Role of ICT for the growth of small enterprises in Ethiopia

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Abstract

Small enterprises strive to survive and grow in the business they are involved. They make efforts to utilize different resources and technologies available to this end as long as it is affordable and productive. Information Communication Technology or ICT and e-commerce are among those technologies that take the front line. This study asks the question 'how much are Ethiopian small enterprises responsive to ICT and the internet and how much of the benefits have they utilized for their growth?' It takes five small enterprises involved in import and export business to perform case study research on the issue and examines their utilization level of the technology. The findings show that small enterprises in the country are on a very low level of utilizing ICT and e-commerce due to several reasons among which are scarcity in infrastructure development and expertise in the area coupled with barriers from government policy and bank regulations.

Keywords: ICT, e-commerce, small enterprises, internet, Ethiopia

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Table of Contents

Chapter One: Introduction and Problem

Background

Enterprises involved in business strive to survive and prosper in the market and it is common to adopt strategies that would help them achieve this goal. Whether small or big, almost all businesses face competitions and need to look for ways to win the requirements of their customers. One of the major developments of our time that could provide the means for businesses to arrive at their desired goals is information and communication technology (ICT) and the Internet.

Rimmel & Diedrich (2000 p. 1) claim that it takes only an idea, a computer and a modem to become a global player and be part of the electronic business (e-business) community, offering products and services worldwide. They add on their claim saying that information and communication technology (ICT) enable the establishment of worldwide networks for information sharing, cooperation and open a multitude of business opportunities especially for smaller enterprises.

On the other hand, Levy & Powell claim that in the early years of the new millennium, there has not been much evidence that small and medium enterprises did more than develop websites and adopt e-mail (2002, p. 508). According to the authors, research showed that many small and medium enterprises (SMEs) developed only 'brochureware' websites but only few had integrated their websites with their back-office systems on which they perform their businesses. How much of this is changed now is yet to be studied.

Migiro (2006, p.41) states that most of Kenya's SMEs have not been utilizing e-commerce or the internet because they do not feel that it has a value to add to their businesses and perceive it as an unnecessary additional cost. Low level of technology literacy is also prevalent in the country and according to the author SMEs believe that it is supposed to be used only by large enterprises.

The Ugandan case according to Ssewanyana and Busler (2007, p. 58) is that medium and large firms especially owned by foreigners have better usage of the internet and ICT where as the small enterprises owned locally have low usage. They add that small enterprises lack the finance and skills required for ICT utilization. Despite the fact that developing countries like Uganda are still lagging behind I the ICT era, the authors believe that they follow the same patterns on ICT adoption ad utilization as the developed, hence not enjoying any significant shortcut.

The phenomenon on ICT in African or, as it is the focus of this study, Ethiopian small enterprises is similar since progress in the area tends to be little mainly due to deficiency in the required financial capacity, infrastructure and manpower to make use of ICT to the benefit of the enterprises (Taddesse & G. Kidan 2005, p. 44).

This coincides with the county's overall level of access and utility of the internet and e-commerce since, according to The Global Information Technology Report 2010-2011, Ethiopia holds the rank on the 123rd place among the 138 world countries in network readiness index. Meanwhile, Kenya and Uganda rank on the 81st and 107th positions respectively among world countries in the index (Global Information Technology Report 2011, p. Xix).

Definitions

ICT:

As defined in the Information & Communication Technology Sector Strategy Paper of the World Bank Group, ICT consists of hardware, software, networks, and media for collection, storage, processing, transmission, and presentation of information (voice, data, text, images) (The World Bank Group 2003, p. 2).

E-commerce:

European Commission defines it as follows: electronic commerce is about doing business electronically. It is based on the processing and transmission of data, including text, sound and video. It encompasses many diverse activities including electronic trading of goods and services, online delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, commercial auctions, online sourcing, public procurement, direct consumer marketing, and after-sales service (European Commission 1997, p. 157)

Small enterprises:

For government administration purposes, the definition given by the Ethiopian Ministry of Trade and Industry for small enterprises (FDRE, 1997b) describes them as follows (the dollar exchange is based on approximated rates as of December 2011):

> Small enterprises are business enterprises with a paid-up capital of more than Birr 20,000 ($1,200) but not more than Birr 500,000 ($30,000) but excluding high-tech consultancy firms and other high-tech establishments.

Objective and Problem Description

The problem studied in this thesis is exploring the role of ICT for the growth of small enterprises to discover its potentials, anticipated opportunities and constraints.

Compared to the developed countries, research regarding the diffusion and adaptation of e-commerce in SMEs in under-developed countries has not been conducted much. Few studies are conducted on countries like Kenya and Uganda among which are the study with the topic of 'Diffusion of ICTs and E-commerce adoption in manufacturing SMEs in Kenya' by S. O. Migiro (2006); and 'Adoption and usage of ICT in developing countries: Case of Ugandan firms' by J. Ssewanyana and M. Busler (2007).

Thulani, Tofara, and Langton (2010, p. 2) argue in their studies on which they discuss the benefits of e-Commerce taking Zimbabwe's case that little or no research has been carried out in most of the developing countries whereas much of the studies on the subject of the diffusion and assimilation of e-commerce in SMEs have been conducted in developed countries. The study is one of the few researches done on some of the developing countries in Africa contributing to the specific subject though there needs to be a great deal to be investigated on the ICT and e-commerce development of the continent.

My study similarly attempts to contribute some records by performing inquiries on the area by exploring the utilization level and benefits of ICT and electronic commerce as well as the prevailing barriers in small business within the context of yet one of sub-Saharan Africa's developing countries, Ethiopia.

The importance of this study is adding to the body of knowledge in the area by showing the prevailing reality, its features and potentials to help small enterprises in Ethiopia register growth trough ICT and e-commerce.

In particular, by use of appropriate research methodologies and relevant theories as well as models, this study I will gather information on small enterprises in Ethiopia to:

- Describe how receptive they are towards usage of ICT and e-commerce;
- Scrutinize how well they are utilizing the technology;
- Establish where they are standing on their level of exploiting ICT and e-commerce;
- Observe what roles do ICT and e-commerce provide for their growth and what are the benefits gained;
- Describe what prospects they are looking for and what they anticipate from ICT and e-commerce; and
- Find out what problems they are facing on their way and what possible solutions are evident to overcome the setbacks.

In order to address the problems discussed, I will conduct interviews with owners or managers of five small enterprises selected for the case study that are involved in import and export business in the country. I will also refer to empirical information on relevant

sectors of the country to relate their impact on the prevailing conditions regarding ICT and e-commerce utilization.

Research Questions

The research explores the level of utilization, prevailing and expected roles, as well as constraints and opportunities of ICT and e-commerce in small enterprises of Ethiopia. The questions raised here seen separately are:

- What is the level of ICT and e-commerce utilization by the small enterprises?

- What are the prevailing and expected roles of ICT and e-commerce for them?

- What are the constraints and opportunities encountered by the small enterprises?

Demarcations

The firms included in this thesis are all involved in import and/or export business in Ethiopia so that it would make the information received to be worthwhile and useful. Other small enterprises that do not have any involvement in the adoption of ICT or the Internet are not considered for the study.

All of the firms selected for the case study are located in the country's capital city of Addis Ababa since such firms are barely existent in the rest of the regions for reasons, among others, that the government offices that they need to work with are located in the capital (Embassy of the United States, Addis Ababa Ethiopia 2012).

Chapter Two: Review of Literature

Significance of Small Enterprises

The important position of small and medium-sized enterprises (SMEs) as engines of growth is demonstrated by countries in different regions of the world. Economies in the Sub-Saharan Africa (SSA) have also recognised the positive role that SMEs can play in their development. Such businesses can create jobs, broaden the tax base, diversify risks, launch innovate products, and adopt new technology. (Brixiova & Asaminew 2010, p. 2)

Corresponding to these facts, e-commerce has the potential to bring about growth and success to small enterprises through improving their efficiency and their level of involvement in the market. A number of literatures have been written on meta-analysis of e-commerce adoption factors on specific countries or sectors. The perspectives of different researchers vary in the way they see these factors and the measurements that could be used as indicators of its effects (Parker & Castleman 2007, p. 21).

Possible benefits that small enterprises could enjoy include identifying new customers for their products or services, improving their value by rendering better service, and improving efficiency of their business processes according to Tan *et al* (2009, p. 56). The authors explain some of the benefits that could be realized by using ICT and e-commerce as follows:

- Having great potential to reduce business correspondence costs
- Increasing the speed and reliability of business communications
- Reducing inefficiencies from lack of co-ordination among firms in value chain
- Building closer relationship among trading partners
- Effective tools for better communication with customers
- Creating new business opportunities
- Enhancing access to market information and knowledge
- Facilitating new ways of managing and organizing businesses

The practical advantages realizable by the enterprises could vary with the conditions peculiar to the industry to which they belong, the business environment that they perform in, and the different aspects of the specific country in which they reside. However, most businesses would share some general facets of the benefits that ICT could bring about.

Taddesse & G. Kidan (2005, p. 15) describe these potential benefits from their perspectives and emphasis. And accordingly, the major benefits of e-commerce include the following among other things:

1. Improved response time: communication and flow of information become quick and cost efficient.
2. 24/7 world: round the clock availability of goods and services. Communicating, making order, buying, selling, and paying occurs 24 hours a day, 7 days a week and 365 days a year.

3. Extended market reach and revenue potential, and a wide range of choices and convenience for the customer. Geographic barriers or boundaries are removed. A merchant can reach a customer who is physically too far away. The customer on the other hand, can make purchases from a merchant who would otherwise not have been accessible to him.

4. Improved competitive positioning: The benefits of e-commerce are not limited to large entities. Small and medium enterprises are also equal participants in the virtual environment.

5. Reduced costs for the business firm and reduced price for the consumer. This coupled with the fact that there is increased competition in e-commerce would force businesses to avail their products and services at lower prices but with enhanced quality.

Yet again the particular reasons for adopting ICT for a given firm may or may not be one among the above list of benefits and positive effect on the overall performance of their daily activities.

Regulating policies and procedures

The financial sector in the country is tightly regulated by the government run National Bank of Ethiopia (NBE) on several types of transactions and services (Federal Democratic Republic of Ethiopia 2011, p. 6012). Commercial banks are strictly controlled by the NBE especially on provision of hard currency due to the scarcity in its supply. In effect, NBE decides who gets the hard currency needed and what amount can be allowed for the transactions. Possession of hard currency in excess of a very low fixed amount, usually for travel purposes, is not allowed for individuals. Other than the allowed amount for import, only certified hotels, duty free shops, immigration offices, civil aviation authority and airline ticket offices are entitled to accept payments in foreign currency (National Bank of Ethiopia (NBE) 2012).

According to Taddesse & G. Kidan (2005, p. 39) Ethiopia crucially needs a comprehensive legal framework aimed at 'facilitating' instead of 'strictly regulating' e-commerce as a prerequisite to facilitate growth. The country has not yet set a legal framework for e-commerce in general and e-payment in particular. The Justice and Legal Research Studies Institute (JLRSI) of Ethiopia claims that the reason for the absence of legal framework for e-commerce and e-payment yet is mainly the inexistence of adequate demand in the country. And hence it believes that the Ethiopian Civil Code of 1960, which is open to incorporate technological and institutional improvements, can serve the existing insignificant amount of e-commerce activities (ibid p. 39).

Banks are allowed to facilitate import transactions only through one of the two payment methods of Letter of Credit (L/C) and Telegraphic Transfer. Letter of Credit (L/C) is a payment method that involves a written commitment to pay, by the bank of the buyer (importer) to that of the seller (exporter in foreign land). Letter of Credit then guarantees the payment through transfer of fund between the two banks. Wheras, Telegraphic Transfer (TT) is a

payment method in which money is transferred via telegraph or cable allowable up to USD 5000 in case where there is no need for payment guaranty (2Merkato Business Portal, 2009)

These methods involve a number of procedural interactions between representing banks of the respective parties and require presentation of several transactional documents to the banks for the payments to be concluded. The documents are reviewed and are subjected to approvals by the banks which could take days to be cleared for the transfer (ibid).

Prevalence of ICT and e-Commerce

There are some conditions which enable the utilisation of ICT and e-commerce according to Datta (2010, p. 23), namely: Economy, Society, Policy, and Access. Among the four, policy and access are the strongest and the former is essential for adopting behaviour in developing countries.

Provision of better access is important along with increasing support and training in incorporating the custom of e-commerce into the society. Economic benefit is additionally essential as a driver of ICT adoption since it is considered to result in economic development with strategic power. Hence, it is important to consider the utilization level and the conditions that facilitate ICT adoption as defining points in analysing the prevalence and potential for growth of small enterprises in any country (ibid p. 23).

As stated above, one of the factors required for establishing e-commerce is access to infrastructure and related services. Taddesse & G. Kidan (2005, p. 18) explain the factors involved specifically for electronic payment, a key component for e-commerce, to be applicable. E-payment service is rendered by companies called payment services providers (PSP) who provide the payment procedures and related services to clients. The authors add that banks and internet service providers (ISP) as well as mobile carrier providers are also major participants in materialising e-payment services.

The authors continue explaining that most e-payment systems use Internet to communicate with their customers while others use mobile phone networks. Online payments involve user, card issuer bank, merchant, and acquirer bank. The communication between the banks requires a closed financial network but it needs only internet connection with the user. There needs to be a reliable and cost effective infrastructure accessible to the majority of the population for effective use of e-payment. However, both mobile networks and Internet are not easily accessible in many African countries and communication infrastructures are poor which holds back provision of e-payment services for the public (ibid p. 25).

Taddesse & G. Kidan (2005, p. 27) state that in most African countries, bank and financial institutions are not adequately automated to enable e-banking and e-payment. In addition, the legal and regulatory frameworks required for the service are usually not ready. Hence, e-payment in African countries either does not exist or is very limited.

Looking at the Ethiopian case, the sole telecommunications services provider in the country is Ethiopian Telecommunication Corporation (ETC). The corporation has been so far having

difficulties to provide reliable and fast telecommunication services and access to the Internet especially at peak hour is very limited. Frequent connectivity failures in telephone lines and low bandwidth for Internet had put banks and users into trouble and the cost of ICT related services is too high (ibid p. 37).

According to Taddesse & G. Kidan (2005, p. 44) that e-commerce along with its essential aspect e-payment is a recent phenomenon for Ethiopia. However, the undergoing endeavour by some banks and business enterprises to introduce e-payment should not be undermined. They summarize the major challenges of e-commerce and e-payment in Ethiopia as follows:

- Poor telecommunication infrastructure;
- Frequent electric power disruption;
- Resistance from customers to new payment systems;
- Lack of skilled manpower;
- Unavailability of payment laws and regulations particularly for e-payment.

Globalization, according to the two authors, has necessitated the cross border e-commerce and there is a growing and urgent need in Ethiopia to establish a comprehensive legal and regulatory structure for the growth and protection of e-commerce and e-payment. They conclude that in order to coup up with this need, the country needs to formulate the required laws, which include consumer and data protection laws, privacy laws, along with Internet laws in order to avoid the obstacles it may impose on the growth of e-payment and e-commerce (ibid p. 46).

Adam (2010, p. 34) states that potentials of the Internet and mobile technology are not exploited in Ethiopia due to the lack of a favourable environment for innovation and only a few companies have been involved in web development, content management systems, and e-commerce solutions. According to the author, companies in the country face challenges like fluctuation of electricity, inadequacy of broadband network, lack of project capital as well as managerial and technical skills in their attempt to involve in ICT development.

The author describes the current situation of the Ethiopian communications market as characterized by low-level service penetration compared to global averages. In particular, it portrays poor quality of service, excessive pricing on broadband and international calls, lack of skill in planning, designing, implementation or maintenance of communication networks and services, coupled with the non-existence of policy and regulatory capacity to handle the service (ibid p. 35).

It is worthy here to explore a significant success story in the area of mobile cash transfer in Africa, particularly in Kenya. Ngugi, Pelowski, and Ogembo (2010, P1) who conducted a case study on mobile money banking in Kenya "M-PESA", quote Djiofack- Zabaze & Keck, (2009) on the estimate that one in ten Africans have access to mobile phones, while some African countries such as Nigeria, South Africa, Kenya, Egypt and Gambia having an even higher ratio.

The company that provided the service, Safaricom (http://www.safaricom.co.ke) puts it as:

> [An] innovative mobile transfer solution that enables customers to transfer money; it is aimed at mobile customers who do not have a bank account, either by choice, because they do not have access to a bank or because they do not have sufficient income to justify a bank account.

The authors continue explaining 'M-PESA' as being derived from an abbreviation for the word mobile –'M', and 'PESA' to mean 'cash money' in Swahili and hence "mobile cash money." They quote Safaricom (2009b) that 'M-PESA' provides mobile money transfer services including transfer of money between users, paying bills and salaries, purchasing of goods and telephone airtime credits, which bypasses the traditional banking system. Kenya is the first country in the world to use this service followed by Tanzania.

Quoting Rasmussen (2009) they explain that while M-PESA had 2.7 million users in Kenya in 14 month following its launch, the Tanzanian M-PESA only had 280,000 users by the same time. According to the authors, the growth of money transfer service using mobile phone is transforming how consumers in the developing world are getting financial services, since large proportion of the population couldn't get formal banking services before (ibid, P2).

Some of the major factors for the success of M-PESA include its removal of the bureaucratic procedures and documentation instituted by individual banks or central bank regulations. The banks require a certain minimum amount to remain in the account at all times, and charged high monthly fees for going below the minimum amount. On the other hand, M-PESA requires only national identity cards and phone numbers and no other obligations on the customers.

In addition, most of the banking services were found in the big town centers or economically viable areas whereas M-PESA can operate even in the most remote villages. The demand for simple and reliable method of money transfer to remote areas kept growing thus M-PESA was able to meet this need and to grow quickly as it did in Kenya. Generally, M-PESA solved the problems in existing money transfer methods since it reduced the cost of sending money, eliminated middlemen and utilized technology to make sending money faster, convenient, reliable and safe (ibid, P6).

The authors add to their points, referring Mwangi & Njuguna, (2009), that the government had also a very critical role in creating the favorable regulations for the providers of mobile banking to enable the success of M-PESA (ibid, P7).

Chapter Three: Theoretical Framework

The level of utilizing ICT and e-commerce varies with great deal among different types of organizations mainly due to the non homogeneous character of businesses based on the size, age, sector, motivation, mode of organization, location, knowledge base and the like (Taylor and Murphy 2004, p. 281). Enterprises stand in different levels of ICT utilisation based on their volume in financial or human capital on top of the preceding factors.

Big corporations seem to engage their businesses with high tech ICT equipments and sophisticated systems run by their highly qualified employees. While small enterprises usually adopt only a small portion of technology's vast potentials, some also do business solely on the internet. Among other reasons that determine the extent of ICT usage is the impact of complex interactions that exists in many small firms such as with family, friends, other businesses and e-business solution providers (Parker & Castleman 2007, p. 22).

Here, I will discuss a couple of theories that depict the levels of ICT take-up by enterprises as models with different perceptions towards how and why firms adopt the internet, ICT and e-commerce. The first model "adoption ladder" depicts the evolution of business organisations in utilizing ICT and the internet as a means for attaining their goal to business development and profit maximization by presenting the level of take-up as a ladder though which the organisations could grow.

The second one is "transporter" model which perceives internet adoption of small firms based on the value of their owners towards usage of the internet and their plans for business growth. It portrays this in a 2 by 2 matrix where the combination of higher and lower levels of owner business values on one side and the planning or not of business growth on the other hand to give four categories of take-up levels.

The Adoption Ladder Model

This approach is one of the e-business adoption level models and is favoured by the UK government's Department of Trade and Industry (DTI). The levels of ICT adoption in this model, when viewed from a purely technological perspective, suggest that involvement of enterprises with the technology of e-business is sequential and progressive (Taylor and Murphy 2004, p. 283). According to the model, it usually starts from using the internet for only communication purposes through e-mail and then to developing website to be used as an introductory 'window' to the global market; then as the utilization level grows to the e-commerce ladder come the actual transactions of taking orders, buying, selling and payment through the Internet.

As the sophistication of the enterprise grows to e-business level, supply chain management comes to picture in easing the flow of materials; this would also decrease processing cost for the businesses by minimising wastage in resources. The ultimate level of utilization, according to the model, comes with systems built on total integrated engagement in the

technology allowing virtually everything that a business organization wants to do with everyone else. It would have open systems for its customers, suppliers and more; and allows inter-working with other organisations and individuals for any business opportunities.

The model implies that advantages of utilization are obtained from the organisational change and the increase in ICT sophistication that the Internet facilitates. It also implies that change is progressive and greater sophistication of businesses arises from the supposed four unique qualities of the Internet namely; its ubiquity in allowing access from anywhere; its interactivity in facilitating collaboration; its speed in helping businesses to grow fast; and its intelligence in providing capability to retrieve, store and process information (ibid p. 283).

The adoption ladder model, as shown in figure a, demonstrates the components of organisational sophistication as typical business endeavours accrue to develop in successive steps to the next level on the ladder. Consequently, as the organisational sophistication increases (the independent variable x-axis) the level of utilization and business benefit (the dependent variable y-axis) increases with it.
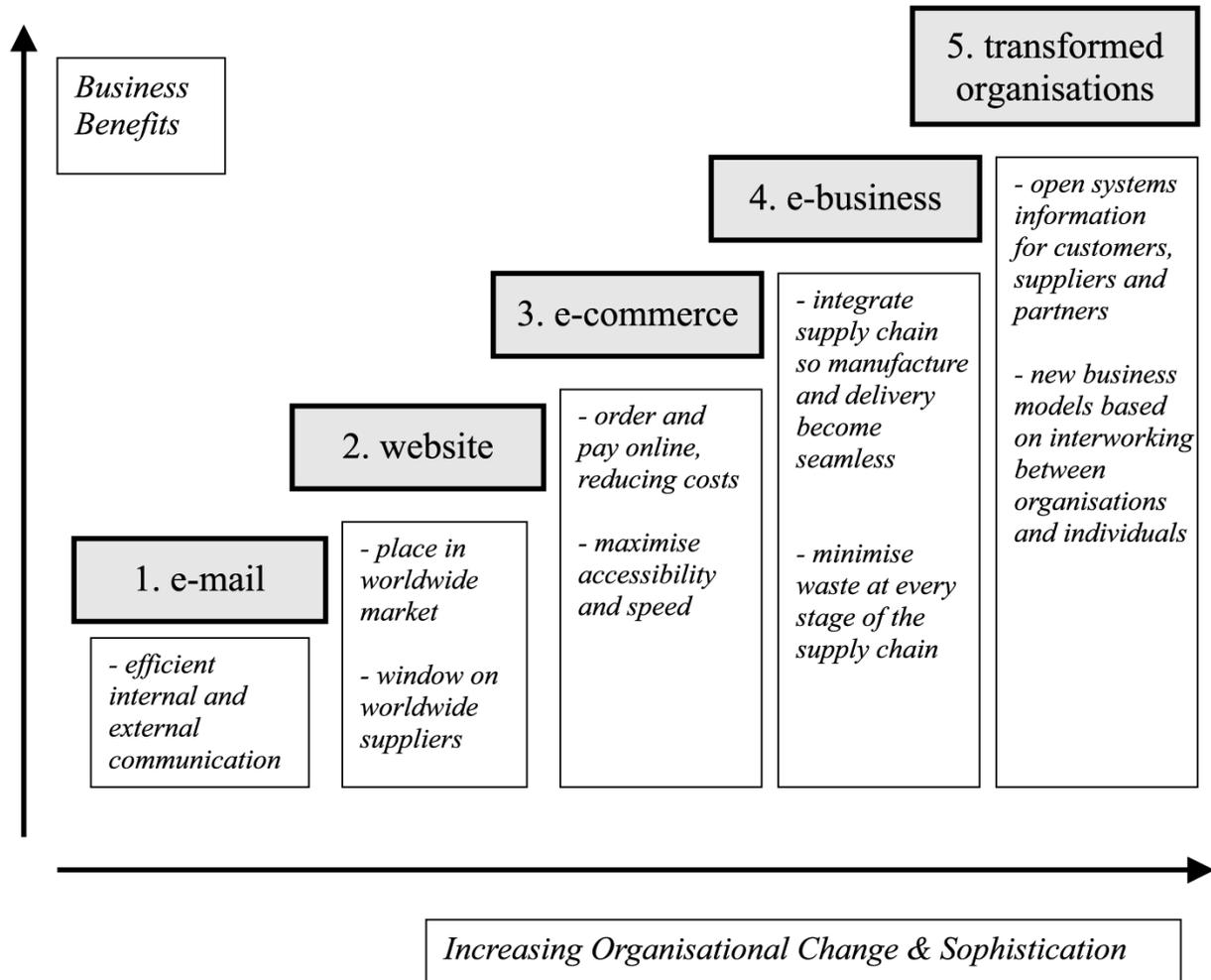
Source: Martin and Matlay (2001) adapted from Cisco-led Information Age Partnership study on e-commerce in small business

Fig a: The DTI adoption ladder (Taylor and Murphy 2004, p. 283)

Taylor and Murphy (2004, p. 283) present what The Local Futures Group suggests (2001, cited in Dixon et al., 2002) that in order to attain the goal of full sophistication, firms must cross two digital divides. The first one is the possession of basic skills in ICT to operate e-mail and browse simple brochure websites for information. The second digital divide is the doorstep to e-business stage which requires advanced skills in ICT including research and development, as well as a range of specialist business skills and knowledge in areas like management, strategy and marketing.

As a critique to the model, a major point mentioned is that the adoption ladder approach mainly underlines the evolution of technology take-up and the social processes from which it results, according to the authors (citing Scarborough and Corbett, 1992). And hence, it appears to be a deterministic view of change in implying that all small enterprises have to follow one prescribed course and if they do not finish the course of climbing to the top of the ladder, they have somehow failed in their growth endeavours (ibid pp. 283-284).

Transporter Model

According to this model, the pushes from business requirements and perceived benefits usually lead to Internet development. It argues that though it is widely and intuitively pleaded, there isn't much substantiation that SMEs follow a 'stages of growth' (or 'ladder') model in their adoption of ICT. Instead, it is argued that a 'transporter' model which moves from one level of use to another without the inherent concept of growth could be more useful for understanding the level of adoption of ICT and the Internet (Levy & Powell 2002, p. 510).

This comparative development model presented by Levy & Powell (2002, p. 515) suggests that there are two key drivers in determining the use of the Internet by SMEs. The first one is business *growth* and the second is business *value* obtainable from the Internet. According to the authors, business growth occurs in some firms through planning and in some it happens without planning. This attitude to plan and anticipate for growth determines owners' decisions of investment on ICT.

On the other hand, business value in the use of ICT is established by the firm's competitiveness and awareness of the developments in the pertinent industry. The authors discuss their findings saying that firms are usually cautious in adopting the Internet and some owners do see its values for their growth but need to know the actual obtainable benefits than merely perceived ones before they put their investment on it. The combination in the different levels of these two drivers results in the four groups of segments in Internet adoption patterns as presented in figure b, namely: brochureware, business opportunity, business network and business support (ibid, p. 515).

	High	Business Opportunity Some perceived benefits Owner has knowledge of IT Some competitive pressure	Business Network High perceived benefits Good Knowledge of IT opportunities High competitive pressure
Business Value of the Internet	Low	No perceived benefit Little or no knowledge of IT value to the business No competitive pressure Brochureware	Some perceived benefits Owner has knowledge of IT No Competitive pressure Business Support
		Not Planned	Planned
		Business Growth	

Fig b: Segmented Internet Adoption Patterns (Levy & Powell 2002, p. 519)

According to the observations of the authors (Levy & Powell 2002, p. 516-518), when we start from the low business value and no plan for growth, we find the first category of *brochureware* level. The firms that fall into this category are the ones that see the Internet only for e-mail use and as information board and do not see any relevance for their business. This group contains the largest proportion of cases that have checked it and decided that the most useful parts are email and websites used as online brochure. Hence, they perceived that there is no need for them to invest on ICT any further.

The second category is *business opportunity*. The firms falling here have a higher value for the Internet and see it as a key medium for information and opportunities applicable to their industry. They believe that the Internet has some value to their businesses but is limited to improving internal efficiency. However, they do not perceive it to be important and have no plans to move into e-commerce. The main difference from the first category is that these groups recognise its value as well as the pressure and opportunity of its use but do not act on its growth.

The next category of firms is put under the *business support* where firms have plans for growth but do not see a tangible business value for the immediate future. They do not believe that it will change the way they do business in the near future and sometimes customers would also prefer personal contacts and hence a lesser need for e-commerce. They recognize Internet's worth only as a medium for business support.

The final category of firms that give the highest value for the benefits attainable from the Internet and e-commerce come under *business network.* This group of firms act upon the development of online systems and see the opportunities from it as a key for their business development endeavours. They pursue in carrying out transactions; transfer of information through electronic data interchange (EDI); and integration of back office systems with the online sales. Sometimes these firms might not yet fully operate using all fledged systems on

the Internet but they do have the attitude and actual plans to do so. The role of Internet for these firms is supporting the business network and therefore has a significant importance.

Justification of the two Models

The well-known models in Information Systems research include Technology Acceptance Model (TAM) and other similar models that deal with users' adoption behaviors of information systems. The main reason why these models are not used here is that TAM and similar models deal with the adoption behaviors towards new innovations by users and their attitudes towards accepting inventions (Venkatesh et. al. 2003).

On the other hand, the adoption ladder and the transporter models both depict the utilisation levels of Internet and ICT in terms of where the organisation stands with regard to the usage of these technologies rather than the mere adoption behaviours. Nevertheless, they have different bases for their assessment and the latter does not agree with the former's theory that SMEs would follow consecutive stages to each next level.

The adoption ladder model depends its scaling on organisational changes and the growth in their ICT sophistication level (Taylor and Murphy 2004, p. 283) while the transporter model holds the basis on the owners' attitudes to growth and their understanding of the business value of the Internet and ICT to determine its level of utilization (Levy & Powell 2002, p. 519). Hence, these models provide the research parameters for the intended evaluation and study by this particular thesis.

Chapter Four: Research Methodology

The method to be used for this explorative study is mainly a case study performed on five small enterprises in Ethiopia that are investigated in order to get a reflective understanding on the core influences of ICT usage on their growth endeavors. According to Dooley (2002, p. 335-336), the case study research method is superior in attempts to understand a complex issue and it underlines a detailed analysis of conditions with their relationships by taking only a limited number of cases and the related context.

The author continues asserting that it is a laborious process whereby the researcher usually focuses on understanding a specific phenomenon in depth through examining and analyzing variables and their relationships without controlling them.

Yin (2003 p. 23) defines the case study research method as:

> An empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used

According to Yin, among the three categories of case study namely exploratory, descriptive and explanatory, the exploratory case study type applied on this study aims to explore a phenomenon in the data which serves as a point of interest to the researcher. General questions are raised to open up the door for further examination of the phenomenon observed (ibid).

Dubé & Paré (2003, p. 598), quoting Benbasat et al. (1987), state that case research has gained respect in the information systems field for several reasons among which are the following five major points:

- First, the authors explain that since the object of this discipline is information systems, in organizations where the interest has shifted to organizational issues from technical ones, the case research method is well-suited to information systems research,

- Second, researchers using case studies allow both the academic and work environments to keep up with the fast changes seen in the IT world as well as in organizations, since they have access to real-life IT experiences.

- Third, the holistic investigation is a key characteristic of case research, which makes it well suited to the need to understand the complex interactions among organizations, technologies, and people. Since a wide range of data collection methods, both qualitative and quantitative is accessed and used in case study, it brings richness and flexibility to the overall research process and makes it convenient for studies in IT.

- Fourth, their characteristic of thorough investigations leads to the creation of new ideas and new lines of reasoning again leading to identify the opportunities and challenges that IT specialists and managers face.

- Fifth, they state that as much as case research is used for exploration and hypothesis generation, it can also be used for explanatory and hypotheses testing studies all of which are good contributors to the development of knowledge in the field of IT.

Dubé & Paré (2003, p. 598) further explain the usage of case study on researches of different philosophical stand points and methodologies:

> Case research, in its versatility, can be used with any philosophical perspective, be it positivist, interpretivist, or critical. It typically combines several qualitative data collection methods such as interviews, documentation, and observations, but can also include quantitative data such as questionnaires and time series.

According to Järvinen (2004), there are four shortcomings with case studies as presented by Lee (1989) namely: making controlled observations, making controlled deductions, allowing for replicablility, and allowing for generalizability. However, he presents the solutions for these weaknesses with MIS case studies: as laboratory and statistical controls constitute means to controlled or logical observations, objective MIS case studies are able to achieve this through natural controls. Again, as mathematical propositions compose means to controlled or logical deduction, objective IS case studies can do so through verbal propositions applying the rules of formal logic that include mathematical rules as a subset.

The solution for replication of confirming or disconfirming a theory can be achieved by replicating observations and objective MIS case studies can do so by testing the same theory through new predictions. Finally, successive testing of theory on cases with different settings results in generalizability whether it is in a laboratory experiment or an MIS case study.

Data obtained from this study could be used to build a theory on the utilization level of ICT and e-commerce and their role to the growth of small enterprises in Ethiopia or other countries with similar development levels. It would also serve as a standing point for future investigation and/or provision of support with respect to utilization of ICT and e-commerce by such enterprises.

Data Collection

During the case study, interviews are used as a primary source for data collection to be conducted with the selective small enterprises whose cases are taken for the study to investigate their e-commerce usage and its role for their growth. Open end questions are presented to the owners or managers of the enterprises in order to get the required information and grasp possible diverse situations in the area of concern.

Standardized open-end questions are forwarded to the interviewees which will be the same to all; this approach facilitates structured interviews that are convenient for easy analysis and comparison. Kvale's (1996, p. 88) seven stages of interview investigation listed below will be used to construct a fruitful interview.

1. Thematizing: Formulate purpose and describe concept of the investigation before the interview starts.

2. Designing: Plan the design of the study taking into account all these seven stages.

3. Interviewing: Conduct the interviews using an interview guide and with a reflective approach to the information sought.

4. Transcribing: Prepare the interview material for analysis, including a transcription from oral speech to written text.

5. Analyzing: Decide appropriate methods of analysis based on the purpose and topic of your investigation, and on the nature of the interview material.

6. Verifying: Ascertain the generalizability, reliability (how consistent the results are) and validity (weather the investigation is about the intended matter) of the findings.

7. Reporting: Communicate findings of the study and methods applied in a readable structure that meets scientific criteria and ethical deliberation of the investigation.

Data Analysis

In line with interviews, secondary data analysis will also be used as a supplementary data collection tool as found appropriate. Analysis of secondary documents already collected by previous researchers or government bodies for other purposes enable us to get a wide range of data that may be directly or indirectly informative to our topic. Nevertheless, a great deal of care will be taken since the data may be less pertinent and lack the essential features for the focus of topic in question.

Järvinen (2004, p. 75) by referring to Eisenhardt (1989) points out that while conducting case studies, data collection and analysis frequently overlap. Therefore, the task of analysis could commence even during the data collection stage. Several adjustments are done to add new themes that could emerge or new instruments that come handier during data collection. Qualitative data analysis aims to get an understanding and search for coherence. Having this aim in mind, data from the interviews conducted in this study are to be scrutinized by performing within-case as well as cross-case analysis.

Each case will be analyzed for unique elements and again compared with other cases for similarities and shared facets to get hold of patterns or common features. The data analysis on this study strives to see beyond first impressions to seize similarities and differences among cases, frequent traits as well as peculiarities with regard to e-commerce in small enterprises of Ethiopia. The interviews were held in Amharic (the official language of Ethiopia) and translated into English by the author of the thesis.

Chapter Five: Presentation of Cases

In this chapter the findings are presented in such a way that the description of each enterprise will be followed by its position in view of the three issues depicted as the major aim of this thesis correspondingly as:

- Responsiveness and utilization level of ICT and e-commerce;
- Prevailing and expected role of ICT and e-commerce;
- Constraints and opportunities of ICT and e-commerce.

The guide used as a list of questions for the interviews is found as an appendix on this thesis.

Company #1

This first company (C#1) was established in 2006 and has 7 employees including the owner-manager. It is involved in importing several consumer items and export of oil seeds and spices to several countries in Asia, the Gulf, and Europe. Its office is located in the capital city Addis Ababa but the supply of seeds comes from farmers all around the country. For this study, an interview was made with the owner-manager of the company who has been working as an employee in another export company for six years prior to establishing his own.

The company uses computers for everyday activities mainly in the accounts section and for secretarial services. The major software besides basic office applications used in the company is the Peachtree complete accounting software which is used offline. The software is used in the company to provide services of account records, supplier and customer register, as well as inventory control.

The company does not have a website yet but plans are there to have one that would also enable at least to receive orders online. It has been listed on a few portal websites of Ethiopian businesses but not much business has resulted from it. Communications with buyers are done using email, locating and establishing market for export items is also done through browsing the internet but no online transactions are performed yet.

According to the manager, none of his fellow exporters use e-commerce system to do online transactions but rather, they use similar systems and some have websites that introduce their companies and export items.

Since the company does not currently utilize much of the benefits of e-commerce such as putting online orders, there are only speculations of what would happen if it could get involved in the online e-commerce. The manager explains, "Transactions could be accelerated and I expect the time required to conclude it could be shortened by using e-commerce. In return, minimizing a huge amount of cost related to storage, spoilage, and fluctuations of price due to the time delay for the transaction to close."

The manager has been communicating with a software developer and seen a few custom made systems of other companies. He says, "I believe that our company should adopt a customized system that would fit the company's specific needs. We are planning to go forward in this track in the near future with the anticipation that it would at least ease the process of order handling, follow up, pricing, and other potential services for the time being." According to him, if the conditions in the regulations of online payment system allow in the future, this will also be pursued by the company in order to catch up with competitors from around the globe.

The manager express his opinion that the major obstacle is the absence of service for online payment option due to the country's policy on foreign currency which does not allow free transfers. He says, "Banks in the country do not render online international money payments for transactions due to the tight monetary policies on flow of foreign currencies and hence they have no experience in the area until now. Beside this, many small companies lack the technical expertise and know-how to utilize the Internet for their advantage. The small companies should recognize the need to hire skilled personnel that could work with the international market through the internet and accelerate their growth."

According to the manager, businesses in Ethiopia are not catching up with the rest of the world since there are limitations of infrastructure and the services required to utilize the opportunities that could be grasped by utilizing the internet and e-commerce.

The manager believes that the opportunities for adopting e-commerce systems are growing very fast in Ethiopia in recent years from the technical as well as banking sector. The remaining step, according to him, is building the infrastructure capacity and introduction of a better policy that allows adoption of online transactions at the same time keeping the intended money flow balance of the country.

Company #2

The second company (C#2) is an importer and retailer of electronics goods. It started business in 2008 by importing computer accessories and grew into import of PCs and other hardware. It has three shops in the capital city Addis Ababa and hires 13 employees, of which, most are sales personnel. It has two graduates of hardware maintenance but there is no employee directly related to IT development and administration. I conducted the interview with the marketing manager of the company.

The company has its own custom made application software that is used to track inventory of items, record sales, produce several types of receipts as required and generate reports and maintain database. The accounts section uses the records generated by the system to process the finances using Peachtree accounting software but not directly connected to the custom made application. However, each system at each shop works separately.

The company has a website of its own where it introduces the services given and uses it as a gateway to the global market. Identifying suppliers and communicating with suppliers are

done through the internet and email. But again, none of the office systems are connected to this web site and therefore it doesn't serve as a system for transactions to be recorded in a shared database that is accessible online.

The marketing manager says, "The company uses online resources to locate suppliers in order to identify items with good quality and price suitable for the country's market. The actual transaction is done through traditional trend according to the country's import procedures where bank to bank deals are made between the seller and the buyer with the channel of customs authorities."

He continues to say, "We sometimes put orders online from our regular suppliers but we can't make the payments due to the absence of the service. But it would make it easy for us to use online transactions if the country allows the direct money transfer on transactions. Similarly, we do not have an online ordering or payment system for our customers either."

The marketing manager says, "I appreciate our company's utilization of the custom made software as well as the accounting software because it has enabled us to have a good performance in inventory and accounting records. This shows that we have the potential to adopt more sophisticated IT systems."

He continues to say, "Having a website has also rendered some advantages in introducing our company to potential customers. However, the extent of business obtained through this is very insignificant since most big customers tend to pick potential venders through mainstream advertisement or recommendations from their procurement personnel."

The marketing manager hopes for an integrated system that would allow several functions to be combined to result an efficient performance; he says, "It would have been great if we could combine the two systems together so that duplication of effort is avoided. We'd also want our three shops to communicate with each other on inventory and financial records."

Since the company is involved in retail of computer related goods, it's not significantly affected by the cultural constraints as would other businesses that deal with none computer related items. The marketing manager explains this as follows; "Cultural and financial issues are not much of concern but rather the main reason for the company for not adopting an integrated system between financial and sales records as well as communicating among its branches is mainly lack of technical expertise in the market with adequate experience in this area."

According to him, almost no other company that he knows uses such integrated system and the need for it does not seem to be recognized well in most of the companies. Still, the benefits of such systems has been discussed among the employees in the company's periodic meetings but not yet acted upon. One of the concerns usually raised here is the amount of capital it would require to get such customized system whose anticipated benefit may not exceed the cost it could incur.

He continues to say, "Looking at the potential benefits of adopting the type of system discussed, we should try to get the technical expertise and adopt integrated system because it could possibly help the company perform in a much efficient manner. Unfortunately, there is no immediate plan to peruse in this direction by our company."

Company #3

The third company (C#3) is involved in exporting traditional food items and processed local spices mostly for retailers in other countries to Ethiopian consumers. It has 9 employees and more than 40 daily laborers who work on processing the spices and food items. The interview was made with the owner.

Currently, a few computers are available in the head office mainly used for secretarial purposes and the only system used in this company is the accounting software, Peachtree. Email is used for communications and a webpage is used only for advertisement purposes at present but the company is already in the process to get a new system that enables customers to place orders online which is especially useful for those living out of the country since they are the major customers.

The proposed system would enable the company to get orders directly from customers and the company wants to be the first among its competitors to introduce such online system since no other similar company has such a system. The owner says, "We expect to get a much more efficient work flow and profitability by using the new system because getting orders would become so easy and that enables us to get into the new era of utilizing information technology for business growth."

According to the owner, this new technology would benefit the company in obtaining more customers and more sales amount and in effect the whole profitability increases. It would also minimize the time and cost of getting orders since it removes the brokers in the middle, ultimately helping the company to grow.

She expresses her anticipation by saying, "I am very enthusiastic about this new system and I believe my company will be able to utilize it to its potential. I would expect some challenges at first and we might need to promote it a lot since it is not widely familiar to our customers yet. But we want to be the pioneers in the sector to adopt such an up-to-date way of doing business."

According to the owner, one of the expected constraints is getting the customers to exploit the online order system because it has been done through other traditional means before. The owner adds on her concern by saying, "It might also be disappointing for customers living abroad who are used to be able to pay online since they cannot do so through our system after putting their orders. We hope this will be improved in the near future when our banks start providing the direct payment service."

The owner points out that the technical capability to run and maintain the system might be another challenge to face when implementing the system. An IT graduate has already been

hired to work on running the system and the software developing firm that took the project has promised to work with the company in giving trainings and provide after sale maintenance services. She continues to say, "...after the system is implemented and starts to work well, we will try to adopt or integrate other systems such as the accounting software to make our work even more efficient."

The owner believes that there are many opportunities for businesses in Ethiopia in adopting information technology into the day-to-day work flow given that not much has been exploited in this area. According to her, many new businesses are emerging into the market and this makes the need for adopting such latest technology even more timely and necessary.

She conveys her view on the prospects by saying, "The financial, technical, and service readiness are growing from businesses and therefore it is inevitable that many such technologies should be adopted in the coming years. However, we need to adopt e-commerce in the market and train our staff as well as hire skilled ICT personnel on parallel to the needs of businesses as well as customers who want to do transactions online."

Company #4

This company (C#4) works on import of consumer items such as food stuff and sanitary products. It has 7 employees most of which are sales personnel. The interview was conducted with the owner who started the business as a sole proprietorship two years ago after being separated from another partner.

The office where the company works in has two computers used by the owner and the secretary to perform mainly simple office tasks and writing ordinary letters for correspondence with local partners or communications on the internet through emails. There is no system used in the company including the accounting records that are done by an independent accountant on which the company does not make direct involvement except providing the required documents.

The owner explains how he and his employees use the internet for their business, "We don't have a website currently but we use the internet to search companies to work with and items to import that might be demanded in the country's market and could be profitable for us. We haven't made any online transactions or put orders directly from a supplier's website before but we communicate with our suppliers through emails"

The owner has been discussing with a friend who is an IT professional on how they could make use of information system for the betterment of his business. He says, "We have discussed what type of system the company needs at the moment and have agreed on getting a system that could be used for accounting records as well as inventory control. And we have already made a deal with a web designer to get our own website which we hope will be completed soon."

He continues saying, "I expect the website would help in introducing us to the local and international market which could have a good impact in our effort for growth in the market. Having an office system or software would also help us become efficient in our record keeping, planning, and running the business. I would also expect it to minimize the time it usually takes for us to make decisions in concluding a deal with our suppliers from abroad. It then becomes easier to predict short term market prices and make decisions on good pricing of our imported items to get better profits."

He hopes that the competitiveness of his company would improve significantly at least to catch up with other companies that are at a better position in utilizing IT for their businesses. Some of his colleagues use the internet to make orders online and have good accounting and other software in the office that enables them to have efficient and effective performance, according to the owner.

The owner says, "The major problem we have been facing in the process is lack of know-how to identify specifically what we need from an information system and since we do not have professionals in the company, this has created the delay in adopting ICT into our business. Hence, after discussing on our requirements, we have spotted what services we need and hopefully the system we plan to get will provide us with what we anticipated. I and a few employees are now getting trainings on computer courses in order to be able to work on it."

He continues, "Opportunities in Ethiopia are very good nowadays since conditions from different directions are rising that lead to utilization of information and communication technologies. The government's telecommunication corporation is also trying to provide better service in broadband internet connection and the number of IT graduates is increasing in the market. I believe there is a favorable environment for us now to catch up with the rest of the world but we need to do a lot in order to grasp the benefits of ICT."

Company #5

Our last company (C#5) is involved in both export of coffee and import of farm products. It has 11 employees among which one is an IT graduate. The office located at the capital city has a number of computers which the employees use for different purposes. I conducted the interview with the owner-manager who is also a business graduate.

Communications are made through emails with customers and potential suppliers for import and potential markets for export are constantly researched on the internet by the marketing personnel. Microsoft Access is used for keeping database and QuickBooks accounting software for the financial records both used offline.

The company has a website on which it maintains updated information on the export and import items for its current and potential customers. The website has the list of its export items and major customers along with its suppliers for the import items. The manager explaining about the website says, "Our website is currently a static one with only simple database and the data is updated regularly."

He tells his experience of doing business online as follows, "I have come across some supplier websites where it is possible to place orders and make payments online. I was able to place the orders but not the payments because there is no such service given by our banks currently. Therefore, I am obliged to make the payments through the letter of credit process which could at times take a very long time.

The manager puts the plans in improving the functions of the website by saying, "We are now at the final stages to implement our new more dynamic online system that enables our partners to put orders and get detailed records about the transactions between the two parties by allowing them to have their own accounts on which they could trace data such as the types, volume, and value of items under transaction; reports on the status or progress of goods in transit and so forth." He continues to say, "We would like to improve the system even better by making it to be ready for incorporating online payment facilities too, hoping that the service will be operational in the future."

He puts the expectations from the new system by saying, "The benefits of this system would be valuable for us and our partners in improving performance by facilitating communications to be prompt and accurate. This would accelerate our transactions and produce more sales turn over amount and more profits. It would also help us to grow into a more global and advanced competitor in the market."

According to the manager, one of the reasons for the company not to employ a more dynamic online system earlier is unavailability of experienced professionals in system development affordable by small businesses in the market, and as a result, it has taken more than two years to conclude the proposed system.

He adds on his comment to say, "The other major limitation is unavailability of online payment facility by the banking sector in the country. Our banks are making good moves to provide the service by building their capacity in ICT and hopefully we'll get the services in the near future."

He gives his remark on the current and potential situations saying, "Businesses in the country can benefit from ICT and the internet if we involve ourselves in the global advancement by adopting useful systems like online transactions and safe transfer of payments. The government should also strive to provide the necessary ground in the infrastructure required as well as policies and regulations for such services to facilitate the growth of businesses in the country since the current monetary policy on transfer of funds is tight."

Chapter Six: Analysis

Among the five small enterprises considered as sample cases for this study, four are involved in import and three in export business, of which two are involved in both import and export. All the enterprises use PCs and in some cases also laptops; and the related Widows operating system with MS Office software, which is a major trend in the country.

Additionally, four of the businesses use accounting software, but none has daily cash registry system although the government is on the process of inflicting a requirement on all businesses to use cash registry and it is inevitable for these enterprises to adopt it in the near future.

The following table presents summaries of utilization and stances on ICT of the companies under study:

	C#1	C#2	C#3	C#4	C#5
Engaged in	import of consumer items & export of oil seeds and spices	import and retail of electronics items	export of traditional food items and local spices	import of consumer goods	export of coffee & import of farm equipments
Has website	No	Yes	Yes	No	Yes
Has Accounting system	Yes	Yes	Yes	No	Yes
Has other system	No	Yes	No	No	No
Has plans to adopt new system	Yes	No	Yes	Yes	Yes
Does business transaction or order through Internet	No	Yes	No	No	Yes
Major advantages of ICT and e-commerce according to the enterprises	accelerating transactions; minimizing cost	better performance through integrated & online systems	easy online order receiving; minimize time and cost; maximize sales	improved competitiveness; minimize time and cost of transaction	place and track orders; pay online; facilitate communication

Major constraints according to the enterprises	lack of infrastructure; absence of online payment service	lack of technical expertise with adequate experience	limitation in technical capacity; absence of customer exposure	absence of technical know-how; inability to identify specific needs	limitation in experienced professionals; poor policies and infrastructure for online transactions
Suggested solution/ Opportunity	build infrastructure; introduce favorable policy for online transactions	getting technical expertise and adopt integrated systems	adopt e-commerce in the country; train and hire personnel on ICT	acquire trainings on information technology and relevant skills	provide required training and infrastructure; adopt policies for online transfer of funds

Table: Summary of replies from respondents of the enterprises

In order to review and relate the respondents' answers for analysis with the aim of the study, let us reiterate the major themes upon which the research question aimed to base. They are: responsiveness and utilization level of ICT and e-commerce by small enterprises; prevailing and expected role of ICT and e-commerce for small enterprise growth; and the constraints and opportunities of ICT and e-commerce that influence their growth.

Responsiveness and Utilization Level of ICT and e-Commerce

This class of research questions the presented on the interviews attempt to find out the ICT take-up levels of small enterprises. Based on the data collected from responses of enterprises selected as cases for this study, we can see that:

- All of the enterprises have emails;
- Three of them have websites;
- None but one (C#5) has a database;
- None but one (C#2) has its own tailored office system and the other four have plans;
- Two of the enterprises have put online orders at least once through the Internet.

When we evaluate the companies using the adoption ladder model against the phases on the ladder, we can see that all five businesses use emails and therefore this first level of utilization is attained by all the firms in this research. Moving on to the website level, 3 out of 5 firms (60%) have websites, and 2 out of 5 (40%) have made online orders in the past but not regularly, which shows a slight involvement in the e-commerce level.

This implies that there is a fairly good presence on the internet through websites among the small enterprises but a low involvement in e-commerce as depicted. However, none of the enterprises use supply chain management or related systems.

Prevailing and Expected Role of ICT and e-Commerce

This class of questions presented to the interviewees focus on their views on the role of ICT for the growth of their respective companies. The transporter model has the attribute to depict the understanding or expectations of owners or managers on the role of IT with respect to their companies. Therefore, I shall use the model here to match its major points and arguments with the replies from the conducted interviews.

The three main criteria used for the evaluation in the model are; perceived benefits, owner's knowledge of IT, and competitive pressure. All of the interviewees who are mostly owners, except one, have a good recognition of the benefits that could be exploited from ICT in their businesses. This puts them on the higher level of the transporter model's business value dimension.

Regarding the owner/managers' knowledge of IT, though their experiences on usage of ICT vary, most of them have a fairly good understanding and knowhow on how to make use of the technology. Finally, the competitive pressure on these enterprises is somehow none existent except with the last company whose manager feels that there is a need to communicate on the same level of system with partners from other countries. This trend puts the companies on the low level of business value on the transporter model.

Constraints and Opportunities of ICT and e-Commerce

The most common of the constraints picked out by the majority of the interviewees is lack of qualified technical staff to carry out the required functions. Four out of the five respondents express their opinions that there is shortage of experts in the area of ICT with adequate experience who are in a position to design and provide the required systems. The respondents say that though the number of graduates is increasing in the ICT sector, finding experienced professionals is difficult since most are recent graduates.

Here, we could see that an emphasis is exerted by the respondents on the technical development and personnel facet where as the two models used in this study focus on the business support aspect of the enterprises to measure their level of utilization and perception of ICT and e-commerce.

The other problems put forward by the respondents include limitations in provision of infrastructure as well as policies for online payment to take effect in the country. This includes provision of appropriate regulations for the service and policies for online transactions from the government side and the required readiness in the technical as well as financial capabilities from the banks side.

Too little exposure to ICT from the customers' side and therefore less interest depicted parallel to problems in identifying clear and explicit requirements in the enterprises are also raised as other restrictions for the minimal utilization level of ICT according to their experiences.

Relating Findings with the Models

Here we correlate the prevailing trends in the utilization level of ICT among the Ethiopian small enterprises and the understanding of their owners and/or managers. The characteristics depicted by the enterprises are comparable with the levels in the adoption ladder and we can also see that these enterprises would fall into one of the categories of the transporter model.

To start off with the first company C#1, we could see that it falls on the email level under scrutiny of the adoption ladder model and it doesn't actually fall on the website stage since it has only been included in lists on other portal websites and does not have its own website. When inspecting this company with the transporter model, the owner has some perceived benefits, has knowledge of IT, and does not face competitive pressure; therefore it falls under the business support category.

The second company C#2 has a standalone offline system; it uses email and has its own website. This lets it fall under the second level on the adoption ladder, which is the website user level. From the transporter view, the management has some perceived benefit and has some knowledge on ICT but no competitive pressure putting it on the business support category.

C#3 uses email and has a website but no transaction is done online yet though there is an endeavor to do so. This puts it on the website level on the adoption ladder model. The owner has a high hope and anticipation on the benefits of ICT and has some self attained knowledge on IT and believes there is an implied pressure to become the first to introduce online tractions and e-commerce. Therefore, this puts it under the category of business opportunity on the transporter model.

The fourth company C#4 also only uses email and does not have a website which puts it on the first level, i.e. email user on the adoption ladder. The owner has a good perception of the benefits that ICT could bring to his company and has some knowledge on ICT. His company faces pressure 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.

The last company C#5 uses email and has its own website with a better usage in that it has a database of its export items and major customers and suppliers. This puts it on the website user level on the adoption ladder. The manager has a high anticipation on the benefits of ICT and working hard to incorporate it into the company. He also has a good knowledge of the technology and believes that the competition is global and therefore needs more effort and investment. This puts it on the business network category of the transporter model.

Following are the results described above with regard to the two models depicted graphically for easy illustration:
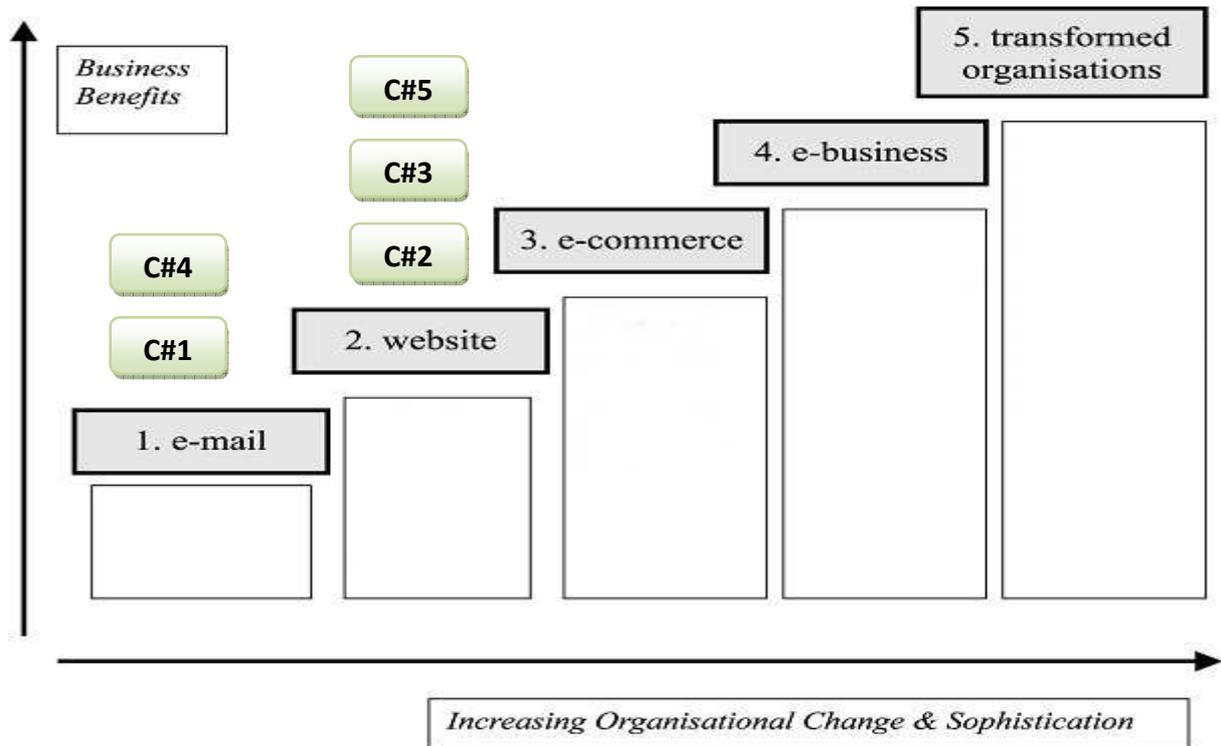

Fig c: Positions held by the companies on the DTI adoption ladder model

Reviewing the stands which the companies hold with relation to the two models, we can see that three of them rest on the website level of the adoption ladder while two are on the email level. With regard to the transporter model, the companies fall on three among the four categories of the Segmented Internet Adoption Patterns where two are in the business support, two on the business opportunity and the last one on the business network category.
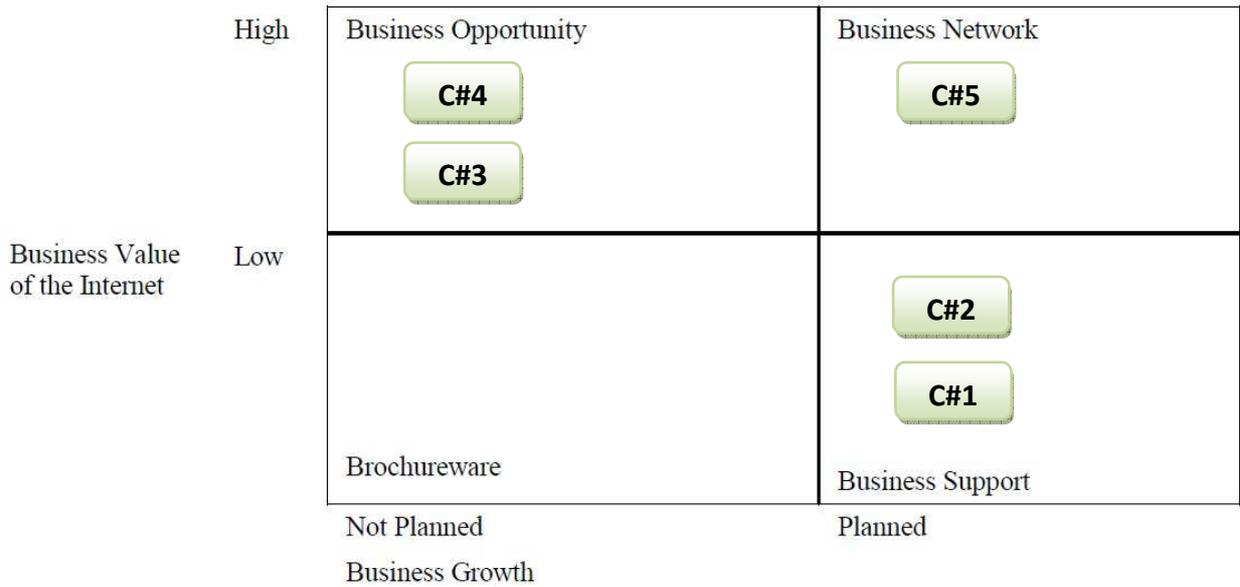
	High	Business Opportunity		Business Network
		C#4		C#5
		C#3		
Business Value of the Internet	Low			
				C#2
				C#1
		Brochureware		Business Support

Not Planned   Planned

Business Growth

Fig d: Positions of the companies on the transporter model's Segmented Internet Adoption Patterns

All in all, the adoption ladder model seems to focus on the practical achievements of enterprises and therefore puts them on the lower level of utilization. On the other hand, the transporter model has more concern on the anticipated benefit and plans and therefore puts them on a higher level with relation to ICT perceptions. Hence, the adoption ladder model tends to be more practical in identifying the level of ICT utilization by the small enterprises.

Comparing the results based on the two models, there appears to be minimal association between the actual attained level of ICT utilization of the enterprises tested by the ladder model; and the business growth and value in relation with planning tested by the transporter model. This is given that we barely see any association between level of attainment in ICT usage and the owners' plans based on business growth and value.

Chapter Seven: Conclusion and Discussion

Conclusion

This study has shown that small firms in Ethiopia do not have the pleasure of enjoying most of the benefits of ICT and e-commerce such as those presented by Tan et.al. (2009, p. 56) including reduction of inefficiencies from lack of coordination among firms in value chain; enhancing access to market information and knowledge; or facilitating new ways of managing and organizing businesses.

The reality of small firms in Ethiopia according to this study is that they have not been able to utilize e-commerce and its consequential benefits on a significant level. Their best achievement from ICT thus far is having static web pages and some with a little more features like database of products, suppliers or clients. Most of these firms are only on planning stages to adopt some primary level e-commerce and haven't invested on it yet.

The Ethiopian researchers Taddesse & G. Kidan (2005, p. 15) state that if it was not for the poor infrastructure provision, firms in the country could have achieved some of the benefits ICT and e-commerce but seem to be unable to, at least for now. The results of this research also confirm their findings in that most of the stated benefits are currently unachieved by the country's small firms. They use some components of ICT largely as communication or secretarial tools than as systems to handle their core business activities. There seems to be more focus on just having a webpage but less on integrating other stand alone systems that may probably be already in use at the offices.

The findings of this study also confirm the similar statement by Adam (2010, p. 34) that potentials of the internet and mobile technologies are not currently exploited in Ethiopia. Nonetheless, there are no clear indications in this investigative study to deduct that the reasons for the failure are problems in fluctuation of electric power and lack of project capital as mentioned by the author.

From the adoption ladder point of view, it could be fairly concluded that the enterprises are only on the website stage. They demonstrate only dreadfully small involvement in using even e-commerce systems of other enterprises let alone operating their own.

In summary, the following constraints identified in this study on the prevailing conditions of ICT in Ethiopia are similar to those presented by Taddesse & G. Kidan (2005, p. 44).

- Limitation in experienced ICT professionals;
- Lack of reliable and cost effective infrastructure;
- Strict government monetary and bank regulations on electronic transactions;
- Absence of customer exposure; and
- Inability to identify company and industry specific needs.

Discussion

More focus is exerted by the enterprises on the financial systems and use of accounting software to insure accuracy and security of the financial records and meet requirements of the government and partners. We see that almost all with the exception of one have accounting software in the office and have experienced personnel in using the financial software to the best of its purpose due to the fact that it is relatively older phenomenon than other commercial systems.

Almost all of the respondents have agreed that there is limitation in experienced ICT professionals with the capabilities to design and implement the accurate tailored systems in line with the prevailing circumstances peculiar to the country as well as the specific company. This situation is factual in that it is only recently that IT graduates from colleges are joining the work force and it would inevitably take a while since they gain the required level of experience and exposure so that they would give the required services for the enterprises that need it.

One major barrier that should be noted is the harsh monetary restrictions from the regulating national bank and government authorities on electronic transactions, according to this explorative study. Importers and exporters can carry out their transactions only through the commercial banks with the direct supervision of the central bank NBE that controls all hard currency inflows and outflows in the country. Businesses or individuals are not allowed to send money to another country since the only way this is done is through the regulating national bank.

The tight regulations have created a barrier on online business to and from Ethiopia and it seems as though it has also discouraged any effort to implement e-commerce locally using local currency. This is portrayed by the very much limited use of automatic teller machines (ATM) and transactions done on point of sale (POS) devices where the number of customers who use debit cards for such transactions are very small and enterprises who provide POS payment options are even smaller.

Money transfer systems similar to the Kenyan M-PESA or any other scheme that is practically applicable and requires no or very little infrastructure could be used for e-commerce as an alternative means if the transfer of goods sold to the buyer can be arranged in some way. The system should allow the transfer of money at least in local currency using existing or cheaply obtainable infrastructure such as mobile phone networks.

On the other hand, international money express services such as Western Union are currently difficult to use for e-commerce in countries like Ethiopia due to reasons like:

- The need for an institute like a bank or a small outlet office where recipients collect the money hence requiring extra bureaucracy,
- Have high commission fees per transfer,

- At least in Ethiopia, one can only receive money but not send abroad, again due to the tight regulation on hard currency.

Regarding other constraints faced, Taddesse and G. Kidan (2005, p. 18) point out that there is lack of reliable and cost effective infrastructure that is accessible to the majority of the population in Ethiopia. Our respondents have also pointed out that poor infrastructure has a negative impact on the limited existence of ICT usage in the country. They add that this is mainly due to the monopolistic and very expensive provision of telephony services by the government owned Ethiopian Telecommunication Corporation (ETC).

The spotlight mainly falls on the country's banking and telecommunication institutions, which are currently not well equipped and adequately automated for e-commerce as Taddesse and G. Kidan (2005, p. 27) put it. Yet again, the readiness should also grow in adequate magnitude from the businesses side even in greater effort and speed than what is currently being conveyed since for the infrastructure and policies to be applicable, the users should be present in an adequate number and potential.

Considering the level of inclination shown by the small enterprises taken as cases for this study towards adopting e-commerce, the emphasis should also be turned to the actual potential and keenness of the enterprises to adopt full-fledged ICT and e-commerce whether small or big.

Future proposition on the study

Much research is yet to be done to explore the prevalent status on the level of utilization and constraints of ICT and e-commerce in Ethiopia. However, this study hopefully shades light on this very little examined phenomenon. Though the study included only few of enterprises, it gives good ground for further investigations that may perform deeper and wider research on the topic and identify new facts or strengthen the ones presented here. A complementary and more quantitative study could also be done based on the identified constraints presented above devised as research hypotheses.

Hence, further researches could be done on responsiveness and utilisation of the bigger companies; the adoption trends of ICT and e-commerce by small or big companies; or other relevant issues in the business community as well as other sectors such as the government and non government establishments in Ethiopia. This research may be used as an input for such research and collectively a better outcome of study could be achieved.

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Appendix

Interview questions for Small Enterprises

1. What type of business are you involved in?
2. How many employees do you have? Are there any personnel working on IT?
3. Do you use any offline IT system or software in your company?
4. If yes, what system/s are you using? Which functions are you performing with the system? (eg. accounting, customer database)
5. What online services are you currently using for your business? (the next points could be used for clarification)
   - Communicate with suppliers and/or clients?
   - Browse websites of suppliers or clients for product or market search?
   - Systems of suppliers or clients for online order and/or payment?
6. What online presence or system does your company have? (the next points could be used for clarification)
   - An email account?
   - Your own website or an account on other websites with information about your business?
   - A fully functional website that allows online order and/or payment?
7. Do you think you or your competitors are catching up with international companies in using online e-commerce systems?
8. Have you seen or tested any other online systems for your business which may help you to perform better?
9. If so, what kind of system? What advantages do you anticipate by adopting it?
10. If you are using (or planning to adopt) an online system or e-commerce for your business, what benefits have you gained (or expect to gain) by using the system? (the next points could be used for clarification)
    - Increase in sales/turnover, number of clients, number of suppliers, etc?
    - Decrease in total transaction time, total cost of transaction, or complaints from customers, etc?
11. What has e-commerce brought to your business (or would you expect it to bring, if you have plans) in terms of growth and efficiency of business processes?
10. If you already have adopted or considered adopting an e-commerce system, what difficulties have you encountered on the process?
11. Are there any other possible constraints from outside your company that might influence the adoption and utilization of ICT and e-commerce?
12. What types of opportunities do you think are currently there in Ethiopia for the business community to utilize e-commerce?
13. What kind of support or solutions do you expect will help your business to utilize the opportunities that e-commerce provides?