

## THE ROLE OF E-COMMERCE 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 e-commerce are among those technologies that take the front line. This paper aims to define an adoption level of e-commerce in small Ethiopian enterprises and show that their business requirements and perceived benefits of e-commerce are related to business 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 have low levels of e-commerce utilization due to: (1) the scarcity of infrastructure development and expertise in the area, and (2) barriers created by government policy and bank regulations. However, this study found good understanding of the business opportunities and benefits that could be exploited from e-commerce.

**KEYWORDS:** E-commerce, Small Enterprises, Internet, Ethiopia

### 1. INTRODUCTION

Enterprises involved in business strive to survive and prosper in the market and it is inevitable to adopt strategies that would help 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. The adoption of ICT and e-business technologies gives features and benefits for growth and improved competitiveness (Levy & Powell, 2002). On the other hand, Levy & Powell (2002) claim that there is not much evidence that small and medium-sized enterprises do more than develop websites and adopt e-mail. Their research shows that many small and medium enterprises (SMEs) develop only 'brochureware' websites but only few have integrated their websites with their back-office systems on which they perform their businesses. However, in developing countries the conditions for the adoption of ICT tends to be limited mainly due to impediments related to economic, technological, legal, and financial infrastructure (Molla & Licker, 2005).

Migiro (2006) 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 SMEs believe that it is supposed to be used only by large enterprises.

The Ugandan case according to Ssewanyana and Busler (2007) 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 in the ICT era, the authors believe that they follow the same patterns on ICT adoption and utilization as the developed, hence not enjoying any significant shortcut. Kartiwi (2007) as well as Thulani et al. (2010) also state that small and medium-

sized enterprises in developing countries are concerned with different kinds of barriers in the adoption of e-commerce.

The phenomenon of e-commerce 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 (Tadesse & Kidan, 2005). This coincides with the country'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 123<sup>rd</sup> place among the 138 world countries in network readiness index. Meanwhile, Kenya and Uganda rank on the 81<sup>st</sup> and 107<sup>th</sup> positions respectively among world countries in the index (Global Information Technology Report, 2011).

Therefore, it is important to understand how enterprises in developing countries, and especially in Ethiopia, benefit of e-commerce related to their growth. The purposes of this paper are to define an adoption level of e-commerce in small Ethiopian enterprises and show that business requirements and perceived benefits of e-commerce are related to business growth in small Ethiopian enterprises. Thus, the research question is formulated as: Which is the utilization level and the role of e-commerce for small enterprise growth in Ethiopia, and which constraints and opportunities influence the growth of the small enterprises?

## 2 METHODOLOGICAL APPROACH

### 2.1 Data Collection

The method to be used for this qualitative study is mainly a case study performed on five small enterprises in Ethiopia (Yin, 2003). The qualitative method is used because the small enterprises are investigated in order to get a reflective understanding on the core influences of e-commerce usage on their growth endeavors. Dubé & Paré (2003), quoting Benbasat et al. (1987), state that case research has gained respect in the information systems field for several reasons because the interest is focused on organizational issues. A key characteristic of case research is a holistic investigation where it is important to understand the complex interactions among organizations, technologies and people. This leads to the creation of new ideas and new lines of reasoning again leading to identify the opportunities and challenges that owners and managers face. According to Dooley (2002), the case study research method is superior in attempts to understand a complex issue and it underlines a detailed analysis of conditions with their relationship by taking only a limited number of cases and the related context.

Five Ethiopian small enterprises were selected for this study. The companies are all involved in import and/or export business and are located in the capital city of Addis Abeba, since such enterprises are barely existent in the rest of the country. Four of the small enterprises are involved in import and three in export business, of which two are involved in both import and export. For each of the small enterprises interviews were conducted with the owner or with the manager, sometimes the very same person.

This paper will elicit the thoughts, beliefs and opinions of the owners' or managers' perspective regarding the role and growth of e-commerce in Ethiopia. According to this the two different models *the adoption ladder model* and *the transporter model* were used to provide a basis for the themes in the interviews. During the case study, in-depth 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 (Kvale, 1996). 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. The interviews were held in Amharic (the official

language of Ethiopia) and translated into English by one of the authors. This approach facilitates structured interviews that are convenient for easy analysis and comparison.

In line with interviews, secondary data has also been used as a supplementary data collection tool as found appropriate. These documents, published at 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.

## 2.2 Data Analysis

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. 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.

Two different models have been used as a theoretical lens in this study, *the adoption ladder model* and *the transporter model*. These models depict different aspects of ICT take-up by enterprises. The adoption ladder model has been used to analyze the utilization and role of ICT, with focus on e-commerce, and the transporter model has been used to analyze the business value of ICT, especially the business value of e-commerce. Each case has been analyzed for unique elements and again compared with other cases for similarities and shared facets to get hold of patterns or common features. As the interviews were conducted by a native Ethiopian researcher, and held in Amharic, transcribed and translated into English, the research has moved from considering not only what was said at the interview, but also the way it was expressed, in order to reveal underlying thoughts, beliefs, opinions and practices. Thus, the data analysis, influenced by discourse analysis techniques, 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 (Wood & Kroger, 2000).

## 3 THEORETICAL FRAMEWORK

### 3.1 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 innovative products, and adopt new technology (Brixiova & Asaminew, 2010).

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).

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). Accordingly, Tadesse & Kidan (2005) claim potential benefits from the use of e-commerce as extended market reach and revenue potential, improved competitive positioning as well as reduced cost for the business firm and reduced price for the customer. Tan et al. (2009) explain some of the benefits that could be realized by using e-commerce as reducing inefficiencies from lack

of co-ordination among firms in value chain, creating new business opportunities, enhancing access to market information and knowledge as well as 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 e-commerce could bring about.

### 3.2 Levels of Adoption and Utilization of E-commerce

The level of utilizing 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 & Murphy, 2004). Enterprises stand in different levels of e-commerce utilization based on their volume in financial or human capital on top of the preceding factors.

Big corporations seem to engage their businesses with high ICT equipment 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 e-commerce 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).

Theories that depict the levels of e-commerce take-up by enterprises as models with different perceptions towards how and why firms adopt the internet, e-commerce are *the adoption ladder model* and *the transporter model*. The first model "adoption ladder" depicts the evolution of business organizations in utilizing e-commerce 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 through which the organizations could grow (Taylor & Murphy, 2004).

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 two by two 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 (Levy & Powell, 2002).

#### 3.2.1 The Adoption Ladder Model

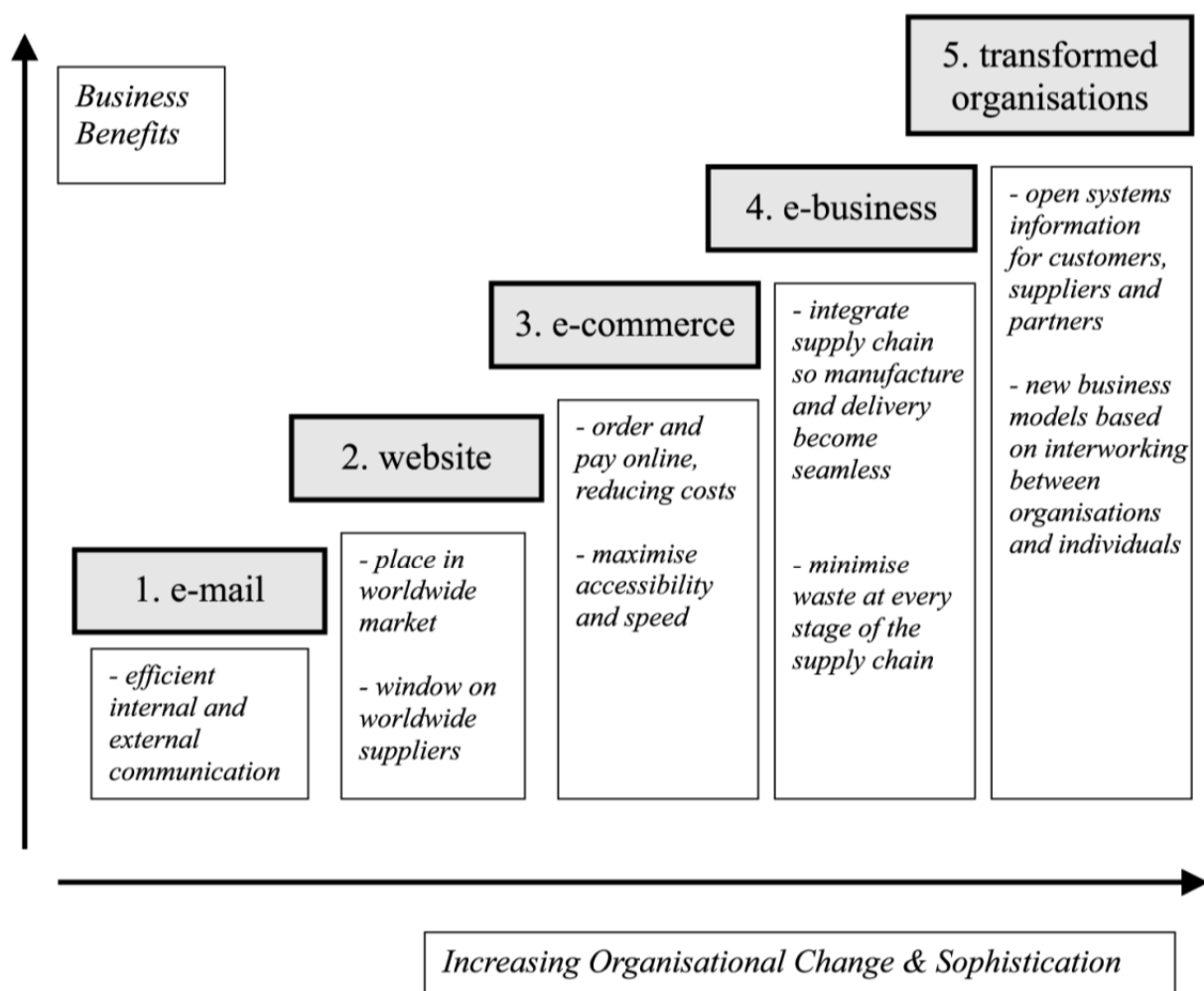
This approach is one of the e-business adoption level models and is favoured by the UK government's Department of Trade and Industry (DTI). The levels of ICT adoption in this model, when viewed from a purely technological perspective, suggest that involvement of enterprises with the technology of e-business is sequential and progressive (Taylor & Murphy 2004). 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 minimizing 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 organizational 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 (Taylor & Murphy 2004).

The adoption ladder model, as shown in Figure 1, demonstrates the components of organizational sophistication as typical business endeavours accrue to develop in successive steps to the next level on the ladder. Consequently, as the organizational 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

**Figure 1: The DTI Adoption Ladder (Taylor & Murphy, 2004, p. 283)**

Taylor and Murphy (2004) present what The Local Futures Group suggests in 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 (Taylor & Murphy, 2004). 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 (Taylor & Murphy, 2004).

### 3.2.2 *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).

This comparative development model presented by Levy & Powell (2002) 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 Levy & Powell (2002), 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. 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 2, namely: brochureware, business opportunity, business network and business support (Levy & Powell, 2002).

Business Value of the Internet	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
	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	

**Figure 2: Segmented Internet Adoption Patterns (Levy & Powell, 2002, p. 519)**

According to the observations, when starting from the low business value and no plan for growth, firms can be found in 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 e-mail and websites used as online brochure. Hence, they perceived that there is no need for them to invest on ICT any further (Levy & Powell, 2002).

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 recognize 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.

### 3.2.3 Justification of the Two Models

The adoption ladder and the transporter models both depict the utilization levels of Internet and e-commerce 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 organizational changes and the growth in their ICT sophistication level (Taylor & Murphy 2004) 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). Hence, these models provide the research parameters for the intended evaluation and study by this particular paper.

### 3.3 Prevalence of ICT and e-Commerce

There are some conditions which enable the utilization of e-commerce according to Datta (2010), 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 analyzing the prevalence and potential for growth of small enterprises in any country (Datta, 2010).

As stated above, one of the factors required for establishing e-commerce is access to infrastructure and related services. Tadesse & Kidan (2005) 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.

Tadesse & Kidan (2005) state 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.

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 (Tadesse & Kidan, 2005).

Globalization 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. In order to cope 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 (Tadesse & Kidan, 2005).

Adam (2010) 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 Adam (2010), 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 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 (Adam, 2010).

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) conducted a case study on mobile money banking in Kenya, "M-PESA", where they found that the government had a very critical role in creating the favorable regulations for the providers of mobile banking to enable the success of mobile cash transfer.

#### 4. PRESENTATION OF CASES

The findings are presented here in such a way that the description of each enterprise will be followed by its position in view of the three issues depicted as:

- Responsiveness and utilization level of e-commerce;
- Prevailing and expected role of e-commerce;



- Constraints and opportunities of e-commerce.

Five small enterprises have been selected for the study. They are all involved in import and/or export business in Ethiopia. All firms selected for the case study are located in the country's capital Addis Ababa since such firms barely exist in the rest of the regions for reasons, among others, that the government's offices that they need to work with are located in the capital.

#### 4.1 Company #1

(C#1) 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 manager has good understanding of computer assisted systems of transaction and knows how to operate the basic MS Office package and the Internet.

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 e-mail. Locating and establishing market for export items is also done through browsing the Internet but no online transactions are performed yet. 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.

#### 4.2 Company #2

(C#2) 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 e-mail. But again, none of the office systems are connected to this web site and therefore it does not serve as a system for transactions to be recorded in a shared database that is accessible online.

#### 4.3 Company #3

(C#3) has 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. E-mail 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 manager has a good exposure of online order processing systems besides her knowledge of MS Office package.

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. 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.

#### 4.4 Company #4

(C#4) 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 e-mails. 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.

#### 4.5 Company #5

(C#5) makes communications through e-mails 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.

### 5. ANALYSIS

In this section the findings are presented according to the studied enterprises. The analyzed data is presented in tables according to what is originated from the interviews. Moreover, quotations will demonstrate specific statements of the interviewees.

Among the five small enterprises considered as 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 Windows 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.

#### 5.1 Utilization Level of E-commerce

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: the utilization level and the role of e-commerce for small enterprise growth in Ethiopia, and the constraints and opportunities that influence the growth of the small enterprises.

Based on the data collected in the interviews attempted to find out the e-commerce take-up levels of small enterprises, the following Table 1 presents summaries of utilization and stances on e-commerce of the companies in the study.

	C#1	C#2	C#3	C#4	C#5
Engaged in	import of consumer items & export of oil seed & 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	Yes	Yes	Yes	No	Yes

system					
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 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 & 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 e-commerce	acquire trainings on information technology and relevant skills	provide required training and infrastructure; adopt policies for online money transfer

**Table 1: Summary of Replies from Respondents of the 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 e-mails;
- 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 e-mails and therefore this first level of utilization is attained by all the firms in this research. Moving on to the website level, three out of five firms (60%) have websites, and two out of five (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 and none has involved further into e-commerce. The following quotations will confirm this.

“We do not 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.” (the owner of company #4)

“Our website is currently a static one with only simple database and the data is updated regularly.” (the owner-manager of company #5)

## 5.2 Prevailing and Expected Role of E-commerce

This class of questions presented to the interviewees focus on their views on the role of e-commerce 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, we 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 e-commerce in their businesses. For example one manager said:

*“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.”* (the owner-manager of company #1)

Another manager expressed:

*“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.”* (the marketing manager of company #2)

The overall good recognition of the benefits 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 e-commerce 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.

## 5.3 Constraints and Opportunities of 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 e-commerce 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. As one owner is expressing this constraint:

*“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 e-commerce into our business.”* (the manager of company #4)

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 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. As one manager express:

*“Banks in the country do not render online international money payments for transactions due to the tight monetary policies on flow of foreign currencies.”* (the owner-manager of company #1)

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. One manager said:

*“We sometimes put orders online from our regular suppliers but we cannot 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.”* (the marketing manager of company #2)

Too little exposure to e-commerce 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 e-commerce according to their experiences. However, the owners and managers see opportunities of the e-commerce as one owner express:

*“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. 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 decision on good pricing of our imported items to get better profits.”* (the manager of company #4)

#### **5.4 Summary of the Analysis**

Here we correlate the prevailing trends in the utilization level of e-commerce 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 e-mail level under scrutiny of the adoption ladder model and it does not 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.

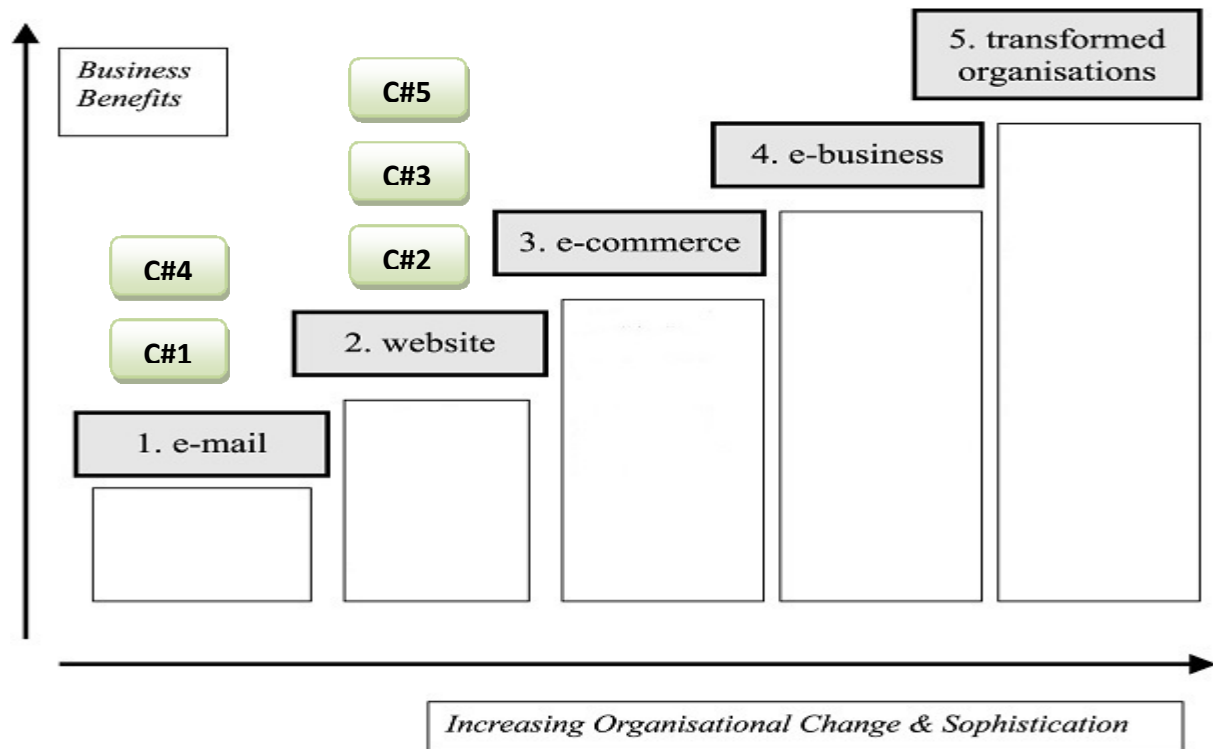
The second company C#2 has a standalone offline system; it uses e-mail and has its own website. This lets it fall under the second level on the adoption ladder, which is the website user level. From the transporter view, the management has some perceived benefit and has some knowledge on ICT but no competitive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

C#3 uses e-mail 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 e-commerce and has some self attained knowledge on IT and believes there is an implied pressure to become the first to introduce online transactions 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 e-mail and does not have a website which puts it on the first level, i.e. e-mail user on the adoption ladder. The owner has a good perception of the benefits that e-commerce could bring to his company and has some knowledge on e-commerce. 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 e-mail 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 e-commerce 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 in Figure 3 for easy illustration.



**Figure 3: 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 e-mail 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. This is illustrated in Figure 4.

Business Value of the Internet	High	Business Opportunity C#4 C#3	Business Network C#5
	Low	Brochureware Not Planned Business Growth	Business Support C#2 C#1 Planned

**Figure 4: Positions Held by the Companies on the 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 e-commerce perceptions. Hence, the adoption ladder model seems to be more practical in identifying the level of e-commerce utilization by the small enterprises in Ethiopia.

Comparing the results based on the two models, there appears to be minimal correlation between the actual attained level of e-commerce 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 e-commerce usage and the owners' plans based on business growth and value.

## **6. DISCUSSION**

### **6.1 Role of E-commerce for the Growth**

This study has shown that small firms in Ethiopia do not have the pleasure of enjoying most of the benefits of e-commerce such as those presented by Tan et al. (2009) 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 e-commerce thus far is having static web pages and some with a little more features like database of products, suppliers or clients. The majority of the firms are only on planning stages to adopt some primary level e-commerce and have not actually invested on it.

The Ethiopian researchers Tadesse & Kidan (2005) state that if it was not for the poor infrastructure provision, firms in the country could have achieved some of the benefits 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) that potentials of the Internet and mobile technologies are not currently exploited in Ethiopia.

The enterprises show interest in adopting e-commerce but do not seem to be actually investing on it for several reasons including lack of the right knowledge and skills to make use of the technology or question of feasibility based on the general trend of business in the country where online business is almost none existent. 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.

### **6.2 Technical Requirements of the Government and Partners**

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 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 (Ngugi, Pelowski & Ogembo, 2010). The system should allow the transfer of money at least in local currency using existing or cheaply obtainable infrastructure such as mobile phone networks.

Regarding other constraints faced, Taddesse and Kidan (2005) 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 e-commerce usage in the country. This is mainly due to the restricted and very expensive provision of telephony services by the monopolistic and inefficient 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 Kidan (2005) 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.

## 7 CONCLUSIONS

Considering the level of inclination shown by the small enterprises taken as cases for this paper towards adopting e-commerce, the emphasis should be turned to the actual potential and keenness of the enterprises to adopt full-fledged e-commerce. The small Ethiopian enterprises are only on planning stages to adopt some primary level e-commerce and have not actually invested on it. They have not been able to utilize e-commerce and its consequential benefits on a significant level due to the lack of right knowledge and skills to make use of the technology, the lack of reliable and cost effective infrastructure as well as strict government monetary and bank regulations on electronic transactions. Thus, we can conclude that the small enterprises are using e-mail and websites, but are not gaining any benefits of e-commerce.

Which is the utilization level and the role of e-commerce for small enterprise growth in Ethiopia, and which constraints and opportunities influence the growth of the small enterprises?

However, we barely see any association between level of attainment in e-commerce usage and the owners' plans based on business growth and value. The managers have good recognition of the benefits that could be exploited from e-commerce in their businesses, as well as fairly good understanding and knowhow on how to make use of the technology. They are aware of their business opportunities and believe that the competition is global and therefore they need more effort and investments in e-commerce in order to minimize the time in making decisions and in predicting short term market prices. The shortage of experts in the area of e-commerce, together with limitations in provision of infrastructure as well as policies for online payment, is clearly important constraints for the small businesses growth.

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## Appendix

### *Interview questions*

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?