



**ICT Utilization of Medium-Sized Business  
Organizations: The Case of Selected Business  
Organizations in Addis Ababa.**

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This is to certify that the thesis prepared by Tsion Alemu, entitled *ICT utilization of Medium-sized Business Organizations: The Case of Selected Business Organizations in Addis Ababa* and submitted in partial fulfillment of the requirements for the Degree of Master of Arts in Journalism and Communication complies with the regulations of the University and notes the accepted standards with respect to originality and quality.

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## ABSTRACT

ICT Utilization of Medium-sized Business Organizations: The Case of Selected Business Organizations in Addis Ababa.

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Addis Ababa University, June, 2015

The major objective of the study was to investigate ICT utilization level of selected medium sized business organizations located in Addis Ababa. Specifically, the study attempted to analyze how the selected organizations use ICT in their core business activities and identify the opportunities and challenges of incorporating ICT in business activities. The study applied qualitative method whereby semi structured in-depth interview and text analysis were used as data collection instruments. The study applied three models: the adoption ladder model, the Nolan's 6<sup>th</sup> stage of IT/IS and the transporter model as a theoretical framework that depicts the utilization level of the business organizations. The organizations were selected through purposive sampling method, that was based the definition of medium sized businesses formulated by an international information technology research company named Gartner. The data obtained from the in-depth interview were analyzed qualitatively, in an approach that begins with a profile of theselected organization and continues with the analysis of the data gathered about the specific organization. In the study, the data which were gathered through document analysis were used as a describing feature of the major applications used by the selected organizations. By applying the above methods of data collection and organization the research answered four basic research questions. The findings of the study revealed that medium-sized business organizations struggle with various problems of adopting ICT opportunities as a result of the lack of skill and training, internet service provider and ICT applications. The findings of the study showed that except one organization the medium-sized businesses do not apply any aspect of e-commerce. In addition, the study has also revealed that the selected businesses internal and external communication flow takes place through the facilities of ICT. The study concludes that medium-sized organizations utilize different information exchange and business activity enhancer software, but faces problems such as employees' lack of the appropriate culture and knowledge of ICT as a barrier to effectively utilizing ICT in the work activity of business organizations. Based on the findings of the study, the researcher has forwarded recommendations on how business organizations can better utilize ICT to improve their performance.

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# CHAPTER ONE: INTRODUCTION

## 1.1. Background of the Study

Communication is one of the major facets of civilization, which helps create and shape our world. In addition to playing a pivotal role in making our lives meaningful and productive, it also has critically contributed to the politics, health, education and trade affairs of nations all over the world. With a purpose of making this modern process of interaction faster, easier and reliable, human beings have been inventing diverse mediums from simple print to sophisticated information communication technologies. The invention of these innumerable communication technologies has created a phenomenon that literally shrunk the world and brought everyone together, the phenomenon of globalization. This advancement has brought about considerable changes in almost every sphere of modern life.

An instance of modern human activity, which has been influenced by such technological advancement, is business. This is especially true in the internal and external business communication processes of organizations, particularly information communication technologies (ICT) plays the core role of assisting business communication process and diffusion (Bovee, et al, 1999).

Shawul (2000) defines the role of ICT in business as a contributing factor in the four business forces, shaping developed country's business organizations. These are globalization, expansion of scope and presence of organization, increasing level of productivity and volatile environment. ICT, particularly information technology plays a critical role in these dynamic, complex and competitive business environments. It creates new ways of organizing, interconnecting and executing methods that crafts opportunities for cost reduction and productivity increment in business.

In addition, because of today's technological phenomenon, high efficiency and inclusive communication networks in business organizations are moving in a rapid velocity. Furthermore, technological opportunities create a platform, where it is possible to have an access to organized information not bounded by time or place.

Nowadays, applying ICT in the core activities of business organizations has become a necessity, back in the days, ICT was used in a business only as a technological follow up but now basic business processes rely on it to be managed and executed (Ibid, 2000).

Undoubtedly, technological advances have an impact in business organizations residing in developing countries like Ethiopia. It is predictable that organizations all over the world will continue to absorb new technological advancements, and rely on ICT for an effective and efficient performance. Therefore, unless and otherwise business enterprises in developing countries keep up with the rapid advancement of technology, a vast technological gap will be inevitable (Zahra, 2000).

Similarly, Ernest (2004) looks at the advances in information communication through ICT, as a critical contributor of the constant wave of changes taking place in today's world. Therefore countries that instantly respond to technological innovations and advancements thrive while those that fail to do so will perform in the world's economy poorly.

In Ethiopia, the concept of utilizing ICT in the core activities of business is at its infant stage, the most valuable and crucial opportunity of technology, that if effectively utilized, could transform a business organization into a competitive and profitable state, has not been given the appropriate platform and attention in Ethiopia. Therefore, this shows that the research is timely and worth studying.

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

The contemporary status of our world, globalization makes business one of the modern human activities where the use of speed, flexibility, availability and access to information communication technology plays a crucial role in creating, managing and sustaining its existence.

Particularly, information and communication technologies lead business with 'the speed of a thought'. ICT is connected with more revenue generation, efficiency and effectiveness of performing tasks. It doesn't only speed up tasks but also improves how the tasks are achieved, this fact relies on the concept that communication technologies are efficient and effective (Warren, 2008).

Moreover, the way a business is run in today's globalized world has been transformed through the application of Information communication technologies. Computer-aided production has increased levels of quality and efficiency, as it deals with orders, requests and delivery from and for customers (Needham, et al, 1999).

In the same vein, these benefits of ICT holds out particularly for medium sized businesses, as it supports them to keep up with the technological wave of large size businesses which are comparatively on far terms. Thus, it is obligatory that medium sized businesses keep up with the wave of technological trends and create a maximized organizational performance and competitive environment.

Although phenomenal technological contributions are taking place in business organizations, they are not universal. Citizens of highly developed countries primarily, Northern Europe and North America are the number one benefiter of such technological advancements. In developing countries like Ethiopia, not only is there the problem of fully understanding the role of ICT in businesses, but more importantly the problem of less utilization of the available information communication technologies (Ernest, 2004).

While the benefits of ICT, as a tool in fostering the development of business organizations has been well recognized, its utilization in the business activities of small, medium or large business organizations in Ethiopia has been given little or no attention in most of the related literature. Furthermore, the majority of research tends to focus on experiences of developed countries. To put it in a nutshell, there are almost no studies that have been conducted in Ethiopia, with particular emphasis on the utilization of ICT in medium sized business organizations.

Therefore an effort is, made here to fill the gap by providing a useful insight about the utilization level of ICT in medium sized organizations in Addis Ababa. As result, investigating the extent of the utilization, its significant determinants and impact on the overall performance of medium businesses is crucial in setting pivotal targets aimed at improving the development, usage and diffusion of ICT in medium sized businesses located in Ethiopia.

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

### **1.3.1. General Objective**

The study has the general objective of studyingthe ICT utilization of medium sized businesses, located in Addis Ababa.

### **1.3.2. Specific Objective**

The study specifically attempts to:

- ✦ Explorethe extent to which the selected medium sized businesses utilize ICT.
- ✦ Study how the mediumsized businesses implement ICT in major business activities.
- ✦ Identifyopportunities and challenges of applying ICT in medium sized businesses.
- ✦ Examine if the selected medium sized organizations apply ICT to foster organizational communication.

## **1.4. Research Questions**

To examine how the selected medium sizedbusinesses utilize ICTin conducting their major business activities,this research would attempt to answer the following questions.

- ✦ To what extent do the selected small businesses utilize ICT?
- ✦ How do the medium sized business organizations implement ICT in their major business activities?
- ✦ What are the challenges and opportunities of applying ICT in the major business activities of medium sized businesses?
- ✦ How do the selected medium organizations utilize ICT to foster communication?

## **1.5. Significance of the Study**

One of the core benefits of business is that it generates income for a national and global economy; businesses employ means of productions, hire employees,rent and pay forbuildings and materials they use and pay their share of taxes. These payments then become the money used by consumers, suppliers, and the government (Brown and Petrello, 1979).

Business being an economy's driving power would not exist and thrive in today's technology dominated world, unless and otherwise it's supported by information communication technology. The most successful companies in today's business world are those who are looking forward to, new technological discoveries and opportunities to reduce business cost. In addition, increased competitiveness, pressure to lower costs and increasing productivity are contemporary business circumstances that if properly assisted by the remarkable velocity of ICT, could alter business organizations to the global market.

Based on the above concept the researcher believes that the result of the study will have the following contributions:

- ✦ It may alert medium sized business organizations on the benefits of information communication and technology particularly information technology.
- ✦ It can alert medium sized businesses on how ICT could be applied to foster productivity and cost effectiveness.
- ✦ It may shed light on the concept of how the most effective and efficient technological aspect of today's world could be used in medium businesses by developing countries like Ethiopia.
- ✦ It might raise awareness on the usefulness of full utilization of information communication technology in medium sized businesses.
- ✦ It could be used as a reference material to those who would like to conduct a research in this field.

## **1.6.Limitation of the Study**

This research is conducted to critically study the utilization of ICT in medium sized businesses, the lack of directly related texts, insufficient references and time constraints are some of the limitations that the researcher faced in conducting the study. However the researcher believes that despite the limitations the study is complete enough to serve its purpose.

## **1.7. Scope of the Study**

Though ICT encompasses many technological aspects, the researcher is obliged to narrow down the ICT aspect under investigation in to one: information technology.

The study also focuses on selected medium sized businesses here in Ethiopia, four medium sized businesses that apply information technology in their business activities are selected for a case study.

## **1.8. Organization of the Thesis**

The thesis is consisted of five chapters. Chapter one enlightens the general background of the study, highlights the research problem and sets out the objectives, and clarifies the significance and key research questions of the study.

Chapter Two explains the review of literature on business and ICT and presents theoretical considerations underlying the study.

Chapter Three looks at the methods, procedures and techniques employed in the study, the chapter gives a rationale for the adoption of the research design and also highlights the sampling procedures employed.

In Chapter Four, the findings of the study are discussed in relation to the research issues mentioned in the introductory chapter. It revisits the theoretical perspectives and literature review presented in Chapter Two. This Chapter also discloses the findings of interviews, arranged into four themes which are derived from the objectives of the study identified in the first chapter.

The last chapter of the study provides a conclusion along with recommendations.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1. The Concept and Role of Business

Day to day planned and casual interactions of people involve different business dealings, most times we are consumers and other times we are sellers of goods and services. People who are working for a living are one way or the other involved in the buying and selling activity of a business thus, when we are in a quest of understanding business, it is visible that each and every one of us are all part of it.

According to Hodgetts (1981), business is an organized approach used by individuals for the purpose of, providing goods and services to people, usually with an intention of making profit.

Brown and Petrello (1979), on their parts define business as, any type of organized effort that is intended, to produce products and supply services demanded by the people with a purpose of making a profit.

Both of the above definitions apart from concerning their core concept of business on producing and supplying goods and services, dwell on the concept of performing the activity of business for the purpose of making a profit.

Holding the above definitions of business in mind, the principal role of business is, producing and providing goods and services; this includes consumer and industrial products, which are products that are manufactured for the sale of a member in the public and items that are manufactured to be sold to other businesses. This role of business in turn helps the economic system of country and acts as the backbone of its functional system (Brown and Petrello, 1979).

This critical and pivotal human activity, business, is surrounded by various volatile, complex and dynamic forces, termed as the environment of business. The overall environment in which a business firm operates is consisted of natural-physical, political and economic environments (Hodgetts, 1981).

Needham & Rob (1993) on the other hand, classify environments of business as economic, social, political, legal, technological and environmental.

Economic decisions that are made in individual, organizations, governments and countries have major influences in business organizations so as the society, as it is a sum total of systems such as *the education, the health and the political* system, each of these systems interact with one another and influence business organizations in different perspectives. In addition to these forces, legal influences affect the running of organizations as it draws restrictions and bounds business organizations to a certain point. Technological advances also influence business organizations, as today's every business activity is controlled and managed by the rapid velocity of technological expansions (Needham & Rob, 1993).

In these various and dynamic sphere of business environment, government holds the key influencing platform , the growth of business profits, personal income, and individual and business assets are all concurrent with the growth of government influences(Brown and Petrello, 1979).

Though the five scholars Needham & Dransfield, (1993) , Hodgetts, (1981) and Brown and Petrello (1979) focus on economic, legal and political business forces, the influence that technological advancements have on business organizations is a concept added by Hodgetts (1981). Indeed, technological advancements have a major influence on the performance of business organizations. Since nowadays business firms depend on technological innovations for effective and efficient business activities, advancements and new trimmings on technology hold a key place in a business environment.

### **2.1.1 The Goals, Challenges and opportunities of Business**

According to CarysForth and Neild(2000), the main goals of business are: making a profit, providing goods and services to the local or wider community, surviving as a business and maximizing sales, improving quality of a product and creating a competitive environment and technological improvements.

Generally speaking, profit is the difference between what is earned by business and what is spent overtime. It is a critical component of businesses as it is immensely important to survive and thrive for a long period of time; profit is acquired through the production and selling of goods and services.

Providing goods and services is also another goal of business, manufacturing organizations make goods and retailing organizations sells goods made by other organizations. For instance banks provide financial services to businesses and individuals and some organizations on the other hand provide both goods and services. All and all providing goods and services and making a profit are the core goals of business organizations (Ibid, 2000).

Even though, it is not as important as producing goods and making profit, surviving as a business is also another goal. In times where sales don't exceed and profits are low the aim of a business could concentrate only on surviving. This being true, businesses also aim to expand their production level, in a region or a country and reach as many consumers as they can, such expansion plan of a business organization could include buying other organizations. Quality being another goal of business is connected with the performance of product: how well is a product made, for how long does it lasts and additional features are included in the quality aspect of a business. The goal of maximizing sells also holds an equal value, selling as many goods as possible could be achieved in several ways such as by reducing prices, pending more on promotion and offering extra services to customers. Some business organizations target decrease sell range all the time and create a highly competitive environment, usually in an industry where there are more competitors the cheaper the goods or services offered (Ibid, 2000).

For CarysForth, et al, (1993), on the other hand, one of the main aims of business organizations is to be at the forefront of technological development. This is to mean producing and selling the most up-to-date products or using latest technological opportunities in manufacturing products.

With different objectives of existence, this impulsive and multifaceted business world faces many challenges. One is producing the needed goods and services at competitive prices and the second is making profit, which is having the willingness to accept risks that come along the way in operating the business.

Though there remain challenges, there are also opportunities available in business, producing goods and services is one and the opportunity of working with different people and experience the awards of team work is another (Hodgetts, 1981).

## **2.2. Small and Medium Businesses (SMBS/ SMES)**

According to Gartner, an international information technology research institute, a small and medium sized business are organizations, which due to its size, have different IT requirements and often faces different IT challenges than large enterprises. The attribute used by Gartner to define SMBs most often is number of employees; small businesses are usually defined as organizations with fewer than 100 employees; and midsize enterprises are those organizations with 100 to 999 employees.

Utilization of information and communication technologies within SMEs has the benefits of cost minimization and service improvement by creating an effective flow of internal and external communication (Dehbokry and Chew, 2014).

## **2.3. Business Communication**

### **2.3.1. Communication and Business**

Communication is a core activity in business, people involved in business activities communicate with a variety of groups such as employees, shareholders, customers and suppliers for various kinds of purposes.

According to Locker (1998), business individuals communicate to influence people into thinking or behaving in a certain way, there are specific areas in business that require effective communication:

*People must communicate to plan products, hire, train, and motivate workers, coordinate manufacturing and delivery, persuade customers to buy and bill them for the sale. Indeed for many businesses and nonprofit and government organizations, the product is information or services rather than something tangible. And information and services are created and delivered by communication. In every organization, communication is the way people get their points across and get work done (Locker, 1998, p.4).*

In addition to assisting business activities and processes, business communication plays a pivotal role in supporting the achievement of business goals such as making profit, providing goods and services expansion, improving quality and beating competition. To achieve all these aims, it is critical that pivotal information is available with a strong communication link among staffs so that relevant information is exchanged (CarysForth & Neild, 2000).

Moreover, at all level of duty in business organizations, there lies a requirement of effective communication. Managers need to be able to effectively communicate, pass on and receive information among employees. As a whole, communication is a basic business skill that managers and employees need to acquire and develop (Needham & Dransfield, 1993).

Courtland and John (1999) elaborates this concept by mentioning that, whether organizations are small or large, effective information flow among parts and outside of the organization, plays a key role in linking the organization's objective with basic information that it relies on to make informed decisions.

### **2.3.2. The 'ICT revolution'**

The rapid velocity and proliferation of ICT is considered as a profound driving force in business. According to (Feng, 2007), computers have been used in business since 1951, when British catering firm J. Lyons Company built and installed a mainstream computer in its head office. It was originally used only for routine activities such as processing payrolls or performing rapid calculations. The reprogrammable microprocessor invented by Intel engineer Ted Hoff in 1969 began to unleash the full potential of computers today; ICTs have pervaded virtually all forms of human endeavor work education, leisure, communication, production, distribution and marketing. The story about how computers and their networks evolved and how they were used to reshape our society and economy has been told many times.

After the invention of the microprocessor in 1969, Bob Metcalfe created Ethernet in 1973, which provided the basis for local area networks (LANs). Mass-produced personal computers appeared in 1975 and since then a whole range. Desktop computing programs have been developing – including word processing, spreadsheet and so on. In 1982, the introduction of TCP/IP networking protocols paved the way for the modern internet.

The apple Macintosh, launched in 1984 provided an easy-to-use graphical user interface. E-mail over the internet began in 1989 followed by the explosive growth of the internet and the World Wide Web in the 1990's. Corporate websites and Intranets were developed and commercial transactions are increasingly conducted online, sophisticated software has been developed to manage both internal and external activities. Over the past forty years, ICTs have been the major force shaping businesses; it has become the backbone of commerce at least in the developed world (Ibid, 2007).

### **2.3.3 The Information Economy**

The ICT revolution would have been far from being significant if the nature of economy have not changed in parallel. Information has become the profound strategic basis upon which organizational competitiveness and growth depend.

The information aspect has been mounting into the development, production, delivery and even consumption of products and services. The Idea of information economy has been applied for a long time now. The pivotal role of information activities concerning an economy is not new. Former Technological contributions in the mediums of communication from printing press to complicated information technologies have transformed the way we store, receive and disseminate information. What made things different now is the speed of information construction, diffusion and organization, they all have reached a scale unimaginable before and are still growing exponentially. Many phrases such as network economy, knowledge economy and postindustrial economy have been used to illustrate this new and rapid development in an economy (Feng, 2007).

The concept of the information economy is linked primarily with the work of (Porat, 1977); the emergence of the information economy has been regarded as a key feature of recent development in all developed countries.

It is within this context that the ICT revolution has originated. Its process has already taken place and its impacts have been clearly sensed, this development is also profoundly affecting developing economies all over the world (Ibid, 2007).

The great development of information economy has been defined in relation to several key processes and it is in these processes that the role of ICT has been highlighted. First is, the information coming to occupy center stage, as the strategic resource for the effective production and delivery of goods and services in all sectors of the economy. Second, this economic transformation is underpinned by the technological convergence of telecommunications and computers, which is transforming the means of information exchange within and between organizations. Third, ICTs are facilitating the growth of tradable information sector in the economy. Finally, the growing 'informatization' of the economy is making possible the global integration of national and regional economies, and ICTs are being widely used to maximize the benefits of firms and regions in the process of localization and globalization. The basic feature of information economy is that, information as a product and as a source becomes the profound basis upon which competitiveness and growth of all firms depends. The information content in all economic activities has grown instantly and *information labor* holds the largest proportion of the overall workforce in all developed economies, these evidences magnify the fact that the nature of economy has been transformed from industrial economy to information economy (Ibid, 2007).

#### **2.4. The principle, Function and Benefits of Information Technology**

Senn(1995) explains the purpose of ITas:**The very critical purpose of information technology is its ability to solve problems, to reveal creativity and make individuals and activities more effective and efficient.**

Another important principle of IT relies on the concept of *high-tech-high-touch* it states: The more one relies on technology for instance, information technology the more important it is to consider the *high touch* aspects of the technology, which is the people aspect of it. The information technology needs to fit with people rather than asking people to adjust them with information technology.

Therefore, these principles magnify the concept that the more we rely on ICT the more important it is for us not to overlook its humanistic entity. The principles also focus on the core abilities of information technology which are efficiency and effectiveness on their capabilities of solving problems and unveiling creative approaches of individuals and business organizations.

So what exactly can be done through ICT? According to, Senn (1995) IT has six functions: *capture, processing, generation storage and transmission*. The way these aspects are applied in an organization determines the impact IT has on the end result.

The very first function of IT:capture is the process of gathering thorough records of information; this is often used to store detailed records with an intention of later use. Processing on the other hand is an activity of transforming, scrutinizing, computing and creating all forms of information. One of the uses of computers in business is data processing; information processing is the general reference for a computer activity that performs the activity of transforming any type of information into various types of information. Information technology is mostly used to produce information through processing, generating information means organizing data and generating information into useful form whether as numbers, text, sound, or visual image. Transmission: another function of information technology is the process of sending information from one location to another.

Information technology is applied for obvious reasons of all the benefits that it generates to individuals and business organizations. Communication systems and computers collectively have four benefits to users: *speed, consistency and precision* (Locker, 1998).

One of the most appreciated and unique character of information technology is speed, computers perform tasks and complicated calculations within fractions of seconds, receive, store and transmit information from one place to another without being bounded by time or space. Usually people find it difficult not to repeat the same mistake they have committed in executing a certain task, unlike people computers excel in repeatedly doing something in the same way without committing a mistake; this aspect clarifies the consistency capability of information technology.

In addition to speed and consistency, information technologies (computers) have a great quality of being precise; differences that people wouldn't be detecting could be sensed and corrected by computers as IT excels in managing the smallest differences and in being precise.

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In addition to speed and consistency, information technologies (computers) have a great quality of being precise; differences that people wouldn't be detecting could be sensed and corrected by computers as IT excels in managing the smallest differences and in being precise.

## 2.4.1 Information Communication Technology and Business

There are two changes that are believed to have brought a profound role in the transformation of today's world; these are the changing nature of the economy and the rapid development and proliferation of ICT. Even though various terminologies have been used to describe it, there is no doubt that ICT is creating a platform where changes in structures and operations of businesses are transformed. The ICT revolution like the industrial revolutions of the 18<sup>th</sup> and the 19<sup>th</sup> centuries transform the current business of our world (Feng, 2007).

Thus, technology and business go hand in hand; changes in technology promote changes in organizations. In today's dynamic and sophisticated business world, information flows in and out of business organizations with a speed of light, in this volatile and intricate environment technological tool plays a critical and undeniable role. Nowadays companies are benefiterers of technological inventions such as voice mail, email and faxes to communicate through in and out of an organization with customers, suppliers and shareholders (Locker, 1998).

According to Senn(1995), the term information technology means the various items that are used to craft, store and disseminate information. This means of information processing has different opportunities that encourage efficiency and effectiveness, some opportunities are reflected upon product design and manufacturing.

**Product design:** In early times, a product design error could not be corrected without a maximum cost of correction. However, through the *virtual reality* engineers can now create virtual models of new products this as a result minimizes the amount of time and cost spent on identifying a mistake and correcting an error in a product design.

**Manufacturing:** product manufacturing has taken a new level as the vitality and access to information technologies has grown. Products are manufactured based on a credible and persistent technological opportunity; information technology.

The essence of information technology is divided into three main components: computers, communications network and know how. The way in which these components are combined, creates a platform where individuals and business organizations perform with effectiveness and productivity and as a result thrives in success (Senn, 1995).

## **Computers**

In the very pin term a computer is an *electronic system* that receives, process, and store disseminate information. The computer has become part of our day-to-day lives. Nowadays, almost all business activities or field involves and is affected by computers. A very simple example could be automated *teller system terminal (ATM)* = A machine that is used to get cash from their bank account.

## **Communication Networks**

The invention of the telephone by Alexander Graham in 1876, created a great deal to generate a profound communication between people. Information technology has the general capability to communicate, receive, send and disseminate data and information through communications network. This capability allows the interconnection of stations at various locations through a medium that enables people to send and receive information.

## **Know-how**

Though computers and communication networks are critical parts of information, equally important part of IT is its ability to utilize its incredible power in solving problems, minimizing costs, increasing revenues and uplifting efficiency which in turn implies a Know-how; efficiently knowing how to perform something well. Know how includes, being familiar with tools of IT, having the necessary skills of operating IT and understanding and capitalizing on the opportunities of IT.

## **2.5. Concept and Types of Information systems**

There are various definitions to the term information system one that is defined by David & Richard (1993) states: information is the knowledge driven from data: data being defined us facts and figures.

James(1991), on the other hand defines an information system as a set of people, procedures and resources that collects, transforms and disseminates information in an organization.

Robert(N.D), on the other hand defines an information system as a set of people, data, and procedures that work together to achieve the common goal of information management. The process of managing information comprises tasks such as information gathering, processing and dissemination in a timely fashion for the purpose of solving a problem and appropriate decision making and managerial control activities. An information system involves three groups of people: system personnel, users and management.

System personnel are qualified persons of a business who are responsible for crafting and executing an information system. A system analyst works with employees to determine their information needs and designs an information system to satisfy their needs. Users of information system are people who are benefiteres of the information system; these can range from the clerk to the executive officer of a company. A manager on the other hand, is a person who is responsible for applying the available resources, human and material resources of a company he/she works towards an organizational goal through five functions: planning, staffing, organizing, directing and controlling human and material resources.

Apart from defining information system Robert(N.D) identifies an information system based on a computer, a computer based information system is a collection of *set of people, data, procedures and software* that cooperate together to achieve the shared goal of an information management.

Computers are applied in an information system, to increase effectiveness and efficiency it helps us to acquire, process and disseminate information in less energy and time than ever before. Because of the incredible processing capability of computers and telecommunications ability managers can now base their decision making on reliable and consistent information that would otherwise have been impossible to gather, process and disseminate in a timely fashion (Ibid, N.D).

Moreover, the confluence of application of computers in business is transcending the way an enterprise conducts tasks and carries out an organizational activity. A business that fails to reach up to this rapid technological advancement will fall in the global race and those that keep up will reach into a competitive edge.

Furthermore, the key influencing factor in transformation is information; the acquirement and velocity of movement of information have created profitable situations to those business

organizations, which have taken advantage of the massive technological advancements and transformed their performance with a greater cause (William&Richard, 1994).

Nowadays, business is challenged by a competitive, dynamic and accelerating environment, time needs connectivity and an easy way of accessing transferring or disseminating information. So information communication technology is fundamental for a high level performance of a business.

In this challenging and dynamic environment of business, information communication technology helps companies overcome three kinds of basic organizational difficulties. It makes geographically dispersed companies more manageable, help top-heavy companies trim down middle management and support companies break down barriers between divisions(Ibid, 1994).

As a result, because of the processing ability of computers in businesses, many organizations in today's business world are applying computers in their information systems (David & Richard, 1993).

### **2.5.1. Functions, Types and Components of Information systems for Businesses**

According to Senn(1995) information systems in business are systems by which data and information flow from a person or department to another. Information systems can encompass everything from inter office mail to telephone links to computer and communications systems that generate periodic reports for various recipients. Business information systems serve all the systems of a business, linking the different components together in a way that allows them to work effectively towards the same goal.

David & Richard(1993) on the other hand, sees a business information system as a collection of tools, most of the time as computers that interact with other information systems to fulfill information for the purpose of meeting a business need.

Numerous business organizations are now viewing information systems as a crucial aspect of business. Information systems help organizations to save time, reduce cost and keep up with a

competition, a strong commitment and investment in information systems helps organizations to compete successfully in cost, quality and delivery (Szymanski, N.D).

In today's business environment, organizations are changing through internal and external influences. An information system provides managers with the necessary information required to keep up the business with this current wave of change. Communicating with an increasing number of other departments, managers and staff dealing with new technologies and maintaining an edge over a growing number of competitors are all factors that increase the complexity of a manager's job. An information system can help control this increasing complexity by ensuring that the appropriate information is communicated in an accurate and timely manner.

Benefits of business information systems are numerous; and different scholars identify different benefits.

With an attempt of stating the benefits of information systems in business, James(1991) classifies three major functions: *support of business operations, support of management decision making, and support of strategic organizational advantage.*

Senn(1995) on the other hand, states two functions of information systems in business: receiving and converting a data into information and producing and communicating it in an effective and a timely fashion. Such information systems produce variety of internal and external uses to a business firm, though this is true, further management is required to persistently operate it in a firm's business activity.

Why are information systems valuable? The terms that make information systems valuable is their entity of identifying problems, providing current facts, and effectively communicating organizational goals and standards. Information systems provide current facts and show the precise image of what is currently happening in an organization; it also is composed of reports about a company's current performance considering employees. Information systems also communicate goals and standards of an organization with employees of an organization. Therefore, information systems help business people to identify problems that exist, and bolds out critical situations that need a critical attention (David & Richard, 1993).

The valuable entity of business information systems is reflected through the five component model, the five component model states, no matter how complex or simple, big or small a business is, it has a one of the components of information system. The five components are *hardware, programs, data, procedures and people* each program needs to be critically designed and applied in order to satisfy the business need of the information system (Ibid, 1993).

The very first component, the hardware; is computer equipment and is the most important component of business information system. The second component of business information system is a program to the computer, computers perform with programs that can execute mathematical operations, have application that perform tasks such as payrolls and customer invoices, and provide reports with summarizations about productions and sells levels of a company to managers and executives. The third component of business information system is data; the data is what is processed in a computer, since a complete and accurate data is essential for the well-being of a business, hardware, programs and data work together to create information and assist business information activities. Though a computer is effective and efficient through the above mentioned components, it is not capable of solving business problems on its own, with an appropriate input appropriate output are produced and with non-appropriate input non- accurate outputs are produced. The last component of business information system: procedures and people, clarifies the problem solving ability of computers, procedures instruct and explain to people on how programs in computer are run, data usage and result analysis, on the benefits of a system in business, and guide users on how to operate computer programs (Ibid, 1993).

## **2.6. E-business**

### **2.6.1. The Evolution of Computing in Business**

The evolution of computing, according to different documentation, is divided in to numerous parts. In the late 1950's mainstream computers were introduced into few companies, the computers were expensive and have low levels of user-friendliness, consistency capacity and flexibility.

As a result, there was a great demand for creating networking technologies, to share information over time and space, especially for multinational firms this was particularly a necessity as their demand for an effective way of team work and control over business activities increased over time (Feng, 2007).

As of the 1960's, this demand was met by the rapid technological advancements, as a result the volume of data sharing over time and space expanded promptly and constantly, especially with the introduction of microelectronics which greatly increased memory, ability and consistency. The telecommunication and computers combination, made a remote application of computers possible in addition, the invention of mini computers from the mid-1970s, created an opportunity of using affordable and user friendly software. By the end of the 1970's, microcomputers were available in markets with advancement towards the modern day personal computers in the 1980s. During this period '*corporate computer networks with distributed processing*' were being implemented in various business organizations. As a result, the volume of data transmission accelerated consistently throughout the 1980s and 1990s. In particular, the rapid advancement of corporate networks created a platform where coordination and control in business organization transcends the limitation of time and space (Ibid, 2007).

However until the commercial application of the internet in the mid-1990s emerged most ICT based inventions were linked to a particular institutional structure this situation was changed with the emergence of e-business in the mid -1990s. The internet created possibilities and paved the way for a transformed organizational activities and internal and external relationships of firms. The origin of the internet could be traced back to 1969 when the US government funded ARPnet, a network of high speed integrations between super computers in research and educational sectors in USA. In the mid-1990s the commercial application of the internet began when large commercial internet service providers claim responsibilities (Ibid, 2007).

Feng (2007), defines e-business as 'the transformation of key business process through the use of technologies this including, the linking of an organization's business activities and employees with one another and improving information sharing and knowledge dissemination through technological opportunities such as the internet.

Glover, et al, (2001) on the other hand defines electronic business as the application of information technology and other electronic devices with communication networks to exchange business information. Like the internet, e-business leverages the power of information technology and electronic communication networks, to transform basic business processes; it eliminates traditional ways of executing business activities and creates a platform where boundary of time and geography doesn't exist.

Groucut & Grisetti(2004) on their part defines e-business as an element that encompasses online exchange of value without restrictions of time and space.

Whichever definition we adopt a common theme that resides among all definitions is, the fact that an e-business is an electronic business that encompasses networks, and telecommunications to conduct basic business activities of a business firm, unlike the traditional and untimely fashion of executing business processes.

Glover, et al(2001), describes some of the potential benefits of e-business in the following way. Communication channels to customers from different parts of the world can be opened through opportunities created by e-business, product profile, technical support and online information without a sales personal can be available all day every day and can be accessed from anywhere with just an internet connection. All and all the flexibility and rapidness of E-business creates new market opportunities.

The benefit of e-business is immense, by taking a business to the realm of the internet one can do so much more than just being limited to a shop. Robert & Toby looks at the benefits of e-business with four classifications: Financial, speed and expanding a reach.

The number one reason of involving in a business is for making money. Likewise, whether it is a small shop or multinational corporation the whole reason why one wants to encompass the internet in to the business process is to make money. We can take the example of Amazon.com starting with just three workstations and turned into the biggest success of the internet. Therefore financial increment in a business is one of the benefits of e-business.

In recent times and sometimes today too, if one wants to sell a product, he/ she would rent a compound, hire employees, spend money on advertising and wait for customers to come order and buy products. But now a days with the incredible realm of the internet the time between the development of a certain product or service and having it ready for a consumer is massively whittled down. In E-business there is immediacy in product manufacturing and transaction, In addition to the speed impact there is more availability of products in the e-business than in a conventional manner of conducting business.

Expanding reach is also another benefit of e-business, as consumers visit an e-business site they don't necessarily need to be physically present, once they are online browsing, ordering, purchasing and receiving the products it is just a click away.

Generally the e-business affects products and services and changes the usual way of conducting business. (Groucut & Griserri, 2004, p.33), looks at how the e-business is changing the nature of products and services, using a model known as the (*Ansoff matrix*, 1985), the model grants four various approaches to innovation.

- *Market consolidation and penetration: Existing products are developed in their existing markets.*
- *Market development (customer led strategy): new products are devised and introduced into existing markets.*
- *Market expansion (product led strategy) : existing products are introduced into new markets*
- *Diversification: new products are devised and introduced into new markets.*

These approaches rely upon specific circumstances of the particular market the organization is operating in. Market penetration is made possible only in a situation when the whole market is growing. Market development on the other hand, works effectively when there is a concretely established brand. Market expansion is effective when there is a profitable product with a good segment of the market. The potential for a diversification of a product is clear, in highly impulsive market that involves distributions of innovation and market growth.

Having this fact in mind, the actual benefits of e- business for developing new products and markets, basically depends mainly on the market's position.

According to Jonathan & Griserri(2004) there are basic features of the internet which are common to most markets, these are: new avenues of mass access and low entry barriers.

The internet offers massive opportunities of communication with customers, there is now a new angle to a way a business process and transaction takes place, nowadays people doesn't need to be present in time and place, money transfer and product delivery is just a click away. Not only new avenues of access are created through e-business but also low entry barriers, if for instance, one is in the book selling business, then he/she have to just have the logistic organization in acquiring, storing and posting books to the public through the internet, a method that is not difficult than the task of selling books in a shop.

The high-tech trading through e-business promotes the expectation of high quality goods and services that satisfy the need of potential consumers, who are prepared to pay the highest price for the quality of the products and the speed of delivery.

### **2.6.2. How the E-business is changing the Dynamics of the Industry**

Groucutt & Griserri, (2004) applies a well-established model crafted by Porter(1980) to overview how the e-business is changing the dynamics of the industry, the overview focuses on the benefits of e-business from suppliers and customers standpoint.

According to the model,the incredible power of the internet significantly affects suppliers depending on the type of market. In a business environment where there are a large range of suppliers and a relatively small range of suppliers and a relatively small range of different levels of quality, then the internet purchasing services will tend to drive down prices as companies can shop around. Whereas, in a business, where there are fewer suppliers of a product or service there is a greater room for suppliers to provide premium products for which the convenience of shopping around is less marked. The critical idea of one party wanting to buy goods from another becomes complex, developments such as electronic commerce.

Not only regarding suppliers, but also from the stand point of customers, the e-business plays a critical role. Through e-business more effective and efficient business dealings take place. In addition customers get an increased choice for product selection.

More importantly, the e-business also offers an improved service and makes data accessible and easier to store and disseminate. To fully realize the power of the internet and its critical impact on business, we need to consider the internet as a market place. Since the explosion of the internet and World Wide Web upon the business world in the mid-1990s it is possible for everyone to transcend obstacles of time and space in a business environment (Glover, et al, 2001).

### **2.6.3. Risks of E- business**

A business risk is a risk inherent in a business firm's operations particularly; the risks associated with incorporating e-business are reliance and the current velocity change in technology (Glover, et al, 2001).

Risks of e-business emanate primarily from an organization's information systems and the way these systems interact with other e-business entities. The risks that take a center stage in e-business environments are related to existing risks common to all business enterprises, especially those that rely heavily on information technology (IT).

Business owners and managers should understand that the whole business organization will be affected when e- business is incorporated in the business (Ibid, 2001).

## **2.7. Theoretical Frameworks**

### **Introduction**

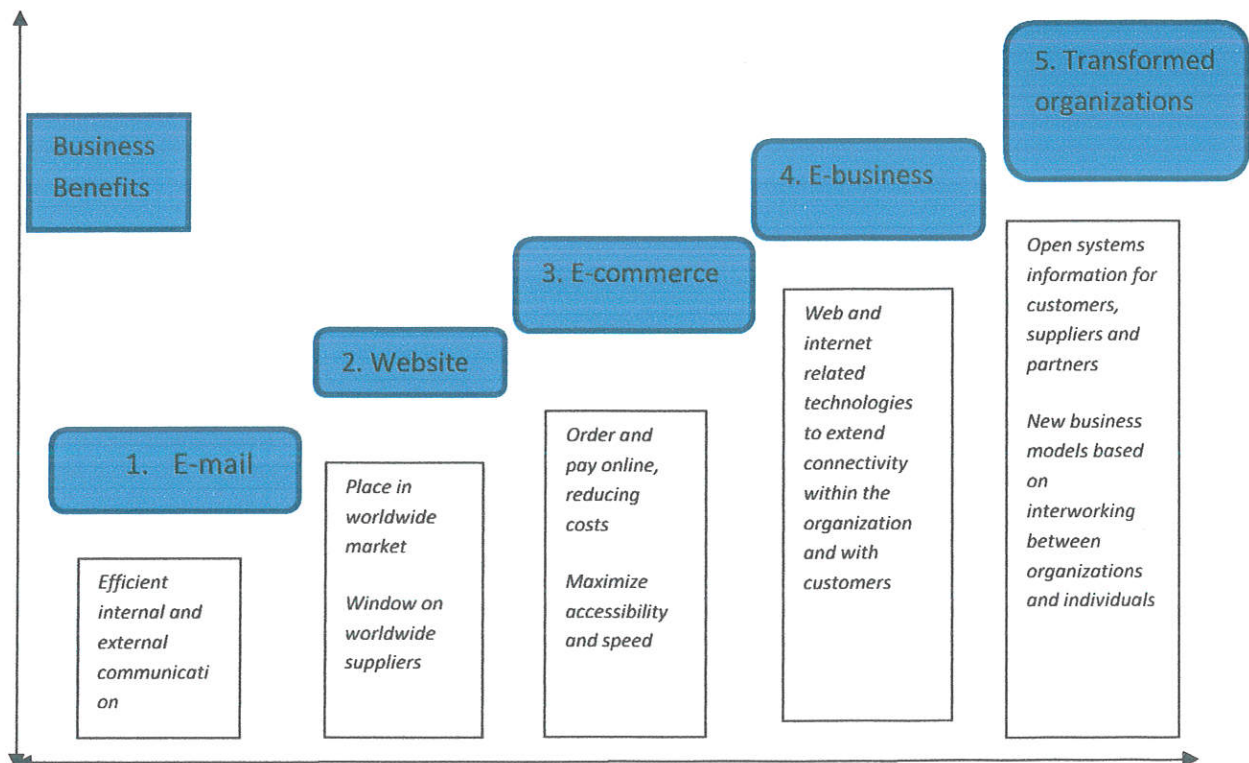
This chapter deals with the three selected theories: the adoption ladder model, the Nolan's model of the use of IT/IS in industry and the transporter model that depicts ICT utilization in business organizations. The chosen theories, in addition to clearly portraying organizational ICT utilization levels also clarify the reason behind organizations' decision of adopting, ICT.

## 2.7.1 The Adoption Ladder Model

The adoption ladder model was discovered by a research undertaken in the United Kingdom for the Department of Trade and Industry (DTI). It was developed to create “adoption ladder” for SMEs to be used as a guideline in their quest to craft an organized e-business models.

Michael Taylor and Andrew Murphy from the University of Birmingham, were the first ones to report on the “the adoption ladder” in a paper published about the journal of small business and enterprise development in 2004,(Tim, 2012).

The DTI adoption ladder model is portrayed through a chart that describes the adoption of e-business technology in companies through five sequential stages. The application of “e-mail” and “static websites” marks the beginning of the adoption. Then different levels of applications such as e-commerce and e-business that are used to find key business information are followed, the model is based on the concept of the higher stage reached the greater reduction in communication and advertising costs(Baskerville and De Marco 2013). The following is the chart of the adoption ladder model that describes the progressive adaptation level of SMEs.



**Figure 1: The DTI adoption ladder model**

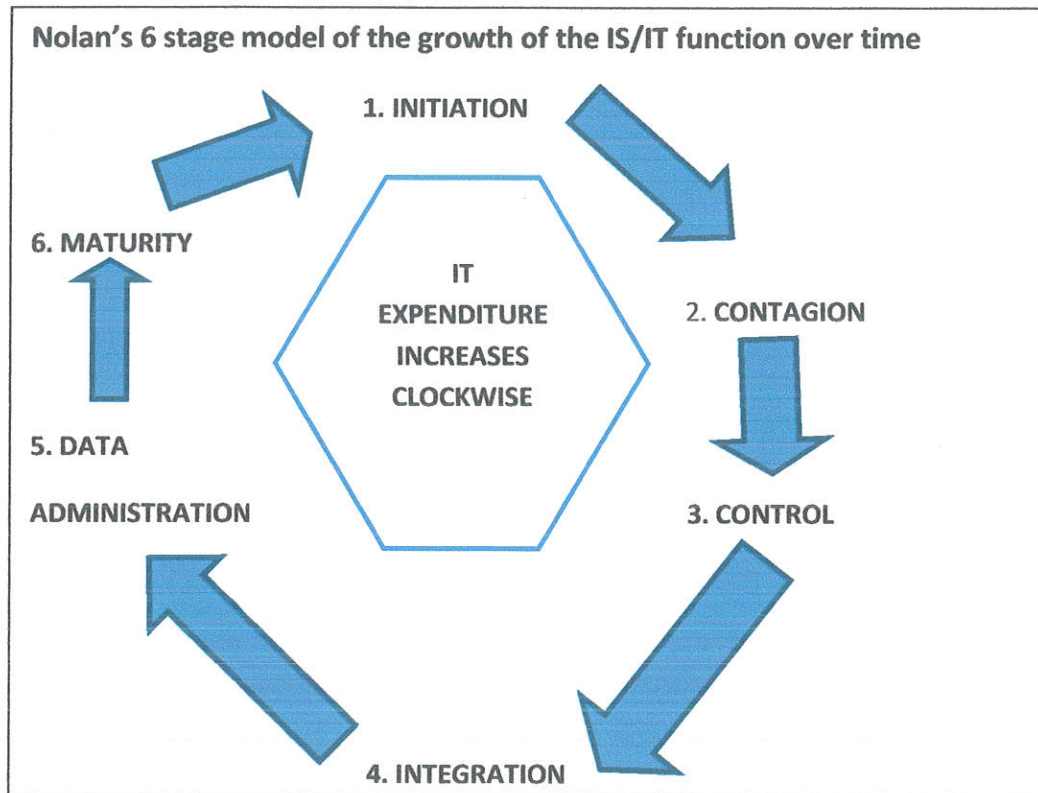
In describing the Adoption model, Martin, et.al, suggests two digital divides that create the way to achieve a fully-fledged functioning e-business. The first digital divide starts by having the required skills to apply an email and a website, the second divide on the other hand marks the starting point of operating a complete e-business, which requires advanced technology and IT skills and exposure. In elaborating this point (Tim2012, p.5) states the following concept:

*It can be seen that the starting point for many SMEs is the active use of e-mail to assist with efficient communications. Then the first step into the market is to build and publish a website. Once the business is engaged in selling or buying online it is implementing a rudimentary e-commerce strategy. This evolves into an e-business model when the firm has further integrated its online strategy with its offline operations. The active participation in supply chain management activities using online systems is a good example of this. Eventually the business will develop a business model that transforms it into an increasingly virtual and networked organization(Tim, 2012, p.5).*

Although the adoption model is helpful in providing a sequential perspective on how SMEs adopt e-business, the model's core concept state that in order to fully develop an e-business all organizations must follow the same path of ICT development (Ibid, 2012).

### **2.7.2. Nolan's Model of the Use of IT/IS in Industry**

The Nolan's model was formulated back in the late 1970's; the model was initially applied to explain the parallel circumstance in expenditure increment as the utilization level of IT/IS increases through an organization. The model nowadays is being applied to provide an "evolutionary view" of a business's application of IT/IS and to demonstrate the different management an approach are required, depending on the status of IT/IS in the company. According to Martin, et.al, the six stages in the evolution of IT/IS in Nolan's model are depicted in the following figure.



**Figure 2: Nolan's Model of the Evolution of the IT/IS function**

**Initiation:** the initiation stage is the initial stage of the model where introduction of systems or technology by end users takes place.

**Contagion:** in this stage of the model the newly introduced computing system spreads into other areas in a totally unrestrained manner, as a result unsettled managerial system of IT/IS and failure of some applications are prevalent.

**Control:** in this level of the model the senior management starts to take care of the increasing expenditure and lack of control that is prevalent in the organization. As a result, an IT /IS responsibility of the management is transferred to a formal IT/IS department.

**Integration:** This is a stage where a spending is made to gain the benefits of technology integration. IT/IS staff maybe recognized into functional areas to support different parts of the business and only at this stage is there a real dialogue between IT/IS specialists and systems end-users.

**Data administration:** under this stage, advancements are based on a drive for an organization's information requirement; more importantly "data management" and "maintenance" are the crucial issues concerning the overall management of the IT/IS function.

**Maturity:** the maturity level of the model integrates the planning and organization process of the IT/IS function into the "business strategy planning" and daily management of the organization. In addition, major information technology applications are 'owned' by end-user management, who also has responsibility for "data maintenance", "process change" and "systems upgrade decisions."

### **2.7.3. The Transporter Model**

The development of the transporter model emanated from the concept, which suggests that the criteria for e-business adoption are dependent upon two key elements which are: business growth and business value. The model states that business organizations might acquire business growth with or without a purposeful planning; attitudes to business growth often regulate whether business owners consider resource investment in the business or not.

On the other hand, the business value of an organization in the use of ICT is crafted by the level of the organization's competitiveness and knowledge of technological developments. Generally speaking, owners attitude towards growth through ICT and competitive positioning in their industry respectively, are the ideas that business value and business growth represent. Therefore, to navigate through the ICT adoption nature driven by the two important ICT adoption concepts in detail, the transporter model identifies four roles for internet technologies in SMEs these are; brochureware, support, opportunity, and network (Levy & Powell, 2002, p. 516).

High business	<b>Business Opportunity</b>	<b>Business Network</b>
Value the internet	<b>IT Services Co.</b>	<b>Automotive Spring Manufacturer</b>
	<b>Patent Attorneys</b>	<b>Corporate Gift Co.</b>
	<b>Polymer Resin Co</b>	<b>Oil Flow Co.</b>
	<b>Savory Pie Manufacturer</b>	<b>Reduced Power Co.</b>
Low business	<b>Garden Ceramics</b>	<b>CAD Service Co.</b>
Value of the	<b>Equipment Hire Centre</b>	
Internet	<b>Curtain Textile Co</b>	
	<b>Brochureware</b>	<b>Business Support</b>

**Figure 4: Segmentation Strategy for SME Internet Adoption**

### **Brochureware**

Organizations' under this category are firms that do not have any plan to have a business growth and doesn't see the value of the internet as an entity of a business growth, organizations' categorized under this section apply the internet to have a low level e-mail and website development. The owners of such organizations have knowledge about the internet, but cannot see its relevance to their business. As a result, companies labeled under this category use email and websites as online brochure and decided that there is no need for them to invest on ICT any further.

### **Business Opportunity**

Organizations that are under this category perceive the Internet as a high business value generating aspect but are not planning to have a business growth.

Owners of such organizations believe that the Internet has some value to their businesses but it is only limited to inside organization efficiency. Though owners are equipped with the knowledge of ICT, they do not perceive it to be as important and have no plans to move into e-commerce.

### **Business support**

Organizations under this category have plans for growth but do not see the tangible business value of ICT for the immediate future. The organizations do not believe on ICT's capability of changing the usual way of doing business and recognize the Internet's value only as a medium for a business support.

### **Business Network**

The business network category marks the last category of the transporter model, business organizations labeled under this stage view the opportunity earned from the Internet as a significant facet to the success and development of the organization, the business organizations give the highest value for the benefits received from the utilization of the Internet and e-commerce. Owners of business organizations labeled under this category believe on the potential of developing online business structure and its fruitful returns to the growth of the business organization. Organizations under this category, in addition to carrying out online financial transaction systems they have organized information exchange system, and "integration of back office systems with the online sales". At times, organizations labeled under this category might not operate the full package of online systems on but they do have actual plans to do so, for these business organizations, the major role of Internet for these firms is supporting the business network of the organization with a significant effect.

## **2.7.4. Justification of the Three Models**

The main reason why the adoption ladder, the transporter model and Nolan's model are chosen as the major theoretical framework of the study is because the models depict organization's utilization level of Internet and ICT, the understanding of the owner and the changes in the growth. The adoption ladder model depends its scaling on organizational changes and the growth in organizations' ICT sophistication levels.

The transporter model on the other hand holds the basic concept of analysis on the owners' attitudes to growth and their understanding of the business value of the internet and ICT. For the Nolan's model on the other hand the level of utilization is viewed based on consecutive stages of basing its core concept of ICT utilization which are initiation, contagion, control, integration and data administration and maturity. Therefore, the models provide the research perspectives for the intended evaluation and analysis of particular thesis.

# CHAPTER THREE: RESEARCH METHODOLOGY

## Introduction

In an attempt to generate empirical data on the utilization of ICT in selected medium sized businesses in Addis Ababa, an exploratory study has been conducted. To this end, this section of the research discusses the methodological approach, data collection methods and sampling technique that the study applied as a methodological instrument.

### 3.1. Research Design

Through a qualitative research approach, two basic research instruments were used to carry out the work on the chosen medium sized business organizations, in-depth interviews and text analysis. According to Newman and Benz (1998) a qualitative research means different things to different people, the scholars offer what they call a "generic definition" that states:

*Qualitative research is multi method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials case study, personal experience, introspective, life story, interview, observational, historical, interactions and visual texts the described routine and problematic moments and meanings in individuals' lives. Qualitative data proposes detailed descriptions of situations, events, people, and interactions, observed behaviors, direct quotations from people about their experiences, attitudes and beliefs (Newman, Benz, 1998, p.13).*

To label it in a broad spectrum, qualitative approach of research offers an in-depth understanding of the subject under study through analyzing it in various perspectives. Furthermore, it creates an opportunity where various views and perspectives of the participants in a study are entertained, the goal of qualitative research is based on the quest to acquire an in depth understanding and viewpoint of the research participant.

Moreover, the researcher of a qualitative approached research imposes his or her cultural, social, and personal identity on any interpretation of the research participants' experience. For these reasons, the qualitative approach is typically less concerned with aggregate generalizations but rather claims only to represent the people studied (VanderStoep and Scott (N.D)).

On the other hand, Creswell, (N.D) states the characteristics of qualitative research in the following way. In qualitative research, we see different major characteristics at each stage of the research process:

*Qualitative research is concerned with exploring a problem and developing a detailed understanding of a central phenomenon. It relates to having the literature review play a minor role but justify the problem. The purpose and research questions must be stated in a general and broad way so as to the participants' experiences. In addition to that data collection should be based on words from a small number of individuals so that each of the participants' views are obtained. While analyzing the data the more we use detailed description and themes using text analysis and interpreting the larger meaning of the findings will be. Moreover the reports must be written using flexible, emerging structures and evaluative criteria. They should also include the researchers' subjective reflexivity and bias (Creswell, N.D, p.16).*

Therefore a qualitative approach was chosen as the approach of the study as it offers a platform for different ideas and perspectives to be entertained. Particularly speaking, in studying the utilization of ICT for medium sized businesses various indications and views about the specific ICT utilization of an organization were raised. Therefore this approach was chosen because the qualitative approach gives a wide range of perspective about the research.

### **3.2. Data Source**

To gather the essential data, in-depth interviews were conducted with nineteen key informants of four medium sized business organizations, which mainly included IT directors, and managers of ICT utilizing departments.

Specifically speaking, in-depth interviews were conducted with four IT directors, eleven department managers, two program directors, senior accountant and executive secretary. These key informants were selected intentionally for the purpose of thorough investigation of the matter.

### **3.3. Sampling Technique and procedures**

The informants of the research were selected through purposive sampling. The logic of purposive sampling rests in selecting an “information-rich” portion of a population with a purpose of grasping an in-depth knowledge. These “information rich” subjects are cases that one could learn a lot from and base an analysis upon. Apart from playing a pertinent role in the process of a research “information rich” subjects are key components for the central purpose that a research has, of the different types of purposive sampling, criterion sampling was applied for this study(Quinn, 1990).

*Criterion sampling evaluates and revises cases that meet some pre-determined criterion of reputation. Criterion sampling adds an important “qualitative component” to a management of information system as all cases in the data system that exhibits certain predetermined criterion characteristics are routinely identified for “in-depth qualitative analysis” (Ibid, 1990, p. 177).*

The selected medium business organizations are selected purposively for falling under the category of medium businesses with 100-900 numbers of employees. Subsequently, the informants of the study of the utilization of ICT in medium sized businesses were carefully chosen for their “information rich” criterion in the purposive sampling. Accordingly, the four IT directors of the organizations are equipped with the knowledge about the ICT infrastructures and their utilization levels of their respective organizations. Furthermore, the managers of the respective departments have abundant knowledge about the ICT utilization of their respective departments. In addition, officers and the secretary of the organizations are users of the ICT facilities provided. Not only the respondents but also the texts provided by the respective organizations have provided an information rich perspective for the researcher about the type and function of ICT facilities that are used by the organizations.

### **3.4. Data Collection Tools**

One of the methodological tools that were applied to gather the qualitative data was in-depth interview.

The in-depth interviewing technique proposes an opportunity to extensively explore through the subject of the study and acquire information (Gray, Williamson, Karp, and Dalphin, 2007).

In addition, interviewing as a method has the ability to cover multi-dimensional perspectives about a certain focus. It has a greater number of usable returns compared to other techniques, there's more opportunity for the interviewer to carefully extract questions. On the spot observations are some of the unique factors of the interview method (Wilkinson and Bhandarkar, 1977).

As to the kinds of interview question the researcher used in gathering data, semi-structured interview questions were crafted. According to, Daphne Johnson, (N.D)the semi-structured interview as a method that has a purpose of collecting information from different people with a less standardized and more flexible approach adopted to the circumstances of the person being interviewed.

### **3.5. Reliability and Validity of the Instrument**

In order to receive a clear view of the utilization of ICT in the selected medium sized business organizations, an in-depth interview method was the primary method of data collection where semi-structured questions and text analysis was conducted. Semi-structured interview questions were used in order to get the required information and grasp the possible diverse situations in the area of concern.

The types of questions prepared for the in-depth interviews are open-ended questions that have been crafted to address the research questions of the study. During the study, text analysis was used as a secondary source of data collection to gather sufficient information about ICT applications of the selected organizations.

### **3.6. Method of Data organization and Analysis**

The data that is gathered through the qualitative method was organized in a manner that firstly displays the profile of the organization and proceeds with the finding of the analysis. This aims to grasp a clear understanding of the collected data and to create an analysis format that is characterized by coherence.

Having this aim in mind, the data collected from the conducted in- depth interviews are scrutinized through the reviewed literature and the chosen theoretical frameworks of the study.

Each medium sized business organization is analyzed for its unique features of ICT utilization and again presented with other organizations for similarities and shared facets, so that getting a hold of similar characteristics is possible.

## **CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS AND DISCUSSION OF FINDINGS**

This chapter presents the findings and analysis with the discussion. It is presented in a manner which begins with a brief description of the business organization and continues with their position on the most basic questions of this research which are: the ICT utilization level of the business enterprise, the internal and external means of communications through ICT, the pivotal role of ICT and e-business in key business activities of the selected business organizations and the barriers and opportunities of ICT and e-business.

### **4.1. Data presentation and Analysis**

#### **4.1.1. Utilization Level of ICT and E-business in the Medium- sized Business Organizations**

The very first business organization: business organization one is named Capital hotel and spa, the hotel was opened to the public on May 10, 2013 and has 295 employees.

To study the ICT utilization of the hotel the researcher conducted interviews with the IT director and managers of various departments in business organization one.

In replying to the question that analyzes the utilization level of ICT, the IT director of the hotel stated that, the hotel has an organized information communication technology department comprised of three parts, which are: controlling room, power house and server room. Apart from Microsoft applications, the hotel uses software named Opera and Point of sell to execute core business activities, these application systems through the ICT department are installed in two major departments of the hotel; guest service, and food and beverages departments. According to the IT director, the organization integrating its system with a foreign booking company, implements e-commerce in a sense of online booking and payment.

According to the interview conducted with the guests service department manager, 90% of the department's tasks and activities are performed through information communication technology.

The manager added that all the staffs in the department utilize ICT in their daily activities accordingly to their job responsibilities.

In the same manner, the manager of food and beverages department of business organization one also replied that, the chief aspect of ICT that is applied by the food and beverages department is information technology, the main software being Opera, and Point of sell all the employees of the department use the software as per their positions.

From the above illustrated data we can see that, business organization one has an organized data center with, telephone, network and system servers, in addition to Microsoft applications the organization uses major computer systems named Opera, and Point of sell, to perform major day to day business activities and an outlook (email) to exchange information with the internal departments of the hotel and an organized website to effectively communicate with external audiences. The organization, linking its system with a foreign company's booking engine provider has an imbedded international card system that it uses to assist customers with online reservation and payment system.

Business organization two is named DKT Ethiopia it is a leading communication providing organization for family planning, prevention of HIV and unwanted pregnancy in Ethiopia. It has been active in the country ever since 1990 G.C and has 250 employees.

According to the interview conducted with the information technology director of the organization, the organization has been using software named SUN system for about seven years. The system is bought from a foreign company and was customized by the information technology department of the organization to meet specific requirements. The Business organization also uses an intermediate software named Vision, installed on a Microsoft excel to retrieve data from the SUN system. In addition to the outlook system the organization also uses a system named GIS, that coordinates and places detailed information about the customers of the organization to which the organizations outlets are distributed for, more than 55,000 customers such as pharmacies, kiosks, clinics and hospitals are registered in this system. According to the IT director of business organization two, the major departments who utilize the provided systems are MIS, finance, logistics and M&D departments.

According to the IT director, because of the country's strict banking system, the organization does not apply any aspect of e-commerce since.

According to the MIS manager, the department utilizes mainly the SUN system, which is linked to the three departments of the organization, which are finance, logistics and MIS. In explaining the extent of ICT utilization, the manager says that the MIS department fully utilizes the provided opportunities. The interview conducted with the senior logistics officer of business organization two also implies that, the process of importing products of the organization starting from the purchase order, processing documents to the storage process is taken care of by this department through the SUN system. The officer also added that the department fully utilizes the provided ICT facilities of the organization.

Likewise, according to the interview conducted with the finance manager of business organization two, the department utilizes the SUN system to take care and store all the financial transactions of the organization.

The above data collected from business organization two demonstrates that the organization has an organized ICT department and an internet network server and applications such as SUN system, and Microsoft packages. The organization conducts e-business by integrating the supply chain management with the SUN system but does not apply e-commerce or online payment system because of the tight bank regulation of the country.

Business organization three is named Dashen bank it is a private Bank in Ethiopia that was established in the year 2003. The main branch of the bank in which the study focused on has 500 employees.

According to the interview conducted with the ICT department director of the bank, the major application systems of business organization three are core banking, portal (internal website), website, internet banking, card banking and mobile banking service. According to the manager, major departments of the organization that utilizes these systems are the branch office, credit department, and loan office, the researcher conducted interviews with the users and managers of the departments and the findings are presented in the following manner.

In explaining the degree of ICT utilization in the department, the credit manager of business organization two said that, core banking is a system that have not yet been exploited. He added, there are features of the system that if applied could create a vital change but instead the system is used as an accounting facility and it is not being used as it was designed to be used.

The loan office manager on the other hand, mentioned that, the department utilizes FLEXISEQ system to assist day to day activities. After the department is notified of loan seeking customers the system enters the section of loan that is requested it could be for manufacturing, export and import, amount of the loan, mode of repayment and interest rate, period of return, the granted amount of money are registered in the system and applied for a later use. In explaining the extent of utilization the manager mentioned that, even though all the business requirements of the bank are not technologically supported, the department utilizes all opportunities provided by the bank.

The above data illustrates that business organization three, applies an outlook system (email) to facilitate internal communication and has an organized website to exchange information with its customers; the organization also applies systems such as, core banking, internet banking, card banking and mobile banking, and FLEXISEQ. It was also observed that business organization three applies an aspect of e -business through a term named e-banking.

Business organization four is named BGI Ethiopia; it is an internationally acclaimed brewing company that was first established in 1922. The study focused on the brewery's Addis Ababa branch of with 772 employees.

According to the IT director of business organization four, the main applications of office receipt system, OPTIMENTE and EX DYNAMICS 2012 systems are applied in the organization. In the same manner the network infrastructure of BGI Ethiopia uses wide area network, with its data center located in Addis Ababa, the director added that the organization has a fully equipped up and running network.

The manager of the finance department and the executive secretary of the technique department, mentioned that their departments mainly utilizes OPTIMENTE, and EXDYNAMICS 2012 systems respectively.

The above demonstrated data shows that, business organization four has a well-organized data center and provides an internet network to its various departments in the headquarter and regional offices. The organization applies an outlook system (email) to exchange information inside the organization and has a website outlet to foster a communication with its external audiences. In different work stations of the organization, computers are used with applications such as OPTIMENTE, and EX DYNAMICS 2012 and Microsoft office for different day to day business activities. Though the supply chain management of the organization is linked with the major system of the organization to track ordered products, the organization does not apply any aspect of e-commerce in its business activities.

#### **4.1.2. How do the selected Medium-sized Business Organizations Utilize ICT?**

The guest service manager of business organization one, clarifies the utilization of ICT in the department by explaining specific activities performed through ICT in the sub departments of the main department. According to the manager, the department utilizes ICT to retrieve and provide information, conduct daily activities such as reservation of guests, post bills and provide secretarial services. In addition to the above processes, the department also uses switchboard system to receive internal and external phone calls.

The manager of the food and beverage department on his side, explained that the department through the mentioned systems the department, records day to day sales transactions and generate classified reports such as the variance of budget, which will then be used by management decision and performance review to have a general overlook of the department.

It can be viewed that business organization one utilizes opportunities provided by ICT to assist guests with their reservation and billing process and to store daily sales records of transactions and generate classified reports.

In describing how business organization two utilizes ICT, the IT director describes the main system of the organization: SUN system in finance having four modules, with modules that encodes all the sales invoices of the company and stores into the sun system database, creates leisure account and the purchase order module which is linked with the leisure account also to assist the financial transaction of the organization.

According to the manager of the MIS department, the detailed information of customers found all around the nation is stored in the main system and used by other departments of the organization for various purposes such as analysis and reporting.

The manager of logistics department, in describing the functions of the system says that their utilization of the system for a single process first starts with receiving the purchase order of products from the finance department by the system, then the department preparing goods receiving note, goods transfer note, goods return note and a waybill.

For the finance department on the other hand, the entities of the SUN system are very useful for taking care of the financial aspects of the organization such as salary of employees, travel expenses, and checking transaction.

The above data shows that business organization two utilizes ICT in a way to encode and store sales transactions, to have detailed information about geographical locations of customers, and to have a hierarchical step of sales transaction notes.

For business organization three, major activities such as the activity of opening current and saving accounts, controlling account disposal and withdrawal in different ICT systems; through an account to account transfer, bank to bank, and local and foreign fund transfer. These activities of the organization are performed by FLEXISEQ system

The e-banking manager of the organization on the other hand, mentioned that bank, the e-banking system of the bank mainly does the following major activities such as ATM, mobile and internet banking, and merchant support services of the department depend on ICT to be performed. Data sharing and Microsoft applications, data entry and processing, generating financial reports such as payment transaction and receivable reports are some of the activities of the department that are processed by the core banking system.

The above data illustrates that, business organization three utilizes ICT by performing major activities of account opening, saving, transfer and withdrawal processes of the bank. In addition, the organization also utilizes ICT in an essence of e-banking system to transfer data and account through mobile and internet banking systems.

According to the interview conducted with the manager of the finance department, the department through ex-dynamics system mainly does expense analysis basing, subsidiary leisure reconciliation for the bank and fixed asset and the inventory and for customers. The system also calculates depreciation for three purposes; for custom services, the department of management, and the headquarter of the organization located in Paris. The manager added that, being linked to other departments of the organization the system updates the value and the quantity of the imported products in the financial system, completes the final work of approval for sales order, and prepares sales invoice. The manager added that the finance department apart from being the fundamental point for all the modules to connect, it also has the segregation of duty with a work flow, which is something that is maintained by the system.

According to the interview conducted with the executive secretary, the daily production report, the assumed production number, quantity of bottles of beer produced but not shipped to different sales outlets and the number of bottles produced and actually shipped to the sales centers of the organization from the four sites is organized through the Optimonte system. The organized report is then used for various types of analysis and reporting purposes to the department.

The above data illustrates that business organization four utilizes ICT through expense analysis updates the quantity and value of imported products and generates production and sales reports of products in the organization.

#### **4.1.3. Reasons of ICT Adoption**

In answering the specific question of the reason for adopting ICT, the manager of guest service mentioned that the main reason of performing daily departmental tasks through ICT is to interact with customers and employees in the most modern and effective way possible. The same is true for the food and beverage department as the manager mentioned that, ICT is primarily used to communicate with customers.

As it is observed in the above data for business organization one, the main reason of adopting ICT is to create an effective customer communication and satisfaction.

In answering the reason of ICT adoption in business organization two, the IT director explains the main reason is to have efficient and effective key business activities through ICT.

The director elaborates his view in the following way.

“Information availability and effective communication flow aspects of ICT have the value of transforming work activities of a business to an effective and efficient fashion, this major aspect of ICT is what has made us to adopt its various facilities.” (IT director of business organization two)

As per the above data the major result of incorporating ICT in the major activities of business organization two is to create an effective and efficient day to day work flow.

In response to the question that investigates the reason of ICT adoption in business organization three, the e-banking manager stated that the main reason of adopting ICT in key businesses of the organization is to create effective customer communication and satisfaction. The manager elaborates the organizations view in the following way:

“The bank has a large number of customers and it applies a modern way of communication to fulfill their information acquiring needs.”(The e-banking manager of business organization three)

The above presented data of the organization illustrates that the major reason of adopting ICT is to create an effective customer communication that will in turn ensure an active mutual benefit based relationship.

The IT director of business organization four in responding to the same question states that to have an efficient and effective result of business activities is the main reason of adopting ICT in the major activities of the organization. The director elaborates his point in the following manner.

“Easy access to information has created a platform for the organization to conduct daily business tasks in a manner that provides an effective and efficient result to the organization.”(ICT director of business organization four)

The above data illustrates that the major reason of integrating major asks of business organizations with ICT is to create an efficient and effective result in main business activities of the organization.

#### **4.1.4. Opportunities and Impediments that affect the utilization of ICT in the Medium businesses**

In clarifying the roles of ICT in the department, the guest service manager of business organization one says that, ICT has great role of minimizing paper works, errors and creates an environment where efficiency, effectiveness and timeliness exist and excel in the work atmosphere. On the other hand, while explaining the impediments of utilizing ICT, the manager cited that, the state of all users not being in the same track that is, some performing good and others not, as a challenge calls out for a consistent training opportunity that support users to utilize ICT in an efficient manner.

The food and beverage manager, in explaining the critical roles of ICT in the department the clarifies the role from technology's general purpose of effectively executing tasks, recording accurate data, being able to look back at transaction status of the organization, and its entity of being improved and easy than the traditional or manual method of doing tasks. The manager specially emphasizes on the report generating aspect of the software, specifically for sales mix reports, reports that are generated to know which items are out of stock quickly and which are not. According to the manager, "ICT is a Flawless way of knowing a business's status", reports are the basic assets of forecasting the future business status of any organization. In citing the major impediments of utilizing ICT in the department the manger stated that, lack of trained man power and training gap are the major challenges towards effective utilization of opportunities by ICT.

From the above data, we can infer that the major opportunity of ICT in the business organization is, to create a work environment where effectiveness, efficiency, minimizing errors, and costs of time and energy and the opportunity to plan and forecast business status are prevalent. On the other hand, the major impediment that the organization faces in utilizing ICT is lack of the necessary skilled and trained man power.

In explaining the role of ICT in organization two, the manager of MIS department mentioned that information communication technology is not only confined to being an internal role but it has also an immense part inproviding an opportunity for an easy accessto a detailed and immediate information, which could then be used as a basis for critical and detailed analysis.

The manager talking about the barriers said “as far as a new technology is involved there are always challenges but through an IT support system the problem is most of the time solved.

The logistics officer of business organization two, in elaborating the same question begins by comparing what is being done now through the system with what used to be done through the manual, and mentions that since the main purpose of the department is to take care of orders without having the problem of misplacement and error, ICT creates a situation where this doesn't happen. The logistics officer in explaining the critical benefits of utilizing ICT in the department's activities says the system has a capability of minimizing any type of costs, and generating an organized set of information. In explaining the barriers, the officer mentioned that training gap is one of the challenges, as the concept of training people who are indirectly related to the system is most of the time overlooked by the organization.

According to the above data, business organization two receives opportunities of ICT such as an opportunity of easily accessing detailed, immediate information, minimizing errors and time costs that could then be used as a basis for critical and detailed analysis. That being said the organization also faces challenges such as training gap.

The senior accountant of business organization three in explaining the critical roles of applying ICT said that the report generating and shelf value of the system are the critical roles that the bank received from applying the opportunities provided by ICT. In mentioning the barrier the accountant cited that network availability problem is the major impediment that the organization as a whole faces.

The credit manager of the bank on his part explains the critical benefits of having an information technology by citing the concept of how the bank industry's competitive function relies in the credit department, so to sustain the responsiveness of the department and competitive strategy of the bank, it is critical that the processes of the department are efficient. The amount of efficiency flexibility and better access to organized information that is gained by the utilization of ICT has created an opportunity for the department where their activities are more responsive and they easily adopt and respond to their environment in a timely fashion.

The manager mentioned that, because the software is designed accordingly to the skills of the users' and user requirement test was given before the system was applied no one faces a difficulty when it comes to skill. Though this is true, there is sometimes a misunderstanding between the technical support and users since users have less technological knowledge it is the technical support's responsibility to provide an intensive training and solve this problem. Users also are responsible for properly applying the provided modules or manuals, since most of the software are bought from foreign countries so the technical support team also might not have a full knowledge about the system. Not only knowledge gap but there is also a cultural gap that we are under controls the ways we utilize technology based information systems infrastructural gap also prohibits users from fully utilizing the system, an example is the prevalent network failure problem.

In explaining the roles of ICT utilization in the key areas of the department's activities the manager said cost benefit, error free process, availability of documentation, time saving and accuracy are the main one, he added that activities that are impossible to be executed and managed manually are easily taken care of by the system. In explaining the barriers, the manager said that network and power are the main problem and since the technological aspects are imported from foreign companies, the organization is mostly dependent on consultants who are from the foreign countries.

From the above data we can infer that in business organization three ICT increases efficiency and effectiveness, minimizes time and resource and cost of exchanging information and has the report generating and shelf value of to sustain the competitive advantage of the bank, the system has impediments such as not having user requirement specifications such as grace period and user competency and network availability problem with a knowledge gap.

According to the finance department of business organization four, the critical roles of ICT in the activities of the department are effective time consumption and consolidated report retrieval. In the same vain, the main barriers of ICT utilization is: connectivity problem, the organization is dependent on a network service provided by Ethio-telecom, the connectivity problem holds out as the organization's four regional plants also depends on the centralized system distribution.

In explaining the critical benefits of ICT utilization the executive secretary of the technical management department says that she used to enter the data manually calculate all the emailed production information from regional offices by using excel. Now the availability of the system allowed regional offices to enter their own production data as a result time is effectively consumed and managed, now the probability of an error occurring is minimized in a significant manner.

On the other hand, the barriers of utilizing ICT in the department, according to the executive secretary are barriers such as system failure that occurs only at times.

The controller replied to this question saying the critical roles of ICT in the department, according to the controller, since it is not a trend in our country to maintain spare parts as they are the system allows users to maintain and use machines before they are out of order.

The system also has the benefit of notifying the users of minimum and maximum stock in a department and alerts them to order, the system also minimizes the manual way of ordering and purchasing products.

In explaining the barriers of ICT utilization in the department, the controller said that unavailability of internet network connection is the main problem, she adds that even though the system is accordingly to the skills of the system since it is bought from a French company when one is trying to understand the system in a deep manner he/she might find language a problem.

The above data shows that effective time consumption and consolidated report retrieval time is effectively consumed and managed, system failure that occurs only at times. The connectivity problem

#### **4.1.5. Doesthe Selected organizations apply ICT for organizational and external communication?**

According to the guest service manager of business organization one, communication takes place in two paths: communication from the hotel's guests' side and communication from the side of the hotel.

Whenever a guest is interested to stay in the hotel, he or she sends an online request to the hotel through website, email, and Facebook and the hotel entertains guests, as per their request and respond to their requests, “we say that a communication is effective when we meet guests’ expectation in a timely manner and as per their expectation.” says the manger.

In explaining the activities of the department executed through ICT, the manager pinpoints the following processes that the hotel applies ICT for an effective communication with guests through an integration of systems in the hotel. In the pre arrival, arrival and departure periods, in guests use the hotel’s website to make an online reservation then the hotel books a room as per the request of guests and during the guests arrival stage in the hotel they make a registration through an application in computers and the staff cuts a key so that guests could access their room. In the last stage, which is the departure, stage the hotel issues an invoice of guests all the above stages that the organization executes for creating an effective communication and performance level of the organization.

The nature of the information system of the department, according to the manager is an outlook system that is used as the main medium of information exchange process. An email is the number one channel of communication that the department uses to communicate with guests found all around the world.

The manager of the food and beverages explain the importance of communication by mentioning that without it an organization can’t function, to assist an effective flow of this critical aspect of a business organization, ICT plays a vital role.

For business organization one internal and external communication of the business organization is conducted through an email and places an important spot for an effective organizational communication to support an effective flow of internal and external communication flow of communication the organization applies ICT.

In responding to the question that investigates the organization utilization of ICT to foster the communication the IT director of business organization two views communication as a very critical activity of the organization in which the organization’s success or failure depends. To foster and sustain an effective flow of internal and external communication, the organization applies ICT in their day to day activities.

Conducting communication process through opportunities of ICT such as social media outlets like Facebook and a social site named temarinet.com, business organization two applies an email exchange server or mail server that is used as a tool in the information exchange process of the organization. It is through this system that the hierarchal flow of order and responsibility is exchanged; the organization has a policy that mandates employees to exchange any type of information through the outlook system of the mail exchange system.

In explaining about the information system of the organization the MIS manager of business organization, two explained that an email system through an outlook is the main mode of exchanging information in the organization. Distributions of products in explaining the role of ICT in fostering the communication process of the company the manager mentioned that since communication is very critical to the organization, ICT creates an opportunity where a smooth internal and external communication channel to the organization exists.

From the above data we can infer that business organization two uses social media outlets and a social site to communicate with external audiences of the company and an outlook (email) to assist an organizational communication and has a website to create and maintain external communication.

The credit manager of business organization three explaining the communication flow of the organization states that it is frequently based on the information technology, the department is also a user of in house developed software that is specially used for information exchange named outlook. The senior accountant of the business explains the organization's information is based on a computerized information system in an organization; the accountant explained that, inside information exchange system of the organization through an email, and a short message system and through IP number of users' computer.

The above data illustrates that the information system of the organization is executed through a computer based information system.

Speaking about the information system of business organization four the department, the IT director mentioned that, in addition to an outlook system the department also has a centralized common database system that the regional offices use to receive updated information from the central office in Addis Ababa.

The organization utilizes a computer based information system for an internal and external exchange of information and creation of communication.

## **4.2. Discussion of Findings**

### **4.2.1. Utilization Level of ICT and E-business in the Case Studies**

According to the finding of the research, the medium-sized organizations use various software applications to assist their business activities; this trend as a result exerted an updated technological work environment that reflects an effective and efficient work environment. This finding of the research is supported by the concept of Hodgetts, (1981) about the influence of technological opportunities to create an effective and efficient business performance of organizations.

In addition, based on the definition by Glover, et al,(2001) which defines electronic business as the application of information technology and other electronic devices with communication networks to exchange business information and applies electronic communication networks to transform basic business processes, the medium sized organizations applies e-business.

#### **4.2.1.1. The Utilization level of the medium - sized business organizations versus the chosen models**

This subsection elaborates the relation of the findings of the research with the chosen theoretical frameworks: the adoption ladder model, the transporter model and Nolan's model of the use of IT/IS in industry, the findings from the medium businesses under investigation were labeled under the models according to the organizations level of ICT utilization.

Business organization one, applies an email, has an organized website and applies e-commerce through an integrated process of booking and reservation with a foreign company owned online booking engine application and e-business, which labels the organization under the e- business level of the model.

When the organization is analyzed by the transporter model the organization's owner has a high value to the benefits of applying the internet and e-business in the key activities of the

organization and has an organized ICT department, therefore it falls under the business network category of the model.

Looking at business organization one through Nolan's model of the use of IT/IS in industry, the organization is located in the data administration level of the model, where the spending of the organization have passed the contagion, control, integration stages and is more concerned with advancing the information requirement of the organization through "data management" and "maintenance".

When business organization two is analyzed under the scrutiny of the adoption ladder model; the organization applies an email, has a structured website practice activities of e-business but doesn't apply any aspects of e-commerce which labels it under the e-business level of the model. Looking at business organization two from the perspective of the transporter model, the management system has knowledge of the ICT benefits and values to the organization as well as has an organized ICT department.

The organization has a future plan to grow it and have a plan to advance the application of e-business through e-mobile to assist an electronic data exchange the organization doesn't believe in the capability of the internet. In changing the way the organization operates other than increasing internal efficiency which labels it under the business opportunity category of the transporter model.

When the Nolan's model is in picture, with an organized IS/IT department, the concern is more on fulfilling the information requirement through data management and working on maintenance issues of the organization, which labels it under the data administration stage of the model.

Business organization three applies an email to exchange information inside the organization and has an organized website to communicate with customers of the organization who require different types of information about the business organization. The organization applies e-business with a term called e-banking which according to the adoption ladder model puts it under the e-business level.

When looking at it from the transporter model perspective, the management of business organization three has values to the opportunities and benefits of ICT and e-business and has a

plan to add supervising entities with an intention of creating a user interactive system, as a result, the organization is placed under the business network level of the model.

Looking at the organization from the Nolan's model perspective, the organization have already passed all the stages of the technological introduction, unsettled management and technological integration and are in the data administration stage of the model where the organization is more concerned with the data management with an organized data processing department that administers data resources.

The fourth business organization, also uses an email to communicate with inside and outside customers of the organization and has a website, it applies only a single activity of e-commerce which is ordering products, according to the model since the organization has an integrated supply chain management system and applies web and internet related systems to assist connectivity it applies e-business, which places it under the e-business level of the adoption ladder model. The management team of the organization has an excellent perception of the benefits of ICT for an organized and successful organizational performance, and acknowledges the pressure they face from competitors and shows interest to catch up with the demand, which all in all, puts it on the business opportunity category of the transporter model. According to the Nolan's model, as business organization four data administration is introduced and the meanings and the purpose of its usage is clarified through an organized department, it is placed under the data administration stage of the model.

## **4.2.2. Reasons ICT Adoption**

### **4.2.2.1. To create an effective customer communication and satisfaction**

Participants of business organizations one and three stated that their main reason to adopt ICT in their key business activities is to create a customer satisfaction that produces and maintains a relationship based on a mutual benefit.

To elaborate this view a respondent from business organization three commented that:

“Most customers of institutions in Ethiopia undergo the problem of not easily accessing information that is used as a basis for an informed decision; since our organization applies ICT the probability of such a problem occurring is very little.” (ICT director of Business organization three)

ICT adaptation for the reason of creating an effective communication and satisfaction of customers is one of the findings of the research; this idea illustrates the concept of the effective and efficient communication methods provided by ICT.

Entities of ICT communication mediums in creating an effective communication flow and customer satisfaction could be justified by this result.

#### **4.2.2.2. To have an efficient and effective key business activities**

It was observed that the remaining medium organizations under investigation: business organizations two and four apply ICT in their organizations to assist their day-to-day workflow in an effective and efficient manner.

A respondent from business organization two mentioned that:

“Information availability and effective communication flow aspects of ICT have the value of transforming work activities of a business to an effective and efficient fashion, this major aspect, of ICT is what has made us to adopt its various facilities.” (IT director of business organization two)

A respondent from business organization four has the same view and elaborates it in stating that:

“Easy access to information has created a platform for the organization to conduct daily business tasks in a manner that provides an effective and efficient result to the organization.”(ICT director of business organization four)

The above results of the study are supported by the idea of Li, (2007) which states that one of the opportunities of information technology is to create an effective and efficient work environment. The results have also shown that the adoption of ICT is related with creating a customer

satisfaction that in turn guarantees the main goals of business as stated by CarysForth and Neild (2000), which are to survive as a business and maximize sales.

### **4.2.3. The prevailing Role of utilizing ICT**

#### **4.2.3.1. Creating a work environment where consistency and preciseness are prevalent**

Three out of the four medium businesses under investigation responded that consistency and preciseness in the work environment are the main benefits of utilizing ICT facilities.

A respondent from business organization one elaborated that:

“The hotel wouldn’t be as successful and thriving as it is now if it wasn’t for the effective and efficient manner of performing tasks, and this was made possible by the consistent and precise technological opportunities of ICT.”

The above finding is supported by the concept of Locker, (1998) about the application of information technology for the obvious reasons of consistency and preciseness. Because of the ability of ICT not to repeat the same mistake committed once is one of the main benefits of adopting ICT and actions that are taken through ICT are detailed and manage to find out the smallest differences.

#### **4.2.3.2. Minimizing errors, cost, time and energy**

All of the medium businesses under investigation believed that ICT has provided them with an opportunity to minimize errors, cost, time and energy in their work places.

A respondent from business organization one pointed that ICT has minimized the cost of errors that they used to face while working through the manual method.

Similarly, a participant from business organization two clarified how the facilities of ICT has provided a prospect for their organization in helping them minimize errors that would have occurred if key business activities were executed manually, the organization has also received the benefit of minimizing time and energy costs of correcting errors caused by the manual way of performing activities.

In the same manner, a participant from business organization three stated that energy, time and cost minimization of the time and energy spent on the usual way of performing activities in the organization.

The above finding of the research goes hand in hand one of the most important principle of information technology, according to Senn,(1995) the major principle of information technology is its ability to solve problems , reveal creativity and make individuals and activities of organizations more effective and efficient. The ability of information communication technology to precisely notice and correct errors, the time and energy cost spent on correcting errors is minimized in a significant manner.

#### **4.2.3.3. Planning and forecasting business status**

With respect to planning and forecasting a respondent from business organization one stated that, the report generating aspect of ICT has allowed the organization to look back at former business statuses', receive current conditions and forecast future business situations. Furthermore, a respondent from business organization two comments:

“Reports generated through the applications of ICT allow the organization to create an information system that functions as a bridge between the decision makers and program executers that in turn could be used as a mechanism to analyze the present situation and forecast the future state of the business.”(Manager of the Food &Beverages department of business organization two)

This finding is related to one of the six functions of information technology which is capture as stated by Senn, (1995), capture describes the process of gathering information of a detailed record intended to be used for later activity. The capture function of information technology allows organizations to retrieve a detailed record of information, which is considered as a great asset in crafting current business reports and forecasting future business status.

#### **4.2.3.4. Effective communication flow**

Medium-sized businesses, two and four elaborated the benefit of ICT in fostering an effective communication flow through modern and timely mediums of communication.

Facilities of ICT create an effective and efficient organizational communication activity process, which in turn has a great impact on an effective communication performance of the organization.

A respondent from business organization five states that:

“Thanks to the modern medium of ICT, physical presence of communicators is not needed this in turn create an effective communication flow. It is such a vital situation that such essential activity of an organization: communication is facilitated by ICT’s effective and efficient opportunities.”(The communication specialist of business organization five)

The above finding is related with one of the benefits of e-business mentioned by Glover, et al, (2001), which is the availability of communication channels to transmit information that could be accessed from anywhere without the physical presence of communicators is needed for an effective communication flow.

The result also goes hand in hand with Groucut & Griserri, (2004), concept about one of the features of the internet being a new avenue of communication. The new avenues of mass access states that: the internet offers massive opportunities of communication with customers. There is now a new angle to a way a business process and transaction takes place, nowadays people does not need to be present in time and place, money transfer and product delivery is just a click away.

#### **4.2.3.5. Availability of organized information**

All of the medium businesses under investigation except business organization one pointed that the information system of their respective organizations depend up on a computerized information system, specifically the informants under investigation, business organizations two and three mentioned that an easy access to information whenever and wherever needed is one of the chief benefits of ICT utilization for an effective information system. To elaborate this concept, a participant from business organization two comments:

“The fact that the information system of the organization depends upon a computerized system has benefited the organization to have an access to the daily flow of organized information in the organization.

An information system that is based on ICT does not only assist the organization to base its decisions on an organized information but also is accessible to external sources who seek the information for different purposes such as research” ( MIS department of business organization two)

This finding is related with the benefits of computerized information system pointed out by (Szymanski, N.D), which is applying computers in the information system of an organization creates an opportunity to acquire process and disseminate information in an effective and efficient approach.

#### **4.2.3.6. Competitive advantage**

A single case study, business organization three mentioned that ICT utilization has helped the organization compete in today’s dynamic and challenging business world. According to the respondent:

“If it wasn’t for the remarkable opportunities of ICT the bank wouldn’t be able to compete in today’s modern and competitive business environment. Applications such as core banking are opportunities of ICT that delivered the bank to today’s competitive business world.” (Credit department manager of business organization three)

This finding is supported by the idea of Hodgetts, (1981) about the influence of technological advancements in the performance of business organizations, since business organizations of today’s business world depends upon technological developments.

This idea portrays the concept of the necessity of conducting business performance through ICT for a competitive advantage in an industry.

#### **4.2.4. Impediments that affect the utilization of ICT in the Medium sized businesses**

##### **4.2.4.1. Impairments of facilities of Internet service provider**

Business organizations two and four mentioned that they most of the time face connectivity problem from the single internet service provider of the country: Ethio – telecom.

A respondent from business organization two comments:

“Sometimes the internet service goes off which has a major effect on the business routine of business organization two, as ongoing and upcoming activities are interrupted.”(Senior accountant of business organization two)

The result illustrates that one of the challenges of ICT utilization in the selected medium- sized business organizations is the quality of the internet service provided by the single internet service provider of the nation.

#### **4.2.4.2.Lack of the necessary skill and trained manpower**

Medium businesses such as organizations one, two and three mentioned that lack of the necessary skill and trained man power is one of the barriers that the medium businesses are facing, in utilizing ICT.

A respondent from business organization one states:

“one of the main reasons of not fully utilizing ICT is the residing training gap and lack of the necessary skills in the organization, though the organization has a full ICT equipment, a significant lack of the trend of users’ properly utilizing the provided manuals and modules of provided systems and cultural influence of not processing and receiving information through an electronic method is the major problem that the organization faces regarding ICT adaptation.” (Credit manager of business organization three)

The above evidence shows that a consistent training is needed for employees to go conversant with the technological opportunities of an organization; otherwise the level of utilization of the provided ICT facilities would be very low.” The skill that is required to effectively utilize ICT is not most of the time available in the organization or is not backed up by consistent training to develop it, especially the situation that training people who are indirectly linked with the application system is most of the time overlooked, which contradicts with Senn’s (1995) idea of components of information technology,

it states that though computers and communication networks are critical parts of information equally important part of IT is, the ability to utilize its incredible power in solving problems,

minimizing costs, increasing revenues and uplifting efficiency therefore implies Know-how; efficiently knowing how to perform something well. Know how includes, being familiar with tools of IT, having the necessary skills of operating IT and understanding and capitalizing on the opportunities of IT.

#### **4.2.4.3. Problem related with the ICT applications**

Medium- sized business organizations such as one, three and four mentioned that problems related with ICT systems is the hindrance that they most of the time face. In elaborating the problem, a participant from business organization two comments:

“Sometimes when there is some type of failure with regards to the system, the technical support team might find it to be difficult to repair as the software is bought from a foreign company, which implies a knowledge gap between technical support and users.” (MIS manager of business organization two)

Similarly, a respondent from business organization three comments:

“The main system of the organization doesn’t have specific user requirements and has some entities that are not applicable for the country’s financial system of the country” (The loan manager of business organization three)

Likewise, a participant from business organization four notes that:

“Since, the major operating system of the organization is bought from a French software company, a user faces the problem of language as he/ she is trying to understand the software’s entity in a deep manner.” (The CMMS controller of business organization four)

It could be inferred from the results that the medium business organizations struggle with problems from ICT applications this phenomenon is against one of the principles of information technology which states that it is important to consider the *high touch* aspects of the technology, which is the people aspect of it, the information technology needs to fit with people rather than asking people to adjust them with information technology (Senn, 1995).

A problem with not having a customized system for the organizations has lowered the high – touch principle of the systems in the organization. This problem is an impediment that the medium businesses are facing, not to effectively and efficiently utilize ICT and excel in the process.

#### **4.2.5. ICT in fostering the organizational communication**

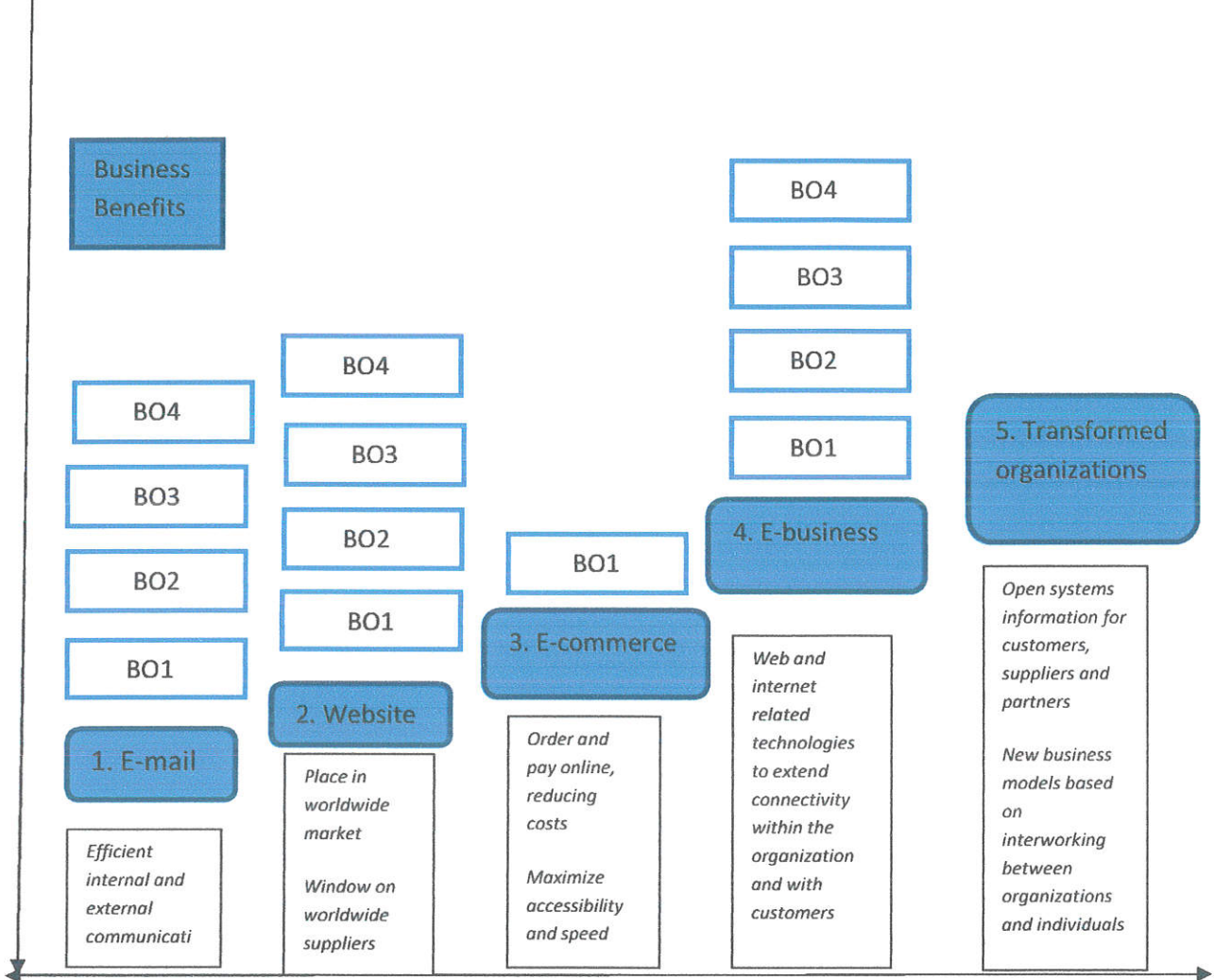
All the organizations believe in the effective flow of internal and external communication, and use a website and social media outlets to create and sustain external communication.

Except the sixth business organization all the other business organizations under study, conduct internal communication through email.

The organizations view on communication goes in line with the idea of Courtland and John (1999) about organizational communication which states that organizational communication whether organizations are small or large; distributing information among parts and outside of the organization is common and glues the organization's objective with basic information to make decisions with. To meet the critical challenges of a business, organizations rely on different informational flows.

#### 4.2.6. The Diagrammatic Representation of the Medium sized Business Organizations According to the Three Models.

Positions held by the Medium businesses on the DTI adoption ladder model



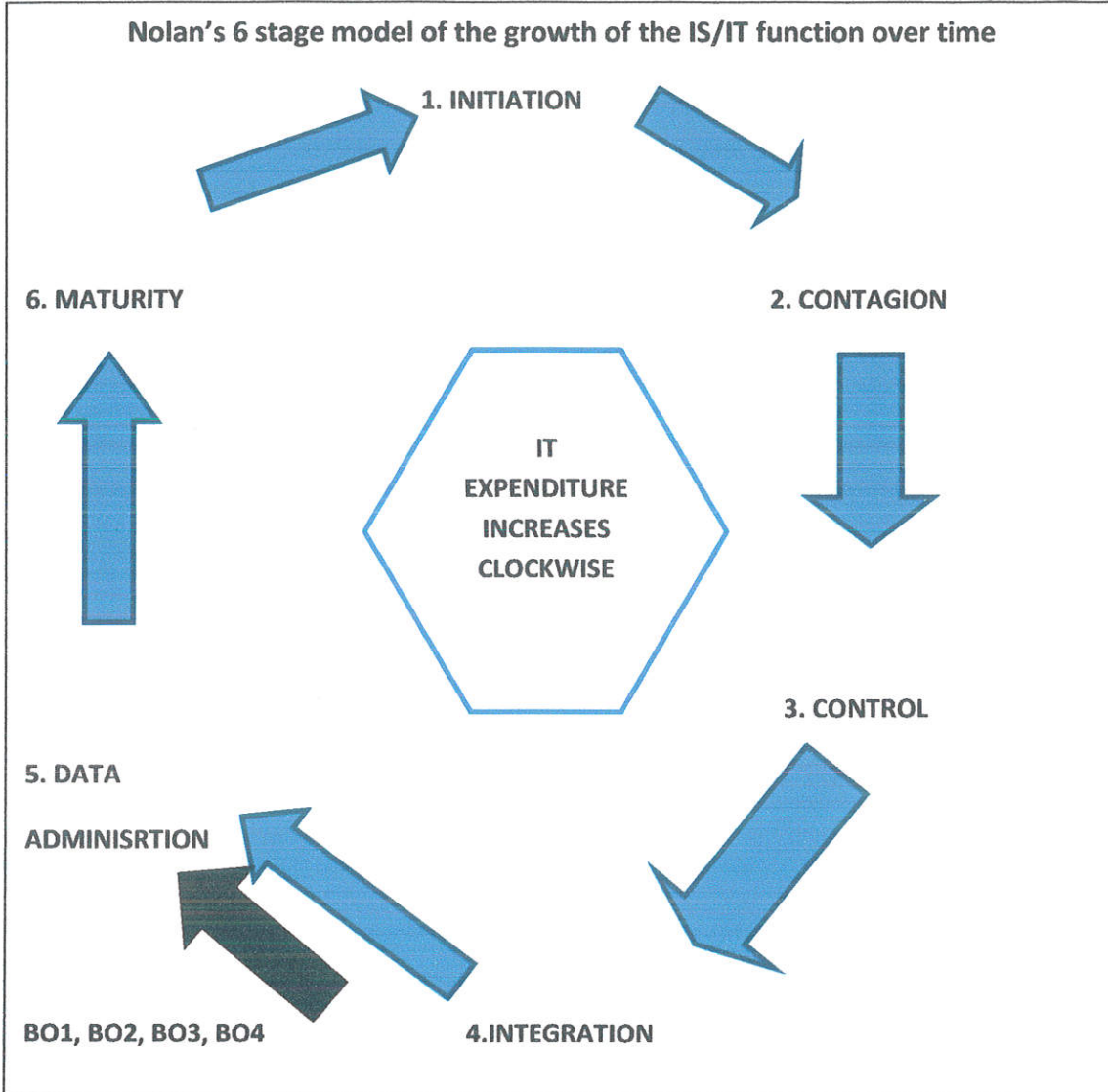
**Positions held by the Medium businesses on the transporter model**

**High  
Business Value of  
The Internet**

<b>Business Opportunity</b>	<b>Business Network</b>
<div data-bbox="353 315 468 383" style="border: 1px solid black; padding: 2px; display: inline-block;">BO2</div> <div data-bbox="353 450 468 517" style="border: 1px solid black; padding: 2px; display: inline-block;">BO4</div>	<div data-bbox="739 315 854 383" style="border: 1px solid black; padding: 2px; display: inline-block;">BO1</div> <div data-bbox="739 450 854 517" style="border: 1px solid black; padding: 2px; display: inline-block;">BO3</div>
<b>Brochureware</b>	<b>Business Support</b>

**Low  
Business Value of  
The Internet**

Positions held by the Medium businesses on the Noel's model



# CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

## 5.1. Conclusion

This research attempted to examine the ICT utilization trend of medium sized business organization. The study has employed qualitative methods of gathering and analyzing data. Accordingly, four business organizations were selected for a study and analysis, based on the results of in-depth interviews and document analysis the researcher crafts the following conclusions.

It was observed in the research, that medium business organizations located in Addis Ababa utilize different work flow assisting software and the internet but except one of the medium organizations the rest three doesn't currently apply e-commerce.

The results of the study have shown that medium organizations located in Addis Ababa applies opportunities provided by ICT, through the internet and other major applications/systems for an information exchange and assisting a work activity purpose.

It was also viewed that since the organizations apply internet and web based applications to excel in both internal and external connectivity and conduct business activities by applying electronic devices it is safe to label the case studies under the e-business section of the adoption ladder model. This being true, one of the core concepts of the adoption ladder model is a concept that states all organizations needs to pass through each level to be referred us an organization that applies e-business and the ladder is the representation of the progressive stages in the organization's ICT adaptation level, but when it comes to the case studies under investigation except one medium organization all the other organizations doesn't apply one essence of e-business which is e-commerce. The fact that the organizations are not labeled under this stage has made the researcher to conclude that according to the adoption ladder model the medium organizations under study do not apply e-business. Therefore it as concluded that there is a gap between the views of scholars about the definition and models of e-business.

The study also revealed that the most utilized ICT features of the organization are different computer software and the internet.

Since the country's strict financial system does not allow the adaptation of online payment system all of the organizations don't have a plan to adopt e-commerce.

The results of the research have also shown that medium business organizations in Addis Ababa struggle with various problems of adopting ICT opportunities, as a result of the lack of skill and training, internet service provider and ICT applications. These problems are impediments that the medium businesses are facing, not to effectively and efficiently utilize ICT and excel in the process.

The results of this research also confirm that the major benefits of ICT adaptation in medium sized business located in Ethiopia are effectiveness, efficiency, the opportunity to minimize errors, cost, time and energy, planning and forecasting business status, effective communication flow and access to information for a competitive advantage.

The results of the study have also shown that there is a strong effectiveness linkage between communication and ICT adaptation in the medium businesses as it was observed that creating effective communication flow in the organizations is one of the reasons of adopting ICT as it was mentioned by the medium business organizations.

It is also the finding that medium business organizations have the opportunities of having ICT infrastructures but users or employees lack the necessary culture, training and skill to utilize the provided technological opportunities. Though this is true there are no clear indications that demonstrate the detailed information of ICT user numbers and assessments , that leads to the deduction that only culture, knowledge and training are in the way of not fully utilizing ICT.

When the issue of e-commerce is in the picture the major barrier pointed out by the respondents is the strict monetary restrictions from the regulating national bank and government authorities on electronic transactions. Such strict guideline of the national bank has created a situation where online ordering, buying and transaction tracking systems are not properly implemented.

## **5.2. Recommendations**

Based on the conclusion of the research the researcher has come up with the following recommendations.

- To take advantage of the opportunities provided by ICT, medium business organizations need to develop an ICT utilization strategy which consistently and clearly follows up on the performance of users with implementations of the provided ICT facilities.
- Development of a comprehensive ICT implementation strategy by the ICT department needs to be constructed and implemented.
- As an impediment towards ICT adoption it was mentioned that the lack of trained manpower to be assigned in ICT utilizing work stations of organizations as one of the problems the organizations are facing. To solve this problem the government should integrate ICT related skills and technological developments courses as a part of the educational curriculum of the nation.
- Based on the research results it was concluded that problems with the internet service provider of the country is one of the impediments that medium business organizations face in adopting ICT. To solve this problem, the internet service provider should increase the quality of internet connectivity in the nation and do more enhancements in increasing the internet service accessibility of the nation.
- Owners and managers of medium organizations need to identify the specific ICT skill requirement of their organizations as well as, conduct consistent skill development trainings acquire ICT skills and knowledge, so that a motivation is created among employees and create awareness on the potential benefits of ICT in an organizational overall performance.
- Further study needs to be conducted on finding out if business organizations that doesn't apply e-commerce are or are not labeled as e-business utilizing organizations or if there is any other model for business organizations that electronically conduct business but doesn't conduct online financial transactions.
- In order to stay ahead of business competition and continue to be the first choice of suppliers and consumers, business organizations need to understand the trends that shape a business specifically, technological trends, they need to anticipate and embrace technological advancements and move in a swiftly pace so that they would be benefiterers of tomorrow's business opportunities.

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## **Appendices**

### **Appendix 1—Interview questions**

**Addis Ababa University**

**School of Journalism and Communication**

**Postgraduate Division**

#### **Research interview questions**

##### **Interview Questions**

1. What is your opinion about the significance of ICT in business activities?
2. To what extent do you utilize ICT?
3. In which one of your business activities do you utilize ICT?
4. Do you utilize ICT to foster communication if so, please describe?
5. What are the major benefits that you have received from applying ICT?
6. What are the barriers that influence the utilization of ICT in the key business activities of your organization?
7. Please describe your ICT practice in terms of your skill ( please state specific data bases and/or programs used in your profession if any )
8. What procedures do you follow while exercising ICT for a specific task? Please describe in detail
9. Do you apply e-commerce?
10. How do you describe the nature of your Information System? Do you apply a computer based Information System?
11. What is your number one reason for applying ICT?

## Appendix—2

### The reasons of ICT adoption

Name of the SME	Reasons of ICT adoption
Business organization one	To create an effective customer communication and satisfaction
Business organization two	To have an efficient and effective key business activities
Business organization three	To create an effective customer communication and satisfaction
Business organization four	To have an efficient and effective key business activities

### Appendix—3

#### Impediments that affect the utilization of ICT in the Medium businesses

Name of the SME	Impediments
Business organization one	Lack of skilled man power
Business organization two	Problem with internet service provider, lack of skilled and trained manpower, problem with ICT applications
Business organization three	lack of skilled and trained manpower, problem with ICT applications
Business organization one	Problem with internet service provider, problem with ICT applications

## Appendix—4

### The level of ICT utilization

Name of the SME	Basic ICT facet	Advanced ICT aspects
Business organization one	Microsoft applications and the internet	Opera, point of sell (pos)
Business organization two	Microsoft applications and the internet	SUN system
Business organization three	Microsoft applications and the internet	core banking, internet banking, card banking and mobile banking, Flexqui, montra gateway, lay bidy and base 24 systems
Business organization four	Microsoft applications and the internet	ERP, optiement, EX dynamics

## Appendix—5

### List of participants

Name of the Medium businesses	List of participants
Business organization one	<ol style="list-style-type: none"><li>1. IT director</li><li>2. Guest service manager</li><li>3. Food and beverage manager</li><li>4. Finance manager</li></ol>
Business organization two	<ol style="list-style-type: none"><li>1. IT director</li><li>2. MIS manager</li><li>3. M&amp;D manager</li><li>4. Finance manager</li><li>5. Senior Logistics officer</li></ol>
Business organization three	<ol style="list-style-type: none"><li>1. IT director</li><li>2. Senior accountant</li><li>3. Credit manager</li><li>4. Loan office manager</li><li>5. E-banking manager</li></ol>
Business organization four	<ol style="list-style-type: none"><li>1. IT director</li><li>2. ERP program director</li><li>3. Executive secretary of Technical management</li><li>4. CMMS controller</li><li>5. Finance manager</li></ol>