

**ORGANISATIONAL DETERMINANTS AND  
E-ACCOUNTING SYSTEM IMPLEMENTATION IN  
MICRO AND SMALL ENTERPRISES (MSEs) IN  
SOUTH-WEST NIGERIA**

**By**

**EZENWOKE OMOTOLA ADEDOYIN**

**MATRIC No. 04AA00040**

**MAY, 2017**

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**BY**

**EZENWOKE OMOTOLA ADEDOYIN**

**MATRIC NO. 04AA00040**

**B.Sc. and M.Sc. Accounting (Covenant University)**

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Covenant University, Ota, Ogun State, Nigeria. In Partial  
Fulfilment of the Requirements for the Award of Doctor of  
Philosophy (Ph.D) Degree in Accounting.

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## **ACCEPTANCE**

This is to attest that this thesis is accepted in partial fulfilment of the requirements for the award of the degree of **Doctor of Philosophy in Accounting** in the Department of **Accounting**, College of Business and Social Science, Covenant University, Ota.

**PHILIP JOHN AINWOKHAI**

**Secretary, School of Postgraduate Studies**

---

**Signature & Date**

**PROFESSOR SAMUEL WARA**

**Dean, School of Postgraduate Studies**

---

**Signature & Date**

## **DECLARATION**

I, **Ezenwoke Omotola Adedoyin**, hereby declare that this Ph.D thesis titled “Organisational Determinants and e-Accounting system implementation in Micro and Small Enterprises (MSEs) in South-West Nigeria” was undertaken by me under the supervision of Professor F.O Iyoha and Professor N.A Omoregbe.

The work presented in this thesis has not been presented, either wholly or partly, for any degree elsewhere before. All sources of scholarly information used in this thesis were duly acknowledged.

**Ezenwoke Omotola Adedoyin**

---

**Signature & Date**

## **CERTIFICATION**

The undersigned certify that they have read this thesis and hereby recommend it for acceptance by Covenant University a thesis entitled: “Organisational Determinants and e-Accounting system implementation in Micro and Small Enterprises (MSEs) in South west Nigeria” in partial fulfilment of the requirements for the degree of Doctor of Philosophy (Ph.D) in Accounting of Covenant University, Ota, Nigeria.

**PROFESSOR F. O. IYOH**

**Supervisor**

---

**Signature & Date**

**PROFESSOR N.A. OMOREGBE**

**Co-Supervisor**

---

**Signature & Date**

**DR. (MRS) O. UWUIGBE**

**Head, Department of Accounting**

---

**Signature & Date**

**PROFESSOR C.A. OKAFOR**

**External Examiner**

---

**Signature & Date**

**PROFESSOR S. WARA**

**Dean, School of Postgraduate Studies**

---

**Signature & Date**

## **DEDICATION**

The entirety of this research work is dedicated to my all in all; Almighty God, my Father, Jesus Christ my brother and the Holy Spirit my dear friend who are the mastermind behind this piece.

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## ABBREVIATIONS

<b>AIS:</b>	Accounting Information System
<b>BOI:</b>	Bank of Industry
<b>CBN:</b>	Central Bank of Nigeria
<b>CIRD:</b>	Center for Industrial Research and Development
<b>e-ACCOUNTING:</b>	Electronic Accounting
<b>FMI:</b>	Federal Ministry of Industry
<b>ICT:</b>	Information Communication Technology
<b>IDC:</b>	Industrial Development Centre
<b>GDP:</b>	Gross Domestic Product
<b>M-BANKING:</b>	Mobile Banking
<b>MSEs:</b>	Micro and Small Enterprises
<b>MSMEs:</b>	Micro, Small and Medium Enterprises
<b>NASME:</b>	National Association of Small and Medium Enterprise
<b>NASSI:</b>	National Association of Small-scale Industries
<b>NBCI:</b>	Nigerian Bank of Commerce and Industry
<b>NBS:</b>	Nigerian Bureau of Statistics
<b>NERFUND:</b>	National Economic Recovery Fund
<b>NIDB:</b>	Nigerian Industrial Development Bank
<b>NNCI:</b>	Nigerian National Council of Industry
<b>SMEs:</b>	Small and Medium Enterprises
<b>SMEIES:</b>	Small and Medium Industry Equity Investment Scheme
<b>SMEDAN:</b>	Small and Medium Enterprises Development Agency Nigeria
<b>SSACs:</b>	Sub-saharan African Countries
<b>SSICS:</b>	Small Scale Industries Credit Scheme
<b>TAM:</b>	Technology Acceptance Model
<b>TOE:</b>	Technology, Organisation and Environment
<b>TRA:</b>	Theory of Reasoned Action
<b>TMT:</b>	Top Management Team
<b>WDI</b>	World Development Indicator

## ABSTRACT

Over the past decade, there had been evidences on the accounting benefits accruable to Micro and Small Enterprises (MSEs) in the integration of ICT in the accounting processes. Despite these benefits, the implementation of ICT in the accounting process of MSEs in Nigeria has not been well sought after as expected. More so, there had been mixed evidences on the factors influencing the implementation of e-Accounting in MSEs but these factors are yet to be situated in the context of Nigeria. It is against this background that the study empirically investigated the factors influencing the implementation of e-Accounting system in MSEs in Nigeria. In the study, four research questions, objectives and hypotheses were examined. These were focused around four major constructs; Owner/manager, Business, Technological and External characteristics. The study adopted the survey research design. The geographical scope of the study was limited to Owners/manager of MSEs in South-West Nigeria, in which samples were selected based on the stratified sampling technique. Utilizing the Raosoft sample size calculator and Bartlett, Kotrlik and Higgins sample size table, six-hundred and sixty (660) copies of the questionnaire were distributed within the South-West zone, out of which four-hundred and ten (410) were usable. The data gathered were analysed using general purpose statistical software STATA and Statistical Package for Social Sciences (SPSS) and the results were estimated using Binary Logistic Regression. The results revealed that owner/manager e-Accounting capability, business age, technology complexity, technology compatibility, technology security, technology cost to annual profit, presence of external IT supplier, customers' request, external expertise influence are significant in the implementation of e-Accounting system. The study made the following recommendations amongst others; The MSEs geographical concentration should be considered in providing an indigenous and affordable e-Accounting system that allows for multi-user access and multi-preference specifications deployable to MSEs. In addition, the provision of an indigenous e-Accounting system should not be limited only to the supply of the e-Accounting infrastructure but should encompass the provision of consulting services during the pre-implementation, implementation and post implementation process. The study also proposed an e-Accounting framework that provides a platform where customers of e-Accounting system can indicate their needs, budgets and specifications, thus enabling them to own an e-Accounting system on a shared platform. The proposed framework in the study provide solutions to some constraints inhibiting the use of e-Accounting which include inability to allocate funds to information technology (IT) projects because of its capital intensive nature and the difficulties in recruiting and maintaining IT experts in micro and small enterprises

**Keywords:** e-Accounting, Implementation, Micro, Small and Medium Enterprises, Information Communication Technologies (ICT).

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background to the Study

The role of Micro and Small enterprises (MSEs) as drivers of economic growth and development has been recognised globally (Akande, 2011). Besides MSEs role in bridging the informal economy of family enterprises and the formalised corporate sector, MSEs also provide jobs and serve as an interface in providing intermediate goods and service to larger enterprises (Adebayo, Akinmosin, Yussuf & Dada, 2011; Padachi, 2012). In Nigeria, for instance, MSEs have not only significantly contributed to the manufacturing output and provision of employment but also serve as a breeding ground for domestic entrepreneurial capabilities (Aremu & Adeyemi, 2011).

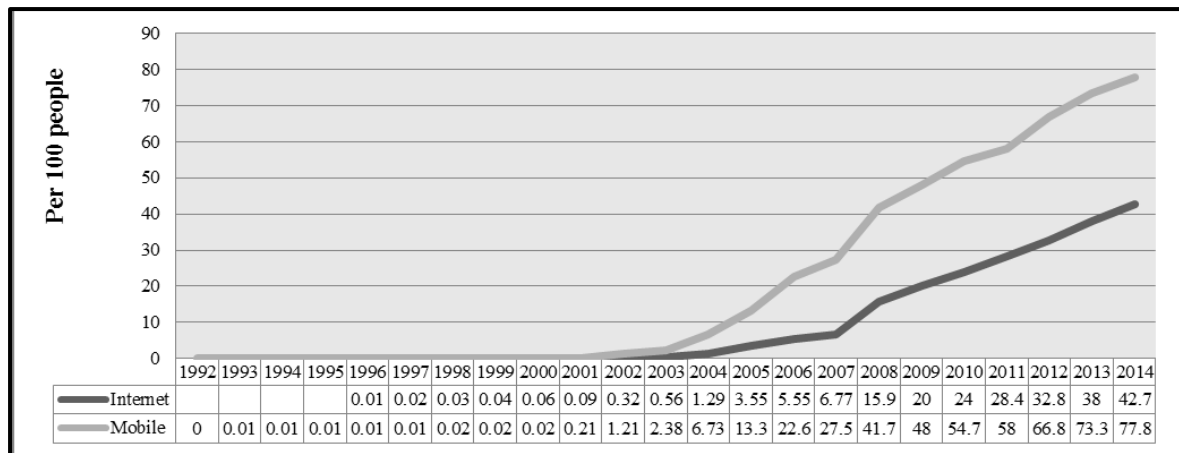
In spite of the economic contributions of Micro and Small Enterprises (MSEs), the rate of failure poses a huge concern (Akande, 2011). A number of studies have attributed the high failure rate of MSEs to external factors such as the inability to secure finance, inability to penetrate the larger market, burdensome legal framework and vulnerable market fluctuations (Abereijo & Fayomi, 2005; Padachi, 2012). In Nigeria, other external factors contributing to the failure rate of MSEs are the poor state of infrastructural facilities to support business activities and multiplicity of policies and regulatory measures (Akpan-Obong, 2007; Sokoto & Abdullah, 2013).

Besides, internal factors such as poor accounting records, lack of managerial competence and the illiteracy level of some Owners/Managers of MSEs have also been responsible for the poor performance (Tushabomwe-Kazooba, 2006; Osotimilehin, Jegede, Akinlabi & Olajide, 2012). A number of micro, small and medium enterprises (MSMEs) in Nigeria have been denied access to finance by investors and creditors owing to improper accounting records or inadequate financial statements (Afolabi, 2013). In Nigeria, the government has made attempts in addressing the problems faced by MSEs. However, a considerable part of the attempts has been in the areas of government schemes, policies and programmes which have resulted in mixed outcomes.

In order to be successful, managers and owners of MSEs require accurate, up to date and timely accounting information. The adoption of ICT in the accounting process will facilitate the processing of timely accounting information through efficient book and record keeping. For instance, the implementation of e-Accounting will provide an efficient accounting process by offering a multi- user access, multi- site access, multiple shared database, zero system administration for end users and the capabilities of providing an economical service to a large number of clients (Relhan, 2013). Despite the numerous benefits accruable to MSEs by adopting e-Accounting, the system has not been well sought-after by MSEs as expected.

Apulu and Ige (2011) observe that MSEs in Nigeria rarely use computers for intricate business functions but limited to basic ICT applications like word processing and ICT tools like fax machines, fixed landlines and printers. World economies are increasingly relying on ICT for regional and global economic business networks (Chacko & Harris 2005). Therefore, MSEs in Nigeria will be incapable of participating in these networks without the utilisation of ICT.

Telecommunication and the Internet are major components of ICT infrastructure in Nigeria. These components can enhance the penetration rate of ICT usage. The progression of ICT dissemination has improved in recent years as against the past where Nigeria had the one of the lowest teledensity in Sub-Sahara Africa (Akpan-Obong, 2007). Nigeria has witnessed rapid advancements in these infrastructures in terms of private sector entrance into the market, affordability, coverage level and the number of persons using these facilities. However, MSEs are still overwhelmed with the complexities and challenges of integrating ICT in their business processes (Tiemo, 2012). Figure 1.1 clearly illustrates the progression of internet users and mobile cellular subscription penetration rate per 100 people in Nigeria from 1992-2014.



**Figure 1.1: Progression of Internet Users and Mobile Cellular Subscription rate in Nigeria [Compiled from World Development indicator (2015)]**

From Figure 1.1, it is vivid that Internet users and mobile cellular subscription rate in Nigeria have since improved. Although the mobile cellular subscription user per 100 people has experienced rapid increase compared to Internet user per 100 people. The mobile cellular subscription user per 100 people significantly improved from about 1 person in 2002 to approximately 78 people in 2014. The Internet user per 100 people is gradually improving from about 1 person in 2003 to approximately 43 people in 2014. This suggests that as the penetration rate of this ICT infrastructure improves the more likely MSEs integrate ICT into business processes.

Empirically, there had been mixed evidences on the factors influencing the integration of ICT in MSEs accounting processes (Ismail & king 2007; Hajira, 2011; Salehi & Abdipour, 2013). In the case of Nigeria the factors influencing the implementation of e-Accounting amongst MSEs are not yet situated. It is against this background that this study is undertaken to explore the factors related to e-Accounting system implementation in Nigeria.

In order to situate the study in a proper context, the term ‘e-Accounting’ is conceptualised as any accounting system that utilises ICT applications tools and devices in gathering, recording, organising, processing, interpreting and communicating accounting transactions and information concerning economic events to enable stakeholders to make informed decisions. Similarly, organisational determinants are factors that influence the implementation of e-Accounting amongst Micro and Small Enterprises. Following this concept, organisational determinants were decomposed into; Owner’s/Manager’s

Characteristics, Technological Characteristics, Business characteristics and External characteristics.

## **1.2. Statement of the Research Problem**

The Implementation of e-Accounting system is useful to perform accounting tasks such as book keeping, budgeting, cash flow, profit analysis, payroll accounting, product costing, tax filing and the preparation of financial statement. These tasks can provide accounting information to MSEs useful in making informed decisions. However, a large number of MSEs still make use of the manual accounting system and many do not involve in any form of accounting practice at all (Padachi, 2012). The manual accounting system is characterised with lack of speed and difficulty in retrieving financial data. The practice of not keeping record and the use of manual accounting system either by MSEs are not sustainable in the long-term. This is because as the enterprise opens up, it will be necessary to access external finance for business growth and expansion.

The introduction of ICT in accounting processes in relation to accounting applications like the use of spreadsheets; off- the- shelf accounting software (e.g. Sage, Peachtree MYOB Quick Books); in-house-built Accounting Software; Web-based Accounting Software and ICT devices like the use of mobile phone; computer and the internet. These innovations in accounting have brought sophistication, speed and flexibility to all the functional areas of accounting. Yet MSEs are still at crossroads in terms of implementing e-Accounting system.

The discussion on the factors responsible for the adoption of ICT applications and tools in accounting processes is not conclusive. In the sense that different factors have been identified in different contexts aside Nigeria with respect to the usage of ICT applications and tools in accounting processes. However, no specific research to the researcher's knowledge has been undertaken to investigate the organisational determinants of e-Accounting implementation amongst Micro and Small Enterprises in Nigeria. From a review of published literatures, studies have been undertaken to identify the factors influencing the adoption of ICT applications and tools in general amongst SMEs in Singapore, Saudi Arabia and Nigeria (Thong, 1999; Baker, Al-Gahtani & Hubona, 2010; Irefin, 2012).

A few researches focused on factors influencing the adoption of computer-based accounting information systems with no recourse to other ICT tools like mobile technology and Internet technology in Malaysia and Iran (Ismail & King, 2007; Ismail, 2009; Hajira & Azizi, 2011). More pronounced in Nigeria is the dearth in literature on factors affecting the adoption of ICT application tools and devices in accounting processes. In Nigeria, the closest work on the use of ICT in performing Accounting processes is the study conducted by Tijani and Mohammed (2013). In a study on SMEs, Tijani and Mohammed (2013) considers only the degree to which SMEs in Nigeria utilised computer systems in performing accounting processes. The study made no recourse to the factors affecting the adoption of ICT applications and tools in accounting processes.

Following these gaps, this study advances knowledge by providing new evidences on the organisational determinants that affect the implementation of e-Accounting amongst MSEs in South-West Nigeria. This was achieved by examining four major classes of organisational determinants viz Owner's/Manager's Characteristics, Technological Characteristics, Business Characteristics and External Characteristics.

### **1.3. Objectives of the Study**

The overall objective of this study is to ascertain the organisational determinants that influence the implementation of e-Accounting systems amongst MSEs in Nigeria

Specifically, the objectives of this study are to:

1. Examine the extent to which Owner's/Manager's characteristics influence the implementation of e-Accounting system in MSEs.
2. Ascertain the extent to which MSEs Business characteristics accelerate the implementation of e-Accounting system.
3. Determine the impact of Technological characteristics in facilitating the implementation of e-Accounting system in MSEs.
4. Assess the impact of MSEs External characteristics on the implementation of e-Accounting system.



#### **1.4. Research Questions**

In view of the objectives of the study above, the research work provides answers to the following research questions:

1. To what extent do Owner's/ Manager's characteristics influence the implementation of e-Accounting systems amongst MSEs in Nigeria?
2. To what significant extent do MSEs Business characteristics accelerate the implementation of e-Accounting system?
3. Of what impact are Technological characteristics in facilitating the implementation of e-Accounting system in MSEs?
4. Of what significant influence are MSEs External characteristics in influencing the implementation of e-Accounting system?

#### **1.5. Research Hypotheses**

In order to proffer answers to the research questions and achieve the objectives of this study, the following hypotheses stated in the null form were tested:

1.  $H_0$ : Owner's/Manager's characteristics have no significant influence on the implementation of e-Accounting systems amongst MSEs in Nigeria.
2.  $H_0$ : MSEs Business characteristics do not significantly influence the implementation of e-Accounting system in Nigeria.
3.  $H_0$ : Technological characteristics do not significantly impact the implementation of e-Accounting system among MSEs in Nigeria.
4.  $H_0$ : The implementation of e-Accounting is not significantly impacted by the MSEs External characteristics.

#### **1.6. Scope of the Study**

The study focuses on the organisational determinants that influence the implementation of e-Accounting amongst MSEs in South-West Nigeria. In Nigeria, Small and Medium Enterprises (SMEs) represents about 95 percent of the industrial enterprise and 75 percent of the private sector (Peter & Inegbenebor, 2009 and Akande, 2011). The geographical scope covered by the study is the totality of MSEs in the South-West part of Nigeria. The South-West part of Nigeria accounts for 21 percent of the total population in Nigeria

(Bowale & Akinlo, 2012). There are 3,276,596 MSEs in South-west Nigeria from a total of 17,283,019 MSEs in Nigeria (NBS/SMEDAN, 2012). A sample size of 660 MSEs was selected for the study.

The study participants from South-West part of Nigeria were selected based on the following criteria:

1. Owners/Managers who operate a Micro or Small Enterprise based on SMEDAN (2013) definition.
2. The Owners/Managers whose Micro and Small Enterprises (MSEs) have an Accounting system.
3. The Owners/Managers business must be within the subsectors (Wholesale, Retail & Repairs, Manufacturing and Agriculture). These subsectors account for the highest number of MSEs as defined by the report of vision 2020 National Technical working group (2009) and NBS/SMEDAN (2012).

### **1.7. Significance of the Study**

A critical review of published literatures show that some studies have been conducted to identify the factors influencing the adoption of information technology in general amongst MSEs (Thong, 1999; Baker, Al-Gahtani & Hubona, 2010; Irefin, 2012 ). Hardly, has any study attempted to comprehensively and empirically identify the organisational determinants influencing the implementation of e-Accounting system amongst MSEs in Nigeria. This study, therefore, becomes significant in the following ways:

1. A significant amount of literature has provided empirical evidence on the factors that determine the infusion of ICT in the business context of MSEs (Ifinedo, 2006; Bruque & Mayano, 2007; Al-Somali, Gholami & Clegg, 2011; Irefin, 2012; Ladokun, Osunwole & Olaoye, 2013). Some of these studies have identified the inhibitors and enablers of ICT in the accounting processes in MSEs across countries (Ismail & King, 2007; Ismail, 2009; Hajira & Azizi, 2011; Padachi, 2012, Pongpatrachai, Cragg & Fisher, 2013).

However, empirical evidence on organisational determinants that inhibit or enable e-Accounting system implementation in the Nigeria context has been invariably

excluded from these literatures. Hence, this study provides empirical evidence on the organisational determinants that are inhibitors and enablers of implementing ICT in the accounting processes of MSEs in Nigeria. Owners and Manager of MSEs in Nigeria can draw from this empirical evidence in militating against e-accounting system inhibitors and facilitating the e-accounting system enablers.

2. Over the past five (5) decades the Nigerian Government has initiated several schemes and policies (some of which are; Small Scale Industries Credit Scheme, SME Apex Unit Loan Scheme and Microfinance Policy) in supporting the business context of MSEs. More imperative is the National Information Technology Development Agency (NITDA) act of 2007, with a mandate of promoting Information Technology diffusion in all sectors of national life. Thus, the findings of this study inform government ICT agencies on the areas to focus in other to boost the diffusion of ICT in the accounting processes of MSEs.
3. Accounting information system developers make use of models and frameworks in designing and developing an electronic accounting system. The proposed framework in this study provides a suitable platform that will enhance the development of an indigenous e-Accounting system deployable in the business contexts of MSEs in Nigeria.
4. Prior evidence in literature exists on the factors affecting the use of computers in carrying out accounting processes (Hajira & Azizi, 2011; Padachi, 2012, Pongpattrachai, Cragg & Fisher, 2013). However, with the predominance of mobile technologies and hand held devices, little empirical evidence is available on its applicability in performing accounting processes. Hence, this study provides further insights into the application of mobile technologies in performing accounting tasks.
5. The result obtained from this study contributes to additional literature for the advancement of further research in related research domain. Other researchers can find useful information from the study in areas of the study result and research methods in advancing subsequent researches in related research areas.

## **1.8. Definition of Terms**

**Accounting information:** Is a set of an organisation financial data required for providing timely and accurate report for its users

**Accounting information system:** Is a system that facilitates the collection, storage and processing of organisation financial and accounting data for decision makers.

**Business Characteristics:** They are the inherent features within an enterprise that differentiates an enterprise from another.

**e-Accounting:** Is any accounting system that involves the application of computing, mobile, and Internet technologies in performing accounting functions.

**External Characteristics:** They are components outside the organisation that determine the likelihood of implementing e-Accounting system

**Implementation:** It is a deliberate act to acquire and actual use of e-Accounting system.

**Medium Enterprise:** This constitutes a form of business organization whose labour force is between 50 to 199 workers with a total asset base of over ₦50 Million but not more than ₦500 Million, excluding the cost of land and building.

**Micro Enterprise:** Is an organised business activity undertaken in the informal sector of the economy; its total asset is less than ₦5 million excluding land and building whilst employing less than ten workers.

**Organisational determinants:** They are internal and external factors that influence the implementation of e-Accounting system in an organisation.

**Owner's/Manager's Characteristics:** These are peculiar features regarding the Owner or Manager of MSEs

**Small Enterprise:** It includes any business organisation that employs between 10 to 49 workers with total asset over ₦5 Million but not more than ₦50 Million excluding the cost of land and working capital.

**Technological characteristics:** They are peculiar properties of the technology for adopters or the perceived properties of the technology for non-adopters in carrying out accounting processes.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1. Introduction**

The pressing need for MSEs to implement an accounting system that facilitates the efficient and timely gathering, recording and processing of accounting transactions is more imperative in developing economies. More pronounced in Nigeria is a regrettable low usage of ICT tools and applications. Apulu and Ige (2011) note that MSEs in Nigeria rarely use computers for intricate business functions but limited to basic applications like word processing and ICT tools like fax machines, fixed landlines and printers. In a bid to find out in specifics the organisational determinants responsible for the implementation of e-Accounting system amongst Nigeria MSEs the study was undertaken.

The remaining part of this chapter is arranged as follows. In Section 2.2 the term e-Accounting was conceptualised. Section 2.3 addresses the concept of e-Accounting system implementation. Section 2.4 compares the accounting information environment in a manual versus electronic accounting system. Section 2.5 enumerates the benefits of ICT integration in the accounting process. Section 2.6 incorporates the threats in an electronic accounting environment. Section 2.7 outlines the Organisational Determinants of e-Accounting system Implementation.

A model for decomposing the Organisational Determinants and e-Accounting system implementation was formulated in Section 2.8. Section 2.9 describes the Concept of Micro, Small and Medium Enterprises. Section 2.10 deals with the Orientation of Micro and Small and Medium Enterprises in Nigeria. The concept of digital divide in Africa is explained in section 2.11. Section 2.12 considers the implementation of ICT amongst MSMEs. Section 2.13 elucidates ICT and MSMEs development in Nigeria. Section 2.14 addresses the Theoretical Framework adopted for the study. Lastly section 2.15 highlights gaps identified in literature.

#### **2.2. The Concept of e-Accounting System**

The concept of e-Accounting system is evolving and broadening as new development brings change to accounting due to technology. e-Accounting system advances from a

narrow focus on computer based accounting to a broader concept of applying online, mobile and Internet technologies in performing accounting functions. A review of literature on the practice of e-Accounting shows that, terms like Computer-based Accounting system and Accounting Information system are being used in describing e-Accounting (Amidu, Effah and Abor, 2011). However, there are differences in the use of these terms. The explanation for these differences is on the basis that advancements in technology will continually broaden the scope of e-Accounting.

For instance, Amidu *et al.* (2011) refer to e-Accounting as an accounting system that relies on computer technology for capturing and processing financial data in organisations. Conceptualising e-Accounting to connote the application of computer technology in capturing an organisation financial data might give it a narrow meaning, the reason being that it makes no recourse to other technologies. Differently put, Relhan (2013) delineates e-Accounting as any accounting system that depends on Information and Communication Technology (ICT) for performing its information system functions. This view extends the scope of e-Accounting from using computer technology to perform accounting operations to using available ICT tool in performing accounting functions. ICT tools include the Internet, mobile and online technologies.

Other studies conceptualised the term e-Accounting based on its characteristics. For instance, Yukcu and Gonen (2009) submit that for e-Accounting to efficiently meet the information requirements of management and interested parties then it must have the attributes of ease of data retrieval, increase in data accuracy, less paper work and high reliability of information. Likewise, Relhan (2013) iterates that e-Accounting is characterised by its ability to provide multi- user access, multi- site access, multiple shared database, zero system administration for end users and the capabilities of providing economical service to a large number of clients for an efficient accounting process.

e-Accounting system has also been viewed to go beyond offline as such encapsulates the synchronization with cloud and internet technologies. In this wise, Guney (2014) considers it as an accounting system that facilitates the management of activities in the organisation in a more efficient, affordable and flexible manner through the Internet.

Computer-based Accounting System and Computerized Accounting system are other terms used in literature to capture e-Accounting system. Appiah, Agyemang, Agyei, Nketiah and Mensah (2014) encapsulate e-Accounting as the use of computer as a tool to perform book-keeping and accountancy duties. Tijani and Mohammed (2013) define e-Accounting as a system that is significantly enabled by computer technology designed in accordance to techniques relevant to achieve qualitative decision making objectives of the business. Muhrtala and Ogundeji (2013) describe e-Accounting as a system that handles both financial and non-financial transactions that directly affects the processing of financial transactions.

However, in the context of this study, e-Accounting refers to any accounting system that utilises ICT applications tools and devices in gathering, recording, analysing, processing, interpreting, communicating accounting transactions and information concerning economic events to enable stakeholders to make informed decisions. Having conceptualised the term e-Accounting, the study captured the presence of an e-Accounting system based on one or all of the following platforms; the use of spread sheets, accounting software and web based accounting. Table 2.1 identify concepts of e-Accounting and meaning from literature.



**Table 2.1: Concepts and meaning of e-Accounting system compiled from Literature**

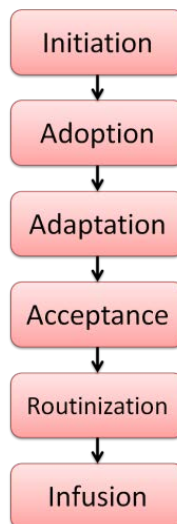
<b>N</b>	<b>Concepts</b>	<b>Meaning</b>	<b>Source</b>
1	e-Accounting	An accounting system that facilitates the management of activities in the organisation in a more efficient, affordable and flexible manner through the Internet.	Guney (2014)
		An accounting system that depends on Information and Communication Technology (ICT) for performing its information system functions	Relhan (2013)
		An electronic accounting that leverage on computer technology for capturing and processing financial data in organisations	Amidu <i>et al.</i> (2011)
2	Computer-based Accounting System/ computerised Accounting system	The use of computer as a tool to perform book-keeping and accountancy duties.	Appiah, Agyemang, Agyei, Nketiah and Mensah (2014)
		Systems that are significantly enabled by computer technology designed in accordance with techniques relevant to achieve qualitative decision making objectives of the business	Tijani and Mohammed (2013)
		A system that handles both financial and non-financial transactions that directly affects the processing of financial transactions	Muhrhala and Ogundeji (2013)
3	Accounting Information system/ Accounting Systems	A set of instrumentations, measures and processes that depend on information in making decision.	Kloviene and Gimzauskien (2015)
		A system that collects, stores and processes financial and accounting data useful for internal management decision making. This also includes the processing of non-financial data that relates to financial transactions.	Belfo and Trigo (2013)
		Tools incorporated in the field of Information Technology systems designed to help in the management control of firms economic-financial related areas	Grande, Estebanez and Colomina (2011)

### **2.3. The Concept of e-Accounting System Implementation**

e-Accounting system implementation is a process that encompasses the stage from which an enterprise identifies the need in using ICT in capturing accounting information to the stage where the e-Accounting system is being used to its fullest. In other to situate this concept in a proper context Cooper & Zmud's IT implementation process stage model was adopted. This model was adopted in explaining e-Accounting system implementation because it comprehensively classifies the implementation process of an innovation sequentially. In addition to this, a number of studies adopted this model and it was found very suitable (Moore & Stafford, 2003; Statnikova, 2005; Pongpatrachai, Cragg & Fisher, 2013). The model was however deemed very appropriate for this study. Cooper & Zmud (1990) views an IT implementation model from an innovation and technological diffusion perspective.

The Cooper and Zmud model described the IT implementation process for an innovation into six stages namely: Initiation, Adoption, Adaptation, Acceptance, Routinization and Infusion. The first stage is the initiation stage; this stage concerns a thorough evaluation of the organisation need and a resulting aspiration in meeting this need. The organisation need can be propelled by necessity for improvement (pull) or/and by the instance of technology innovation (push) (Cooper & Zmud, 1990). The second stage which is the adoption occurs when the enterprise makes an apparent decision to implement and invest resources in the technology (Cooper & Zmud, 1990). The Third stage is the adaptation stage, at this stage, the IT is developed, installed and maintained having revised the organisational structures and organisational processes (Cooper & Zmud, 1990).

The acceptance stage represents the fourth stage, at this stage, the organisational members are encouraged to be committed in the use of IT application (Cooper & Zmud, 1990). The routinization stage precedes the last stage, at this stage, the IT has become a normal activity as such loses its identity as an innovation (Cooper & Zmud, 1990; Pongpatrachai, Cragg & Fisher, 2013). The ultimate stage is the Infusion stage, at this stage, the IT is being used to its fullest capacity and the organisation derives increased effectiveness (Cooper & Zmud, 1990; Pongpatrachai, Cragg & Fisher, 2013). Figure 2.1 shows the IT implementation process proposed by Cooper & Zmud (1990).



**Figure 2.1: IT Implementation Process (Cooper & Zmud, 1990)**

However several views have emerged from literature in the application of Cooper & Zmud's IT implementation process stage model. For instance, Moore and Stafford (2003) envision the first three stages (Initiation, Adoption and Adaptation) as the implementation of IT through acquisition, development and installation with organisational procedures while the last three stages (Acceptance, Routinization and Infusion) as the stages that reveals the progressive interactions between IT and users. Statnikova (2005) sees the first four stages (Initiation, Adoption, Adaptation and Acceptance) as the implementation process stage while the last two stages (Routinization and Infusion) as the implementation success stage. Understanding the multifaceted process involved in IT implementation stage is vital in situating e-Accounting system implementation. Following the above, an e-Accounting system will be said to have been implemented when all the stages of Cooper & Zmud's IT implementation process have been inculcated. For the purpose of this study, e-Accounting implementation is conceptualised as the full use of ICT tools and devices potentials in gathering, recording, analysing, processing, interpreting, communicating accounting transactions and information concerning economic events to enable stakeholders make informed decisions.

#### **2.4. The Accounting Information Environment: The Manual and Electronic Accounting System**

The accounting information environment is characterised by a system that is concerned with the delivery of relevant, timely, accurate and complete accounting information in an

aggregated form to its users (Hall, 2013). In the realisation of these objectives two major approaches have been adopted; the manual accounting system and the electronic accounting system. A variation to these approaches would be a mix of the manual and electronic accounting system. The manual accounting system approach involves the use of papers, pens, ledgers, calculators and typewriter in capturing accounting information (Amidu *et al.*, 2011).

The manual accounting system option is such that a customer or supplier for instance, will have numerous pages of papers in order to keep track of all transactions. The system has been criticised to be prone to errors since the data can get very clumsy as the business grows. Nevertheless, the manual accounting lends itself to the benefits of ease and low cost of adoption especially to small firms. The manual accounting system may no longer thrive in the present day accounting information environment because of the overwhelming difficulties and complexities in dealing with growing organisation financial data.

Current developments in information technologies have impacted majorly on the accounting information environment. These developments have redefined the manner in which accounting data are received, processed and used. The role of accounting information system has transcended beyond the provision of formal financial information to cover even broader range of information (Chenhall, 2003). For instance, the extensive use of computer, mobile, internet and cloud technologies has brought a paradigm shift from the ostensible difficulty in managing large accounting data by organisation. In the same vein, high level of efficiency and effectiveness is being demonstrated in an electronic environment leading to the delivery of timely accounting reports to the user of accounting information.

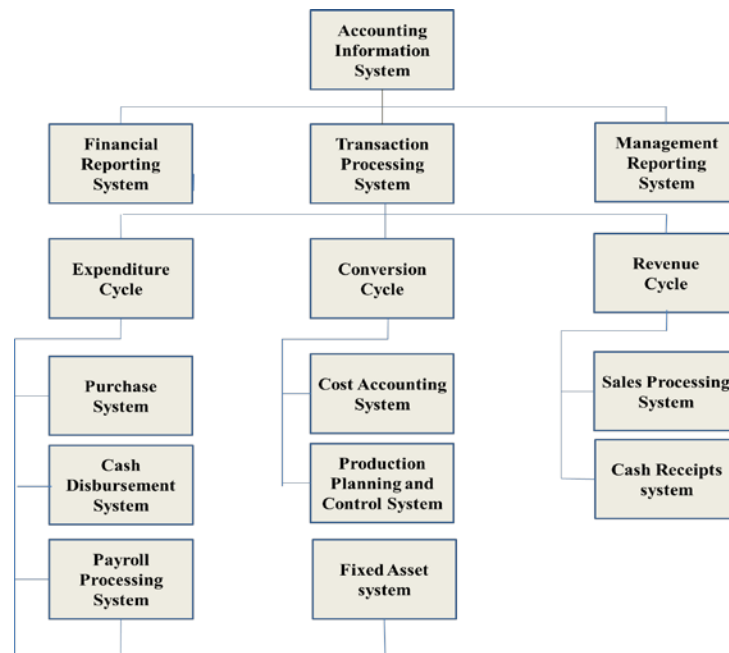
Despite the numerous advantages posed in an electronic accounting system significant risks relating to data loss, security breaches and integrity of the accounting information still ensues (Abu-Musa, 2006). These risks range from minor loss to overall information system destruction (Jouini, Rabai & Aissa, 2014). However, growing developments in technology provide possible way out. Figure 2.2 shows the accounting information system in a manual and electronic environment. From the framework, three major

systems characterised by accounting information system are financial reporting system, Transaction processing system and Management reporting system.

The transaction processing system is concerned with daily business operations. These operations require that data has to be captured, entered, stored, retrieved and processed on a day-to-day basis. The transaction processing system is vital to the overall function of the accounting system as it generates information that feeds the financial reporting system and management reporting system (Hall, 2013). Also important is the usefulness of the information in forecasting, identifying trends and measuring performance. On a daily basis, organisations generate large volumes of data that follows an operational procedure. Transactions will only be said to have been completed only when the procedures are concluded.

The manual accounting system cannot effectively support this processes in an efficient manner, unlike the electronic accounting system. For example in a retail environment where diverse items are for sale, tracking the stock of items might be difficulty except a physical stock count is taken in a manual accounting system. However, with an electronic accounting system quantity of goods can be viewed on a click. The subsystems characterised by the transaction processing system include expenditure cycle, conversion cycle and revenue cycle. Each of these cycles groups similar transactions. The expenditure cycle concerns with the flow of funds from the organisation to resource provider. This includes the purchase of raw materials, fixed assets and labour employed in the production of goods and services (Hall, 2013). The components of expenditure cycle include the purchase system, cash disbursement system, payroll processing system and fixed asset system.

The conversion cycle encapsulates the transformation of raw materials, labour and overhead into finished products and services ready for sale. Subsystems under the conversion cycle include cost accounting system, production, planning and control system. The revenue cycle involves the set of activities that results in the exchange of finished goods and services for cash as a result of the interaction between the seller and the buyer. Subsystems in the revenue cycle include sales processing system and cash receipts system.



**Figure 2.2: Accounting Information System in a Manual and Electronic Environment (Hall, 2011)**

## **2.5. Benefits of ICT Integration in the Accounting Process**

In relevant literature, the integration of ICT in accounting process significantly results in accounting benefits. Zakaria, Rahman and Elsayed (2011) examined the task performance outcomes in integrating ICT in accounting processes, the study found a positive effect of e-Accounting system integration on Auditing, Reporting, Controlling and Reporting task outcome. e-Accounting offers great recompense to both the financial and non-financial aspects of a firm (Spathis & Constantinides, 2004). From the financial aspect, Soudani (2012) found the usefulness of an automated accounting system on enterprise return on Assets and Equity. Likewise, Salehi, Rostami and Mogadam (2010) assert that the utilisation of accounting information system increases firm financial performance. Kanellou and Spathis (2013) highlights five major dimensions in which accounting benefits are derivable from the implementation of ICT in accounting processes.

The dimensions include; IT accounting benefits, operational accounting benefits (time), organisational accounting benefits, managerial accounting benefits and operational accounting benefits (cost). The sub-dimensions enumerated by Kanellou and Spathis (2013) define IT accounting benefits to include the gathering production and processing of data and information in a quick and easy manner. The operational accounting benefits in terms of time describe the ability of an information system in reducing time in closure

of monthly, quarterly and annually accounts in exacerbating the issuing of financial statements.

The organisational accounting benefits deal with the increasing flexibility in information generation, improvement in making decisions based on timely and reliable information, improvement in the quality of reports and improvement in internal audit function. The managerial accounting benefits concern the improvement in working capital control and increasing use of financial ratio analysis and reduction in time of issuing payroll. The operational accounting benefits in terms of costs delineate the reduction of the personnel in the accounting department. Table 2.2 highlights the different dimensions and sub-dimensions of accounting benefits in integrating ICT in the accounting process.

**Table 2.2: Dimensions of Accounting Benefits in Integrating ICT in Accounting Process**

N	Dimensions of Accounting Benefits	Sub-dimensions of Accounting Benefits
1	IT Accounting Benefits	The gathering of data in a quick and easy manner The production and processing of information in a quick and easy manner
2	Operational Accounting Benefits (time)	The reduction of time in closure of monthly, quarterly and annually accounts The reduction of time in issuing financial statements
3	Organisational Accounting Benefits	The increasingly flexibility in information generation Improvement in making decisions based on timely and reliable information Improvement in quality of reports – statements of account Improvement in internal audit function
4	Managerial Accounting Benefits	Improvement in working capital control The increasingly use of financial ratio analysis Reduction in time of issuing payroll
5	Operational Accounting Benefits (cost)	Reduction of the personnel in the accounting department

**Source: Adapted from Kanellou and Spathis (2013)**

Other benefits of integrating ICT in accounting processes are in respect of providing accurate and timely information required in improving decision making, efficiency, effectiveness, internal control structure (Romney & Steinbart, 2009). Empirically, Nicolaou (2000) affirms that the integration of ICT in accounting processes significantly contributes to monitoring effectiveness and accuracy of information output. On the

contrary, some studies did not find any strong effect of incorporating ICT in accounting processes. For instance, Soudani (2012) claims that an automated AIS does not contribute to performance management. Similarly Nicolaou (2000) iterates that the integration of AIS did not exhibit a strong effect on user information satisfaction. From the foregoing, it's evident that the integration of ICT in accounting processes can potentially benefit an enterprise both in the financial and non-financial aspects of the business. Table 2.3 shows prior empirical literature on the accounting benefits and the integration of ICT in accounting processes.

**Table 2.3: Prior Empirical Literature on the Accounting Benefits and the Integration of ICT in Accounting Processes**

<b>N</b>	<b>Country</b>	<b>Variables</b>	<b>Result</b>	<b>Source</b>
1	United Arab Emirate	Financial performance	The study found a significant relationship between Accounting information system and financial performance	Soudani (2012)
		Performance management	There is no connection between AIS and performance management	
2	Malaysia	Budgeting task performance	E-Accounting positively impact on budgeting task performance outcome.	Zakaria, Rahman and Elsayed (2011)
		Reporting task performance	The reporting task performance outcome has been increased by E-accounting	
		Auditing task performance	E-Accounting affects the auditing task performance outcome	
		Controlling task performance	There is a positive relation between e-Accounting and controlling task performance outcome	
3	Iran	Financial Performance	The utilisation of Accounting Information System increases financial performance	Salehi, Rostami and Mogadam (2010)
		Futuristic prediction	The implementation of AIS leads to better company future prediction.	
		Correctness of financial report	The integration of AIS enhances the correctness of company's financial report	
		Compliance with standards	AIS in use is not in harmony with Iranian Accounting Standards.	
		Information coverage	The incorporation of AIS in Iran does not provide enough information to all levels of management	
4	Greece	Monitoring effectiveness	AIS integration significantly contributed to perceptions of monitoring effectiveness	Nicolaou (2000)
		Accuracy of information output	AIS incorporation in an organisation significantly influences perceptions about the accuracy of information outputs.	
		User's Information satisfaction	The integration of AIS did not exhibit a strong effect on user information satisfaction.	



The integration of ICT in accounting processes can also boost the adoption of new accounting practice. Booth, Matolcsy and Wieder (2000) studied the impact of Enterprise Resource Planning (ERP) on accounting practice in Australia. The study found that ERP systems are capable of enhancing the adoption of new accounting practice in an enterprise. This was further corroborated by Granlund (2011), who noted that software vendors and implementation consultant play a huge role in accounting since accounting task can at least be programmed in other to conform to standard procedures.

In Nigeria, International Financial Reporting Standards (IFRS) was adopted in a proposition to speak the same language known and understood by international investors (Deloitte, 2012). The IFRS implementation roadmap was launched on 2<sup>nd</sup> September 2010; the roadmap mandates SMEs to statutory make report by December 31, 2014. On the other hand micro-entities that did not fall under IFRS for SME's criteria are required by Financial Reporting Council of Nigeria (FRCN) to report using the Small and Medium-Sized Entities Guidelines on Accounting (SMEGA) level 3 issued by the United Nations Conference on Trade and Development (UNCTAD) (Deloitte, 2012).

SMEs that make reports using IFRS can potentially benefit in areas of growing a firm that can be listed on the foreign stock market, capable of attracting talented finance personnel and understanding a global financial reporting language Marcellan (2009). However, SMEs in Nigeria are faced with numerous challenges capable of thwarting the effective implementation of IFRS (Adetula, Owolabi and Onyinye, 2014). Deloitte (2012) pointed out the poor record keeping practice and the use of unsophisticated accounting system by management of some reporting entities in Nigeria has made the conversion to IFRS a difficult task. Hence the integration of ICT in accounting process can aid the adoption of IFRS.

## **2.6. Threats in an Electronic Accounting Environment**

In recent times, technology has provided support to business activities. The accounting environment has also benefited immensely from this support. For instance, the alignment of technology with accounting has resulted in improved accuracy of data, timely processing of information, efficient financial reporting and increased functionality of the information system (Ghasemi, Shafeiepour, Aslani & Barvayeh 2011; Romney & Steinbart, 2009; Nicolaou, 2000). However, the relationship between technology and

accounting has presented certain threats that may hamper on user and stakeholder satisfaction.

Potential threats facing accounting information in an electronic environment are entangled as the presence of a threat includes the presence of another threat. Some of the threats identified in this review are information system risk and security. Information system risk entails data loss, privacy distortion, unavailability of system, dissatisfactions with system deliveries and performance and affordability of vendor pricing (Brandas Megan & Didraga, 2015).

Security in the electronic environment situates around the confidentiality availability and integrity of the system. This is vital to protect the system from illegal access, secures the authenticity of the information from being modified or deleted while assuring the users of the availability of the system in delivery, storing and processing of information as at when needed (Elmaghraby & Lasavio, 2014). In addition, the ability to protect the accounting system from external intrusion that can cause damage to the system hardware (through illegal clones or snooping of hardware designs), software (through bugs or deployment error), and the network system (through network monitoring or sniffing) is also vital (Jang-Jaccard & Nepal, 2014). Table 2.4 describes the dimensions of threats in an electronic accounting environment.

The classification of threats in an electronic environment is imperative to understand the vulnerabilities of using ICT in carrying out accounting transactions. Jouini, Rabai and Aissa (2014) classified threats in an electronic environment into threat source, agents, motivation, intentions and impacts. The source of threat concerns the internal and external source of threats in the organisation. The threat agents can consist of human, environment or technological agent. The motivation for carrying out a threat can be malicious or non-malicious. The intention of carrying out a threat can be deliberate or accidental. The impacts of threat in the organisation can lead to the destruction or corruption of information, disclosure of information to unauthorised party, theft or denial of service, removal of privilege and illegal use of information. Table 2.5 highlights the generic classification of threats in an electronic environment.

**Table 2.4: Dimensions of Threats in an Electronic Accounting Environment**

Threats	Dimensions and Meaning	Source
Security	<ul style="list-style-type: none"> <li>• Illegal access to information and attacks causing physical disruptions in service availability. This covers the confidentiality of the information, integrity and authenticity of the information and availability of the information for its use and services.</li> <li>• Confidentiality addresses the non-disclosure of information to unauthorised users or system.</li> <li>• Integrity stipulates the prevention of any modification or deletion of data in an unauthorised manner.</li> <li>• Availability is the assurance of the accessibility of the system for delivering, storing and processing information when needed and to those in need of them</li> </ul>	Elmaghraby and Lasavio (2014)
Risk	<ul style="list-style-type: none"> <li>• Critical aspects of risks in an electronic environment include data loss, distortion of privacy, system availability for business continuity, dissatisfaction with offerings, performance and pricing from vendors and legal and regulatory concerns</li> </ul>	Brandas, Megan and Didraga (2015)
External intrusions	<ul style="list-style-type: none"> <li>• Intrusion in information system causing harm to the hardware, software and network.</li> <li>• <i>Intrusions in hardware</i> include hardware Trojan, illegal clones and snooping hardware signals.</li> <li>• <i>Intrusions in software</i> include programming bugs, design bug and deployment error.</li> <li>• <i>Intrusion in network</i> include networking protocol attack, monitoring and sniffing</li> </ul>	Jang-Jaccard and Nepal (2014)
	<ul style="list-style-type: none"> <li>• Ability to guarantee safety to users without injury to life, property and rights.</li> </ul>	Elmaghraby and Lasavio (2014)

**Table 2.5: Generic Classification of Threats in an Electronic Environment**

	<b>Classification</b>	<b>Division</b>	<b>Meaning</b>
1	Threat source	Internal source	Authorised access to the system or network with either an account on a server.
		External source	Unauthorised access to the system or network via physical intrusion or partner network
2	Threat agents	Human agent	Human actions such as an insider or hacker causing risk or harm to the system
		Environmental agent	Natural disasters threats cause by rain, flood, earthquake, fire, wind or lightening. Also including riots, wars, terrorism, vandalism etc.
		Technological agent	System support equipment like power supply plant
3	Threat motivation	Malicious	Introduction of viruses, malware etc. by an internal or external party with the purpose of causing harm or disrupting the activities on the system
		Non-malicious	Incidence of poor internal control procedure carried out by ignorant parties
4	Threat intention	Intentional	Incidence of harmful decisions
		Un-intentional	Accidental modification of software as a result of programming error
5	Threat impacts	Destruction of information	Deliberate destruction of system components in order to interrupt operations
		Corruption of information	Unauthorized alteration or falsification of files stored or data in transit across a network
		Disclosure of information	Dissemination of information to authorized person
		Theft of service	Stealing of data, software or hardware
		Denial of service	Intentional blockage of computer or network resources
		Elevation of privilege	Using system weakness to access system such as guessing password.
		Illegal usage	Using system normal network to attack other system

**Source: Adopted from Jouini, Rabai and Aissa (2014)**

## **2.7. Organisational Determinants of e-Accounting System Implementation**

Organisational determinants of e-Accounting system implementation refer to those factors that impact on the implementation of e-accounting system in an organisation. These factors can stem from within the organisation and from outside the organisation. Nevertheless, this study emphasised on four major organisation determinants namely;

Owner/Manager, Technological, Business and External factors that can affect the adoption of e-Accounting system.

### ***2.7.1. Owner's /Manager's Characteristics and e-Accounting System Implementation***

In MSEs, the choice of adopting e-Accounting is directly affected by the top management. The top management in this case is the owner or manager of the enterprise (Seyal, Rahim & Rahim, 2000). Mostly, the Owner/Manager conceived the idea of the business and as such have a clear understanding of its objectives, directions, mission and vision than anyone else (Thong, 1999). These peculiarities drive the attitude and motivation of the individual in making decisions regarding the daily functions and future investments of the business (Bruque & Moyano, 2007; Nguyen, 2009).

In the literature, several factors constitute the Owner's/ Manager's characteristics', these factors include Owner's/Manager's attitude, educational level, experience, innovativeness, knowledge and commitment (Nayak & Greenfield, 1994; Padachi, 2012). Hussin, King and Cragg (2002) iterate that Owner/manager with IT knowledge is easily disposed to adopting existing and new technologies in Small business operations. In the same context, SMEs Owners/Managers possessing sufficient knowledge in both IT and accounting would be in a better position to understand the organisation's AIS requirement than those without this knowledge (Ismail & King, 2007). This knowledge would be an advantage in the efficient process of adopting e-Accounting system.

The study of Caldeira and Ward (2003) submit that owner/ manager who possesses a positive attitude towards the adoption of IT would relatively succeed in adopting IT in their business processes. The attitude of the Owner/manager can be influenced by the perception of the benefits the business stands to gain by adopting IT, Consequently, if the perceive benefit of adopting an information technology outweighs the costs, and then the business is more likely to adopt IT (Thong & Yap, 1995). Another component of Owner/Manager that has been argued to be a key indicator in the successful adoption of IT in Small business operation is Owner/Manager commitment (Fink, 1998; Thong, 2001; Ghobakhloo, Zulkifli & Azizi, 2010). Specifically, Cragg and Zinatelli (1995) iterate that one major problem faced by small firms in internalising IT in their operations is the inadequate attention given to it by management.

On the contrary, Thong, Yap and Raman (1993) and Thong, Yap and Raman (1997) state that there is no relation between the adoption of IT and the level of Owner/manager support, adding that there is no difference between small business with high levels of top management support and small business with low levels of top management support. In addition, the owner's/manager's have the authority to ensure sufficient allocation of resources for the project (de Guinea, Kelley & Hunter, 2005), and participation in the computerisation projects would encourage employee to develop interest and positive attitude towards e-Accounting.

Prior studies on organisation management have found an association between age and organisation strategic change. Bantel and Jackson (1989) observe that younger managers are more inclined to adopt new ideas and behaviours' than older managers. Additionally, older managers are less likely to undertake risky projects as such would rather support the status quo (Hambrick & Mason, 1984; Wiersema & Bantel, 1992) The complexity of adopting an e-Accounting system can pose a difficult challenge to older manager/owner of MSEs, hence may make the adoption process unattractive.

The level of manager/owner education has been iterated to contribute to the adoption of IT. Hambrick and Mason (1984) provide that education helps to shape an individual cognitive base. High educational attainments are associated with higher capability for information processing (Schroder, Driver & Streufert, 1967). Also, the level of an individual education shows the individual cognitive ability and skill (Wiersema & Bantel, 1992). A higher educational level attained by MSEs owners/manager indicates the level at which technologies will be received (Becker, 1970; Kimberly & Evanisko, 1981). Wiersema and Bantel (1992) found that individuals with high educational qualification are responsive to the need for change in corporate strategy.

From the aforementioned, the characteristics of the Owner/Manager are pivotal in the implementation of e-Accounting amongst MSEs. Table 2.6 shows the empirical findings on indicators of Owner/Manager Characteristics in the implementation of e-Accounting.

### ***2.7.2. Technological Characteristics and e-Accounting System Implementation***

In the context of MSEs, the nature of the proposed accounting system can accelerate the implementation of e-Accounting system. Rogers (1985) proposed that the decision to

adopt or reject an innovation is hinged on the perception of individuals on the nature of the innovation. Prior research on innovation found an association between the perception of users towards the relative advantage, compatibility and complexity of the proposed information system characteristics (Thong, 1999). The relative advantage suggests the level to which an information system is perceived to surpass the existing one (Rogers 1985). Thong (1999) assents that small business owners are encouraged to use a new technology when a good return is perceived from the use.

**Table 2.6: Owner/Manager's Characteristics and Integration of ICT in Accounting Processes**

<b>Organisational Determinants</b>	<b>Variables</b>	<b>Findings</b>	<b>Source</b>
Owner's/ manager's characteristics	Owner/Manager IT Knowledge	Owner/manager's knowledge computer based applications significantly influence AIS alignment	Ismail and King (2007)
		Owner/manager's IT knowledge is not significantly related to AIS alignment	Hajiha and Azizi (2011)
	Owner/Manager Accounting Knowledge	Owner/manager's knowledge in financial and management accounting impact on AIS alignment	Ismail and King (2007)
		Owner/manager's accounting knowledge is significantly related to AIS alignment	Hajiha and Azizi (2011)
	Owner/Manager Commitment	In the different stages of commitment, the level of owner/manager commitment in solving problem stage is significant in AIS alignment while the stages of information requirements, choice of hardware and software, system implementation and future plans are not significant in AIS alignment	Ismail and King (2007)

The compatibility of an e-Accounting system to the user is the degree to which the system is consistent with the user needs, past experience and existing values. Zhu, Dong, Xu and Kraemer (2006) see compatibility as the level to which an innovation is consistent with

business processes, corporate culture, value system and distribution channels. Al-Majadi and Mat (2011) state that the higher the adopter perceives the innovation is consistent with the business need the faster the adoption process. An innovation is regarded as being complex if the innovation is difficult to adopt by the intending user. Thong (1999) expects that a perceived complex information system will influence the decision to adopt negatively.

Another organisational determinant to the implementation of e-Accounting system is the cost. Zhu, Dong, Xu and Kraemer (2006) identify that the cost of any technology can inhibit its adoption. Furthermore, Zhu *et al.* (2006) see the cost of any technology as the total expenses incurred in putting the necessary technologies in to operations and the effort puts in place in restructuring the organisation to accommodate the new technology. Table 2.7 shows the empirical findings on indicators of Technological Characteristics in the implementation of e-Accounting system.

**Table 2.7: Technology Characteristics and Integration of ICT in Accounting Processes**

<b>Organisational Determinants</b>	<b>Variables</b>	<b>Findings</b>	<b>Source</b>
Technological characteristics	Relative advantage	The relative advantage of spreadsheet templates and models compared to manual worksheets were important drivers of spreadsheets infusion.	Pongpatrachai, Cragg and Fisher (2013)
	Ease of use	The ubiquity of spreadsheets and the ease with which staff were able to use them contributed to the usage	

### ***2.7.3. Business Characteristics and e-Accounting System Implementation***

The peculiar nature of MSEs is identifiable in their business characteristics. These business characteristics differentiate one MSE from another. The size, age, international affiliation, and engagement of external auditor can influence the implementation of an e-Accounting system. Enterprise Size has been found to have a significant implication on e-Accounting system (Hajira & Azizi, 2011). Relatively, MSEs are small in size compared to larger companies. Nevertheless, the disparity amongst these enterprises in relation to



size cannot be ignored. For instance, larger enterprises perceive ICT to be of more relevance to their enterprise functions, and thus invest in IT equipment and infrastructure required for the business use than smaller enterprises (Winston & Dologite, 1999). Thong (1999) posits that small businesses are resource poverty as such lack the professional expertise, vulnerable to external forces and financially constrained to adopt any technological innovation.

The age of a firm suggests the number of years the firm has been in existence from the time it was started. The length of time at which a business has been in existence can influence the implementation of an e-Accounting system. Padachi (2012) relates the age of an enterprise to the business life cycle model as such regarded the young firms as firms not requiring an elaborate system of recording. The business life cycle model classified business into infant, growth, expansion, matured and decline stage.

The international affiliation of MSEs depicts the link the enterprise has with other international business entities. The connection the business has with other international organisation can influence the need to adopt technology (Dewan, Micheal & Min 1998). Hitt, Hoskisson and Kim (1997) proposed that the greater the business scope, the greater the demand for IT. International affiliation facilitates access to knowledge, expertise and networks (Athanassiou & Nigh, 1999). The access to knowledge, expertise and networks opens MSEs to the foreign market and culture which increase the propensity to adopt e-Accounting. Table 2.8 shows the empirical findings on indicators of Business Characteristics in the implementation of e-Accounting system

#### ***2.7.4. External Characteristics and e-Accounting system Implementation***

The input of the external contexts in accelerating the implementation of e-Accounting is very important. The operations of MSEs are being influenced by some externalities; the external characteristics identified in this research include government support, customer pressure, competitors' pressure, external expertise and membership of a registered association. In developing economies like Nigeria, the support of government is of great importance (Yap & Thong, 1999) since the government has a responsibility in providing a secure and conducive business environment for MSEs to operate (Padachi, 2012). Government support can come in form of legislations and regulations.

**Table 2.8: Business Characteristics and Integration of ICT in Accounting Processes**

<b>Organisational Determinants</b>	<b>Indicators</b>	<b>Findings</b>	<b>Source</b>
Business Characteristics	Firm Size	Smaller firms align to AIS more than larger firms	Ismail and King (2007)
		Business size has a significant impact on AIS alignment.	Hajiha and Azizi (2011)
	Internal Expertise	IT competence of audit staff have the most influence on spreadsheet infusion	Pongpatrachai, Cragg and Fisher (2013)
		The presence of an IT senior manager/ partner actively involved in promoting the vision of using spreadsheets was a significant factor in infusing spreadsheets	Pongpatrachai, Cragg and Fisher (2013)
		The employment of accounting staff is not significant to AIS alignment	Ismail and King (2007)
		The employment of information system staff significant affects AIS alignment	Ismail and King (2007)
		Internal information system personnel significantly influence the alignment of e-Accounting system.	Hajiha and Azizi (2011)
		Middle level Managers is significant to the use of AIS	Salehi and Abdipour (2013)
	Organisation Structure	Organisation structure can hinder the use of e-Accounting	Salehi and Abdipour (2013)
	Financial Constraints	Financial constraint is a barrier to the use of e-Accounting	Salehi and Abdipour (2013)
	Staff Turnover	Staff turnover resulted in a regular loss of IT knowledge and skills at all levels, thereby limiting spreadsheet infusion.	Pongpatrachai, Cragg and Fisher (2013)

Competitor's pressure implies the extent to which a business is being pushed to adopt e-Accounting based on the influence of other businesses. Porter and Millar (1985) iterates that the adoption of information systems puts an enterprise at a better advantage to change the industry makeup, set new competition rules and initiates new businesses. Previous

researches confirm that intense competition is significantly linked to the adoption of IT (Thong, 1999; Wanjau, Macharia & Ayodo, 2012). In the implementation of e-Accounting the availability of external expertise can be a vital component to adoption.

External expertise in the implementation of technology has been identified in literature as; Vendor support, Consultant support and Information system community support (Thong, Yap & Raman, 1997; Ven & Verelst, 2009; Baker, Al-Ghahtani & Hubona, 2010). In specific, Thong *et al.* (1997) highlighted that the support from the external expertise is in the provision of services needed in the effective implementation of the information systems. Previous researches confirm the relationship between information systems adoption and level of consultant effectiveness (Gable 1991; Soh 1995; Yap, Thong & Raman, 1994).

Table 2.9 shows the empirical findings on the indicators of External Characteristics in the implementation of e-Accounting system.

Table 2.10 shows a summary of prior empirical studies on organisational determinants of technology usage in MSEs. The determinants of technology usage in an organisation have been reported in Literature (Wanjau, Macharia and Ayodo, 2012; Mashanda, Cloete and Tanner, 2012; Alam, Omar, Mohd and Hisham, 2011). The use of technology finds applicability in both real and service sectors of an economy. Wanjau et al. (2012) identified leadership characteristics, organisational resources, infrastructure, competition and technological positioning as significant determinants of adopting electronic commerce in SMEs.

In furtherance to this, Al-somali, Gholami and Clegg (2011) found significant support for internal and external components in enabling the use of ICT in business to consumer e-commerce in Saudi Arabia. Component comprising of organisational IT readiness, Top management support, strategic orientation, customer pressure, regulatory environment and national readiness are significant in adopting business-to-customer e-commerce. In the same vein, critical factors of adopting business-to-consumer e-commerce amongst SMEs in Zimbabwe are technological, environment and organizational components (Mashanda, Cloete and Tanner, 2012)

**Table 2.9: External Characteristics and Integration of ICT in Accounting Processes**

<b>Organisational Determinants</b>	<b>Indicators</b>	<b>Findings</b>	<b>Source</b>
External Characteristics	Consultant Support	Support from hired external consultants or membership of firm networks and strategic alliances facilitates the use of spreadsheets.	Pongpatrachai, Cragg and Fisher (2013)
	Consultant Support	The use of external consultant do not significant impact on AIS implementation	Ismail and King (2007)
	Vendor Support	The use of external vendor do not significant impact on AIS alignment	Ismail and King (2007)
	Government Support	The advice sought from relevant Government Agencies significantly impact on AIS alignment	Ismail and King (2007)
		The role of Government do not significant affect AIS implementation	Hajiha and Azizi (2011)
	Accounting Firms Support	Professional and academic institutes were vital to spreadsheets usage	Pongpatrachai, Cragg and Fisher (2013)
		The advice from Accounting firms significantly impact on AIS alignment	Ismail and King (2007)
		The relationship with accounting firms do not significant impact on AIS implementation	Hajiha and Azizi (2011)
	Supplier's Request	The use of supplier do not significant affect AIS implementation	Hajiha and Azizi (2011)
	Customer/ Client Pressure	Client characteristic as regards size posed a significant enabler and inhibitor in spreadsheets infusion.	Pongpatrachai, Cragg and Fisher (2013)
	Environmental factors	Environmental factors can limit the establishment of AIS	Salehi and Abdipour (2013)

Regarding determinants of information system implementation in SMEs, critical success factors have been associated the managerial support and external expertise (de Guinea *et al.*, 2005). Thong (2001) notes that CEO Support, user's involvement, Information System investment, user's information system Knowledge and external expertise

facilitates the implementation of information system in SMEs. Likewise, the effectiveness of the information system, consultant effectiveness and vendor Support are precarious for the success of information system implementation (Thong, Yap & Raman 1994).

**Table 2.10: Prior Empirical Studies on Organisational Determinants of Technology usage in MSEs**

N	Country	Paper title	Variables	Result	Source
1	Kenya	Factors affecting Adoption of Electronic Commerce among Small Medium Enterprises in Kenya: Survey of Tour and Travel Firms in Nairobi	Leadership Characteristics	Significant	Wanjau, Macharia and Ayodo, (2012)
			Resources	Significant	
			Infrastructure	Significant	
			Competition	Significant	
			Technological Positioning	Significant	
2	Zimbabwe	An analysis of factors affecting the adoption of business-to-consumer e-commerce by SMEs in developing countries - case study: Zimbabwe	Technological factors	Significant	Mashanda , Cloete and Tanner (2012)
			Environmental factors	Significant	
			Organisational factors	Significant	
3	Saudi Arabia	Determinants of B2B e-commerce adoption in Saudi Arabian firms	Organisational IT readiness	Significant	Al-somali, Gholami and Clegg (2011)
			Top management Support	Significant	
			Strategic Orientation	Significant	
			Customer Pressure	Significant	
			Regulatory environment	Significant	
			National readiness	In significant	
4	Malaysia	Applying the Theory of Perceived Characteristics of Innovating (PCI) on ICT Adoption in the SMEs in Malaysia	Relative advantage	Insignificant	Alam, Omar, Mohd and Hisham, (2011)
			System compatibility	Significant	
			Perceived ease of use	Significant	
			System security	Significant	
			Image	Significant	

N	Country	Paper title	Variables	Resul	Source
5	Canada	Information Systems Effectiveness in Small Businesses: Extending a Singaporean Model in Canada	Managerial support	Significant	de Guinea <i>et al.</i> (2005)
			External Expertise	Significant	
6	Singapore	Resource constraints and information systems implementation in Singaporean small businesses	CEO Support	Significant	Thong (2001)
			User's Involvement	Significant	
			IS Planning	Insignificant	
			IS investment	Significant	
			User's IS Knowledge	Significant	
			External Expertise	Significant	
7	Singapore	Engagement of External Expertise in Information Systems Implementation	IS Effectiveness	Significant	Thong , Yap and Raman (1994)
			Consultant effectiveness	Significant	
			Vendor Support	Significant	

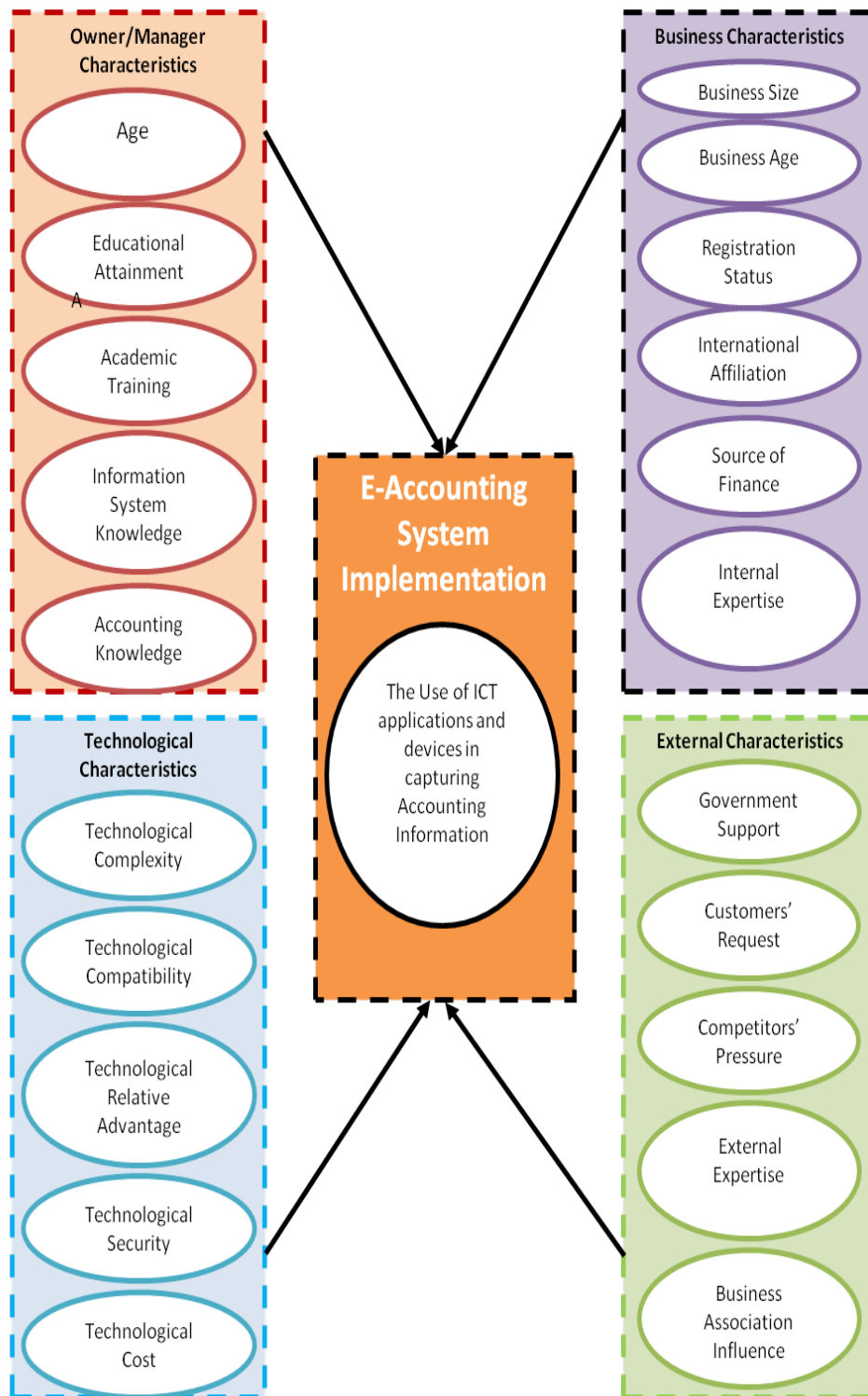
## 2.8. A Model for Decomposing the Organisational Determinants and e-Accounting System Implementation.

In this study, the Organisational determinants of implementing e-Accounting system in MSEs was decomposed into four major groups, namely Owner/Manager Characteristics, Technological Characteristics, Business Characteristics and External Characteristics. The Owner/Manager Characteristics constitutes the personal characteristics of the Owner/Manager that drives the implementation of e-Accounting system.

The personal characteristics of the Owner/Manager to be examined in this study are the Owner/Manager Age, Educational Attainment, Academic Training, Information System Knowledge and Accounting Capability. The Technological Characteristics is conceptualised as the peculiar properties of the technology for adopters or the perceived properties of the technology for non-adopters in carrying out accounting processes. The properties of the technology considered in the study include the Technology Complexity, Compatibility, Relative Advantage, Security and Cost.

The Business Characteristics are the features that differentiate a business from another. These features are the Business Size, Age, Registration Status, International Affiliation,

Source of Finance and Presence of internal Expertise. The External characteristics are components outside the organisation that determines the likelihood of implementing e-Accounting system. These components are Government Support, Customers' request, Competitors' pressure, presence of External expertise and Business Association influence. Figure 2.3 shows the conceptual model for decomposing the Organisational Determinants and e-Accounting system implementation.



**Figure 2.3: Conceptual model of Organisational determinants and implementation of e-Accounting**



## **2.9. The Concept of Micro and Small Enterprises.**

The concept of MSEs covers a variety of firms and loosely used in literature. In this respect, a uniform definition has not been achieved by researchers and operators in the field. However, the term varies significantly across countries depending on the specific country attributes like size, state of economic development, strength of the industrial sector, and specific problem experienced by MSMEs (Babajide, 2011). The problem of definition becomes more difficult due to the dynamic nature of MSEs (Ayozie, 2011). MSEs have penetrated all sectors of production in the economy ranging from agro allied, solid mineral mining/processing, electronics, manufacturing, merchandising, trading, telecommunication information and communication technology.

Munoz (2010) points out that micro-enterprise comprise the smallest end in size of the small business sector and constitute the vast majority of the small business sector in both developed and developing countries. Kibly (2000) referred to micro businesses as a quasi-sponge for rural employment and provider of inexpensive consumer goods with little or no imports content that improves the industrial output of the country. Peterson, Albaum and Kozmetsky (1986) opine that these enterprises are independently owned and not dominant in the field in which they operates. De-Gobbi (2003) sees small enterprises as enterprises that lack sufficient collateral to cover the high risks involved in managing a business, yet operating with a high transaction costs.

However, international organization such as the World Bank (2001) sees micro enterprises as those that require small amounts of capital to establish, a small number of employees or in most cases individually handled by the owner. In addition these enterprises are characterised to utilise crude technology and intensified with labour. Other interested parties have used specific criteria in identifying MSEs. Parameters such as asset base, number of workers employed and annual turnover are being used to classify MSMEs. Carpenter (2001) iterated that MSEs in Nigeria can be classified based on one or all of these parameters

In Nigeria, the diversity in MSEs definition is also traceable to the different institutions that support and regulate their activities. These institutions include; Federal Ministry of Industries, Central Bank of Nigeria (CBN), Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), Nigeria Bank of Commerce and Industry (NBCI), Centre

for Industrial Research and Development (CIRD), Nigerian Association of Small-Scale Industrialist (NASSI), Federal Ministry of Industry (FMI) and the National Economic Reconstruction and Fund (NERFUND).

For instance, Small and Medium Enterprise Development Agency of Nigeria (SMEDAN, 2013) classifies Micro enterprise as enterprises employing less than 10 workers with total asset of not more than ₦5 Million excluding cost of land and building; Small enterprise as enterprises with labour size between 10 to 49 work force and total asset of over ₦5 Million but not more than ₦50 Million excluding the cost of land and building while Medium enterprise as enterprise comprising of 50 to 199 workers with total asset of over ₦50 Million but not more than ₦500 Million, excluding the cost of land and building.

Small and Medium Industry Equity Investment Scheme (SMIEIS) of the bankers committee delineates micro/cottage industry as an industry with work force of not more than 10 workers with capital employed of not more than ₦1.5 million excluding cost of land and working capital; small scale industry employing 10 to 100 workers with capital employed of over ₦1.5 million but not more than ₦50 million excluding the cost of land and working capital while medium scale industry as an industry with employing between 100-300 workers with capital employed of over ₦50 million but not more than ₦200 million excluding cost of land and working capital.

Central Bank of Nigeria (CBN) classifies Small enterprise as enterprises with labour size less than fifty and total asset less than ₦1Million and Annual turnover less than ₦1Million. National Economic Reconstruction and Fund (NERFUND) delineates Small Enterprises as enterprises with less than ten million naira in total assets. Nigerian Association of Small-Scale Industrialist (NASSI) describes small enterprise as enterprise with labour size between three and thirty five workers with total Assets and Annual turnover less than forty million naira.

National Association of Small and Medium Enterprises (NASME) defines Micro enterprise as enterprises employing less than 10 workers with total asset of less than one Million naira excluding cost of land and building and Annual Turnover of less than ten million naira. Small enterprise as enterprises with labour size less than fifty workers with total asset of less than fifty Million and Annual turnover of less than one hundred million

naira excluding the cost of land and building. Federal Ministry of Industry (FMI) delineates Micro enterprise as enterprise with less than ten employees. Small enterprise as enterprise with employees less than one hundred with Total assets less than Fifty million Naira.

**Table 2.11: Classification of Micro and Small Enterprises (MSEs) by some Nigerian Institutions**

	Parameters	No. of Employees		Total Assets (N' m)		Annual Turnover (N' m)	
N	Institutions	McE	SE	McE	SE	McE	SE
1	CBN	n.a	<50	n.a	<1	n.a	<1
2	NERFUND	n.a	n.a	n.a	<10	n.a	n.a
3	NASSI	n.a	3-35	<1	<40	n.a	<40
4	NASME	<10	<50	<1	<50	<10	<100
5	FMI	<10	<100	n.a	<50	n.a	n.a
6	SMIEIS	n.a	n.a	-	-	-	-

**McE:** micro-sized enterprises; **SE:** small-sized enterprises; **CBN:** Central Bank of Nigeria; **NERFUND:** National Economic Recovery Fund; **NASSI:** National Association of Small-scale Industries; **NASME:** National Association of Small and Mediumsized Enterprises; **FMI:** Federal Ministry of Industry; **SMIEIS:** Small and Medium Industries Equity Investment Scheme; n.a: not available

**Source: Adapted from World Bank (2001)**

## **2.10. The Orientation of Micro and Small Enterprises in Developing Countries**

MSMEs play a vital role in both developed and developing country economies (Mead and Liedholm 1998). In these economies vast majority of firms are MSEs. For example, approximately 97% of firms in Mexico and Thailand are MSEs (Simmons, 2004). In the United States, over 96% of businesses have fewer than 50 employees (US Small Business Administration , 2006). In African countries, MSMEs has significantly provided close to half of the total employment (Liedholm and Mead, 1999), While accounting for about 45% of formal employment in developing countries (Ayyagari, Beck, & Demirguc-Kunt, 2007). Official statistics frequently underestimate the number of micro and small enterprises, leading some researchers to argue that actual figures may be twice as high as what is reported (Mead & Liedholm, 1998).

Furthermore, MSEs are regarded as reflections of entrepreneurial spirit, generators of employment, engines of innovation, promoters of the effective utilisation of resources, potential source of increasing total savings in the economy, bringing about economic growth and development (Oguijiuba and Ohuche, 2004; Bauchet and Morduch, 2013). As

a result of this, there is need to develop the MSMEs in developing countries into a global player capable of supporting all these activities. The role of MSMEs in the economic development of developing countries cannot be over emphasised. Statistically, MSMEs contributes substantially to employment creation and economic output in many countries. Their share of overall employment tends to be higher in developing countries, which are typically more focused on small-scale production (Tybout, 2000). Studies in five African countries (Botswana, Kenya, Malawi, Swaziland, and Zimbabwe) found that MSEs generate nearly twice the level of employment than registered, large-scale enterprises and the public sector (Mead & Liedholm, 1998). An ILO study (2003) examining firms with fewer than 10 workers found that they generated 58% of total employment in Paraguay, 54% in Mexico, and 53% in Bolivia. In many Latin American countries, micro and small enterprises employ over half the working population. With respect to economic output, the contribution of the MSE sector varies considerably across countries. MSEs contribute approximately 31% of overall GDP in the Dominican Republic, 13% in Kenya, and 11% in Pakistan (Daniels, 1999). Official statistics may underestimate MSEs' contribution to GDP—for example, some experts argue that Kenyan MSEs actually generate 40% of GDP, not 13% (Daniels, 1999).

Challenges faced by SMEs in developing countries include financial constraint, technological backwardness, low level of human resource skills, weak management systems and entrepreneurial capabilities, unavailability of appropriate and timely information, insufficient use of information technology and poor product quality. Consequently, the economic contribution of SMEs in these countries is currently far behind compared to developed countries (Altenburg & Eckhardt, 2006; Asian Productivity Organization, 2011).

Accordingly, low level of performance in SMEs sector is one of the key issues in most of the developing countries though they are expected to play a critical role in their economies, and the current globalised competitive rivalry has multiplied the importance of the issue. Financial constraint has been identified as the most significant challenge in developing countries, the challenge of accessing bank credit is more prominent in sub-Saharan African Countries (SSACs), this is attributed to the inability of the business owners to provide quality information needed in processing bank credit (Boateng, 2013)

MSMEs has been classified using different yardsticks. Nichter and Goldmark (2009) defined MSEs as firms with up to 50 workers that engage in non-primary activities and sell at least half of their output. A compilation by Kushnir, Mirmulstein and Ramalho (2010) reflects the classification of MSMEs in some developing economies. The Ministry of Trade and Industry in Botswana classified Micro Enterprises as enterprises employing less than five workers. Small Enterprises as enterprises having between six and twenty-five workers. Medium Enterprise as enterprises having between twenty-six and hundred workers. In terms of total assets in US dollars, Micro Enterprises have about eleven thousand dollars in total assets. Small Enterprises have between eleven thousand dollars and two-hundred and seventy thousand dollars in total assets. Medium Enterprise have between two-hundred and seventy thousand dollars and Nine hundred thousand dollars in.

The Ministry of Commerce in Burkina Faso defined SMEs in general as one having between five to ten employees. Cambodia SME sub Committee classified Micro Enterprises as enterprises employing less than eleven workers. Small Enterprises as enterprises having between eleven and fifty workers. Medium Enterprise as enterprises having between fifty-one and hundred workers. In terms of total assets in US dollars, Micro Enterprises have about fifty thousand dollars in total assets. Small Enterprises have between fifty thousand dollars and two-hundred and fifty thousand dollars in total assets. Medium Enterprise have between two hundred and fifty thousand and five-hundred thousand dollars in total assets.

Colombia National Legislature classifies Micro Enterprises as enterprises employing less than ten workers. Small Enterprises as enterprises having between eleven and fifty workers. Medium Enterprise as enterprises having between fifty-one and hundred workers. The El Salvador Ministerio de Economía classified Micro Enterprises as enterprises employing less than ten workers. Small Enterprises as enterprises having less than fifty workers. Medium Enterprise as enterprises having less than one-hundred workers. In terms of total asset in US dollars, Micro Enterprises having less than one-hundred thousand dollars in total assets. Small Enterprises have less than one-million dollars in total assets. Medium Enterprise have less than seven-million dollars in total assets.

The Ministry of Economy and Trade in Lebanon classifies Micro and Small Enterprises as enterprises employing less than two-hundred workers. In terms of total asset in US

dollars, Small and Medium Enterprise having less than five thousand dollars in total assets. The Mauritius Central Statistics office defined Small enterprise as enterprise employing less than nine workers. Medium enterprises as enterprise employing between ten and fifty workers. The Nigeria National Council on Industry defined SMEs as enterprise with less than ten workers, Small enterprise as enterprise having between eleven and one hundred workers while Medium enterprises as enterprise having between one hundred and three hundred workers. The private sector in Rwanda classifies Micro enterprise as enterprise having between one and ten workers. Small enterprise as enterprise having between eleven and thirty workers while Medium enterprises as enterprise having between thirty one and hundred workers.

The national legislature in Trinidad and Tobago defines Micro Enterprises as enterprises employing less than five workers. Small Enterprises as enterprises having between six and twenty five workers. Medium Enterprise as enterprises having between twenty six and fifty workers. In terms of total asset in US dollars, Micro Enterprises having less than two hundred and fifty thousand dollars. Small Enterprises have between two fifty thousand dollars and one million and five hundred thousand dollars. Medium Enterprise have between one million and five hundred thousand dollars and five million dollars in total assets.

**Table 2.12: Classification of Micro, Small and Medium Enterprises (MSMEs) by some Institutions in Developing Countries**

N	Countries	Institutions	No. of Employees			Total Assets/Turnover (US \$'000)		
			McE	SE	ME	McE	SE	ME
1	Botswana	Ministry of Trade and Industry	≤ 5	6 -25	26-100	11	11-270	270- 900
2	Burkina Faso	Ministry of Commerce	Defines SMEs in general as one with 5-10 employees					
3	Cambodia	SME sub Committee	< 11	11-50	51-100	50	50-250	250-500
4	Colombia	National Legislature	≤10	11-50	51-100	-	-	-
5	El Salvador	Ministerio de Economía	<10	<50	<100	<100	<1000	<7000
6	Lebanon	Ministry of Economy and Trade	-	<200	<200	-	<5	<5
7	Mauritius	Central Statistics Office	-	<9	10-50	-	-	-
8	Nigeria	National Council on Industry	<10	11-100	101-300	-	-	-
9	Rwanda	Private Sector Federation	1-10	11-30	31-100	-	-	-
10	Trinidad and Tobago	National Legislature	1-5	6-25	26-50	<250	250-1,500	1500-5000

McE; micro-sized enterprises; SE: small-sized enterprises; ME: Medium enterprises

**Source: Adapted from Kushnir *et al.* (2010)**

## **2.11. The Orientation of Micro and Small Enterprises in Nigeria**

MSEs play a vital role in both developed and developing country economies. For instance, they are regarded as reflections of entrepreneurial spirit, generators of employment, increasing per capital income, promoting the effective utilization of resources, potential sources of increasing total savings in the economy, bringing about economic growth and development (Oguijiuba & Ohuche, 2004). As a result of this, there

is need to develop the MSEs in Nigeria into a global player capable of supporting all these activities. The role of MSEs in the economic development of Nigeria cannot be over emphasized. Statistically MSEs dominates up to 75percent of the private sector companies (Akande, 2011), constitutes over 80percent of all registered companies (Ayozie, 1997), accounts for over 93percent of the total entrepreneurs (Eke, 2007), make up about 95percent of industrial enterprise (Peter & Inegbenebor, 2009).

Despite the economic role played by MSEs they are faced with numerous challenges. Several studies highlighted that these challenges span from their inability to access capital (Peter & Inegbenebor, 2009), Lack of infrastructural support (Oduyoye, Adebola & Binuyo, 2013), Poor accounting skill (Akande, 2011), lack of technology use (Padachi, 2012) and low educational attainment (Oyelaran-Oyeyinka, 2003). The study identified infrastructural, human, financial, technological, managerial and governmental challenges from empirical literature as major challenges facing SMEs. Infrastructural components hindering the growth of SMEs in Nigeria include lack of water supply, improper solid waste management system, unstable power supply, lack of accessible road network (Oduyoye, 2013; Kadiri, 2012; Adejuyigbe and Dahunsi 2010; Christopher, 2010). Inability of SME to secure finance in doing business has been identified as a constraint to the growth of SMEs. The challenge of securing finance stems from difficulty in obtaining loan, high interest rate on loan, inadequate financial support from government and financial institution and stringent financial policy (Mohammed & Obeleagu-Nzelibe, 2014; Osotimilehin, Jegede, Akinlabi & Olajide, 2012; Adejuyigbe & Dahunsi, 2010; Olutunla & Obamuyi, 2008; Asuquo, Effiong, Tapang & Tiesieh (n.d).

Other challenges faced by SMEs in Nigeria are inability to employ skilled human capital, high cost of procuring operational equipment and facilities, lack of financial transparency, lack of accounting skill, poor managerial skill, multiple taxation and Poor government policy (Osotimilehin *et al.*, 2012; Mohammed & Obeleagu-Nzelibe, 2014; Akande 2011; Adejuyigbe & Dahunsi 2010; Agwu & Emeti 2014). Table 2.12 highlights some of the challenges faced by MSEs in Nigeria from empirical studies.



**Table 2.13: Challenges faced by MSEs in Nigeria**

<b>Challenges</b>	<b>Areas of challenges</b>	<b>Source</b>
Infrastructural challenges	Improper Solid Waste Management system	Kadiri (2012)
	Lack of Security	Adejuyigbe and Dahunsi (2010)
	Lack of Electricity Lack of good Road Network Lack of Training Institutions	Christopher (2010)
Human capital challenges	Inability to employ skilled human capital.	Mohammed and Obeleagu-Nzelibe (2014)
Financial challenges	Difficulty in obtaining loan	Mohammed and Obeleagu-Nzelibe (2014)
	High interest rate on loan	Osotimilehin, Jegede, Akinlabi and Olajide (2012)
Financial challenges	Inadequate Financial support from government and financing institution	Adejuyigbe and Dahunsi (2010)
	Stringent financing policy Inability to access credit	Olutunla and Obamuyi (2008)
	Inefficient Financial management practice	Asuquo, Effiong, Tapang and Tiesieh (n.d)
Technological challenges	High cost of procuring operational equipment and facilities	Osotimilehin <i>et al.</i> (2012)
Owner/Managerial challenges	Lack of financial transparency	Mohammed and Obeleagu-Nzelibe (2014)
	Lack of Accounting Skill	Akande (2011)
	Poor managerial skill	Adejuyigbe and Dahunsi (2010)
Government policy challenges	Multiple taxation	Agwu and Emeti (2014)
	Poor government policy	Mohammed and Obeleagu-Nzelibe (2014)

Government in different countries have intervened in the challenges faced by MSEs. These interventions have been in the area of institutional support, tax concessions, technological acquisition, liberalized access to credit and training in relevant skills (Obadan & Agba, 2006). In this regard the Nigerian Government has also taken various steps. The steps taken to combat the problems faced by MSMEs dates as far back as before 1960 independence.

Prior to the independence, Nigerian business environment was dominated by the European Multinational companies like United African Company (UAC), Leventis, Lever Brothers, Patterson Zechonics (PZ) etc. These companies brought finished products to the market from their respective parent companies, in a bid to reduce this, the Nigerian Industrial Development Bank (NIDB) was created to assist entrepreneurs in accessing finance for investment in industrial production, Agricultural exploration and other natural resources exploration towards the tail end of 1950. This scheme was successful as it resulted in massive exports of agricultural products (Ayozie, 2011). The Indigenization decree of 1972 also advanced the activities of MSEs by accelerating the pace of industrialization, generating employment opportunities, developing the export market as well as complementing the activities of large scale enterprises. The years between 1980 and 1989 emphasised the use of technology in advancing the industrial aspect of MSMEs.

The technological advancement resulted in the importation of production aided machineries and the development of locally fabricated machineries. Subsequently, to date various programmes, policies and schemes such as Small and Medium Industries Equity Investment Scheme (SMIEIS), Microfinance policy, Bank of industry (BOI), Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) have been instituted in the development of MSMEs in Nigeria.

Some of these programmes, policies and schemes have been criticised for not been as successful as anticipated (Peter & Inegbenebor, 2009). For instance the establishment of schemes like Small Scale Industries Credit Scheme (SSICS), Nigerian Bank for Commerce and Industry (NBCI) and National Economic Reconstruction Fund (NERFUND) in the provision of long term subsidized credit and specialized services had failed due to its inability to reach target group and the culture of non-loan payment (Abereijo & Fayomi, 2005). Osotimilehin *et al.* (2012) blamed the multiplicity of policies and regulatory measures as hindrances to the scheme success. On the contrary, Sanusi (2003) attributed the failure of these schemes to lack of management skill and entrepreneurial capacity of owner/manager of SMEs.

Between the period of 1960 and 1980 four programmes by the government were put in place promote the development of the MSMEs sectors. These programmes were criticized for their poor implementation due to financial constraints, inadequate equipment, dearth

of executive power to supervise the project. In 1962 the Industrial Development Centers were created to provide extensive services to the SMEs in project appraisal for loan application, training of entrepreneurs, managerial assistance, product development, production planning and control. The project failed to fulfill its objectives due to inadequate equipment and funds lack. In the same 1962 the Nigerian Industrial Development Bank (NIDB) was instituted to provide medium to long-term loans to enterprises in industrial activities. The bank though initially meant to cater for large-scale industries, however extended its scope to MSMEs. The bank eventually merged with similar institutions to form Bank of Industry (BOI). Moving ahead, in 1970 the Small Scale Industries Credit Scheme (SSICS) was launched to provide soft medium to long-term loans for existing small scale businesses. The scheme was unsuccessful because of the massive repayment default by Owners of MSMEs and the funding of unviable enterprises (Sanusi, 2003).

Nigerian Bank for Commerce and Industries (NBCI) was established in 1973 to cater for the 1972 indigenization decree. The institution goal was to provide loans to indigenous persons, for medium and long term investments in industry and commerce. The NBCI suffered from operational problems, culminating in a state of insolvency in 1989 consequently absorbed by the Bank of Industry (BOI). Table 2.13 describes the different schemes and policies initiated by the Nigerian Government for the growth and development of the MSMEs sector between 1960 and 1980.

More schemes and programmes were instituted during the period of 1986 and 2005. In 1986 the National Directorate of Employment (NDE) was established. The Directorate was centered on initiating programmes beneficiary to Small Scale Industries (SSI), youth employment, vocational skills development and special public works.

**Table 2.14: Programmes established for the Regulation of MSMEs (1960-1980)**

<b>N</b>	<b>Program</b>	<b>Year</b>	<b>Objective</b>	<b>Status</b>	<b>Source</b>
1	Industrial Development Centers (IDC)	1962	To provide extensive services to the SMEs in project appraisal for loan application, training of entrepreneurs, managerial assistance, product development, production planning and control and other extension services.	The project centers were poorly implemented as a result of inadequate equipment and funds.	Sanusi (2003)
2	Nigerian Industrial Development Bank (NIDB)	1962	To provide medium to long-term loans for investments in industrial activities. Although its loan portfolio covers mainly large-scale industries, the bank established special units to focus on SMEs.	Due to financial and other constraints, NIDB was merged with similar institutions to form the newly established Bank of Industry (BOI).	Sanusi (2003)
3	Small Scale Industries Credit Scheme (SSICS)	1970	To provide soft medium to long-term loans for the expansion and modernization of existing small scale businesses needed for the production of sophisticated and simple goods.	The success of the scheme was constrained by the dearth of executive manpower to supervise and monitor projects. This resulted to funding unviable projects and massive repayment default.	Sanusi (2003)
4	Nigerian Bank for Commerce and Industries (NBCI)	1973	To assist in the implementation of the indigenization decree of 1972 by providing loans to indigenous persons, institutions and Nigerians for medium and long term investments in industry and commerce.	The NBCI suffered from operational problems, culminating in a state of insolvency in 1989 and absorption into	Sanusi (2003)

				the newly established Bank of Industry (BOI).	
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In 1990, the National Economic Reconstruction Fund (NERFUND) was formed. The objective of NERFUND was to make medium to long-term loans (5-10 years), to SMEs at concessionary rates of interest (Sanusi 2003). Thereafter NERFUND merged with NBCI and NIDB to form the Bank of Industry (BOI). Table 2.14 describes the different schemes and policies initiated by the Nigerian Government for the growth and development of the MSEs sector between 1986 and 2005.

**Table 2.15: Programmes established for the Regulation of MSEs (1986-2005)**

N	Program	Year	Objective	Status	Source
1	National Directorate of Employment (NDE)	1986	To promote the development of SMEs through programmes centered on Small Scale Industries (SSI), Agriculture, Youth Employment, Vocational Skills Development and Special Public Works.	The programme operated two credit guarantee schemes complemented by an entrepreneur development programme to assist in the development of SMEs.	Sanusi (2003)
2	SME Apex Unit Loan Scheme	1990	To administer the credit components and other related activities of the World bank to SMEs in facilitating project implementation	Loan disbursement ceased in 1996	CBN (2007)
3	National Economic Reconstruction Fund (NERFUND)	1990	To provide medium to long-term loans (5-10 years), to SMEs at concessionary rates of interest	NERFUND was merged with NBCI and NIDB to form the Bank of Industry (BOI).	Sanusi (2003)

Following the establishment of NERFUND, in 1999, Small and Medium Enterprise Equity Investment Scheme (SMEEIS) was established aimed at investing in small and medium enterprise operating in the productive sector of the economy. The scheme will help in facilitating the flow of funds to new and viable SMEs targeted at stimulating economic growth, developing local technology, promoting indigenous entrepreneurship and generating employment. However, the scheme failed to make a significant contribution on SMEs financing as a result of its stringent conditions in accessing the funds (Abereiyo & Fayomi, 2005; CBN, 2007; Kabiru & Azende 2011).

**Table 2.16: Programmes established for the Regulation of MSEs (1999-2005)**

<b>N</b>	<b>Program</b>	<b>Year</b>	<b>Objective</b>	<b>Status</b>	<b>Source</b>
1	Small and Medium Enterprise Equity Investment Scheme (SMEEIS)	1999	To invest in small and medium enterprise operating in the productive sector of the economy. Hence aimed at facilitating the flow of funds to new and viable SMEs targeted at stimulating economic growth, developing local technology, promoting indigenous entrepreneurship and generating employment	The scheme has been unable to make any significant positive impact on the financing of SMEs in Nigeria due to the stringent conditions in accessing the funds.	Abereijo and Fayomi (2005); CBN (2007) and Kabiru and Azende (2011)
2	Bank of Industry (BOI)	2002	To provide financial assistance for the establishment of large, medium and small projects; as well as expansion, diversification and modernization of existing enterprises; and rehabilitation of ailing industries.	The bank has been in partnership with different state government in the provision of funds to SMEs in Nigeria	Oputu (2010)
3	Small and Medium Enterprises Developing Agency of Nigeria (SMEDAN)	2004	To stimulate, monitor and coordinate the development of the MSMEs sub-sector by initiating and articulating policy ideas for small and medium enterprises growth and development;	SMEDAN has collaborated with various States and Chambers of commerce in the realization of their goals and objectives.	NBS/SME DAN (2012)
4	Microfinance policy	2005	To enhance the access of micro- entrepreneurs and low income households to financial services required to expand and modernize their operations in order to contribute to rapid economic growth	The policy resulted in the establishment of new microfinance banks and the conversion of some existing community banks to	CBN (2011)

				microfinance banks.	
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The bank of Industry sprung up in 2002 with the goal of making funds available for the expansion, diversification and modernization of existing enterprises and rehabilitation of ailing large, medium and small industries (Oputu, 2010). The bank is still operational as it's provides financial assistance to SMEs. In 2004, the Small and Medium Enterprises Developing Agency of Nigeria (SMEDAN) came into existence. The agency is aimed at stimulating, monitoring and coordinating the MSMEs sub-sector by initiating and articulating policy ideas for small and medium enterprises growth and development (NBS/SMEDAN, 2012). Table 2.15 describes the different schemes and policies initiated by the Nigerian Government for the growth and development of the MSEs sector between 1999 and 2005.

## **2.12. The Concept of Digital Divide in Africa**

The level of ICT infrastructure in Africa directly affects the rate at which e-Accounting system will be implemented, since e-Accounting requires ICT to function. However there exit an uneven distribution in ICT between developed countries and developing countries (Billon, Marco & Lera-Lopez, 2009). More critical, is the poor status of ICT in African countries (Buys, Dasgupta, Thomas, & Wheeler, 2009). The phenomenon of digital divide has been linked to physical access, financial access, cognitive access, design access, content access, production access, institutional access and political access to ICT (Wilson, 2006).

According to Wilson (2006), physical access borders around the availability of ICT physical infrastructure and application in a defined geographical location. This is measured by the distribution of ICT per capital or density of enabling ICT infrastructure. Financial access depicts the capacity of potential users to sustain subscriptions for commercial or subsidized ICT services. This is measured by the cost of ICT services in relation to annual income. Cognitive access portrays users' intellectual capacities to find, process, evaluate and employ information through ICT services. Design access is the capability of potential users to interact with ICT devices. Content access defines ability of potential user to find relevant materials and information. Production access borders on the capacity and confidence to produce local contents for local consumption. Institutional access portrays the presence of organisations' and institutions' in enabling access.

Political access depicts the ability of the consumers' to have access to the institutions where the rules governing the allocation of ICT resources are being written.

**Table 2.17: The Concept of Digital Divide**

<b>Digital Divide</b>	<b>Meaning and Measurement</b>
Physical Access	Availability of ICT physical infrastructure and application in a defined geographical location. This is measured by the distribution of ICT per capital or density of enabling ICT infrastructure
Financial Access	Capacity of potential users to sustain subscriptions for commercial or subsidized ICT services. This is measured by the cost of ICT services in relation to annual income
Cognitive Access	Users' intellectual capacities to find, process, evaluate and employ information through ICT services.
Design Access	Capability of potential users to interact with ICT devices.
Content Access	Ability of potential user to find relevant materials and information.
Production Access	Capacity and confidence to produce local contents for local consumption.
Institutional Access	Presence of organisations' and institutions' in enabling access.
Political Access	Ability of the consumers' to have access to the institutions where the rules governing the allocation of ICT resources are being written.

**Source: Adapted from Wilson (2006)**

In Africa, the prevailing ICT infrastructures include the telecommunication, computer and Internet technologies (Ikhu-Omoregbe, 2008). The penetrations of these infrastructures are largely dependent on country's government policies, pricing of ICT infrastructural services, ICT infrastructural services providers, legal and regulatory frameworks (Mutula, 2003). Debatably, the Internet technology has largely become the most visible constituent of the ICTs (Oyelaran-Oyeyinka & Adeya, 2004a). The Internet user rate for African countries has been staggering compared to the developed countries even in recent years (Pejovic, Johnson, Zheleva, Beldings, Parks & Stam, 2012).

The factors responsible, stems from poor telecommunications infrastructures, regulatory factors, tariffs structures, income level, socio-economic status and educational levels (Oyelaran-Oyeyinka & Adeya, 2004b). It is expedient that efforts are to be made in closing the digital divide gap in terms of Internet access in the Africa context being an indispensable tool in overcoming inequality (Castells, 2002). The Internet user rate differs across countries, evident in tables below. From table 2.17, Morocco as at 2013 had the



highest Internet user rate with 55 Internet users per 100 people while Eritrea had as low as 0.80 Internet users per 100 people. From the statistic below only Morocco had Internet user rate above 50 persons out of 100 people. The rest of Africa countries have Internet user less than 50 persons out of 100 people.

**Table 2.18 Internet Users in Africa Countries above 5 persons per 100 people**

<b>N</b>	<b>Africa Countries</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
1	Morocco	41.30	52.00	53.00	55.00
2	Seychelles	n.a	41.00	43.16	47.08
3	Egypt	25.69	31.42	39.83	44.07
4	Tunisia	34.07	36.80	39.10	41.44
5	Mauritius	22.51	28.33	34.95	41.39
6	South Africa	10.00	24.00	33.97	41.00
7	Cape Verde	21.00	30.00	32.00	34.74
8	Nigeria	20.00	24.00	28.43	32.88
9	Kenya	10.04	14.00	28.00	32.10
10	Sao Tome and Principe	16.41	18.75	20.16	21.57
11	Sudan	n.a	16.70	19.00	21.00
12	Swaziland	8.94	11.04	18.13	20.78
13	Libya	10.80	14.00	14.00	19.86
14	Senegal	14.50	16.00	17.50	19.20
15	Ghana	5.44	7.80	14.11	17.11
16	Zimbabwe	11.36	11.50	15.70	17.09
17	Angola	6.00	10.00	14.78	16.94
18	Algeria	11.23	12.50	14.00	15.23
19	Uganda	9.78	12.50	13.01	14.69
20	Equatorial Guinea	2.13	6.00	11.50	13.94
21	Zambia	6.31	10.00	11.50	13.47
22	Tanzania	10.00	11.00	12.00	13.08
23	Namibia	6.50	11.60	12.00	12.94
24	Gambia	7.63	9.20	10.87	12.45
25	Botswana	6.15	6.00	8.00	11.50
26	Gabon	6.70	7.23	8.00	8.62
27	Djibouti	4.00	6.50	7.00	8.27
28	Rwanda	7.70	8.00	7.00	8.02
29	Republic of Congo	4.50	5.00	5.60	6.11
30	Cameroon	3.84	4.30	5.00	5.70
31	Mauritania	2.28	4.00	4.50	5.37

n.a: Not available

**Source: Adapted from World Development Indicator (2014)**

**Table 2.19: Internet Users in Africa Countries below 5 persons per 100 people**

N	Africa Countries	2010	2011	2012	2013
1	Mozambique	2.68	4.17	4.30	4.85
2	Lesotho	3.72	3.86	4.22	4.59
3	Malawi	1.07	2.26	3.33	4.35
4	Togo	2.60	3.00	3.50	4.00
5	Benin	2.24	3.13	3.50	3.80
6	Liberia	0.51	2.30	3.00	3.79
7	Burkina Faso	1.13	2.40	3.00	3.73
8	Central African Republic	1.80	2.00	2.20	3.00
9	Guinea Bissau	2.30	2.45	2.67	2.89
10	Cote d'Ivoire	2.00	2.10	2.20	2.38
11	Mali	1.80	1.90	2.00	2.17
12	Chad	1.50	1.70	1.90	2.10
13	Madagascar	1.63	1.70	1.90	2.05
14	Democratic Republic of Congo	0.56	0.72	1.20	1.68
15	Guinea	0.94	1.00	1.30	1.49
16	Ethiopia	0.54	0.75	1.10	1.48
17	Niger	0.76	0.83	1.30	1.41
18	Somalia	1.16	n.a	1.25	1.38
19	Burundi	0.90	1.00	1.11	1.22
20	Sierra Leone	0.26	0.58	0.90	1.30
21	Eritrea	n.a	n.a	0.70	0.80
22	South Sudan	n.a	n.a	n.a	n.a

**Source: Adapted from World Development Indicator (2014)**

In comparing the Internet usage among African countries and some developed countries from the table below indicates the existence of a wide gap. The reason for this gap might be traceable to the fact that the Internet involve the integration of other components such as computers, electricity and telecommunication infrastructure. These components are however lacking in African countries (Thompson & Walsham, 2010). From table 2.20 Iceland has the highest internet user per hundred persons with ninety six persons having access to internet while Slovenia had the lowest internet user rate per hundred persons with seventy persons as at 2013. Table 2.20 shows the rate of Internet users in selected developed countries.

**Table 2.20 Internet Users in selected Developed Countries per 100 people**

<b>N</b>	<b>Developed Countries</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
1	Iceland	93.00	93.39	95.02	96.00
2	Norway	92.08	93.39	93.97	95.00
3	Sweden	91.00	90.00	94.00	94.00
4	Netherlands	89.63	90.72	92.30	93.00
5	Denmark	86.84	88.72	90.00	93.00
6	Finland	82.49	86.89	89.37	91.00
7	New Zealand	79.70	83.00	86.00	89.51
8	Liechtenstein	75.00	80.00	85.00	89.41
9	United Kingdom	83.56	85.00	86.84	87.02
10	Canada	80.30	80.30	83.00	86.77
11	Switzerland	81.30	83.90	85.20	85.20
12	Germany	79.00	82.00	83.00	84.00
13	France	71.58	80.10	79.58	83.00
14	Australia	74.25	76.00	79.50	82.35
15	Belgium	70.00	75.00	78.00	82.00
16	United States	71.00	74.00	77.86	81.03
17	Austria	73.45	75.17	79.80	81.00
18	Japan	78.00	78.21	79.05	79.05
19	Ireland	67.38	69.85	76.82	79.00
20	Singapore	69.00	71.00	71.00	74.18
21	Israel	63.12	67.50	68.90	73.37
22	Hong Kong	69.40	72.00	72.20	72.80
23	Slovenia	64.00	70.00	69.00	70.00

**Source: Adapted from World Development Indicator (2014)**

### **2.13. The Implementation of ICT amongst MSEs**

The business environment of MSEs is dominated by a hyper-competitive, globalised, knowledge-based economy as such current information is crucial for the success and survival of any business enterprise. The recent technological revolution has however changed the way business is conducted (Pavic, Koh, Simpson, & Padmore, 2007). In this respect, MSEs need to invest in relevant ICT tools necessary for the business. Owing to these technological advancements, the adoption of ICT can be a significant driver of MSEs growth and development (Dierckx & Stroeken, 1999).

There is a large body of knowledge in conceptualising the term ICT, however the term has been viewed in diverse ways. Irefin (2012) sees it as the technology that is used to store, manipulate, distribute or create information. Laudon and Laudon (2010) believe it comprises of associated technologies defined by their functional usage. Selwyn, Marriott and Marriott (2001) state that ICT is a term including a wide range of technological applications; digital broadcast technologies; telecommunications technologies as well as electronic information resources. Aside the contextual meaning of ICT, other terms like technology, innovation, and information technology has been engaged in the literature in describing ICT (Pongpatrachai, Cragg & Fisher, 2013).

The use of ICT significantly assist MSEs in numerous ways; Minton (2003) submits that through the use of ICT, MSMEs can develop management capabilities, intensify information resource, enjoy reduced transactions cost, gain access to rapid flow of information, develop capacity for gathering and disseminating information. Likewise Irefin (2012) posits that appropriate use of ICT can help SMEs improve internal processes leading to lower transaction cost, combat pressures from competitions, improve product quality by receiving feedbacks from customers and enhance the distribution of products through online presence. As well as creating business opportunities (Ghobakhloo *et al.*, 2011) improving productivity and providing integrated supply chain partners (Premkumar & Roberts, 1999).

The extent to which ICT is adopted amongst MSEs is dependent on the complexity of the business operations. Evidently, foreign-owned enterprises and large are known to utilise ICT tools than MSMEs, this could be as a result of the high level of productivity and technological capacity (Tambunan, 2007). Thus there is a need for MSMEs to utilise ICT tools in increasing the competitiveness and productivity. In the light of implementing ICT in the business context of MSMEs, attention is being drawn on a need for policy makers to focus on specific groups of MSMEs instead of initiating policies targeted to all the groups of MSMEs as a whole (Milis, 2008). This line of argument is hinged on the fact that MSEs are characterised with factors such as size, sector, internationalization and export opportunities (Iacovou, Benbara & Dexter, 1995). As such what is suitable for a group of MSMEs may not be suitable for another group of MSMEs.

In the African context, the use ICT has been targeted as an aid to development (Ngwenyama, Andoh-Baidoo, Bollou, & Morawczynski 2006). Even though the present state of institutional infrastructure likes electricity, transport networks, educational provisions are inadequate and in some cases dilapidated (Thompson & Walsham, 2010). Despondently, some of these infrastructures are drivers of ICT usage. Adam and Wood (1999) argued that for ICT to engender development in the African countries, then ICT infrastructure must be accessible to the people at the same time it must be applicable to the local communities. Adam and Wood (1999) further projected that ICT will be potentially impactful in the African context if it's tailored towards the government, education, business, organisations and individuals at the national levels.

Prior studies in some African countries found out that there are impediments to the use of ICT tools amongst MSEs. Some of these impediments were poor physical infrastructures (Lal, 2007), high cost of acquiring and maintaining ICT tools (Mbatha, 2013), and lack of knowledge in using ICT tools (Olatokun & Kebonye, 2010). However the use of general ICT like fixed phone, mobile phones are quite prevalent in the African countries than advanced ICT tools like software as a service, cloud computing, mobile payment system (Ismail, Jeffery & Van-Belle, 2011). Table 2.20 shows prior empirical evidence on the applicability of ICT amongst MSEs in Africa.

**Table 2.21 Applicability of ICT amongst MSMEs in Africa**

<b>N</b>	<b>Country</b>	<b>Sector</b>	<b>ICT tool</b>	<b>Rate</b>	<b>Findings</b>	<b>Source</b>
1	South Africa	Tourism	Fax machine	High	E-commerce tools were adopted with the aim of reaching new customers; reduce costs and a desire to increase change. The barriers to the use of e-commerce tools are lack of trust, privacy, high cost, and lack of necessary skills.	Mbatha (2013)
2	Tanzania	Tourism, food and textile.	Fixed phone	High	There is an under-utilization of ICT tools	Nielinge (2003)
			Mobile phone	High		
			e-mail	Low		
3	South Africa	Not specified in the study	Mobile phones	High	There is a prevalent use of general ICT tools such as mobile phones and Internet compared to advanced ICT tools such as cloud computing and mobile payment system due to the fact that owners lack the knowledge and benefits derivable from other technologies.	Ismail, Jeffery and Van-Belle (2011)
			Internet	High		
			Email	High		
			Account package	High		
			Inventory	High		
			ERP	Low		
			Cloud Computing	Low		
			Mobile payment	Low		
4	Botswana	Restaurant Banking and Finance Rental Services Education	Credit card	High	The need to provide support to SMEs in the areas of training and skills upgrade, provision of the requisite technologies. Pressures from competitors, customers and	Olatokun and Kebonye (2010)
			Internet	High		
			Point of sale	High		
			E-billing	Low		
			E-mail	Low		
			E-shopping	Low		
			E-cheque	Low		
			Biometric	Low		

			Firewall	Low	suppliers are highly significant in propelling SMEs in using e-commerce technologies.	
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N	Country	Sector	ICT tool	Rate	Findings	Source
5	Botswana Cameroon Ethiopia Ghana Kenya Mozambique Namibia Nigeria Rwanda South Africa Tanzania Uganda Zimbabwe	Across the informal, semi-formal and formal sectors	Fixed Phone	High	The use of mobile phone in supporting SMEs business is more prevalent than computers due to its accessibility.	Esselaar, Stork, Ndiwalana and Deen-Swarray (2007)
			Mobile Phone	High		
			Fax	High		
			Post box	High		
			Computer	High		
			Internet	High		
6	Nigeria	Not specified in the study	Telephone	High	A major reason for adopting ICT was based on the need to be competitive advantaged. Impediments to ICT use were poor physical infrastructure, high cost of ICT acquisition and maintenance and inadequate in-house ICT personnel.	Lal (2007)
			e-mail	High		
			MIS	High		
			FMS	High		
			CAD	Low		
			CAE	Low		
			Web enabled Technologies	Low		
			Mobile phone	High		
			e-mail	low		

Note:<sup>1</sup> In cases where the literature did not specify the level of adoption, the study denoted High for usage greater than or equal to 50 percent and Low for usage lesser than 50 percent. <sup>2</sup> MIS: Management Information system; FMS: Flexible manufacturing system; CAD: Computer Aided Design; CAE: Computer aided Engineering

## 2.14. ICT and MSEs development in Nigeria

Micro and Small Enterprises (MSEs) are regarded as an attractive aspect of the economy in many emerging markets as such an appropriate integration of ICT can enhance the business activities of MSMEs (Kuyoro, Awodele, Alao & Omotunde 2013). In Nigeria, MSEs are the instrument of economic growth and a active determinant of private sector development (Udechukwu, 2003), thus need ICT to improve business processes. However, the business operations of Enterprises in Nigeria are being hindered by the state

of ICT infrastructure in the country, whilst the larger enterprises are finding it difficult to deal with the challenges and complexity associated to ICT usage, the MSEs are overwhelmed with ICT usage (Tiemo, 2012). The inefficient delivery of ICT infrastructure has resulted in a low penetration rate of ICT usage in Nigeria, despite the high diffusion rate of technology in developed countries (Apulu, 2012).

In developing countries like Nigeria, the reason for the slow usage of ICT amongst MSEs has been attributed to insufficient finance and lack of skilled human capital (Ashrafi & Murtaza, 2008; Thwala & Mvubu, 2008), administrative/managerial problems (Tushabomwe-Kazooba, 2006) and poor/outdated infrastructures (O'Regan, Ghobadian & Galleary, 2006; Deros, Yusof & Salleh, 2006). On the other hand, specifically in Nigeria, Adenikinju (2005) blame the government for not handling the challenges faced by the MSMEs sector appropriately, whilst Apulu and Latham (2009) advocate cultural factor as an inhibitor to ICT usage, iterating that many MSMEs Owners /Managers lack openness and knowledge required for ICT adoption.

The telecommunication infrastructure is one of the major components of ICT infrastructure in Nigeria. In the past Nigeria, had one of the lowest teledensity in sub-Saharan Africa in terms of telecommunication infrastructure (Akpan-Obong, 2007). However, this position has since improved. In more recent years, Nigeria has experienced rapid advancements as regards telecommunication infrastructure. The Telecommunication networks and mobile cellular services, in terms of the coverage level and the number of persons using these facilities have significantly increased. The entrants of the private telecommunication companies and the affordability of cellular phone have resulted in a number of people having access to these facilities. This indeed has been a significant advancement as against when very few persons had access to these facilities, whilst the Nigerian Telecommunications Limited (NITEL) was the only operator in the telecommunication industry.

The development in telecommunication has significantly impacted the application of ICT tools and devices in Nigeria (Ladokun, Osunwole & Olaoye, 2013). Access to the telecommunication facilities has created vast opportunities for SMEs in business operations and networks (Tella, Amaghionyeodiwe, & Adesoye, 2007). Ifinedo (2006) proposes that more can still be achieved by MSMEs in Nigeria with respect to increasing



market reach, enhancing customer service, reducing marketing and distribution cost. According to Ayo, Adewoye and Oni (2011) Nigerian is the fastest growing telecommunication market in Africa.

Another vital component of ICT infrastructure is Internet connectivity. Apulu, Latham, and Moreton (2011) note that Internet infrastructure such as network backbone and fiber-optic backbone for Wide Area Network amongst others essential for Internet connectivity are lacking. Kuyoro *et al.*, (2013) indicate that for SMEs to be successful in Nigeria having a mobile phone, website or e-mail will no longer be sufficient, but the ability to use these infrastructures in connecting with customers' in the most effective way.

## **2.15. Theoretical Framework**

There are numbers of theories used in literature to explain the factors that account for the use of technology. In this study, the theories that are of particular relevance to the factors affecting the implementation of e-Accounting are Technology-Organisation-Environment Framework (TOE), Modified Technology Acceptance model, Innovation diffusion theory and Upper Echelon theory. This four theories were considered in this study. However the Technology-Organisation-Environment Framework (TOE) by Tornatzky and Fleischer (1990) under pines the study.

### **2.15.1. Technology-Organisation-Environment (TOE) Framework**

Tornatzky and Fleischer (1990) developed the Technology-Organisation-Environment Framework (TOE) in explaining the components of the organisation that influence the adoption of new information technology. The TOE framework identified the components of technology, organisation and environment as the three aspects that drives the adoption and implementation of a technological innovation in an enterprise. The Technology aspect concerns the technologies in use within the enterprise and the technologies not in use but available in the market place (Lumsden & Guitierrez, 2013).

Tornatzky and Fleischer (1990) believe that certain features of the technology potentially affect the adoption process. The organisational aspect relates to certain indicators within the organisation that facilitates or impedes the adoption and implementation of technology (Tornatzky & Fleischer, 1990). The environmental aspect refers to the external context in which the organisation conducts its business.

TOE framework was deemed appropriate to be adapted in the study because of its emphasis on the enterprise multi facet components rather than an individual viewpoint which is in line with the objectives of the study. Additionally the usefulness and robustness of the framework has been proved in similar studies (Zhu, Kraemer & Xu, 2003; Tan & Lin, 2012; Lumsden & Gutierrez 2013). Several studies in literature adopted Technology-Organisation-External framework.

Yeh, Lee and Pai (2014) employ the technology-organization-environment framework to investigate the factors influencing e-business information technology capabilities, the study finds IT maturity, IT infrastructure, IT human resource, top management support, partnership quality and competitive pressure to positively influence e-business information technology capabilities. Lumsden and Gutierrez (2013) study the determinants of cloud computing adoption within the UK using the Technology-Organisation-External framework, it discovers that technology compatibility, technology relative advantage, technology readiness, top management support were all significant in influencing the adoption of cloud computing in UK. While, firm size, competitive pressure, trading partner pressure, technology complexity were insignificant in determining the adoption of cloud computing in UK.

A similar study by Tan and Lin (2012) explore the organizational adoption of cloud computing in Singapore. The study find technology sensing capability, perceived relative capability, perceived industry pressure significant to the adoption of cloud computing, while technology complexity technology compatibility, technology response capability to be insignificant. Zhu, Xu and Dedrick (2003) access the drivers of e-business value in a cross study research, the results show that technology integration, firm scope, financial resources, regulatory environment, firm size were significant to e-business adoption while competitive pressure is not significant

Table 2.22 shows prior empirical studies on the use of Technology-organisation-external framework (TOE)

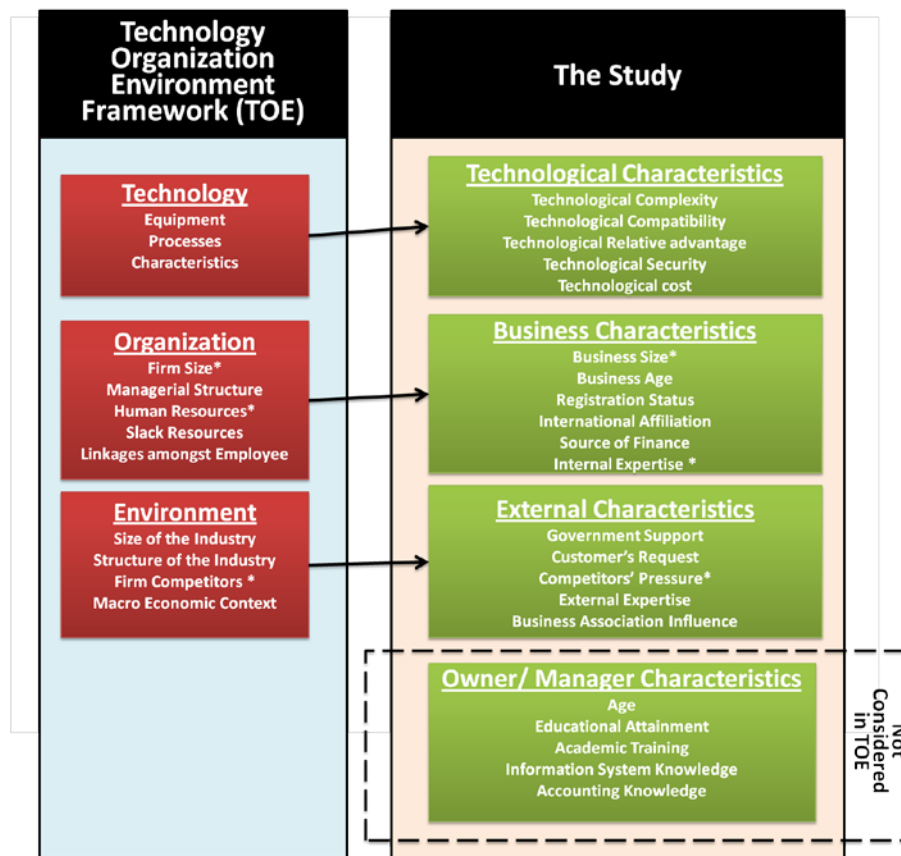
**Table 2.22: Prior Empirical Studies on the use of Technology-Organisation-External framework (TOE)**

<b>N</b>	<b>Study</b>	<b>Variables</b>	<b>Result</b>	<b>Source</b>
1	Using a technology-organization – environment framework to investigate the factors influencing e-business information technology capabilities.	IT maturity	Positive	Yeh, Lee and Pai (2014)
		IT infrastructure	Positive	
		IT human resource	Positive	
		Top management support	Positive	
		Partnership quality	Positive	
		Competitive pressure	Positive	
2	Understanding the Determinants of Cloud Computing Adoption within the UK	Compatibility	Significant	Lumsden and Gutierrez (2013)
		Relative Advantage	Significant	
		Technology Readiness	Significant	
		Top Management Support	Significant	
		Firm Size	Insignificant	
		Competitive Pressure	Insignificant	
		Trading partner pressure	Insignificant	
		Complexity	Insignificant	
3	Exploring organizational adoption of cloud computing in Singapore	Technology Sensing Capability	Significant	Tan and Lin (2012)
		Perceived Relative Capability	Significant	
		Perceived Industry Pressure	Significant	
		Complexity	Insignificant	
		Compatibility	Insignificant	
		Technology Response Capability	Insignificant	
		Demonstrable Results	Insignificant	
4	Assessing drivers of e-business value: Results of a cross-country study.	Technology integration	Significant	Zhu, Xu and Dedrick (2003)
		Firm scope	Significant	
		Financial resources	Significant	
		Regulatory environment	Significant	
		Firm size	Significant	
		Competitive Pressure	Insignificant	

#### **2.15.1.1.      *Linking Technology-Organisation-Environment Framework (TOE) to the study***

The three components of TOE can be directly connected to the study by explaining how each of these components relates to the study. First, the dimension of technology framework that concerns the characteristics of technology available within an outside the business enterprise is linked to the study second objective. The study second objective is to determine the impact of MSEs Technological characteristics in facilitating the implementation of e-Accounting system. The technological characteristics considered in this study are; Technological complexity, compatibility, relative advantage, security and cost. Second, the dimension of Organisation framework relating to certain indices that differentiates an enterprise from another is connected to the study third objective. The third objective is to ascertain the extent to which MSEs Business characteristics accelerate the implementation of e-Accounting system. The business characteristics identified in the study are; business size, age, registration status, international affiliation, source of finance and internal expertise.

Third, the aspect of environment framework describes the external context that influences the enterprise use of technological innovation. The fourth objective of the need to assess the impact of MSEs External characteristics on the implementation of e-Accounting system directly addresses this. For the purpose of the study the support from Government, request from customer, pressure from competitors, external expertise and influence of business association are the indicators of external characteristics. Figure 2.4 shows the link between Technology-Organisation-Environment Framework (TOE) to the study.

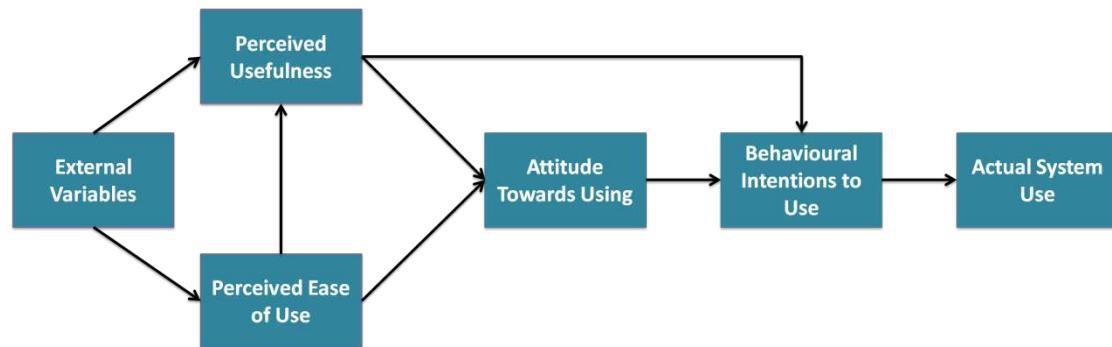


**Figure 2.4: Linking Technology-Organisation-Environment Framework (TOE) to the study**

### 2.15.2. Technology Acceptance Model (TAM)

In determining the acceptance of technology, a well-known model extensively used in research is the technology acceptance model (TAM). The model was originally proposed by Davis (1989) in predicting the intention of an individual to use or not use information technology. Although the theory was derived from the theory of reasoned action (TRA) by Fishbein and Ajzen (1975), it has found applicability in Management information system (Stefl-Mabry, 1999). According to TRA an individual behaviour is a product of intentions, attitudes, and beliefs. TAM adapted the belief-attitude-intention-behaviour link in modelling information technology acceptance among users and the intention to use it in the future (Chau & Hu, 2001). TAM posits that an individual's intention to use a technology is based on the perceived usefulness and perceived ease of use. Perceived usefulness depicts the level at which users think the technology will improve productivity while the perceived ease of use is the level at which the technology will require minimum

effort (Davis, 1989). Figure 2.5 describes the factors influencing the actual use of any technology as proposed by (Davis, 1989).



**Figure 2.5: Technology Acceptance Model (Davis, Bagozzi and Warshaw, 1989)**

Prior researches on TAM have expressed its robustness and validity. Bertrand and Bouchard (2008) find perceived usefulness amongst other variables as the only significant predictor of intention of use. The results of Liu, Liao and Peng (2005), Lules, Omwansa and Waema (2012) support the use of TAM as a predictive model for the acceptance of different technologies. Following this, Technology acceptance model (TAM) has been adopted in various research in modelling the use of technology in learning, banking and healthcare (Sharma & Chandel, 2013; Lules, Omwansa & Waema, 2012; Pai & Huang, 2011).

Sharma and Chandel (2013) identify perceived usefulness, perceived ease of use, perceived quality and computer self-efficacy as significant factors in the use of learning through websites amongst students. Contrary, Park (2009) did not find any significant effects of perceived usefulness and perceived ease of use in understanding students' behavioral intention to use e-Learning. In the healthcare industry, the study of Pai and Huang, 2011 applied TAM. Consequently, found a significant relationship between perceived ease of use in the health care sector, but did not find a significant relationship with perceived usefulness.

Lules, Omwansa and Waema (2012) investigate the applicability of TAM in M-Banking adoption in Kenya. Significant relationships were found in the perceived ease of use, perceived usefulness, self-efficacy and perceived credibility in the adoption of M-Banking in Kenya. Table 2.22 shows prior empirical studies on the use of Technology Acceptance Model.

**Table 2.23: Prior Empirical Studies on the use of Technology Acceptance Model (TAM)**

N	Study	Variables	Result	Source
1	Technology Acceptance Model for the use of Learning Through websites Among Students in Oman	Perceived usefulness	Significant	Sharma and Chandel (2013)
		Perceived ease of use	Significant	
		Perceived quality	Significant	
		Computer Self-efficacy	Significant	
2	Application of Technology Acceptance Model (TAM) in M-Banking Adoption in Kenya	Perceived ease of use	Significant	Lules, Omwansa and Waema (2012)
		Perceived Usefulness	Significant	
		Self-Efficacy	Significant	
		Perceived Credibility	Significant	
3	Analysis of the Technology Acceptance Model in Examining Students' Behavioural Intention to use an e-portfolio System	Perceived ease of use	Significant	Shroff, Deneen and Eugenia (2011)
		Perceived usefulness	Insignificant	
4	Applying Technology acceptance model to the introduction of Healthcare Information Systems	Perceived usefulness	Insignificant	Pai and Huang (2011)
		Perceived ease of use	Significant	
5	An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning	Perceived usefulness	Insignificant	Park (2009)
		Perceived ease of use	Insignificant	
		Self-efficacy	Significant	
		Subjective Norm	Significant	
6	Applying the Technology Acceptance Model to Virtual Reality with People who are Favorable to its use	Perceived usefulness	Significant	Bertrand and Bouchard (2008)
		Perceived ease of use	Insignificant	
		Attitudes	Insignificant	
		Perceived cost	Insignificant	
7	Technology Acceptance Model: Is it applicable to users and non-users on Internet Banking	Perceived usefulness	Significant	Ramayah, Ma'ruf, Jantan and Mohamad (2002)
		Perceived ease of use	Insignificant	

### **2.15.3. Innovation Diffusion Theory**

Rogers (1985) introduced the innovation diffusion theory. According to Rogers (1985) innovation diffusion as the process by which an innovation is being used by members of a particular social system. The theory being a communication theory of how, why and at what rate new ideas and technology spreads through cultures nevertheless has been used

extensively across various disciplines (Cheng & Kao, 2004). The theory inculcates several theoretical perspectives relating to the overall concept of diffusion. Rogers (1985) iterated that other theories are linked to the innovation diffusion theory; these include the innovation-decision process, the individual innovativeness theory, the rate of adoption theory and the theory of perceived attributes.

Dillon and Morris (1996) maintain that a major reason behind Innovation Diffusion theory is to explain the process in which any innovation in technology transcends from the invention to its extensive use or non-use. The transition process can however be slow down based on the nature of the innovation. Rogers (1985) linked relative advantage, complexity, compatibility, triability and observability as the factors that strongly influence the adoption of an innovation. The term relative advantage relates to the measure at which an adopter perceives the innovation to supersede the existing one. Complexity regards to the rate at which the innovation is difficult to adopt. Compatibility refers to the level at which the innovation is in line with the adopters need. Triability considers the capacity of the innovation to be experimented before use while Observability refers to the ease of describing the innovation to the potential user.

Stefl-Mabry (1999) corroborates that these factors indicate the attributes of an innovation. On the contrary Dillon and Morris (1996) argue that these factors are not enough to predict the rate of diffusion, that any innovation that offer recompense on compatibility with existing practice and beliefs, low complexity and potentially high triability will have a rapid rate of diffusion. Several studies have adopted the innovation diffusion theory in respect to the factors affecting the use of innovation. Hashim (2007) identify relative advantage, complexity, compatibility, triability and observability as dimensions of adopting innovation and found complexity as the major barrier to ICT adoption amongst SMEs Owners. Premkumar and Ramamurthy (1995) as well find that the more complex an application is the slower the adoption rate. In addition (Luqman & Abdullah, 2011) studied the adoption of technology amongst small and medium sized firm but found compatibility as the only significant predictor to ICT adoption in business. In contrast, Thong (1999) did not find any significant relationship between these features and the use of innovation.

The Innovation diffusion theory is included in this study because it directly supports the second objective of the study. The objective is to determine the impact of technological



characteristics in facilitating the implementation of e-Accounting system amongst MSEs. Innovation diffusion theory opines that relative advantage, complexity, compatibility, triability and observability are the factors influencing the adoption of innovation, the study considers some of these factors (relative advantage, complexity and compatibility) alongside other factors (security and cost). Table 2.24 shows prior empirical studies on the use of Innovation Diffusion Theory.

**Table 2.24: Prior Empirical Studies on the use of Innovation Diffusion Theory**

N	Study	Variables	Result	Source
1	E-business Adoption amongst SMEs: A Structural Equation Modeling Approach	Compatibility	Significant	Luqman and Abdullah (2011)
		Complexity	Insignificant	
		Triability	Insignificant	
		Observability	Insignificant	
2	An Empirical Study of Social Networking Behavior Using Diffusion of Innovation Theory	Compatibility	Significant	Peslak, Ceccucci and Sendall (2010)
		Complexity	Significant	
		Triability	Significant	
		Relative Advantage	Significant	
3	Innovation diffusion in global contexts: determinants of post-adoption digital transformation of European companies	Relative Advantage	Significant	Zhu, Dong, Xu and Kraemer (2006)
		Compatibility	Significant	
		Security Concerns	Significant	
		System Cost	Significant	
		Technology Competence	Significant	
		Organisation size	Significant	
		Competitiveness Pressure	Significant	
		Partner Readiness	Significant	
4	An Integrated Model of Information systems adoption in small businesses	Relative Advantage	Insignificant	Thong (1999)
		Compatibility	Insignificant	
		Complexity	Insignificant	

#### **2.15.4. Upper Echelon Theory**

The upper echelon theory was espoused by Hambrick and Mason (1984). The theory considers the influence of the overall top management team in the outcome of the organisation. Hambrick and Mason (1984) suggest that top management characteristics like age, previous engagements, other career experiences, education and socio-economic roots can have a significant impact on the organisational performance. These personal

characteristics affect how the organisation is being managed on a day to day, thereby influencing the kind of decisions being made.

Hambrick and Mason (1984) argued that the reason for this association is because of the relationship these personal characteristics have on the cognitive values and perceptions that influence manager decision making. Several studies have supported the relationship between upper echelon theory and innovation decisions in the organisation. For instance, demographic attributes of top managers relating to age and education have been linked to have a positive effect on the degree of organisational innovation (Camelo-Ordaz, Hernandez-Lara, & Valle-Cabrera, 2005). Also Wiersema and Bantel (1992) found that firms most likely to undergo changes in corporate strategy, had the top managers characterized by lower average age, shorter organizational tenure, higher team tenure, higher educational level, higher educational specialization heterogeneity and higher academic training in the sciences than other teams.

Aside the suitability of the upper echelon theory in organizational innovation decisions, the theory has found relevance in modeling top management ethical behaviour and firm international diversification. For instance, Zee and Swagerman (2009) find a significant relationship between age and specialization in the ethical behavior of top management. Likewise, Tihanyi, Ellstrand, Daily and Dalton (2000) found significant relationships between top management age, tenure, elite education, international experience and firm international diversification.

The upper echelon theory was included in this study because of its significant relationship with the first objective. The first objective seeks to examine the extent to which Owner's/Manager's characteristics influence the implementation of e-Accounting system in MSEs. The owner/manager represents the individual at the upper echelon who makes the decision on the daily operations of the enterprise. The characteristics of this individual can influence the decision to adopt e-accounting system. The study considers the age, educational attainment, academic training, information technology capability and accounting knowledge of the owner/manager as indicators for implementing e-Accounting system. Table 2.24 shows prior empirical studies on the use of Upper Echelon Theory.

**Table 2.25: Prior Empirical Studies on the use of Upper Echelon Theory**

N	Study	Variables	Result	Source
1	Top Management Team Demography And Corporate Strategic Change	TMT* Age	Significant	Wiersema and Bantel (2010)
		TMT Tenure	Significant	
		TMT Educational Level	Significant	
		TMT Educational Specialisation	Significant	
		TMT Academic Training in Sciences	Significant	
2	Upper Echelon theory and ethical behaviour: an illustration of the theory and a plea for its extension towards ethical behaviour.	TMT Age	Significant	Zee and Swagerman (2009)
		TMT Specialisation	Significant	
		TMT Tenure	Insignificant	
3	Composition of the Top Management Team and Firm International Diversification.	TMT Age	Significant	Tihanyi, Ellstrand, Daily and Dalton (2000)
		TMT Tenure	Significant	
		TMT Elite Education	Significant	
		TMT International Experience	Significant	

\*TMT is Top Management Team

## 2.16. Gaps Identified in Literature

There has been relatively little research in the areas of e-Accounting system. This is in spite of the fact that accounting was one of the first functional areas to benefit from computerization when computers were initially introduced in organizations (Doost, 1999). This position is still evident in the review of some existing literature in relation to ICT integration in accounting processes. In order to situate this properly certain gaps were identified in terms of concepts, contexts (enterprise and country), application (auditing) methodology and specifics. Amidu *et al.* (2011) and Relhan (2013) investigate the status of e-Accounting practice in Small and Medium Enterprise (SMEs) in Ghana and India respectively. Amidu *et al.* (2011) for instance provided empirical evidence on the type of accounting software in use, benefits, problems and functionalities of the e-Accounting system. The study concludes that SMEs attached a lot of importance to financial information as such necessitating the reasons for using accounting software in capturing financial information. However, the study did not empirically consider the factors that drive the implementation of e-Accounting system. This study fills this gap by providing empirical evidence on the factors that drive the implementation of e-Accounting system.

On the other hand, Thong (1999) and Irefin (2012) examine the determinants of ICTs in Singapore and Nigeria respectively. The studies identified factors such as cost, availability of ICT infrastructure, business size, Information system characteristics and decision maker characteristics. The studies did not make recourse to any particular technological innovation rather looked at the use of ICTs in general. This study provides insights into the organizational determinants that affect the integration of ICTs in accounting processes specifically.

Furthermore, gaps were identified in existing literature with respects to the context of study. (Ismail & King, 2007; Pongpatrachai *et al.*, 2013). Ismail and King (2007) focus on the factors that influence the alignment of Accounting Information System (AIS) in Malaysia. The study finds AIS alignment in small firms to be related to the firm's level of IT maturity, level of owner/manager's accounting and IT knowledge, use of expertise from government agencies and accounting firms; and existence of internal IT staff. Likewise, Pongpatrachai *et al.* (2013) examine IT infusion within the audit process in Thailand small audit firms. The study identifies IT competence, size and complexity of clients, external support, relative advantage observability, staff turnover, lack of partner support, and clients' willingness to provide soft copy data were some enablers and inhibitors of IT infusion. In view of these, there is a need for a study to be conducted in Nigeria, where presently there is dearth of research on the determinants of ICT in accounting processes. Hence. this study fills the gaps identified by providing empirical evidence in the Nigeria context on the inhibitors and enablers of ICT integration in Micro and Small Firms. Table 2.25 below shows areas of gaps identified in literature.

**Table 2.26: Gaps Identified in the Literature**

<b>N</b>	<b>Country</b>	<b>Work description</b>	<b>Gap(s)</b>	<b>Source</b>
1	Thailand	The study examines IT infusion within the audit process in small audit firms.	The study focuses on Thailand, hence necessitate the need for empirical evidence in Nigeria	Pongpattrachai <i>et al.</i> (2013)
2	Nigeria	The work investigates the determinants of Information Communication Technology in Small and Medium business	The work investigates the adoption of Information Communication Technology in general without recourse to any particular technological innovation	Irefin (2012)
3	Ghana	The study investigates the status of e-Accounting practice	The study did not empirically consider the factors that drive the implementation of e-Accounting system	Amidu <i>et al.</i> (2011)
4	Malaysia	The research focuses on the factors that influence the alignment of Accounting Information System (AIS)	The research focus on Malaysia, hence necessitate the need for empirical evidence in Nigeria	Ismail & King (2007)
5	Singapore	The work investigated the determinants of Information Systems adoption in small business	The work provides insights in to the determinants of integration of ICTs in general without a focus on any specific technology	Thong (1999)

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1. Introduction**

This chapter describes the research method that was employed in this study. Therefore the chapter describes the research design, the study population, sample size, sampling technique, data gathering method, sources of data, instruments for data collection, description of the questionnaire, validity and reliability of instruments, data analysis method and model specification.

#### **3.2. Research Design**

The study adopts the survey research design. The study adopted the survey research design based on three major reasons fundamental to the study. Firstly, it is an effective technique in describing attitudes, opinions and characteristics (Mathiyazhaga & Nandan, 2010). Secondly, it gives room for information to be generally collected from a fraction (sample) of the population (Pinsonneault & Kraemer, 1993). Thirdly the survey research design allows inferences to be drawn on the population from the data collected from the sample (Gable, 1994). The framework at which the study describes the attitudes, opinions, characteristics of the study population in solving the research problem was through the instrument of a structured Questionnaire.

#### **3.3. Population of Study**

The population of the study is the totality of Micro and Small Enterprises in South-West Nigeria based on Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) definition. According to NBS/SMEDAN (2012) there are about 3,276,596 MSEs in South-west out of a total of 17,283,019 MSEs in Nigeria. SMEDAN (2013) classified Micro enterprise as enterprises employing not more than 10 workers with total asset of not more than ₦5Million excluding cost of land and building; Small enterprise as enterprises with labour size between 10 to 50 work force and total asset of over ₦5Million but not more than ₦50Million excluding the cost of land and building. Due to the paucity of data on the statistics of MSEs operating in Nigeria as at 2015, the study adopts the latest statistics by NBS/SMEDAN (2012). On the basis of

NBS/SMEDAN (2012), table 3.1 shows the total number of MSEs operating in South-West Nigeria.

**Table 3.1: Distribution of Micro and Small Enterprises in South-West Nigeria**

S/N	State	Micro and Small Enterprise	
		Number	Percent
1	Lagos State	884,951	27
2	Oyo State	524,509	16
3	Ondo State	491,357	15
4	Osun State	481,451	15
5	Ogun State	472,278	14
6	Ekiti State	422,050	13
	<b>Total</b>	<b>3,276,596</b>	<b>100</b>

**Source: Compiled from NBS/SMEDAN (2012)**

From table 3.1 above Lagos State has the highest number of MSEs in operation with twenty seven percent. This is followed by Oyo state (16%), Ondo state (15%), Osun state (15%), Ogun state (14%) and Ekiti state (13%).

### **3.4. Sampling Technique and Sample Size Determination**

#### **3.4.1. Sampling Technique**

The concept of MSEs is typically linked to more than one business of the economy, as such cutting across different enterprises in Nigeria. In this study the stratified sampling technique was adopted. The stratified sampling Technique is suitable when the population can be divided into groups that are mutually exclusive. The choice of this sampling technique was on the basis of MSEs groupings into different sub-sectors (stratas), after which the samples were randomly selected from the different sub-sectors (stratas). The study considers only enterprises defined by NBS/SMEDAN (2012) and the report of the vision 2020 National Technical working group (2009).

The agriculture sub-sector consider business involved in lumbering, primary agricultural processing of raw agricultural produce such as oil palm, cereal, tuber, rubber, cocoa, groundnut, cassava, fruit, rice. Activities in the mining and quarrying sub-sector comprises of coal mining, metal ore and other mining & quarrying activities such as stone crushing. The manufacturing sub-sector encompasses business involved in food and beverage, metal, iron and steel; paper, printing and publishing; chemicals, paints,

pharmaceuticals and plastics; textiles, garments and leather; wood and furniture; automobile components and assembly; tanning; fabricators; foundry, etc. Activities in the building and construction sub-sector are classified into two distinct groups; building such as residential and non-residential and other construction which includes road, bridges, dams, airport. Businesses classified under the wholesale, retail and repairs sub-sector include wholesale and retail, supermarkets, shops, repair of motor vehicle and household goods.

Activities involving hotels, resorts, entertainment, restaurants, recreational services, arts, etc. are classified under the Hotel and Restaurant sub-sector. The transport, storage and communications sub-sector considers businesses involving in road transport, water transport, logistics, haulage, storage and warehousing etc. Also, included in the sub-sector are software development, hardware assembly, computer supply and maintenance companies, internet service providers, communication accessories companies, etc. Activities in the financial intermediation sub-sector pertain to businesses involving formal and informal financial intermediaries. On the formal part are the banks and other financial institutions including insurance companies while the informal intermediaries operate in form cooperative groups.

The education sub-sector comprises of schools, colleges, continuing education centres, training centres, vocational skills centres, etc. Other community, social and personal service activities sub-sector covers informal service oriented activities such as barbing saloon, hair-dressing, laundry services. Hence, the sectoral classification of MSMEs in Nigeria is shown in table 3.2.



**Table 3.2: Sectoral Classification of MSMEs in Nigeria**

<b>N</b>	<b>Enterprise</b>	<b>Products And Activities</b>
1	Agriculture	Lumbering, Primary agricultural processing of raw agricultural produce such as oil palm, cereal, tuber, rubber, cocoa, groundnut, cassava, fruit, rice etc.
2	Mining and quarrying	Activities in this sector comprises of coal mining, metal ore and other mining & quarrying activities such as stone crushing.
3	Manufacturing	Food and beverage, metal, iron & steel; paper, printing & publishing; chemicals, paints, pharmaceuticals & plastics; textiles, garments & leather; wood & furniture; automobile components and assembly; tanning; fabricators; foundry, etc.
4	Building and Construction	Activities in this sector can be classified into two distinct groups; building such as residential and non-residential and other construction which includes road, bridges, dams, airport
5	Wholesale, Retail and repairs	Wholesale and retail, supermarkets, shops, repair of motor vehicle and household goods
6	Hotel and restaurants	Hotels, resorts, entertainment, restaurants, recreational services, arts, etc.
7	Transport, storage and communications	Road transport, water transport, logistics, haulage, storage and warehousing etc. Software development, hardware assembly, computer supply and maintenance companies, internet service providers, communication accessories companies, etc.
8	Financial Intermediation	Activities in this sector were captured from the formal and informal financial intermediaries. On the formal part are the banks and other financial institutions including insurance companies while the informal intermediaries operate in form cooperative groups.
9	Real estate, Rent and business activities	Not specified
10	Education	Schools, colleges, continuing education centres, training centres, vocational skills centres, etc.
11	Health and social work	Not specified
12	Other community, social and Personal Service	Activities covered under sector include most informal service oriented activities such as barbing saloon, hair-dressing, laundry services

**Source: Report of vision 2020 National Technical Working Group (2009) and NBS/SMEDAN (2012)**

NBS/SMEDAN (2012) report did not classify the MSEs sub-sectors into different states, therefore making it difficult to ascertain the estimated number of MSEs operating in the different sub-sectors of the states. However the study made use of the overall percentage weight of the enterprises in MSEs sub-sectors in Nigeria in prorating for MSEs sub-sectors in the states. The wholesale, retail and repairs sub-sector had the highest with approximately fifty one percent (51.42%). This was followed by the manufacturing sub-sector with approximately sixteen percent (16.42%). The next being the agriculture sub-sector has approximately fifteen percent (15.24%). Other community, social and personal service sub-sector total to seven percent (6.59%) approximately. The next being transport, storage and communications sub-sector has approximately four percent (3.68%).

Building and construction sub-sector totalled to three percent (3.22%) approximately. Hotel and restaurants subsector has about two percent (1.75%) approximately. The real estate, renting and business activities sub-sector totalled to one percent (1.22%) approximately. The rest of the sub-sector which include education, mining and quarrying, health and social work, financial intermediation all had less than one percent (0.20%, 0.16%, 0.09% and 0.01% respectively). Table 3.3 presents the overall percentage weight of MSEs in Nigeria.

**Table 3.3: Distribution of MSEs in Nigeria across Sub-sectors**

N	Sub-Sectors	Total	
		Number	Percent (%)
1	Wholesale, retail and repairs	8,888,181	51.42
2	Manufacturing	2,837,581	16.42
3	Agriculture	2,633,737	15.24
4	Other community, social and Personal Service	1,138,189	6.59
5	Transport, Storage and Communications	635,883	3.68
6	Building and Construction	556,327	3.22
7	Hotel and Restaurants	302,412	1.75
8	Real estate, Renting and Business Activities	211,023	1.22
9	Education	34,767	0.20
10	Mining and Quarrying	27,499	0.16
11	Health and Social work	15,254	0.09
12	Financial Intermediation	2,166	0.01
	<b>TOTAL</b>	<b>17,283,019</b>	<b>100</b>

**Source: Compiled from NBS/SMEDAN (2012)**

From table 3.3, a discretionary approach was used to select three (3) MSEs subsector with the highest number. The discretionary approach of selecting MSEs subsector with the highest number has been used by a prior study (Oludayo, 2014). The subsectors with the highest number of MSEs are Wholesale, Retail & Repairs (8,888,181), Manufacturing (2,837,581) and Agriculture (2,633,737). Table 3.4 below shows the distribution of MSEs in the three (3) different sub-sectors and the new derived percentage weight of Enterprises in the sub-sectors.

**Table 3.4: Derived Percentage Weights of Enterprises in the Sub-sectors**

N	Sub-Sectors	Total	
		Number	Percent
1	Wholesale, retail and repairs	8,888,181	61.90
2	Manufacturing	2,837,581	19.76
3	Agriculture	2,633,737	18.34
	Total	14,359,499	100.00

**Source: Computed from NBS/SMEDAN (2012)**

#### **3.4.2. Sample Size**

In the determination of sample size from a given population, there are different models employed in literature. The study utilises Raosoft online sample size calculator and Bartlett, Kotrlik and Higgins (2001) table for determining the minimum returned sample size for a given population size for continuous and categorical data. The study aimed at sampling MSEs in a way to have a confidence level of 95 percent. With a confidence level of 95 percent, the probability of committing error will not exceed 5 percent. However, this confidence level has been maintained by other research work on SMEs (Babajide, 2011).

The derived sample size from the Raosoft online sample size calculator resulted to 660 participants for micro enterprises and small enterprises. Table 3.5 below shows Bartlett *et al.* (2001) table for determining minimum returned sample size for a given population size for continuous and categorical data. From the table a sample size of 623 is required for the study. Hence, the higher number of the derived sample size from Raosoft online sample size calculator and Bartlett *et al.* (2001) sample size table was used for the study. This number resulted in 660 respondents.

**Table 3.5: Table for Determining Minimum Returned Sample Size for a given Population Size for Continuous and Categorical Data.**

Population size	Sample Size					
	Continuous Data (Margin of error = 0.03)			Categorical Data (Margin of error = 0.05)		
	Alpha= 0.10 <u>t</u> = 1.65	Alpha= 0.05 <u>t</u> = 1.65	Alpha= 0.01 <u>t</u> = 1.65	p = 0.50 <u>t</u> = 1.65	p = 0.50 <u>t</u> = 1.96	p = 0.50 <u>t</u> = 2.58
100	46	55	68	74	80	87
200	59	75	102	116	132	154
300	65	85	123	143	169	207
400	69	92	137	162	196	250
500	72	96	147	176	218	286
600	73	100	155	187	235	316
700	75	102	161	196	249	341
800	76	104	166	203	260	363
900	76	105	170	209	270	382
1000	77	106	173	213	278	399
1500	79	110	183	230	306	461
2000	83	112	189	239	323	499
4000	83	119	198	254	351	570
6,000	83	119	209	259	362	598
8,000	83	119	209	262	367	613
10,000	83	119	209	264	370	623

**Source: Adopted from Bartlett *et al.* (2001)**

Given a sample size of 660 respondents for micro and small enterprises above. The distribution of the sample size across states and enterprises is shown in table 3.6. From table 3.6 the derived sample distribution for Lagos State is one hundred and seventy-eight (178) respondents. The next is Oyo State with one hundred and six (106) respondents. This is followed by Ondo State with ninety-nine respondents (99). Osun State also had the derived sample distribution to about ninety-nine (99) respondents, the derived sample distribution for Ogun state totaled to ninety-two (92) respondents. Ekiti had the least derived sample distribution with eighty-six (86) respondents.

**Table 3.6: Sample Size Distribution amongst States**

<b>S/N</b>	<b>States</b>	<b>Enterprise Population</b>	<b>Population Weight (%)</b>	<b>Sample Distribution Calculation</b>	<b>Derived Sample Distribution</b>
1	Lagos State	884,951	27	27 % * 660	178
2	Oyo State	524,509	16	16 % * 660	106
3	Ondo State	491,357	15	15 % * 660	99
4	Osun State	481,451	15	15 % * 660	99
5	Ogun State	472,278	14	14 % * 660	92
6	Ekiti State	422,050	13	13 % * 660	86
	Total	3,276,596	100		660

**Source: Field survey (2017)**

### **3.5. Sources of Data**

The source of data utilized in the study is the primary source of data. Primary data were collected through the administration of a structured questionnaire to owners/managers of MSEs operating within South-west Nigeria. The study utilizes a structured questionnaire to elicit information needed on the determinants of e-Accounting system amongst MSEs in South-west Nigeria.

#### **3.5.1. The Questionnaire**

In order to capture all the variables within each of the constructs', a carefully structured multi-item scale questionnaire was used to obtain information from selected Owners/managers of MSEs operating within South-west Nigeria. The questionnaire is structured in a way that gives the respondent the opportunity to rank items in a designated scale, choose from a list of options, indicate the presence or absence of some items and supply answers to some open-ended questions. (See Appendix)

The questionnaire comprises five sections. The five sections relate to the component of e-Accounting implementation, Owners'/Managers' characteristics, Technological Characteristics, Business characteristics, External characteristics respectively. The questions in these sections were modified from the study of Wiersema and Bantel (1992), Thong (2001), Zhu and Kraemer (2005) and Jeon *et al.* (2006).

A five-point Likert scale was adopted in rating, respondents view over the following scale; a rating of (5) denotes strongly disagree/very low, (4) denotes disagree/low, (3) denotes undecided, (2) denotes agree/high; while (1) denotes strongly agree/very high. Statements that are negatively stated were reversely coded during the analysis. On this scale a rate of (5) or (4) suggests that the item is not perceived to influence the implementation of e-Accounting system, a score of (3) suggests that the item is perceived to have no relationship with the implementation of e-Accounting, while a rate of (2) or (1) indicates that the item is perceived to influence the implementation of e-Accounting system. Similar scales have been used by Hashim (2007); Ismail *et al.* (2011) and they were found suitable. Aside the Likert scale, respondents were requested to tick from a list of options, indicate the presence or absence of some items and supply answers to some open-ended questions.

**Table 3.7: Distribution of Questionnaire and Response rate**

N	States	Copies of Questionnaire Distributed	Copies of Questionnaire adequately Completed and Returned	Percentage of Completed Response per States (%)	Overall Percentage Rate of Completed Response ( %)
1	Lagos State	178	170	95.5	41.5
2	Oyo State	106	51	48.1	12.4
3	Ondo State	99	48	48.5	11.7
4	Osun State	99	43	43.4	10.5
5	Ogun State	92	50	54.3	12.2
6	Ekiti State	86	48	55.8	11.7
		660	410		100
					Overall completed response rate is 62 %

**Source: Field Survey (2017)**

Table 3.7 outlines the distribution of questionnaire across the six states covered by the topic. One hundred and seventy-eight (178) copies of questionnaire were distributed in Lagos State, out of this number 170 were returned, adequately completed and used for the study. This number resulted in 95.5 percent useful response rate for Lagos State. One hundred and six (106) copies of questionnaire were distributed in Oyo State, out of this number 51copies were returned, adequately completed and used for the study. This number resulted in 48.1 percent useful response rate for Oyo State. Ninety-nine (99)

copies of questionnaire were distributed in Ondo State; out of this number 48 were returned, adequately completed and used for the study. This number resulted in 48.5 percent useful response rate for Ondo State. Ninety-nine (99) copies of questionnaire were distributed in Osun State, out of this number 43 were returned, adequately completed and used for the study. This number resulted in 43.4 percent useful response rate for Osun State.

Ninety-two (92) copies of questionnaire were distributed in Ogun States, out of this number 50 were returned, adequately completed and used for the study. This number resulted in 54.3 percent useful response rate for Ogun State. Eight-six (86) copies of questionnaire were distributed in Ekiti States, out of this number 48 were returned, adequately completed and used for the study. This number resulted in 55.8 percent useful response rate for Ekiti State.

In total for the entire Four-hundred and ten (410) copies of questionnaires distributed to all the six states. Lagos state accounts for 41.5 percent response rate. Oyo state accounts for 12.4 percent response rate. Ondo state accounts for 11.7 percent response rate. Osun state accounts for 10.5 percent response rate. Ogun state accounts for 12.2 percent response rate. Ekiti states accounts for 11.7 percent response rate. The overall completed and useful response rate is 62 percent. This means that out of 660 copies of questionnaires distribute only 410 copies were used in the study.

### **3.6. Validity and Reliability Checks**

In improving the quality of the research instrument (questionnaire), the study conducted validity and reliability checks. The Validity checks disclose the extent in which the measures used accurately capture the specific concept intended to be measured. To this end, Content validity check, Pilot test and Construct validity were carried out. Reliability measures the degree an item is free from random error and therefore yields consistent results (Zhu, Kraemer & Xu 2003). The Cronbach's  $\alpha$  was used to verify the reliability of the research instruments.

#### **3.6.1. Content Validity Check**

The content validity check was done by engaging experts in Accounting and Computer Science to evaluate whether the measures used define intended concepts. This was

achieved by giving five (5) Ph.D degree holders each in the department of Accounting and Computer Science at Covenant University. The choice of academics in the department of Accounting was as a result of their depth of knowledge in Accounting research while the choice of academics in Computer Science was based on the wealth of knowledge of the individuals on the use of information technology.

### ***3.6.2. Pilot Test***

The pilot test was aimed at ensuring that the respondents understand, can interpret and easily answer the questions in the questionnaire (Iyoha, 2011). The pilot test was conducted by giving (30) Owners/Managers of Micro and Small Enterprises respectively in Ado-Odo Ota, Local Government area in Ogun State. The choice of Owner/Manager of MSEs was based on their role as users of e-Accounting system.

### ***3.6.3. Construct Validity Check***

The construct validity check was evaluated through the use of exploratory factor analysis. The exploratory factor analysis is essential in examining the structure of the relationship between variables (Williams, Brown & Onsman, 2010). The Exploratory factor analysis was deemed suitable to the study because it helps to reveal the numbers of factors in a construct and which of the variables go together (DeCoster, 1998). It was also useful in verifying the interrelatedness of measures in each of the construct in a bid to discover patterns amongst the measures (Child, 2006). Table 3.8 shows the result of the exploratory factor analysis as computed by STATA (an Integrated Statistical Software Package).



**Table 3.8 Construct Validity Check (Exploratory Factor Analysis)**

<b>Factors</b>	<b>Eigen Value</b>	<b>Difference</b>	<b>Proportion</b>	<b>Cumulative</b>
<b>Owner manager characteristics</b>				
Factor 1	3.7059	2.6035	0.5294	0.5294
Factor 2	1.1024	0.1003	0.1575	0.6869
Factor 3	1.0021	0.1074	0.1432	0.8300
Factor 4	0.8946	0.6953	0.1278	0.9578
Factor 5	0.1993	0.1053	0.0285	0.9863
Factor 6	0.0941	0.0925	0.0134	0.9998
Factor 7	0.0017	-----	0.0002	1.0000
<b>Business Characteristics</b>				
Factor 1	1.9650	0.6076	0.2807	0.2807
Factor 2	1.3574	0.2771	0.1939	0.4746
Factor 3	1.0803	0.2489	0.1543	0.6289
Factor 4	0.8313	0.0824	0.1188	0.7477
Factor 5	0.7489	0.0337	0.1070	0.8547
Factor 6	0.7153	0.4134	0.1022	0.9569
Factor 7	0.3019	-----	0.0431	1.0000
<b>Technological Characteristics</b>				
Factor 1	4.7190	4.0443	0.7865	0.7865
Factor 2	0.6747	0.2514	0.1124	0.8990
Factor 3	0.4233	0.3368	0.0706	0.9695
Factor 4	0.0865	0.0227	0.0144	0.9839
Factor 5	0.0638	0.0311	0.0106	0.9946
Factor 6	0.0327	-----	0.0054	1.0000
<b>External characteristics</b>				
Factor 1	2.2379	0.6406	0.2797	0.2797
Factor 2	1.5974	0.3541	0.1997	0.4794
Factor 3	1.2433	0.3660	0.1554	0.6348
Factor 4	0.8773	0.1897	0.1097	0.7445
Factor 5	0.6876	0.1369	0.0860	0.8304
Factor 6	0.5508	0.0897	0.0688	0.8993
Factor 7	0.4610	0.1164	0.0576	0.9569
Factor 8	0.3447	-----	0.0431	1.0000

**Source: Field Survey (2017)**

Table 3.8 shows the Eigen value, difference, Proportion and the cumulative value of factors. Eigenvalue is the total variance accounted for by each of the factors. Difference indicates the differences between the current and following eigenvalue. Proportion is the relative weight of the each factor in the total variance. Cumulative shows the amount of variance explained by this factor plus all of the previous ones. For instance, the construct Owner/manager characteristics has three factors with Eigen value equal or above (1); 3.7059, 1.1024 and 1.0021 respectively. This means that the first factor accounted for the

most variance, the second accounts for the next highest amount of variance, and so on. Kaiser (1960) suggests that all factors with Eigen value equal or above one (1) should be retained; hence three factors were retained in the first construct. Cumulatively, these three factors explain 83 percent of the variance in the dataset. Business characteristics represent the second construct; it has three factors as well with Eigen value equal or above (1). The Eigen values are 1.9650, 1.3574 and 1.0803 respectively. Cumulatively the three factors explain approximately 63 percent of the variance in the dataset.

The third construct, which is Technological Characteristics have only one factor with Eigen value equal or above (1). The Eigen value of 4.7190 explains approximately 79 percent of the variance in the data set. The last construct; External Characteristics extract three factors with Eigen value equal or above (1) that is 2.2379, 1.5974 and 1.2433 respectively. Cumulatively the three factors explain approximately 63 percent of the variance in the data set. Table 3.9 shows the rotated factor loadings and the unique variances of the individual item in the construct.

**Table 3.9: Rotated Factor Loadings and Unique Variance**

<b>Variables</b>	<b>Factor 1 Loadings</b>	<b>Factor 2 Loadings</b>	<b>Factor 3 Loadings</b>	<b>Uniqueness</b>
Owner manager characteristics				
Age	-0.0115	-0.0005	<b>0.9719</b>	0.0554
Educational Attainment	0.0135	<b>0.7628</b>	0.1562	0.3936
Academic Training	-0.0340	<b>0.7181</b>	-0.1957	0.4448
e-Acct Capability	<b>0.9239</b>	0.0017	-0.0040	0.1463
IT Capability	<b>0.9496</b>	-0.003	-0.0016	0.0983
Financial Accounting Knowledge	<b>0.9874</b>	-0.0076	-0.0061	0.0249
Management Accounting Knowledge	<b>0.9866</b>	-0.0109	-0.0087	0.0264
Business Characteristics				
Source of Finance	-0.1371	0.2260	<b>0.8397</b>	0.2250
Business Total assets	0.1330	<b>0.5664</b>	<b>-0.4881</b>	0.4233
Business Registration Status	-0.0061	<b>0.6994</b>	-0.1654	0.4834
International linkage	-0.0705	<b>0.7026</b>	0.2902	0.4171
Business Age	<b>0.8422</b>	0.0445	0.0533	0.2858
Total number of employee	<b>0.6529</b>	-0.0205	0.1259	0.5575
Employee e-Acct expertise	<b>0.8876</b>	-0.0165	0.0816	0.2052
Technological Characteristics				
Technology Complexity	<b>0.9264</b>	n.a	n.a	0.1417
Technology Compatibility	<b>0.9375</b>	n.a	n.a	0.1210
Technology Relative Advantage	<b>0.9528</b>	n.a	n.a	0.0921
Technology Security	<b>0.7718</b>	n.a	n.a	0.4043
Technology Cost on annual profit	<b>0.8781</b>	n.a	n.a	0.2290
Technology Cost on capital	<b>0.8409</b>	n.a	n.a	0.2929
External characteristics				
Business Association Membership	0.0156	-0.0386	<b>0.8630</b>	0.2535
Presence of External IT Consultant	0.0931	0.0761	<b>0.6472</b>	0.5667
Presence of External IT Supplier	0.0133	<b>0.8448</b>	0.0879	0.2783
Government's Support	<b>0.7075</b>	0.0055	-0.0049	0.4994
Customers' Request	<b>0.8466</b>	0.0395	0.1168	0.2680
Competitors' Influence	<b>0.8508</b>	0.0381	0.0159	0.2744
External Expertise influence	0.0423	<b>0.8475</b>	-0.0209	0.2795
Business Association influence	0.1528	0.3761	<b>0.5776</b>	0.5015

Note: The highest factor loadings on any of the factors greater than 0.4 or less than -0.4 are in bold

**Source: Analysis of Field survey (2017)**

Table 3.9 shows the Rotated Factor Loadings and Unique Variances of each item in the construct. Factor loadings depict the correlation coefficients between items in the construct and the factors. As a rule of thumb factor loadings closer to 1 or -1 indicate a very strong correlation on the factor it loads on while factor loadings closer to 0 suggest a weak correlation with the factor (Muijs, 2011). In addition Muijs (2011) stipulates that an

item belongs to a factor if its factor loadings on that factor are more than 0.3 or less than -0.3. Owner/manager characteristics loads three factors although, there are seven (7) items in the category.

From the result, e-Accounting capability, IT capability, financial accounting knowledge and management accounting knowledge all load on factor 1 with 0.9239, 0.9496, 0.9874 and 0.9866 factor loadings respectively. The factor loadings of the four measures are quite high almost close to 1. This suggests that the four measures are highly interrelated. Owner/manager Educational Attainment and Academic training load on factor 2 with 0.7628 and 0.7181 factor loadings respectively. This means that the two measures are interrelated. Owner/manager age loads on factor 3 with 0.9719 factor loading. The above result suggests that the three factors identified in the first construct uniquely define the cluster interrelatedness of items; this is without prejudice to the fact that none of the items in Owner/manager characteristics cross loads on one another. Hence, the three factors identified in the first construct can be called owner/manager knowledge, owner/manager educational background and owner/manager age.

The second construct examined business characteristics. Here, business age, total number of employees and employee e-Accounting expertise loads on factor 1 with 0.8422, 0.6529 and 0.8876 factor loadings respectively. This indicates that the three measures are interrelated. Business Total Assets, registration Status and international affiliation loads on Factor 2 with 0.5664, 0.6994 and 0.7026 factor loadings respectively. Business total assets and source of finance load on factor 3 with 0.8397 and -0.4881 factor loadings respectively. This means that business total assets cross loads on factor 2 and three. Costello and Osborne (2005) submits that cross loading (split loadings) is said to occur when items load at 0.32 or higher on two or more factors. However, items with split loadings can be accommodated if that's the latent nature of the variable (DiStefano, Zhu & Mindrila, 2009 and Yong & Pearce, 2013). In this case, the item (business total assets) was retained in the study because it is a valid measure in determining the size of the business (Zhu *et al.*, 2006 and Jeon *et al.*, 2006).

The third construct, Technological Characteristics has all items loading on a factor. That is, technology complexity, compatibility, relative advantage, security, technology cost on annual profit and technology cost on capital loads on one factor with factor loadings of

0.9264, 0.9375, 0.9528, 0.7718, 0.8781 and 0.8409 respectively. This suggests that the six measures are interrelated.

The Fourth Construct, external characteristics comprises of business association membership, presence of external IT consultant, presence of external IT supplier, government support, customers request, competitors Influence, external expertise influence and business association influence. Government's support, customers' request and competitors' influence load on factor 1 with 0.7075, 0.8466 and 0.8508 factor loading respectively. Presence of external IT supplier and external expertise influence loads on factor 2 with 0.8448 and 0.8475 factor loading respectively. Business association membership, presence of external IT consultant and business association influence loads on factor 3 with 0.8630, 0.6472 and 0.5776 factor loadings respectively. The above result suggests that the three factors identified in the fourth construct uniquely define the cluster interrelatedness of items.

#### **3.6.4. Reliability Test (Cronbach's $\alpha$ )**

The Cronbach's  $\alpha$  being the most commonly used measure of reliability was used to check individual item on the questionnaire (Chau, 1999). This check is however consistent with similar studies (Zhu & Kraemer, 2005 and Park, 2009). Table 3.10 shows the Cronbach's Alpha result as computed by STATA (an Integrated Statistical Software Package)

**Table 3.10: Reliability Test (Cronbach's Alpha)**

Item	Item Cronbach's $\alpha$	Total item Cronbach's $\alpha$	Decision
e-Accounting characteristics		0.8867	High
e-accounting Presence	0.9917		
Type of e-Accounting	0.7487		
Name of e-Accounting	0.7590		
ICT device used in e-Accounting	0.7528		
Owner manager characteristics		0.6446	Low
Age	0.6919		
Educational Attainment	0.6777		
Academi □ Training	0.8158		
e-Acct Capability	0.4905		
IT Capability	0.5082		
Financial Accounting Knowledge	0.4835		
Management Accounting Knowledge	0.4829		
Business Characteristics		0.4594	Low
Source of Finance	0.4496		
Business Total assets	0.4326		
Business Registration Status	0.4586		
International linkage	0.4927		
Business Age	0.3187		
Total number of employee	0.4704		
Employee expertise	0.3079		
Technological Characteristics		0.9365	High
Technology Complexity	0.9186		
Technology Compatibility	0.9160		
Technology Relative Advantage	0.9150		
Technology Security	0.9475		
Technology Cost to annual profit	0.9225		
Technology Cost to capital	0.9299		
External characteristics		0.5484	Low
Business Association Membership	0.5297		
Presence of External IT Consultant	0.5347		
Presence of External IT Supplier	0.4341		
Government's Support	0.5436		
Customers' Request	0.5316		
Competitors' Influence	0.5352		
External Expertise influence	0.5052		
Business Association influence	0.4640		

**Source: Field Survey Analysis (2017)**

Nunnally (1987) advocates a minimum of 70 percent as adequate level of Cronbach Alpha. However the work of Tavakol and Dennick (2011) stipulates that the scores of cronbach alpha tends to increase if items in the measure interrelate to each other and

lower scores if items in the measure do not interrelate to one another. From table 3.10 above, this was the case of items on Owner/manager, Business and external characteristics. For instance, not all items on owner manager characteristics (comprising of age, educational Attainment, academic Training, IT Capability and accounting Knowledge) relate with one another. Although all items captured under owner manager characteristics defines the personal characteristics of the Owner/manager (Ismail & King, 2007 and Hajiha & Azizi, 2011). The level of Owner manager capability on IT relates with their level of accounting knowledge but, the age of the Owner/manager do not necessary stipulates their educational attainment and academic training hence results in a low total item cronbach alpha score of 0.6446.

The same situation of lack of interrelatedness amongst items as it regards to owner/manager also applies to business and external characteristics. For items on business characteristics (comprising source of finance, business total assets, business registration status, international linkage, business age, total number of employee and employee expertise) the cronbach alpha reports the total item lowest score (0.4594). The reason for this is traceable to the fact that the business source of finance, business registration status, international linkage, business total assets, business age, total number of employee and employee expertise do not always depend on one another. Even though, they are all indices of Business Characteristics (Salehi & Abdipour 2013 and Pongpatrachai *et al.*, 2013)

The items captured under external characteristics define components outside the business organization that influences the use of e-Accounting (Ismail & King 2007 and Pongpatrachai *et al.*, 2013). However, business association membership, presence external expertise presence, government support, customers request, competitors influence, external expertise influence and business association influence do not necessarily determine one another.

Items on e-Accounting and Technology characteristics report high total item cronbach alpha (0.8867 and 0.9365 respectively) above the threshold of 70 percent. This indicates high interrelatedness of items in the measure.

### 3.7. Method of Data Presentations and Analysis

In this study the primary source of data was utilized, the data generated from this source was analyzed using both the descriptive and inferential statistics. The analytical technique employed in this study was the Binary logistic regression analysis. The specification for the Binary logistic regression analysis is

$$\text{Ln} \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_n X_n + \mu \quad (1)$$

In statistics, a Binary logistic regression analysis is used when predicting the outcome of a dichotomous/categorical dependent variable based on sets of explanatory variables (Larget, 2007). The Binary logistic regression is deemed appropriate for the study being that it addresses the prediction of discrete variables by a mix of continuous and discrete predictors. In addition it provides knowledge of the relationships and strengths among the variables. In other to circumvent any error in the use of Binary logistic regression as well as the need to produce a valid result the study also considered the assumptions of Binary logistic regression. The assumptions of Binary logistic regression are; a linear relationship is not assumed between the dependent and independent variables, a minimum of fifty sample cases is recommend per predictor, the dependent variable must be dichotomy (two categories) in nature and that each of the categories must be mutually exclusive and exhaustive (Park, 2013).

These assumptions were all maintained in the study in the following ways: Firstly a linear relationship is not assumed between the dependent and independent variables because it is a measure of probability i.e. the likelihood of an event occurring in respect to another. Secondly, the study examined 410 sample cases, this is above the 50 minimum sample case prescribed. Thirdly the dependent variable (e-Accounting implementation) is dichotomous in nature (i.e. implementers versus non-implementers of e-Accounting system). Fourthly each of the categories is mutually exclusive and exhaustive (i.e a case of e-Accounting implementation are mutual exclusive and exhaustive of a case of e-Accounting non-implementation). Explicitly, the dependent variable in the study is a dichotomous variable representing the implementation and non-implementation of e-Accounting system measured as 1 and 0 respectively; while the independent variables consist of dichotomous, categorical and continuous sets of explanatory variables



representing the organisational determinants (Owner's/Manger's Characteristics, Technological Characteristics, Business Characteristics and External Characteristics).

Following the above, the Binary Logistic Regression was used to test the four (4) hypotheses formulated in the study.

### **3.8. Model Formulation and *A priori* Expectation**

Tornatzky and Fleischer (1990) Technology-Organisation-Environment Framework (TOE) was deemed appropriate to be adapted in the study because of its emphasis on three components that influence the adoption of a new technology in the organisation. TOE framework identified that the components of technology, organisation and environment are determinants of a technological innovation adoption. In addition to this, TOE Framework concerns the adoption of technology at an organisational level. This was also appropriate with the focus of the study, as against other models, frameworks or theories of technological adoption that is focused at an individual level. Prior studies buttress the robustness of TOE framework (Zhu *et al.*, 2003; Tan & Lin, 2012; Yeh, Lee & Pai, 2014). For instance, Tan and Lin (2012) maintain that the technology component of TOE framework is a predictor of an innovation adoption. Likewise, Zhu *et al.* (2003) support the usefulness of TOE framework in explaining the adoption of a technology.

The multi facet components of TOE can be directly connected to the study by an attempt to explain how each of these components relates to the study. First, the dimension of technology framework that concerns the characteristics of technology available within and outside the business enterprise is linked to the study second objective. The study second objective is to determine the impact of MSEs Technological characteristics in facilitating the implementation of e-Accounting system. The technological characteristics considered in this study are; Technological complexity, compatibility, relative advantage, security and cost.

Second, the dimension of Organisation framework relating to certain indices that differentiates an enterprise from another is connected to the study third objective. The third objective is to ascertain the extent to which MSEs Business characteristics accelerate the implementation of e-Accounting system. The business characteristics identified in the study are; business size, age, registration status, international affiliation,

source of finance and internal expertise. Third, the aspect of environment framework describes the external context that influences the enterprise use of technological innovation. The fourth objective of the need to assess the impact of MSEs External characteristics on the implementation of e-Accounting system directly addresses this. For the purpose of the study the support from Government, request from customer, pressure from competitors, external expertise and influence of business association are the variables considered in the fourth objective.

The study adapted the technology, organisation and environment framework by Tornatzky and Fleischer (1990) and added an additional component of Owner/Manager Characteristics. The component of Owner/Manager characteristics is vital to this study due to the context in which the study is being carried out. The study seeks to find the organisational determinants of e-Accounting system implementation in the context of micro and small enterprise.

According to Thong (1999) the owner/manager conceived the business idea as such possess a clearer picture of the business objectives and directions than anyone else in the firm. In addition the owner/manager constitutes the key decision making person in a micro and small enterprise (Padachi, 2012). Given the above, it's expedient to ascertain also if the Owner/manager personal characteristics engender the implementation of e-Accounting system. From the foregoing the composition of Organisational determinants is decomposed into Owner/Manager Characteristics (model 1a), Technological Characteristics (model 1b), Business Characteristics (model 1c) and External Characteristics (model 1d).

### ***3.8.1. A priori Expectation of Owner/Manager Characteristics and e-Accounting System Implementation***

Model (1a) relates to the effect of each of the Owner/Manager Characteristics on e-Accounting system implementation. A negative relationship is expected between Owner/Manager Age and the implementation of e-Accounting system in MSEs. This means that the lower the age of Owner/Manager the higher the level of e-Accounting system implementation. Wiersema and Bantel (1992) found that firms most likely to undergo changes in corporate strategy had the top managers characterized by lower average age. The level of Owner/Manager Educational Attainment is envisaged to

positively influence e-Accounting system in MSEs. Becker (1970) maintained highly educated individuals are receptive to change. As a result it is anticipated that Owner/Manager with high levels of education to be receptive in integrating ICT in Accounting process.

The study expects a positive relation between Owner/Manager academic training and e-Accounting system implementation. It was expected that the integration of ICT in the accounting process of MSEs is closely associated with individuals with Science/Engineering/Technology/Architecture and Commercial/Social Science based background than individuals with Arts/Humanities/Law based background. Basically, more compliance in integrating ICT in accounting process is expected from Owner/Manager with Science/Engineering/Technology/Architecture and Commercial/Social Science academic training than Owner/Manager with Arts/Humanities/Law based academic training. Hitt and Tyler (1991) discovered that academic training of executives affect strategic decision making.

A positive relationship is expected between Owner/Manager Information Technology capability and the implementation of e-Accounting system. The level of CEO knowledge on general ICT usage significantly influences the likelihood of e-business adoption (Jeon, Hanb & Leec, 2006). In the same vein the level of knowledge possessed by Owner/Manager on Information Technology can increase the level of e-Accounting implementation. The higher the level of Owner/Manager knowledge in Accounting the greater the expectation of implementing e-Accounting system in MSEs. Owner/manager knowledge of accounting was found to be significantly greater in Accounting Information System aligned firms than less aligned firms (Ismail & King, 2007). Table 3.11 shows the expected relationship between Owner/Manager characteristics and e-Accounting system implementation in summary.

**Table 3.11: *A priori* Expectation of Model (1a)**

<b>Variables</b>	<b>Variables</b>	<b><i>A priori</i> Expectation</b>
<i>AGE</i>	Owner/Manager Age	$\beta_1 < 0$
<i>EDU</i>	Owner/Manager Educational Attainment	$\beta_1 > 0$
<i>ACT</i>	Owner/Manager Academic Training	$\beta_1 > 0$
<i>ITK</i>	Owner/Manager Information Technology Knowledge	$\beta_1 > 0$
<i>ACK</i>	Owner/Manager Accounting Knowledge	$\beta_1 > 0$

### **3.8.2. *A priori Expectation of Technological Characteristics and e-Accounting System Implementation***

Model (1b) concerns the influence of each of the technological Characteristics on e-Accounting system implementation. The study expects a negative relationship between system complexity and e-Accounting system implementation. This means that the higher the simplicity of Owner/Manager to use e-Accounting the higher the implementation of e-Accounting. Likewise, lesser complexity of e-business increases the probability of adopting e-business by Korean SMEs (Jeon, *et al.*, 2006).

Higher compatibility of e-Accounting system is envisaged to positively influence e-Accounting system implementation. Zhu *et al.* (2006) found that compatibility of e-business to existing business processes is critical to the use of e-business. The study expects a positive relationship between the relative advantage of e-Accounting system and e-Accounting system implementation. Peslak *et al.* (2010) maintained that the relative advantage of social networking were significant in social networking. As such the perceived advantage of implementing e-Accounting system over existing system will influence the actual implementation of an e - Accounting system.

The security of the e-Accounting system is anticipated to enhance the implementation of the e-Accounting usage. The study assumes that the more the Owner/Manager perceives the e-Accounting system is secured in keeping transactions the more they are encouraged to implement e-Accounting system. Zhu *et al.* (2006) envisage that security concern may retard e-business diffusion.

Lastly, amongst the technological characteristics is system cost. The higher the perceive cost of implementing e-Accounting system the lesser the implementation of e-Accounting system in MSEs. In line with this expectation, Jeon *et al.* (2006) asserts that lesser burdens of e-business adoption costs to the firm will increase the probability of adopting e-business by Korean SMEs. Table 3.12 shows the expected relationship between Technological characteristics and e-Accounting system implementation in summary.

**Table 3.12: *A priori* Expectation of Model (1b)**

<b>Variables</b>	<b>Description</b>	<b><i>A priori</i> Expectation</b>
<i>TCX</i>	Technological Complexity	$\beta_1 < 0$
<i>TCM</i>	Technological Compatibility	$\beta_1 > 0$
<i>TRA</i>	Technological Relative Advantage	$\beta_1 > 0$
<i>TSE</i>	Technological Security	$\beta_1 > 0$
<i>TCT</i>	Technological Cost	$\beta_1 < 0$

### ***3.8.3. A priori Expectation of Business Characteristics and e-Accounting System Implementation***

Model (1c) relates to the effect of each of the indicators of Business Characteristics on e-Accounting system implementation. The first indicator considered in the study is business size. The size of the business in relation to the total asset employed and number of employees is anticipated to have a positive influence on e-Accounting implementation. This expectation is on the basis that MSEs employing higher total assets can deploy resources to implement e-Accounting system. Secondly, the age of MSEs business is expected to be positively related to e-Accounting implementation. MSEs with longer years of existence are likely to be engaged in more economic transactions as such making the implementation of e-Accounting desirable.

The business registration status of a business is expected to positively influence the implementation of e-Accounting. The reason for this is on the basis that MSEs that are registered have plans to continue to exist into the unforeseen future. As such the going concern status of the business can propel the business to implement an efficient accounting system. In addition the potentials for growth and expansion is more visible in registered business than unregistered business (Babajide, 2011). Hence, the expansion necessitates the implementation of e-Accounting system. The findings of Olise, Anigbogu, Edoko and Okoli (2014) supports the claim that registration of business increase the probability of ICT adoption in MSEs. The study expects a positive relation between international affiliation of an MSEs and e-Accounting system implementation. Basically, an internationalised business facilitates access to knowledge and networks that increases the demand for an e-Accounting system.

A positive relationship is expected between a business that is externally financed with e-Accounting implementation and a negative relationship is expected between a business that is internally financed with e-Accounting implementation. A business that is externally financed might be required to present a regular financial statement to its investors and creditors as such might require an e-Accounting system characterised with the ability of generating timely report in an efficient manner.

The need to provide this report will increase the need to implement e-Accounting system while MSEs that are financed by Owners, friends and family may not see the need to implement an e-Accounting system since there is no need to make report to external parties. The higher the number and level of capacity of an employee in using ICT enabled Accounting applications is expected to increase the e-Accounting system implementation in MSEs. The Owner/Manager of MSEs with employee able to use ICT enabled Accounting applications are persuaded to implement e-Accounting system. Table 3.13 shows the expected relationship between Owner/Manager characteristics and e-Accounting system implementation in summary.

**Table 3.13: *A priori* Expectation of Model (1c)**

<b>Variables</b>	<b>Description</b>	<b><i>A priori</i> Expectation</b>
<i>BSZ</i>	Business Size	$\beta_1 > 0$
<i>BAG</i>	Business Age	$\beta_1 > 0$
<i>BRS</i>	Business Registration status	$\beta_1 > 0$
<i>ITA</i>	International Affiliation	$\beta_1 > 0$
<i>SOF</i>	Source of Finance	$\beta_1 > 0$
<i>INE</i>	Internal Expert	$\beta_1 > 0$

#### **3.8.4. *A priori* Expectation of External Characteristics and e-Accounting System Implementation**

Model (1d) concerns the influence of each of the external Characteristics on e-Accounting system implementation. The study expects a positive relationship between government support and e-Accounting system implementation. The provision of ICT infrastructural drivers such as Internet, electricity and telecommunications can enhance the implementation of e-Accounting system. This means that the higher the support of government the higher the implementation of e-Accounting.

The incessant request from an innovative customer can also force an MSEs to implement e-Accounting system. As a result the study expects a positive relationship between Customers request and e-Accounting system implementation. The study envisages a positive relationship between e-Accounting implementation and competitors' pressure. Consequently, the higher the intensity of competition the higher the like hood to implement e-Accounting system. The engagement of external expertise in the business context of MSEs can increase the implementation of e-Accounting system. Therefore, the study expects a positive relation between external expertise and the implementation e-Accounting system. The influence of business association membership can propel the implementation of e-Accounting system. MSEs that are members of trade and professional association are opportune to enjoy advice from other colleagues'. Subsequently, the study expects a positive relationship between Business association influence and e-Accounting system implementation. Table 3.14 shows the expected relationship between external characteristics and e-Accounting system implementation in summary.

**Table 3.14: *A priori* Expectation of Model (1d)**

<b>Variables</b>	<b>Description</b>	<b><i>A priori</i> Expectation</b>
<i>GOV</i>	Government Support	$\beta_1 > 0$
<i>CUS</i>	Customer Request	$\beta_1 > 0$
<i>COM</i>	Competitors Pressure	$\beta_1 > 0$
<i>EXE</i>	External Expertise	$\beta_1 > 0$
<i>MRA</i>	Business Association Influence	$\beta_1 > 0$

### **3.9. Model Specifications**

The model employed in this study was based on the cross-section primary data collected in respect of Organisational determinants and the implementation of e-Accounting system amongst MSEs in Nigeria. The main model was divided into four sub-models. The sub-model (1a, 1b, 1c and 1d) measures each of the four components of the independent construct' being a function of the dependent variable.

### 3.9.1. Main model (1)

The research main model adapted to investigate Organisational determinants and the implementation of e-Accounting system amongst MSEs in Nigeria can be written in a functional form as:

$$e - ACCT = f(OMC, TEC, BXC, EXTC) \quad (2)$$

Using logistic regression, the model can be stated explicitly as:

$$\ln \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_n X_n + \mu \quad (3)$$

$$e - ACCT = \beta_0 + \beta_1 OMC_i + \beta_2 TEC_i + \beta_3 BXC_i + \beta_4 EXTC_i + \mu \quad (4)$$

Where:

$\ln$	Logarithm:
$P$	Probability: This represents the probability that the MSEs implements e-Accounting system
$1 - P$	This represents the probability that the MSEs do not implement e-Accounting system
$e-ACCT$	e-Accounting system implementation: This being a dichotomous variable, 1 represents the implementation of e-Accounting system and 0 represents the non-implementation of e-Accounting system. Indicators to capture the implementation/non-implementation of e-Accounting system include the use of Smart mobile devices, Computers and Internet in the use of spreadsheets, off-the-shelve, in-house-built, web-based accounting applications.
$OMC$	Owner's/Manager's Characteristics: Indicators include Owner's/Manager's Age, Educational Attainment, Academic Training, Information Technology Knowledge and Accounting Knowledge.
$TEC$	Technological Characteristics: Indicators include System Complexity, Compatibility, Relative advantage, Security and Cost.
$BXC$	Business Characteristics: These were measured using Business Size, Business age, Business Registration status, International Affiliation, Source of finance, Internal expertise



*EXTC* External Characteristics: These were measured using Government Support, Customer request, Competitors pressure, External Expertise and Business Association influence

$\mu$ : The error term.

### 3.9.2. Sub-model (1a)

The sub-model for measuring the Owner/Manager characteristics that affect e-Accounting implementation in MSEs is stated below:

$$e - ACCT_{omc} = \beta_0 + \beta_1 AGE_i + \beta_2 EDU_i + \beta_3 ACT_i + \beta_4 e - ACK_i + \beta_5 ITK_i + \beta_6 FAK_i + \beta_7 MAK_i + \mu \quad (5)$$

Where:

*e-ACCT* e-Accounting system implementation: This being a dichotomous variable, 1 represents the implementation of e-Accounting system and 0 represents the non-implementation of e-Accounting system. Indicators to capture the implementation/non-implementation of e-Accounting system include the use of Smart mobile devices, Computers and Internet in the use of spread sheets, off-the-shelve, in-house-built, web-based accounting applications.

*AGE* Owner's/Manager's Age: Actual age of Owner/Manager

*EDU* Owner's/Manager's Educational Attainment: Qualification acquired by the Owner/Manager till date.

*ACT* Owner's/Manager's Academic Training: This is captured by the specialisation of the Owner/Manager in either the Science, Commercial or Art Discipline.

*e-ACK* Owner's/Manager's e-Accounting Knowlegde: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the capability possessed on the use of accounting applications.

*ITK* Owner's/Manager's Information Technology Capability: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the knowledge possessed on the use of ICT applications (word processing, database, spread sheets and accounting applications) and ICT devices (Internet and e-mail).

*FAK* Owner's/Manager's Financial Accounting Knowledge: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the level of skill possessed in financial accounting.

*MAK* Owner's/Manager's Management Accounting Knowledge: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the level of skill possessed in management accounting.

$\mu$ : The error term.

### 3.9.3. Sub-model (1b)

The sub-model for measuring the technological characteristics that affect e-Accounting implementation is stated below:

$$e - ACCT_{tec} = \beta_0 + \beta_1 TCX_i + \beta_2 TCM_i + \beta_3 TRA_i + \beta_4 TSE_i + \beta_5 TCTp_i + \beta_6 TCTc_i + \mu \quad (6)$$

Where:

*e-ACCT* e-Accounting system implementation: This being a dichotomous variable, 1 represents the implementation of e-Accounting system and 0 represents the non-implementation of e-Accounting system. Indicators to capture the implementation/non-implementation of e-Accounting system include the use of Smart mobile devices, Computers and internet in the use of spread sheets, off-the-shelve, in-house-built, web-based accounting applications.

*TCX* Technological Complexity: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the ease of using an e-Accounting system.

*TCM* Technological Compatibility: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the ability of the e-Accounting system to meet the enterprise need

*TRA* Technological Relative Advantage: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the perceived advantage an e-accounting system has over other system.

*TSE* Technological security: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the degree to which the e-Accounting system is secured to conduct Accounting transactions.

*TCTp* Technological Cost on profit: Likert scale coding of 1 to 5 of very high to very low on the perceived cost of adopting e-Accounting in relation to profit.

*TCTc* Technological Cost on capital: Likert scale coding of 1 to 5 of very high to very low on the perceived cost of adopting e-Accounting in relation capital employed.

$\mu$ : The error term.

### 3.9.4. Sub-model (1c)

The sub-model for measuring the Business characteristics that affect e-Accounting implementation in MSEs is stated below:

$$e - ACCT_{bxc} = \beta_0 + \beta_1 BSZ_i + \beta_2 BAG_i + \beta_3 BRS_i + \beta_4 BIL_i + \beta_5 SOF_i + \beta_6 TNE_i + \beta_7 EAE_i + \mu \quad (7)$$

Where:

<i>e-ACCT</i>	e-Accounting system implementation: This being a dichotomous variable, 1 represents the implementation of e-Accounting system and 0 represents the non-implementation of e-Accounting system. Indicators to capture the implementation/non-implementation of e-Accounting system include the use of Smart mobile devices, Computers and internet in the use of spreadsheets, off-the-shelve, in-house-built, web-based accounting applications.
<i>BSZ</i>	Business Total Assets: This is captured by the enterprise total asset in naira.
<i>BAG</i>	Business Age: This is captured by the number of years since business operation.
<i>BRS</i>	Business Registration Status: This is coded as 1 for registration of business with Corporate Affairs Commission (CAC) and 0 for no registration with Corporate Affairs Commission (CAC).
<i>BIL</i>	Business International Linkage: This is coded as 1 for the link with international enterprise(s) and 0 for no link with international enterprise(s). Likert scale coding of 1 to 5 of very high to very low on the strength of relationship with international enterprise(s).
<i>SOF</i>	Source of Finance: This is captured by indicating the different source of financing the business (Personal, Friends/Family, Government Schemes, Bank loan, Cooperative society).
<i>TNE</i>	Total Number of Employees: This is captured by the enterprise total number of employee.
<i>EAE</i>	Employee e-Accounting Expertise: This is captured by the number of employee able to use e-Accounting system. Likert scale coding of 1 to 5 of very high to very low on the level of employee capacity to use e-Accounting system
$\mu$ :	The error term.

### 3.9.5. Sub-model (1d)

The sub-model for measuring the External Characteristics that affects e-Accounting implementation in MSEs is stated below:

$$e - ACCT_{extc} = \beta_0 + \beta_1 GOV_i + \beta_2 CUS_i + \beta_3 COM_i + \beta_4 EXE_i + \beta_5 BAI_i + \mu \quad (8)$$

Where:

<i>e-ACCT</i>	e-Accounting system implementation: This being a dichotomous variable, 1 represents the implementation of e-Accounting system and 0 represents the non-implementation of e-Accounting system. Indicators used to capture the implementation/non-implementation of e-Accounting system include the use of Smart mobile devices, Computers and Internet in the use of spreadsheets, off-the-shelve, in-house-built, web-based accounting applications.
<i>GOV</i>	Government Support: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the awareness of government policy/initiatives on ICT and the level of existence of ICT infrastructure provided by Government. The existence of ICT infrastructure by government is to captured by the availability of electricity supply, telecommunication facilities and Internet connectivity.
<i>CUS</i>	Customer request: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on level of customers request to utilise e-Accounting.
<i>COM</i>	Competitors pressure: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the influence of other competitors to the enterprise on the use of e-Accounting system and the number of firms seen as competitors.
<i>EEI</i>	External Expertise Influence: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the effectiveness and adequacy of the external IT consultant or vendor in providing ICT support.
<i>EIC</i>	This is coded as 1 for the presence of an external consultant while 0 for absence of an external consultant.
<i>EIS</i>	This is coded as 1 for the presence of an external supplier while 0 for absence of an external supplier.
<i>BAM</i>	Business Association Membership: This is coded as 1 if the enterprise is a member of a registered association (trade association or professional association) and 0 for not been a member.

*BAI* Business Association influence: Likert scale coding of 1 to 5 of strongly agree to strongly disagree on the level of influence of business association on MSEs.

$\mu$ : The error term.

Table 3.15 shows the model specification in summary. In the model specification the measurements define the indicators, the indicator defines the constructs. The source refers to authors who have used similar scales adopted and adapted by the study.

**Table 3.15: Model Specification in Summary**

<b>Constructs</b>	<b>Indicators</b>	<b>Measurements</b>	<b>Source</b>
<b>(Dependent)</b> e-Accounting system Implementation	Accounting applications	The use of spreadsheets The use of purchases Accounting Software The use of In-house-developed Accounting Software The use of Web-based Accounting Software	
	ICT devices.	The use of smart mobile phone The use of Computer The use of Internet	
<b>(Independent)</b> Owner's/ Manager's Characteristics	Age	Actual Age of Owner/Manager ( $\approx$ )	Wiersema and Bantel (1992)
	Educational Attainment	Qualification acquired to date ( $\approx$ )	
	Academic Training	Area of specialisation ( $\approx$ )	Wiersema and Bantel (1992)
	e-Accounting Capability	Level of capability on the use accounting application (1~5)	
	IT capability	Level of capability on the use ICT devices and application (1~5)	Jeon <i>et al.</i> (2006)
	Financial Accounting Knowledge	Level of Skills possessed in Financial Accounting (1~5)	
	Management Accounting Knowledge	Level of skill possessed in Management Accounting (1~5)	
<b>(Independent)</b> Technological Characteristics	Technological Complexity	Ease of Using an e-Accounting system (1~5)	
	Technological Compatibility	Ability of e-Accounting system in meeting organisation need (1~5)	Zhu <i>et al.</i> (2006)
	Technological Relative Advantage	Perceived advantage of e-Accounting system over other system (1~5)	Zhu <i>et al.</i> (2006)
	Technological Security	Degree at which the e-Accounting system is secure to conduct accounting transactions (1~5)	Zhu <i>et al.</i> (2006)
	Technological Cost on Annual Profit	Perceived cost of e-Accounting system to profit (1~5)	Zhu <i>et al.</i> (2006)
	Technological Cost on Capital	Perceived cost of e-Accounting system to Capital (1~5)	Zhu <i>et al.</i> (2006)

<b>(Independent)</b> Business Characteristics	Business Total Assets	Total asset of enterprise in naira (≈)	Zhu <i>et al.</i> (2006); Jeon <i>et al.</i> (2006)
	Total number of employee	Number of Employee (/)	
	Business Age	Number of years since business operation (/)	
	Business registration status	Registration with Corporate Affairs Commission (Y/N)	
	Business International Linkage	Link to International Organisation (Y/N) Areas of International Organisation linkage (≈)	
	Source of finance	Source of financing the enterprise (≈)	
	Employee e-Accounting expertise	The number of employee able to use e-Accounting system (/) Level of capacity to use e-Accounting system (1~5)	Jeon <i>et al.</i> (2006)
<b>(Independent)</b> External Characteristics	Government support	Awareness of Government policy/initiatives on the use of ICT (1~5) Level of existence of ICT Infrastructure (1~5) Presence of ICT Infrastructure (≈)	Jeon <i>et al.</i> (2006)
	Customers' Support	Level of customers' request on the use of e-Accounting (1~5)	
	Competitors' pressure	Level of Competitors' influence on e-Accounting usage (1~5)	Zhu <i>et al.</i> (2006). Jeon <i>et al.</i> (2006)
	Presence of External IT Consultant Expert	Presence of External IT Consultant (Y/N)	Thong (2001)
	Presence of External IT Supplier Expert	Presence of External IT Supplier (Y/N)	
	External expertise influence	Effectiveness of consultant in providing information system support (1~5) Adequacy of vendor in providing information system support (1~5)	
	Business Association Membership	Membership of a Business association (Y/N)	
	Influence of Business Association	Influence of Business association (1~5)	

Notes: Coding in parenthesis is as follows: (1~5) represents five point Likert scale, (Y/N) represents dummy variable (yes/no), (/) represents continuous variable, ( ) represents open ended question and (≈) represents Choice from a list of options.

## CHAPTER FOUR

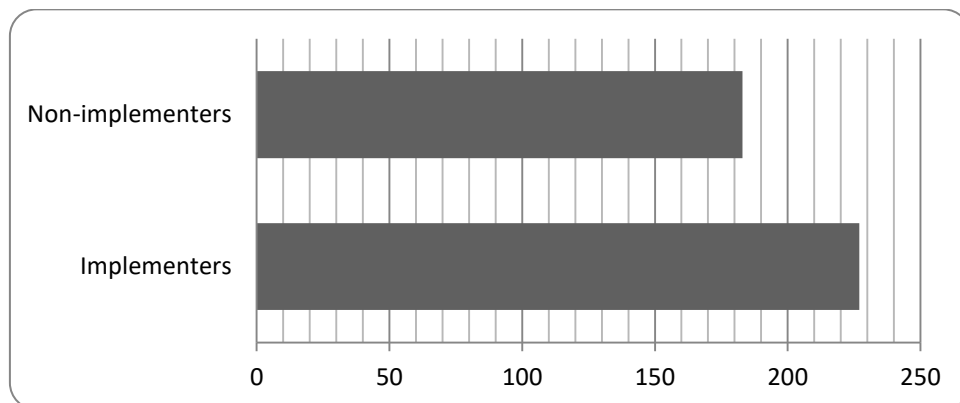
### DATA PRESENTATION AND ANALYSIS

#### 4.1. Introduction

In this chapter, the data employed in the study are presented, analysed and interpreted. To begin, section 4.1 presents the descriptive overview of data classification by business e-Accounting status. Section 4.2 describes the descriptive overview of study statistics. This is broken down into descriptive overview of owner /manager characteristics, business characteristics, technological characteristics and external characteristics. Section 4.3 addresses the Binary Logistic Regression estimates for the four hypotheses. The four hypotheses put forward were tested in section 4.4. Section 4.5 presents the proposed e-Accounting system platform.

#### 4.2. Classification of Data by Business e-Accounting Status

The study classifies the data by the e-Accounting status. This was very important because it forms the basis in which the data was analysed and inferences were made. With respect to Business e-Accounting Status, figure 4.1 shows the chart of the implementers and non-implementers of e-Accounting system. Of the total 410 respondents, 183 of the respondents make use of the manual accounting system while 227 use the electronic accounting system.



**Figure 4.1: Classification of Data by Business e-Accounting Status [Field Survey Analysis (2017)]**

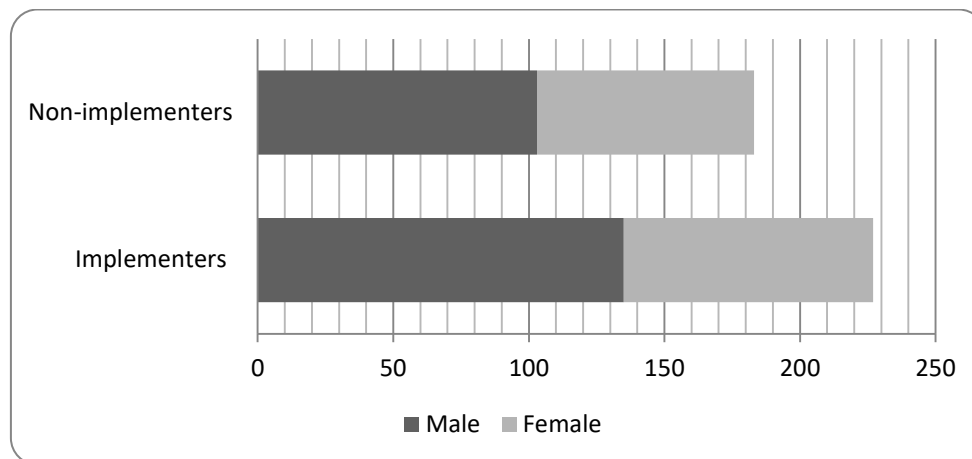


### 4.3. Descriptive Overview of Study Statistics

Section 4.3.1, 4.3.2, 4.3.3 and 4.3.4 shows the descriptive overview of owner/manager, business, technology and external characteristics. This section also presents the cross chart of the individual variable by e-Accounting status. Thereafter, a table is presented, the table summarises all the variables in each sub-section.

#### 4.3.1. Descriptive Overview of Owner/Manager Characteristics

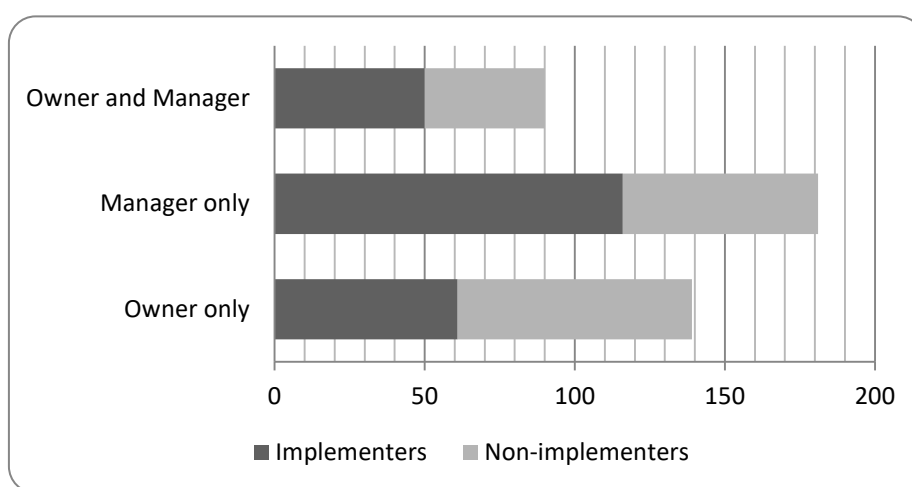
This section describes the characteristics of the owner/manager. These include the gender, organisational status, age, educational attainment, academic training of the owner/manager. Figure 4.2 displays the cross chart of respondents gender by e-Accounting Status. The figure reveals that 135 (59 percent) of the implementers of e-Accounting are male while 92 (41 percent) are female. In the same vein 103 (56 percent) of the non- implementers of e-Accounting are male while 80 (44 percent) are female. In total 238 (58 percent) are male while 172 (42 percent) are female. This data supports the claim by GPFI/IFC enterprise financial gap Database (2011) that about 40 percent Micro, small and medium enterprises (MSMEs) are owned by women in Nigeria. Hence, the gender distribution sheds light on the level of involvement of the male and female gender in the ownership and management of MSEs.



**Figure 4.2: Respondents Gender by e-Accounting Status [Field Survey Analysis (2017)]**

The status of the respondents in the organisation reveals if the respondents are part of the top management. The reason for this is to consider only persons who have an in-depth understanding of the organisation as well as capable to make strategic decisions. Hence,

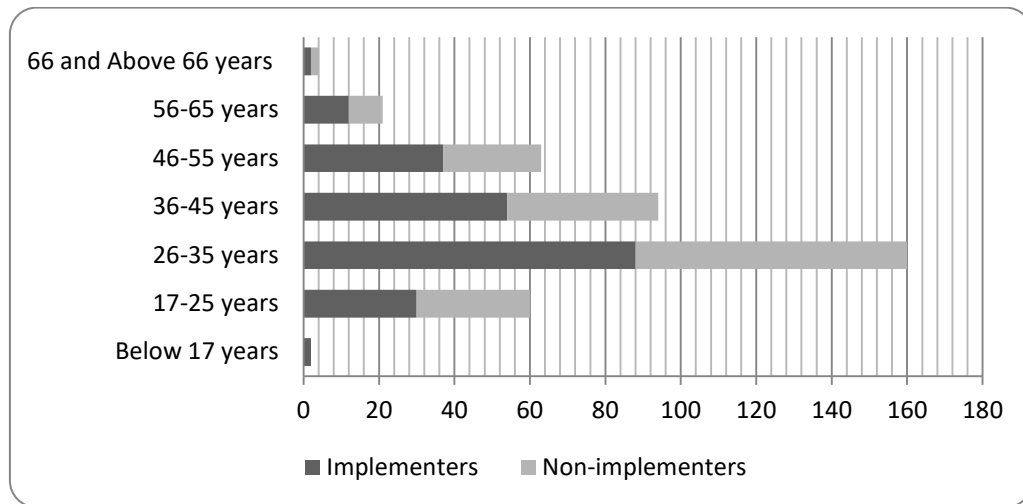
the research considered the owner or manager or owner/manager of MSEs while excluding others from the study. From the total of 410 respondents, 139 (34 percent) are owners only of which 61 implement e-Accounting and 78 do not implement e-Accounting. The sum of 181 (44 percent) are manager only of which 116 implement e-Accounting while 65 do not implement e-Accounting. The remaining 90 (22 percent) are both owner and manager of MSEs out of which 50 implement e-Accounting and 40 do not implement e-Accounting. Figure 4.3 displays the cross chart of respondents organisational status by e-Accounting Status.



**Figure 4.3: Respondents Organisation Status by e-Accounting Status [Analysis of Field Survey (2017)]**

The age of the Owner/manager is vital in accessing the age group of owner/manager that is predominant in implementing ICT in accounting processes. Owner/manager between 26-35 age group accounted for the highest number of respondents with a total of 160 (40 percent) respondents. This is followed by, owner/manager within 36-45 age group with a total of 94 (23 percent) respondents. The next being, owner/manager between 46-55 age group with a total of 63 (16 percent) respondents. This is followed immediately by owner/manager between 17-25 age group with a total of 60 (15 percent). After this, owner/manager within 56-65 age group account for a total of 21 (5 percent). The next being owner/manager of 66 years and above with a total of 4 (0.5 percent). Owner/manager with ages below 17years accounts for the least age group with a total of 2 (0.5 percent).

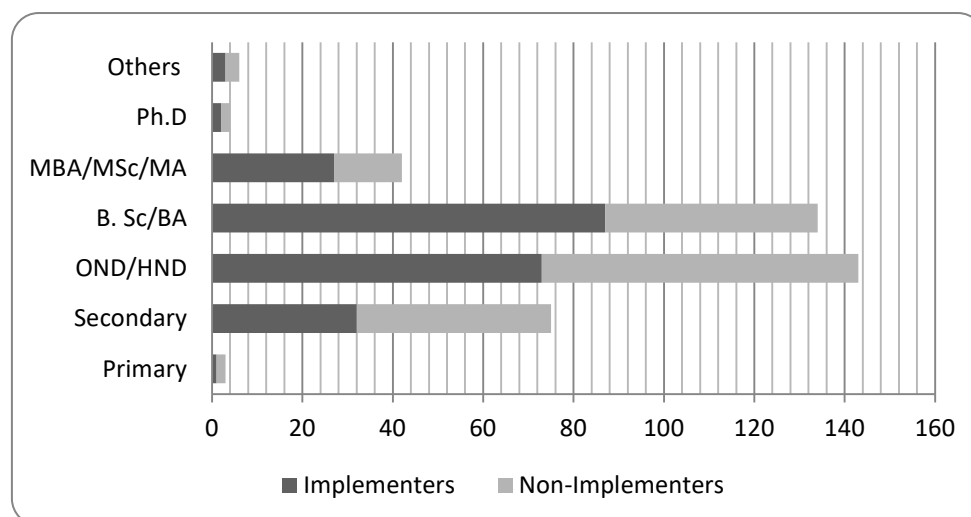
The table further reveals that out of the total number of 404 respondents to this question, 225 (56 percent) are implementers of e-Accounting while 179 (44 percent) are non-implementers of e-Accounting. Of the implementers, 2 (1 percent), 30 (13 percent), 88 (39 percent), 54 (24 percent), 37 (17 percent), 12 (5 percent) and 2 (1 percent) are within the age groups of Below 7, 17-25, 26-35, 36-45, 46-55, 56-65 and 66 & above respectively. Of the non-implementers, 0 (0 percent), 30 (17 percent), 72 (40 percent), 40 (22 percent), 26 (15 percent), 9 (5 percent), 2 (1 percent) percent) are within the age groups of Below 7, 17-25, 26-35, 36-45, 46-55, 56-65 and 66 & above respectively. Figure 4.4 displays the cross chart of respondents age by e-Accounting Status.



**Figure 4.4: Respondents Age by e-Accounting Status [Analysis of Field Survey (2017)]**

Responses on Educational attainment were in seven categories. This include respondent with primary, secondary, ordinary & higher diploma (OND/HND), bachelor's degree (B.Sc/BA), master's degree (MBA/MSc/MA), doctor of philosophy degree (Ph.D) and Others (None, Technical skills and N.C.E). The table reveals that 1 (1 percent) of the implementers of e-Accounting has Primary education, 32 (14 percent) have Secondary education, 73 (32 percent) have OND/HND, 87 (39 percent) have B. Sc/BA, 27 (12 percent) have MBA/MSc/ MA, 2 (1 percent) have Ph.D while 3 (1 percent) falls under Others (None, Technical skills and N.C.E) category.

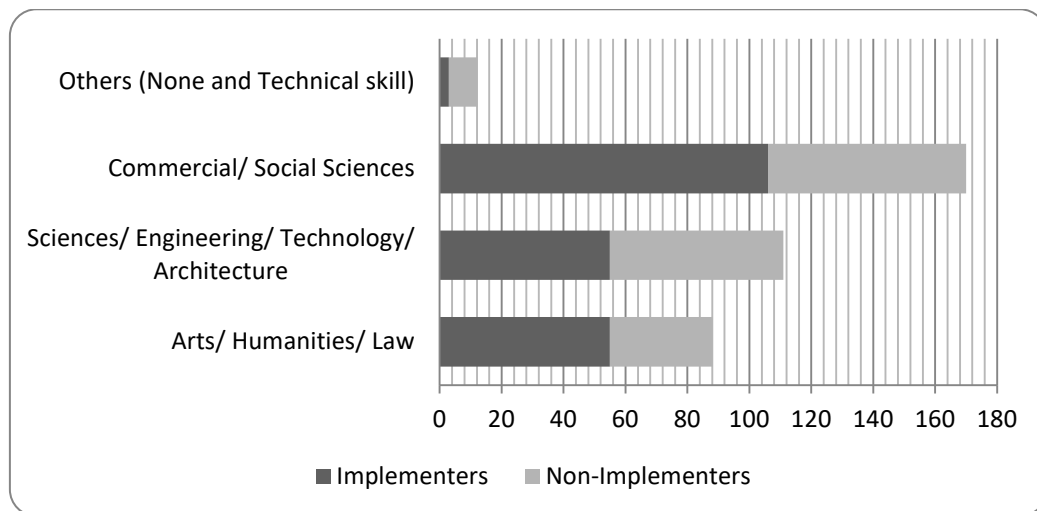
In the same vein 2 (1 percent) of the non-implementers of e-Accounting have Primary education, 43 (24 percent) have Secondary education, 70 (38percent) have OND/HND, 47 (26 percent) have B. Sc/BA, 15 (8 percent) have MBA/MSc/MA, 2 (1 percent) have Ph.D while 3 (2 percent) falls under Others (None, Technical skills and N.C.E) category. In total 3 (1 percent) have primary, 75 (18 percent) have secondary, 143 (35 percent) have OND/HND, 134 (33 percent) have B. Sc/BA, 42 (10 percent) have MBA/MSc/MA, 4 (1 percent) have Ph.D while 6 (2 percent) fall under others (none, technical skills and N.C.E). From above, 81 percent of the respondents have at least a secondary school education. This implies that the respondents are educational competent enough to respond to the questions in the questionnaire. Figure 4.5 displays the cross chart of respondents educational attainment by e-Accounting Status.



**Figure 4.5: Respondents Educational Attainment by e-Accounting Status [Analysis of Field Survey (2017)]**

By academic training, the research seeks to know if area of specialisation in highest educational attainment influences the decisions made by the owner/manager with respect to the implementation of technology. This was captured in the study by the following categories; Arts/ Humanities/ Law, Sciences/ Engineering/ Technology/ Architecture, Commercial/ Social Sciences and Others (None and Technical skill). Of the total response, 88 (23 percent) had their highest educational attainment specialisation in Arts/ Humanities/ Law of which 55 implements e-Accounting and 33 do not implement e-Accounting. A total of 111 (29 percent) specialise in Sciences/ Engineering/ Technology/

Architecture of which 55 implements e-Accounting and 56 do not implement e-Accounting. A total of 170 (45 percent) specialise in Commercial/ Social Sciences of which 106 implements e-Accounting and 64 do not implement e-Accounting. Only 12 (3 percent) falls under others (None, Technical and skill ) category, of which 31 implements e-Accounting and 9 do not implement e-Accounting. Figure 4.6 displays the cross chart of respondents academic training by e-Accounting Status.



**Figure 4.6: Respondents Academic Training by e-Accounting Status [Analysis of Field Survey (2017)]**

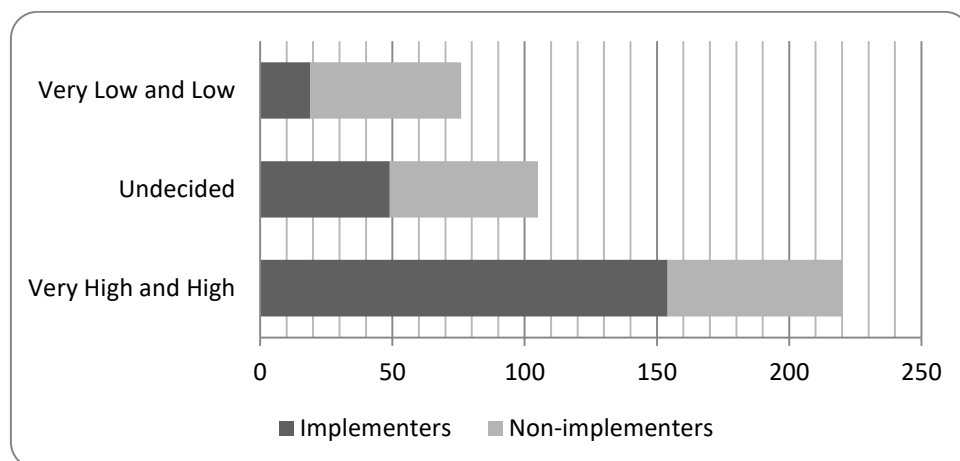
**Table 4.1: Owner/Manager Characteristics of respondent by e-Accounting Status (1)**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
1	Gender	Male	135	59	103	56	238	58
		Female	92	41	80	44	172	42
		<b>Total</b>	<b>227</b>	<b>100</b>	<b>183</b>	<b>100</b>	<b>410</b>	<b>100</b>
2	Status in Organisation	Owner only	61	27	78	43	139	34
		Manager only	116	51	65	35	181	44
		Owner and Manager	50	22	40	22	90	22
		<b>Total</b>	<b>227</b>	<b>100</b>	<b>183</b>	<b>100</b>	<b>410</b>	<b>100</b>
3	Age	Below 17	2	1	0	0	2	0.5
		17-25	30	13	30	17	60	15
		26-35	88	39	72	40	160	40
		36-45	54	24	40	22	94	23
		46-55	37	17	26	15	63	16
		56-65	12	5	9	5	21	5
		66 and Above 66	2	1	2	1	4	0.5
		<b>Total</b>	<b>225</b>	<b>100</b>	<b>179</b>	<b>100</b>	<b>404</b>	<b>100</b>
4	Educational Attainment	Primary	1	1	2	1	3	1
		Secondary	32	14	43	24	75	18
		OND/HND	73	32	70	38	143	35
		B. Sc/BA	87	39	47	26	134	33
		MBA/MSc/MA	27	12	15	8	42	10
		Ph.D	2	1	2	1	4	1
		Others (None, Technical skills and N.C.E)	3	1	3	2	6	2
		<b>Total</b>	<b>225</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>407</b>	<b>100</b>

Source: Field Survey Analysis (2017)

The e-accounting Capability of the Owner/Manager explains the level at which the owner/manager can use e-Accounting applications and how this can influence the implementation of e-Accounting system in the organisation. e-Accounting capability is defined by the use of spread sheets or any accounting software in carrying out accounting activities. From the study, 220 (55 percent) of the respondents have very high or high capability in using e-Accounting applications. A total of 76 (19 percent) of the respondents have very low or low capability in using e-Accounting applications while 105 (26 percent) of the respondents are undecided about their capability in using e-Accounting applications.

Of the total respondents that reported very high or high capability 154 are implementers while 66 are non- implementers of e-Accounting system. This shows that the owner/manager with very high or high capability in using e-Accounting application implement e-Accounting more. Of the total respondents that reported very low or low capability in using e-Accounting applications 19 are implementers while 57 are non-implementers. Figure 4.7 displays the cross chart of respondents e-Accounting capability by e-Accounting Status.

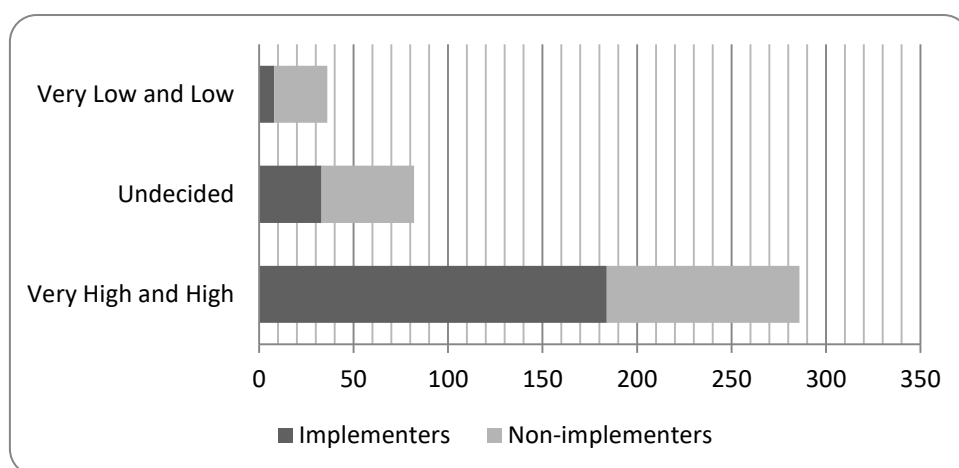


**Figure 4.7: Respondents' e- Accounting Capability [Field Survey Analysis (2017)]**

IT Capability of the Owner/Manager explains the level at which the owner/manager can use general IT devices and applications and how this can influence the implementation of e-Accounting system in the organisation. IT capability is defined by the use of word processing, data base management presentations, smartphone, tablets and computers in

carrying out accounting activities. From the study, 286 (71 percent) of the respondents have very high or high capability in using IT devices and applications. A total of 36 (9 percent) of the respondents have very low or low capability in using IT devices and applications while 82 (20 percent) of the respondents are undecided about their capability in IT devices and applications.

Of the total respondents that reported very high or high capability 181 are implementers while 102 are non- implementers of e-Accounting system. This shows that the owner/manager with very high or high capability in using IT devices and applications implement e-Accounting more. Of the total respondents that reported very low or low capability in using IT devices and applications 8 are implementers while 28 are non-implementers. Figure 4.8 displays the cross chart of respondents IT capability by e-Accounting Status.

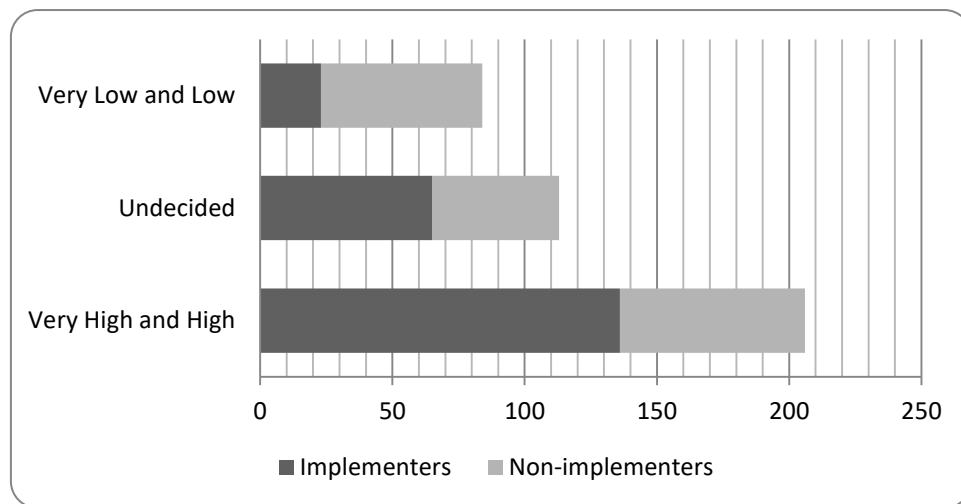


**Figure 4.8: Respondents' IT Capability [Field Survey Analysis (2017)]**

Financial Accounting knowledge of the Owner/Manager explains the level at which the owner/manager understand some principles of financial accounting such as double entry principle and how this can influence the implementation of e-Accounting system in the organisation. Financial Accounting knowledge is defined by the understanding of rudiments of debit and credit. From the study, 206 (51 percent) of the respondents have very high or high financial accounting knowledge. A total of 84 (21 percent) of the respondents have very low or low financial accounting knowledge while 113 (28 percent) of the respondents are undecided about their capability in IT devices and applications. Of the total respondents that reported very high or high knowledge 136 are implementers while 70 are non- implementers of e-Accounting system. This shows that the

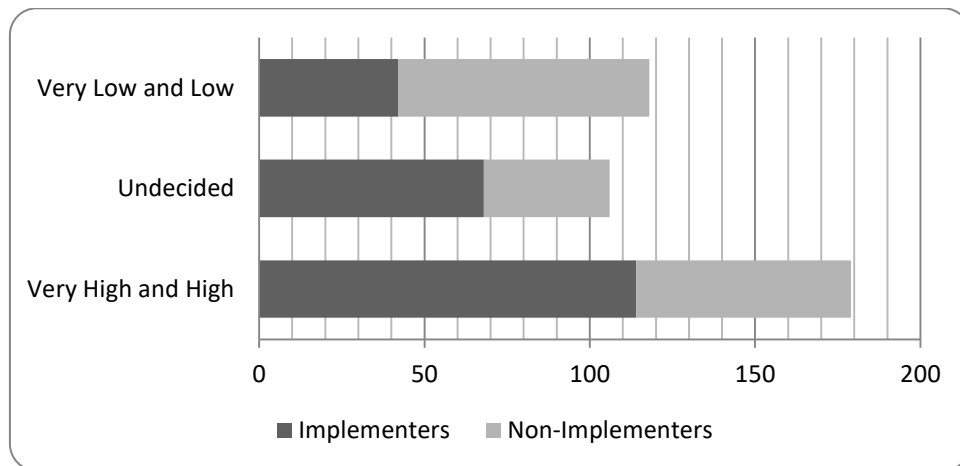


owner/manager with very high or high financial accounting knowledge implement e-Accounting more. Of the total respondents that reported very low or low financial accounting knowledge 23 are implementers while 61 are non-implementers. Figure 4.9 displays the cross chart of respondents financial accounting knowledge by e-Accounting Status.



**Figure 4.9: Respondents' Financial Accounting Knowledge [Field Survey Analysis (2017)]**

Management accounting knowledge of the Owner/Manager explains the level at which the owner/manager possesses management accounting knowledge and how this can influence the implementation of e-Accounting system in the organisation. Management accounting knowledge is defined by the understanding of rudiments of budget and cost analysis. From the study, 179 (45 percent) of the respondents have very high or high management accounting knowledge. A total of 118 (29 percent) of the respondents have very low or low management accounting knowledge while 106 (26 percent) of the respondents are undecided about their knowledge in management accounting. Of the total respondents that reported very high or high knowledge 114 are implementers while 65 are non-implementers of e-Accounting system. This shows that the owner/manager with very high or high management accounting knowledge implement e-Accounting more. Of the total respondents that reported very low or low financial accounting knowledge 42 are implementers while 76 are non-implementers. Figure 4.10 displays the cross chart of respondents management accounting knowledge by e-Accounting Status.



**Figure 4.10: Respondents' Management Accounting Knowledge [Field Survey Analysis (2017)]**

**Table 4.2: Owner/Manager Characteristics of Respondent by e-Accounting Status (2)**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
1	Academic training	Arts/ Humanities/ Law	55	25	33	20	88	23
		Sciences/ Engineering/ Technology/ Architecture	55	25	56	35	111	29
		Commercial/ Social Sciences	106	49	64	40	170	45
		Others (None and Technica l skill)	3	1	9	5	12	3
		<b>Total</b>	<b>219</b>	<b>100</b>	<b>162</b>	<b>100</b>	<b>381</b>	<b>100</b>
2	e-Accounting Capability	Very High and High	154	69	66	37	220	55
		Undecided	49	22	56	31	105	26
		Very Low and Low	19	9	57	32	76	19
		<b>Total</b>	<b>222</b>	<b>100</b>	<b>179</b>	<b>100</b>	<b>401</b>	<b>100</b>
3	IT Capability	Very High and High	184	82	102	57	286	71
		Undecided	33	15	49	27	82	20
		Very Low and Low	8	3	28	16	36	9
		<b>Total</b>	<b>225</b>	<b>100</b>	<b>179</b>	<b>100</b>	<b>404</b>	<b>100</b>
4	Financial Accounting Knowledge	Very High and High	136	61	70	39	206	51
		Undecided	65	29	48	27	113	28
		Very Low and Low	23	10	61	34	84	21
		<b>Total</b>	<b>224</b>	<b>100</b>	<b>179</b>	<b>100</b>	<b>403</b>	<b>100</b>
5	Management Accounting Knowledge	Very High and High	114	51	65	36	179	45
		Undecided	68	30	38	21	106	26
		Very Low and Low	42	19	76	43	118	29
		<b>Total</b>	<b>224</b>	<b>100</b>	<b>179</b>	<b>100</b>	<b>403</b>	<b>100</b>

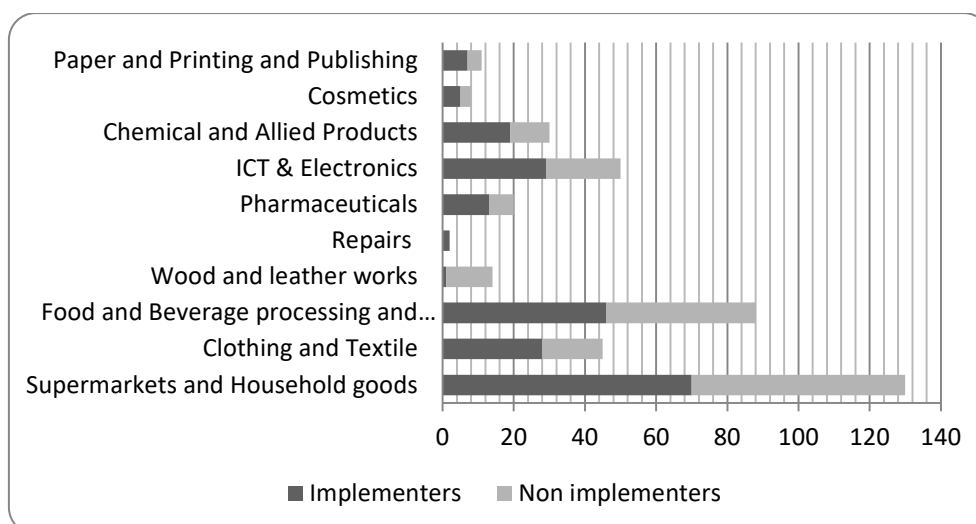
**Source: Field Survey Analysis (2017)**

#### **4.3.2. Descriptive Overview of Business Characteristics**

Table 4.3 displays the cross tabulation of respondents Business Characteristics by e-Accounting Status. To begin with, the study considers the class of business the respondents were involved under the three main sub-sectors of Whole Sale, Retail & Repairs, Manufacturing and Agriculture. The business class which include; supermarkets & household goods, clothing & textile, food, beverage processing & production, wood & leather works, repairs, pharmaceuticals, ICT & electronics, chemical & allied products, cosmetics and paper, printing & publishing were adapted from the report of vision 2020 national technical working group (2009) and NBS/SMEDAN (2012).

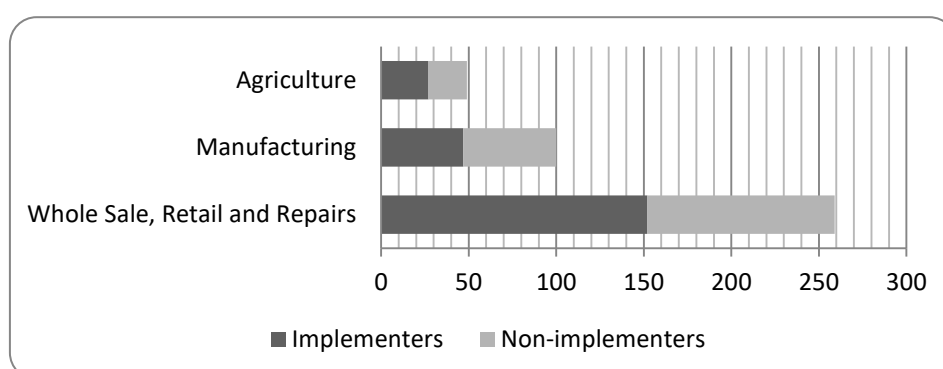
The class of business explains the business activities and products in which the respondents are involved in. Hence, from table 4.2.2, the highest number of respondents equals 130 (33 percent) are involved in supermarkets & household goods. Of this total 70 (32 percent) are implementers of e-Accounting and 60 (34 percent) are not implementers. This is immediately followed by 88 (22 percent) in food, beverage processing & production of which 46 implements e-Accounting and 42 do not implement e-Accounting. The next being, respondents involved in ICT & electronics with 50 (12.5 percent) of which, 29 implements e-Accounting and 21 do not implement. After this figure, 45 (11 percent) of respondents are in clothing & textile out of which 28 are implementers of e-Accounting while 9 are not implementers.

A total of 30 (7.5 percent) respondents are involved in chemical & allied products of which 19 implements e-Accounting and 11 do not. A total of 20 (5 percent) of the respondents are in pharmaceutical class of business, of this number, 13 implements e-Accounting and 7 do not implement e-Accounting. The last four class of business with the least figures are wood & leather works, paper, printing & publishing, cosmetics and repairs have the following numbers of respondents 14 (3.5 percent), 11 (3 percent), 8 (2 percent) and 2 (0.5 percent) respectively. Figure 4.11 displays the cross chart of respondents class of business by e-Accounting Status.



**Figure 4.11: Respondents Class of Business by e-Accounting Status [Field Survey Analysis (2017)]**

The sub-sectors of respondent business was also considered, this are mainly the three highest involved sub-sectors by MSMEs in Nigeria NBS/SMEDAN (2012). Whole sale, retail and repairs had 259 (63 percent) of the respondents operating in this sector with 152 implementing e-Accounting and 107 not implementing e-Accounting. The manufacturing sub-sector had 100 (25 percent) of the respondents operating involved in this sector with 47 implementing e-Accounting and 53 not implementing e-Accounting. The Agriculture sub-sector has the least number of respondents with 49 (12 percent) operating in there. Of the total 27 implement e-Accounting and 22 do not implement e-Accounting. Figure 4.12 displays the cross chart of respondents business sub-sectors by e-Accounting Status.

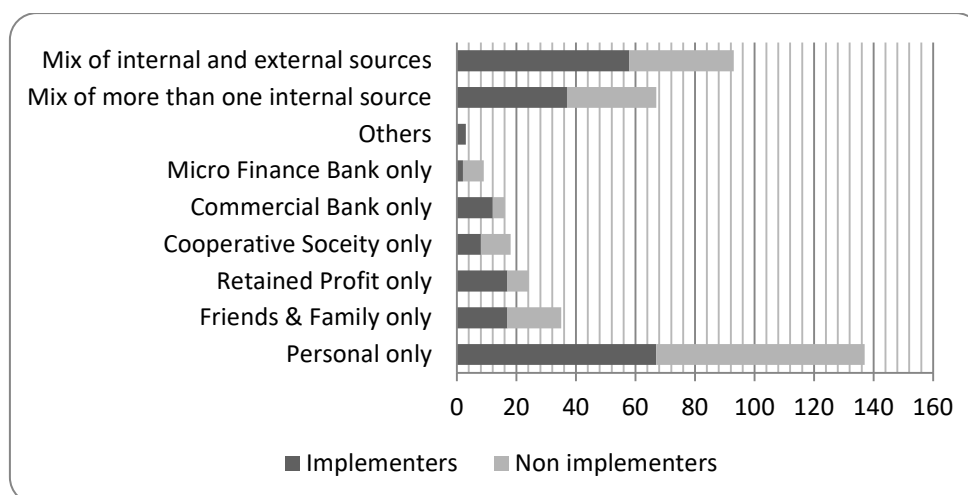


**Figure 4.12: Respondents Business Sub-sectors by e-Accounting Status [Field Survey Analysis (2017)]**

Another index of business characteristics used in the study is the source of business finance. The different source of business finance reported by the survey include; personal, friends & family, retained profit, cooperative society, commercial bank loan micro finance bank loan, religious association grants, government programmes and grants. 137 (34 percent) of the respondents sourced the business finance personally of the number 67 implement e-Accounting while 70 do not implement e-Accounting. 35 (9 percent) of the respondents sourced the business finance from friends and family only of which 17 implement e-Accounting and 18 do not implement e-Accounting.

The next category pertains to 24 (6 percent) of the respondents who sourced business finance by retaining the profit only of which 17 implement e-Accounting and 7 do not implement e-Accounting. 18 (4 percent) of the respondents sourced the business finance through cooperative society only of which 8 implement e-Accounting and 10 do not implement e-Accounting. 16 (4 percent) of the respondents sourced the business finance from Commercial bank loan only of which 12 implement e-Accounting and 4 do not implement e-Accounting. 9 (2 percent) of the respondents sourced the business finance from micro finance bank only of which 2 implement e-Accounting and 7 do not implement e-Accounting.

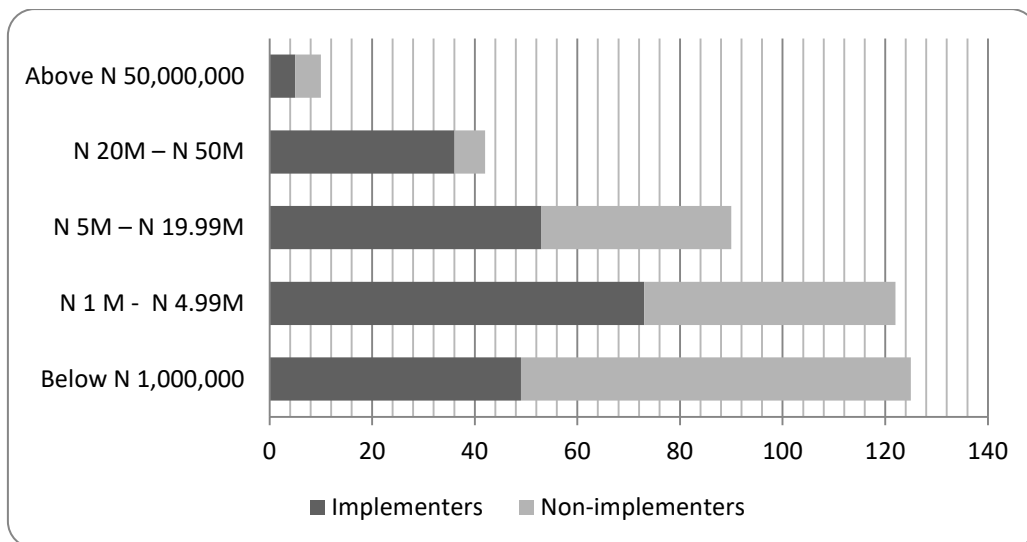
The last group relates to 3 (1 percent) of the respondents who sourced the business finance from religious association and Government grants of which the 3 implement e-Accounting. 67 (17 percent) of the respondents sourced the business finance from a combination of internal sources (personal, friends & family, retained profit) of which 37 implement e-Accounting and 30 do not implement e-Accounting. 93 (23 percent) of the respondents sourced the business finance from a combination of external sources (cooperative society, commercial bank loan, micro finance bank loan) of which 58 implement e-Accounting and 35 do not implement e-Accounting. Figure 4.13 displays the cross chart of respondents source of business finance by e-Accounting Status.



**Figure 4.13: Respondents Source of Business Finance by e-Accounting Status [Field Survey Analysis (2017)]**

The nature of business activities of MSEs is identifiable in their total assets. MSEs are known to lack the financial capacity to embark on certain capital projects hence, they are resource impoverished (Thong, 1999). The study categorised respondents' business total assets in to the following; Below ₦1,000,000, between ₦1,000,000 & ₦4,999,999, between ₦5,000,000 & ₦19,999,999, between ₦20,000,000 & ₦50,000,000 and above ₦50,000,000. As shown in table 4.2.2 below, the survey reveals that 125 (32 percent) of the respondents had total assets below ₦1,000,000 with 49 implementing e-Accounting and 76 not implementing e-Accounting.

122 (31 percent) had their total assets between ₦1,000,000 & ₦4,999,999 of which 73 implements e-Accounting and 49 do not implement e-Accounting. 90 (23 percent) had their total assets between ₦5,000,000 & ₦19,999,999 out of which 53 implements e-Accounting while 37 do not implement e-Accounting. 42 (11 percent) had their total assets between ₦20,000,000 & ₦50,000,000 of which 36 implements e-Accounting and 6 do not implement e-Accounting. 10 (3 percent) had their total assets above ₦50,000,000 of which 5 implements e-Accounting and 5 do not implement e-Accounting. Figure 4.14 displays the cross chart of respondents business total assets by e-Accounting Status.



**Figure 4.14: Respondents Business Total Assets by e-Accounting Status [Field Survey Analysis (2017)]**



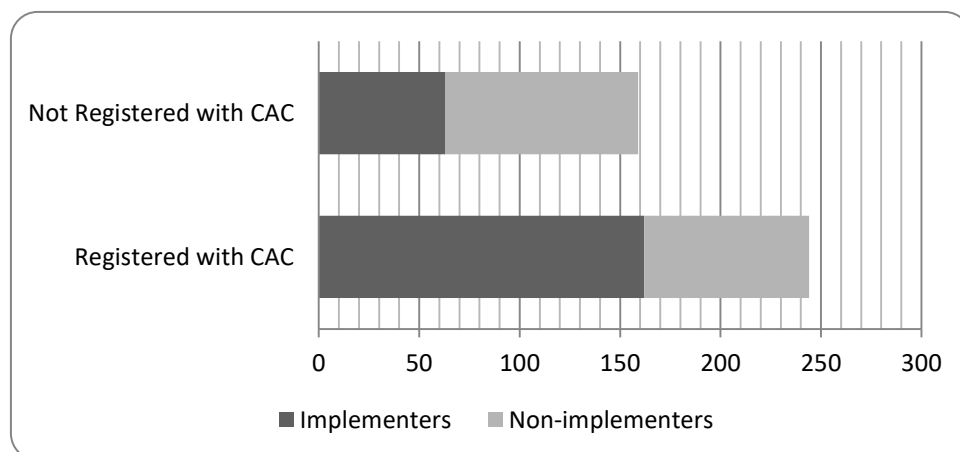
**Table 4.3: Business Characteristics of Respondent by e-Accounting Status 1**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
1	Class of Business	Supermarkets and Household goods	70	32	60	34	130	33
		Clothing and Textile	28	13	17	9	45	11
		Food and Beverage processing and production	46	21	42	24	88	22
		Wood and leather works	1	0.5	13	7	14	3.5
		Repairs	2	1	0	0	2	0.5
		Pharmaceuticals	13	6	7	4	20	5
		ICT & Electronics	29	13	21	12	50	12.5
		Chemical and Allied Products	19	8.5	11	6	30	7.5
		Cosmetics	5	2	3	2	8	2
		Paper and Printing and Publishing	7	3	4	2	11	3
		<b>Total</b>	<b>220</b>	<b>100</b>	<b>178</b>	<b>100</b>	<b>398</b>	<b>100</b>
2	Sub-Sectors of Business	Whole Sale, Retail and Repairs	152	67	107	59	259	63
		Manufacturing	47	21	53	29	100	25
		Agriculture	27	12	22	12	49	12
		<b>Total</b>	<b>226</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>408</b>	<b>100</b>
3	Source of Business Finance	Personal only	67	30	70	39	137	34
		Friends & Family only	17	8	18	10	35	9
		Retained Profit only	17	8	7	4	24	6
		Cooperative only	8	4	10	5.5	18	4
		Commercial Bank only	12	5	4	2	16	4
		Micro Finance Bank only	2	1	7	4	9	2
		Others (Religious Association, Government programs and grants )	3	1	0	0	3	1
		Mixture of more than one internal sources	37	17	30	16.5	67	17
		Mixture of both internal and external sources	58	26	35	19	93	23
		<b>Total</b>	<b>221</b>	<b>100</b>	<b>181</b>	<b>100</b>	<b>402</b>	<b>100</b>

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
4	Business Total Assets	Below ₦ 1,000,000	49	23	76	44	125	32
		₦ 1 M - ₦ 4.99M	73	34	49	28.5	122	31
		₦ 5M – ₦ 19.99M	53	24	37	21.5	90	23
		₦ 20M – ₦ 50M	36	17	6	3	42	11
		Above ₦ 50,000,000	5	2	5	3	10	3
		<b>Total</b>	<b>216</b>	<b>100</b>	<b>173</b>	<b>100</b>	<b>389</b>	<b>100</b>

**Source: Field Survey Analysis (2017)**

The national registration status of the respondents was needful in a bid to have further insights of the business plan to continually exist. In capturing this, respondents were asked if their business was registered with Corporate Affairs Commission (CAC) or not. From table 4.2.3 below 244 (61 percent) of the respondents had their business registered with Corporate Affairs Commission (CAC) of which 162 implements e-Accounting and 82 do not implement e-Accounting. 159 (39 percent) of the respondents do not have their business registered with Corporate Affairs Commission (CAC) of which 63 implements e-Accounting and 96 do not implement e-Accounting. This result suggests that the respondents with business registered with Corporate Affairs Commission (CAC) are likely to continue business in the future. Figure 4.15 displays the cross chart of respondents business national registration status by e-Accounting Status.



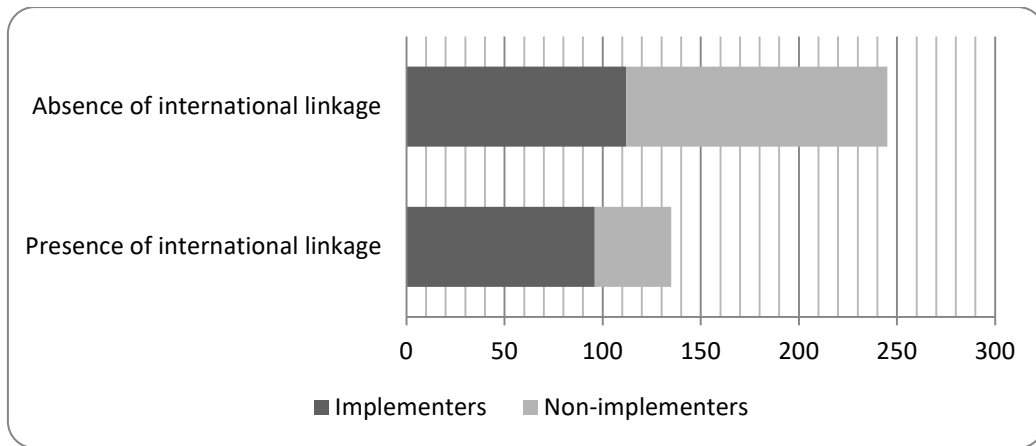
**Figure 4.15: Respondents National Registration Status by e-Accounting Status**  
[Analysis of Field Survey (2017)]

Another parameter of business characteristics assessed in the research was the business linkage to an international organisation. The international linkage of respondents business depicts the affiliation of the enterprise with other international business enterprise. Only 135 (36 percent) of the respondents are linked to an international organisation of which 96 implement e-Accounting and 39 do not implement e-Accounting. The remaining 245 (64 percent) of the respondents are not linked to an international organisation of which 112 are implementers of e-Accounting and 133 are non-implementers of e-Accounting.

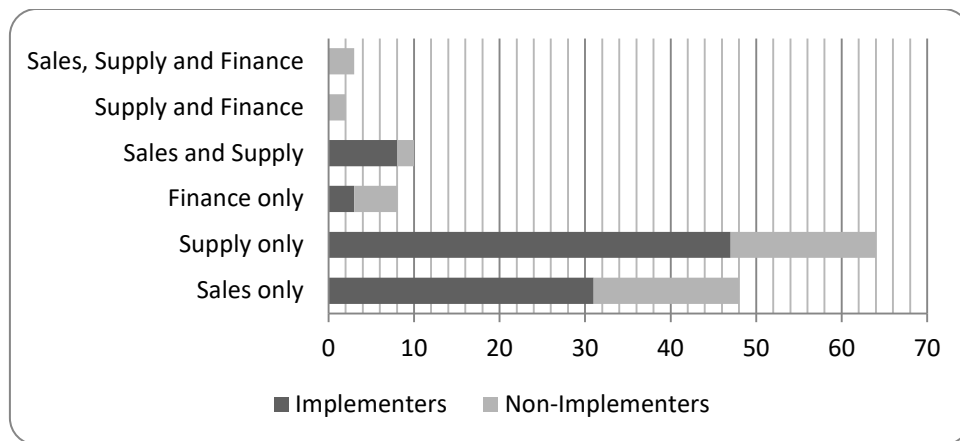
In addition to the international linkage status of the respondents business, the area of international linkage was assessed. Hence, areas of supply finance and sales were evaluated. 48 (36 percent) of the respondent indicated they were linked to an international organisation in sales of goods only, of which 31 of them implements e-Accounting and 17 do not implement e-Accounting. Of the 64 (47 percent) of the respondents that are linked to an international business in supply only, 47 of them implement e-Accounting and 17 do not implement e-Accounting.

Only 8 (6 percent) of the respondents are linked to an international business in terms of finance only, out of this number 3 do not implement e-Accounting and 5 implement e-Accounting. In terms of sales and supply alone, only 10 respondents are linked, of which 8 do not implement e-Accounting while 2 implements e-Accounting. Regarding Supply and Finance only, 2 of the respondents indicated their businesses were linked, of which the 2 do not implement e-Accounting. None of the respondents indicated their business linkage to sales and finance only.

The last 3 (2 percent) of the respondents indicated that their business is linked in areas of sales, supply and finance of which the 3 do not implement e-Accounting. From the result, majority of the MSEs have relationship with other international business majorly in the areas of sales and supply. This probably means that MSEs are more likely to engage with international organisations in areas of sales and supply than in area of finance. Figure 4.16 and 4.17 displays the cross chart of respondents business international linkage status by e-Accounting Status and area of international linkage by e-Accounting status.

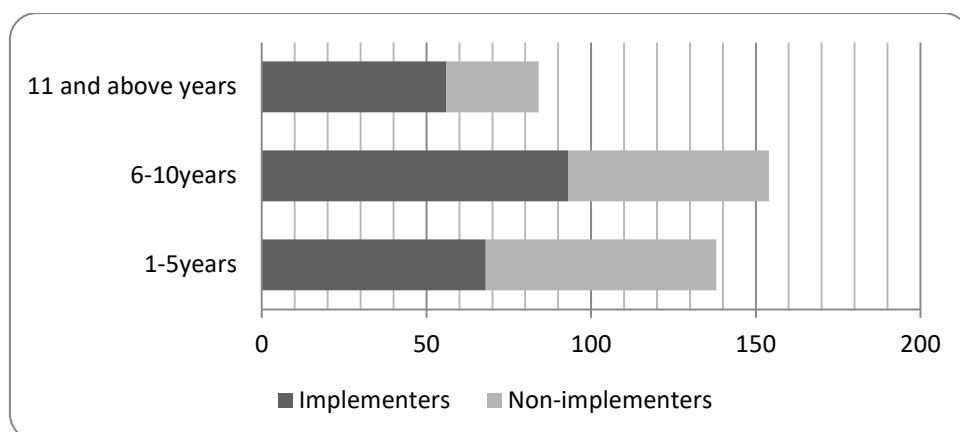


**Figure 4.16: Respondents Business International Linkage by e-Accounting Status [Analysis of Field Survey (2017)]**



**Figure 4.17: Respondents Area of International Linkage by e-Accounting Status [Analysis of Field Survey (2017)]**

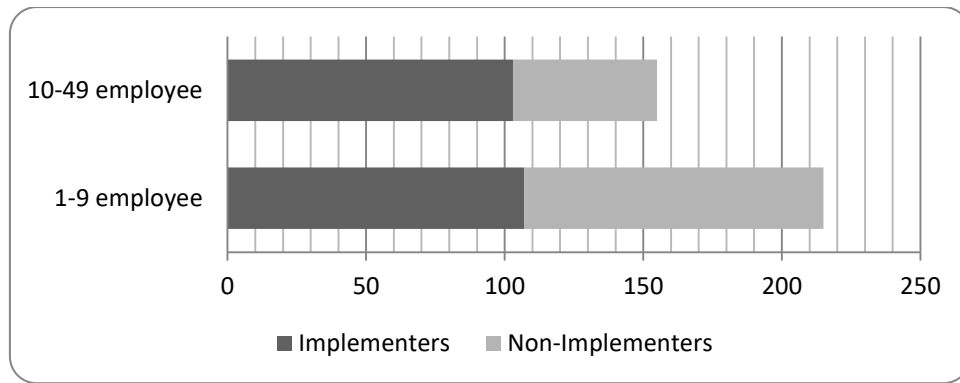
The years of existence of MSEs depicts the duration of time since business began. 138 (37 percent) of the respondents indicates that the age of their business is between 1-5 years, of this number 68 implements e-Accounting while 70 do not implements e-Accounting. 154 (41 percent) of the respondents business age is between 6-10 years, of this number 93 implements e-Accounting while 61 do not implement e-Accounting. The remainder of 84 (22 percent) of the respondent have their enterprise business age from 11 and above, of which 56 implements e-Accounting and 28 do not implements e-Accounting. Figure 4.18 displays the cross chart of respondents business age by e-Accounting Status.



**Figure 4.18: Respondents Business Age by e-Accounting Status [Analysis of Field Survey (2017)]**

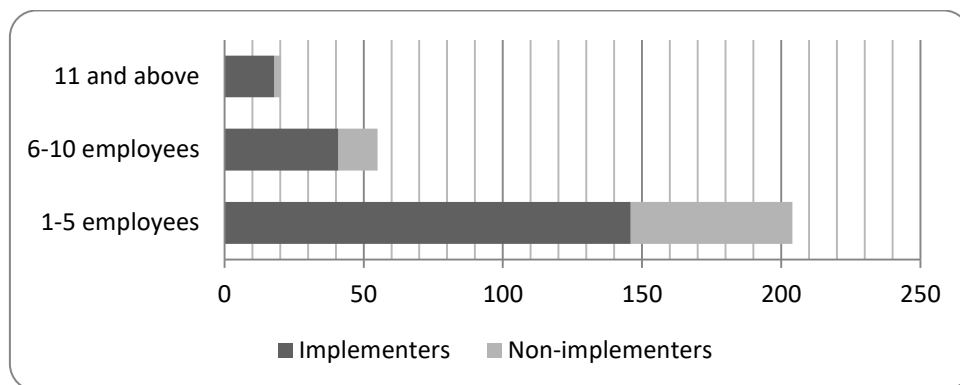
The total number of employees sheds light on how many of the respondents business is a small or micro enterprise. The classification is however, based on SMEDAN (2013) definition of MSEs. According to SMEDAN (2013) a micro enterprise as enterprises employing less than 10 workers with total asset of not more than ₦5Million excluding cost of land and building; Small enterprise as enterprises with labour size between 10 to 49 work force and total asset of over ₦5Million but not more than ₦50Million excluding the cost of land and building.

From the survey, 215 (58 percent) of the respondents enterprise employ between 1-9 labour force of which 107 implements e-Accounting while 108 do not implement e-Accounting. 155 (42 percent) of the respondents enterprise employ between 10-49 labour force, of which 103 implements e-Accounting and 52 do not implement e-Accounting. The implication of this is that 58 percent of the survey enterprise is a micro enterprise while 42 percent is a small enterprise. Figure 4.19 displays the cross chart of respondents business total employee by e-Accounting Status.



**Figure 4.19: Respondents Business Total Employee by e-Accounting Status [Analysis of Field Survey (2017)]**

The number of employees able to use e-Accounting system indicates the e-Accounting internal expertise engaged in the enterprise. From the survey, 204 (73 percent) of the respondents business engage between 1-5 personnel proficient in the use of e-Accounting of which 146 implements e-Accounting and 58 do not implement e-Accounting. 55 (20 percent) of the respondents business engage between 6-10 personnel proficient in the use of e-Accounting of which 41 implements e-Accounting and 14 do not implement e-Accounting. 20 (7 percent) of the respondents business engage from 11 and above personnel proficient in the use of e-Accounting of which 18 implements e-Accounting and 2 do not implement e-Accounting. Figure 4.20 displays the cross chart of respondents business total employees with e-Accounting capability by e-Accounting Status.



**Figure 4.20: Respondents Business Total Employees with e-Accounting capability by e-Accounting Status [Analysis of Field Survey (2017)]**

**Table 4.4: Business Characteristics of Respondent by e-Accounting Status 2**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
1	Business Registration Status	Registered with CAC	162	72	82	46	244	61
		Not Registered with CAC	63	28	96	54	159	39
		<b>Total</b>	<b>225</b>	<b>100</b>	<b>178</b>	<b>100</b>	<b>403</b>	<b>100</b>
2	Business Linkage to an International Organisation	Presence of international linkage	96	46	39	23	135	36
		Absence of international linkage	112	54	133	77	245	64
		<b>Total</b>	<b>208</b>	<b>100</b>	<b>172</b>	<b>100</b>	<b>380</b>	<b>100</b>
3	Areas of Business International Linkage	Sales only	31	35	17	37	48	36
		Supply only	47	53	17	37	64	47
		Finance only	3	3	5	11	8	6
		Sales and Supply	8	9	2	4	10	7
		Supply and Finance	0	0	2	4	2	1.5
		Sales and Finance	0	0	0	0	0	0
		Sales, Supply and Finance	0	0	3	7	3	2
		<b>Total</b>	<b>89</b>	<b>100</b>	<b>46</b>	<b>100</b>	<b>135</b>	<b>100</b>
4	Business Age in years	1-5years	68	31	70	44	138	37
		6-10years	93	43	61	38	154	41
		11 and above years	56	26	28	18	84	22
		<b>Total</b>	<b>217</b>	<b>100</b>	<b>159</b>	<b>100</b>	<b>376</b>	<b>100</b>



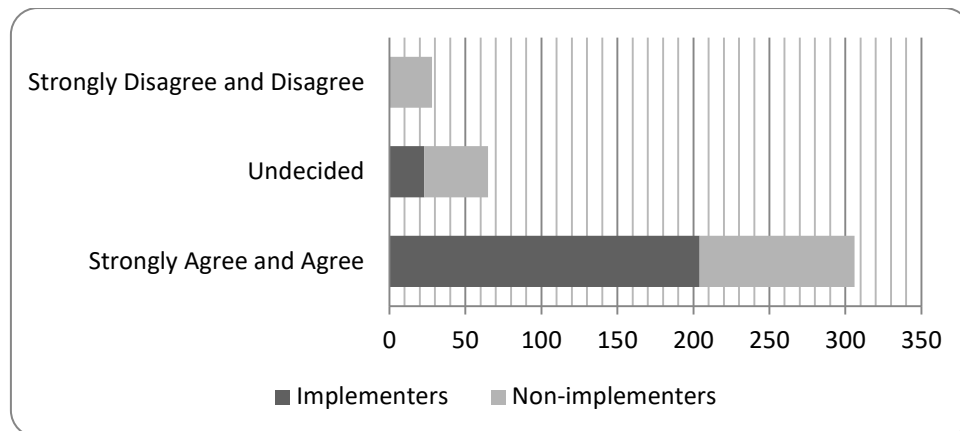
N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
5	Total number of employees	1-9	107	51	108	68	215	58
		10-49	103	49	52	32	155	42
		<b>Total</b>	<b>210</b>	<b>100</b>	<b>160</b>	<b>100</b>	<b>370</b>	<b>100</b>
6	Number of employees able to use e-Accounting system	1-5	146	71	58	78	204	73
		6-10	41	20	14	19	55	20
		11 and above	18	9	2	3	20	7
		<b>Total</b>	<b>205</b>	<b>100</b>	<b>74</b>	<b>100</b>	<b>279</b>	<b>100</b>

**Source: Field Survey Analysis (2017)**

#### 4.3.3. Descriptive Overview of Technological Characteristics

In this section, the perceive characteristics of e-Accounting is being evaluated based on the attributes of complexity, compatibility, relative advantage, security, cost to annual profit and cost to capital. Technological characteristics defines the inhibit features of any technological innovation that propels for use or not. Technological complexity describes the ease to comprehend and use e-Accounting system.

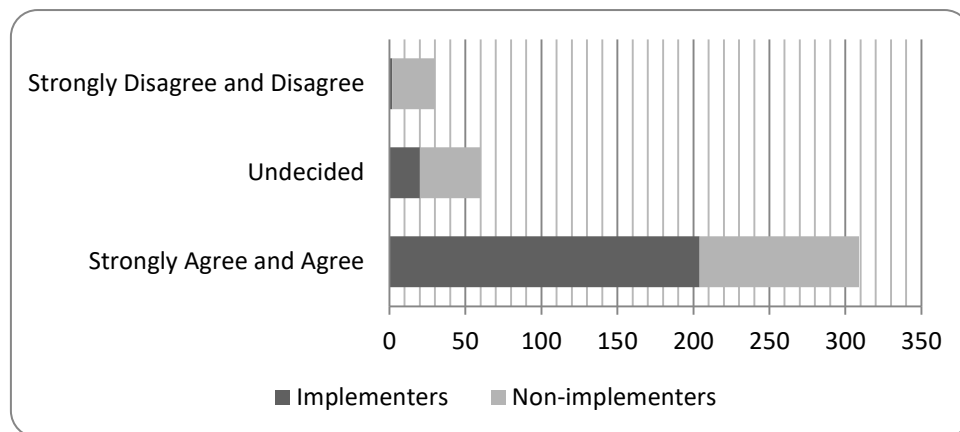
From the survey, 306 (77 percent) of the respondents strongly agree and agree that it's easy to use an e-Accounting system. Out of this number 204 implements e-Accounting while 102 do not implement e-Accounting. Of the total respondents 28 (7 percent) strongly disagree and disagree that it's easy to use an e-Accounting system. Out of this number 0 implements e-Accounting while 28 do not implement e-Accounting. Of the total respondents 65 are undecided on the ease of using e-Accounting system. Out of this number 23 implements e-Accounting system while 42 do not implement e-Accounting. Figure 4.21 shows respondents perception on technological complexity by e-Accounting status.



**Figure 4.21: Technological Complexity and e-Accounting Status [Analysis of Field Survey (2017)]**

Technological compatibility describes the fit of e-Accounting system in the organisation. From the survey, 309 (77 percent) of the respondents strongly agree and agree that e-accounting system fits the organisation system. Out of this number 204 implements e-Accounting while 105 do not implement e-Accounting.

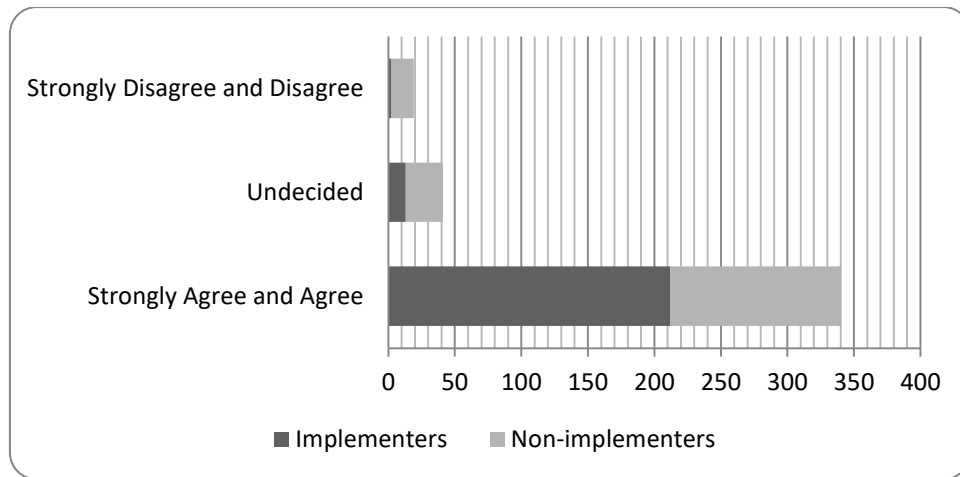
Of the total respondents 28 (7 percent) strongly disagree and disagree that it's easy to use an e-Accounting system. Out of this number 2 implements e-Accounting while 28 do not implement e-Accounting. Of the total respondents 60 are undecided on the fit of e-Accounting system. Out of this number 20 implements e-Accounting system while 40 do not implement e-Accounting. Figure 4.22 shows respondents perception on technological compatibility by e-Accounting status.



**Figure 4.22: Respondents Perception of Technological Compatibility by e-Accounting Status [Analysis of Field Survey (2017)]**

Technological relative advantage describes the superiority of e-Accounting system over the manual accounting system in the organisation. From the survey, 340 (85 percent) of the respondents strongly agree and agree that e-accounting system is superior to the manual accounting system. Out of this number 212 implements e-Accounting while 128 do not implement e-Accounting.

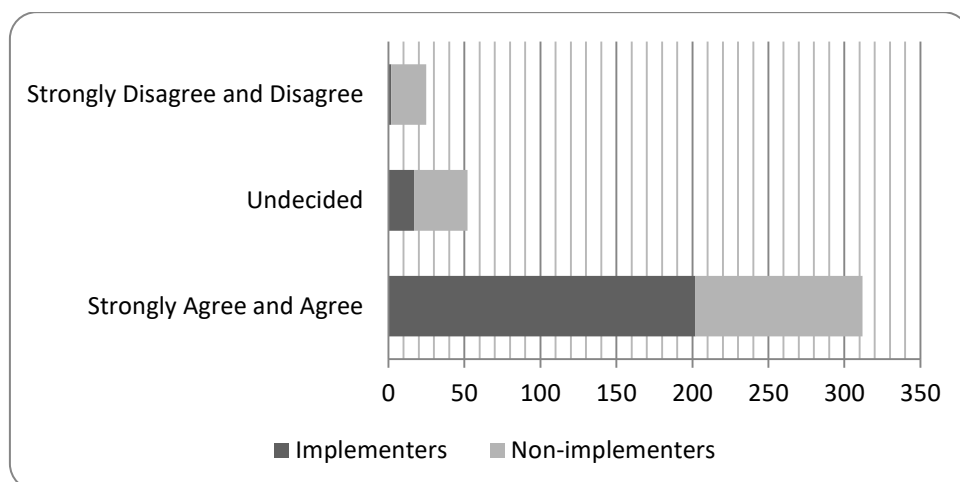
Of the total respondents 19 (5 percent) strongly disagree and disagree that e-accounting system is superior to the manual accounting system. Out of this number 2 implements e-Accounting while 17 do not implement e-Accounting. Of the total respondents 41 (10 percent) are undecided on the superiority of e-accounting system over the manual accounting system. Out of this number 13 implements e-Accounting system while 28 do not implement e-Accounting. Figure 4.23 shows respondents perception on technological relative advantage by e-Accounting status.



**Figure 4.23: Respondents Perception of Technological Relative Advantage by e-Accounting Status [Analysis of Field Survey (2017)]**

Technological security describes the safeness of e-Accounting system. From the survey, 312 (80 percent) of the respondents strongly agree and agree that e-accounting system secures organisational data. Out of this number 202 implements e-Accounting while 110 do not implement e-Accounting.

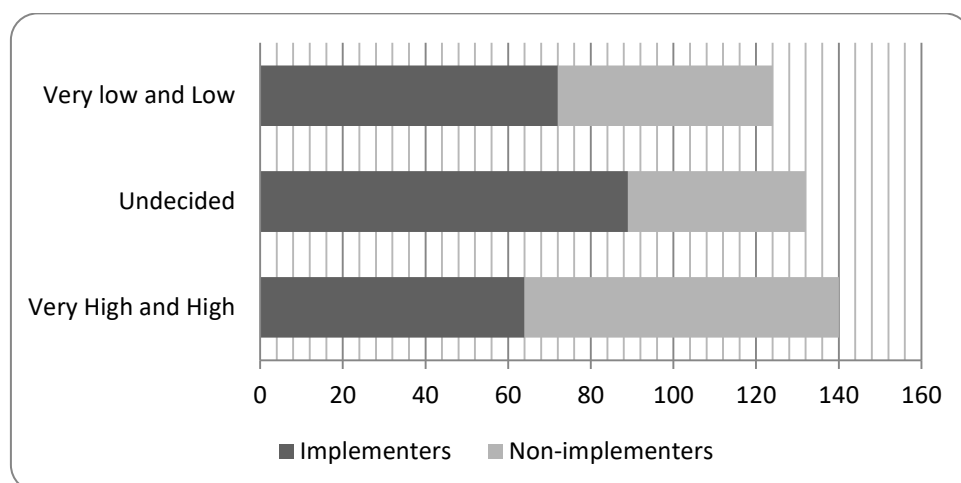
Of the total respondents 25 (7 percent) strongly disagree and disagree that e-accounting system secures organisational data. Out of this number 2 implements e-Accounting while 23 do not implement e-Accounting. Of the total respondents 52 (13 percent) are undecided on the security. Out of this number 17 implements e-Accounting system while 35 do not implement e-Accounting. Figure 4.24 shows respondents perception on technological security by e-Accounting status.



**Figure 4.24: Respondents Perception of Technological Security by e-Accounting Status [Analysis of Field Survey (2017)]**

The cost of implementing e-Accounting system in comparison to annual profit reflects the affordability of implementing e-Accounting system. From the survey, 140 (35 percent) of the respondents opines that the cost of implementing e-Accounting system is very high or high compared to business annual profit. Out of this number 64 implements e-Accounting while 76 do not implement e-Accounting. Of the total respondents 124 (32 percent) opines that the cost of implementing e-Accounting is very low or low compared to business annual profit.

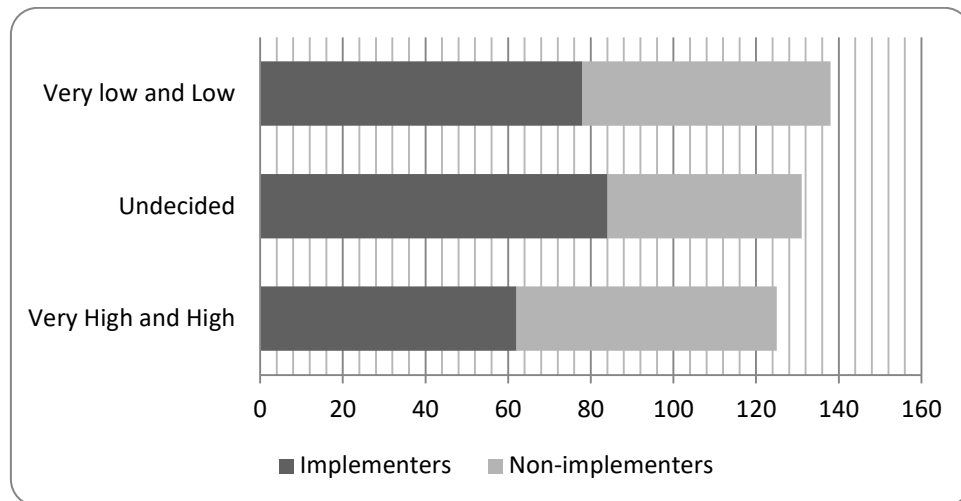
Out of this number 72 implements e-Accounting while 52 do not implement e-Accounting. Of the total respondents 132 (33 percent) are undecided on the cost of implementing e-Accounting system to annual profit. Out of this number 89 implements e-Accounting system while 43 do not implement e-Accounting. Figure 4.25 shows respondents perception on technological cost to annual profit by e-Accounting status.



**Figure 4.25: Respondents Perception of Technological Cost to Annual Profit by e-Accounting Status [Analysis of Field Survey (2017)]**

The cost of implementing e-Accounting system in comparison to capital also reflects the affordability of implementing e-Accounting system. From the survey, 125 (32 percent) of the respondents perceives that the cost of implementing e-Accounting system is very high or high compared to business capital. Out of this number 62 implements e-Accounting while 63 do not implement e-Accounting. Of the total respondents 138 (35 percent) perceives that the cost of implementing e-Accounting is very low or low compared to business annual profit.

Out of this number 78 implements e-Accounting while 60 do not implement e-Accounting. Of the total respondents 131 (33 percent) are undecided on the cost of implementing e-Accounting system to annual profit. Out of this number 84 implements e-Accounting system while 47 do not implement e-Accounting. Figure 4.26 shows respondents perception on technological cost on capital by e-Accounting status.



**Figure 4.26: Respondents Perception of Technological Cost on Capital by e-Accounting Status [Analysis of Field Survey (2017)]**

**Table 4.5: Technological Characteristics of Respondent by e-Accounting Status**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
1	Technology Complexity	Strongly Agree and Agree	204	90	102	59	306	77
		Undecided	23	10	42	25	65	16
		Strongly Disagree and Disagree	0	0	28	16	28	7
		<b>Total</b>	<b>227</b>	<b>100</b>	<b>172</b>	<b>100</b>	<b>399</b>	<b>100</b>
2	Technology Compatibility	Strongly Agree and Agree	204	90	105	61	309	77
		Undecided	20	9	40	23	60	15
		Strongly Disagree and Disagree	2	1	28	16	30	8
		<b>Total</b>	<b>226</b>	<b>100</b>	<b>173</b>	<b>100</b>	<b>399</b>	<b>100</b>
3	Technology Relative Advantage	Strongly Agree and Agree	212	93	128	74	340	85
		Undecided	13	6	28	16	41	10
		Strongly Disagree and Disagree	2	1	17	10	19	5
		<b>Total</b>	<b>227</b>	<b>100</b>	<b>173</b>	<b>100</b>	<b>400</b>	<b>100</b>
4	Technology Security	Strongly Agree and Agree	202	91	110	65	312	80
		Undecided	17	8	35	21	52	13
		Strongly Disagree and Disagree	2	1	23	14	25	7
		<b>Total</b>	<b>221</b>	<b>100</b>	<b>168</b>	<b>100</b>	<b>389</b>	<b>100</b>

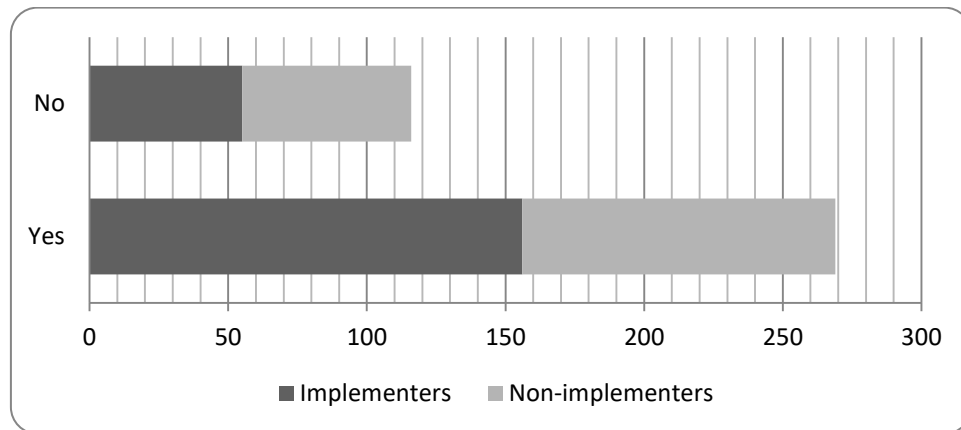
N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
5	Technological Cost on Annual Profit	Very High and High	64	28	76	44	140	35
		Undecided	89	40	43	25	132	33
		Very low and Low	72	32	52	31	124	32
		<b>Total</b>	<b>225</b>	<b>100</b>	<b>171</b>	<b>100</b>	<b>396</b>	<b>100</b>
6	Technological cost on Capital	Very High and High	62	28	63	37	125	32
		Undecided	84	38	47	28	131	33
		Very low and Low	78	34	60	35	138	35
		<b>Total</b>	<b>224</b>	<b>100</b>	<b>170</b>	<b>100</b>	<b>394</b>	<b>100</b>

**Source: Analysis of Field Survey (2017)**



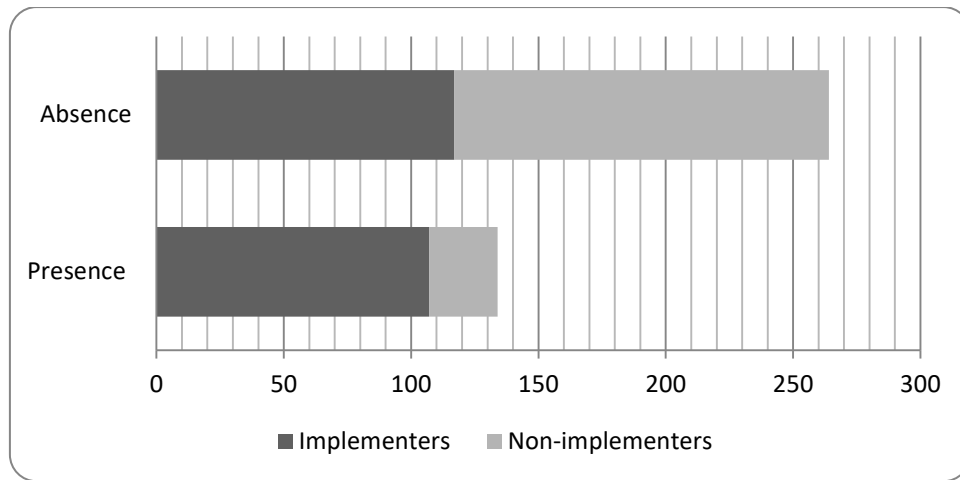
#### 4.3.4. Descriptive Overview of External Characteristics

Business association membership explains the involvement of the business to any trade or professional association. From the study, 269 (70 percent) of the respondents indicated presence in an association. 116 (30) of the respondents are not in any business association. Of the total respondents that reported presence in a business or professional association only 156 implements e-Accounting system while 113 do not implement e-Accounting system. Of the total respondents that reported absence in a business association only 55 implements e-Accounting system while 61 do not implement e-Accounting system. Figure 4.27 shows the cross chart of respondents business association membership and e-Accounting status.



**Figure 4.27: Respondents Business Association Membership and e-Accounting Status [Analysis of Field Survey (2017)]**

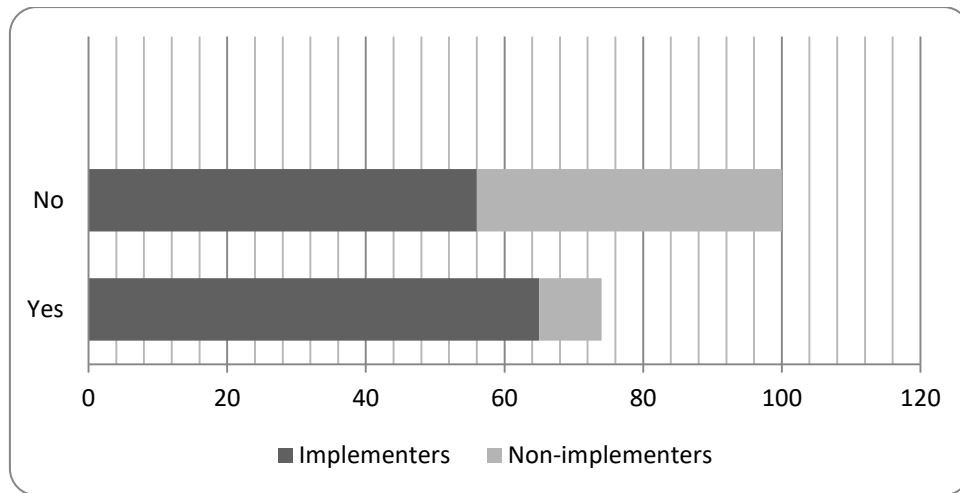
Presence of an external IT consultant reflects the presence of an external expert in the business. From the study, 134 (34 percent) of the respondents indicated the presence of an external IT consultant in the organisation. 264 (66 percent) of the respondents did not indicate the presence of an external IT consultant in the business. Of the total respondents that reported presence of an external IT consultant only 107 implements e-Accounting system while 27 do not implement e-Accounting system. Of the total respondents that reported absence of an external IT consultant only 117 implements e-Accounting system while 147 do not implement e-Accounting system. Figure 4.28 shows the cross chart of respondents external IT consultant and e-Accounting status.



**Figure 4.28: Respondents External IT Consultant and e-Accounting Status [Analysis of Field Survey (2017)]**

It was also expedient to know if the external IT consultant were also external IT supplier. This will help in shedding more light of the capacity of the IT expert to assess, evaluate, recommend and provide e-Accounting system. From the study, 74 (43 percent) of the respondents indicated that the IT consultant were also IT supplier. 100 (57 percent) of the respondents declared that the external IT consultant were not IT supplier.

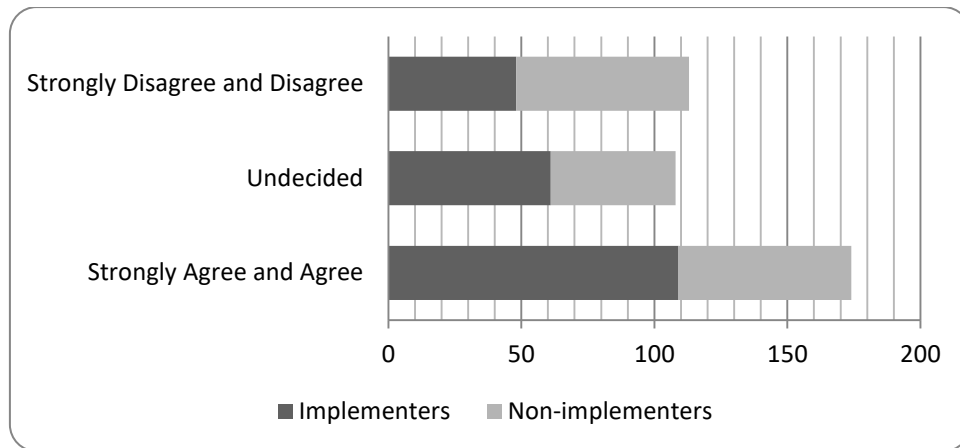
Of the total respondents that indicated that external IT consultant were the same with IT supplier only 65 implements e-Accounting system while 9 do not implement e-Accounting system. Of the total respondents that indicated that external IT consultant were not the same with IT supplier only 56 implements e-Accounting system while 44 do not implement e-Accounting system. Figure 4.29 shows the cross chart of external IT consultant same as external IT supplier and e-Accounting status.



**Figure 4.29: Respondents External IT Consultant same as External IT Supplier and e-Accounting Status [Analysis of Field Survey (2017)]**

Government support on the use of IT in MSEs business is germane. This was evaluated in the study by considering government support in terms of policies and initiates awareness to the public. From the study, 174 (44 percent) of the respondents strongly agree or agree on the awareness of government policies and initiatives on the use of ICT. 113 (29 percent) of the respondents strongly disagree or disagree on the awareness of government policies and initiatives on the use of ICT.

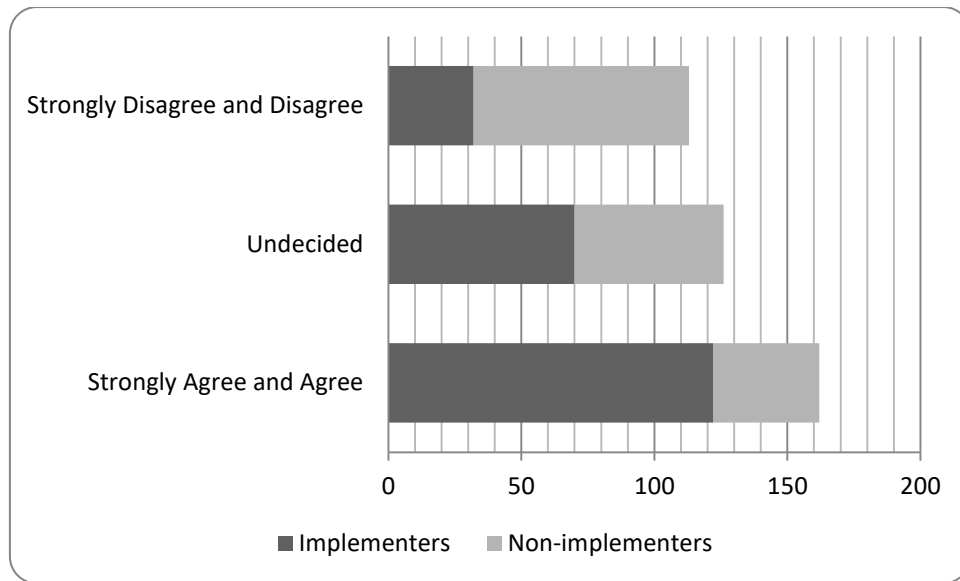
From the survey, (27 percent) of the respondents are undecided on the awareness of government policies and initiatives on the use of ICT. Of the total respondents that strongly agree or agree 109 are implementers while 65 are non- implementers of e-Accounting system. Of the total respondents that strongly disagree or disagree on the awareness of government policies and initiatives on the use of ICT 48 are implementers while 65 are not implementers. Figure 4.30 displays the cross chart of respondents perception of Government support and e-Accounting Status.



**Figure 4.30: Respondents Perception of Government Support and e-Accounting Status [Analysis of Field Survey (2017)]**

Customers' request on the use of e-Accounting system explains the rate at which customers demand that an organisation implement e-Accounting system. From the study, 162 (40 percent) of the respondents strongly agree or agree that customers demand for the use of e-Accounting system.

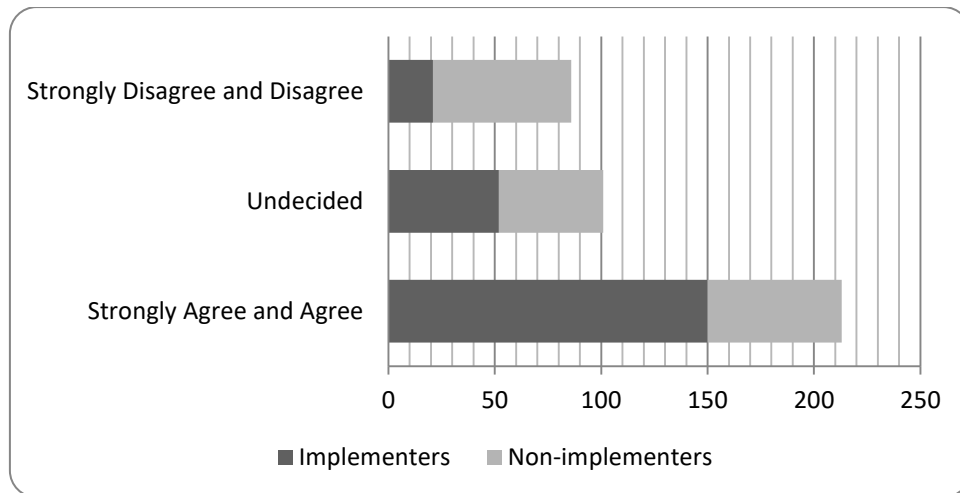
From the survey, (28 percent) of the respondents strongly disagree or disagree that customers demand for the use of e-Accounting system. 126 (32 percent) of the respondents are undecided that customers demand for the use of e-Accounting system. Of the respondents that strongly agree or agree 122 are implementers while 40 are non-implementers. Of the total respondents that strongly disagree or disagree 32 are implementers while 81 are non-implementers. Figure 4.31 displays the cross chart of customer's request and e-Accounting system implementation.



**Figure 4.31: Customer's Request and e-Accounting System Status [Analysis of Field Survey (2017)]**

Competitors' influence describes the external pressure that emanates from competitors on the use of e-Accounting system. From the survey, 213 (53 percent) of the respondents strongly agree or agree that pressures from the competitors influences the use of e-Accounting system. 86 (22 percent) of the respondents strongly disagree or disagree that pressures from the competitors influences the use of e-Accounting system.

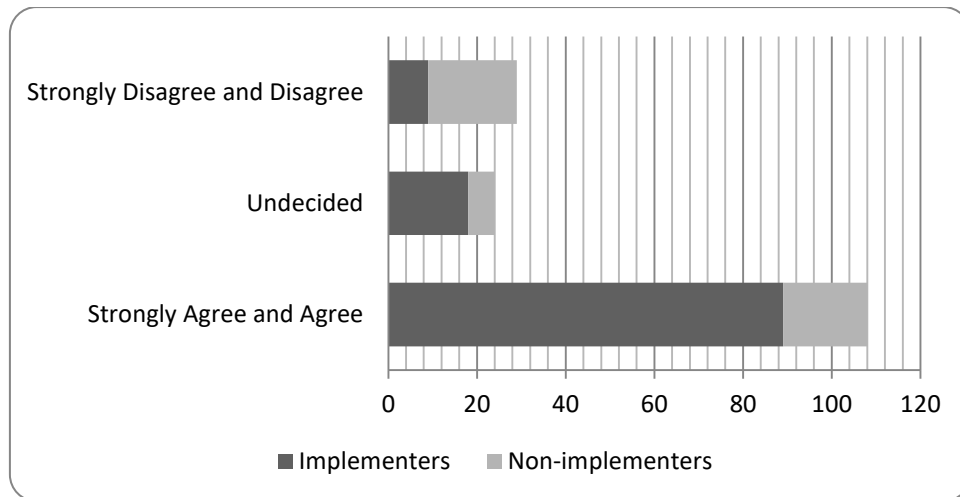
From the survey, (25 percent) of the respondents are undecided that pressures from the competitors influences the use of e-Accounting system. Of the respondents that strongly agree or agree 150 are implementers while 63 are non-implementers. Of the total respondents that strongly disagree or disagree 21 are implementers while 65 are non-implementers. Figure 4.32 displays the cross chart of competitors' influence and e-Accounting system implementation.



**Figure 4.32: Competitors' Influence and e-Accounting system Status [Analysis of Field Survey (2017)]**

External expertise influence describes the degree to which the external expert (consultant or supplier) influences the use of e-Accounting system. From the survey, 108 (67 percent) of the respondents strongly agree or agree that influence from external expert affect the implementation of e-Accounting system. 29 (18 percent) of the respondents strongly disagree or disagree that influence from external expert affect the implementation of e-Accounting system.

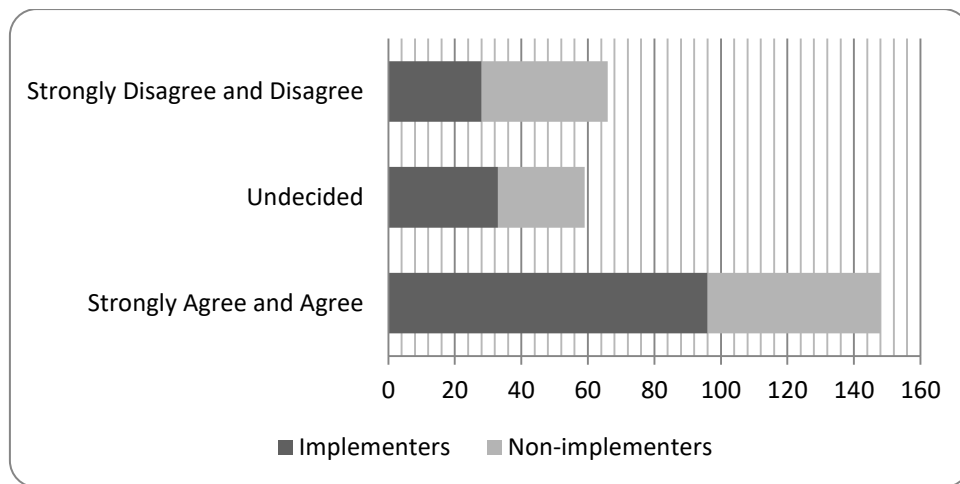
From the survey, (15 percent) of the respondents are undecided that that influence from external expert affect the implementation of e-Accounting system. Of the respondents that strongly agree or agree 89 are implementers while 19 are non-implementers. Of the total respondents that strongly disagree or disagree 9 are implementers while 20 are non-implementers. Figure 4.33 displays the cross chart of external expertise influence on e-Accounting system implementation by e-Accounting status.



**Figure 4.33: External Expertise Influence by e-Accounting status [Analysis of Field Survey (2017)]**

Business association influence describes the degree to which the involvement of the enterprise with an association impact on the implementation of e-Accounting system. From the survey, 148 (54 percent) of the respondents strongly agree or agree that influence from business association affect the implementation of e-Accounting system. 66 (24 percent) of the respondents strongly disagree or disagree that influence from business association affect the implementation of e-Accounting system.

From the survey, (22 percent) of the respondents are undecided that that influence from business association affect the implementation of e-Accounting system. Of the respondents that strongly agree or agree 96 are implementers while 52 are non-implementers. Of the total respondents that strongly disagree or disagree 28 are implementers while 38 are non-implementers. Figure 4.34 displays the cross chart of Business Association influence and e-Accounting status.



**Figure 4.34: Business Association Influence and e-Accounting Status [Analysis of Field Survey (2017)]**



**Table 4.6: External Characteristics of Respondent by e-Accounting Status (1)**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	%	N	%	N	%
1	Business Association Membership	Yes	156	74	113	65	269	70
		No	55	26	61	35	116	30
		<b>Total</b>	<b>211</b>	<b>100</b>	<b>174</b>	<b>100</b>	<b>385</b>	<b>100</b>
2	Presence of External IT Consultant	Presence	107	48	27	16	134	34
		Absence	117	52	147	84	264	66
		<b>Total</b>	<b>224</b>	<b>100</b>	<b>174</b>	<b>100</b>	<b>398</b>	<b>100</b>
3	External IT Consultant same as Supplier	Yes	65	54	9	17	74	43
		No	56	46	44	83	100	57
		<b>Total</b>	<b>121</b>	<b>100</b>	<b>53</b>	<b>100</b>	<b>174</b>	<b>100</b>
4	Government Support	Strongly Agree and Agree	109	50	65	37	174	44
		Undecided	61	28	47	26	108	27
		Strongly Disagree and Disagree	48	22	65	37	113	29
		<b>Total</b>	<b>218</b>	<b>100</b>	<b>177</b>	<b>100</b>	<b>395</b>	<b>100</b>

**Source: Analysis of Field Survey (2017)**

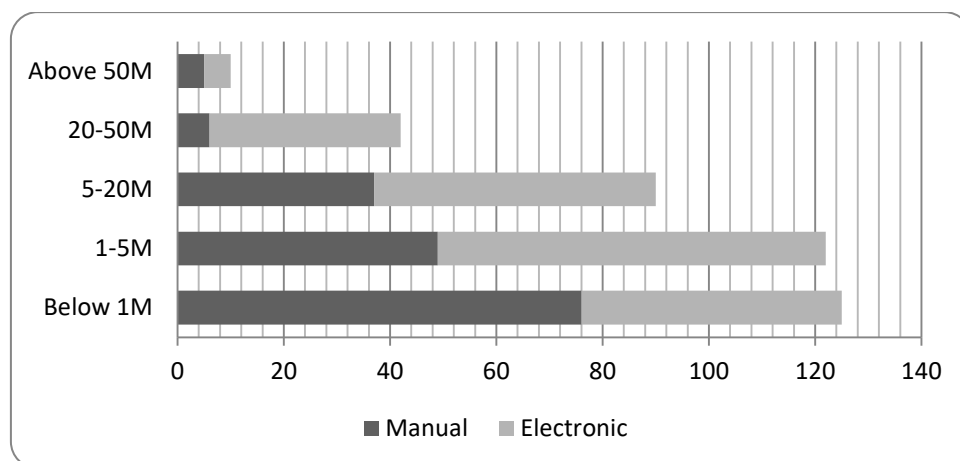
**Table 4.7: External Characteristics of Respondent by e-Accounting Status (2)**

N	Characteristics	Levels	e-Accounting Status					
			Implementers		Non-Implementers		Total	
			N	percent	N	percent	N	percent
1	<b>Customers request</b>	Strongly Agree and Agree	122	55	40	23	162	40
		Undecided	70	31	56	32	126	32
		Strongly Disagree and Disagree	32	14	81	45	113	28
		<b>Total</b>	<b>224</b>	<b>100</b>	<b>177</b>	<b>100</b>	<b>401</b>	<b>100</b>
2	<b>Competitors Influence</b>	Strongly Agree and Agree	150	67	63	35	213	53
		Undecided	52	23	49	28	101	25
		Strongly Disagree and Disagree	21	10	65	37	86	22
		<b>Total</b>	<b>223</b>	<b>100</b>	<b>177</b>	<b>100</b>	<b>400</b>	<b>100</b>
3	<b>External Expertise Influence</b>	Strongly Agree and Agree	89	77	19	42	108	67
		Undecided	18	15	6	13	24	15
		Strongly Disagree and Disagree	9	8	20	45	29	18
		<b>Total</b>	<b>116</b>	<b>100</b>	<b>45</b>	<b>100</b>	<b>161</b>	<b>100</b>
4	<b>Business Association Influence</b>	Strongly Agree and Agree	96	61	52	45	148	54
		Undecided	33	21	26	22	59	22
		Strongly Disagree and Disagree	28	18	38	33	66	24
		<b>Total</b>	<b>157</b>	<b>100</b>	<b>116</b>	<b>100</b>	<b>273</b>	<b>100</b>

**Source: Analysis of Field Survey (2017)**

#### 4.3.5. Descriptive Overview of e-Accounting Characteristics

From table 4.4, the total capital employed varies accordingly; below ₦1,000,000, between ₦1,000,000 & ₦5,000,000, between ₦5,000,000 & ₦20,000,000, between ₦20,000,000 and ₦50,000,000 and above ₦50,000,00. 76 (61 percent) of the respondents with total assets below ₦1,000,000 use the manual accounting system while 49 (39 percent) use the electronic accounting system. 49 (40 percent) of the respondents with total assets between ₦1,000,000 and ₦5,000,000 use the manual accounting system while 73 (60 percent) use the electronic accounting system. 37 (41 percent) of the respondents with total assets between ₦5,000,000 and ₦20,000,000 use the manual accounting system while 53 (59 percent) use the electronic accounting system. 6 (14 percent) of the respondents with total assets between ₦20,000,000 and ₦50,000,000 use the manual accounting system while 36 (86 percent) use the electronic accounting system. 5 (50 percent) of the respondents with total assets above ₦50,000,000 use the manual accounting system while 5 (50 percent) use the electronic accounting system. It is observed that, the number of people using the manual system of accounting diminishes as the total capital employed increases. Figure 4.34 displays the cross chart of Respondents method in keeping accounting transactions by Total Assets



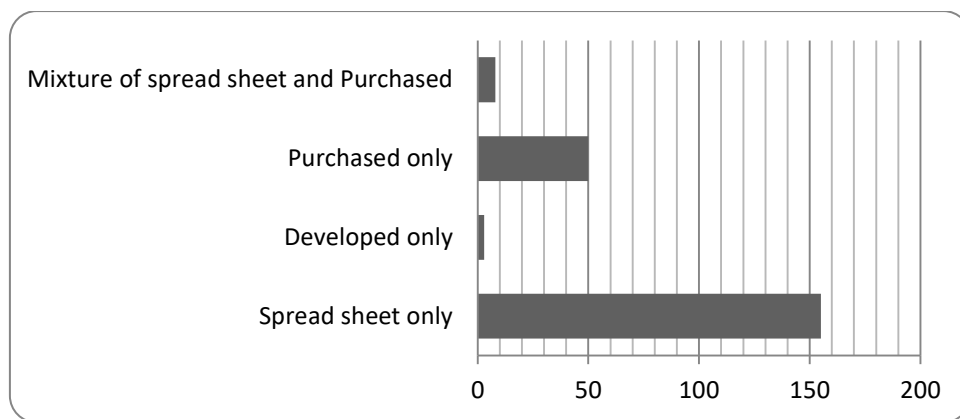
**Figure 4.35: Respondents method in keeping accounting transactions by Total Assets [Analysis of Field Survey (2017)]**

The study further investigated on the type of electronic accounting system used by implementers of e-Accounting. A total of 155 (72 percent) of the MSEs use spreadsheet only of which 38 have total assets below ₦1,000,000, 56 have total assets

between ₦1,000,000 and ₦5,000,000, 36 have total assets between ₦5,000,000 and ₦20,000,000, 22 have total assets between ₦20,000,000 and ₦50,000,000 while 3 have total asset above ₦50,000,000. A total of 3 (1 percent) of the MSEs use developed accounting software of which the 3 have total assets between ₦1,000,000 and ₦5,000,000.

A total of 50 (23 percent) of the MSEs use a purchased only e-Accounting system of which 11 (22 percent) have total assets below ₦1,000,000, 14 (19 percent) have total assets between ₦1,000,000 and ₦5,000,000, 14 (27 percent) have total assets between ₦5,000,000 and ₦20,000,000, 11 (31 percent) have total assets between ₦20,000,000 and ₦50,000,000 while none have total asset above ₦50,000,000. A total of 8 (4 percent) of the MSEs use a mix of spread sheet and purchased e-Accounting system of which 1 (2 percent) have total assets below ₦1,000,000, 1 (1 percent) have total assets between ₦1,000,000 and ₦5,000,000, 2 (4 percent) have total assets between ₦5,000,000 and ₦20,000,000, 2 (6 percent) have total assets between ₦20,000,000 and ₦50,000,000 while 2 (40 percent) have total asset above ₦50,000,000.

The result implies that majority of the MSEs make use of spread sheet, this could be as a result of the ease and cheaper cost to access spread sheet as against other forms of e-Accounting system. In addition it was also observed that very few of the MSEs developed their e-Accounting system in-house. This could be as a result of the technicalities involved in developing in-house accounting software, which the proprietor may not be ready for. Figure 4.36 displays the chart of Respondents e-Accounting system type.



**Figure 4.36: Respondents e-Accounting System Type [Analysis of Field Survey (2017)]**

Further to the type of e-Accounting system, it was necessary to know the name of the e-Accounting system in use. The survey revealed the statistics of the name of the e-Accounting system in use in relation to the total asset. 155 (72 percent) of the respondent use Microsoft Excel only of which 38 have total assets below ₦1,000,000, 56 have total assets between ₦1,000,000 and ₦5,000,000, 36 have total assets between ₦5,000,000 and ₦20,000,000, 22 have total assets between ₦20,000,000 and ₦50,000,000 while 3 have total asset above ₦50,000,000.

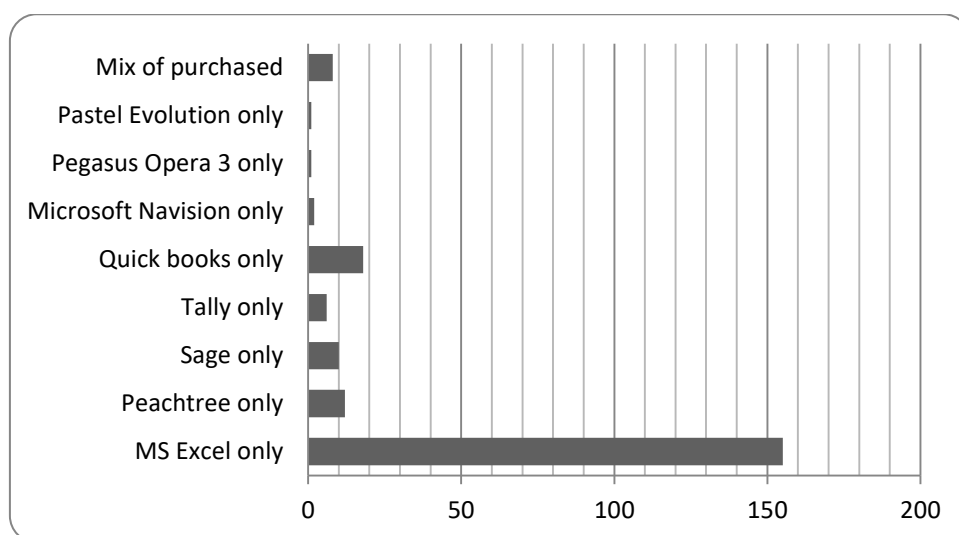
From the survey, 12 (6 percent) of the respondent use Peachtree only of which 6 have total assets below ₦1,000,000, 2 have total assets between ₦1,000,000 and ₦5,000,000, 3 have total assets between ₦5,000,000 and ₦20,000,000, 1 have total assets between ₦20,000,000 and ₦50,000,000 while none have total asset above ₦50,000,000.

10 (4 percent) of the respondent use Sage only of which 1 have total assets below ₦1,000,000, 2 have total assets between ₦1,000,000 and ₦5,000,000, 3 have total assets between ₦5,000,000 and ₦20,000,000, 4 have total assets between ₦20,000,000 and ₦50,000,000 while none have total asset above ₦50,000,000.

6 (3 percent) of the respondent use Tally only of which none have total assets below ₦1,000,000, 3 have total assets between ₦1,000,000 and ₦5,000,000, 1 have total assets between ₦5,000,000 and ₦20,000,000, 2 have total assets between ₦20,000,000 and ₦50,000,000 while none have total asset above ₦50,000,000. 18 (8 percent) of the respondent use Quick books only of which 4 have total assets below ₦1,000,000, 7 have total assets between ₦1,000,000 and ₦5,000,000, 5 have total assets

between ₦5,000,000 and ₦20,000,000, 2 have total assets between ₦20,000,000 and ₦50,000,000 while none have total asset above ₦50,000,000. 2 (1 percent) of the respondent use Microsoft Navision only of which the 2 have total assets between ₦5,000,000 and ₦20,000,000. 1 (0.5 percent) of the respondent use Pegasus Opera 3 only of which the 1 have total assets between ₦20,000,000 and ₦50,000,000. 1 (0.5 percent) of the respondent use Pastel Evolution only of which the 1 have total assets between ₦20,000,000 and ₦50,000,000.

8 (4 percent) of the respondent use a mix of Microsoft Excel & Peachtree/sage/Quickbooks/ which 1 have total assets below ₦1,000,000, 1 have total assets between ₦1,000,000 and ₦5,000,000, 2 have total assets between ₦5,000,000 and ₦20,000,000, 2 have total assets between ₦20,000,000 and ₦50,000,000 while 2 have total asset above ₦50,000,000. Figure 4.37 displays the chart of Respondents name of e-Accounting system.



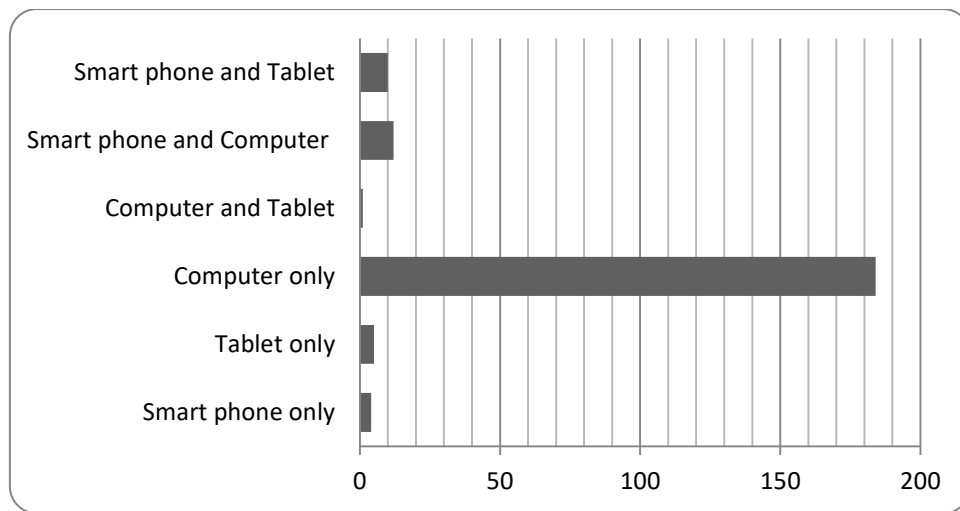
**Figure 4.37: Respondent's Name of e-Accounting System [Analysis of Field Survey (2017)]**

An assessment of the ICT device used in implementing e-Accounting system was done. The survey reports that 184 (85 percent) of the respondents make use of computer only in the e-Accounting process out of which 43 have total assets below ₦1,000,000, 60 have total assets between ₦1,000,000 and ₦5,000,000, 46 have total assets between ₦5,000,000 and ₦20,000,000, 32 have total assets between ₦20,000,000 and ₦50,000,000 while 3 have total asset above ₦50,000,000. The next being respondents that use smart phone and Computer in the e-Accounting process with 12 (6

percent) of the respondents of which 1 has total assets below ₦1,000,000, 7 have total assets between ₦1,000,000 and ₦5,000,000, 3 have total assets between ₦5,000,000 and ₦20,000,000, 1 have total assets between ₦20,000,000 and ₦50,000,000 while none have total asset above ₦50,000,000.

Following this, is respondents that use a mix of Smartphone and Tablet summed up to 10 (4.5 percent) of this number 1 has total assets below ₦1,000,000, 4 have total assets between ₦1,000,000 and ₦5,000,000, 1 has total assets between ₦5,000,000 and ₦20,000,000, 2 have total assets between ₦20,000,000 and ₦50,000,000 while 2 have total asset above ₦50,000,000. After this, 4 (2 percent) of the respondents reports they use smartphone only for the e-Accounting process of which 2 have total assets below ₦1,000,000, 1 has total assets between ₦1,000,000 and ₦5,000,000, 1 has total assets between ₦5,000,000 and ₦20,000,000, none have total assets between ₦20,000,000 and ₦50,000,000 and none have total asset above ₦50,000,000.

Closely following this are 5 (2 percent) respondents that indicated they use tablet only for their e-Accounting process of which 3 have total assets below ₦1,000,000, 1 has total assets between ₦1,000,000 and ₦5,000,000, 1 has total assets between ₦5,000,000 and ₦20,000,000, none of the respondents that use tablet only have total assets between ₦20,000,000 & ₦50,000,000 and above ₦50,000,000. The least being 1 (0.5 percent) of the respondents that use a combination of computer and tablet with total assets between ₦1,000,000 and ₦5,000,000. Figure 4.38 displays the chart of ICT device used for e-Accounting system.



**Figure 4.38: ICT Devices used for e-Accounting System [Analysis of Field Survey (2017)]**



**Table 4.8: Accounting System Characteristics of Respondent by Total Assets**

N	Characteristics	Levels	Total Asset of business in Millions of Naira											
			Below 1M		1-5M		5-20M		20-50M		Above 50M		Total	
			N	%	N	%	N	%	N	%	N	%	N	%
1	Methods used in keeping Accounting Transaction	Manual	76	61	49	40	37	41	6	14	5	50	173	44
		Electronic	49	39	73	60	53	59	36	86	5	50	216	56
		<b>Total</b>	<b>125</b>	<b>100</b>	<b>122</b>	<b>100</b>	<b>90</b>	<b>100</b>	<b>42</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>389</b>	<b>100</b>
2	Type of Electronic Accounting in use	Spread sheet only	38	76	56	76	36	69	22	63	3	60	155	72
		Developed only	0	0	3	4	0	0	0	0	0	0	3	1
		Purchased only	11	22	14	19	14	27	11	31	0	0	50	23
		Mixture of spread sheet and Purchased	1	2	1	1	2	4	2	6	2	40	8	4
		<b>Total</b>	<b>50</b>	<b>100</b>	<b>74</b>	<b>100</b>	<b>52</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>216</b>	<b>100</b>
3	Name of Electronic Accounting in use	MS Excel only	38	76	56	76	36	69	22	63	3	60	155	72
		Peachtree only	6	12	2	3	3	6	1	3	0	0	12	6
		Sage only	1	2	2	3	3	6	4	10	0	0	10	4
		Tally only	0	0	3	4	1	2	2	6	0	0	6	3
		Quick books only	4	8	7	9	5	9	2	6	0	0	18	8
		Microsoft Navision only	0	0	0	0	2	4	0	0	0	0	2	1
		Pegasus Opera 3 only	0	0	0	0	0	0	1	3	0	0	1	0.5
		Pastel Evolution only	0	0	0	0	0	0	1	3	0	0	1	0.5
		Mix of Ms Excel& Peachtree/sage/QuickBooks/	1	2	1	1	2	4	2	6	2	40	8	4
		Developed	0	0	3	4	0	0	0	0	0	0	3	1
		<b>Total</b>	<b>50</b>	<b>100</b>	<b>74</b>	<b>100</b>	<b>52</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>216</b>	<b>100</b>

N	Characteristics	Levels	Total Asset of business in Millions of Naira											
			Below 1M		1-5M		5-20M		20-50M		Above 50M		Total	
			N	%	N	%	N	%	N	%	N	%	N	%
4	<b>ICT Device used in Electronic Accounting</b>	Smart phone only	2	4	1	1	1	2	0	0	0	0	4	2
		Tablet only	3	6	1	1	1	2	0	0	0	0	5	2
		Computer only	43	86	60	82	46	88	32	91	3	60	184	85
		Computer and Tablet	0	0	1	1	0	0	0	0	0	0	1	0.5
		Smart phone and Computer	1	2	7	9.5	3	6	1	3	0	0	12	6
		Smart phone and Tablet	1	2	4	5.5	1	2	2	6	2	40	10	4.5
		<b>Total</b>	<b>50</b>	<b>100</b>	<b>74</b>	<b>100</b>	<b>52</b>	<b>100</b>	<b>35</b>	<b>100</b>	<b>5</b>	<b>5</b>	<b>216</b>	<b>100</b>

Source: Analysis of Field Survey (2017)

#### **4.4. Binary Logistic Regression**

The Binary logistic regression is considered suitable for this study because it is useful in testing hypotheses and describing relationships between a categorical outcome variable and one or more categorical or continuous predictor variables. However, in order to circumvent any error in the use of Binary logistic regression as well as the need to produce a valid result the study considered the assumptions of Binary logistic regression. The assumptions of Binary logistic regression are; a linear relationship is not assumed between the dependent and independent variables, a minimum of fifty sample cases is recommended per predictor, the dependent variable must be dichotomy (two categories) in nature and that each of the categories must be mutually exclusive and exhaustive (Park, 2013). Binary logistic regression further assumes that  $[p(y=1)]$  is the probability of an event occurring hence, the dependent variable should be coded accordingly. Lastly the logistic regression must have little or no multicollinearity amongst the independent variable.

These assumptions were all maintained in the study in the following ways: Firstly a linear relationship is not needed between the dependent and independent variables. Logistic regression can handle all sorts of relationships, as it applies a non-linear log transformation to the predicted odds ratio. This is so because it is a measure of probability i.e the likelihood of an event occurring in respect to another. Secondly, the study examined 410 sample cases, this is above the 50 minimum sample case prescribed. Thirdly the dependent variable (e-Accounting implementation) is dichotomous in nature (i.e implementers versus non-implementers of e-Accounting system).

Fourthly, each of the categories is mutually exclusive and exhaustive (i.e a case of e-Accounting implementation are mutual exclusive and exhaustive of a case of e-Accounting non-implementation). Explicitly, the dependent variable in the study is a dichotomous variable representing the implementation and non-implementation of e-Accounting system measured as 1 and 0 respectively; while the independent variables consist of dichotomous, categorical and continuous sets of explanatory variables representing the organisational determinants (Owner's/Manger's Characteristics, Technological Characteristics, Business Characteristics and External Characteristics). Lastly, a spearman rank correlation test was carried out to test if there is any form of

multicollinearity amongst the independent variable. The test for the multicollonearity is presented in table 4.9.

The spearman rank correlation reveals the relationship amongst variable and the direction of the relationships. This also distinctively tests for the presence of multicollinearity amongst the independent variables. From table 4.3 below, there were no obvious cases of multicollinearity amongst the independent variables. Cases of high correlation were experienced amongst items measuring individual independent variable. For items measuring Owner/manager characteristics high correlation exist between e-Accounting capability and financial accounting knowledge with (0.7) correlation coefficient. Likewise, a high correlation (0.8) exits between Management accounting knowledge and Financial accounting knowledge. However, this items need not to be dropped because they are measures of the same independent variable. Also, they simply show interrelatedness of items within the independent variable and not across the independent variable that poses a threat of multicollinearity.

Some Items measuring the independent variable (technological Characteristics) also show high correlation. They are; technology compatibility and technology relative advantage with 0.7 correlation coefficient; technology compatibility and technology security with 0.7 correlation coefficient; technology relative advantage and technology security with 0.7 correlation coefficient; technology cost on profit and technology cost on capital with 0.7 correlation coefficient. However, this items need not to be dropped because they are measures of the same independent variable. Also, they simply show interrelatedness of items within the independent variable and not across the independent variable that poses a threat of multicollinearity.

Specific items measuring the independent variable (External Characteristics) exhibit high correlation. They include; presence of external consultant and presence of external supplier with 0.8 correlation coefficient; external expertise influence and presence of external consultant with 0.7 correlation coefficient. However, this items need not to be dropped because they are measures of the same independent variable. Also, they simply show interrelatedness of items within the independent variable and not across the independent variable that poses a threat of multicollinearity. Table 4.9 shows the Test for Multicollinearity

**Table 4.9: Test for Multicollinearity (Spearman rank Correlation)**

	<i>age</i>	<i>edu</i>	<i>act</i>	<i>Eak</i>	<i>itk</i>	<i>fak</i>	<i>mak</i>	<i>Sof</i>	<i>bta</i>	<i>Brs</i>	<i>inl</i>	<i>bag</i>	<i>Tne</i>	<i>eep</i>	<i>tcx</i>	<i>tcm</i>	<i>tra</i>	<i>tse</i>	<i>tcp</i>	<i>tcc</i>	<i>bam</i>	<i>pec</i>	<i>pes</i>	<i>gsu</i>	<i>cre</i>	<i>cin</i>	<i>eei</i>	<i>bai</i>
<i>age</i>	1.0																											
<i>edu</i>	0.2	1.0																										
<i>Act</i>	0.0	0.0	1.0																									
<i>eak</i>	0.1	-0.3	0.1	1.0																								
<i>Itk</i>	0.2	-0.3	0.1	0.6	1.0																							
<i>Fak</i>	0.0	-0.3	0.0	<b>0.7</b>	0.6	1.0																						
<i>mak</i>	0.0	-0.2	0.0	0.6	0.5	<b>0.8</b>	1.0																					
<i>Sof</i>	0.1	0.1	0.0	0.0	0.1	0.0	0.0	1.0																				
<i>Bta</i>	0.0	0.3	0.0	-0.1	-0.2	-0.2	-0.1	0.1	1.0																			
<i>Brs</i>	0.0	-0.3	0.0	0.1	0.2	0.2	0.1	0.0	-0.4	1.0																		
<i>Inl</i>	0.1	-0.2	0.1	0.2	0.3	0.3	0.2	0.1	-0.2	0.2	1.0																	
<i>bag</i>	0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	0.1	0.2	0.0	0.0	1.0																
<i>Tne</i>	0.1	0.2	0.0	-0.1	-0.2	-0.2	-0.2	0.0	0.4	-0.3	0.0	0.3	1.0															
<i>eep</i>	-0.1	0.3	-0.1	-0.4	-0.3	-0.3	-0.3	0.0	0.3	-0.3	-0.2	0.2	0.6	1.0														
<i>Tcx</i>	0.1	-0.1	0.0	0.4	0.4	0.4	0.3	-0.1	-0.2	0.2	0.2	0.0	-0.1	-0.3	1.0													
<i>Tcm</i>	0.2	-0.1	0.1	0.3	0.3	0.2	0.2	0.0	-0.2	0.2	0.2	0.0	-0.1	-0.3	0.6	1.0												
<i>Tra</i>	0.1	-0.2	0.1	0.3	0.3	0.3	0.3	0.0	-0.2	0.1	0.2	0.0	-0.1	-0.3	0.6	<b>0.7</b>	1.0											
<i>Tse</i>	0.1	-0.1	0.1	0.2	0.3	0.2	0.2	0.0	-0.2	0.2	0.2	0.0	-0.1	-0.3	0.5	<b>0.7</b>	<b>0.7</b>	1.0										
<i>Tcp</i>	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	1.0									
<i>Tcc</i>	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	-0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	<b>0.8</b>	1.0								
<i>bam</i>	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	1.0							
<i>pec</i>	0.0	-0.2	0.0	0.2	0.2	0.2	0.2	0.0	-0.3	0.3	0.2	0.0	-0.3	-0.4	0.2	0.3	0.2	0.3	0.0	0.0	0.1	1.0						
<i>pes</i>	0.0	-0.2	-0.1	0.2	0.1	0.1	0.1	0.0	-0.2	0.2	0.2	0.0	-0.3	-0.3	0.1	0.1	0.2	0.1	-0.1	-0.1	0.1	<b>0.8</b>	1.0					
<i>gsu</i>	0.1	-0.1	0.0	0.3	0.3	0.4	0.4	0.1	-0.1	0.1	0.2	0.0	-0.1	-0.1	0.3	0.1	0.2	0.1	0.0	0.1	0.0	0.2	0.1	1.0				
<i>Cre</i>	0.1	-0.2	0.1	0.3	0.3	0.3	0.2	-0.2	-0.2	0.2	0.2	0.0	-0.2	-0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.3	0.2	0.2	1.0			
<i>Cin</i>	0.0	-0.1	0.1	0.3	0.2	0.3	0.2	-0.3	-0.1	0.2	0.1	0.0	-0.3	-0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.3	0.2	0.1	0.6	1.0		
<i>Eei</i>	0.1	-0.2	0.0	0.1	0.1	0.2	0.2	0.0	-0.2	0.2	0.1	0.0	-0.3	-0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.1	<b>0.7</b>	0.6	0.1	0.2	0.3	1.0	
<i>Bai</i>	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	-0.1	0.1	0.1	0.0	-0.2	-0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.6	0.3	0.3	0.1	0.3	0.3	0.5	1.0

Note: *age*= Owner/ manager age; *edu*= Educational attainment; *act*= Academic training; *eak*= E-acct capability; *itk*= ICT capability; *fak*=Financial accounting knowledge; *mak*= Management accounting knowledge; *sof*= Source of Finance; *bta*= Business total assets; *brs*=Business registration status; *inl*=International linkage; *bag*=Business age; *tne*=Total number of employee; *eep*=Employee e-acct expertise; *tcx*=Technology complexity; *tcm*=Technology compatibility; *tra*=Technology relative advantage; *tse*=Technology security; *tcp*=Technology cost on annual profit; *tcc*=Technology cost on capital; *bam*= Business Association Membership; *pec*=Presence of External IT Consultant; *pes*=Presence of External IT Supplier; *gsu*=Government's Support; *cre*=Customers' Request; *cin*=Competitors' Influence; *eei*=External Expertise influence; *bai*=Business Association influence.

**Source: Analysis of Field Survey (2017)**

The assumptions of binary logistic regression were maintained in the section above. The study proceeded with the binary logistic regression and results are presented in sections 4.4.1, 4.4.2, 4.4.3 and 4.4.4.

#### ***4.4.1. Binary Logistic Regression estimating Owner/Manager Characteristics and the Implementation of e-Accounting System.***

From table 4.10, the interrelationship between the characteristics of the owner/manager and the implementation of e-Accounting system was presented.

The  $\beta$  indicates the binary logistic regression coefficient of the independent variable; this signifies the effect of a unit change in the independent variable on the dependent variable. S.E. denoted Standard Error; this connotes the errors associated with the binary logistic regression coefficient. The Wald statistics suggests the relevance of the individual category of the independent variable to the model. The  $\text{Exp}(\beta)$  denotes the exponentiation of the  $\beta$  coefficient which is an odds ratio. The odds ratio is  $\left(\frac{p}{1-p}\right)$ , this depicts the change in the predicted odds of the dependent variable for a unit change in the independent variable.

The Cox & Snell R Square and the Nagelkerke R Square values provide an indication of the amount of variation in the dependent variable explained by the independent variables (Pallant 2011). Hence, suggesting the variability explained by the set of variables. The overall percentage explains the joint contribution of a set of independent variables on the outcome variable. The Hosmer-Lemeshow Goodness of Fit Test specifies the fitness of the model to the data. A poor fit model to data is indicated by a significance value less than 0.05 while a good fit model represent a significant value higher than 0.05 (Hosmer, Hosmer, Le Cessie and Lemeshow, 1997).

From the table, the coefficient ( $\beta$ ) is positive for all categories of owner/manager age. This means that a unit change in the age and age range of Owner/manager of 26-35, 36-45, 46-55 and 56 & above will have an increasing effect on the implementation of e-Accounting system. MSEs with owner/manager ages between 26-35, 36-45, 46-55 and 56 & above are 1.043, 1.371, 1.628, 1.573 times more likely to implement e-Accounting than MSEs with owner manager below 25 years. This finding implies that as owner/manager advances in age the more likely they are experienced in the use of ICT usage thus,

implement e-Accounting system. However, MSEs owner/manager age is not significantly related to e-Accounting implementation at p-values of overall (0.987) and individual category (0.905, 0.426, 0.273 and 0.435). This conforms to the findings from related research domain that age is not a significant factor in the determination of ICT usage (Jegede, 2009).

Education is vital in shaping an individual cognitive skill and ability (Wiersema & Bantel, 1992). The Educational attainment of owner/manager was considered in the study. From the table, MSEs owner/manager with no formal education, with technical skill and having a maximum of primary & secondary education are 0.000 times not likely to implement e-Accounting compared to MSEs owner/manager with a maximum of a bachelor degree (B.Sc/BA). However MSEs owner/manager with ordinary & higher Diploma (OND/HND) and master's degree & Doctorate degree as highest educational qualification are 1.235 and 1.698 times more likely to implement e-Accounting than MSEs owner/manager with a maximum of a bachelor degree (B.Sc/BA).

The result therefore suggests that high levels of educational attainment are vital in implementing e-Accounting system. Top Management with high levels of formal education tend to find resourceful ways in proffering solutions to seemingly cumbersome problems (Hambrick & Mason, 1984; Finkelstein & Hambrick, 1996). This was also consistent with that higher educational degree depicts higher ICT competence (Aesaert, Nijlen, Vanderlinde, Tondeur, Devlieger & Braak, 2015). However, there is no significant association between levels of owner/manager educational attainment and the implementation of e-Accounting system overall (0.570) and across the categories (0.999, 0.624 and 0.228).

Owner/manager academic training refers to the academic speciality of the owner/manager highest educational attainment. From the results, remarkably owner/manager with Science/Engineering/Technology/Architecture based highest educational speciality is (0.531) times less susceptible to implement e-Accounting system as well as owner/manager who indicate no academic speciality or informal technical skill are also (0.506) times less prone to implement e-Accounting than owner/manager with Arts/Humanities/Law based background. While owner/manager with Commercial/Social Science is (1.049) times more probable to implement e-Accounting system than owner/manager with Arts/Humanities/Law based background.

This finding negates the *a priori* expectation that Owner/manager with Science/Engineering/Technology/ Architecture has more potentials in implementing e-Accounting than the owner/manager with Arts/Humanities/Law based highest academic attained speciality. It was expected that the integration of ICT in the accounting process of MSEs is closely associated with Science/Engineering/Technology/Architecture and Commercial/Social Science based educational attained individuals as such more compliance is expected from owner/manager with Science/Engineering/Technology/Architecture background over Arts/Humanities/Law.

However, this was not so. The submission that academic speciality of executives can affect strategic decision making is partly true in this case (Hitt & Tyler, 1991). The result was significant at 0.1 significant level for the Science/Engineering/Technology/Architecture category but not significant for Commercial/Social Science and no academic speciality or informal technical skill category. In addition the overall result reports not significant for owner/manager academic training and the implementation of e-Accounting system at 0.197 p-value.

Owner/manager e-Accounting and ICT capability is related to the implementation of e-Accounting system. Owner/manager with high and very high capability in e-Accounting are (1.241) times more likely to implement e-Accounting than owner/manager with low or very low knowledge in e-Accounting. Also, owner/manager with high and very high knowledge in Information communication technologies are (1.586) times more likely to implement e-Accounting than owner/manager with low or very low capability in Information communication technologies. This aligns with the study of Jeon *et al.* (2006) that owner/manager general capability in ICT applications and tools can boost the integration of ICT in the Small and medium enterprises (SMEs). Its worthy to note that overall, Owner/manager capability in e-Accounting is significantly related to e-Accounting implementation at 0.002 p-value but Owner/manager capability in ICT is not significantly related to e-Accounting implementation at 0.193 p-value .

The Accounting knowledge of owner/manager was evaluated in respect to financial and management accounting knowledge. The financial accounting knowledge of owner/manager is not significantly (p-value of 0.110) related to the implementation of e-Accounting system. Furthermore owner/manager with high and very high financial



accounting knowledge are (1.903) times more likely to implement e-Accounting than owner/manager with low and very low knowledge in financial accounting.

In the same vein owner/manager with management accounting knowledge are (2.101) times more likely to implement e-Accounting knowledge than owner/manager with low and very low knowledge in management accounting. This is however significant with p-value of 0.052 but the overall effect of owner/manager management accounting knowledge to the implementation of e-Accounting system is not significant. This is consistent with Ismail and King (2007) submission, that knowledge in accounting is greater in accounting information system aligned firms than accounting information system non-aligned firm.

Further checks carried out were the Cox & Snell R Square, Nagelkerke R Square, The overall percentage and the Hosmer-Lemeshow goodness of fit test. The Cox & Snell R Square, Nagelkerke R Square test reports 0.181 and 0.243, suggesting that between 18.1 percent and 24.3 percent of the variation in the dependent variable is explained by the model. The overall percentage reports 69 percent, this indicates the joint contribution of the independent variables on the dependent variable is to the tune of 69 percent. The Hosmer-Lemeshow Goodness of Fit Test specifies the fitness of the model to the data. From the result The Hosmer-Lemeshow Goodness of Fit Test reports 0.889. This indicates a good model to data fit as a poor fit reports value less than 0.05.

**Table 4.10: Binary Logistic Regression estimates of Owner/Manager Characteristics and the Implementation of e-Accounting System.**

Indicators	B	S.E.	Wald	df	Sig.	Exp(B)
Owner/Manager Age					0.987	
Below 25 (RC)						
Age range between (26-35)	0.042	0.354	0.014	1	0.905	1.043
Age range between (36-45)	0.315	0.396	0.634	1	0.426	1.371
Age range between (46-55)	0.487	0.444	1.203	1	0.273	1.628
Age range between (56 and above)	0.453	0.580	0.609	1	0.435	1.573
Owner/Manager Educational Attainment					0.570	
B.Sc/BA (RC)						
None, Technical skill, Primary and secondary	23.313	26915	0.000	1	0.999	0.000
OND/HND	0.211	0.431	0.240	1	0.624	1.235
MBA/M.Sc/MA AND Ph.D	0.530	0.439	1.455	1	0.228	1.698
Owner/Manager Academic Training					0.197	
Arts/Humanities/Law (RC)						
Sciences/Engineering/Technology/Architecture	-0.633	0.330	3.687	1	0.055***	0.531
Commercial/ Social Science	0.048	0.315	0.023	1	0.880	1.049
Others(None, Informal technical skill)	-0.68	0.924	0.542	1	0.462	0.506
Owner/Manager e-Accounting Capability					0.002*	
Very Low and low (RC)						
Undecided	0.962	0.455	4.458	1	0.035**	2.616
Very High and High	0.216	0.455	0.226	1	0.635	1.241
Owner/Manager ICT Capability					0.193	
Very Low and low (RC)						
Undecided	1.054	0.578	3.33	1	0.068***	2.870
Very High and High	0.459	0.595	0.595	1	0.440	1.582
Owner/Manager Financial Accounting Knowledge					0.110	
Very Low and low (RC)						
Undecided	0.784	0.48	2.667	1	0.102	2.190
Very High and High	0.643	0.416	2.387	1	0.122	1.903
Owner/Manager Management Accounting Knowledge					0.498	
Very Low and low (RC)						
Undecided	-0.207	0.429	0.233	1	0.629	0.813
Very High and High	0.742	0.382	3.773	1	0.052***	2.101
Constant	-2.113	0.776	7.418	1	0.006	0.121
Cox & Snell R Square = 0.181						
Nagelkerke R Square = 0.243						
Overall percentage = 69.0 percent						
Hosmer lemeshow = 0.889						

Note: RC= reference category B= logistic regression coefficient; S.E.= standard error; Wald= wald statistics; df= degree of freedom; Sig.= significance level; Exp(B)= odds ratio; The subscripts \*, \*\* and \*\*\* imply the significant values at 1, 5 and 10 percent

**Source: Field Survey Analysis (2017)**

#### ***4.4.2. Binary Logistic Regression estimating Business Characteristics and the Implementation of e-Accounting System.***

Finance is a critical resource in the operational activities of MSEs. More importantly is the source of finance. From table 4.11 MSEs source of finance was categorised into internal, external and mix of internal and external sources of finance. MSEs that are exclusively external financed (cooperative society, bank loan, religious organisation and government scheme) are (0.882) times less probable to implement e-Accounting than MSEs that are exclusively internally financed. In the same vein MSEs that are financed with a mix of both internal and external sources are (0.419) times less likely to implement e-Accounting system than exclusively internally financed MSEs.

These findings contradict the *a priori* expectation where it's envisaged that externally financed MSEs are more likely to implement e-Accounting system than internally financed MSEs because of the need for external financed MSEs to present a regular financial statement to its investors and creditors. Meanwhile, an e-Accounting system is characterised with the ability of generating timely report in an efficient manner. MSEs that are internally financed may not see the need to implement an e-Accounting system since there is no need to make financial report to external parties.

However, the reason for this outcome can be as a result of the fact that internally generated finance (in this study which comprises of personal, friends and family and retained profit) can be less costly than externally generated finance. Suggesting, that MSEs with exclusively internally generated finance will experience a lower cost of capital, hence report an higher profit that can be diverted in implementing an e-Accounting system. This confirms the findings of Park & Pincus (2000) that internally generated financed firms results in larger earnings that leads to an increasing growth potentials. Business source of finance is not significantly related to the implementation of e-Accounting system.

Next, MSEs business total assets is significantly related to the implementation of e-Accounting in the categories of between ₦1,000,000 & ₦4,999,999, between ₦5,000,000 & ₦19,999,999, between ₦20,000,000 & ₦50,000,000 and above ₦50,000,000 at 0.1, 0.05, 0.05 and 0.05 level of significance respectively. However, cumulatively business

total assets do not exert a significant effect on e-Accounting system implementation. MSEs with total assets of between ₦1,000,000 & ₦4,999,999, between ₦5,000,000 & ₦19,999,999, between ₦20,000,000 & ₦50,000,000 and above ₦50,000,000. Are 10.265, 15.603, 14.379, 20.607 times more respectively likely to implement e-Accounting system than MSEs with below ₦1,000,000 total assets. This suggest that larger total assets sized MSEs tend to possess relatively adequate financial resources, attract knowledgeable employees and possibly seek to perform better in operational matters than smaller total assets sized MSEs. Hence, they can afford to implement an e-Accounting system. In line with this, Thong (1999) submits that small businesses lack the finance and expertise required to implement a technological innovation because they are resources impoverished.

The going concern status of an MSEs can propel the implementation of e-Accounting system. The national registration status of MSEs is a pointer of the business plan to continue to exist into the unforeseen future. The study result is in line with the *a priori* expectation. The research finding indicates that MSEs that are registered with Corporate Affairs Commission are 1.434 times more likely to implement e-Accounting system than MSEs that are not registered with Corporate Affairs Commission. The potentials for growth and expansion are more visible in registered business than unregistered business (Babajide, 2011). Hence, the expansion necessitates the implementation of e-Accounting system. This support the claim that registration of business increases the probability of ICT adoption in MSEs (Olise, Anigbogu. Edoko & Okoli, 2014). However, business national registration status is not significantly related to the implementation of e-Accounting system.

The international linkage of MSEs depicts the affiliation of the enterprise with other international business entities outside the country of operation. This linkage facilitates access to knowledge, expertise and networks. From the study, MSEs that are linked to an international organisation in terms of sales supply and finance are 1.489 times more likely to implement e-Accounting system than MSEs that are not linked to an international organisation in terms of sales, supply and finance. Consistent with this, Hitt, Hoskisson and Kim (1997) proposed that the greater the business scope the greater the

demand for information technology implementation. However, business international linkage is not significantly related to the implementation of e-Accounting system.

MSEs business age in years relates to the number of years the business has been in existence from the time it began. From the study MSEs that have been in existence between 6-10 years are 0.390 times less likely to implement e-Accounting system than MSEs that are less than 5 years of existence. This is however significant at 0.1 level of significance. In the same vein MSEs that have been in existence for over 11 years are times 0.677 less likely to implement e-Accounting system than MSEs that are less than 5 years of existence. However this is not significant. This findings is contrary to our *a priori* expectation that MSEs with longer years of existence are likely to be engaged in more financial and economic transaction as such implementing e-Accounting system. Also Padachi (2012) explicate that younger firm need no elaborate accounting system.

A justification for this result can be hinged on the fact that there has been a progressive ICT compliance rate in Nigeria in recent years. This is evidence in the mobile cellular subscription per 100 users, increasing from 1 person in 2002 to approximately 78 people in 2014 (World Development Indicator, 2015). Also, the internet user per 100 people has increased from 1 person in 2003 to approximately 43 people in 2014 (World Development Indicator, 2015). The overall effect of MSEs business age is significant to the implementation of e-Accounting system at 0.05 significant level.

The size of MSEs was also captured by the total number of employee. From the study, MSEs having between 10-49 employees are 1.065 times more likely to implement e-Accounting than MSEs with employee below 10. This result conforms to OECD (2007) report that it is a standard practice for firms with more than 10 employees to use some form of technology. However, the relationship between total numbers of employee is not significant to the implementation of e-Accounting system.

The internal expertise presence in MSEs business shows the availability of personnel within the organisation equipped with e-Accounting implementation skills. From the result below, MSEs having employee with e-Accounting expertise between 1-5 and 6-10 are 0.960 and 0.803 less times likely to implement e-Accounting system than MSEs having above 11 employees with e-Accounting expertise. This suggests having more

employees with e-Accounting knowledge boost the implementation of e-Accounting system. The Information technology competence of internal staff has been found to have the most frequent influence in the integration of ICT in accounting processes (Pongpatttrachai *et al.*, 2013). However, internal expertise presence is not significantly related to the implementation of e-Accounting system.

Further checks carried out were the Cox & Snell R Square, Nagelkerke R Square, The overall percentage and the Hosmer-Lemeshow goodness of fit test. The Cox & Snell R Square, Nagelkerke R Square test reports 0.082 and 0.121, suggesting that between 8.2 percent and 12.1 percent of the variation in the dependent variable is explained by the model. The overall percentage reports 77.7 percent, this indicates the joint contribution of the independent variables on the dependent variable is to the tune of 77.7 percent. The Hosmer-Lemeshow Goodness of Fit Test specifies the fitness of the model to the data. From the result The Hosmer-Lemeshow Goodness of Fit Test reports 0.455. This indicates a good model to data fit as a poor fit reports value less than 0.05. Table 4.11 shows the Binary Logistics regression estimates of business characteristics and the implementation of e-Accounting system

**Table 4.11: Binary Logistic Regression estimates of Business characteristics and the Implementation of e-Accounting System**

Indicators	B	S.E.	Wald	df	Sig.	Exp(B)
Business Source of Finance					0.792	
Internal sources only (RC)						
External sources only	-0.125	0.436	0.082	1	0.774	0.882
Mix of both internal and external sources	-0.869	0.606	2.058	1	0.151	0.419
Business Total Assets					0.803	
Below N 1,000,000 (RC)						
N 1 M - N 4.99M	2.329	1.262	3.403	1	0.065**	10.265
N 5M – N 19.99M	2.747	1.259	4.763	1	0.029*	15.603
N 20M – N 50M	2.666	1.273	4.384	1	0.036*	14.379
Above N 50,000,000	3.026	1.375	4.839	1	0.028*	20.607
Business Registration Status					0.353	
Not Registered with CAC (RC)						
Registered with CAC	0.360	0.386	0.872	1	0.350	1.434
International Linkage					0.262	
Absence of international linkage (RC)						
Presence of international linkage	0.398	0.371	1.153	1	0.283	1.489
Business Age					0.031*	
0-5years (RC)						
6-10years	-0.941	0.508	3.426	1	0.064**	0.390
11 and above years	-0.391	0.514	0.578	1	0.447	0.677
Total number of employee					0.836	
1-9 (RC)						
10-49	0.063	0.38	0.028	1	0.868	1.065
Employee e-Accounting Expertise					0.971	
11 and above (RC)						
1-5	-0.040	1.196	0.001	1	0.973	0.960
6-10	-0.219	0.488	0.202	1	0.653	0.803
Constant	-0.924	1.334	0.480	1	0.489	0.397
Cox & Snell R Square = 0.082						
Nagelkerke R Square = 0.121						
Overall percentage = 77.7 percent						
Hosmer lemeshow = 0.455						

Note: B= logistic regression coefficient; S.E.= standard error; Wald= wald statistics; df= degree of freedom; Sig.= significance level; Exp(B)= odds ratio; The subscripts \*, \*\* and \*\*\* imply the significant values at 1, 5 and 10 percent.

**Source: Field Survey Analysis (2017)**

#### ***4.4.3. Binary Logistic Regression estimating Technological characteristics and the Implementation of e-Accounting System.***

Technology complexity, compatibility, relative advantage, security, cost to annual profit and cost on capital are the parameters used in capturing technological characteristics. Technological complexity indicates the level to which an innovation is perceived to be difficult to comprehend and use (Rogers, 1985) From the result presented in table 4.12 respondents who strongly agree & agree and are undecided that e-Accounting is not complex to use are not likely to implement e-Accounting than respondents who strongly disagree and disagree that e-Accounting is not complex to use. This implies that there is no difference between respondents who strongly agree & agree to the perception that e-Accounting is easy to use and respondents who strongly disagree & disagree to the perception that e-Accounting is not complex to use. In line with this, Yousafzai, Foxall and Pallister (2007) state that perceive ease of use is not directly linked to ICT usage. Overall the result is significant at 0.01 level of significance.

The compatibility of technology depicts the extent at which a particular technology fits into an organisational behavioural pattern for easy assimilation in the organisation. Findings from the study indicate that MSEs Owner/Manager who strongly agree & agree that the implementation of e-Accounting is compatible to their business are 7.626 times more likely to implement an e-Accounting system than MSEs Owner/Manager who strongly disagree & disagree. Overall, this is also significant to the implementation of e-Accounting system at 10 percent level of significance.

The degree at which a technological innovation is adjudged superior to the former relates to the relative advantage of that innovation over the other (Rogers, 1985). From the *a priori* expectation the relative advantage of using an e-Accounting system is expected to be superior to the manual system as also collaborated by previous studies (Thong, 1999; Peslak *et al.*, 2010) Conversely, from the findings respondents who strongly agree & agree that the implementation of e-Accounting is relatively advantageous to the manual system are 0.670 times less likely to implement an e-Accounting system than those who strongly disagree & disagree. Although, this is not significant with a p-value of 0.696. The implication of this finding is that the relative advantage of an e-Accounting system



over manual accounting system is not necessarily a sufficient reason to implement an e-Accounting system. overall the p-value is 0.612.

The perceived security of e-Accounting system in keeping the enterprise accounting data is very germane in determining its implementation. This is because any security hesitation on an e-Accounting system can impede the dissemination (Zhu *et al.*, 2006). From the study, respondents who strongly agree & agree that the implementation of e-Accounting do not raise any security concerns are 5.011 times more likely to implement an e-Accounting system than those who strongly disagree & disagree. This is also significant at 5 percent significant level. Consistent with this, is the findings that the confidentiality, availability and non-repudiation are important measures of perceived security that significantly influence the decision to adopt an innovation (Hartono, Holsapple, Kim, Na & Simpson, 2014).

The cost of implementing e-Accounting system in comparison to capital and annual profit was evaluated. The result shows that the likelihood of respondents who perceive the cost of e-Accounting system to annual profit as very high & high are 0.505 times less likely to implement e-Accounting than respondents who perceived it to be very low or low. This implies that respondents who perceive the cost of e-Accounting system to annual profit as very high & high are less likely to implement than those that think it to be very low or low.

Contrary to this, respondents who perceive the cost of e-Accounting system to capital as very high & high are 1.286 times more likely to implement e-Accounting than respondents who perceived it to be very low or low. This implies that, respondents who think the cost of implementing e-accounting to capital as high would still be able bear it cost as such implement e-Accounting system. However, respondents who think the cost of implementing e-Accounting to annual profit is high will not be able to implement e-Accounting system.

Venkatesh, Thong and Xu (2012) posit that the cost of a technology can have a significant impact on the use of that technology. From the study result, this can be implied in two dimensions. First, if MSEs owner/manager perceive e-Accounting to be high cost than the manual accounting system then it can impede the implementation of the e-Accounting system. Second, if MSEs owner/manager perceive e-Accounting to be high cost than the

manual accounting system then there is a possibility to perceive the technology to be of high benefits with capability of delivering returns higher than the monetary cost of the technology. However, the result from the study shows that the cost of e-Accounting system both to annual profit and capital are not significantly related to the implementation of e-Accounting system.

Further checks carried out were the Cox & Snell R Square, Nagelkerke R Square, the overall percentage and the Hosmer-Lemeshow goodness of fit test. The Cox & Snell R Square, Nagelkerke R Square test reports 0.231 and 0.310, suggesting that between 23.1 percent and 31 percent of the variation in the dependent variable is explained by the model. The overall percentage reports 69.9 percent, this indicates the joint contribution of the independent variables on the dependent variable is to the tune of 60.9 percent. The Hosmer-Lemeshow Goodness of Fit Test specifies the fitness of the model to the data. From the result The Hosmer-Lemeshow Goodness of Fit Test reports 0.269. This indicates a good model to data fit as a poor fit reports value less than 0.05. Table 4.12 Binary Logistic regression estimates of Technological characteristics and the implementation of e-Accounting system

**Table 4.12: Binary Logistic Regression estimates of Technological Characteristics and the Implementation of e-Accounting System**

Indicators	B	S.E.	Wald	df	Sig.	Exp(B)
Technology Complexity					0.000*	
Strongly Disagree and Disagree (RC)						
Strongly agree and agree	20.270	7349	0.000	1	0.998	0.000
Undecided	19.650	7349	0.000	1	0.998	0.000
Technology Compatibility					0.053***	
Strongly Disagree and Disagree (RC)						
Strongly agree and agree	2.032	0.891	5.204	1	0.023**	7.626
Undecided	1.319	0.913	2.086	1	0.149	3.740
Technology Relative Advantage					0.612	
Strongly Disagree and Disagree (RC)						
Strongly agree and agree	-0.400	1.024	0.152	1	0.696	0.670
Undecided	-0.842	1.086	0.601	1	0.438	0.431
Technology Security					0.018**	
Strongly Disagree and Disagree (RC)						
Strongly agree and agree	1.612	0.880	3.356	1	0.067***	5.011
Undecided	0.997	0.928	1.156	1	0.282	2.711
Technology Cost to Annual Profit					0.098***	
Very Low and low (RC)						
Very High and High	-0.684	0.431	2.518	1	0.113	0.505
Undecided	0.301	0.379	0.633	1	0.426	1.352
Technology Cost to Capital					0.628	
Very Low and low (RC)						
Very High and High	0.251	0.43	0.341	1	0.559	1.286
Undecided	0.426	0.378	1.265	1	0.261	1.530
Constant	-22.680	7349	0.000	1	0.998	0.000
Cox & Snell R Square = 0.231						
Nagelkerke R Square = 0.310						
Overall percentage = 69.9 percent						
Hosmer lemeshow = 0.269						

Note: B= logistic regression coefficient; S.E.= standard error; Wald= wald statistics; df= degree of freedom; Sig.= significance level; Exp(B)= odds ratio; The subscripts \*, \*\* and \*\*\* imply the significant values at 1, 5 and 10 percent.

**Source: Field Survey Analysis (2017)**

#### ***4.4.4. Binary Logistic Regression estimating External characteristics and the Implementation of e-Accounting System.***

Table 4.12 shows the relationships between the external characteristics variables and the implementation of e-Accounting system. The variables considered are business association membership, presence of external IT consultant/Supplier, government's support, customers' request, competitors influence, external expertise influence and business association influence.

The business Association membership stipulates the involvement of the MSEs enterprise in a form of trade/professional association. The membership of MSEs in a particular business association can trigger the use of e-Accounting system as a result of the communal relation that can arise between enterprises that do not use e-Accounting system and those that use e-Accounting system in forms of interaction, observation and exchange of information (Pongpatrachai *et al.*, 2013).

The findings revealed that MSEs that indicated their membership in a business association are 0.479 times less likely to implement e-Accounting system than MSEs that do not have membership to a business Association. This suggests that MSEs membership in business association do not impact on the implementation of e-Accounting system. In the same vein Hajiha and Azizi (2011) found out that the relationship of firms with accounting firms do not significantly impact on accounting information system implementation. The overall effect of this relationship is also not significant.

The role of external expertise such as external IT consultant and supplier/vendor in the effective implementation of technology is relevant. Their roles comprises of performing an information requirement analysis, recommending an appropriate information technology, relating with management and end-user, quality training of end-user, providing technical support during and after the implementation (Thong *et al.*, 1997). From the study MSEs with external IT consultant are 0.081 times less likely to implement e-Accounting than MSEs without external IT consultant. This is significant at 10 percent level of significance. The overall effect of presence of external IT consultant to the implementation of e-Accounting system is not significant. Furthermore, the respondents who indicated the presence of IT consultant were asked if the IT consultant were IT supplier. From the study, when IT consultant is same as the IT supplier they were 6.106

times more likely to implement e-Accounting system than when the IT consultant were not the same as the supplier. This is significant at 5 percent level of significance. The overall effect of presence of external IT supplier to the implementation of e-Accounting system is significant at 0.01 level of significance.

The findings of Yap, Soh and Raman (1992) found a positive relationship between the presence of IT supplier and the implementation of information technology. Enormous benefits are inherent when the IT consultant is same as the IT supplier. An IT consultant-supplier is in a capacity to assess, evaluate, recommend and provide suitable e-Accounting system required by the organisation. The system of having the external IT consultant same as the supplier also avails the enterprise the ability to complete the e-Accounting implementation process on time and within budget (Yap, Soh and Raman, 1992).

The support of government in terms of awareness of government policies and initiatives on the use of ICT can have the propensity to boost the implementation of e-Accounting. From the study, respondent who strongly agree & agree of the presence of government support in the implementation e-Accounting system are 0.745 times less likely to implement e-Accounting than respondents that strongly disagree and disagree. This result is however not significant. A similar study carried out by Irefin (2012) suggests that inadequate ICT infrastructure in Nigeria is a barrier to ICT implementation. The ICT infrastructures include the proper policy on telecommunication services, high cost of computer devices, and Internet facilities.

Respondents that strongly agree & agree that customers request for the use of e-Accounting system are 3.848 times more likely to implement e-Accounting system than respondents that strongly disagree & disagree. The overall effect of customers request on the implementation of e-Accounting system is significant at 10 percent. Woodside and Quaddus (2015) findings situate that the use of ICT in SMEs business processes is largely driven by environmental factors such as customers' pressure. This result suggest that MSEs whose customers request for the use of ICT in the business processes will implement e-Accounting than those whose customers do not request for the use of ICT in the business process.

According to Porter and Millar (1985), the use of ICT has the propensity to change the business competitive environment in three ways; first, it can change the industry structure, second, it sets new completion rules and third, it initiates new business. Respondents that strongly agree & agree that competitor influences the use of e-Accounting system are 1.816 times more likely to implement e-Accounting system than respondents that strongly disagree & disagree. However, this is not significant. Findings by Woodside and Quaddus (2015) iterates that pressures from competitors influence the integration of ICT by SMEs in Bangladesh.

Respondents that strongly agree & agree that external expertise influence the use of e-Accounting system are 35.534 times more likely to implement e-Accounting system than respondents that strongly disagree & disagree. However, this is significant with a p-value of 0.008 and overall p-value of 0.006. The influence of external expertise in terms of providing services required for the effective implementation of information system is vital (Thong *et al.*, 1997). This result suggests that the influence of an external expert in terms of an external consultant and supplier is positively related to the implementation of e-Accounting system.

Respondents that strongly agree & agree that business association influence the use of e-Accounting system are 0.735 times less likely to implement e-Accounting system than respondents that strongly disagree & disagree. However, this is not significant. This result is in tandem with the earlier result that respondents who are members of a business association are less likely to implement e-Accounting system than respondents who are not member of a business association. Thus, Pongpatrachai *et al.* (2013) proposition that MSEs can implement e-Accounting as a result of the networks and an interaction amongst members of the same business association does not align with the study. The findings of Hajiha and Azizi (2011) that the relationship of firms with accounting firms do not significantly impact on accounting information system implementation seems to align with the study. Table 4.13 shows the Binary Logistic regression estimates of external characteristics and the implementation of e-Accounting system

**Table 4.13: Binary Logistic Regression estimates of External Characteristics and the Implementation of e-Accounting system**

Indicators	B	S.E.	Wald	df	Sig.	Exp(B)
Business Association Membership					0.482	
No						
Yes	-0.737	1.397	0.278	1	0.598	0.479
Presence of External IT Consultant					0.106	
Absence						
Presence	-2.519	1.487	2.870	1	0.090***	0.081
External IT Consultant same as Supplier					0.010**	
No						
Yes	1.809	0.743	5.928	1	0.015***	6.106
Government's Support					0.915	
Strongly Disagree and Disagree						
Strongly agree and agree	-0.295	0.757	0.152	1	0.697	0.745
Undecided	0.610	0.994	0.376	1	0.540	1.84
Customers' Request					0.053***	
Strongly Disagree and Disagree						
Strongly agree and agree	1.348	0.962	1.961	1	0.161	3.848
Undecided	-0.366	1.016	0.130	1	0.719	0.694
Competitors' Influence					0.189	
Strongly Disagree and Disagree						
Strongly agree and agree	0.596	1.256	0.225	1	0.635	1.816
Undecided	-0.94	1.302	0.521	1	0.471	0.391
External Expertise influence					0.006*	
Strongly Disagree and Disagree						
Strongly agree and agree	3.57	1.34	7.096	1	0.008*	35.534
Undecided	3.446	1.516	5.166	1	0.023**	31.389
Business Association influence					0.668	
Strongly Disagree and Disagree						
Strongly agree and agree	-0.308	1.008	0.093	1	0.760	0.735
Undecided	-0.446	1.182	0.142	1	0.706	0.64
Constant	-0.169	1.447	0.014	1	0.907	0.845
Cox & Snell R Square = 0.181						
Nagelkerke R Square = 0.243						
Overall percentage = 69.8 percent						
Hosmer lemeshow = 0.522						

Note: B= logistic regression coefficient; S.E.= standard error; Wald= wald statistics; df= degree of freedom; Sig.= significance level; Exp(B)= odds ratio; The subscripts \*, \*\* and \*\*\* imply the significant values at 1, 5 and 10 percent.

**Source: Field Survey Analysis (2017)**

#### 4.5. Hypothesis Testing

This section addresses the hypotheses that were put forward in the research work. In the work four hypotheses stated in the null form were stated. The first hypothesis states that “Owner’s/Manager’s characteristics have no significant influence on the implementation of e-Accounting systems amongst MSEs in Nigeria”. This hypothesis considered Owner manager characteristics indicators, this include Owner/Manager Age, Owner/Manager Educational Attainment, Owner/Manager Academic Training, Owner/Manager e-Accounting Capability, Owner/Manager ICT Capability, Owner/Manager Financial Accounting Knowledge, Owner/Manager Management Accounting Knowledge.

Following the survey result, six indicators that is Owner/Manager Age, Owner/Manager Educational Attainment, Owner/Manager Academic Training, Owner/Manager ICT Capability, Owner/Manager Financial Accounting Knowledge and Owner/Manager Management Accounting Knowledge in hypothesis one have no significant influence on the implementation of e-Accounting system while Owner/Manager e-Accounting Capability shows a significant influence on e-Accounting system implementation.

**Table 4.14: Summary of Hypothesis tested for Hypothesis One**

<b>Hypothesis</b>	<b>Description</b>		
H01	Owner’s/Manager’s characteristics have no significant influence on the implementation of e-Accounting systems amongst MSEs in Nigeria		
<b>Hypothesis</b>	<b>Indicators</b>	<b>P-value</b>	<b>Decision</b>
H01a	Owner/Manager Age	0.987	Accept
H01b	Owner/Manager Educational Attainment	0.570	Accept
H01c	Owner/Manager Academic Training	0.197	Accept
H01d	Owner/Manager e-Accounting Capability	0.002	Reject
H01e	Owner/Manager ICT Capability	0.193	Accept
H01f	Owner/Manager Financial Accounting Knowledge	0.110	Accept
H01g	Owner/Manager Management Accounting Knowledge	0.498	Accept

**Source: Analysis of Field Survey (2017)**

The second hypothesis states that “Business characteristics do not significantly influence the implementation of e-Accounting system in Nigeria”. The hypothesis considered Business characteristics indicators which include; Business Source of Finance, Business Total Assets, Business Registration Status, Business International Linkage, Business Age, Total number of employee and Employee e-Accounting Expertise.



From the result, Business Source of Finance, Business Total Assets, Business Registration Status, Business International Linkage, Total number of employee and Employee e-Accounting Expertise are not significant in influencing the implementation of e-Accounting system in Nigeria. As a result the null hypothesis was accepted. Whereas, Business Age significantly influence the implementation of e-Accounting system. Hence, the null hypothesis was rejected.

**Table 4.15: Summary of Hypothesis tested for Hypothesis Two**

<b>Hypothesis</b>	<b>Description</b>		
H02	Business characteristics do not significantly influence the implementation of e-Accounting system in Nigeria		
<b>Hypothesis</b>	<b>Indicators</b>	<b>P-value</b>	<b>Decision</b>
H02a	Business Source of Finance	0.792	Accept
H02b	Business Total Assets	0.803	Accept
H02c	Business Registration Status	0.353	Accept
H02d	Business International Linkage	0.262	Accept
H02e	Business Age	0.031	Reject
H02f	Total number of employee	0.836	Accept
H02g	Employee e-Accounting Expertise	0.971	Accept

**Source: Analysis of Field Survey (2017)**

The third hypothesis states that “Technological characteristics do not significantly impact the implementation of e-Accounting system among MSEs in Nigeria”. The hypothesis considered technological characteristics indicators which include; Technology Complexity, Technology Compatibility, Technology Relative Advantage, Technology Security, Technology Cost to Annual Profit and Technology Cost to Capital.

The survey result shows that the third hypothesis stated in the null form relating to Technology Complexity, Technology Compatibility, Technology Security, Technology Cost to Annual Profit will be rejected because they have significantly impact in the implementation of e-Accounting system. While the third hypothesis stated in the null form relating to Technology Relative Advantage and Technology Cost to Capital will be accepted because they do not have a significant impact in the implementation of e-Accounting system.

**Table 4.16: Summary of Hypothesis tested for Hypothesis three**

<b>Hypothesis</b>	<b>Description</b>		
H03	Technological characteristics do not significantly impact the implementation of e-Accounting system among MSEs in Nigeria		
<b>Hypothesis</b>	<b>Indicators</b>	<b>P-value</b>	<b>Decision</b>
H03a	Technology Complexity	0.000	Reject
H03b	Technology Compatibility	0.053	Reject
H03c	Technology Relative Advantage	0.612	Accept
H03d	Technology Security	0.018	Reject
H03e	Technology Cost to Annual Profit	0.098	Reject
H03f	Technology Cost to Capital	0.628	Accept

**Source: Analysis of Field Survey (2017)**

The fourth hypothesis states that “The implementation of e-Accounting is not significantly impacted by the MSEs External characteristics”. The hypothesis considered external characteristics indicators which include; Business Association Membership, Presence of External IT Consultant, Presence of External IT Supplier, Government’s Support, Customers’ Request, Competitors’ Influence, External Expertise influence, Business Association influence.

The survey result shows that the fourth hypothesis stated in the null form relating to Business Association Membership, Presence of External IT Consultant, Government’s Support, Competitors’ Influence and Business Association influence will be accepted because they do not significant impact the implementation of e-Accounting system. While, the fourth hypothesis stated in the null form relating to Presence of External IT Supplier, Customers’ Request and External Expertise influence will be rejected because they significantly impact the implementation of e-Accounting system.

**Table 4.17: Summary of Hypothesis tested for Hypothesis Four**

Hypothesis	Description		
H <sub>04</sub>	The implementation of e-Accounting is not significantly impacted by the MSEs External characteristics		
Hypothesis	Indicators	P-value	Decision
H <sub>04a</sub>	Business Association Membership	0.482	Accept
H <sub>04b</sub>	Presence of External IT Consultant	0.106	Accept
H <sub>04c</sub>	Presence of External IT Supplier	0.010	Reject
H <sub>04d</sub>	Government's Support	0.915	Accept
H <sub>04e</sub>	Customers' Request	0.053	Reject
H <sub>04f</sub>	Competitors' Influence	0.189	Accept
H <sub>04g</sub>	External Expertise influence	0.006	Reject
H <sub>04h</sub>	Business Association influence	0.668	Accept

**Source: Analysis of Field Survey (2017)**

#### **4.6. Proposed e-Accounting System Platform**

The study proposed an indigenous e-Accounting multi-service framework deployable in Nigeria. The proposed framework facilitates the integration of e-Accounting as it identifies a cluster of MSMEs in a particular network. For example, Computer village located in Ikeja, Lagos State. The cluster specialises in the sales of ICTs devices and accessories (computers, mobile phones, printers etc.). Another MSMEs cluster is Balogun market in Lagos Island, Lagos State. This cluster specialises in the sales of Fabrics, shoes, jewellery, clothing, household items etc.).

Having identified such clusters an e-Accounting system that offers a multi- user access, multi- site access, multi preference specifications and zero system administration for end users is created. The framework provides an economical, secured, easy to use and compatible e-Accounting system to its varied users. The e-Accounting system takes into consideration the budget, business specifications and needs of the MSMEs before development. The platform guides the MSMEs in the implementation process.

##### **4.6.1. Proposed e-Accounting Service Framework**

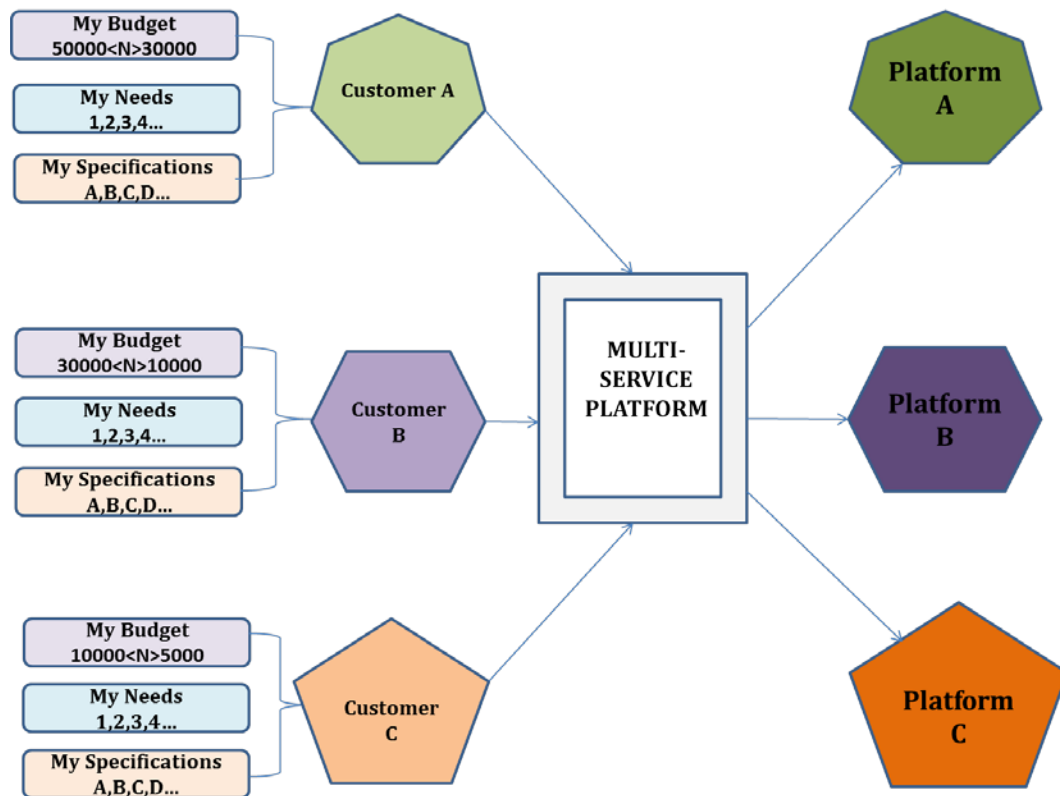
Figure 4.39 shows the proposed e-Accounting multi-service framework. From the framework below, the multi-service platform sees every MSEs as a customer. The customer is expected to indicate his/her budget, needs and business specifications. The

platform collates every customer's requirements and creates a unique platform for each customer.

The framework is exceptional as it provides solution to constraints inhibiting the use of technology. Empirically, literature has shown that the implementation of IT in the business process of MSEs is less likely to succeed compared to larger organisation, traceable to inability to allocated funds to IT projects due to insufficient funds (Thong, 1999; Zhu *et al.*, 2003). Investments in e-Accounting project can be capital intensive for the MSEs because of the cost of procuring the system (hardware, software, servers, routers, network technologies) and maintaining/powering the system. In developing countries like Nigeria the MSEs are left to also provide basic amenities (like electricity) technological infrastructure like (like intranet, Internet) needed to enhance the adoption of e-Accounting system.

Another constraint hindering the integration of technology is the difficulty in recruiting and maintaining expert within the organisation, this is more prominent in small business than larger organisation. This may be difficult due to the cost of engaging the services of the expert and limited career prospects in MSEs. Literature suggests the engagements of external expertise (IT consultants and vendor supports) are approaches in mitigating expertise constraints (Thong *et al.*, 1994).

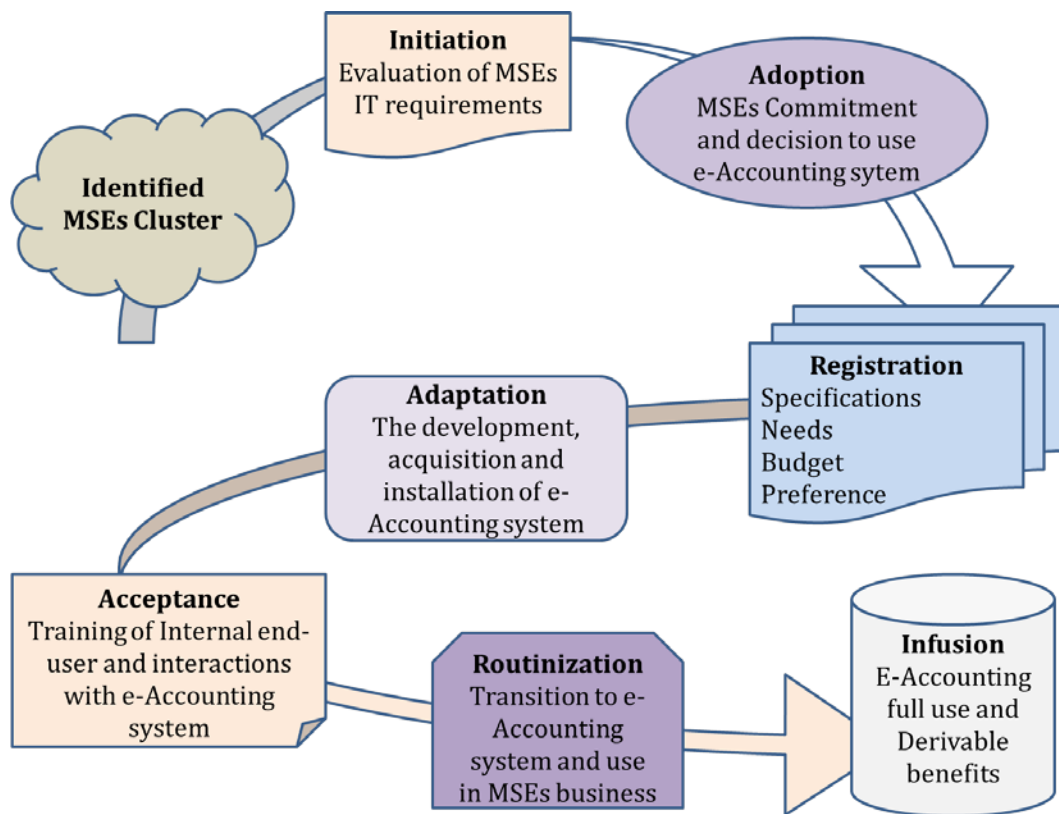
According to Thong (2001) these external expertise compensates for the deficiencies in the lack of in-house expert by providing the necessary information system supports to the business. The role of the accounting information system expert include recommending a suitable accounting system fit for the business operations, training of the users, providing technical supports and overseeing the successful implementation of the e-Accounting. The figure 4.39 shows the proposed e-Accounting Multi-service Framework.



**Figure 4.39: Proposed e-Accounting Service Framework**

#### **4.6.2. Proposed e-Accounting implementation system process**

The proposed e-Accounting implementation process cycle is achieved by first identifying an MSEs cluster. The next stage is to evaluate the IT requirements of the clustered MSEs with a view of proposing an e-Accounting system platform. Having proposed the e-Accounting platform the next stage is to enquire about the organisation decision and commitment to use and invest resources (time, personnel, and funds) in the e-Accounting system. The registration of each MSEs as a unique customer taking note of peculiarities as it relates to budget, need, specification and preference comes next. After wards, the development, acquisition and deployment of suitable e-Accounting system to MSEs. Next, is the acceptance, training and interactions of e-Accounting system with end-user. The transition process in the organisation follows suit. In the last stage, it's expected that end-user use e-Accounting system to the fullest capacity and increased benefits is being derived. Figure 4.40 shows the proposed e-Accounting system implementation process.



**Figure 4.40: Proposed e-Accounting System Implementation Process**

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1. Introduction**

This chapter presents a brief summary of the research findings. Thereafter, the conclusion and recommendations drawn from the findings are situated. Also, included in this chapter are the limitations and suggestions for future research.

#### **5.2. Summary of Findings**

The crux of this research is to ascertain the organisational determinants that influence the implementation of e-Accounting system amongst MSEs in Nigeria. Specifically, the sub-objectives include; to examine the extent to which Owner's/Manager's characteristics influence the implementation of e-Accounting system in MSEs; to determine the impact of Technological characteristics in facilitating the implementation of e-Accounting system in MSEs; to ascertain the extent to which MSEs Business characteristics accelerate the implementation of e-Accounting system and lastly to assess the impact of MSEs External characteristics on the implementation of e-Accounting system. The research findings are explained with respect to each of the hypothesis.

##### ***5.2.1. Summary of Findings- Hypothesis One***

Hypothesis one addressed the extent to which Owner's/Manager's characteristics influence the implementation of e-Accounting system in MSEs. The Null hypothesis states that "Owner's/Manager's characteristics have no significant influence on the implementation of e-Accounting systems amongst MSEs in Nigeria". This hypothesis had sub-hypotheses relating to seven indicators of Owner/ manager characteristics namely; Owner/Manager age, Owner/Manager educational attainment, Owner/Manager academic training, Owner/Manager e-Accounting capability, Owner/Manager ICT capability, Owner/Manager financial accounting knowledge, Owner/Manager management accounting knowledge.

Out of these indicators, Owner/Manager age, Owner/Manager educational attainment, Owner/Manager academic training, Owner/Manager ICT capability, Owner/Manager financial accounting knowledge and Owner/Manager management accounting knowledge were accepted in their null form while Owner/Manager e-Accounting capability was rejected in its null form. This implies that Owner/Manager age, Owner/Manager educational attainment, Owner/Manager academic training, Owner/Manager ICT capability, Owner/Manager financial accounting knowledge and Owner/Manager management accounting knowledge are not key determinants in the implementation of e-Accounting system amongst MSEs in Nigeria while Owner/Manager e-Accounting Capability is a key determinant in the implementation of e-Accounting system amongst MSEs in Nigeria.

#### ***5.2.2. Summary of Findings- Hypothesis Two***

Hypothesis two addresses the extent business characteristics accelerate the implementation of e-Accounting system in MSEs. The null hypothesis states that “Business characteristics do not significantly influence the implementation of e-Accounting system in Nigeria”. This hypothesis had sub-hypotheses relating to seven indicators of business characteristics namely; Business source of finance, Business total assets, Business registration status, Business international linkage, Business age, Total number of employee and Employee e-Accounting expertise.

Of these business characteristics indicators, Business source of finance, Business total assets, Business registration status, Business international linkage, Total number of employee and Employee e-Accounting expertise are accepted in their null form because they do not contribute significantly to the implementation of e-Accounting in Nigeria. Business age was rejected in its null form because it contributes significantly to the implementation of e-Accounting system.

#### ***5.2.3. Summary of Findings- Hypothesis Three***

Hypothesis three addresses the impact of technological characteristics in facilitating the implementation of e-Accounting system in MSEs. The null hypothesis states that “Technological characteristics do not significantly impact the implementation of e-Accounting system among MSEs in Nigeria”. This hypothesis had sub-hypotheses



relating to six indicators of technological characteristics namely; Technology complexity, Technology compatibility, Technology relative advantage, Technology security, Technology cost to annual profit and Technology cost to capital.

Of these indicators, Technology complexity, Technology compatibility, Technology security, Technology cost to annual profit was rejected in its null form because they constitute key factors that impact on the implementation of e-Accounting system. Indicators relating to Technology relative advantage and Technology cost to capital were accepted in its null form because they do not significantly impact in the implementation of e-Accounting system.

#### ***5.2.4. Summary of Findings- Hypothesis Four***

Hypothesis four relates to the influence of MSEs external characteristics in the implementation of e-Accounting system. The null hypothesis states that “The implementation of e-Accounting is not significantly impacted by the MSEs external characteristics”. This hypothesis had sub-hypotheses relating to seven indicators namely; Business association membership, Presence of external IT consultant, Presence of external IT supplier, Government’s support, customers’ request, competitors’ influence, External expertise influence and Business association influence.

Out of these indicators, Business association membership, Presence of external IT consultant, Government’s support, Competitors’ influence and Business association influence are accepted in their null form because they do not significantly impact the implementation of e-Accounting system. Presence of external IT supplier, Customers’ request and External expertise influence are all rejected in the null form because they are key determinants in the implementation of e-Accounting system.

### **5.3. Conclusion**

The main aim of this research was to ascertain the organisational determinants that influence the implementation of e-Accounting systems amongst MSEs in Nigeria. This was done by collecting and analysing relevant data for the study. In addition, the results obtained were presented and discussed accordingly. However, the following conclusions were drawn from the results:

Indicators of owner/manager characteristics' are not all significant in the implementation of e-Accounting system. Indicators not significant to the implementation of e-Accounting system include; Owner/manager age, educational attainment, academic training, ICT knowledge, financial accounting knowledge and management accounting knowledge. For instance, owner/manager age was not significant. However, higher age ranges of owner/manager are increasingly influential in the use e-Accounting system. This is against the expectation that younger age groups are more assertive to the use of ICTs than older age groups.

Owner/Manager with Master and Doctorate degrees tend to implement e-Accounting system than those with just Bachelor degree. More striking is the findings that adequate capability in electronic accounting significantly boosts the implementation of e-Accounting system.

It is worthy of note, that of all components of business characteristics examined in the study Business age reports a significant influence. More surprising is the finding that firms with less than five years of existence are more prone to implementing e-Accounting than firms with more than five years of existence as against the expectation that older firms are more involved in financial and economic transactions that drive the implementation of e-Accounting. Also, interestingly, Business total assets which reports an overall insignificant influence on e-Accounting implementation but firms with higher business total assets above 1million naira significantly influence the implementation of e-Accounting system. The foregoing implies that larger total assets sized MSEs tend to possess relatively adequate financial resources, attract knowledgeable employees and operationally in high performance than smaller total assets sized MSEs.

Most of the components of technological characteristics report to be significant to the implementation of e-Accounting system. This advances prior research in the domain of triggers to technology use. The significant interactions between these components (technology complexity, compatibility, security, cost to annual profit) and e-Accounting implementation is stemmed from the process in which a technology transcends from being a mere innovation to its infusion in the organisation.

Presence of external IT supplier, customer request and external expertise influence exerts a significant effect on e-Accounting system implementation. The ubiquitous significant result of external IT supplier and external expertise influence indicate the vital role of external expertise in the integration of ICT in MSEs accounting process. This is owing to the fact that MSEs are faced with the difficulties of hiring and retaining an internal IT expert due to the high cost of engagement and limited career prospects available to the IT experts. Thus, making the option of engaging an external expert unfavourable.

#### **5.4. Recommendations**

Undoubtedly, from this study the factors that engender the implementation of e-Accounting system in MSEs spans across individual, organisation, technology and external factors. Nevertheless, the following recommendation reached from this study can be useful in enhancing MSEs potentials in embracing the integration of ICT in MSEs accounting processes.

1. In furtherance to the Nigerian Government mandate in promoting Information technology diffusion in all sectors of national life under the NITDA act of 2007. Government can penetrate the MSEs subsector through the trade and professional association in promoting the integration of ICT in MSEs accounting processes. This can be done by creating awareness and providing the necessary infrastructure needed to accelerate the infusion process. Although our study may not have found a significant relationship between business association membership and e-Accounting system implementation. However, this simply suggests that at the present business association do not provide adequate network opportunities that can facilitate the integration of ICT in accounting process. Hence, government can utilise this available opportunity to penetrate into MSEs subsector in promoting ICT usage via their membership in this association.
2. e-Accounting system developer should take advantage of MSEs geographical concentration in providing an indigenous, affordable e-Accounting system that allows for multi-user access and multi preference specifications deployable to MSEs. The role of the system developer is also not expected to be limited to the supply of the

indigenous e-Accounting infrastructure but should encompass the provision of consultancy services during the implementation and post-implementation process.

3. Professional accounting bodies like Institute of Chartered Accountant of Nigeria (ICAN) and Association of National Accountants of Nigeria (ANAN) should provide platforms that provide affordable support systems in which MSEs can network and form strategic alliance in exchanging ideas whilst providing solutions to challenges in infusing accounting standards with e-Accounting systems.
4. The need for bodies that regulate the activities of all tertiary education institutions in Nigeria to make it mandatory for all schools who have accounting as a program to teach the students on the modus operandi integrating ICT in accounting process. From our findings the capability of information communication technologies (ICTs), financial and management accounting is not enough. Rather it is the capability to use ICTs application and tools in performing accounting functions thereby generating timely accounting information useful in making informed decision.

### **5.5. Contribution to Knowledge**

This study has been able to make significant contributions to the body of literature in the area of ICT integration in Accounting processes. More explicit, contributions were made in specific areas of academic research, theory, practice and policy.

The study provided a comprehensive and empirical analysis on the determinants of e-Accounting system implementation in Nigeria. This was demonstrated by the consideration of variables that comprises the components of Owner/manager, Technology, Business and External characteristics. More imperative is the consideration of the business antecedence variables captured in the business registration status and international linkage. In addition was the assessment of the applicability of mobile and handheld devices in accounting processes.

Furthermore, the study expanded Tornatzky and Fleischer (1990), Technology-Organisation-Environment framework that was adapted in the work. This was achieved by introducing specific idiosyncrasies of the top management that influences the implementation of e-Accounting system. These peculiarities excluded from Tornatzky and Fleischer (1990) framework but included in the study are top management age,

educational attainment, academic training, e-Accounting capability, ICT capability, financial accounting and management accounting knowledge.

Finally, the study succeeded in proposing a multi service framework that provides a suitable platform for the development of an indigenous e-Accounting system deployable to MSEs in Nigeria business context. This framework was presented in chapter four, section 4.5 of the study.

## **5.6. Limitations of the Study**

In as much as this study made frantic efforts not to be overwhelmed with some of the constraints presented in the course of the research. Nevertheless, as with all researches the following limitations were identified in the study;

1. The study utilises questionnaire as the instrument of data collection. This invariably did not consider other research strategies like case study or in-depth interview.
2. The study focuses on the determinants of e-Accounting system in micro and small enterprises only. Thus, did not carry out any analysis on post implementation benefits and challenges of using an e-Accounting system in micro and small enterprise.
3. The geographical scope of the study was limited to only the South-Western part of Nigeria. This then means that other geographical scope was not captured in the study.

## **5.7. Suggestions for Further Study**

In view of the limitations of this study, future studies should consider the following areas of focus but not limited to;

1. The research adopts questionnaire as an instrument for data collection. This was appropriate because the questionnaire is effective in eliciting information from a large fraction of the study population. However, other research strategies like case study, in-depth interview can be adopted in future similar research.
2. The study focuses on factors that engender the implementation of e-Accounting system in MSEs. This was necessary in order to establish factors that triggers or inhibits the implementation of e-Accounting system first. However, Further researches can be carried out on post implementation benefits and challenges of implementing e-Accounting system.

3. The geographical scope of the study is South-west Nigeria. South-West, Nigeria accounts for 21 percent of the total population in Nigeria. However, future research can enlarge the scope to cover more geographical scope.

## REFERENCES

- Abereijo, I. O., & Fayomi, A. O. (2005). Innovative approach to SME financing in Nigeria: A review of small and medium industries equity investment scheme (SMIEIS). *Journal of Social Sciences*, 11(3), 219-227.
- Abu-Musa, A. (2006). Investigating the perceived threats of computerised accounting information systems in developing countries: An empirical study on Saudi organisations. *Computer and Information Science*, 18, 1-26.
- Adam, L., & Wood, F. (1999). An investigation of the impact of information and communication technologies in sub-Saharan Africa. *Journal of Information Science*, 25(4), 307-317.
- Adebayo, K. J., Akinmosin, A. S., Yussuf, S. E., & Dada, A. M. (2011). Towards promoting micro-enterprises with ICT: An assessment of the current ICT usage level. *Information Technology for People-Centred Development (ITePED 2011)*. Nigeria Computer Society (NCS).
- Adejuyigbe, S. B., & Dahunsi, O. A. (2010). A study of small and medium scale industrial development in Ondo state, Nigeria. *AU Journal of Technology*, 13(3), 186-192.
- Adenikinju, A. (2005). Analysis of the cost of infrastructure failures in a developing economy: the case of the electricity sector in Nigeria. *African Economic Research Consortium*. Nairobi: AERC Research Paper.
- Adetula, D. T., Owolabi, F., & Onyinye, O. I. (2014). International financial reporting standards (IFRS) for SMEs adoption process in Nigeria. *European Journal of Accounting Auditing and Finance Research*, 2(4), 33-38.
- Aesaert, K., Van Nijlen, D., Vanderlinde, R., Tondeur, J., Devlieger, I., & van Braak, J. (2015). The contribution of pupil, classroom and school level characteristics to primary school pupils' ICT competences: A performance based approach. *Computers & Education*, 87, 55-69.

- Afolabi, M. (2013). Growth effect of small and medium enterprises (SMEs) financing in Nigeria. *Journal of African Macroeconomic Review*, 3(1), 192-205.
- Agwu, M. O., & Emeti, C. I. (2014). Issues, challenges and prospects of small and medium scale enterprises (SMEs) in Port-Harcourt city, Nigeria. *European Journal of Sustainable Development*, 3(1), 101-114.
- Aina, O. C. (2007). The role of SMEs in poverty alleviation in Nigeria.
- Akande, O. (2011). Accounting skill as a performance factor for small businesses in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 2(5), 372-378.
- Akpan-Obong, P. (2007). Information and communication technologies in development: contextuality and promise. *Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries*. São Paulo, Brazil.
- Alam, S., Omar, N., Mohd, N., & Hisham, H. (2011). Applying the theory of perceived characteristics of innovating (PCI) on ICT adoption in the SMEs in Malaysia. *Australian Journal of Basic and Applied Sciences*, 5(8), 8-17.
- Al-Majadi, M., & Mat, M. K. (2011). Modelling the antecedents on internet banking service adoption (IBSA) in Jordan: A structural equation modelling (SEM) approach. *Journal on Internet Banking Commerce*, 16(1), 1-15.
- Al-Somali, S., Gholami, R., & Clegg, B. (2011). Determinants of B2B e-commerce adoption in Saudi Arabian firms. *International Journal of Digital Society (IJDS)*, 2(2), 406-415.
- Altenburg, T., & Eckhardt, U. (2006). *Productivity enhancement and equitable development: Challenges for SME development*. Germany: United Nations Industrial Development Organisation (UNIDO).
- Amidu, M., Effah, J., & Abor, J. (2011). e-Accounting practice in small and medium enterprise in Ghana. *Journal of Management Policy and Practice*, 12(4), 146-155.



- Appiah, K., Agyemang, F., Agyei, Y., Nketiah, S., & Mensah, B. (2014). Computerised accounting information systems: lesson in state owned enterprises in developing economies. *Journal of Finance and Management in Public Services*, 12(1).
- Apulu, I. (2012). Developing a framework for successful adoption and effective utilisation of ICT by SMEs in developing countries: A case study of Nigeria. *Unpublished P.hD Thesis in the Department of Information Systems, University of Wolverhampton*.
- Apulu, I., & Ige, E. (2011). Are Nigeria SMEs effectively utilizing ICT? *International Journal of Business and Management*, 6(6), 207-214.
- Apulu, I., & Latham, A. (2009). A review of factors affecting ICT adoption in SMEs in developing countries: a case study of Nigeria. *Proceedings of the ISBE 2009 Conference*. Liverpool: United Kingdom.
- Apulu, I., Latham, A., & Moreton, R. (2011). Factors affecting the effective utilisation and adoption of sophisticated ICT solutions: Case studies of SMEs in Lagos, Nigeria. *Journal of Systems and Information Technology*, 13(2), 125-143.
- Aremu, M. A., & Adeyemi, S. L. (2011). Small and medium scale enterprises as a survival strategy for employment generation in Nigeria. *Journal of Sustainable Development*, 4(1), 200-206.
- Ashrafi, R., & Murtaza, M. (2008). Use and impact of ICT on SMEs in Oman. *Electronic Journal Information Systems Evaluation*, 11, 125–138.
- Asian Productivity Organisation (APO). (2011). *APO productivity data book*. Japan: Keio University Press Inc.
- Asuquo, A. L., Effiong, S. A., Tapang, & Tiesieh, A. (n.d.). The effect of financial management practices on the profitability of small and medium enterprises in Nigeria. *International Journal of Research in IT, Management and Engineering*, 2(3), 1-27.

- Athanassiou, N., & Nigh, D. (1999). The impact of U.S. company internationalization on top management team advice networks: A tacit knowledge perspective. *Strategic Management Journal*, 20(1), 83–92.
- Ayo, C. K., Adewoye, J. O., & Oni, A. A. (2011). The state of e-banking implementation in Nigeria: A post-consolidation review. *Journal of Emerging Trends in Economics and Management Sciences*, 1(1), 37-45.
- Ayozie, D. O. (1997). *Principles and practice of marketing for Nigerian students and managers*. Ilaro, Ogun, Nigeria: Kinsbond Publishers.
- Ayozie, D. O. (2011). The role of small scale industry in national development in Nigeria. *Universal Journal of Management and Social Sciences*, 1(1), 23-41.
- Ayyagari, M., Beck, T., & Demirguc-kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics*, 29(4), 415-434.
- Babajide. (2011). Effects of microfinancing on micro and small enterprises (MSEs) in South-West Nigeria. *Unpublished P.hD Thesis in the Department of Banking and finance Covenant University*.
- Baker, E. W., Al-Gahtani, S. S., & Hubona, G. S. (2010). Cultural impacts on acceptance and adoption of information technology in a developing country. *Journal of Global Information Management*, 18(3), 35-58.
- Bantel, K. A., & Jackson, S. E. (1989). Top management and innovation in banking: Does the composition of the top team make a difference. *Strategic Management Journal*, 10, 107-124.
- Bartlett, J. E., Kotrlik, J. W., & Higgins, C. (2001). Organisational research: Determining appropriate sample size for survey research. *Information Technology, Learning and Performance Journal*, 19(1), 43-50.
- Bauchet, J., & Morduch, J. (2013). Is micro too small? microcredit vs SME finance. *World Development*, 43, 288-297.
- Becker, M. (1970). Sociometric location and innovativeness. *American Sociological Review*, 35, 267-304.

- Belfo, F., & Trigo, A. (2013). Accounting information systems: Traditions and future directions. *Procedia Technology*, 9, 536-546.
- Bertrand, M., & Bouchard, S. (2008). Applying the technology acceptance model to VR with people who are favorable to its use. *Journal of Cyber Therapy and Rehabilitation*, 1(2).
- Bhattacharya, S., & Londhe, B. R. (2014). Micro-entrepreneurship: Sources of finance and related constraints. *Procedia Finance and Economics*, 11, 775-783.
- Billon, M., Marco, R., & Lera-Lopez, F. (2009). Disparities in ICT adoption: A multidimensional approach to study. *Telecommunications Policy*, 33, 596-610.
- Boateng, A., & Abdulrahman, M. (2013). Micro small-sized enterprises and bank credit: Evidence from West Africa. *Journal of Emerging Market Finance*, 12(2), 129-150.
- Booth, P., Matolcsy, Z., & Wieder, B. (2000). The Impacts of enterprise resource planning systems on accounting practice –The Australian experience. *Australian Accounting Review*, 10(22), 4-18.
- Bowale, K., & Akinlo, A. (2012). Determinants of small and medium scale enterprises (SMEs) performance and poverty alleviation in developing countries: Evidence from South-West Nigeria. *European Journal of Humanities and Social Sciences*, 17(1), 847-863.
- Brandas, C., Megan, O., & Didraga, O. (2015). Global perspectives on accounting information systems: mobile and cloud approach. *Procedia Economics and Finance*, 20, 88-93.
- Bruque, S., & Moyano, J. (2007). Organisational determinants of information technology adoption and implementation in SMEs: The case of family and cooperative firms. *Technovation*, 27(5), 241-253.
- Buys, P., Dasgupta, S., Thomas, T., & Wheeler, D. (2009). Determinants of a digital divide in Sub-Saharan Africa: A spatial econometric analysis of cell phone coverage. *World development*, 37, 1494-1505.

- Caldeira, M. M., & Ward, J. M. (2003). Using resource-based theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises. *European Journal of Information Systems*, 12(2), 127-141.
- Camelo-Ordaz, C., Hernandez-Lara, A., & Valle-Cabrera, R. (2005). The relationship between top management teams and innovative capacity in companies. *Journal of Management Development*, 24(8), 683-705.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81-106.
- Carpenter, C. (2001). *Making small business finance profitable in Nigeria: SME finance in Nigeria*.
- Castells, M. (2002). *The Internet Galaxy*. Oxford: Oxford University Press.
- CBN. (2007). *CBN Briefs 2006-2007 Edition*. Abuja: CBN.
- CBN. (2011). *Microfinance policy framework for Nigeria*. CBN.
- Chacko, J. G., & Harris, G. (2005). ICT and small, medium and micro enterprises in Asia Pacific. *Information Technology for Development*, 12(2), 175-177.
- Chau, P. Y. (1999). On the use on construct reliability in MIS research: A meta analysis. *Information and Management*, 35(4), 217-227.
- Chau, P., & Hu, P. (2001). Information technology acceptance by individuals professionals: A model Comparison Approach. *Decision Science*, 32(4), 699-719.
- Cheng, J., & Kao, L. (2004). An investigation of the diffusion of online games in Taiwan: An application of Rogers Diffusion of Innovation Theory. *The Journal of American Academy of Business*.
- Chenhall, R. (2003). Management control systems design within organisational context: findings from contingency-based research and directions for the future. *Accounting, Organisation and Society*, 28, 127-168.

- Child, D. (2006). *The essentials of factor analysis*. New York, NY: Continuum International Publishing Group.
- Christopher, I. F. (2010). Impact of microfinance on small and medium-sized enterprises in Nigeria. *7th International Conference on Innovation and Management*, (pp. 1864-1871). Wuhan China.
- Cooper, R. B., & Zmud, R. W. (1990). Information technology implementation research: A technological diffusion approach. *Management Science*, 36(2), 123-139.
- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, 10(7), 1-9.
- Cragg, P. B., & Zinatelli, N. (1995). The evolution of information systems in small firms. *Information and Management*, 29(1), 1-8.
- Daniels, W. W. (1999). *Biostatistics: A foundation for analysis in the health sciences* (7th ed.). New York: John Wiley & Sons.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-339.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1002.
- de Gobbi, D. (2003). Management of micro business. *Journal on Economic Planning*, 5(2), 900-1134.
- de Guinea, A. O., Kelley, H., & Hunter, M. G. (2005). Information systems effectiveness in small business: Extending a Singaporean model in Canada. *Journal of Global Information Management*, 13(3), 55-70.
- DeCoster, J. (1998). Overview of factor analysis. Retrieved from <http://www.stat-help.com/factor.pdf>.

- Deloitte. (2012). *IFRS adoption in Nigeria & optimizing the gains of global investment climate*. Deloitte.
- Deros, B. M., Yusof, S. M., & Salleh, A. M. (2006). A benchmarking implementation framework for automotive manufacturing SMEs. *An International Journal*, 13, 396-430.
- Dewan, S., Micheal, S. C., & Min, C. (1998). Firm characteristics and investments in information technology: Scale and scope effects. *Information Systems Research*, 9(3), 219-232.
- Dierckx, M. A., & Stroeken, J. H. (1999). Information technology and innovation in small and medium-sized enterprises. *Technological Forecasting and social change*, 60(2), 149-166.
- Dillon, A., & Morris, M. (1996). User acceptance of information technology: Theories and models. *Annual Review of Information Science and Technology*, 3(1), 3-32.
- DiStefano, C., Zhu, M., & Mindrilla, D. (2009). Understanding and using factor scores: Considerations for researcher. *Practical Assessment, Research & Evaluation*, 14, 1-11.
- Doost, R. K. (1999). Computers and accounting; where do we go from here? *Managerial Auditing Journal*, 14(9), 487-488.
- Eke, N. (2007). *NASME restates call for the establishment of SMEs bank*. The Nation.
- Elmaghraby, A., & Lasavio, M. (2014). Cyber security challenge in smart cities: safety, security and privacy. *Journal of Advanced Research*, 5, 491-497.
- Esselaar, S., Stork, C., Ndiwalana, A., & Deen-Swarrray, M. (2007). ICT usage and its impact on profitability of SMEs in 13 African countries. *Information Technologies and International Development*, 4(1), 87-100.
- Fink, D. (1998). Guidelines for the successful adoption of information technology in small and medium enterprises. *International Journal of Information Management*, 18(4), 243-253.

- Finkelstein, S., & Hambrick, D. C. (1997). Top executives and their effects on organizations. *The Academy of Management Review*, 22(3), 802-805.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Addison-Wesley: Reading, MA.
- Gable, G. G. (1991). Consultant engagement for first time computerization: A pro-active client role in small businesses. *Information and Management*, 20(2), 83-93.
- Gable, G. G. (1994). Integrating case study and survey research methods: An example in information systems. *European Journal of Information Systems*, 3(2), 112-126.
- Ghasemi, M., Shafeiepour, V., Aslani, M., & Barvayeh, E. (2011). The impact of information technology (IT) on modern accounting systems. *Procedia- Social and Behavioural Sciences*, 8, 112-1162.
- Ghobakhloo, M., Sabouri, M. S., Hong, T. S., & Zulkifli, N. (2011). Information technology adoption in small and medium-sized Enterprises; An Appraisal of two decades literature. *Interdisciplinary journal of research in Business*, 1(7), 53-80.
- Ghobakhloo, M., Zulkifli, N. B., & Azizi, F. A. (2010). The interactive model of user information technology acceptance and satisfaction in small and medium-sized enterprises. *European Journal of Economics, Finance and Administrative Sciences*, 19(1), 7-27.
- Global Partnership for Financial Inclusion (GPFI), & International Finance Corporation (IFC). (2011). *Strengthening access to finance for women-owned SMEs in developing countries*.
- Grande, E., Estebanez, R., & Colomina, C. (2011). The impact of accounting information system (AIS) on performance measures: Empirical evidence in Spanish SMEs. *International Journal of Digital Accounting Research*, 11, 25-43.
- Granlund, M. (2011). Extending AIS research to management accounting and control issues: A research note. *International Journal of Accounting Information Systems*, 12, 3-19.

- Guilford, J. P., & Fruchter, B. (1973). *Fundamental statistics in psychology and education*. Tokyo: McGraw-Hill Kogakusha, LTD.
- Guney, A. (2014). Role of technology in accounting and e-Accounting. *Procedia Social and Behavioural Science*, 152, 852-855.
- Hajira, Z., & Azizi, Z. O. (2011). Effective factors on alignment of accounting information systems in manufacturing companies: Evidence from Iran. *Information Management and Business Review*, 3(3), 158-170.
- Hall, J. (2013). *Accounting information systems*. South Western: Nelson Education.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organisation as a reflection of it's top managers. *Academy of Management Review*, 9(2), 193-206.
- Hartono, E., Holsapple, C. W., Kim, K., Na, K., & Simpson, J. T. (2014). Measuring perceived security in B2C electronic commerce website usage: Arespecification and validation. *Decision Supports Systems*, 62, 11-21.
- Hashim, J. (2007). Information communication technology adoption among SME owners in Malaysia. *international Journal of Business and Information*, 2(2), 221-240.
- Herath , H., & Mahmood, R. (2013). Strategic orientation based research model of SME performance for developing countries. *Review on Integrative Business and Economics Research*, 2(1), 430-440.
- Hitt, M. A., & Tyler, B. B. (1991). Strategic decision models: Integrating different perspectives. *Strategic Management Journal*, 12(5), 327-351.
- Hitt, M., Hoskisson, R. E., & Kim, H. (1997). International diversification effect on innovation and firm performance in product diversified firms. *Academy of Management Journal*, 40, 767-798.
- Hosmer, D. W., Hosmer, T. S., Le Cessie, S., & Lemeshow, S. (1997). A comparison of goodness-of-fits-tests for the Logistic Regression model. *Statistics in Medicine*, 16, 965-980.



- Hosmer, D. W., Hosmer, T., Le Cessie, S., & Lemeshow, S. (1997). A comparison of goodness-of-fit tests for the logistic regression model. *Statistics in Medicine*, 16, 965-980.
- Hussin, H., King, M., & Cragg, P. (2002). IT alignment in small firms. *European Journal of Information Systems*, 11(2), 108-132.
- Iacovou, C., Benbara, I., & Dexter, A. (1995). Electronic data interchange, small organizations: Adoption and impact of technology. *MIS Quarterly*, 19(4), 465–485.
- Ifinedo, P. (2006). Factors affecting e-business adoption by SMEs in Sub-Saharan Africa. In *Global Electronic Business Research: Opportunities and Directions*. Hershey: Idea Group Publishing.
- Ikhu Omoregbe, N. (2008). Designing e-Education supports in e-Health based systems. *Turkish Online Journal of Distance Education*, 9(3), 130-137.
- International Labour Organisation. (2003). *2003 labour overview*. International Labour Office.
- Irefin, I. A. (2012). An investigative study of the factors affecting the adoption of information and communication technology in small and medium scale enterprises in Nigeria. *Australian Journal of Business and Management Research*, 2(2), 1-9.
- Ismail, N. A. (2009). Factors influencing AIS effectiveness among manufacturing SMEs: Evidence from Malaysia. *Electronic Journal on Information Systems in Developing Countries*, 38, 1-19.
- Ismail, N. A., & King, M. (2007). Factors influencing the alignment of accounting information systems in small medium sized Malaysian manufacturing firms. *Journal of Information systems and Small Business*, 1(1), 1-19.
- Ismail, R., Jeffery, R., & Belle, J. V. (2011). Using ICT as a value adding tool in South African SMEs. *Journal of African Research in Business & Technology*, 1-12.

- Iyoha, F. (2011). State agencies, industry regulations and the quality of accounting practice in Nigeria. *Unpublished P.hD Thesis in the Department of Accounting, Covenant University.*
- Jang-Jaccard, J., & Nepal, S. (2014). A survey or emerging threats in cyber security. *Journal of Computer and System Sciences*, 80, 973-993.
- Jegade, O. J. (2009). The technology race: Expanding opportunities or deepening the divide:. *World Conference on Higher Education*. Paris.
- Jeon, B. N., Hanb, K. S., & Leec, M. J. (2006). Determining factors for the adoption of e-business: the case of SMEs in Korea. *Applied Economics*, 38, 1905–1916.
- Jouini, M., Rabia, L., & Aissa, A. (2014). Classification of security threats in information Systems. *5th International Conference on Ambient system, Networks and Technologies* (pp. 489-496). Elsevier.
- Kabiru, D. I., & Azende, T. (2011). An empirical evaluation of small and medium enterprise equity investment scheme in Nigeria. *2011 international conference on Economics and Finance Reasearch*. 4, pp. 406-408. Singapore: IACSIT.
- Kadiri, I. B. (2012). Small and medium scale enterprises and employment generation in Nigeria: The role of finance. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 1(9), 79-93.
- Kaiser, H. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141-151.
- Kanellou, A., & Spathis, C. (2013). Accounting benefits and satisfaction in an ERP environment. *International Journal of Accounting Information Systems*, 14, 209-234.
- Kibly, M. (2000). Making micro business work. *Journal of Economic Review*, 19(2), 236-286.
- Kimberly, J., & Evanisko, M. (1981). Organisational innovation: The influence of the individual organizational and contextual factors on hospital adoption of

- technological and administrative innovations. *Academy of Management Journal*, 24, 689-713.
- Kloviene, L., & Gimzauskien, E. (2015). The effect of information technology on accounting system's conformity with business environment: A case study in the banking sector company. *Procedia Economics and finance*, 32, 1701-1712.
- Kushnir, K., Mirmulstein, M. L., & Ramalho, R. (2010). *Micro, small and medium enterprises around the world: How many are there and what affects the count.* World Bank/IFC.
- Kuyoro, S., Awodele, O., Alao, O., & Omotunde, A. (2013). ICT solution to small and medium scale enterprises (SMEs) in Nigeria. *International Journal of Computer and Information Technology*, 2(4), 785-789.
- Ladokun, I. O., Osunwole, O. O., & Olaoye, B. O. (2013). Information and communication technology in small and medium enterprises: Factors affecting the adoption and use of ICT in Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 2(6), 74-84.
- Lal, K. (2007). Globalisation and the adoption of ICTs in Nigerian SMEs. *Science Technology & Society*, 12(2), 217-244.
- Larget, B. (2007). *Multiple logistic regression*. Departments of Botany and of Statistics, University of Wisconsin-Madison Lecture note.
- Laudon, D. P., & Laudon, J. P. (2010). *Management information system: Managing the digital firm* (11th ed.). London: Pearson Education Ltd.
- Liedholm, C., & Mead, D. C. (1999). *Small enterprises and economic development: The dynamics of micro and small enterprises*. Rutledge London: The Dynamics of Micro and Small Enterprises.
- Liu, S., Liao, H., & Peng, C. (2005). Applying the technology acceptance model and flow theory to online e-Learning users' acceptance behaviour. *Issues in Information system*, 6(2), 175-181.

- Lules, I., Omwansa, T., & Waema, T. (2012). Application of technology acceptance model (TAM) in m-Banking adoption in Kenya. *International Journal in Computing and ICT Research*, 6(1), 31-43.
- Lumsden, J., & Guitierrez, A. (2013). Understanding the determinants of cloud computing adoption within the UK. *European, Mediterranean & Middle Eastern Conference on Information Systems 2013(EMCIS2013)*, (pp. 1-16). Windsor, United Kingdom.
- Luqman, A., & Abdullah, N. (2011). E-business adoption amongst SMEs: A structural equation modelling approach. *Journal of Internet Banking and Commerce*, 16(2), 1-20.
- Marcellan, M. (2009). *A guide through IFRS for small and medium-sized entities (SMEs)*. RSM International.
- Mashanda, P., Cloete, E., & Tanner, M. (2012). An analysis of factors affecting the adoption of business-to-consumer e-commerce by SMEs in developing countries - case study: Zimbabwe. *Proceedings of the 14th Annual Conference on World Wide Web Applications*, (pp. 4-27). Durban.
- Mathiyazhaga, T., & Nandan, D. (2010). Survey research method. *Media Mimansa*, 34-82.
- Mbatha, B. (2013). Exploring the potential of electronic commerce tools in South African SME tourism service providers. *Information Development*, 29(1), 10-23.
- Mead, D., & Liedholm, C. (1998). The dynamics of micro and small enterprises in developig countries. *World Development*, 26(1), 61-74.
- Milis, K. (2008). Critical analysis of policy measures for the advancement of the level of computerization of SMEs. *Information Technology for Development*, 14(3), 253-258.
- Minton, S. (2003). Nordic nations still top information index. *The World Paper*.
- Mohammed, U. D., & Obeleagu-Nzelibe, C. G. (2014). Entrepreneurial skills and profitability of small and medium enterprises (SMEs): Resource acquisition

- strategies for new ventures in Nigeria. *Proceedings of 25th International Business Research Conference*, (pp. 1-21). Cape Town, South Africa.
- Moore, J. B., & Stafford, T. F. (2003). *The impact of work system reconceptualization and motivation on information technology infusion*. Idea Group Inc.
- Muhrtala, T., & Ogundeji, M. (2013). Computerised accounting information systems and perceived security threats in developing economies: The Nigeria case. *Universal Journal of Accounting and Finance*, 1(1), 9-18.
- Muijs, D. (2011). *Doing quantitative research in education with SPSS*. Los Angeles: Sage Publications.
- Munoz, J. (2010). *Contemporary micro enterprise: Concepts and cases*. Cheltenham: Edward Elgar Publishing.
- Mutula, S. (2003). Cyber cafe' industry in Africa. *Journal of Information Science*, 29(6), 489-497.
- Nawaz, S. S., & Gunapalan, S. (2015). Evaluating the adoption of enterprise applications by small and medium enterprises in Sri Lanka. *European Journal of Business and Management*, 7(4), 324-334.
- Nayak, A., & Greenfield, S. (1994). The use of management accounting information for managing micro businesses. In A. Hughes, & D. Storey, *Finance and the small firm* (pp. 182-231). London: Routledge.
- NBS/SMEDAN. (2012). *Survey report on micro, small and medium enterprises (MSMEs) in Nigeria*.
- Nguyen, T. (2009). Information technology adoption in SMEs: An integrated framework. *International Journal of Entrepreneurial Behaviour and Research*, 162-186.
- Ngwenyama, O., Andoh-Baidoo, F., Bollou, F., & Morawczynski, O. (2006). Is there a relationship between ICT, health, education and development? An empirical analysis of five West African countries from 1997–2003. *Electronic Journal of Information Systems in Developing Countries*, 23(5), 1-11.

- Nichter, S., & Goldmark, L. (2009). Small firm growth in developing countries. *World Development*, 37(9), 1453-1469.
- Nicolaou, A. (2000). contingency model of perceived effectiveness in accounting information systems: Organizational coordination and control effects. *International Journal of Accounting Information Systems*, 1, 91–105.
- Nielinger, O. (2003). ICT-utilisation of small and medium enterprises (SME) in Tanzania. *Fact Sheet*, 1-11.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- O'Regan, N., Ghobadian, A., & Galleary, D. (2006). In search of the drivers of high growth in manufacturing SMEs. *Technovation*, 26, 30-41.
- Obadan, M., & Agba, A. (2006). Small and medium enterprises development policy in Brazil, Malaysia, South Africa and South Korea: Lessons for African and Nigeria. *10(3-4)*, 24-50.
- Oduyoye, O., Adebola, S., & Binuyo, A. (2013). Empirical study of infrastructure support and small business growth in Ogun State, Nigeria. *Journal of Research and Development*, 1(1), 14-22.
- Oguijiuba, K., & Ohuche, F. (2004). *Credit availability to micro, small and medium scale enterprises in Nigeria: Importance of new capital base for banks*.
- Olatokun, W., & Kebonye, M. (2010). e-Commerce technology adoption by SMEs in Botswana. *International Journal of Emerging Technologies and Society*, 8(1), 42-56.
- Olise, M. C., Anigbogu, T. U., Edoko, T. D., & Okoli, M. I. (2014). Determinants of ICT adoption for improved SMEs performance in Anambra state, Nigeria. *American International Journal of Contemporary Research*, 4(7), 163-176.
- Oludayo, O. A. (2014). Work-life balance initiatives and employee behavioural outcomes in the Nigerian banking sector. *Unpublished Ph.D Thesis in the Department of Business Managemnt, Covenant University*.

- Olutunla, G. T., & Obamuyi, T. M. (2008). An empirical analysis of factors associated with the profitability of Small and medium - enterprises in Nigeria. *African Journal of Business Management*, 11(2), 195-200.
- Oputu, E. N. (2010). Banking sector reforms and the industrial sector: The bank of industry experience. *CBN Economic and Financial Review*, 67-76.
- Osotimehin, K. O., Jegede, C., Akinlabi, B., & Olajide, O. T. (2012). An evaluation of the challenges and prospects of micro and small scale enterprises development in Nigeria. *American International Journal of Contemporary Research*, 2(4), 174-185.
- Oyelaran-Oyeyinka, B. (2003). *Financing and development of micro and small scale industries in Nigeria*. Ibadan: University Press Plc.
- Oyelaran-Oyeyinka, B., & Adeya, C. (2004). Dynamics of adoption and usage of ICTs in African universities: a study of Kenya and Nigeria. *Technovation*, 24, 841-851.
- Oyelaran-Oyeyinka, B., & Adeya, C. (2004). Internet access in Africa: empirical evidence from Kenya and Nigeria. *Telematics and Informatics*, 21, 67-81.
- Padachi, K. (2012). Factors affecting the adoption of formal accounting systems by SMEs. *Business and Economics Journal*, 1-20.
- Pai, F., & Huang, K. (2011). Applying the technology acceptance model to the introduction of healthcare information systems. 78(4), 250-260.
- Pallant, Y. (2011). *SPSS survival manual: A step by step guide to data analysis using SPSS for windows* (3rd ed.). England: McGraw-Hill Open University Press.
- Park, C. W., & Pincus, M. (2000). *Market reactions to changes in analyst consensus recommendations following quarterly earnings announcement* . Hong Kong University working paper.
- Park, H. A. (2013). An introduction to logistic regression: from basic concepts to interpretaion with particular attention to nursing domain. *Journal of Korean Academy of Nursing*, 43(2), 154-164.

- Park, S. Y. (2009). An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-Learning. *Educational Technology & Society*, 12(3), 150–162.
- Pavic, S., Koh, S. C., Simpson, M., & Padmore, J. (2007). Could e-business create a competitive advantage in UK SMEs? *Benchmarking*, 320-351.
- Pejovic, V., Johnson, D. L., Zheleva, M., Beldings, E., Parks, L., & Stam, G. V. (2012). The bandwidth divide: Obstacles to efficient broadband adoption in rural Sub-Saharan Africa. *International Journal of Communication*, 6, 2467-2491.
- Peslak, A., Ceccucci, W., & Sendall, P. (2010). An empirical study of social networking behavior using diffusion of innovation theory. *Conference on Information Systems Applied Research 2010 CONISAR Proceedings*, (pp. 1-14). Nashville Tennessee.
- Peter, E., & Inegbenebor, A. (2009). Capacity of SMEs in Nigeria to access Institutional Equity Finance. *Research Journal of Business Management*, 2(1), 1-5.
- Peterson, R. A., Albaum, G., & Kozmetsky, G. (1986). The public's definition of small business. *Journal of Small Business Management*, 24(3), 63-68.
- Pinsonneault, A., & Kraemer, K. L. (1993). Survey research methodology in management information systems: An assessment. *Journal of Management Information Systems*, 10, 75-105.
- Pongpatrachai, D., Cragg, D., & Fisher, R. (2013). IT infusion within the audit process: Spreadsheet use in small audit firms. *International Journal of Accounting Information Systems*, 003(09), 1-21.
- Porter, M., & Millar, V. (1985). How information gives you firm-level value. *Harvard Business review*, 63(4), 149-160.
- Premkumar, G., & Ramamurthy, K. (1995). The role of inter-organisational and organisational factors on the decision mode of adoption of inter-organisational systems. *Decision Sciences*, 26(3), 303-336.



- Premkumar, G., & Roberts, M. (1999). Adoption of new information technologies in rural small businesses. *The International Journal of Management Science*, 27(4), 467-484.
- Ramayah, T., Ma'ruf, J., Jantan, M., & Mohamad, O. (2002). Technology acceptance model: Is it applicable to users and non users of internet banking. *The role of Harmonization of Economics and Business Discipline in Global Competitiveness*. Indonesia.
- Relhan, A. (2013). E-Accounting practices of SMEs in India. *International Journal of Technical Research (IJTR)*, 2(1), 1-10.
- Rogers, E. (1985). *Diffusion of Innovation*. New York: The Free Press.
- Rogers, E. M. (2003). *Diffusion of innovation 5th Edition*. New York: The Free Press.
- Romney, M. B., & Steinbart, P. J. (2009). *Accounting information system*. New Jersey: Pearson Prentice Hall.
- Salehi, M., & Abdipour, A. (2013). Accounting information system's barriers: Case of an emerging economy. *African Journal of Business Management*, 7(5), 298-305.
- Salehi, M., Rostami, V., & Mogadam, A. (2010). Usefulness of accounting information system in emerging economy: Empirical evidence of Iran. *International Journal of Economics and Finance*, 2(2), 186-195.
- Sanusi, J. O. (2003). Overview of Government's efforts in the development of SMEs and the emergence of small and medium industries equity investment scheme (SMIEIS). *Presented at the National Summit on SMIEIS Organised by the Bankers'Committee and Lagos Chambers of Commerce and Industry (LCCI)*, (pp. 1-20).
- Schroder, H. M., Driver, M. J., & Streufert, S. (1967). *Human information processing*. New york: Holt, Rinelhart and Winston.
- Selwyn, N., Marriott, N., & Marriott, P. (2002). Home computers & university ICT use. *Journal of Computer Assisted Learning*, 18(1), 44-45.

- Seyal, A., Rahim, M. N., & Rahim, N. (2000). An empirical investigation of the use of information technology among small and medium business organisations: A Bruneian scenario. *The Electronic Journal of Information Systems in Developing Countries*, 2(7), 1-17.
- Sharma, S. J., & Chandel, J. K. (2013). Technology acceptance model for the use of learning through websites amongst students in Oman. *International Arab Journal on e-Technology*, 3(1), 44-49.
- Shroff, R. H., Deneen, C. C., & Eugenia, M. W. (2011). Analysis of the technology acceptance model in examining students' behavioural intention to use an e-portfolio system. *Australasian Journal of Educational Technology*, 27(4), 600-618.
- Simmons, E. (2004). The role of microenterprise assistance in US development policy. *Economic Perspectives*, 9(1).
- SMEDAN. (2005). (SMEDAN), Small and medium enterprises agency of Nigeria. *SME Success Digest*, 3(1).
- SMEDAN. (2013). *Emerging business, growing from small to large: The role of SMEDAN*. SMEDAN.
- Soh, C., & Markus, M. L. (1995). How IT creates business value: a process theory synthesis. *Proceedings of the Sixteenth International Conference on Information Systems* (pp. 29-41). Amsterdam: ACM publications.
- Sokoto, A., & Abdullah, Y. (2013). Strengthening small and medium enterprises (SMEs) as a strategy for poverty reduction in North Western Nigeria. *American Journal of Humanities and Social Sciences*, 1(3), 189-201.
- Soudani, S. (2012). The usefulness of an accounting information system for effective organizational performance. *International Journal of Economics and Finance*, 4(5), 136-145.
- Spathis, C., & Constantinides, S. (2004). Enterprise resource planning systems' impact on accounting processes. *Business Process Management Journal*, 10(2), 234-247.

- Statnikova, K. (2005). Information technology implementation: What works and what does not. *Unpublished Thesis to the faculty of the Graduate School of Vanderbilt University*.
- Stefl-Mabry, J. (1999). Professional staff development: Lessons learned from current usability studies. *Journal of information Technology Impact*, 1(2), 81-104.
- Suhr, D. D. (n.d.). Exploratory or confirmatory factor analysis? *Statistics and Data Analysis*, 200(31), 1-17.
- Tambunan, T. (2007). Transfer of technology to and technology diffusion among non-farm small and medium enterprises in Indonesia. *Knowledge Technology*, 20, 243-258.
- Tan, K. S., Chong, S. C., Lin, B., & Eze, U. C. (2009). Internet-based ICT adoption: Evidence from Malaysian SMEs. *Industrial Management & Data Systems*, 109(2), 224-244.
- Tan, M., & Lin, T. (2012). Exploring organizational adoption of cloud computing in Singapore. *19th ITS Biennial Conference*. Bangkok: Econs Paper.
- Tavakol, M., & Dennick, R. (2011). Making sense of cronbach's alpha. *International Journal of Medical Education*, 2, 53-55.
- Tavakolian, H. (1995). PC-based financial software: Emerging options. *Industrial Management & Data Systems*, 95(10), 19-24.
- Tella, S. A., Amaghionyeodiwe, A. L., & Adesoye, B. A. (2007). Telecommunications infrastructure and economic growth: Evidence from Nigeria. *UN-IDEP and AFEA Joint Conference on "Sector-led Growth in Africa and Implications for Development"*. Dakar: Senegal.
- Thompson, M., & Walsham, G. (2010). ICT research in Africa: Need for a strategic developmental focus. *Information Technology for Development*, 16(2), 112-127.
- Thong, J. Y. (1999). An integrated model of information systems adoption in small business. *Journal of Management Information systems*, 15(4), 187-214.

- Thong, J. Y. (2001). Resource constraints and information systems implementation in Singaporean small business. *International Journal of Management Science*, 29, 143-156.
- Thong, J. Y., & Yap, C. S. (1995). CEO characteristics, organisational characteristics and information technology adoption in small businesses. *International Journal of Management Science*, 23(4), 429-442.
- Thong, J. Y., Yap, C. S., & Raman, K. S. (1993). Top management support in small business information systems implementation: How important is it? *Paper presented at the proceedings of the ACM SIGCPR Conference, Syracuse, New York, USA*. New York.
- Thong, J. Y., Yap, C. S., & Raman, K. S. (1997). Environments for information systems implementation in small business. *Journal of organisational computing and electronic commerce*, 7(4), 253-278.
- Thong, J., Yap, C., & Raman, K. (1994). Engagement of external expertise in information systems implementation. *Journal of Management and Information Systems*, 11(2), 209-231.
- Thwala, W. D., & Mvubu, M. (2008). Current challenges and problems facing small and medium size contractors in Swaziland. *African Journal of Business Management*, 2, 93-98.
- Tiemo, A. J. (2012). Internal and external oriented problems of utilizing ICT. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 3(4), 318-323.
- Tihanyi, L., Ellstrand, A., Daily, C., & Dalton, D. (2000). Composition of the top management team and firm international diversification. *Journal of Management*, 26(6), 1157-1177.
- Tijani, O. M., & Mohammed, A. K. (2013). Computer-based accounting systems in small and medium enterprises: Empirical evidence from a randomized trial in Nigeria. *Universal Journal of Management*, 1(1), 13-21.

- Tornatzky, L. G., & Fleischer, M. (1990). *The process of technological innovation*. Lexington, Massachusetts: Lexington Books.
- Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. *Information and Software Technology*, 52(5), 463-479.
- Tushabomwe-Kazooba, C. (2006). Causes of small business failure in Uganda: A case study from Bushenyi and Mbarara towns. *African Studies Quarterly*, 8(4).
- Tybout, J. R. (2000). Manufacturing firms in developing countries: How well do they do and why? *Economic Literature*, 38(1), 11-44.
- Udechukwu, F. N. (2003). Survey of small and medium scale industries and their potentials in Nigeria. *Central Bank of Nigeria, Seminar on Small and Medium Industries Equity Investments Scheme (SMIEIS). 4*. Lagos: Publications of CBN Training Centre.
- United States Small Business Administration. (2006). *Statistics of US business and non-employer statistics*. Washington DC: United States Small Business Administration.
- Ven, K., & Verelst, J. (2009). The importance of external support in the adoption of open source server software. *International federation for Information Processing (IFIP)*, pp. 116-128.
- Venkatesh, V. (2000). Determinants of perceived ease of use: integrating control, intrinsic motivation and emotion into the technology acceptance model. *Information systems Research*, 11, 342-365.
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *Management Information System Quarterly*, 36, 157-178.
- Vision 2020 national technical working group. (2009). *Report of the vision 2020 national technical working group on small and medium enterprises (SMEs)*. Nigeria vision 2020 program.

- Wanjau, K., Macharia, N. R., & Ayodo, E. M. (2012). Factors affecting adoption of electronic commerce among small medium enterprises in Kenya: Survey of tour and travel firms in Nairobi. *International Journal of Business, Humanities and Technology*, 76-91.
- WDI. (2014). *World Development Indicators*. World Bank.
- Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, 35, 91-121.
- Williams, B., Brown, T., & Onsman, A. (2010). Exploratory factor analysis: A five step guide for novices. *Journal of Emergency Primary Health Care*, 8(3), 1-13.
- Wilson, E. J. (2006). *The information revolution and developing countries*. Cambridge MA: MIT Press.
- Winston, E. R., & Dologite, D. G. (1999). Achieving IT infusion: A conceptual model for small businesses'. *Information Resources Management Journal*, 12(1), 26-38.
- Woodside, A. G., & Quaddus, M. (2015). *E-Service adoption processes in developing nations: Introduction to ABM&P*. Emerald Group Publishing Limited.
- World Bank. (2001). *SME country mapping*.
- Yap, C. S., & Thong, J. Y. (1999). Programme evaluation of a government information technology programme for small businesses. *Journal of Information Technology*, 12, 107-120.
- Yap, C. S., Soh, C. P., & Raman, K. S. (1992). Information system success factors in small business. *Information System Research*, 20(5), 597-609.
- Yap, C. S., Thong, J. Y., & Raman, K. S. (1994). Effect of government incentives on computerization. *European Journal of Information Systems*, 3(3), 191-206.
- Yeh, C., Lee, G., & Pai, J. (2014). Using a technology-organization-environment framework to investigate the factors influencing e-business information technology capabilities. *Information Development*, 1-16.

- Yong, A. G., & Pearce, S. (2013). A Beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods of Psychology*, 9(2), 79-94.
- Yousafzai, S. Y., Foxall, G. R., & Pallister, J. G. (2007). Technology acceptance: a meta-analysis of the TAM: Part 1. *Journal of Modelling in Management*, 2(3), 251-280.
- Yukcu, S., & Gonen, S. (2009). Unstoppable rise of technology: e-Accounting. *Yaklasim Journal*, 17(204), 27-30.
- Zakaria, W., Rahman, S., & Elsayed, M. (2011). An analysis of task performance outcomes through e-Accounting in Malaysia. *Journal of Public Administration and Governance*, 1(2), 124-139.
- Zee, A. V., & Swagerman, D. (2009). Upper Echelon theory and ethical behaviour: an illustration of the theory and a plea for its extension towards ethical behaviour. *Journal of Business, Systems, Governance and Ethics*, 4(2), 27-43.
- Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry. *Information Systems Research*, 16(1), 61-84.
- Zhu, K., Dong, S., Xu, S. X., & Kraemer, K. L. (2006). Innovation diffusion in global contexts: Determinants of post-adoption digital transformation of European Companies. *European Journal of Information Systems*, 15, 601-616.
- Zhu, K., Kraemer, & Xu, S. (2003). Electronic business adoption by European firms: A cross-country assessment of the facilitators and inhibitors. *European Journal of Information Systems*, 12, 251-268.
- Zhu, K., Xu, S., & Dedrick, J. (2003). Assessing drivers of e-business Value: Results of a cross-country study. *Twenty-Fourth International Conference on Information Systems*, (pp. 1-13).

## APPENDIX 1

### Sample of Research Questionnaire

#### RESEARCH QUESTIONNAIRE

#### (FOR E-ACCOUNTING IMPLEMENTERS)

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Dear Respondent,

This questionnaire is designed to assess the *Organisational Determinants of e-Accounting system Implementation amongst Micro and Small Enterprises (MSEs) in South-West Nigeria*. The study is undertaken in the fulfillment of the requirements for the award of a Ph.D degree in Accounting.

Your cooperation is therefore solicited in supplying the required relevant information as factual as possible. Information supplied will be treated with utmost confidentiality and use for academic purpose only. Thank you for your esteemed cooperation.

Yours faithfully,

Ezenwoke O.A.

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**SECTION A1 (Please tick from options and specify as applicable)**

1	Gender	1. Male [    ] 2. Female [    ]				
2	Status in organisation	1. Owner [    ] 2. Manager [    ] 3. Owner and Manager [    ] 4. Others (please specify).....				
3	Age	1. Below 17 [    ] 2. 17-25 [    ] 3. 26- 35 [    ] 4. 36-45 [    ] 5. 46-55 [    ] 6. 56-65 [    ] 7. Above 66 [    ]				
4	Highest Qualification	1. Primary [    ] 2. Secondary [    ] 3. OND/HND [    ] 4. B.Sc/BA [    ] 5. MBA/MSc/MA [    ] 6. Ph.D [    ] 7. Others (please specify).....				
5	Area of specialisation	1. Arts/Humanities/Law [    ] 2. Sciences/Engineering/Technology/Architecture [    ] 3. Commercial/Social Sciences [    ] 4. Others (please specify).....				
<b>VH= Very high; H= High; N=Neutral; L= Low; VL= Very Low</b>		<b>VH</b>	<b>H</b>	<b>N</b>	<b>L</b>	<b>VL</b>
6	Capability in using Electronic Accounting (e.g MS excel, accounting software)					
7	Capability in using ICT devices (e.g Smart Phones, computers, tablets)					
8	Level of knowledge possessed in Financial Accounting (Debit, Credit,)					
9	Level of knowledge possessed in Management Accounting (Budget, cost, Analysis)					

**SECTION A2 (Please proceed to fill this section for the owner if you are the manager)**

10	Owner Gender	1. Male [    ] 2. Female [    ]				
11	Owner Age	1. Below 17 [    ] 2. 17-25 [    ] 3. 26- 35 [    ] 4. 36-45 [    ] 5. 46-55 [    ] 6. 56-65 [    ] 7. Above 66 [    ]				
12	Owner Highest Qualification	1. Primary [    ] 2. Secondary [    ] 3. OND/HND [    ] 4. B.Sc/BA [    ] 5. MBA/MSc/MA [    ] 6. Ph.D [    ] 7. Others (please specify).....				
13	Owner Area of specialisation	1. Arts/Humanities/Law [    ] 2. Sciences/Engineering/Technology/Architecture [    ] 3. Commercial/Social Sciences [    ] 4. Others (please specify).....				
<b>VH= Very high; H= High; N=Neutral; L= Low; VL= Very Low</b>		<b>VH</b>	<b>H</b>	<b>N</b>	<b>L</b>	<b>VL</b>
14	Owner Capability in using Electronic Accounting (e.g MS excel, software)					
15	Owner Capability in using ICT devices (e.g Smart Phones, computers, tablets)					
16	Financial Accounting knowledge of owner (Debit, Credit,)					
17	Management Accounting knowledge of owner (Budget, Cost Analysis, etc )					

SECTION B (Please tick from options and specify as appropriate)

18	Type of business	1. Supermarket [   ] 2. Others (please specify).....				
19	Sub-sector of Business	1. Wholesale, retail &Repairs [   ] 2. Manufacturing [   ] 3. Agriculture [   ] 4. Others (please specify).....				
20	Sources of Business finance since the beginning (please tick multiple if more than one)	1. Personal [   ] 2. Friends/ Family [   ] 3. Retained profit [   ] 4. Cooperative [   ] 5. Commercial Bank Loan [   ] 6. Micro finance Bank loan [   ] 7. Others (please specify).....				
21	Business total assets	1. Below ₦1,000,000 [   ] 2. ₦1M – ₦4.99M [   ] 3. ₦5M – ₦19.99M [   ] 4. ₦20M – ₦50M [   ] 5.Others (please specify) .....				
22	Business is registered with Corporate Affairs Commission	1. Yes [   ] 2. No [   ]				
23	Business is linked to an International Business	1. Yes [   ] 2. No [   ]				
24	The link to the international business is in area of (please tick if you pick yes in question 23)	1. Sales [   ] 2. Supply [   ] 3. Finance [   ] 4. Others (please specify).....				
25	Business Name/Local govt/State					
26	Business age in years					
27	Total Number of Employees					
28	The total no of employee(s) able to use Electronic					
VH= Very high; H= High; N= Neutral; L= Low; VL= Very Low		VH	H	N	L	VL
29	Level of employee capacity to use Electronic Accounting					

SECTION C (Please tick from options and specify as applicable)

30	My organisation keep Accounting Transactions	1. Yes [   ] 2. No [   ]
31	Method(s) used in keeping Accounting Transactions	1. Manual [   ] 2. Electronic [   ] 3. Manual and Electronic [   ]
32	Type of Electronic Accounting in use (for option 2 or 3 in ques 31, tick multiple if more than one)	1. Spreadsheets [   ] 2. In-house developed [   ] 3. Purchased software [   ] 4. Online Software [   ] 5. Others (please specify).....
33	Name of Electronic Accounting in use	1. MS Excel [   ] 2. Peachtree [   ] 3. Sage [   ] 4. Tally [   ] 5.Quickbooks [   ] 6. Others (please specify) .....
34	ICT device (s) used for Electronic Accounting	1. Mobile phone [   ] 2. Tablet [   ] 3. Computer [   ] 3. Others (please specify).....

**SECTION D (Please indicate as appropriate)**

	<i>SA= Strongly agree; A= Agree; N=Neutral; D= Disagree; SD= Strongly Disagree</i>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
35	I find Electronic Accounting easy to use					
36	The use of Electronic Accounting meets my business need					
37	The use of Electronic Accounting is more efficient than the manual system					
38	The use of Electronic Accounting secures my business transactions					
	<i>VH= Very high; H= High; N=Neutral; L= Low; VL= Very Low</i>	<b>VH</b>	<b>H</b>	<b>N</b>	<b>L</b>	<b>VL</b>
39	The cost of using Electronic Accounting compared to yearly profit is					
40	The cost of using Electronic Accounting compared to capital is					

**SECTION E (Please indicate, tick and specify as appropriate)**

41	Business Membership of a registered Association	1. Trade Association [ ] 2. Professional Association [ ] 3. None [ ] 5. Others (please specify).....
42	The use of ICT infrastructure provided by Government	1. Electricity [ ] 2. Telecommunication (NITEL) [ ] 3. Internet [ ] 4. None [ ] 5. Others (please specify).....
43	Presence of Business External IT Consultant	1. Yes [ ] 2. No [ ]
44	Is the External IT consultant the same as the IT supplier?	1. Yes [ ] 2. No [ ]

	<i>SA= Strongly agree; A= Agree; N=Neutral; D= Disagree; SD= Strongly Disagree</i>	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
45	Awareness of Government policies/initiatives on the use of ICT					
46	The use of electricity provided by Government is adequate					
47	The use of telecommunication (NITEL) provided by Government is adequate					
48	The use of internet provided by Government is adequate					
49	Customers demand the use of Electronic Accounting					
50	Competitors influence the use of Electronic Accounting					
51	External IT consultant/supplier has been effective in providing IT Support					
52	Business association membership has influenced the use of IT in this business					

53 In your own opinion what factors determine the use of Electronic Accounting?.....

## APPENDIX 2

### Sample of Research Questionnaire

#### RESEARCH QUESTIONNAIRE

#### (FOR E-ACCOUNTING NON- IMPLEMENTERS)

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Dear Respondent,

This questionnaire is designed to assess the *Organisational Determinants of e-Accounting system Implementation amongst Micro and Small Enterprises (MSEs) in South-West Nigeria*. The study is undertaken in the fulfillment of the requirements for the award of a Ph.D degree in Accounting.

Your cooperation is therefore solicited in supplying the required relevant information as factual as possible. Information supplied will be treated with utmost confidentiality and use for academic purpose only. Thank you for your esteemed cooperation.

Yours faithfully,

Ezenwoke O.A.

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**SECTION A1 (Please tick from options and specify as applicable)**

1	Gender	1. Male [    ] 2. Female [    ]
2	Status in organisation	1. Owner [    ] 2. Manager [    ] 3. Owner and Manager [    ] 4. Others (please specify).....
3	Age	1. Below 17 [    ] 2. 17-25 [    ] 3. 26-35 [    ] 4. 36-45 [    ] 5. 46-55 [    ] 6. 56-65 [    ] 7. Above 66 [    ]
4	Highest Qualification	1. Primary [    ] 2. Secondary [    ] 3. OND/HND [    ] 4. B.Sc/BA [    ] 5. MBA/MSc/MA [    ] 6. Ph.D [    ] 7. Others (please specify).....
5	Area of specialisation	1. Arts/Humanities/Law [    ] 2. Sciences/Engineering/Technology/Architecture [    ] 3. Commercial/Social Sciences [    ] 4. Others (please specify).....
<b>VH= Very high; H= High; N=Neutral; L= Low; VL= Very Low</b>		<b>VH    H    N    L    VL</b>
6	Capability in using Electronic Accounting (e.g MS excel, accounting software)	
7	Capability in using ICT devices (e.g Smart Phones, computers, tablets)	
8	Level of knowledge possessed in Financial Accounting (Debit, Credit,)	
9	Level of knowledge possessed in Management Accounting (Budget, cost, Analysis)	

**SECTION A2 (Please proceed to fill this section for the owner if you are the manager)**

10	Owner Gender	1. Male [    ] 2. Female [    ]
11	Owner Age	1. Below 17 [    ] 2. 17-25 [    ] 3. 26-35 [    ] 4. 36-45 [    ] 5. 46-55 [    ] 6. 56-65 [    ] 7. Above 66 [    ]
12	Owner Highest Qualification	1. Primary [    ] 2. Secondary [    ] 3. OND/HND [    ] 4. B.Sc/BA [    ] 5. MBA/MSc/MA [    ] 6. Ph.D [    ] 7. Others (please specify).....
13	Owner Area of specialisation	1. Arts/Humanities/Law [    ] 2. Sciences/Engineering/Technology/Architecture [    ] 3. Commercial/Social Sciences [    ] 4. Others (please specify).....
<b>VH= Very high; H= High; N=Neutral; L= Low; VL= Very Low</b>		<b>VH    H    N    L    VL</b>
14	Owner Capability in using Electronic Accounting (e.g MS excel, software)	
15	Owner Capability in using ICT devices (e.g Smart Phones, computers, tablets)	
16	Financial Accounting knowledge of owner (Debit, Credit,)	
17	Management Accounting knowledge of owner (Budget, Cost Analysis, etc )	

**SECTION B (Please tick from options and specify as appropriate)**

18	Type of business	1. Supermarket [ ] 2. Others (please specify).....				
19	Sub-sector of Business	1. Wholesale, retail & Repairs [ ] 2. Manufacturing [ ] 3. Agriculture [ ] 4. Others (please specify).....				
20	Sources of Business finance since the beginning (please tick multiple if more than one)	1. Personal [ ] 2. Friends/ Family [ ] 3. Retained profit [ ] 4. Cooperative [ ] 5. Commercial Bank Loan [ ] 6. Micro finance Bank loan [ ] 7. Others (please specify)...				
21	Business total assets	1. Below N1,000,000 [ ] 2. N1M – N4.99M [ ] 3. N5M – N19.99M [ ] 4. N20M – N50M [ ] 5. Others (please specify) .....				
22	Business is registered with Corporate Affairs Commission	1. Yes [ ] 2. No [ ]				
23	Business is linked to an International Business	1. Yes [ ] 2. No [ ]				
24	The link to the international business is in area of (please tick if you pick yes in question 23)	1. Sales [ ] 2. Supply [ ] 3. Finance [ ] 4. Others (please specify).....				
25	Business Name/Local govt/State					
26	Business age in years					
27	Total Number of Employees					
28	The total no of employee(s) able to use Electronic					
VH= Very high; H= High; N= Neutral; L= Low; VL= Very Low		VH	H	N	L	VL
29	Level of employee capacity to use Electronic Accounting					

**SECTION C (Please tick from options and specify as applicable)**

30	My organisation keep Accounting Transactions	1. Yes [ ] 2. No [ ]
31	Method(s) used in keeping Accounting Transactions	1. Manual [ ] 2. Electronic [ ] 3. Manual and Electronic [ ]
32	Type of Electronic Accounting in use (for option 2 or 3 in ques 31, tick multiple if more than one)	1. Spreadsheets [ ] 2. In-house developed [ ] 3. Purchased software [ ] 4. Online Software [ ] 5. Others (please specify).....
33	Name of Electronic Accounting in use	1. MS Excel [ ] 2. Peachtree [ ] 3. Sage [ ] 4. Tally [ ] 5. Quickbooks [ ] 6. Others (please specify) .....
34	ICT device (s) used for Electronic Accounting	1. Mobile phone [ ] 2. Tablet [ ] 3. Computer [ ] 3. Others (please specify).....

**SECTION D (Please indicate as appropriate)**

<i>SA = Strongly agree; A = Agree; N=Neutral; D= Disagree; SD= Strongly Disagree</i>		<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
35	I perceive it is easy to use Electronic Accounting					
36	I perceive the use of Electronic Accounting will meet my business need					
37	I perceive the use of Electronic Accounting is more efficient than the manual system					
38	I perceive the use of Electronic Accounting secures my business transactions					
<i>VH= Very high; H= High; N=Neutral; L= Low; VL= Very Low</i>		<b>VH</b>	<b>H</b>	<b>N</b>	<b>L</b>	<b>VL</b>
39	I perceive the cost of using Electronic Accounting compared to yearly profit is					
40	I perceive the cost of using Electronic Accounting compared to capital is					

**SECTION E (Please indicate, tick and specify as appropriate)**

41	Business Membership of a registered Association	1. Trade Association [ ] 2. Professional Association [ ] 3. None [ ] 5. Others (please specify).....				
42	The use of ICT infrastructure provided by Government	1. Electricity [ ] 2. Telecommunication (NITEL) [ ] 3. Internet [ ] 4. None [ ] 5. Others (please specify).....				
43	Presence of Business External IT Consultant	1. Yes [ ] 2. No [ ]				
44	Is the External IT consultant the same as the IT supplier?	1. Yes [ ] 2. No [ ]				
<i>SA = Strongly agree; A = Agree; N=Neutral; D= Disagree; SD= Strongly Disagree</i>		<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
45	Awareness of Government policies/initiatives on the use of ICT					
46	The use of electricity provided by Government is adequate					
47	The use of telecommunication (NITEL) provided by Government is adequate					
48	The use of internet provided by Government is adequate					
49	Customers demand the use of Electronic Accounting					
50	Competitors influence the use of Electronic Accounting					
51	External IT consultant/supplier has been effective in providing IT Support					
52	Business association membership has influenced the use of IT in this business					
53	In your own opinion what factors determine the use of Electronic Accounting?.....					