

**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
SCHOOL OF INFORMATION STUDIES FOR AFRICA**

**THE POTENTIALS OF THE INTERNET FOR
IMPORT/EXPORT BUSINESS IN ETHIOPIA:
OPPORTUNITIES AND CHALLENGES**

**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF MASTER OF
SCIENCE IN INFORMATION SCIENCE**

**BY
YALEW GIZAW
MAY, 1998**

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THE POTENTIALS OF THE INTERNET FOR IMPORT / EXPORT BUSINESS
IN ETHIOPIA: OPPORTUNITIES AND CHALLENGES

By
Yalew Gizaw Damtie

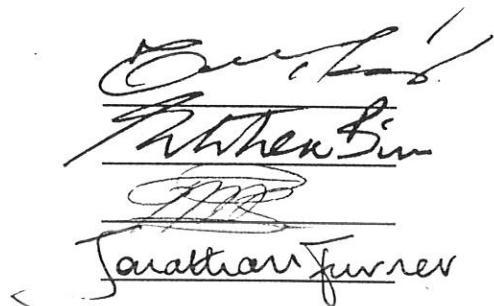
Name and Signature of Members of the Examining Board

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Ato Tamrat Bayle, Advisor

Dr. J. Furner, External Examiner



The block contains four handwritten signatures, each written over a horizontal line. From top to bottom, the signatures are: 1. A cursive signature that appears to be 'Tesfaye Biru'. 2. A cursive signature that appears to be 'Getachew Birru'. 3. A cursive signature that appears to be 'Tamrat Bayle'. 4. A cursive signature that appears to be 'Jonathan Furner'.

DEDICATION

To my wife Tiegest Kalechristos and daughters: Gelelawit, Eden and Maidot

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ABSTRACT

The Internet is a network of networks connecting computers globally through the international set of standards known as Transmission Control Protocol and Internet Protocol (TCP/IP). Internet has become a business tool instead of merely a research network. Currently, the largest and fastest growing segment of the Internet is business.

The growth of the Internet is of particular importance to international business. It increases accessibility to high value markets and reduce the natural protective barriers of time and distance.

While a fundamental change is taking place in ways of conducting business since the advent of the Internet, many businesses in developing countries are failing to exploit this opportunity. There are many reasons for this, such as poor telecommunications infrastructure, government regulations, and lack of skills.

Ethiopia has been connected to the Internet since January 1997. At the end of December 1997, there were 1,668 Internet subscribers among which 430 were importers and exporters. However, Internet connectivity is not an end in itself. It is important for businesses to set up their business operations such that the Internet as an enabling tool can allow them to be more effective and efficient.

This study attempts to assess the current status of business use of the Internet in Ethiopia, identifies the problems in its utilisation, and outlines the strategic approaches to exploit the potentials of the Internet. It also demonstrates how to put business information on the World Wide Web by developing a Web site for the Ethiopian Chamber of Commerce.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

A recent development in electronic networking is the Internet, a term describing the connection of computers and computer networks around the globe.

Internet has become a business tool instead of merely a research network and businesses both large and small have seized the opportunity to explore how to use it to become more productive and competitive.

Commercial connections are the fastest-growing component of the Internet today, as more and more companies move to establish closer links with customers, business partners, vendors, and information resources via the network (Montealegre, 1996).

Business transactions - buying, selling and payment - can be carried out online. Electronic commerce is growing rapidly and the ability to communicate with one's business partners and clients in a timely and cost effective manner is becoming a primary determinant of success and profitability (Butterly, 1998).

The experience of a variety of businesses using the Internet confirms that the global network provides multiple avenues for improving corporate performance in key

areas, such as information management, communications, research and development, marketing and customer relations, as well as for generating new value adding processes that are unique to the information world (Montealegre, 1996).

Traditionally, information on transactions accompanied the goods themselves, as a sort of trade passport, mainly on paper. Improvements in trade procedures have made it possible to “detach” this information from the goods in question and transmit them over computer-to-computer communication networks. The computer-to-computer exchange of standard business forms such as purchase orders, shipping notices, freight bills and invoices bring improvements in trade efficiency, by reducing delays and eliminating sources of error.

A networked society operates on different standards of speed and access to information. A customer who is used to instant response time from around the globe, is no longer willing to wait days or even hours for a query to be acknowledged. Tomorrow becomes too late to find the answer or deliver the product. If one company cannot meet the expectations, a competitor with a network connection will be happy to oblige (Montealegre, 1996).

✓ Don and Art (1993) also pointed out that, a pressing reality of the new global environment is the emergence of a new era of competition. Competition is arising not only from traditional adversaries in traditional markets, or from new entrants to a specific industry or economic sector, but also from the disintegration of barriers to previously insulated and protected markets.

According to Lishan (1997), Internet connectivity has brought new challenges to Africa. Poor infrastructure, political and regulatory framework will continue to be a challenge for Africa. There is a growing concern whether use of new information technologies can help African countries to realise development potential or whether that simply speeds up marginalisation.

As of January 1998, 42 out of the 54 countries in Africa had direct access to the Internet. Plan for setting up Internet services are in place in the Republic of Congo, Gambia, Liberia, Ruanda, Sierra Leone and Chad. That leaves only six countries without full Internet access or any known plans for achieving full Internet connectivity: Cape Verde, Comoros, Eritrea, Libya, Saotome e Principie, and Somalia (Butterly, 1998).

Business firms can use the Internet:

- To send e-mail messages which can reach global destinations in seconds.
- To participate in discussion groups (news groups) to share ideas and knowledge related to their business.
- To transfer or receive files over the Internet by FTP which allows to download software, product upgrades, information and so on.
- To connect to some mainframe computer (Telnet) across the Internet as if they were connected to a terminal in the same office.
- To display their services or products on the World Wide Web (WWW) to be seen by millions of people around the world.
- To order or buy products from online catalogues, etc.

Early research on business use of the Internet in the United States, postulated that integrating Internet application into every stage of business process would yield the most significant benefit for companies (Montealegre, 1996). Similar studies in many other countries like Singapore and Hongkong confirm this fact (Schware and Kimberly, 1995)

Thus, Ethiopia is not an exception to this, and the Internet has the potential to facilitate it's national trade. According to the World Resource Institute (1994), Ethiopia is categorised with the countries having very low per capita income. Nevertheless, the fact that it is a country with substantial resource potential, leaves an excellent opportunity for investment and foreign trade, leading to its subsequent development.

According to the unpublished report of the Ministry of Trade and Industry (1996), the major export products of Ethiopia are coffee, livestock products (leather, live animals and meat), oil seeds and pulses, fruits and vegetables, textile and mineral products. Coffee is the country's major foreign exchange earner followed by leather and leather products.

A new economic policy, which is geared to the creation of a free-market-based economic system, has been adopted since 1991. As a result of this policy, conducive business environment has been created for trade and investment in general and for import/export in particular.

In the age of virtual corporations, there is no doubt that import/export performance and success depends on the ability of firms to gather and integrate massive flows of information and to act intelligently on that information (Lefebvre and Lefebvre, 1996). In this regard, Ethiopian business firms can not be an exception.

1.2 STATEMENT OF THE PROBLEM

The Ethiopian economy, like that of many developing countries, is linked to its foreign trade performance. Among the reasons which contributed to the poor import/export performance are:

1.2.1 Inability to Reach International Markets

Regarding the problems and constraints of industrialists in Ethiopia, the study conducted by Zewdie and Zikre (1995) shows that lack of information on export market is one of the serious problems faced by Industrialists. The handicap of the industrialists to exploit external markets is not that of meeting the requirements of the export market, but lack of adequate knowledge where they can sell their finished products at a reasonable price.

With regard to import, lack of awareness of potential exporters - their prices and different guarantees related to the imported items - is also one of the factors for the poor import performance of the country.

Zewdie and Zikre (1995) also noted that lack of technological information is a serious handicap to both existing and potential industrialists in the country. The study further stated that the problem is particularly critical to regional industrialists who have little or no opportunities to visit exhibitions and trade fairs where various technological products are displayed.

1.2.2 Lack of Awareness of Custom Rules, Regulations, Tariffs and International Trade Procedures

Lack of expertise in international trade and finance, lack of awareness of customs rules, regulations and tariffs on export and import items are among the causes for the poor foreign trade performance (Eshetu and Mekonnen, 1992). Most of the exporters and importers do not also have easy access to education and consulting services. Due to this, they lack the most expedient ways of carrying out transactions.

1.2.3 Lack of Quick Response

The process of receiving and sending business documents using the traditional methods, such as mail, takes a longer time. Due to this, many business opportunities are missed and higher transaction costs are incurred.

Therefore, this study will try to answer questions such as:

- What opportunities can the Internet offer to import/export business firms?
- Have the import/export business firms using the Internet overcome their problems?

- What challenges have been faced by import/export business firms when attempting using the Internet?
- What possible measures should be taken by policy makers and the Internet service provider, to improve the existing situation?

1.3 JUSTIFICATION OF THE STUDY

Information technology is demolishing territorial boundaries and bringing nations together in a single global community, but a community more fiercely competitive than ever before. Today, progress in transport and information technology makes virtually all products and services from all countries available to any purchaser on the globe (Schware and Kimberly, 1995).

The linking of computers via telecommunications into global network is providing new resources and opportunities for small firms. The effect of such networks is to increase accessibility to high value markets and reduce the natural protective barriers of time and distance. According to Whittle (1996), Internet is making it possible for small companies to take advantage of some opportunities traditionally affordable only to big companies. Critically important contacts can be made on the Internet without expensive travel. Access to millions of customers is possible without risking tens of thousands of dollars in advertising.

The successful company is one willing to meet the Internet challenge immediately and experiment with innovative strategies. According to Gascoyne and Ozcubukcu

(1997), the principal advantages of experimenting early with a strategic approach include among others:

- Ability to establish installed customer base early to gain considerable market share;
- Ability to restructure one's organisation for operation within new models of business;
- Establishment of early alignment, with optimal business partners in advance of competitors;
- Opportunity to develop commerce's infrastructure;
- Tracking customer's daily business and personal practices;
- Learning from various business designs.

Tolero and Gudette (1995) also pointed that the first countries to enter the information society will reap the greatest reward. By contrast, countries which temporise, or favour half-heartedly solutions, could in less than a decade face disastrous decline.

Ethiopia has joined the Internet Society since January 1997. However, Internet connectivity is not an end by itself. The benefits that Ethiopia can get by having Internet connectivity was discussed by Fanta (1996) and Kibruyisfa (1997), both graduates of SISA.

The former study was conducted before the introduction of the Internet in Ethiopia and focused on opportunities of the Internet and its connectivity conditions. The later

study illustrated how to make tourism information in Ethiopia available on the Internet. Both studies took the PADISnet electronic communication users as a user base for their study. This study differs from both in two ways. First, the survey is based on actual Internet users. Second, the study focuses on potentials of the Internet for import/export business in Ethiopia.

The business communities in Ethiopia can benefit out of the Internet only if they know the tremendous opportunities that this service offers and this condition calls for a research to be conducted to assess how the import/export business firms in Ethiopia are utilising the Internet services and to outline the strategic approaches how to exploit the potentials of the Internet .

1.4 OBJECTIVES OF THE STUDY

1.4.1 General Objective

The general objective of this study is to assess the current status of business use of the Internet by import/export business firms in Ethiopia, to identify the problems faced in its utilisation and to indicate how the import/export business firms can exploit the potentials of the Internet towards overcoming the existing problems.

1.4.2 Specific Objectives

The specific objectives of the study are:

- 1.4.2.1) Review the existing Internet connectivity conditions in Ethiopia;
- 1.4.2.2) Identify the import/export business firms currently using the Internet;
- 1.4.2.3) Ascertain the information requirements of the identified users.

- 1.4.2.4) Assess the level of awareness, experience and use of the Internet by import/export business firms;
- 1.4.2.5) Identify the problems encountered in utilising the Internet;
- 1.4.2.6) Identify the various business related resources available on the Internet;
- 1.4.2.7) Outline the strategic approaches how import/export business firms in Ethiopia can exploit the potentials of the Internet in overcoming their trade related problems.
- 1.4.2.8) Demonstrate how to put business information on the World Wide Web by developing a Web site for the Ethiopian Chamber of Commerce.

1.5 SIGNIFICANCE OF THE STUDY

One of the main concerns of this study is to indicate how import/export business firms in Ethiopia might take advantage of the Internet in overcoming the existing problems. Therefore, the study is expected to benefit the business communities in increasing their awareness on the potentials of the Internet and the strategies they have to formulate in order to effectively and efficiently utilise its resources.

It is also anticipated that the Ethiopian Chamber of Commerce and city chambers, whose main duties are to publicise the country's export products and commercial enterprises in the foreign markets, can benefit from this study.

The result of the survey can also serve as a feedback to the Internet service provider to build its capacity and to improve its services based on the requirements of the users.

The Trade Promotion Department of the Ministry of Trade and Industry, which is responsible for decision making processes and issues of foreign trade, and the Ethiopian Trade Point under this Ministry are also envisaged to the beneficiaries of this study. The Ethiopian Trade point is established based on the United Nations Conference on Trade and Development's (UNCTAD) Trade Point (TP) initiative with the objective of facilitating electronic trade transactions.

Last but not least, the study is also expected to provide policy makers with some useful information that will help them in defining guidelines to promote the use of information technology in general and the Internet in particular.

1.6 RESEARCH METHODOLOGY

In order to achieve the above stated objectives, the survey methodology was used. According to Bordens and Abbott (1988), survey methodology is commonly used to evaluate the attitudes, beliefs and intentions of the subjects of the study by administering a properly designed questionnaire. From the data collected, more accurate inferences about the factors can be drawn.

1.6.1 Data Collection Methods

Questionnaire

A multi-section questionnaire, the items of many of which were in multiple choice format, were prepared for the survey. In designing the questionnaire, some of the questions were taken from the case study of Peritz, et al (1997) and Menou and Hofkin (1995). These questions were modified to serve the purpose of the study.

The questionnaire consists of four main sections. Section “I” contains questions about organisational characteristics, section “II” about user information needs, section “III” about experience in using computers and the last one, section “IV”, contains questions about the uses of the Internet.

From among 430 target population, 86 samples were selected using stratified simple random sampling technique. Hand delivery and postal mail were used to distribute the questionnaire. It would have been easier to send the questionnaire via e-mail, but the Researcher was concerned that the cost implication of sending an E-mail message may not encourage the respondents to answer the questionnaire.

Interview

In addition to the questionnaire, the interview method was used for collecting data. Two types of interviewees were selected for the study. The first type addressed organisations directly related to import/export process such as the Ministry of Trade and Industry, Ethiopian Chamber of Commerce, Addis Ababa Chamber of Commerce, and Ethiopian Customs Authority. The second type of interviewees were officials in the Internet Centre at the ETC. The interview with this group focused in assessing the Internet connectivity condition and the range of Internet services available.

Document analysis

Document analysis was one of the survey instruments used in this study. To acquire sufficient information about the status of trade and telecommunications

infrastructure of the country, different documents and reports were reviewed from relevant sources, such as the Ministry of Trade and Industry, Ministry of Economic Development and Co-operation, Ethiopian Chamber of Commerce and Addis Ababa Chamber of Commerce, Ethiopian Telecommunication Corporation, and the National Bank of Ethiopia.

1.6.2 Sources of Data

The following were the main sources used to collect the data:

- Import/export business firms which are actually using the Internet in Ethiopia;
- Officials in the organisations directly related to the study such as the ETC, Ministry of Trade and Industry, Chamber of Commerce and Ethiopian Customs Authority;
- Relevant documents in the Ministry of Trade and Industry, Ethiopian Chamber of Commerce, Addis Ababa Chamber of Commerce, Ethiopian Telecommunication Corporation, National Bank of Ethiopia, and Ministry of Economic Co-operation and Development.

1.6.3 Samples of the Population

Since the aim of the study was to assess the current status and potential benefits of the Internet for import/export business in Ethiopia, the subjects of the study were import/export business firms which were already using the Internet.

The target population of this study were 430 importers and exporters, a list of whom was obtained from the subscribers database of the Internet Centre at the ETC. This list was cross-checked with the list of the Trade Promotion Department at the

Ministry of Trade and Industry for stratification of the population. For the purpose of this study the target population were divided into three groups or strata (i.e. importers, exporters, and general import and export), because the information needs of these groups differ from each other.

Table 1.1 : Distribution of Selected Sample Group

No	Group	Target population	Sample Size
1	Importers	187	37
2	Exporters	134	27
3	General Import/Export	109	22
	Total	430	86

The sample size was designed to be 20% of the population from each group and a total of 86 samples were selected using random number table.

According to Agrawal (1994), the sample size depends on the following factors:

- The purpose for which the sample is drawn.
- The type of population from which the sample is drawn. That is, if the sample units constituting the population are highly variable, a large sample is required, and, conversely, if the population comprises of less variable units, then a small sample is good enough. For perfectly homogeneous population, a single unit is sufficient to get the correct results for the whole population.
- Resources allotted for the study in terms of time and money.

Businesses tend to be heterogeneous in terms of size and organisational characteristics, and hence a sample size of 20% was taken to make the study more representative.

1.6.4 Problems Encountered During the Data Collection Process.

The following are some of the problems faced by the Researcher during the data collection process:

- 1) Defining the population to be surveyed was the major problem encountered during the study. Although it was clear from the start that the target population to be studied were Importers and Exporters who are active users of the Internet, it was not easy to identify them from the subscribers database of the Internet Centre at the ETC which mixed different types of organisations.

For example, the business category of subscribers at the ETC includes Embassies, NGOs and all other National and International Organisations. The Category for individual of subscribers also includes many businesses, and National and International Organisations.

- 2) The distribution and collection of the questionnaire was time consuming and tiresome, because the sampled population were located at places far away from each other.

3) Because “time is money” many businesses were uneasy in spending time responding to the questionnaire. Therefore, the Researcher had to remind a good number of the respondents by telephone calls several times.

1.6.5 Literature Review

Different materials such as books, journals, theses, and articles were reviewed for the following reasons:

- To see if similar studies were conducted in the area;
- To establish a theoretical background about the subject;
- To decide which variables to include in the questionnaire; and
- To clarify, strengthen and direct each of the stages of the study.

1.7 SCOPE AND LIMITATIONS OF THE STUDY

The assessment of current practices and potential benefits of the Internet in this study is confined to Importers and Exporters which are actually using the Internet. Therefore, the study doesn't include the opinion of the Importers and Exporters which are not connected to the Internet, although the findings will also benefit them.

Due to the time constraint, a detailed need assessment was not conducted for the prototype Web site designed for the Ethiopian Chamber of commerce. The Web page was not also tested online for quality assurance, browse capability, bug, etc. and was not modified accordingly based on the feedback from users.

1.8 ORGANISATION OF THE THESIS

The thesis is divided into six chapters. Chapter 1 is the Introduction which contains the background information, statement of the problem, objectives, and methodology. The second chapter is designated as 'The Status of Import/Export Business in Ethiopia'. It covers: country background, economic structure, the external trade situation and the policy environment. The third chapter is literature review on the Internet and its Business Applications. The fourth chapter contains survey results on the Internet connectivity conditions and Import/Export Business Use of the Internet in Ethiopia. Chapter 5 discusses the Challenges and Strategies to Exploit the Business Potentials of the Internet in Ethiopia. It also includes a prototype Web site developed for the Ethiopian Chamber of Commerce. Finally, Chapter 6 presents the Conclusion along with recommendations.

CHAPTER 2

THE STATUS OF IMPORT/ EXPORT IN ETHIOPIA

2.1 COUNTRY BACKGROUND

Located in what is popularly termed the Horn of Africa, Ethiopia is the tenth largest country in Africa, and covers a total land area of some 1.14 million square kilometres. Of this, almost three quarters or about 840, 000 squares kilometres is arable land (UNDO, 1996)

According to the World Bank (1997) , with an estimated population of about 58.2 million, and with an average annual population growth of 2.1 per cent, Ethiopia is the second most populous country in Sub-Saharan Africa, after Nigeria. And, according to official projections, Ethiopia's population will expand rapidly over the next 25 years to reach over 130 million in the year 2020 (CSA, 1991).

As with most other African countries, Ethiopia's population is predominantly rural, some 85 per cent of the people reside in rural areas, and 15 per cent in urban centres. Principally, as a result of the high population growth and short life expectancy - estimated at 49 years - almost two-thirds of the total population is under 20 years of age (UNDO 1996).

The country's physical features and geographical location have given it a rich and varied natural heritage of vegetation and wildlife. Moreover, extensive geographical surveys conducted over the past two decades highlight that the country is blessed with significant deposits of base, rare earth, and precious metals. But because of the structural problems, natural disasters and man-made crisis and war, the country has become among the backward Countries. With a current per capita income of US \$ 120, Ethiopia is one of the lowest income countries and one of the least developed in the world (World Bank, 1997).

Ethiopia has various advantages for development. These include large water resources, huge hydroelectric and geothermal power generation potential, enormous mineral wealth, vast and untapped arable land for irrigated agriculture, immense tourism potential and abundant labour force. Apart from this, Ethiopia has the largest market potential in Africa for its location is very close to the middle East, Far East, and European markets. Ethiopia is a signatory of the LOME Convention, which permits it preferential (both duty-free and tariff-free) access to the European Union (EU) market. Ethiopia is also a member of the Common Market for Eastern and Southern Africa (COMESA) with a population of more than 270 million (MOT & I, 1996).

2.2 ECONOMIC STRUCTURE

2.2.1 Agriculture and Livestock

Agriculture is the backbone of the Ethiopian economy. Currently, it contributes over 45 per cent of the GDP, accounts for some 80 per cent of aggregate merchandise exports, and employs an estimated 80 per cent of the labour force (UNIDO, 1996).

Coffee, the major cash crop and the principal foreign exchange earner, generates over 60 per cent of export revenue. The other principal crops produced include cereals, oil seeds, pulses and sugar-cane. Cotton production is also being encouraged, as is the development of tea plantation.

Ethiopia has the largest livestock population in Africa, while hides and skins represent the country's highest exports, next to coffee. The products being exported so far are mainly in the semi-processed form. Thus, there is a potential for producing finished leather and leather articles for export market.

2.2.2 Manufacturing

The manufacturing sector, including handicraft and small scale industries, accounted for just under seven per cent of the GDP in Fiscal year 1993/1994, and contributes some five percent of total employment (UNIDO, 1996). For the most part, manufacturing is dominated by light manufacturing and agro-industries, most notably food processing and textile. Cement, metalwork, leather and chemical production also play an important role.

2.2.3 Mining

Minerals so far supplied to export markets include gold, platinum, marble, granite, and tantalum, though in a very limited scale (MOT & I, 1996). To date, Ethiopia's mineral resources are not much exploited owing mainly to lack of investment resources and appropriate technology. The Ministry of Mines and Energy has already issued exploration licenses to various companies as part of its drive to develop the mining sector.

2.2.4 Tourism

In tourism, too, Ethiopia offers to the world a unique blend of ancient historical sites, endemic wildlife, beautiful mountain ranges and landscape. Thus, the tourism potential of Ethiopia is indeed tremendous.

2.3 THE EXTERNAL TRADE SITUATION

The relationship that countries have with the international economy takes the form of international trade. Trade between countries has been important due to the following conditions among others (CSA, 1993).

- 1) Each country lacks some vital resources, either completely; or those are not sufficient enough; thus, it can only get by trading with others.
- 2) Differences in each country's climate, labour force and other endowments make it relatively efficient producer of some goods within its territory.
- 3) Specialisation permit larger outputs. Therefore, it offers economies of large scale production.

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The importance of trade for economic growth has been recognised since the economics of development theory evolved in the 1950s and many developing countries now recognise the importance of trade for efficiency, a healthy balance of payment, employment creation, and the exploitation of comparative advantage in resource endowment (Huges, 1992).

International trade plays a great role in developing countries, in that it serves as a means for the dissemination of technological knowledge, the transmission of ideas, for the import of skills, managerial talents and entrepreneurship since such countries are constrained with these factors.

According to the unpublished reports of the Trade Promotion Department under the Ministry of Trade and Industry, as of January 1998, there were 6677 businesses engaged in international trade activities as indicated below:

Importers	4042
Exporters	1255
General Import and Export	434
Commission agents, commercial agents and brokers	906
Commercial Representatives	11
Customs Clearance Service	<u>29</u>
Total	<u>6677</u>

2.3.1 Exports

The contribution of international trade to growth and development, to a large extent, depends on the performance and capability of the export sector of a given economy. Ethiopia's external trade statistics exhibits a familiar developing country pattern of exports consisting of almost entirely of primary (mainly agricultural) produce.

Table 2.1 : Structure of Major Exports, 1991/92-1994/95
(Percentage of total)

	1991/92	1992/93	1993/94	1994/95
Coffee	60.3	67.0	57.9	65.8
Leather and leather products	21.0	16.8	16.4	13.6
Petroleum products	6.7	3.8	5.8	3.4
“chat”	2.0	8.2	8.7	6.3
pulses	-	-	2.2	3.8
Oil Seeds	-	-	3.6	1.8
Others	10.0	4.2	5.4	5.3
Total	100.0	100.0	100.0	100.0

Source: National Bank of Ethiopia, Quarterly Bulletin; Fiscal Year Series, Vol. 12 (9), Third Quarter 1996/97

As can be seen in Table 2.1, exports are dominated by coffee, which accounts for about 63 per cent on the average for the four years. The second major export items include leather and leather products which account on the average for about 17 percent of total exports for the four years under consideration.

Table 2.2: Destination of Exports, 1991/92-1994/95
(Percentage of total)

	1991/92	1992/93	1993/94	1994/95
United States	4.8	10.5	6.8	6.3
Germany	17.8	17	18.0	32.0
United Kingdom	6.7	5.2	3.2	3.7
Japan	28.0	19.2	13.2	13.5
France	7.4	4.0	2.5	6.0
Italy	8.2	7.6	7.6	7.9
Netherlands	1.9	2.4	1.4	2.1
Djibouti	3.0	8.6	10.3	7.1
Saudi Arabia	14.3	14.0	7.6	—
Others	7.9	11.5	29.4	21.4
Total	100.0	100.0	100.0	100.0

Source: National Bank of Ethiopia, Quarterly Bulletin; Fiscal Year Series, Vol. 12 (9), Third Quarter 1996/97

With regard to the geographic distribution of trade, trade with the industrialised countries forms the most significant proportion of the country's aggregate trade. The industrialised countries' share in Ethiopia's exports registered some 70 per cent in 1994/95. The two main export markets are Japan and Germany. In 1993/94, and again in 1994/95, Germany overtook Japan to become Ethiopia's largest export market. In 1994/95 exports to Germany alone represented 32 per cent of total exports.

2.3.2 Imports

Import of consumer goods and capital goods have still accounted for the lion's share of total imports.

Table 2.3 : Structure of Imports, 1991/92-1994/95 (Percentage of total)

	1991/92	1992/93	1993/94	1994/95
Raw Materials	1.6	2.0	1.8	2.0
Semi-finished Goods	8.8	9.0	16.3	17.0
Fuel	13.8	22.6	15.3	15.0
Capital Goods	25.8	35.0	29.0	31.8
Consumer Goods	29.7	31.3	35.0	32.5
Miscellaneous	20.3	1.0	2.6	1.7
Total	100.0	100.0	100.0	100.0

Source: National Bank of Ethiopia, Quarterly Bulletin; Fiscal Year Series, Vol. 12 (9), Third Quarter 1996/97

As can be observed in Table 2.3 , consumer goods and capital goods comprised 32.1 per cent and 30.4 per cent (on the average), respectively, of total imports during the 1991/92-1994/95 Fiscal years.

Another major import requirement is petroleum, both crude and its derivatives.

Since the loss of the refinery facility at Assab to Eritrea, the volume of petroleum imports has risen sharply.

When looking at the origin of imports, the industrialised countries also predominate. On country-by-country basis, the United States is the principal

source of imports, accounting for some 14 per cent of the total in 1994/95.

Secondary sources of imports include Germany and the United Kingdom.

(UNIDO, 1996).

2.3.3 Balance of payment

Table 2.4 : Trends in Balance of Payment (In Millions USD)

	1992/93	1993/94	1994/95	1995/96	1996/97
Exports	222.4	279.6	453.6	410.2	561.3
Imports	1051.8	914.6	1063	1412.9	1500.1
Trade Balance	-829.4	-635	-609.4	-1200.7	- 938.8
Net Services	-23.1	10.9	60.8	95.1	114.4
Private Transfers	247.9	246.9	311.2	313.4	273.9
Current Account	-604	-377.2	-237.4	- 594.2	-550.5
Balance					
Office Transfers	400.4	285.1	417.5	391.7	279.2
Capital Accounts(Net)	-128	236.3	8.6	-11.3	-104.7
Errors & Omissions	233.5	33.6	-49.7	173.3	21.3
Overall balance	-98.7	167.8	149	-40.5	-354.7

Source: Ministry of Economic Development and Co-operation (MEDaC),

December 1997.

As depicted in Table 2.4 , a persistent increase in the value of exports has been registered since 1992/93. Particularly during the fiscal year 1994/95, exports have reached to the level of \$453.6 million USD, witnessing a 62.2 per cent nominal growth over the preceding year. Sharp increase in the price of coffee was the major

contributing factor for such performance. With the Exception of a slight drop in 1995/96, exports have continued to improve in 1996/97.

When looking at imports, a sharp increase was registered in 1995/96 from \$1,063 million USD, in 1994/95, to \$1,412.9 million USD in 1995/96 (an increase of 32.9%). The rise in imports was maintained in 1996/97 but with slower pace. Thus, the trade deficit improved from US \$594.2 million to US \$550.5 million. Regarding the balance of payment, a notable improvement was registered in 1993/94 and 1994/95.

2.4 THE POLICY ENVIRONMENT

To overcome the challenges posed by the serious deterioration of economic and social performance, the government adopted a new economic policy in 1992, which redefined the role of the state and private participation in the national economy by introducing market-oriented system.

To create conducive policy environment to market-based economy, the government has taken corrective measures. The reform program encompasses three overlapping phases, namely stabilisation, structural reform, and the enhancement of competitiveness (UNIDO, 1996)

The first phase of the reform program implemented since 1992 has sought to establish fiscal, monetary and exchange rate equilibrium. The second phase of the

program is aimed at stimulating a supply response to key reform variables, and the creation of the requisite enabling environment to foster private sector development. The emphasis here includes the elimination of controls on prices and distribution as well as reforms to the trade. Unlike previous times where prices were set by government, now they are subject only to market conditions.

The third phase of reform involves the development of appropriate financial sector institutions; and a comprehensive reform of the public sector. This is to include the restructuring of/ privatisation of inefficient public enterprises and the rationalisation of the civil service.

The policy measures taken include, among others:

- Abolishing of all export taxes except coffee;
- Exemption from import custom duties on capital goods;
- Deregulation of domestic prices in which all retail prices have been decontrolled except for petroleum,
- Reduction of inflation through budgetary and monetary controls;
- liberalisation of trade, and
- Devaluation of the national currency.

The currency was devalued from 2.07 Birr to 1 USD to 5 Birr to 1 USD in October 1992. Subsequently, currency auctioning was introduced on May 1993 (MEDaC, 1997).

Added to these, the investment code which was issued in 1992, has been revised in 1996 to attract both local and foreign investors. Currently, a new regulation is being drafted to allow involvement in sectors such as telecommunication services, hydroelectric power generation as well as defence industries for both local and foreign investors (The Ethiopian Herald, May 9, 1998).

Regarding the status of the overall investment activities over the past four and a half years in Ethiopia, a total of 3531 investment projects (both foreign and domestic) with an estimated capital of about 27 billion Birr have been approved and licensed by the Federal Investment Authority (The Ethiopian Herald, January 22 1998).

Besides, a significant number of state-owned enterprises have been and are in the process of being privatised so that they can be competitive in the market. At the same time, to improve the productivity and efficiency of some enterprises still in the hands of the state, the government has granted them managerial autonomy so that they operate with market orientation and be profitable.

In general, Ethiopia's economic reform and structural adjustment program is typical of the kind of policy which the World Bank and IMF have recommended for use in many developing countries.

2.5 NATIONAL TRADE FACILITATION PROGRAMS UNDER WAY IN ETHIOPIA

2.5.1 Automated Systems for Customs Data (ASYCUDA)

Plans for setting up a computerised customs management system (a software developed by UNCTAD) is in place in the Ethiopian Customs Authority. The installation objective of ASYCUDA as stated by the Customs Automation Project office (CAPO, 1997) is:

- Reducing the administration cost of external trade control activities and consequently prices of imported and exported goods through simplification of external trade regulations and customs procedures.
- Providing government with tools to bring a more effective, equitable and efficient application of external trade regulations and customs tariff.
- Establishing an information system for the control and monitoring of external trade activities through the production of accurate and timely statistics.

To these end, the project would involve:

- The installation of the computerised system at La Gare and Bole offices and eventually all other branch offices.
- The installation of computers at the Ethiopian Customs Authority Headquarters to manage the system (file reparation and update), to capture data from outlying stations and to consolidate the data from all sources for statistical purpose.

- The radical simplification of procedures, laws and documentation, such as the reduction of the number of declaration forms, harmonisation of data elements and codes in accordance with international standards.

According to the head of the Customs Automation Project Office, the installation phase of the project is already finalised and is ready for implementation.

2.5.2 The Ethiopian Trade Point

According to Lanvin (1995), a Trade Point is:

- A trade facilitation centre grouping all participants in a trade transaction under the same physical or virtual roof;
- A source of trade related information;
- A gate way to global networking.

The Global Trade Point Network (GTPNet) was initiated by the United Nations Conference On Trade and Development (UNCTAD) and presently has 148 trade points world-wide. GTP is a computerised network system linking about 7.6 million companies in more than 105 countries (ETP, 1997).

To join the Global Trade Point Network each country must first apply to UNCTAD.

Realising the benefits of electronic trading, the Ethiopian government had submitted a request to UNCTAD in February 1995(ETP, 1997).

After getting the approval from UNCTAD, the Ethiopian trade point is established as an autonomous government institution under the Ministry of Trade and Industry, in October 1997, with the following objectives (Proclamation No. 20, 1997).

- To collect, compile, process and appropriately disseminate trade related information so as to promote the country's foreign trade;
- To collect and disseminate foreign trade laws, regulations, directives and technical standards of other countries
- To make foreign trade procedures efficient by facilitating a situation whereby the trade point participants provide a co-ordinated service;
- To facilitate electronic trade transactions based on international standards.

As Pointed by the Director of the Ethiopian Trade Point, ETP is currently giving services free of charge for traders. In the future ETP will charge fees for the services it renders.

2.6 THE ROLE OF INFORMATION IN BUSINESS

Information is becoming regarded as a resource just like finance and capital. It is, however, a resource which enables management to improve the efficiency with which other resources are used (Moore and Steele, 1991). Modern organisations depend on information in order to stay competitive. A firm can gain competitive advantage if it can identify and respond to market opportunities before other firms do.

Information has emerged as a key strategic resource in national and international business development and the proper management of this resource can have enormous impact on the growth and development of a business. Indeed, in many cases it is a prerequisite for survival.

Davidow and Malone (1992) Pointed that the very nature of business itself is information. Mass of the employees in any corporation are involved in the process of gathering, generating, or transforming information.

According to Moore and Steele (1991), information can contribute to business in the following five different ways:

- Enable an organisation to handle greatly increased volumes of business;
- Improve the efficiency with which other resources are used;
- Enable organisations to take better account of the balance between supply and demand;
- Help reduce risk and uncertainty; and
- Provide a means of targeting most effectively the promotion and marketing of a product.

The first contribution - handling increased volume of business - is dependent on the use of information technology for the processing of information within the organisation. In the retail sector, information about stocks and sales is being used to

improve the overall stock control system by reducing the amount of stock which each store needs to hold.

Market depends on the interaction between supply and demand. In a perfect market goods or services will be sold at a price which balances supply and demand - thus there will be no unwanted or unsold goods. However, few markets operate at this level of perfect competition, and one of the main reasons for this is that buyers and sellers usually lack the necessary information.

Operating in commercial market usually carries a risk with it. Retailers are using information about sales to reduce the risk of stocking goods which will not sell. This is particularly important in areas like food retailing where the shelf life of products can be very short and the cost of over-stocking is correspondingly high. Information is also being used to improve the accuracy with which those who sell goods and services can target their promotions.

In all these ways a more information-intensive management style can improve the efficiency and effectiveness of the commercial sector. In the last few years, a great deal of attention has been given to the extent to which information technology can produce competitive success or can give one company a competitive edge over its rivals (More and Steel, 1991).

The growth of information technology is of particular importance in international business. As Silk (1995) pointed out, international business is different, or more difficult, than domestic business due to the following three barriers:

The first barrier is time, because time-zone and date-line often limit the period each day when business partners in different countries are both at work. The second barrier is that of distance. Geography and limited transportation infrastructure may make it very difficult to conduct business operations in ways that are suitable in the domestic environment. Dealing with customs authorities and the problem of trade barriers further handicap the international trade. Third, there is added complexity in international operations. Dealing with different nations means that the culture, politics, language, government and legal aspects must be researched.

Technology has helped enterprises to overcome such barriers to international trade. An extensive exchange of information has traditionally required close physical proximity between buyers and producers. With the improved communication facilities available today, the need for physical proximity is significantly reduced. Besides this, operations often extend to 24 hours a day with world-wide networks linking customers, suppliers, and the supporting business infrastructure, such as finance, customs, shippers, etc. (Don and Art, 1993). The abundant opportunity for communication will also promote mutual understanding between nations.

The barriers that traditionally separated large business organisations from small ones are breaking down, while at the same time the gulf between the information haves and have-nots grows wider (Gascoyne and Ozcubukeu, 1997).

While it is becoming clear that a fundamental shift in business dynamics is taking place, many businesses in developing countries are failing to exploit the potential of this strategic asset and, as a consequence, are placing their long term growth and viability in jeopardy. There are many reasons for this, such as poor telecommunications, the high cost of computer equipment, lack of available skills, lack of understanding of the dynamics of information age, etc.(Addis Business, 1998)

The origin of the Internet lie in exchange of information, and today that is still one of the most important aspects of the network. Currently, the Internet is changing the ways of conducting national as well as international business.

CHAPTER 3

THE INTERNET AND ITS BUSINESS APPLICATIONS

3.1 INTERNET AND ITS ORIGIN

According to Fry and Paul (1995), the Internet is a network that spans the entire world, connecting computers and computer networks globally through the international set of standards known as TCP/IP (Transmission Control Protocol and Internet Protocol).

The Internet is an outgrowth of a project in the 1970's by the US Department of Defence Advanced Research Project Agency (ARPA). During the height of the Cold War, it was decided that the communication infrastructure of the USA was all too vulnerable to atomic bomb attack (Moody, 1996).

Moody (1996) goes on to explain that, the solution adopted was to decentralise so that no one point controlled the network and would therefore form a potential weak-spot. Instead, all points connected together were peers, of equal importance. Moreover, the network traffic could reroute itself in the event of one or more nodes or lines being damaged, an important characteristic of the underlying packet-switched technology which was chosen for this reason.

This network was initially called ARPAnet - the Advanced Research Project Agency Network. ARPA became DARPA in 1972, adding "Defence" to the front of the acronym to clarify the involvement of the Defence Department (Gaskin, 1997). The benefits of this network system soon became apparent to other agencies with the United States (US). This led to the introduction of MILNET (the Military Network) and BITNET (the academic network) in the early 1980s (Jones, 1996).

The government was aware of all this networking going on and decided to invest in the technology by establishing funding for the National Science Foundation's own network, which became known as NSFNet, intended for use by researchers and scientists working with the US National Science Foundation.

During this gradual evolution of a military network into one based around universities, there was an important development on the technical front. Initially, the standards controlling the flow of information had been quite simple, but as the network grew, it became necessary to extend and formalise them. This was done in 1974, when Vinton Cerf and Robert Khan drew up the TCP/IP protocol (Moody, 1996).

These protocols describe how data is divided up into packets and then sent over the network in a reliable way. According to Moody (1996), it was from the second part of the acronym (Transmission Control Protocol and Internet Protocol) that the Internet derives its name.

Currently, no one owns and controls the Internet. The Internet is made up of several thousand independent networks, each of which has its own administrative authorities. However, the general direction of the Internet is organised by the Internet Society (ISOC), which was established to be the international organisation for global co-operation and co-ordination for the Internet and its inter-networking technologies and applications (INET'98).

The technical aspects of the Internet are handled by the Internet Architecture Board (IAB), the Internet Engineering Task Force (IETF) and the Internet Engineering Steering Group (IESG). These ISOC's standard bodies create a coherent communications platform to prevent fragmentation of the Internet into different factions (INET'98). Another authority, known as InterNic (short for Internet Network Information Centre), is responsible for the registration of all computers and networks connected to the Internet.

According to NUA Internet survey (1998), the world-wide Internet population as of January 1998 is estimated to be 112.75 million as shown below.

Table 3.1 World-wide Internet Population Statistics

World Total	112.75 million
Africa	1 million
Asia/Pacific	14 million
Europe	20 million
Middle East	0.525 million
Canada & USA	70 million
South America	7 million

Source: NUA Internet survey (1998)

The total number of Internet users in Africa is estimated at between 800,000 and 1 million, 700,000 of which are in South Africa (NUA, 1998).

The Network Wizards Internet survey (1998), also shows 29,670,000 IP addresses as of January, 1998. This survey was based on counting the number of IP address-assigned names.

3.2 COMMERCIALISATION OF THE INTERNET

When conceived in 1969, the then ARPANet was purely the domain of government research agencies and academic institutions, and the network structure was government subsidised. At that time, the use of the Internet to promote the sale of goods and services was considered unethical, because people could not make money at the tax payer's expense (Cook and Sellers, 1995).

Large corporations have been linked to the Internet since the 1980s. However, it was only their research and development departments that would access the Internet, using it as a means to gain scientific and technical information from the government and the academic community (Maurer, et al, 1995).

Corporate information system staff were the next to use the Internet, primarily the many USENET news groups that focus on computer hardware and software, whereby participants answer each other's technical questions. Soon thereafter computer product vendors, realising that their products and those of their competitors were being discussed in the news groups, began to monitor the News

Groups as a means of gaining customer feedback, and participated in correcting false information (Maurer, et al, 1995).

While ARPANet grew, similar networks were developing with a more business-oriented slant, although they did not have access to ARPANet. Later on, many corporations joined by linking their computers, Local Area Networks (LANs), and Wide Area Networks (WANs) to the Internet, adopting Transmission Control Protocol Internet Protocol (TCP/IP).

In 1990, corporations wishing to use the Internet faced a series of problems, because business use of the Internet was prohibited by the National Science Foundation's Appropriate Use Policy (AUP), a document which listed the various permitted and forbidden activities (Moody, 1996).

Moody (1996) further states that it was in part due to this ban that a major alternative to the NSF's backbone was created. This was CIX, the Commercial Internet Exchange, set up to permit business use. The upstart of the Commercial Internet Exchange heralded the beginning of the end to the NSF Appropriate Use Policy. With the tremendous growth in other commercial networks, the importance of the NSFNet diminished considerably to the point where the AUP was irrelevant anyway. In 1991, the NSF lifted the restriction on the commercial use.

Then after, the NSFNet and the commercial nets were finally connected, and it is due to the presence of more and more of these businesses that the Internet is growing

rapidly. In 1995, the NSFnet reverted back to the research project, leaving the Internet in commercial hands clearing the way for Electronic Commerce (Zakon, 1997).

Currently the largest and fastest growing segment of the Internet is business and the Commercial Domain Number has already overtook the number of research and academic institutions.

Electronic commerce is any use of electronic networks and technology for commerce and other economic activity. This includes the use of electronic communication as the medium through which goods and services of economic value are designed, produced, advertised, catalogued and inventoried, purchased and accounts settled. Geographic location, abundance of capital or the ownership of retail outlets are irrelevant to this type of transaction (GII Commission, 1996).

According to GII Commission (1996), electronic commerce has the following benefits:

- Electronic commerce is an innovative force that will liberate industries and people from the limitations placed by physical elements, time and space on traditional economic activities.
- From the seller or supply side, no longer will the provider of goods and services maintain retail outlets and warehouses, nor will they have to incur the high costs of producing hard-copy catalogues and documents. Companies and products no

longer need to be advertised over many different types of media. The seller can accomplish all the functions of commercial activity at once: offering products, negotiating terms of sale, completing the sale and directing delivery of the products.

- From the buyer's or demand side, consumers need not search through large volumes of hard copy information when seeking a business partner, goods or services. They can also reduce the frequency of business trips. Business partners can jointly develop and manufacture products using electronic communication. Companies will become more responsive to changes in the market, and stay one step ahead in grasping future changes.
- Consumers will be able to shop from home, and avoid crowded commercial areas. Better informed consumers will have immediate and global access to information about products and services.
- Electronic commerce is an innovative approach to ensuring sustainable economic growth and promoting industrial development commensurate with each country's economic condition and pace of growth. Electronic commerce will contribute to facilitate global peace because the abundant opportunities for communication will promote mutual understanding.

New applications increasing users and faster connections have increased the popularity of the Internet to become an important medium for electronic commerce.

3.3 BASIC INTERNET APPLICATIONS

Different methods of connecting to the Internet provide different levels of access to Internet applications. Therefore, as a starting point an organisation must examine each Internet application and determine whether it requires access to that application (Slone, 1997).

3.3.1 Electronic-Mail

Most network users get their start by using electronic mail. Electronic-mail (E-mail) is one of the most popular and most widely used Internet service. It makes it possible for users to exchange messages among themselves. E-mail has several advantages, chief among which are speed, low cost, no need for synchronisation between sender(s) and recipient(s), the possibility of simultaneously contacting several recipients, etc. (Djamen, et al, 1995).

When compared to the two well-known means of communication, i.e. telephone and postal mail, telephone is the fastest since it enables establishment of a communication link between two persons within a few seconds. The postal service is the slowest and takes at least several days. The speed of e-mail is variable depending on the various methods of transmission (satellite, coaxial cable and phone line). However, transmission of most messages between any two points via the Internet normally takes a few minutes.

One of the disadvantages of the telephone, when compared to e-mail and postal mail is the requirement for the physical presence of the recipient at the time of the

communication. E-mail does not require synchronisation with the recipient. Messages that are received are stored until they can be read, just as postal mail is kept until distribution (Djamen, et al, 1995).

With e-mail it is also possible to create a group of **mailing lists (Listserv)** where mail sent to one address will cause the information to be distributed to all members who have subscribed. Mailing lists are very useful ways to disseminate information such as office memos and reports to a number of people at a time.

3.3.2 File Transfer Protocol

The File Transfer Protocol (FTP) is the method used for the transfer of files between Internet sites. It is a special way to log into another Internet site for the purposes of retrieving and sending files. The type of machine as well as the type of operating system may be different.

Information subject areas available for access through file transfer are virtually unlimited. Organisations commonly access shareware programs and utilities, drafts and finalised standards for computer and communication systems, network management information, and data on currency exchange values (Slone, 1997).

FTP enables sharing of files between sites separated by several thousand kilometres. The speed of transfer varies depending on the load on the network and the particular Internet connections used. There are several hundred FTP sites containing several gigabits of data that can freely be accessed and copied.

3.3.3 Remote Log in

Remote log in (Telnet) lets Internet users access remote computers as if their workstations or personal computers were directly connected to the remote machine. Telnet enables the establishment of links to and working from far away sites. It is thus possible to execute commands at the remote site in the same way a they are executed at the local sites.

Telnet is also used by the general public to access servers and examine data. It is thus possible to access the catalogues of many libraries throughout the world, to consult the white pages to obtain a list of Internet users, and to consult a variety of data banks (Djamen, 1995).

3.3.4 News Groups (Usenet)

There are a large number of news groups on the Internet to which users may subscribe. The News Group consists of a variety of discussion groups on several subjects. Participants write articles that are posted to the group(s) they specify. Each article posted to a group is available to all subscribers to that group who can in turn respond to the article, thereby making a discussion.

News articles are similar to e-mail, the difference being that the recipient is not an individual address or a list of addresses but rather the name of one or several discussion groups. The NEWS constitute a very effective means of information. They provide the forum for hundreds of thousands of people to participate in discussion both for acquisition of knowledge and for reactive purposes (Djamen, 1995).

Not all Usenet machines are on the Internet, may be half. Usenet is completely decentralised, with over 10,1000 discussion areas (Internet Literacy Consultants, 1998).

3.3.5 Gopher

Gopher is a retrieval tool that permits online browsing across the Internet by using menus. It enables searching for and accessing information without prior knowledge of the names and addresses of the site(s) where it is located or without knowledge of the access routes(s). The Gopher interface enables the selection of items, when a particular selection requires an application such as Telnet or FTP, the application is directly called up for the user.

As the number of Gopher sites increased around the world, it became more and more difficult to locate and access them. To help address this problem, **Veronica** (Very easy rodent-oriented netwide index to computerised archives) was developed. Veronica is basically an extension of gopher; it searches the titles of files in Gopher servers around the world and creates an index.

Another utility program that helps locate files is named **Archie** which is developed to catalogue all FTP files available on the Internet. Archie logs into virtually all FTP sites, scans the list of FTP files and then updates an indexed database (Cats-Baril and Thompson, 1997).

3.3.6 Wide Area Information Server

Wide Area Information Server(WAIS) is an Internet utility for accessing indexed information. Just like Gopher, WAIS enables access to resources across the Internet, without prior knowledge of their location nor the necessary address(es). However, unlike Gopher, only the item requested is presented in WAIS. There exist several WAIS libraries across the Internet, which contain information on subjects such as computer science, networks or religion (Djamen, 1995).

3.3.7 The World Wide Web

The World Wide Web(WWW) was developed at CERN (the European Laboratory for Particle Physics) in Geneva, and is the fastest growing part of the Internet. It was devised by Tim Berners-Lee as a way of allowing physicists to access information held in a number of locations but relating to common area of work (Moody, 1996).

The function of WWW is to organise any information available by Internet into hypertext documents that are easily accessed through special links. The idea is that instead of reading a text in a linear fashion, from beginning to end, there are certain points often called hot-spots that let one jump to other documents, either on the same machine or indeed anywhere else on the Internet. Moreover, all of these hypertext files may have images, sounds, even videos, creating a complete multimedia document sometimes called hypermedia (Moody, 1996).

Global hypermedia allows multimedia information to be located on a network of servers around the world which are interconnected allowing one to travel through the information by clicking hyper links (Hoffman and Novak, 1997).

3.4 BUSINESS USES OF THE INTERNET

Today, thousands of companies are doing business on the Internet. Everyday, the electronic commerce market gets bigger, and everyday a new Internet related business begins to threaten an existing traditional business. According to Forrester research (NUA, 1998), the 1997 online transactions total approximately US \$9 billion. Cisco systems leads with US \$3.2 billion in sales for 1997 and is followed by Dell Computer with US \$1 billion in sales.

According to these same surveys, 1997 business to business transactions totalled US \$7.5 billion and online business-to-business transaction is estimated to approach US \$327 billion in the year 2002.

Businesses use the Internet for almost as many reasons as there are businesses (Ellis Worth, 1994). The Internet is used by businesses for the following purposes which have some degree of overlap.

3.4.1 Marketing and Advertising

The WWW appears to be in ideal medium for businesses attempting to promote themselves. Thousands of organisations have set-up their home page on the Internet with the intention of marketing themselves and their products and services. The multimedia capabilities of the Web, which enable the delivery of pictures and sound as well as text, make it a great venue for gaining instant access to millions of people all over the globe.

Many companies are building online catalogues accessible to millions of people world-wide that can be instantly updated and customised. The user friendly consumer oriented home pages of the WWW utilise the system of hyper links to simplify the task of navigating among offerings on the Internet. The present popularity of the WWW as a commercial medium is due to its ability to facilitate global sharing of information and resources, and its potential to provide an efficient channel for advertising, marketing (Hoffman and Novak, 1997).

The cost of advertising on the Internet is a fraction of advertising in a newspaper, over the radio or television. Providing product specification online is cheaper than conventional printing and publishing, and can be changed easily as the details change.

3.4.2 Sales and Distribution

In some cases, companies are doing actual product sales transactions on the Internet. If the product is convenient to Internet deliveries (as with software and publications), the actual product is delivered via the Internet. The Web potentially offers certain classes of providers participation in a market in which distribution costs or cost-of-sales shrink to zero. This is most likely for firms in publishing, information and digital product categories (Hoffman and Novak, 1997).

Moreover, buyers and sellers can access and contact each other directly, potentially eliminating some of the marketing costs and constraints imposed by such interactions in the terrestrial world. This may also have the effect of shrinking the channel and making distribution much more efficient (mainly due to reduced

overhead costs through such outcomes as uniformity, automation, and large-scale integration of management processes). Time to complete business transactions may be reduced as well, thereby creating additional efficiencies for the company.

Web forms are the most convenient way for customers to place orders since they can simply tick the product or service they want and submit it online. Having forms with space, for credit card details is the easiest way for customers to pay. The confidence in security can be increased by having various registration schemes available to protect from Internet fraud (Jones, 1996).

Jones (1996), goes on to explain that this can be done by having new customers fill a registration form, which automatically allocates them a customer number. They then telephone with the credit card details. Whenever they order they quote their customer number and the vendor can automatically allocate the payment to a particular credit card number.

Another method is the use of Web browser software that provides for secure transactions of credit card and other confidential information. The Internet also makes after sales support more efficient. Vendors can distribute product documentation on the Web and provide support by e-mail. Business on the Web transfers more of the selling function to the customers, through online ordering and the use of fill-out-forms.

3.4.3 Access to Technological Information

Competitive advantage can be increased due to access to state-of-the-art information on products, materials, new ideas and even the situation of a given industry. Many corporations use the Internet to engage in what some call “techno-watch” keeping a finger on the pulse of emerging and new technologies, and the market response to those technologies (Ellisworth, 1994).

3.4.4 Information on Trade Regulations and Technical Standards

Trade regulations are often capable of making or breaking an export/import opportunity. They may include tariffs and taxes, as well as a wide range of non-tariff barriers such as quantity limits, controls on use of foreign exchange, prior deposits, qualitative requirements and others. Access to this type of information is possible on the Internet.

3.4.5 Price Information

An exporter or importer without price information is blind. Price information provides exporters and importers with primary basis for determining whether or not international trading operations are economically viable. If not immediately viable, it allows them to set specific targets and to ascertain which cost-related measures are needed to meet those targets. Price information is readily available on the Internet for most commodities.

3.4.6 Expert Advice and Help

There are many experts on the Internet who make their presence widely known and easily accessible. Very often one can get free advice and help with problems he

might have from the same people who are paid highly for their consulting services to large organisations.

3.4.7 Cost Reduction in Business

Communication, distribution, advertising , marketing , customer support, and sales all represent major business expenses. The Internet, however, provides an alternative to the traditional channels of performing these functions while significantly reducing expenses.

The Internet offers huge potential for organisations looking for opportunities to re-engineer business processes all along the value chain, providing better ways of doing business at significantly reduced costs (Paxton and Baker, 1997). For instance, instead of purchasing being done by an order, entered into company A's computer, then printed and mailed or faxed to company B for re-entry, the order can be entered directly by the purchaser into company B's computer system. Costs are reduced for both companies, the quality of information improves and the number of queries reduces significantly.

Operational benefits of the Web use for industrial sellers are: reduced errors, time, and overhead costs in information processing; reduced costs to suppliers by electronically accessing online databases of bid opportunities, online abilities to submit bids, and online review of awards. In addition, creation of new markets and segments, increased generation of sales leads, easier entry into new markets (especially geographically remote markets) and faster time to market are facilitated.

This is due to the ability to easily and cheaply reach potential customers and elimination of delays between the different steps of the business sub-process.

Sending brochures or annual reports around the world can cost thousands for printing and postage. Sending them via e-mail or allowing them to be downloaded to readers' PCs via the organisation's web site can be done for a fraction of the cost, with the added benefits of significantly speeding up delivery time.

3.4.8 Low-cost Communication (External and Internal)

Often, the first and most frequent business use of the Internet connectivity involves internal and external communications. E-mail is a low-cost method for maintaining regional, national, and international communications. Messages can be exchanged in minutes as opposed to days or even months using regular mail.

E - mail has proved to be an effective solution to the problem of telephone tag. As Jones (1996) pointed out, "You don't have to hang on while the person comes to the phone, nor does your fax machine have to retry three times because the line is engaged, or the machine at the other end has run out of paper". E-mail can be sent from just about anywhere where there is an Internet service or access, so businessmen or travellers can keep in touch with up to the minute details of the office or site.

3.4.9 Collaboration and Development

It is increasingly common for companies to form partnership and collaborative development efforts. Researchers and business executives alike have attested to the

fact that a lot of their communications over the Internet are with others in their line of research or field of work (Shah, 1994). Communicating with peers allows people to share their ideas, problems and solutions amongst themselves. Quite often people find that others in their field have already tackled problems similar to their own. They can then get advice on their own situations and create a solution based upon this shared knowledge.

3.4.10 Product Analysis

Many users also do product analyses and comparisons and report their findings on the Internet. Very often, one can find another person who may be familiar with a product he is currently testing or about to purchase. So he can get first-hand reports on the functionality of such products before spending a good sum.

3.4.11 Market Analysis

The large base of Internet users is a prime area for the distribution of surveys for an analysis of the market for a new product or service idea. These surveys can reach a great many people with little effort on the part of the surveyors. Once a product is already marketed, one can examine the level of satisfaction that users have received from the product.

3.4.12 Trend Spotting

For a company, knowing how its current investments are doing is not enough. It also needs information on what will happen in the future. Generally, the Internet is the most useful source for gathering news and tracking economic indicators. If one wants to know about global economic trends the Internet is the best place to go.

The Internet can be used as vast, easily accessible library of information. Granted, some information will still be paid for, but the cost of locating and accessing the information available will be much lower, and the quantity of information accessed is likely to be higher as a result of the greater choice.

3.4.13 Recruit New Employees

The Internet has many job lists and resumes online for prospective employers. New resumes are constantly posted to the Usenet groups to inform the availability of new skills. Traditionally, the way to find people for employment was by advertising in newspapers, recruiting from colleges and other institutions. While some news groups have caused controversy over offensive and illegal postings, the fact remains that companies offer news groups and people try to locate jobs through them.

3.4.14 Cost-effective Document Transfer

Transferring online documents through the Internet takes a very short period of time and this saves a lot of money over postal or courier services which can also suffer late deliveries, loss or damage. If a document transfer fails on the Internet, you can always try again since the cost of the transfer is the same. Most, if not all, Internet access providers do not charge by the raw number of bytes transferred across their link unlike other commercial information services (Shah, 1994).

3.4.15 New Business Opportunities

Business opportunities on the Internet include the following, among others :

- Suppliers looking for potential buyers of specific products;
- Buyers looking for potential suppliers of specific products;

- Manufacturers in search of technical assistance, appropriate technology and know-how in specific production lines.

Availability of new ideas and to be able to seek opportunities are essential for business firms to stay flexible and innovative. Such sources of new ideas and opportunities are often freely accessible on the Internet.

3.5 SECURITY AND LEGAL ISSUES IN DOING BUSINESS ON THE INTERNET

3.5.1 Security Issues

By its very nature the Internet is an open system and hackers or crackers may try to enter into company's internal network for mischievous or illegal purposes. Inadequate security is the biggest challenge to making the Internet a commercial market place. Because incidents of security breaches on the Internet are common, many businesses and consumers are uneasy about performing financial transactions online.

In theory, there is no difference in the risk associated with online transactions and those involved with mail-order, telephone, or fax. In practice, however, much less is known about the amount and type of losses that might be encountered online, so organisations have taken a cautious approach to the new medium (Kennedy and Dietsch, 1995).

The Internet society estimates that about half of all the networks are not tied into the Internet, because their network administrators are too fearful of the security risks.

Internet security threats range from curious prowlers to well organised, well equipped intruders who seek to gain access to private information or maliciously disrupt an organisation's communications and computer systems. For an individual, the risk is relatively minor and some precautions may be all that is necessary. For organisation, the risk of loss due to the invasion is significantly higher (Hodges, 1997).

According to recent survey (conducted from May to September, 1997) by NetSolve, a provider of remote network management and security services, almost 100 per cent of security attacks are targeted at electronic commerce sites. The same survey also revealed that if a company operates a high-visibility electronic commerce Web site, that site is experiencing as many as five serious security attacks per month (ISOC Forum, 1997).

Besides financial transactions, security is also needed for sensitive request for quotation, confidential bids, and collaboration on projects involving trade secrets. Data integrity is also another issue related to security. Data sent as part of a transaction should not be modifiable in transit.

Individuals and businesses are demanding communication networks through which information can flow in a free and secure manner. Secure world-wide communication are critically important as intruders, criminals, competitors, and other unauthorised parties find increasingly sophisticated tools to violate the privacy and security of communications (GII Commission, 1996).

Today, there are two basic approaches to secure electronic commerce. The first one focuses on securing individual servers and network sites. This access security is generally addressed by firewalls.

The second approach focuses on transaction security. Transaction security addresses the following issues:

- **Authentication:** Makes both parties to be confident and know with whom they are talking to;
- **Message integrity:** Prevents message contents not to be changed or tampered with; and
- **Non-repudiation:** Prevents companies from denying that they have sent or received a file.

Transaction security can be insured by using encryption methods. According to Backer (1991), data encryption is the process of convening a normal message (plain text) into a non-legible message (cipher text) that cannot be read until it is decoded (decrypted) into the original plain text form. Encryption scrambles the data and make it unreadable to any one who does not possess the key to decrypting.

While cryptography is an important tool to protect the confidentiality, integrity and availability of electronic information, including intellectual and other intangible property, cryptography can be used for illegal activities that may affect national security or public safety. Policy development must strike the proper balance among the needs of businesses, individuals, public safety and national security (GII Commission, 1996).

3.5.2 Legal Issues

Businesses communicate electronically to issue instructions and to make commitments with outside parties. Business messages between independent firms can have legal implications. According to Baker (1991), electronic transactions and contracts raise some issues like the following:

- Are they enforceable in court?
- Can they be proven in court?
- How must they be recorded for tax purpose?
- When does an electronic transaction become binding?
- Who is responsible if a transmission is a victim of industrial espionage?
- Who has responsibility in case of an audit?

So, the legal system of each country, and international trade agreements between nations, must be adjusted and reformed to accommodate such issues and the new concepts of law, to facilitate electronic commerce.

CHAPTER 4

SURVEY OF THE IMPORT/EXPORT BUSINESS USE OF THE INTERNET IN ETHIOPIA

The survey part starts by briefly reviewing the existing telecommunications infrastructure and the Internet connectivity conditions in Ethiopia. Then, it proceeds with ascertaining the information needs of Importers and Exporters and the level of their awareness, experience and use of the Internet. It also attempts to identify the problems encountered in utilising the Internet. The data was collected using questionnaire, interview and document analysis as discussed in Section 1.6.1 of Chapter 1.

4.1 THE EXISTING INTERNET CONNECTIVITY CONDITIONS

4.1.1 Telecommunications Infrastructure

The introduction of telecommunications in Ethiopia dates back to 1894¹. Though telecommunications service in Ethiopia has a history of more than a century, it has not been in pace with current developments and is far from satisfying the requirements of customers.

Until 1996, the operator and regulator of telecommunications services in Ethiopia was the Ethiopian Telecommunication Authority (ETA). In November 1996, the

¹ ETC (1994). Historical Review of Ethiopian Telecommunications, 1894-1994.

ETA was reorganised as the corporation (ETC), with the following main objectives (Regulations No. 10/1996):

- To repair, assemble and manufacture telecommunication equipment and facilities; and
- To engage, in the construction, operation, maintenance and expansion of telecommunication services;
- To provide domestic and international telephone, telex, and other communications services;
- To provide communication services using integrated information technology, including re-broadcasting of television broadcasts;
- Render training services to telecommunication personnel.

A separate regulatory body - the Ethiopian Telecommunication Agency (ETA) - was also established as an autonomous agency which is accountable to the Ministry of Transport and Communications. The powers and duties of the Agency are (Proclamation No. 49/1996):

- To ensure that telecommunications services are operated in manner that will best serve and contribute to the country's economic and social development;
- To specify technical standards and procedures for the provision of telecommunications services;
- To ensure that telecommunications services conform to the specified standards of quality;
- To regulate tariffs relating to basic telecommunications services;
- To license and supervise operators of telecommunications services;

- To regulate types of telecommunications equipment which may be connected to a telecommunications system;
- To authorise and supervise the use of frequencies allotted to Ethiopia;
- To represent the government in international conferences and international organisations concerned with telecommunications, and to follow up the implementation of treaties dealing with telecommunications to which Ethiopia is a party; and
- To collaborate with educational institutions in order to promote technical education in the fields of telecommunications.

Currently, the provision of telecommunications services such as telephone, telex, telegraph, facsimile and data are monopolised by the ETC. The existing domestic facilities of the ETC include Open Wire System, Rural Radio Calls (RRC), Digital Radio Multi-access System (DRAMAS), Microwave and Domestic Satellite Transmission System (DOMSAT) serving 548 Telecom-stations throughout the country². Among these, 32 towns, including Addis Ababa, are provided with automatic exchanges and 155 towns with semi-automatic exchanges. The rest 248 are serving on manual basis and 113 are Rural Radio call and pay stations.

Ethiopia gets international telecommunications links through its two standard “A” Satellite earth stations accessing the Atlantic Ocean Region Satellite, and the Indian Ocean Region Satellite. Another important link is PANAFTEL Microwave network

² Statistical information regarding the operations and services of the Ethiopian Telecommunication Corporation is taken from the Annual Statistical Bulletin, prepared by Strategic Planning Division of ETC, 32nd Issue 1996-97.

linking Ethiopia to East and South East Africa. For route diversity, circuits have also been acquired on the SEA-ME-WE (South East Asia-Middle East-western Europe) submarine cable system via the Republic of Djibouti for linking Saudi Arabia and Egypt.

The overall tele-density in Ethiopia is 3 lines per 1000 population, which is significantly lower than the African average of 14 lines per 1000 population. By comparison, the tele-density in the United States is 650 phone lines per 1000 population, and 450 lines per 1000 population in Europe (Butterly, 1997).

Access to services in the rural areas is poor and there is an imbalance in provision between urban and rural areas. From the existing telephone lines, about 75 per cent are concentrated in the capital while most of the remaining are also in major towns.

Expansion of telephone lines has been unable to keep pace with the growing demand for services. At the end of June 1997, there were 156,538 telephone subscribers representing a growth trend of 4.3 per cent for the period 1992-1996. The growth in demand for the same period was 11.1 per cent. Over 206,562 potential subscribers are waiting for telephone lines in many cases for a number of years.

According to the Data Communication Study Group report at the ETC (1997), the size of the existing automatic exchange total installed line capacity amounts to nearly 160,000. Among these, the digital exchange installed capacity constitutes about 46%. About 67% of the digital installed capacity is concentrated in and

around the capital while the rest is found in 9 provincial towns. Rural penetration of telecommunications services is extremely low.

The medium-term development program of telecommunications covering 1998-2000 focuses on expansion, diversification and modernisation of telecom services. To this end, the ETC has planned to install 574,000 digital telephone lines throughout the country over the next three years.

According to the Study Group's report, of this total capacity, 341, 000 will be installed in Addis Ababa and the out skirting towns. This will raise the overall digitisation level of automatic exchange to the tune of 88%. It is also expected that the existing tele-density will be increased from 3 to 12 lines per 1000 population

It is also planned to introduce telecommunications service, in remote areas by the use of VSAT (Very Small Aperture Terminal) and Mobile Telephone. These technologies will be of great help in getting access to remote areas, particularly the mountainous regions. VSAT and Mobile Telephones will also be used in upgrading the existing poor telephone lines in some towns.

The ETC has recently finalised the feasibility study for introducing Data and Multimedia Communication System. According to the report of the Study Group (1997), Digital Lease Line, Frame Relay, and Integrated Service Digital Network (ISDN) are selected as appropriate technologies for the Ethiopian situation.

4.1.2 Internet Connectivity Conditions³

The ETC has launched its Internet service in Ethiopia since January 1997. The international connection to SPRINT/GLOBAL One in the USA (a joint venture of the American Sprint , French Telecom, and Deutsche Telecom) is effected through 256 kbps digital leased line via satellite with a monthly cost of about US \$10,000.

The Internet service node in Addis Ababa is based around LAN interconnected Server-Router configuration in which 4 SUN SPARKSTATION 20 servers stand for different Internet services such as Domain Name system (DNS), Mail, News, World Wide Web (WWW), File Transfer Protocol (FTP) , etc. CISCO Access Servers manage the dial-in connection, and CISCO 7507 Routers manage the international connections. A total of 64 dial-in modems (28.8 kbps) handle all local calls by means of a round-robin call hunting method programmed at the digital exchange. All customers get access to the service through a dial up modem connections over the Public Switched Telephone Network (PSTN).

Depending on the modems at the customer end, the speed of connections may range from 2400 bps up to the highest speed of 28,800 bps. Currently, only 64 users can get access to the Internet at a time. In other words, with the current user base of over 1,600, more than 25 subscribers are using one line. According to the current Operations Manager of the Internet Centre, there is a plan to upgrade the number of

³The existing connectivity conditions, the price structure, and the users profile discussed in this section are based on data collected by interviewing the concerned officials of the Ethio-Internet Center at the ETC.

dial-up modems to 128 and the international leased line to 512 kbps in the near future.

The ETC has not given permanent or “Real” IP address to subscriber's computers connected to the Internet. Due to the absence of permanent account, organisations possessing a local area network should subscribe an Internet account for each of their computers (users). This involves substantial cost, because, firstly, the organisation needs additional modems for every computer while only one modem could have served for the entire organisation. Secondly, the Internet bill would have been lower if the organisation entered a single subscription rather than one subscription for each user.

According to the Operations Manager of the Internet Centre, the Internet addresses allocated to the ETC from the Central Internet Registry is “C” class addresses which have only 255 IP numbers. The manager further noted that today it is becoming increasingly difficult to obtain larger blocks of Class “A” and “B” addresses simply because there are relatively few such numbers left.

The range of Internet services currently provided by the ETC are: E-mail, World Wide Web, News Group, and File Transfer Protocol. Users can't Telnet (log in) at the server at the ETC and change their passwords. The assignment of passwords is handled by the provider and users should always inform the provider whenever they need to change their password.

The Marketing Manger of the Internet Centre pointed out that this is done for the purpose of taking precautions against hackers or crackers who may try to infect the system with damaging computer viruses.

4.2 ETC'S INTERNET PRICE STRUCTURE

The ETC's Internet price structure is of discriminating type. It offers a differential price rate and connection hours for different categories of users. Effective November 1, 1997, the ETC has reduced the one-time registration fee and the monthly Internet tariff by 25% for individuals, business firms and government organisations and by 50% for public education, health and agricultural institutions. The existing ETC's Internet service charges and online hours are shown in Table 4.1.

Table: 4.1 Structure of ETC'S Internet Service Charges

Category	Monthly online hour	Monthly Charge, USD	Initial payment In USD
Individual I	8	19	56
Individual II	15	34	75
Non-profit Governmental Organisations.	40	38	56
Public Health, Educational and Agricultural Institutions.	40	25	38
Business, Embassies and NGOs	40	75	113

A set-up fee of US \$20 is charged if the subscriber needs the system to be installed by the ETC. The telephone connection charge is 2 Birr per hour for local calls while

the rate for regional subscribers varies depending on how far they are located from the Capital. Customer support is provided through telephone or by visiting customer sites, charging US \$10 per visit for the latter. Non-profit government organisations, public health, educational and agricultural institutions pay US \$2 for every additional hour they use. The rest pay US \$4 for every additional hour.

Although it is not functional at this moment, a leased line with 64 kbps is also available with a monthly cost of US \$1500 and initial payment of US \$500. The Manager of the Internet Centre pointed out that the ETC will commence issuing a leased line Internet service as soon as the existing system is upgraded. Organisations such as the ECA, OAU, and the Ethiopian Air Lines have already applied for a leased line

The Manager of the Centre further noted that the ETC is planning to open seven public Internet service stations "Cyber Cafes" at different places in Addis Ababa in the near future. The services will cost 10 Birr for the initial period of 15 minutes, and 3 Birr per period of 15 minutes thereafter. Sending written messages costs 3 Birr for each page.

Preparations are also underway to begin similar services in eight regional towns. These include, Mekelle, Bahir Dar, Dessie, Shashemene, Awassa, Nazareth, Jimma and Dire Dawa. The proposed Internet presence in these regional centres is through a dedicated 64 kbps links from the main Internet node in Addis Ababa.

The Addis Ababa Chamber of Commerce (AAC) and the British Council Library also provide Internet access services to the public. The AAC charges Ethiopian 0.75 cents per minute to its regular members and 1 Birr to non-members. The British Council charges 1 Birr per minute for Internet access services.

The Information Systems Training (IST) Department at the ETC has given training on the Internet for a total of 800 people in the last year (January 1997- December 1997). The training programs include the following:

- Module covering the history the Internet, architecture of the Internet, and basic services and Internet tools, for 15 hours;
- Module covering e-mail guidelines, e-mail transport system, e-mail program, and detailed exercise on message management features of selected e-mail programs, for 15 hours;
- Module covering hypermedia concept, popular WWW client programs, search engines, and introductory HTML scripting, for 20 hours; and
- Module covering FTP servers, downloading, uploading, Internet file formats, and decoding utilities, for 15 hours.

The ETC has recently started Web page development and hosting services against charges shown in Table 4.2.

Table 4.2 : Price for Web page Development and Hosting

Services	Cost
Uploading and verifying pages	Birr 25 per page (maximum 10 external or internal links)
Web page development - text file	Birr 100 per page (1 typed page approximately 300 words per page)
Scanning art work	Birr 150 per image
Scanning art work with animation	Birr 300 per image
Web page customised format using HTML coded forms	Birr 200 per form
Web page format using tables	Birr 150 per page (if more than 2 table/ page Birr 25 for every additional page)
Rent for hard disk space	2 USD per 1 MB space

The ETC has recently offered two free E-mail boxes and 2 MB hard disk space for its 40- hours-per-month category of subscribers. It has also offered 1 free E-mail box and 1 MB hard disk space for its 15-hour-per-month category users.

4.3 INTERNET USERS PROFILE

The introduction of the Internet in Ethiopia has made available a wide range of up-to-date information for a limited number of users who can afford it and who know its benefits.

At the end of December 1997, there were 1,686 Internet subscribers in the following categories:

Table 4.3: Internet Subscribers by Category

Category	Number of Subscribers
Individuals I	718
Individuals II	291
Non-profit Government Organisations	127
Public health, Educational and Agricultural Institutions	86
Business, Embassies, NGOs and International Organisations	464
Total	1,686

The categories named as Individuals I and Individuals II are nominal in that about 75% of subscribers in these categories are business communities while the remaining are individuals, NGOs and International organisations. The organisations chose these categories because of the limited number of monthly online hours and its relatively low cost.

Thus, among the existing subscriptions, about 70 % are business accounts; 10% Embassies, NGOs and international organisations accounts; 8% public health, agricultural, educational and research institutions accounts; and 7% non-profit government organisations accounts, while the rest 5% are individual accounts.

The Manager of the Internet Centre pointed out that the ETC has recently allowed free Internet services for six months up to 40 hours per month to educational, research, health and agricultural institutions in regional towns to promote the use of the Internet services.

A look at the geographic distribution of subscribers reveals that 93 per cent of the subscribed accounts are concentrated in the capital while the rest 7 per cent are distributed in 27 different towns as shown in Table 4.4.

Table 4.4: Geographic Distribution of Subscribers

Town	Subscribers
Addis Ababa	1573
Akaki	9
Alemaya	2
Ambo	1
Arbaminch	3
Awassa	12
Assela	3
Axum	1
Bahir Dar	8
Bonga	1
Debre Ziet	10
Dessie	1
Dilla	1
Dire Dawa	10
Gondar	3
Harrar	2
Holeta	1
JiJiga	1
Jimma	6
Kaliti	1
Mekele	22
Metu	1
Mugher	1

Nazreth	5
Nekemte	3
Sod Wolaita	3
Wondo Genet	1
Zeway	1
Total	1,686

Among the regions, Tigray has the highest number of subscribers (22 in Mekele and 1 in Axum) comprising 1.4 per cent of the total. Most of the subscribers in regional towns are NGOs. Only 10 business firms in regional towns have access to the Internet. The subscribers in regional towns have to make a long distance call to Addis Ababa to get Internet connections. This is too expensive for existing and potential users in the regions.

The Marketing Manager pointed out that ETC has planned to reduce the telephone call charges of Internet subscribers in regional towns by changing the distance call tariff to local call tariff in the near future.

4.4 SURVEY RESULTS OF IMPORT/EXPORT BUSINESS USE OF THE INTERNET IN ETHIOPIA

The results of the study presented in this section are based on the data collected through questionnaire administered on 86 respondents, who have been randomly selected from a target population of 430 Importers and Exporters who use the Internet.

4.4.1 Percentage of Respondents

Out of 86 questionnaires distributed, only 58 completed questionnaires were returned, which amounts to 67.4% response rate. The profile of the respondents according to the strata mentioned in Section 1.6.2.1 of Chapter 1 is shown in Table 4.5.

Table 4.5: Percentage of Respondents to the survey questionnaire

No.	Group	Respondents	Percentage
1	Importers	26	45%
2	Exporters	14	24%
3	General Import/Export	18	31%
	Total	58	100%

The response rate of exporters is lower as compared to those of others. In the distribution of the sample in Table 1.1, exporters constitute 31% of the sample size while in the percentage of respondents they comprise only 24%.

4.4.2 Respondents Organisational Characteristics

Most of the respondents did not answer questions regarding their year of establishment, initial capital and number of their employees. Due to this, an accurate organisational characteristics of the respondents could not be determined. Among the 24 respondents who answered the question regarding the year of establishment of their business, 11 were established since 1992, after the introduction of a new

Economic Policy which encouraged private participation in the national economy.

The year of establishment of the rest of the respondents range from 1943 to 1991.

Out of the 22 respondents which answered the question about their initial capital, 63% had less than Birr 2 million capital, a quarter of the respondents had a capital between Birr 2 and 5 million while the rest 12% had an initial capital above 5 million. Of the 32 respondents who answered the question about the number of employees, 70% have less than 50 employees, 17% have between 50 to 150 employees and the rest 13% have 151 to 400 employees.

4.4.3 Information Needs of Importers and Exporters

The respondents were asked to rank their information needs in order of their importance. The following are the percentages of the respondents and the ranks given to their information needs:

Table 4.6: Rank of Information Needs of Importers and Exporters

Information Type	Rank				
	1 st	2 nd	3 rd	4 th	5 th
Information about potential suppliers	40%	17%	14%	13%	16%
Information about export markets	31%	26%	8%	9%	26%
Information about technological developments	9%	14%	26%	26%	25%
Information about customs rules, tariffs, & Govt. regulation	3%	21%	31%	34%	11%
Information about international trade procedures	17%	22%	21%	18%	22%

Fig. 4.1 Chart Showing 1st Priority Information Needs of Importers & Exporters

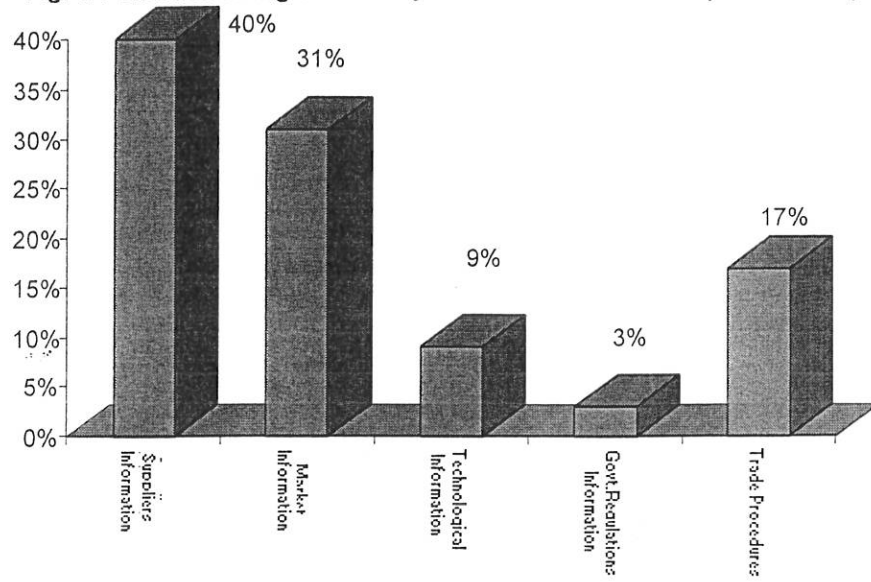
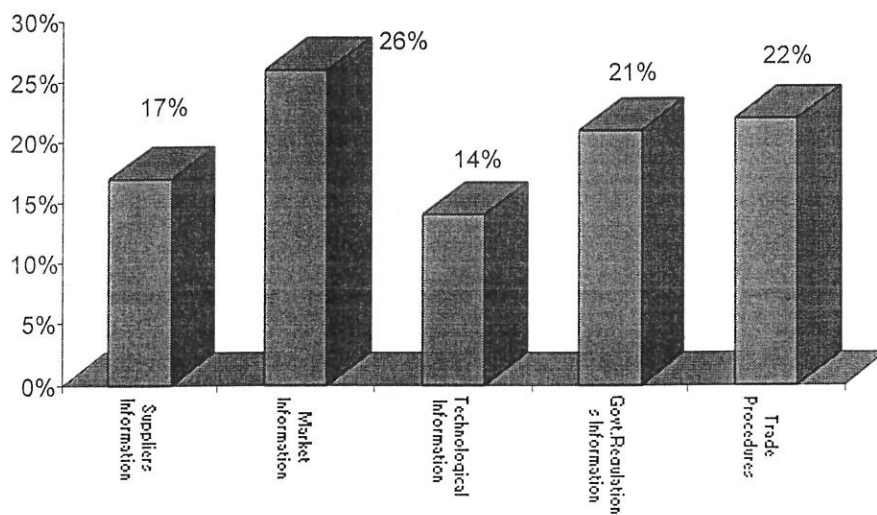
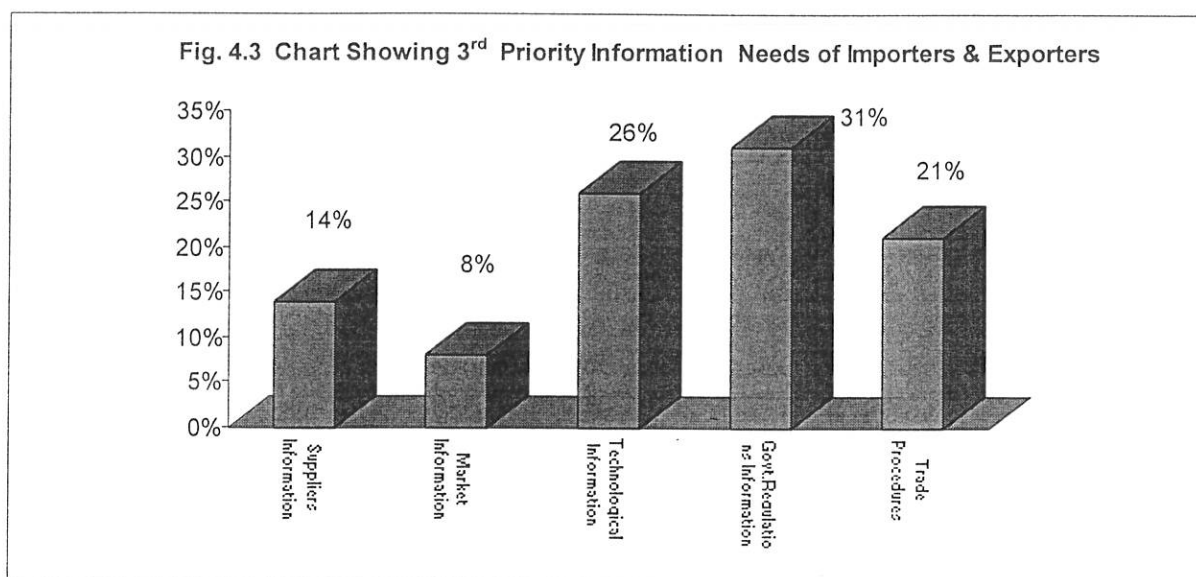


Fig. 4.2 Chart Showing 2nd Priority Information Needs of Importers & Exporters





4.4.4 Experience in Using computers

The first question asked regarding experience in the use of computers was whether the respondents had access to a computer; all of them said they had access. This question was asked to cross check if someone without access to a computer claimed to be using the Internet.

The second question the respondents were asked was if they took any computer training; 91% said they had computer training while the rest 9% said they did not take any computer training.

The last question asked regarding experience in using computers was what applications they were running. Almost 95% of the respondents said they run word-processing, spread sheet and database applications. The rest 5% said that, in addition to these applications, they use Visual Basic, Visual C++, and accounting and statistical software systems.

4.4.5 Internet Access and Influencing Factor

On the question regarding how long they had access to the Internet; their replies are shown in Table 4.7.

Table 4.7: Time Span of Access to the Internet

Time Span	Percentage of Respondents
Less than three months	4%
Three months to six months	22%
Over six months to one year	36%
More than one year	38%
Total	100%

The next question the respondents were asked was to rank in order of importance the factors which influenced them to using the Internet; the percentages of the respondents and the ranks are shown in Table 4.8.

Table 4.8: Rank of Influencing Factors to Using the Internet (Internet Usage Driver)

Influencing Factor	Rank						
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Easy access to potential customers and suppliers	34%	34%	0%	16%	0%	0%	16%
Low cost of communication	45%	16%	16%	5%	5%	11%	2%
Advertising/promoting business on the World Wide Web	5%	19%	0%	11%	40%	21%	4%
Access to technological information	16%	21%	16%	34%	8%	5%	0%
Online sales and transaction	0%	0%	10%	0%	16%	24%	50%
Causal browsing of information	0%	0%	34%	24%	10%	10%	22%
Access to Government and trade regulation data	0%	10%	24%	10%	21%	29%	6%

Fig. 4.4 Chart Showing 1st Priority Influencing Factors to Using the Internet

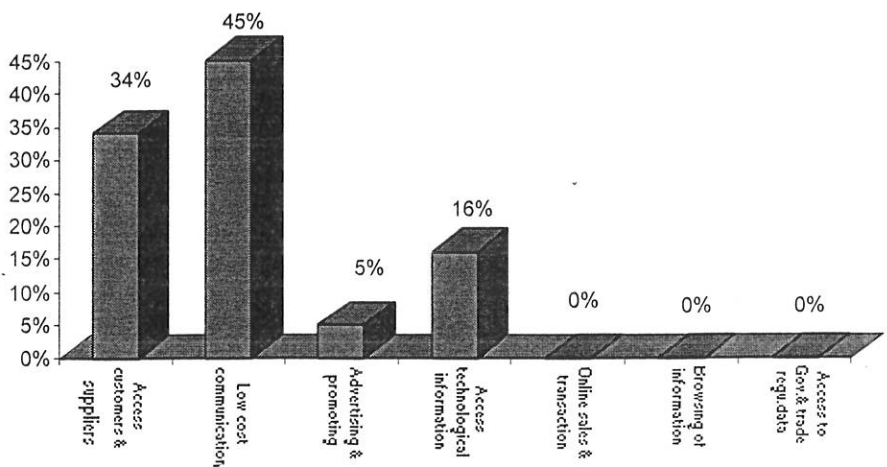
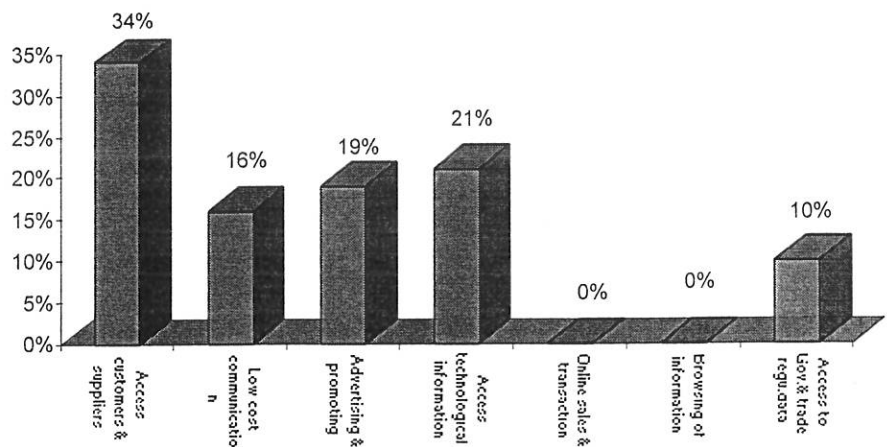
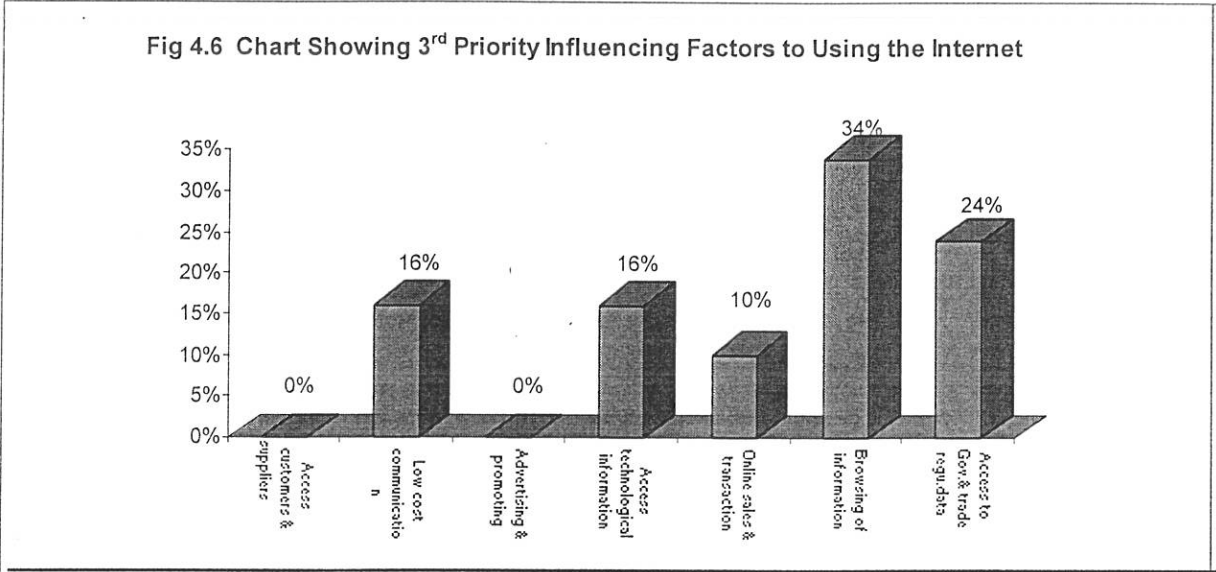


Fig 4.5 Chart Showing 2nd Priority Influencing Factors to Using the Internet





The respondents were also asked how they learned to use the Internet; about 70% learned it with out formal training as indicated in Table 4.9

Table 4.9 How Respondents Learned to Use the Internet

Way of Learning	Percentage of respondents
Self-study (using online help)	36%
From friends	9%
By reading books and manuals	17%
Demonstration by the service provider	9%
Through training	29%
Total	100%

4.4.6 Use of Internet Services

4.4.6.1 E-mail use

The first question that respondents were asked about E-mail was whether they use it or not. All of the respondents said they use E-mail. This, however, doesn't mean that

all Internet subscribers are E-mail users. While distributing the questionnaire the Researcher has encountered 5 subscribers (among the sample) who have Internet account, but have not utilised it.

To strengthen this fact, a list containing the subscribed and used hours for the months of October and November 1997 was obtained from the subscribers database of the Ethio-Internet Centre. The comparison of the total subscribed and utilised hours for the 86 sampled population is shown in Table 4.10.

Table 4.10 : Comparison of Subscribed and Utilised Hours of the Internet.

Month	Total Subscribed Hours	Total utilised Hours	Percentage
October	2,465	914	37
November	2,540	880	35
Total	5,005	1,794	36

Although there were few importers and exporters who utilised above the hours they subscribed, most of them utilised only about one-third of the time they paid for. Among these, there were 9 subscribers in October and 7 subscribers in November who did not utilise the Internet at all.

The respondents were also asked to categorise the type of uses they have for E-mail; their responses are shown in Table 4.11.

Table 4.11: Main Uses of E-mail

Purpose	Percentage of Respondents
Sending and receiving business messages	74%
Transferring business documents online	33%
Sending and receiving standardised communications through mailing list	10%
Confirm receipts of messages, orders, and goods through automated E-mail	33%

It should be noted that the total in the above table doesn't add up to 100%, because the respondents were instructed to make a tick mark against all relevant answers.

The last question asked about E-mail was the estimated number of messages sent or received per week by the respondents; their replies are indicated in Table 4.12.

Table 4.12: Estimated No. of E-mail Messages Sent or Received Per Week

No. Of messages	Percentage of respondents
Only 1 message	9%
2 to 5 messages	27%
6 to 10 messages	43%
More than 10 messages	21%
Total	100%

Table 4.11 indicates that 64% of the respondents send or receive more than 6 messages per week.

4.4.6.2 Use of the World Wide Web

Among the respondents, 22% said that they are aware, but don't use the World Wide Web. On the other hand, the respondents who use the Web were asked to indicate for what purpose they use it; their responses are shown in Table 4.13.

Table 4.13: Purpose of Using the World Wide Web

Purpose	Percentage of Respondents
Access to reliable vendors and better quality products	55%
Searching information relevant to business	72%
Research and development	28%
Advertising and promoting business	3%
General publicity	3%

Note here also that the total doesn't add up to 100%, because the respondents ticked more than one answer.

The next question the respondents were asked was whether they have a Web page at Ethio-web site or through some arrangements elsewhere. Only 2 respondents said they have a Web page on a server outside Ethiopia.

The last question regarding the Web was how many hours per week, on the average, they spend using it; the replies to which are shown in Table 4.14.

Table 4.14: Estimated No. of Hours Spent on the World Wide Web

Time per Week	Percentage of respondents
0 hours	28%
1/2 hour	12%
Up to 1 hour	9%
2-5 hours	36%
5-10 hours	15%
Total	100%

4.4.6.3 Other Internet Services

The respondents were asked whether they use FTP or Telnet; 54% said they are familiar with these services but do not use either of them, 29% said they are not familiar with these services, and 17% said they use FTP only.

To the question they were asked whether they participate in News Groups; 57% responded they are familiar but don't use this service, 23% said they participate only passively (don't post messages), and the rest 20% said they are not familiar with News Group.

The respondents were also asked whether they like to improve their knowledge about how to use the Internet; 95% said they like to improve their knowledge. The respondents, who expressed a desire to learn more about the use of the Internet, put a priority on learning more about News Group, FTP, and Telnet in that order. E-mail was of the least priority, because most of the users were already acquainted with its use.

4.4.7 Perceived Importance of Internet Services

The respondents were asked to rank the Internet services (only those they are using) in order of their importance; the percentage of the respondents and the ranks given are shown in Table 4.15.

Table 4.15: Perceived Importance of Internet Services

Type of Service	Rank		
	1 st	2 nd	3 rd
E-mail	76%	25%	0%
World Wide Web	24%	75%	0%
FTP	0	0	15%
News Group	0	0	23%
Telnet	0	0	0%

As shown in the above Table, 76% of the respondents ranked E-mail first, while only 24% of the respondents gave the same rank to World Wide Web. This indicates that most of the users consider E-mail very essential. The respondents were instructed not to give rank to the services that they do not use; therefore, no body gave a rank to Telnet.

The respondents were also asked whether they have observed any effect on their business by the use of the Internet; 64% said it has made a difference at least in reducing their communication cost while the rest 32% said it is too early to tell.

The final closed type question asked was regarding the respondents opinion on the security issues in doing business on the Internet. Only 27 respondents gave an answer to this question, among which, 12 said that security of financial transactions

is the major problem, 11 gave priority to confidentiality of bids, and the rest 9 said the lack of suitable electronic payment system is the major problem.

4.4.8 Benefits and Constraints Identified by the Respondents

Finally the respondents were requested to answer three open-ended questions. The first question asked was to cite at least three major improvements brought to their business by the use of the Internet; their responses are shown in Table 4.16.

Table 4.16: Opinion on Improvements Brought to Respondents by the Use of the Internet

Major Improvements	Percentage of Respondents
Low cost of communication through E-mail	64%
Easy access to supplier and market information	52%
Access to general information	38%
Access to emerging technologies, product changes & news regarding a product	30%
Ease of communication and contacts	19%
Up-to-date information on product prices & currency exchange rates	19%
Down loading free software systems	3%
Advertising products and services	3%

The next question the respondents were asked was to cite at least 3 major constraints for making a more effective use of the Internet; the responses are shown in Table 4.17.

Table 4.17: Opinion on Major Constraints on Making a More Effective Use of the Internet

Major Constraints	Percentage of Respondents
High subscription cost	67%
Poor telephone line	31%
Inadvertent interruptions or disconnection	36%
Poor connection success rate (Low call success rate)	72%
Delay in responses and slow transfer of graphics & images	33%
State monopoly of Internet service provision	26%
Unavailability of leased (dedicated) line	21%
Limited Internet services (Lack of variety of services)	10%
Unreliable power supply	3%
High telephone call charge	3%
Computer viruses	3%

Unreliable power supply and high telephone charges are constraints mentioned by respondents from regional towns.

The last open-ended question that the respondents were asked was to suggest measures to be taken to alleviate the above constraints on making a more effective use of the Internet, and the respondents suggested the following:

- ETC should reduce cost and /or increase connection hours;
- ETC should upgrade the existing Internet system by increasing number of access lines (modems);
- The government should allow private Internet Service Providers (ISPs);
- The Data Communication System should be enhanced by introducing new technologies;

- ETC should give a Leased (Dedicated) Line to access the Internet;
- ETC should give free hard disk space on its Web Server for those who need to promote their business on the World Wide Web;
- ETC should give unlimited number of free e-mail boxes as demanded by subscribers.

4.5 FINDINGS AND DISCUSSION

The findings and discussions presented in this section are a summary of the results of the survey. As shown in the survey results through the Tables, or Charts, the most important factor which influenced importers and exporters to using the Internet was the low cost communication through E-mail followed by easy access to potential suppliers /customers and casual browsing of information, which ranked second and third, respectively. In fact, for most users Internet meant E-mail.

Access to technological information and advertising /promoting business on the World Wide Web were given the fourth and fifth priority, respectively, while online sales and transaction ranked last.

Although it is claimed that marketing and advertising on the Web is the most important factor which attracts businesses to use the Internet, this study shows that lower priority is given to this factor by Ethiopian Importers and Exporters. This result is in accordance with the result of a similar study of small business use of the Internet in the UK while it produced a different ordering of factors as compared to

the Australian survey (Storm and Poon, 1997). The study also revealed that almost all of the respondents use E-mail, whereas 22% of the respondents said that they don't use the Web.

Among the respondents which use the Web, 72% use it for searching information relevant to their business, 55% use it to access reliable vendors and quality products, 28% use it for research and development, and only 3% use it for general publicity and dvertising/promoting their business. This indicates that most of the importers and exporters are passive consumers of imported information without contributing to global resources. In the absence of Web-based content locally, it is true that most of the traffic is channelled to the international gateway.

Regarding the use of other Internet services, 23% of the respondents participate passively (without posting messages) in News Group , 17% use FTP and nobody uses Telnet. The respondents who expressed a desire to learn more about the Internet services, put a priority on learning more about News Group, FTP, and Telnet in that order. More than 64% of the respondents claimed that the Internet has made a difference in their business at least in reducing their communication cost.

Regarding the constraints on making a more effective use of the Internet, 72% said poor connection success rate (low call success rate) is the major constraint followed by high subscription cost (67%) and intermittent interruption or disconnection (36%) in that order.

Probably the most interesting finding of the study was that the Import/ Export businesses in the sampled population utilised only 36% of the hours they subscribed for. This indicates that most of the businesses decided to connect to the Internet without a clear vision of what to do with the new technology. In other words, most of the subscription was not need driven.

Thus, like any other resources the business firms should optimise the Internet investment, and this calls for a need of corporate Internet strategy.

CHAPTER 5

CHALLENGES AND STRATEGIES TO EXPLOIT THE BUSINESS POTENTIALS OF THE INTERNET IN ETHIOPIA

The results and findings of the survey in the preceding chapter indicated that the import/export business firms in Ethiopia have not optimally utilised the potentials of the Internet towards overcoming the stated problems in Section 1.2 of Chapter 1. This Chapter attempts to highlight some of the challenges ahead and outlines the strategic approaches how the business firms can exploit the opportunities that the Internet offers. It also contains a prototype Web page designed for the Ethiopian Chamber of Commerce.

5.1 CHALLENGES IN THE USE OF THE INTERNET FOR THE DEVELOPMENT OF BUSINESS IN ETHIOPIA

Although the Internet offers an opportunity for importers and exporters to overcome the traditional constraints of distance from market and lack of information on market trends, there are many constraints which hinder the exploitation of its full potential. These constraints can be grouped into three: technical, regulatory, and social. The issues in each of these areas are discussed below.

5.1.1 Technical Challenges

Poor Internet connection success rate, intermittent interruptions or disconnection, poor telephone line and delay in responses were among the major constraints cited by importers and exporters in making a more effective use of the Internet. These are technical challenges primarily related to the telecommunications infrastructure and the Internet connectivity conditions of the country.

As mentioned earlier, users are getting only dial-up access to the Internet via modems through the previously available Public-Switched Telephone Network (PSTN) which was installed for voice transmission. The number of dial-up lines are also limited causing congestion on those lines. The existing modem speed of 28.8 kbps on the clients side and the 256 kbps of the international link are other constraints.

Today, graphics and images are the most common elements of multimedia applications, but the incorporation of voice and video is also around the corner. As business applications evolve to incorporate voice and video, file size will have a bandwidth requirement from kilobytes to gigabyte. Therefore, poor infrastructure will continue to be a challenge until new technologies such as ISDN, Frame Relay, ATM, etc. are introduced.

The Ethiopian Telecommunication Corporation has not yet started giving a leased line Internet service. The business firms connecting to the Internet can have a

seamless connection between their local area networks and the rest of computers if there was such service.

For example, a survey undertaken by Gold Stuck and Stodler (1997) indicates that more than 2,000 leased lines have been installed for companies and corporations in South Africa and 200,000 corporate users are gaining access to the Internet through their corporate networks.

The existing dial-up service in Ethiopia can't support a group of users. Therefore, the unavailability of leased line Internet service is another constraint for those who need to connect their local area networks to the Internet.

5.1.2 Regulatory Challenges

As mentioned earlier, the state-owned ETC is the sole Internet service provider (ISP) in the country. The Ethiopian Telecommunication Corporation is an important source of revenue for the government. The net surplus before taxation of the ETC for the budget year 1994 amounted to 312 million Birr (Tele Negarit, Special Issue, 1997).

The result of the survey indicated that 26% of the respondents expressed their concern about the state monopoly of Internet service provision and the prevention of private sector participation.

The existing cost of dial-up Internet connection for business category users is US \$75 per month for 40 online hours, which is one of the most expensive in Africa.

The cost of dial-up connection is US \$10 per month in the US, and US \$15 in UK (Butterly, 1997).

The cost of Internet access can't go down without private sector participation and competition. Besides price reduction, private sector participation would improve the range of Internet services available and the quality of support provided to users during the time of technical failure.

Internet access charges must be low and affordable for everybody having a computer, a modem and telephone line. Ethiopia is far behind most of the nations in terms of Internet usage. For example, it is estimated that 1 in 6 people uses the Internet in North America and Europe, 1 in 65 people utilise the Internet in South Africa (Butterly, 1997). The comparative figure for Ethiopia is about 1 Internet user in 29,000 people.

The main hindrance to the development of the Internet in Ethiopia in general and its commercialisation in particular is the prevention of private participation in the sector.

The following five principles set by the US government as a framework for global electronic commerce, indicate the enabling environments that must be created by national governments to facilitate business on the Internet (Executive Summary, 1996).

1) The private sector should lead. The Internet should develop as a market driven arena not as a regulated industry. Even where, collective action is necessary, governments should encourage industry self-regulation and private sector leadership where possible.

2) Governments should avoid undue restrictions on electronic commerce. In general, parties should be able to enter into legitimate agreements to buy and sell products and service across the Internet with minimal government involvement or interventions. Governments should refrain from imposing new and unnecessary regulations, bureaucratic procedures or new taxes and tariffs on commercial activities that take place on the Internet.

3) Where government involvement is needed, its aim should be to support and enforce a predictable minimalist, consistent and simple legal environment for commerce.

Where government intervention is necessary, its role should be to ensure competition, protect intellectual property and privacy, prevent fraud, foster transparency and facilitate dispute resolution. Its role should not be regulation or restriction.

4) Governments should recognise the unique qualities of the Internet. The genius and explosive success of the Internet can be attributed in part to its decentralised nature and its tradition of bottom-up governance. We should not assure that the regulatory frameworks established over the past sixty years for telecommunications, radio, and television fit the Internet. Existing laws and

regulations that may hinder electronic commerce should be reviewed and revised or eliminated to reflect the needs of the new electronic age.

5) Electronic commerce on the Internet should be facilitated on a global basis.

The Internet is a global market place. The legal framework supporting commercial transactions should be consistent and predictable regardless of the jurisdiction in which a particular buyer and seller reside.

5.1.3 Social Challenges

The growth of the Internet, both in terms of users and applications, has brought a number of social issues to the forefront. The Internet provides a very open forum for the exchange of ideas and data. The very nature of this open forum means that the content of information exchanged is becoming an issue. For example, the content of messages on an open network without national boundaries can challenge political, social, and moral assumptions.

Security and privacy issues on Internet are continually debated. Whittle (1997) raise the following questions regarding these issues. How much security and privacy should citizens demand and receive in cyberspace? Should an individual's cyberspace activities be made available to government, business, or law enforcement agencies? If so, under what conditions? What power, if any, should the government possess to monitor private communication? Does it make any difference whether a government has evidence of criminal activity? Tax evasion? Terrorism?

Whittle (1997) further noted that, while there is much discussion about keeping the government out of cyberspace, there doesn't seem to be as much concern about how

to keep criminals and terrorists from exploiting cyberspace, which is equally threatening.

Security issues are real and companies must face them. Visa and Master Card are currently working on Secure Electronic Transaction (SET) technology to make credit card transaction safe and this is likely to become the international standard for online commerce. IBM has jointed with 16 major banks in USA and Canada to develop the Gold standard for international banking and bill payment. And, Microsoft is also spending millions on this issue (Addis Business, 1998).

Encryption is currently the most appropriate means to ensure security. Pretty Good Privacy (PGP) is the famous encryption system for E-mail and files that combines confidentiality and digital signature capabilities to provide powerful, virtually unbreakable, and easy to use package (Slone, 1997).

The most notable feature of the PGP E-mail security program, as pointed by Slone (1997), are that it:

- Lets people send E-mail messages that are secure from eavesdropping. Only the intended recipient can read a PGP message.
- Lets people send E-mail messages that are guaranteed authentic. The recipient is ensured that the PGP message was created by the person who claim to have created it and that no one has altered the message since it was created.
- Is available as free ware on the Internet, many electric bulletin boards, and most commercial services such as CompuServe.
- Is available in versions for DOS, Macintosh, UNIX, Amiga, OS/2, VMS, and other operating systems.

- Works with any E-mail packages to create secure E-mail messages.

According to GII (1997), the framework controls imposed by governments for public safety and national security reasons should be clear, publicly available, and to the extent possible, made consistent by international agreements. Standards for cryptography methods should be voluntary and international. The development of voluntary, international standards should be led by businesses, with government participation.

The concept of electronic money (digital cash) is another social issue which raises a variety of debates currently. Most experts agree that some form of electronic cash will be in common use within the next few years. Whittle (1997) raises the following questions with regard to this:

- How will the availability of secure currency system affect the banking system?
- How will the choice of exchange method affect the money supply and other critical measurements important to economists and governments who establish monetary policy?
- Won't criminals, especially sophisticated international criminals, have easier time of money laundering than ever before?
- How can we ensure that the interests of both parties in the transaction from the beginning until the end have been appropriately fulfilled, i.e., that one party doesn't take the cash and withhold the goods?
- What is the jurisdiction of taxation authority in cyberspace?

The above are some of the tough questions, which will be a challenge for years to come.

5.2 STRATEGIC APPROACHES TO EXPLOIT THE POTENTIALS OF THE INTERNET

It is one thing to understand the potentials of the Internet for breaking down barriers to international electronic commerce and quite another to establish a competitive profitable business on the global network. With over 100,000 WWW servers vying for visitors and the number of home pages doubling every few months, commercial ventures without clear strategy risk being lost in the crowd (Montealerge, 1996).

Placing corporate reports and sales catalogues on the Internet and declaring that the business organisation is brought into cyberspace is not enough. Internet will not automatically allow business to become more competitive or the Internet will not make a bad marketer a good marketer. It is very important for businesses to set up their business operations such that the Internet as an enabling tool can allow them to be more effective and efficient. Incorporating the Internet as an integral component of business strategy requires careful planning, alignment and constant effort.

5.2.1 Internet Strategies

The crucial element of a successful Internet strategy is anticipating the Internet's impact on customer habits, decision making patterns, needs, and expectations. Gascoyne and Ozcubucku (1997) outlined the following ten essential steps involved in building Internet strategy.

1) Embrace the Internet strategically: According to Gascoyne and Ozcubucku (1997), about 85% of the businesses that have an Internet presence simply show up,

reacting to the Internet rather than first developing a strategic plan. They simply place brochures and promotional materials on an Internet site. This is a non-strategic reaction to the Internet, putting up a presence just for the sake of being there. Little or no thought is given to the opportunities that the Internet presents.

Fully embracing the Internet means redefining business competencies, developing new relationships with customers, and inter-linking with new business partners to offer more complete solutions. Doing business need assessment can help clarify which Internet and resources to use, and which to emphasise.

The results of a non-strategic approach will clearly place the business in uncertain position of not knowing its objectives until the plan is implemented. Many businesses race to beat the competition without taking time to incorporate their existing business objectives in their plan.

2) Develop and accept new business assumptions: After embracing the Internet strategically it is important to understand the new operating environment. This calls for a need to develop new business models and assumptions, comparing and contrasting the old with the new, to determine where the business is and where the business will be.

Developing a comprehensive action plan which will move the organisation from where it is, to where it want be and which focuses on optimising the Internet investment is essential. This is a critical process. If the assumption is wrong, then the

operating environment and the foundation of the strategy are misunderstood. If it is right, then the environment is understood and the chances of building a successful Internet strategy greatly increases.

3) Envision complete customer solutions: To envision new customer solutions the business should develop scenarios of typical customers in their daily practices, incorporating its products or services into the picture. What part of the complete solution can the business offer, and how the business can facilitate better solutions to keep its customers coming back? This approach will eventually force the business to understand and define its relevant core competencies and customer value within the context of the Internet.

4) Predict point of entry: Points of entry are all possible routes potential customers might use to get the business site. They could be business partners (inter-linking) sites, other product-or- service related Internet sites, or advertisements (both online and off-line), The business site is also the point of entry for other sites.

These relationships are mutually beneficial for all parties concerned. Ideally, they encompass two or more companies which each believe they are stronger together than on their own. Each believes that the other has unique competencies it lacks; when brought together they provide complete customer solution.

5) Redefine relevant core competencies: Redefine the business's core competencies from the perspective of the Internet customer. This depends on the evolution of the business and technology. As the business defines its relevant core

competencies and assets, its compelling differentiation will become clear. A differentiable solution is based on the business's strategic competencies. This is the essence of what the business will provide to the customer and can come into ways: either by creating new services through redefined, prioritised competencies relevant to the Internet now, or by exploiting existing information and assets.

6) Experiment with innovative customer-centric solution: There are business problems that the Internet can solve, and, more important, business opportunities it can create. As the business evaluates its relevant core competencies, it needs to explore new products and services opportunities.

Information and services are often given free of charge on the Internet. Services such as stock quotes, historical analysis, and personalised news information are in oversupply and consequently customers have high levels of expectation. They no longer tolerate incomplete solutions. If the business can't provide a convenient, timely, and highly valued solution, someone else will.

Demand is created only for the most innovative products and services; therefore, a business must analyse demand-side strategies. This will force the business to better understand its customers and to create a solution or part of a solution that will become part of their daily practice.

7) Define the value proposition: The value of the business's Internet offering to the customer must be clear. Is the product or service secure, interactive, educational, or

proactive? The process for creating value in the physical and virtual worlds are not the same.

According to Gascoyne and Ozcubucku (1997), the most successful Internet value propositions take into account four components:

- Relevant core competency and compelling solution differentiation;
- The value of inter-linked business partners;
- Customers' changing needs and expectations; and
- Internet-enabled business capabilities

The business must ensure that businesses in other industries that enhance its product(s), or services are also part of its value proposition analysis. The business should identify the industries that can market its core competencies optimally and exploit information assets for the mutual benefit of providing better customer solutions.

8) Explore profit models: Every one is convinced that there is money to be made on the Internet, but few are successful in making it. Gascoyne and Ozcubucku (1997) pose the following questions regarding this issue: How will the business recapture value and profit on the Internet with these innovative customer solution? Will value be recaptured through expert advice, new information, or possible leads that the business bring to other businesses via the Internet? Will it be recaptured by linking with appropriate business partners? Will it be recaptured through the non-Internet channels? Many questions need to be explored, but, essentially, the goal is to see

where the business fits into customer solutions, where and how it can and should provide value and how to recapture that value.

Gascoyne and Ozcubucku (1997) further pointed out that the Internet business case can't easily be modelled in terms of a traditional return on investment (ROI). First, Internet technology, its costs, its design, and the process on which it has an impact are constantly changing. Pioneers of successful Internet business strategies, don't focus on the traditional business cases as such. They see that Internet as a necessity for doing business and instrument for achieving their strategic business objectives.

9) Identify point of departure: A business must also consider how a customer will exit its Internet-based product or service. Points of departure represent new inter-linking business relationships that complete the vision of the customer solution:

- What can the business provide, or what someone else provide better to complement the businesses product or service?
- To complete their solution, where would users naturally want to go next after they received value from the business site?
- What new partners or inter-linkers does the business need to develop?
- Does the business need transparent or non transparent linking from its site?

What customers information, if any, will the business forward to its inter linking partner?

10) Plan a phasing approach: A phasing strategy is a necessary part of Internet business strategy designed to reach its business objectives and achieve its success

criteria in stages. A successful phasing approach provides stepping-stones toward fulfilment of the ultimate objective.

Measuring success at the end of each step will help tune the business strategy, guiding it in the most successful direction. According to Gascoyne and Ozcubucku (1997), one should remember the following when developing a phasing approach:

- One should begin with the end in mind and make each phase bring him a step closer where he wants to be. However, one shouldn't be limited by the number of phases. Given the rapid evolution of the Internet, shorter, rather than longer, time between phases will be less risky for the business. In this way one can determine if and where he needs to shift courses.
- Phasing allows one to identify where he wants to go and develop checkpoints to assess his progress. It limits the risks by ensuring not to make mistakes too far before his solution and assumptions are tested on the Internet. It provides flexibility, so that lessons learned from one phase can be incorporated into the next. Commercialisation of the Internet is moving so rapidly that new capabilities, regulations, laws, and business drives may affect one's objectives. Phasing approach deflects the impact of unforeseen changes.
- One should be clear on what he expects to achieve and should learn from each phase. At minimum, one should briefly outline the objective, success criteria, and underlying assumptions for each phase. To design a phasing strategy, one needs to outline business, marketing, and systems objectives for each phase and

for each relevant access layer. One should align each phase with the key business strategy steps, such as profit models, core competencies, and assumptions.

5.2.2 Internalising External Information

The challenges of the business to manage and support internal data such as corporate financial sales, and customer information, is significant enough, but business's also need to determine how to manage the wealth of external data available on the Internet, such as market information, industry news groups, and the like.

Gascoyne and Ozcubucku (1997) pointed out that many companies offer employees little or no direction for accessing information via the public Internet. Internalising external information benefits the business by capitalising on the abundance of public data on the Internet.

Because of the wealth of information available, helping to head employees to the right site will be beneficial to the company. To this end, the company can provide productivity pages for employees to help them head to highly relevant sites.

These pages can provide pre-defined links to Internet-based information, services, and products for employees, such as customer and competitor sites. Since the Internet offers an astonishing array of information helpful to every organisation, it is logical to consider an outbound Internet site: an Internet server that employees use as launching pad into the Internet. The outbound site should be used to direct employees to specific sites that aid in daily business practice, such as market research, sales statistics, and purchasing.

The following are a few type of sites suggested by Gascoyne and Ozcubucku (1997) that could be helpful to almost any business:

- Customer sites
- Prospect sites
- Regulatory agency sites
- Business partner sites
- Current competitor sites
- Potential competitor sites
- Legal database sites
- Industry News Group sites
- Research sites
- Filtered news retrieval sites
- Product ordering sites
- Shipment ordering sites
- Shipment tracking sites
- Strategic and innovative Internet sites

5.2.3 Externalising Internal Information

The technology that was used to create the Internet has also been applied within public and private organisations to disseminate corporate information quickly and inexpensively to a widely spread work force.

Jerrahm (1996) defines intranets as internal networks that use the standardised, open protocols of the Internet to deliver primary communications services such as electronic mail, discussions groups, file transfer, and corporate database access. The intranet is not necessarily connected to the outside world and is intended primarily for use by staff members within a company.

The most common intranet applications as cited by Kallstorm (1997) are:

- Business intelligence;
- Catalogues and price lists;
- Corporate e-mail systems;
- Corporate phone directories;
- Corporate policies and news;
- Document databases;
- Employees bulletins;
- Job postings;
- Job procedure manuals;
- Order status tracking;
- Product bulletins; and
- Technical information

Electronic publishing and distribution of telephone number lists, human resource manuals, price lists, documents and newsletters can result in enormous cost savings for a relatively low investment.

Intranet data can be public, which anyone can have access, over the counter, where the clients must identify themselves in advance, or behind the counter which is restricted for employees only. In order to better build Internet application that customers understand, appreciate and value it, it is helpful to build an experiment with the application on the company's own intranet. By using applications internally before offering them to customers and the public, companies can experiment with them before turning them outside the firewall for customers to use (Gascoyne and Ozcubucku, 1997).

5.3 PROTOTYPE WEB SITE DESIGN FOR THE ETHIOPIAN CHAMBER OF COMMERCE

5.3.1 Background Information about ECC

The Ethiopian Chamber of commerce is an autonomous, non-governmental organisation which was set up in 1947 to act on behalf of its members. The ECC is an umbrella organisation currently comprising eleven city Chambers which have over 36,000 members.

According to the revised proclamation number 148 of 1978, the main duties and responsibilities of the chamber, among others, are:

1. To find foreign markets for national products;
2. To exchange information with chamber of commerce of other countries;
3. To conduct studies on matters pertaining to the betterment of export products;
4. To undertake studies concerning trade constraints;
5. To make member aware of the appropriate government policies, regulations, directives, practices and techniques which have bearing on its activities;
6. To collect, prepare and disseminate statistical information on the country's economic activities;
7. To issue, on request, certificates of origin and certificates of inspection for imported goods,
8. To issue directives to city chambers and supervise their proper execution.

As indicated above one of the main duties of ECC is to publicise the country's product in foreign markets. Currently, the Internet has become an efficient channel for advertising and marketing. The findings of the survey in Chapter 4 revealed that about 97% of the importers and exporters have not yet started publishing their business information on the World Wide Web. The ECC also doesn't have a Web site at this moment.

As Kibruyisfa (1997) pointed out, like in most African countries, academic, social, economic, political, agricultural, business, industrial, scientific and various activities in Ethiopia are difficult to be accessible from other parts of the world and this is one of the causes for the economic, cultural and educational underdevelopment of the country.

Thus, not to be left behind further, it is necessary to make business information on Ethiopia available on the Internet, and the Researcher finds it appropriate to show this by designing a Web site taking the ECC as a case .

5.3.2 New opportunities Offered by a Web site

New opportunities in which the World Wide Web extends for marketing , among others, are (Elderbrock, 1997):

- **Interactivity:** For the first time in history, remote communication is two-way, increasing the possibilities for navigation and information exchange exponentially. Even simple hyper links can infuse an average Web site with

more information than most other forms of media simply because of the scope of material to which the user can chain and self direct.

- 24 hours availability: The Web site is the market place that never sleeps. As long as the server is up 24 hours a day, 7 days a week, year around, the doors are always open and the help is never tired or bored.
- Global reach. The Web makes online business accessible from any where in the world by any one with computer, a modem, and a phone line.
- Real time information: All other forms of mass media have a publication date or scheduled air time for the distribution of new information. The Web is truly virtual in this respect, and even small but useful changes can go online as they occur.

5.3.3 Planing Steps in Web Site Development

Careful planning and clear sense of purpose are the keys to success in building Web sites. According to Buchanan, et al (1997), the Web site planning phase includes the following four major steps.

1) Setting objectives: A clear , short statement of objectives should form the foundation of a site design. The statement should go on to list a few more specific financial and organisational goals the web site is designed to fulfil. Having a clear objective ensures that business principles rather than technology for its own sake will drive the site design.

2) Analysing audience: Trying to be all things to all people will not make a site successful. Therefore, one must select and concentrate on primary and secondary

audience. Identifying potential users of the Web site helps to structure the site design to meet their needs and expectations.

3) Selecting appropriate content: One must understand who will realistically visit his site in order to select content that is valuable and appropriate to his needs. From the audience perspective, a Web site visit is like a visit to a store, sporting event, museum, theatre, or any other. According to Buchanan, et al (1997), the audience will perceive the trip worthwhile if:

- They get what they come for;
- It was easy to use;
- There was no problem while at the site, and
- They were even a little surprised by an added benefit.

4) Choosing a promotional strategy: Like any business endeavour a Web needs a promotional plan targeted to the site audience. The plan should include both online and off-line promotional activities that cover both the existing customer base and potential new customers.

5.3.4 Web Site Design Considerations

Lynch and Horton (1997) suggest the following styles in designing Web sites:

- 1) **Make the pages free-standing:** World Wide Web pages are different from books and other documents in crucial respect: hypertext links allow users to access a single Web page with no preamble. Thus Web pages need to be

independent than pages in a conventional book. This means that individual web pages often need to have headers and footers because a single Web page may be the only part of the site some users ever see.

- 2) **Give users direct access:** The goal here is to provide the user with the information they want in the fewest possible steps, and in the short time. This means you must design an efficient hierarchy on information, to minimise the number of steps through menu pages.
- 3) **Build clear navigational aids:** At the current state of web technology most users interactions with the Web pages involve navigating hypertext links between documents. Users should always be able to easily return to the page, and to other major navigational points in the local site.
- 4) **No dead-end pages:** Every Web page should contain at least one link. “Dead-end” pages with no links to any other local pages in the site are not only a frustration to users; they are often a lost opportunity to bring users into other pages in your site.
- 5) **Simplicity and consistency:** The design should be built on consistent pattern of modular units, all sharing the same basic lay out grids. To be successful, the individual units in a grid must share a highly uniform structure of topics and sub topics. The goal is to be consistent and predictable , so that the users will feel

comfortable exploring the site, and confident that they know how to find what they are looking for.

6) **Bandwidth and interactions:** Web page designs that are not well “tuned” to the network access speed of the users will only frustrate them. While strong graphic can be effective in attracting users attention, a large graphic menus impose long loading times for pages, especially for users linking to the Internet via modems or slower network connections.

7) **Feedback and dialogue:** Well-designed Web sites should always provide direct links to the sites editor or the “Webmaster” responsible for running the site. Planning for this kind of on-going relationship with the users of the site is vital to the long-term success of the enterprise.

8) **Timeliness:** Timeliness is an important element in evaluating the worth of a document. So, date every Web page, and change the date whenever the document is replaced.

5.3.5 The Prototype Web Page for the Ethiopian Chamber of Commerce

The main objective of the Ethiopian Chamber Web page is to promote foreign trade by making business information in Ethiopia accessible from other parts of the world. The Web page is designed to meet the information needs of existing and potential

customers in external trade. The Chamber members and regulatory bodies are also possible users of the site.

As mentioned in Section 1.7 of Chapter 1, a detailed need assessment was not conducted for the selection of the contents of the Web page. The content was based on various documents, such as trade directory, brochures, newsletters and other documents available in the Ethiopian Chamber of Commerce.

The Hypertext Mark-up Language (HTML) was used to write the information contained in the Web page. To give the visitors a more navigable structure, the screen of the Web page is divided into two windows by using Frames. The left-hand side window contains navigational buttons which remain constant on the screen all the time while the right-hand window changes the contents as the user navigates through the site.

The content of the Web site is briefly described below:

The Home page

The Home page which is the entry to the Web site, contains a welcome screen and five hot-links which direct the user to the important sections of the Web site, namely: Information Desk, Business directory, Trade Regulations, Business Links and What is New? The bottom of the Web page contains information about the

Webmaster and an E-mail address for sending any suggestions regarding the Web site.

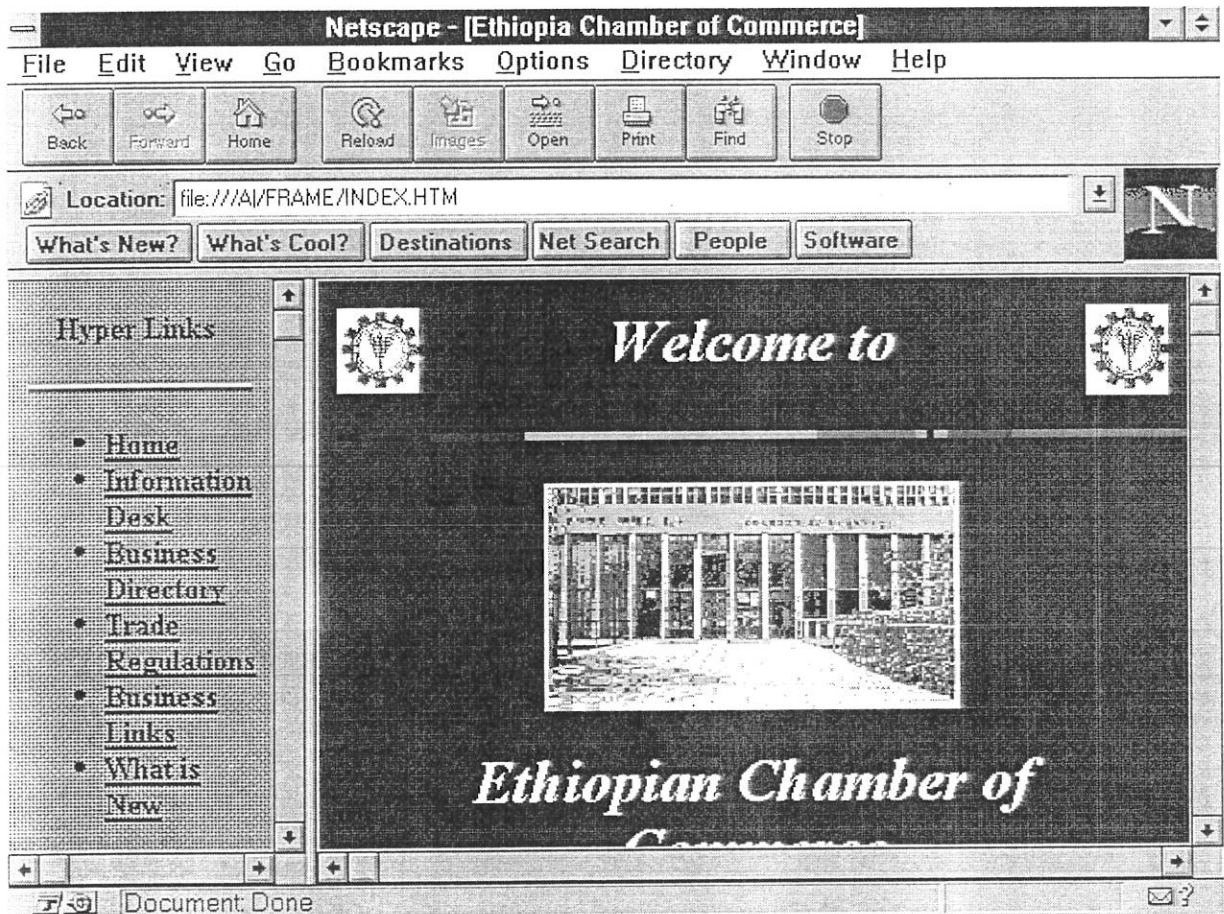


Fig. 5.1 The Home Page of the Ethiopian Chamber of Commerce

Information Desk

The information desk page provides background information about the Chamber with its five hot links namely: Chamber Overview, Chamber Services, Chamber Publications, Chamber Officials, and Business Information.

Trade Directory

The trade directory page will be the key feature of the Web site in the future. It will contain the searchable business directory of the Ethiopian Chamber of Commerce. The Chamber doesn't have an established database system for the moment. The page is designed to indicate the possibility of connecting a database to the Web. As Jerram (1996) pointed out, Web/database connectivity can be achieved through one of the two basic approaches:

- Linking the database to the Web with either a Web server that supports that particular database system, or by using a database system that has built-in Web support;
- Using "middleware" that mediates between the Web server and the database system.

Trade Regulation

This page contains four links to pages containing general information about the country's customs procedure, investment policy, licensing procedures and taxation. It is aimed to give general awareness about trade regulations of the country.

Business Links

This page contains information about useful trade links with which the country and the Ethiopian Chamber of Commerce have close relations, such as the Common Market for Eastern and Southern Africa (COMESA), the International Chamber of Commerce (ICC), Lome-Convention and Generalised System Preference (GNP).

What is New?

This page is intended to inform users when the content of the site is updated in the future. The page will also serve as a newsletter to emphasise timely information related to business situation in the country and that of the Chamber.

The Webmaster

This page contains the address of the Webmaster for any comments and questions regarding the Web site.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The Internet, a term describing a network of networks is providing new opportunities for businesses. Companies world-wide have recognised the Internet as an important business tool, and are getting connected to this network to take advantage of its low cost, wide market coverage and interactive nature.

Practically any company of any size in any country can benefit from using the Internet, to increase sales, reduce costs and improve communication with clients. Business application of the Internet can range from the use of simple E-mail, to provide better contact with clients, to the development of elaborate Web site, to market a company internationally at very low cost.

The combination of reduced cost, increased market access and visibility offers huge potentials to businesses in developing nations to overcome the traditional constraints of distance from market and lack of information on market trends.

The Ethiopian economy, like that of many developing countries, is linked to its foreign trade performance. Inability to reach international markets, lack of awareness

of international trade procedures, and business communication problems are among the factors which contribute to poor economic performance.

Ethiopia has been connected to the Internet since January 1997 and users are getting access through dial-up connections over the public-switched telephone network. The state-owned Ethiopian Telecommunication Corporation is the sole Internet service provider in the country. Private investors are not allowed to participate in this sector, and due to the absence of competition, the existing cost of dial-up Internet connection in Ethiopia is one of the most expensive in Africa. Besides this, the range of Internet services offered and the quality of support provided to users is also very limited.

At the end of December 1997, there were 1,668 Internet subscribers among which 430 were importers and exporters. As indicated in Chapter 4, low cost communication through E-mail was the most important factor which attracted the importers and exporters to using the Internet. Access to potential customers and suppliers and casual browsing of information through the Web were the second and third priority influential factors, respectively.

While most of the importers and exporters use the World Wide Web for accessing supplier, market, and other business information, only 3 per cent of them use it for general publicity and advertising. This indicates that most of the businesses are passive consumers of Web based information without contributing to global resource.

Poor dial-up call success rate, high monthly service charge, and intermittent interruptions were the major constraints cited by the respondents of the survey, in making a more effective use of the Internet. The respondents also expressed their concern about the state monopoly of the Internet service provision. Added to these, security of financial transactions, confidentiality and integrity of bids were among the issues raised by some of the importers and exporters which must be addressed for the development of business use of the Internet.

Probably the most interesting finding of the survey was that the Import/Export businesses (on the average) utilised only 36 per cent of the monthly online hours they subscribed for. This indicates that most of the businesses decided to connect to the Internet without a clear vision of what to do with it.

Therefore, the Import/Export businesses in Ethiopia should incorporate the Internet as an integral component of business strategy so that Internet as an enabling tool can allow them to become more efficient and effective.

6.2 RECOMMENDATIONS

The following are some recommendations which must be addressed to promote business use of the Internet in the country.

- 1) The Ethiopian government should formulate an explicit national information policy which focuses on acquisition and/or development of information technology, establishment and improvement of telecommunications

infrastructure, development of information technology (IT) skills, and protection of intellectual property .

- 2) The government should allow participation of the private sector in the provision of telecommunications services in general and Internet service in particular. The deregulation and privatisation should not be done half-heartedly through the setting up of semi-state companies or other similar government-run or influenced bodies.
- 3) The newly established Ethiopian Telecommunication Agency which is the regulatory body of telecommunications services in the country should focus on areas of standards and services and should promote the free operation of the market. The regulatory process must be transparent, open, and afford opportunity for user comment and participation. The regulation must also be as minimal as possible, so as not to constrain the introduction of new technologies, facilities and services.
- 4) The legal system of the country must be adjusted and reformed to accommodate the new concepts of law to facilitate electronic commerce. The new code should recognise electronic contracts, electronic signature and other authentication procedures. Existing laws and regulations that may hinder electronic commerce should be reviewed and revised or eliminated to reflect the needs of the electronic age.

- 5) If Internet users don't believe that their communication data are safe from interception and modification, they are unlikely to use the Internet for commerce on a routine basis.

Therefore, the government should allow the use of encryption technologies to ensure security. The conditions of government access to encrypted information should be clearly stated, publicly available, consistent with national and international laws, and clearly understood by all users.

- 6) The implementation of electronic commerce will require collaboration among traders, bankers, and transportation companies who should be partners for online transaction processing. These trading partners should develop alliance with value-added networks for electronic data transmission.

- 7) Participation in global trade requires low cost and efficient customs procedure.

Therefore, the Ethiopian Customs Authority should implement the on-going project of Automated System for Customs Data (ASYCUDA), which is UNCTAD's standard customs procedure that have been adopted by many developing countries.

- 8) The newly established Ethiopian Trade Point, which is a gateway to the Global Trade Point, should be strengthened to assist importers and exporters in providing information on trade opportunities, foreign trade regulations and standards in international trade.

- 9) Responsible bodies, such as the Ethiopian Chamber of Commerce, the Ethiopian Trade Point and the Internet service provider should increase literacy among importers and exporters about the various applications of the Internet and its role in facilitating international trade.
- 10) The existing Internet connection through the public-switched telephone network is not convenient for multimedia applications. Therefore, new data communication technologies such as Integrated Services Digital Network (ISDN), Frame Relay, Asynchronous Transfer Mode (ATM), etc. should be introduced as soon as possible.
- 11) The Internet service provider should upgrade the number of dial-up lines and the bandwidth of the international link to solve the congestion on the existing lines. It should also start providing digital leased line service, so that institutions and organisations which require such services can have permanent access to the Internet.
- 12) The Internet service provider should reduce its monthly service charge and increase the monthly online hours so that everybody having a computer, a modem and telephone line can have access to the Internet. The limited number of monthly online hours is discouraging dial-up users to using the Internet due to the cost implication of the extra hours.

- 13) Internet connectivity is not an end in itself or Internet will not automatically make a bad marketer a good marketer. Importers and exporters should incorporate the Internet as an Integral component of their business strategy, so that Internet as enabling tool can allow them to be more efficient and effective. Importers and exporters should also start making local information available on the Net by publishing their business information on the World Wide Web.
- 14) National and local chapters of the Internet Society (ISOC Chapters) have been formed or are being formed in many countries which focus mainly on local and regional issues. Such a national Chapter should also be formed in Ethiopia to be involved in the future of the Internet in the country.

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APPENDIX 1

QUESTIONNAIRE USED FOR DATA COLLECTION

Dear Sir/Madame:

I am a graduate student in the School of Information Studies for Africa (SISA) at Addis Ababa University. I am carrying out a research entitled **Potentials of the Internet for Import/ Export Business in Ethiopia: Opportunities and Challenges**, in partial fulfilment of the requirements for the degree of Master of Science in Information Science (M.Sc.I. S).

The responses that you provide to this questionnaire will be used in analysing the current business use of the Internet in Ethiopia. The results of the study will help in increasing the awareness of the existing and potential users of the various facilities of the Internet and the strategies that should be formulated in order to effectively and efficiently utilise the Internet resources. The results of the study may also serve as a feedback for the Internet Service provider to improve its services and for policy makers in defining guidelines to promote the uses of the Internet.

Please complete the questionnaire at your earliest convenience. There will be no personal reference to you in the thesis.

Thank you in advance for your co-operation.

Sincerely

Yalew Gizaw

General Direction

Please fill in the blank or indicate your choice with a tick (✓) mark. You may use additional paper where the space provided is not enough.

I About the Organisation

1. Name of the organisation _____
2. Address _____
3. E-mail _____, Telephone _____
4. Year of establishment _____, Initial capital (in Birr) _____
5. Type of business
 - ☐ Import
 - ☐ Export
 - ☐ Both Import and Export
 - ☐ Other, please specify _____
6. Number of employees in your organisation _____

II User Information needs

7. Which of the following kinds of information are important for the success of your business? Rank the items in order of importance, by assigning 1 to the most important, 2 to the second most important, etc.
 - 7.1 Information about export markets (how & where to sell products) _____
 - 7.2 Sources of information about potential suppliers (for import items) _____
 - 7.3 Information about technological developments _____
 - 7.4 Information about customs rules, tariffs and, government regulations

 - 7.5 Information about international trade procedures _____
 - 7.6 Other, please specify _____

8. Which of the following problems do you frequently face while running your business? Rank the items in order of importance, by assigning 1 to the most serious problem, 2 to the second problem, etc.

- 8.1 Lack of market information for export items _____
- 8.2 Lack of reliable suppliers' information for import items _____
- 8.3 Lack of up-to-date information about technological developments _____
- 8.4 Lack of awareness about customs rules, tariffs, and government regulations _____
- 8.5 Lack of awareness about international trade procedures _____
- 8.6 Inability to receive and send business messages and documents on time _____
- 8.7 Other; please specify _____

III Experience in using computers

9. Do you have access to a computer?

☐ Yes

☐ No

10. Did you take any computer training?

☐ Yes

☐ No

11. What applications are you running? Make a tick (✓) mark against all relevant answers.

☐ Word processing (such as word perfect, Microsoft word, etc.)

☐ Spread Sheet (such as Excel, Lotus)

☐ Database (such as Access, dBase IV, dBase V etc.)

☐ Other, please specify _____

IV Uses of the Internet

12. How long have you had access to the Internet?

- ☐ Less than three months
- ☐ Three months to six months
- ☐ Six months to one year
- ☐ More than one year

13. Which of the following are the most important factor which influenced you to using the Internet? Rank the items in order of importance, by assigning 1 to the most important, 2 to the second most important, etc.

13.1 Easy access to potential customers and suppliers _____

13.2 Low cost of communication _____

13.3 Advertising/ promoting business on the World Wide Web _____

13.4 Access to technological information _____

13.5 Access to government and trade organisation data _____

13.6 Online sales and transaction _____

13.7 Causal browsing of information _____

13.8 Other, please specify _____

14. How did you learn to use the Internet?

- ☐ On my own (using online help)
- ☐ From friends
- ☐ By reading books/ manuals
- ☐ Demonstration by the Internet Service Provider.
- ☐ Through training
- ☐ Other, please specify _____

15. Do you use E-mail (electronic mail)?

- ☐ I am unfamiliar with this service.
- ☐ I am familiar with this service but do not use it.
- ☐ Yes, I use it.

16. If your answer to the above question is Yes, categorise the type of uses you have for E-mail. Make a tick (✓) mark against all relevant items below.

- ☐ Sending and receiving business messages
- ☐ Transferring business documents online
- ☐ Sending and receiving standardised communications to targeted audiences through mailing list
- ☐ To confirm receipt of information, orders, and goods through automated e-mail.
- ☐ Other, please specify _____

17. How many E-mail messages, on the average, do you send per week?

- ☐ 1
- ☐ 2 to 5
- ☐ 6 to 10
- ☐ more than 10, please specify _____

18. Do you participate in news groups (discussion groups)?

- ☐ I am not familiar with this service.
- ☐ I am familiar with this service but do not use it.
- ☐ I read news only passively (do not send messages)
- ☐ I read news actively.

19. Why do you participate in discussion groups (news groups)?

Make a tick (✓) mark against all relevant items below.

- ☐ To be updated on technological developments.
- ☐ To get expert advice and help on business matters.
- ☐ To share ideas, problems, and solutions.
- ☐ To create virtual work-teams
- ☐ Other, please specify _____

20. Do you use FTP (file transfer between computers) or TELNET (connecting to remote computers)?

- ☐ I am not familiar with these services.
- ☐ I am familiar with these services but do not use either of them.
- ☐ I use FTP only.
- ☐ I use TELNET only.
- ☐ I use both services.

21. Do you use the World Wide Web to browse the Internet?

- ☐ I am not familiar with this service.
- ☐ I am aware of it but do not use it.
- ☐ I tried to use it in the past but discontinued.
- ☐ Yes, I use it.

22. If your answer to the above question is Yes, for what purpose do you browse the World Wide Web? Make a tick (✓) mark against all relevant items below.

- ☐ Access to reliable vendors and better quality products at reduced prices.
- ☐ Searching information relevant to business
- ☐ For research and development
- ☐ Other , please specify. _____

23. Do you have a Web page at the Ethio Web site or through some other arrangements else where?

- ☐ Yes
- ☐ No

24. If your answer to the above question is Yes, indicate the Uniform Resource Locator (URL) or the Web address. _____

25. For what purposes do you use the Web page? Make a tick (✓) mark against all relevant items.

- ☐ General publicity.

- ☐ Advertising/promoting business.
- ☐ Conducting on-line sales and transactions.
- ☐ Other, please specify. _____

26. How many hours per week, on the average, do you spend using the Internet services? For each type of service, please make a tick (✓) mark against the appropriate time.

Name of Service	0 hours	1/2 hour	Up to 1 hour	2-5 hours	5-10 hours	more than 10 hours
E-mail						
News groups						
TELNET						
FTP						
WWW						
Other services						

27. Please put the following Internet services in order of their importance to you. Do not give rank to the services that you do not use. Assign 1 to the most important service, 2 to the second most important service, etc.

E-mail _____

News groups/ discussion groups _____

TELNET _____

FTP _____

WWW _____

Other Internet services _____

28. Would you like to improve your knowledge about how to use the Internet?

☐ Yes

☐ No

29. If your reply to the above question is Yes, what services would you like to learn about? Make a tick (✓) mark against all relevant items.

- ☐ E-mail
- ☐ TELNET
- ☐ FTP
- ☐ News groups
- ☐ WWW

30. Have you observed any effect on your business in using the Internet?

- ☐ No effect.
- ☐ It has made a difference.
- ☐ Do not even know whether it has any effect.
- ☐ It is too early to tell.

31. In your view, which of the following would be the major problems in doing business on

the Internet in terms of security? Make a tick (✓) mark against all relevant items.

- ☐ Security requirement for financial transactions.
- ☐ Confidentiality requirement for bids
- ☐ Lack of suitable electronic payment system currently (e.g. digital cash)
- ☐ Other, please specify _____

32. Cite, in order of importance, at least 3 major improvements brought to your business by the use of the Internet.

- 1 _____
- 2 _____
- 3 _____
- 4 _____

33. Cite, in order of importance, at least 3 major constraints for making a more effective use of the Internet (such as band width limitation, cost, net work

services available, poor telephone line, etc.) by indicating the level with High, Low or Poor.

1 _____

2 _____

3 _____

4 _____

34. What measures would you suggest to alleviate the above constraints?

35 Any additional remarks

Thank you for taking your time to fill in the questionnaire

Please mail the completed questionnaire to the following address

Yalew Gizaw
School of Information Studies for Africa
Addis Ababa University
Po. box 1176
Addis Ababa

APPENDIX 2

PERSONS INTERVIEWED

- | | |
|-----------------------------|--|
| 1) Ato Fanta Adane | Internet Service Division Head, Ethiopian
Telecommunication Corporation |
| 2) Ato Tsegaye Gebre Medhin | Internet Service Division Deputy Manager,
Marketing |
| 3) W/t Hayat Ahmed | Internet Service Division Deputy Manager,
Operations |
| 4) Ato Getachew Aberra | Internet Service Division Deputy Manager, Web
Page Development |
| 5) Ato Solomon Kebede | Director of Ethiopian Trade Point |
| 6) Ato Hussein Shibeshi | Trade Information Department Head, Addis Ababa
Chamber of Commerce |
| 7) Ato Ousman Ali | Planning and Training Coordination Officer,
Ethiopian Chamber of Commerce |
| 8) Ato Kelemework Belay | Customs Automation Project Office Head,
Ethiopian Customs Authority |

DECLARATION

The thesis is my original work and has not been presented for a degree in any other university.



Yalew Gizaw

The thesis has been submitted for examination with my approval as university advisor

Getachew Birru

May, 1998

Tamrat Bayle

May , 1998