internal consistency for the items used in the questionnaire. The coefficient of 0.631 reported for these items is an estimate of the true alpha, which in turn is a lower bound for the true reliability.

Table 3: Cronbach's Alpha Reliability Statistics

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.631	.625	10

Table 4: Respondents Response to the Items in the Questionnaire.

Respondent	Question1	Question2	Question3	Question4	Question5	Question6	Question7	Question8	Question9	Question10
1	5	5	4	5	4	5	1	4	2	5
2	5	5	5	5	5	5	2	4	5	5
3	5	4	5	5	5	5	1	5	2	5
4	4	5	5	5	5	5	1	5	4	5
5	4	5	4	5	4	4	2	5	5	4
6	5	5	5	5	4	5	2	4	2	4
7	5	4	4	4	5	5	2	5	5	5
8	4	5	5	5	4	5	4	5	4	4
9	5	5	5	4	5	4	2	5	1	5
10	4	4	3	4	5	4	4	5	4	5
11	5	5	4	5	4	4	4	4	1	5
12	5	5	5	5	4	5	2	4	2	4
13	4	5	5	4	5	3	2	5	4	3
14	3	4	5	3	4	5	3	5	2	5
15	4	5	4	4	3	5	2	4	1	4
16	5	4	5	5	4	5	4	5	4	5
17	5	5	4	5	5	5	4	5	4	5
18	5	5	4	5	5	5	2	4	2	5
19	4	5	5	4	5	4	2	4	2	4
20	5	4	5	4	4	4	2	5	2	4

21	5	4	5	4	4	5	4	5	1	5
22	5	5	4	5	5	5	3	4	3	5
23	5	5	4	5	4	5	1	5	1	5
24	4	5	5	5	5	5	1	5	1	4
25	4	5	5	5	5	4	2	5	2	5
26	5	4	5	4	5	4	2	4	2	5
27	5	4	4	4	4	5	2	5	2	4
28	5	5	5	5	5	5	2	4	2	4
29	4	5	2	4	4	5	1	4	1	5
30	5	4	4	5	4	5	2	5	2	5
31	5	5	5	5	5	4	2	4	3	5
32	4	5	5	5	5	4	2	5	2	4
33	5	5	4	4	5	5	1	3	2	4
34	5	4	4	5	5	4	1	4	1	3
35	4	4	5	5	4	5	2	5	1	4
36	4	5	5	5	5	4	2	5	2	5
37	4	5	4	4	4	5	2	5	1	5
38	5	4	4	5	4	5	1	4	1	5
39	5	5	5	4	5	5	2	4	2	4
40	5	4	5	5	5	4	2	5	1	4
41	3	4	4	5	4	4	1	5	2	5
42	5	3	4	3	5	5	2	5	2	4
43	2	5	5	4	5	5	1	4	2	5
44	4	5	5	5	4	4	2	5	1	5

45	5	4	5	5	5	5	1	5	2	5
46	5	4	4	4	5	4	2	4	2	5
47	5	5	5	4	2	5	1	5	1	4
48	4	5	5	5	5	3	2	4	2	5
49	5	4	4	4	4	5	1	2	2	5
50	4	3	5	5	5	5	2	5	2	4
51	5	5	4	5	3	2	1	4	2	4
52	5	3	4	4	5	4	2	4	1	5
53	4	5	5	2	2	5	1	5	2	5
54	4	4	4	5	5	4	2	4	2	4
55	5	5	2	5	4	4	1	2	2	5
56	4	2	5	4	5	5	2	5	1	4
57	5	5	4	4	5	2	2	2	2	5
58	4	5	2	5	5	5	1	4	2	4
59	5	4	5	5	3	5	1	5	2	5
60	3	3	4	4	4	4	2	4	1	5
61	5	5	5	5	5	3	1	2	2	4
62	3	4	5	4	2	5	1	5	1	5
63	5	2	4	5	5	2	2	4	1	5
64	4	3	5	5	3	4	1	5	2	5
65	3	4	4	5	5	5	1	1	2	4
66	2	5	2	4	4	4	2	5	1	4
67	3	2	5	5	5	5	2	4	2	5
68	2	4	4	5	5	3	1	5	2	5

69	3	3	5	5	1	4	2	5	2	4
70	5	4	4	4	3	2	1	5	1	1
71	3	1	5	2	4	1	2	4	2	4
72	5	1	2	5	1	4	1	4	2	5
73	1	2	5	2	1	2	1	4	2	5
74	4	1	5	4	4	4	1	4	1	4
75	4	1	4	2	4	1	1	5	2	4
76	4	3	2	4	4	5	2	4	2	2
77	2	4	5	5	3	4	1	1	1	4
78	3	4	1	1	5	5	1	5	2	5
79	5	5	4	4	1	2	2	4	2	5
80	1	2	5	2	2	3	1	2	1	4