

Addis Ababa University
School of Graduate Studies
School of Information Studies for Africa

**MAKING INFORMATION ON
ETHIOPIA AVAILABLE
ON THE INTERNET:
A CASE STUDY OF TOURISM
IN ETHIOPIA**

A Thesis Submitted in Partial Fulfilment
of the Requirement for the
Degree of Master of Science
in Information Science

By
Kibruyisfa Achamyeleh

June 7, 1997

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

MAKING INFORMATION ON ETHIOPIA AVAILABLE ON THE
INTERNET: A CASE STUDY OF TOURISM IN ETHIOPIA

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

BY

KIBRUYISFA ACHAMYELEH

JUNE 7, 1997

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

MAKING INFORMATION ON ETHIOPIA AVAILABLE ON THE INTERNET:
A CASE STUDY OF TOURISM IN ETHIOPIA.

By

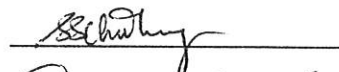
Kibruyisfa Achamyelah Shawle

Name and Signature of Members of the Examining Board

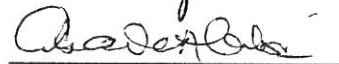
Ato Getachew Birru, Chairman, Examining Board



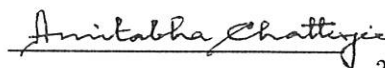
Dr. G.G. Chowdhury, Advisor



Dr. A. Alabi, Internal Examiner



Prof. A. Chatterjee, External Examiner



Dedication

This work is dedicated to my beloved mother Wzo. Workenesh W/Amlak.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
CHAPTER I	1
1.1 BACKGROUND.....	1
1.2 STATEMENT OF THE PROBLEM.....	4
1.3 GENERAL OBJECTIVE.....	5
1.3.1 <i>Specific Objectives</i>	5
1.4 SCOPE AND LIMITATIONS.....	6
1.5 JUSTIFICATIONS.....	6
1.6 METHODOLOGY.....	7
1.6.1 <i>Document Analysis Method</i>	7
1.6.2 <i>Data Collection Method</i>	7
1.6.3 <i>Developing Tourism Web Page</i>	9
1.7 APPLICATIONS OF RESULTS.....	10
1.8 ORGANISATION OF THE THESIS.....	10
CHAPTER II	11
INTERNET AND THE WORLD WIDE WEB	11
2.1 WHAT IS INTERNET.....	11
2.1.1 <i>Internet: Origin, Development and Application</i>	12
2.2 LEVELS OF INTERNET CONNECTIVITY.....	18
2.3 INTERNET APPLICATIONS.....	19
2.4 THE WORLD WIDE WEB: ORIGIN AND DEVELOPMENT.....	22
2.4.1 <i>Architecture of WWW</i>	29
2.4.3 <i>World Wide Web Protocols</i>	31
2.5 INTERNET AND ETHIOPIA.....	34
2.5.1 <i>PADISnet (Pan African Development Information system network)</i>	34
2.5.2 <i>ETC Internet</i>	35
CHAPTER III	37
INFORMATION ABOUT ETHIOPIA TO BE PUBLISHED ON THE WWW	37
3.1 PERCENTAGE OF RESPONDENTS.....	37
3.2 MAJOR AREAS THAT COULD BE PUBLISHED ON THE INTERNET.....	38
3.3 EDUCATIONAL INSTITUTIONS.....	40
3.4 BUSINESS ORGANISATIONS.....	41
3.5 TRAVEL AND TOURISM.....	42
3.6 INTERVIEW.....	44
3.7 DISCUSSION WITH SELECTED RESOURCE PEOPLE.....	45
3.8 FINDINGS.....	51

CHAPTER IV.....	55
TOURISM INFORMATION AND WORLD WIDE WEB	55
4.1 TOURISM INFORMATION SYSTEM.....	55
4.2 TOURISM INFORMATION AND WORLD WIDE WEB.....	56
4.2.1 <i>Tourism Promotion using World Wide Web</i>	58
4.3 STEPS TO FOLLOW IN CYBERSPACE ADVERTISING.....	66
4.4 TOURISM PROMOTIONAL STRATEGY AND WORLD WIDE WEB.....	69
4.5 TOURISM INDUSTRY IN ETHIOPIA	77
4.5.1 <i>Tourism Developments in Ethiopia</i>	77
4.5.2 <i>Current situations of Tourism in Ethiopia</i>	79
CHAPTER V.....	81
DEVELOPING A TOURISM WEB SITE FOR ETHIOPIA	81
5.1 ELEMENTS OF STYLE FOR WEB DESIGN	81
5.1.1 <i>Elementary Principles of Composition</i>	81
5.2 ELEMENTARY RULES OF USAGE.....	84
5.3 AN APPROACH TO STYLE	86
5.4 FINDING A HOME FOR THE WEB SITE.....	91
5.4.1 <i>Choosing a Web Service Provider</i>	93
5.5 HARDWARE AND SOFTWARE REQUIREMENT FOR A WEB SERVER	94
5.5.1 <i>Hardware Requirements</i>	96
5.5.2 <i>Web Server Software Requirement</i>	101
5.6 THE PROTOTYPE TOURISM WEB PAGE.....	107
CHAPTER VI.....	118
CONCLUSION AND RECOMMENDATIONS.....	118
6.1 CONCLUSION.....	118
6.2 RECOMMENDATIONS.....	120
BIBLIOGRAPHY	123
ANNEX 1.....	128

Acknowledgement

I spent almost half a year working on this paper, and many things happened in that period of time. There were quite a number of people that got involved with my work in either a direct or an indirect way.

The Work owes a lot to all the people who provided me with much interesting material and hot tips about the subject. I have especially been inspired by Dr. G.G. Chowdhury, the Advisor of this work for all hints and tips that he has forwarded to me and for his tireless reading and correction of the work.

Among those involved with my work a special thanks goes to Wzo. Martha Bekele, who supplied me with all the necessary documents, books and materials concerning Ethiopian Tourism Information.

A particular thank you goes to Dr. Nancy Hafkin, for her unreserved support in securing Hardware, and software necessary for the project and with out whom this project would not be possible. And there goes a big thank you to all PADIS staff and to all of you who made this possible.

Last but not least a big thank you goes to my beloved mother Worknesh W/Amlak who has been praying for the fulfilment of this work.

Abstract

Internet which is paving the way for the global information super highway has become one of the big issues in the world. This big network of networks with its famous applications like E-mail, World wide web, Internet relay chat, etc., is benefiting people in the world in their day to day activities. It is only recently that Africa has started drinking from this sea of information. Ethiopia which has been using a store and forward (e-mail only) system of electronic communication became part of the Internet world starting from January 1997 through the ETC (Ethiopian Telecommunication Corporation) Internet. With the expansion of Internet facilities came the wide area hypermedia information retrieval system, the World Wide Web, which made it possible to access large universe of multimedia documents world wide. Ethiopia should benefit by publishing its information on various sectors on the WWW by using its current Internet connectivity which will enable her to contribute to the sea of Information and benefit as well.

In this study, the birth and origin of Internet and its current structure have been discussed. The nature and characteristics of the famous application of Internet, the World Wide Web have been explained. The potential benefits that can be derived by Ethiopia by publishing on the Web have been elaborated, and possible areas that could be published on the World Wide web about Ethiopia have been identified. The current situations related to tourism information and application of World Wide Web have been discussed. The basic issues that should be taken into consideration in designing a Web page, like style of Web page design, steps to follow, and

basic software and hardware requirements for a Web server have been explained. A prototype Web page on tourism information on Ethiopia, a priority area as indicated in this research, has been developed. Concluded that it is high time for various organisations and institutions in Ethiopia, particularly in the area of tourism, business, and education, to plan their home page and publish on the WWW. The prototype Web page can be a starting point for further research along this line in Ethiopia.

Chapter I

Introduction

1.1 Background

The Internet is correctly defined as a network of networks (Nelson 1996). The Internet was born about twenty six years ago, trying to connect together US Department of Defense's network, the ARPAnet, and other radio and satellite networks (BITE, 1995). The ARPAnet was an experimental network designed to withstand partial outage (like bomb attacks, earthquakes, etc.). The Internet includes various national (public) networks of computers (e.g. NSFnet in the USA) and some commercial networks (CompuServe, America On-line, Prodigy, etc.). Each network uses a protocol for communication between the networks. This enables the communicating computers to understand each other.

The Internet represents a highly cost-effective means for a country's educational community to access global data of all kinds - in effect bringing them into the world community from what is in many cases a well-founded sense of isolation (Menaker 1995). The ability of many end-users to share a common carrier pipeline of telecommunications bandwidth and - by means of a mere handful of software conventions connect to and interact with the world's great information resources is what the Internet not only promises but easily delivers.

The World Wide Web (WWW), is an Internet wide distributed hypertext or hypermedia system that operates on a client/server model. The Web, which was invented by physicists at the European community's particle physics research center in Switzerland (CERN), is more of a conceptual

construct than a physical entity. World Wide Web is the most recent and most rapidly penetrating system for wide area information access. WWW based information servers provide the user with a multimedia interface for access to text, pictures and sounds. A simple ASCII based language called the Hypertext Markup Language (HTML) is used to construct files on the server which display on the user's computer through WWW client software usually called a Web Browser. The 'pages' displayed may contain highlighted references to other documents, sounds or images stored locally, on remote Web servers, or other news group servers and file servers. By selecting one of these highlighted areas the user is transparently connected to the source of the information which is then displayed by the appropriate application running on the client computer (such as text editor, sound card driver or moving image player).

AS a unifying and integrating force for simplifying access to a diverse range of information sources and access tools, WWW has attracted the attention of most information providers. Transaction

processing and encryption is being built into the current new version of Web browsers so that commercial trade can take place through browsing of WWW based catalogues.

Is the information revolution coming to Africa? As with many other questions about Africa, the answer is "Yes, but..." It is coming slowly, ambiguously, and unevenly (Wilson 1996). In some nations (e.g. Senegal and Mozambique), the government is allowing local entrepreneurs and non governmental organizations to "fast forward" into the information future; while in others (e.g., Congo and Cameroon), governments stand in the way of reform (Wilson 1996). "Africa is a place where

you hardly see new books and journals, said Lishan Adam, an Ethiopian based computer networking expert", further adding that "Internet access is the only way to bypass this isolation, and yet they do not have it" (Lishan 1996). As of February 1997 there are 30 African countries which offer decent, direct connections with the information-packed electronic world of the Internet. More have low-tech versions of electronic mail, but maps that track the information superhighway clearly show it has bypassed most of the continent (Proceedings of ..., 1994).

Nevertheless, there are instances of good news concerning Africa and the information revolution such as (Wilson, 1996):

- Through HealthNet, clinic patients in rural Kenya have better health care because they can consult by satellite with doctors in Nairobi and if necessary with specialists in Boston;
- As a consequence of media liberalization rural audiences in Mali and Niger get more information and better entertainment, as dozens of private and community-owned radio stations are created that cater to consumer tastes and interests;
- African entrepreneurs, instead of waiting for government action, have created their own commercial Internet access businesses in Senegal and Ghana;
- Pinpointing the position of southern Africa trains via Transtel Satellite data and voice networks permits faster and cheaper deliveries of goods;

- A woman's craft Cooperative in Kenya learns through its use of Internet advertising that it can charge \$15 for units it was intending to sell for \$1; and
- The south African information sector is exploding with everything from content wide Internet and cable services to self-supporting commercial "telephone shops" that give rural farmers access to cellular phones.

In the case of Ethiopia, the Ethiopian Telecommunication Authority recently introduced Internet to Ethiopia. This is additional to the store and forward Fidonet system that Ethiopia has been using for the last six years. Fanta(1996) identified all the benefits that the Internet can bring to Ethiopia. However, once Ethiopia gains access, there are a lot of information items on Ethiopia that can be made available on the Net. These items of information will not only make Ethiopia better known to the Internet community around the globe but will also strengthen the country's economy by attracting investment in different areas.

1.2 Statement of the Problem

It is only lately that the Sub-Saharan African countries mobilize their resources to use electronic communication as a means for information resource sharing. It is with the effort of some donor agencies that some Sub-Saharan African countries got a store and forward e-mail only system. The Pan African Development Information System (PADIS) is one of the leading organizations in Africa which introduced electronic communication in Sub Saharan African countries such as Ethiopia. The effort made by PADIS to introduce electronic communication in Ethiopia made the user population aware of

the need for having a direct Internet connectivity which can contribute more than an E-mail only service that Ethiopia has been using for the last six years. To this end the Ethiopian Telecommunication Corporation introduced a dial up Internet service starting from January 1, 1997. Ethiopia can't benefit a lot by only having an Internet connectivity; it should publish information on its various resources and potentials on the Internet which can contribute very much to its economic growth. Since Internet is a recent phenomena in Ethiopia, there is no guideline or activity on how and what to publish on the Internet about Ethiopia. The present research aims to solve this problem.

1.3 General Objective

The general objective of this research is to identify the various areas of information on Ethiopia that can be made available through WWW on the Internet and to discuss the measures to be taken in building a web site taking tourism information as a case.

1.3.1 Specific Objectives

In order to achieve the general objective, this study aims to achieve the following specific objectives:

To show the benefit of having world wide web or having a home page on the web;

To assess the potential areas of information on Ethiopia which could be made available on the World Wide Web;

To discuss the various mechanisms in designing a tourism Web page; and

To design a prototype Web page on tourism information in Ethiopia.

1.4 Scope and Limitations

The study focuses only on common areas that could be published in the World Wide Web which have more importance to the Ethiopian community at large. Areas specific to individuals and organizations that could be published in the World Wide Web are not covered. The study only uses PADISnet e-mail users as its population and it doesn't include users outside the community specified due to the reason specified under Data collection methods below. The tourism Web page developed is only a prototype web page.

1.5 Justifications

The World Wide Web is unquestionably a powerful tool, and one that now appears to be transforming scientific communication, turning journals into electronic seminars and weaving them into a single linked database. More and more, universities, research institutes, publishers, tourism & travel organizations and non profit and non governmental organizations proliferate on the World Wide Web, along with business, governments, and artists.

Like in most African countries academic, social, economic, political, agricultural, industrial, business, scientific, and various other activities in Ethiopia are difficult to be accessible from other parts of the world. This is one of the significant causes of the economic, cultural and educational under development of the country.

The benefits that Ethiopia can get by having full Internet connectivity are discussed by a study done in SISA last year (Fanta 1996). To this end, there is a need for Ethiopia to propose specific information services on the Internet so that Ethiopia can have a presence in it and become information provider. This can be done by identifying various sectors in Ethiopia based on user feedback which could be published on the Internet.

1.6 Methodology

1.6.1 Document Analysis Method

Document Analysis is one of the survey instruments used in this study. A number of documents have been consulted. CD-ROM databases, on-line newsletters, journals, brochures and newsgroups have also been referred to. These include: the PC Magazine CD-ROM databases, World Wide Web Consortium proceedings, Inet conference proceedings, various tourism web sites, and the tourism newsgroups.

1.6.2 Data Collection Method

The questionnaire , interview and discussion with selected resource persons have been used to collect data for this research.

Questionnaire

The questionnaire is used to identify possible areas in Ethiopia that could be published on the Internet and to identify the type and content of information that should be published on the Internet in the major areas that are listed in the questionnaire.

The questionnaire has got two parts: a general part that had to be filled by all respondents and a specific part which had to be filled only by specific respondents.

The study has taken the PADISnet electronic communication users as its user base, which were 710 as on January 1997. Out of this, 76 are Business organizations, 6 travel & tourism organizations, 56 Educational institutions, 85 UN & NGO, and 487 are government organizations and Individuals. For the purpose of this study a stratified random sampling which took 15% sample from each strata is used. But due to the small number of the tourism & travel sample the whole population of tourism & travel strata has been taken. The percentage of the sample is fixed by taking into consideration the time limit for this study. Table 1.1 shows the size of population and the sample chosen for this study.

Table 1.1: Population size and sample

No.	Group	Number of Population	Number of Sample
1	Business Organizations	76	11
2	Educational Institutions	56	8
3	Travel & Tourism Organizations	6	6
4	UN organizations & NGO's	85	12
5	Individuals	487	73
Total		710	110

The reason for choosing the PADISnet user base for this study is the fact that World Wide Web technology is one of the

recent applications in the Internet world and questions raised on World Wide Web related issues can only be understood by users who have got an experience at least in electronic communications. PADISnet have been functioning starting from 1991, giving a store and forward e-mail service in Ethiopia, which currently has got 710 customers.

Interview

Interviews were conducted with additional selected individuals based on their experience and practice in electronic communications. This was done by taking 10% of the sample size in Table 1.1 , which became 11. The top 11 experienced users were selected by taking the PADISnet e-mail user log in profile as a base for identifying the most frequent users.

Discussion with selected resource persons

Discussion was done with three selected individuals; two of them were selected by their contribution in wide area networking in Africa at large. Those were Dr. Nancy Hafkin and Mr. Lishan Adam both form the Pan African Development Information System. The other person who was selected as a resource person is Mr. Solomon Gebreab, General Manager of a tour & travel organization which has got a lot of experience in electronic communication.

1.6.3 Developing Tourism Web Page

Based on the survey analysis of the tourism and travel sections of the questionnaire, a prototype tourism Web page has been developed by taking into consideration the needs of the respondents and also by taking the basic elements of style for Web page design in various literature.

1.7 Applications of Results

One of the main concerns of this work was to identify the possible areas that could be published on the World Wide Web through ETC-Internet. The technicalities involved in building a tourism web page are also discussed.

Thus, various potential institutions and organizations in Ethiopia might use the results of this research in building their Web pages. The work will also benefit the Ethiopian Telecommunication Corporation in selecting priority areas that could be published on the World Wide Web which in turn will allow ETC to provide value added service. In general, this research will have an impact on the economic, cultural, and educational development of Ethiopia as mentioned in the justification part.

1.8 Organisation of the thesis

This study is organized in six chapters where, chapter 1 discusses the Introduction and methodology, chapter 2 Literature review on Internet and World Wide Web, chapter 3 discuss the survey findings which is "Information About Ethiopia to be Published on the WWW", chapter 4 discusses the applications of WWW in Tourism industry, chapter 5 discusses the various mechanisms, styles of Web page design

and hardware and software requirement for Web page design and also discusses the contents of the prototype tourism Web page and last but not the least i.e. chapter 6 presents the conclusion along with recommendations.

Chapter II

Internet and the World Wide Web

2.1 What is Internet

According to (Nelson 1996), the Internet is correctly defined as a network of networks. Groups of networked computers, such as those at universities, large governmental agencies and companies are all connected together. Additionally, small businesses, local non-profit organizations and plenty of individuals and families are all connected to this same inter-network structure, usually through an Internet service provider. This common linkage of computers via satellite, coaxial cable and phone lines is collectively known as the Internet. The number of Internet users is growing at the rate of one million new users per month (FutureNet 1994).

Every one of the thousands of sites that go to make up the Internet network is in fact a network itself - everything from small local area networks (LANs) to massive wide area networks (WANs). All such sites are connected to the Internet, and thus to each other, by any means available, be it a telephone line, dedicated leased line, or even a microwave link. Because these networks are pretty diverse - not only geographically, but also in terms of operating systems and computer platforms, standard communications protocols are required to fully ensure compatibility between set-ups. In the case of the Internet, the protocols used are known as Transmission Control Protocol and Internet Protocol (TCP/IP).

2.1.1 Internet: Origin, Development and Application

According to Erickson (1995), the history of the Internet begins at the height of the cold war in the 1960's. People at the Rand Corporation, America's foremost military think tank, were trying to figure out an important strategic problem: how could US authorities talk to each other in the aftermath of a nuclear attack? Communication networks of the day were chained point-to-point, with each place on the network dependent on the link before it. If one point in the network was blown up, the whole network would become useless.

Paul Baran, one of the Rand thinkers on the project, conceived the idea for a new kind of communications network; one that wasn't organized point-to-point, but instead was set up more like a fishnet. He believed this structure could allow information to find its own path through the network even if a section had been destroyed. His eleven volume report for the Pentagon was eventually shelved; but younger engineers realized that he had hit on an essential idea .

Baran's Cold War musings later influenced the design used to create a small, decentralized network connecting computers at four university campuses around the United States. This tiny seed eventually grew into the Internet; a huge network-of-networks, millions of strong nodes, which today covers the entire globe.

The Internet has come a long way from its military beginnings. Touching almost every aspect of society, it is now more likely to be used to plan a family vacation than to transmit military secrets (Erickson 1995).

Following are highlights of the 30 year history of the Internet according to (Erickson 1995); how it grew, what technologies grew with it, and the impact of success on the Internet itself.

The Internet was first conceived in the early 60s. Under the leadership of the Department of Defense's Advanced Research Project Association (ARPA), it grew from a paper architecture into a small network (ARPANET) intended to promote the sharing of super-computers amongst researchers in the United States.

Table 2.1: Historical Developments of Internet

Year	Developments
1962	The RAND Corporation begins research into robust, distributed communication networks for military command and control
1965	ARPA sponsors research into a "Cooperative network of time-sharing computers."
1967	Delegates at a symposium for the Association for Computing Machinery in Gatlingberg, TN discuss the first plans for the ARPANET.
1969	Researchers at four US campuses create the first hosts of the ARPANET, connecting Stanford Research Institute, UCLA, UC Santa Barbara, and the University of Utah.
1971	The ARPANET grows to 23 hosts connecting universities and government research centers around the country.
1972	The Inter Networking Working Group becomes the first of several standards-setting entities to govern the growing network. Vinton Cerf is elected the first chairman of the INWG, and later becomes known as the "Father of the Internet."
1973	The ARPANET goes international with connections to University College in London, England and the Royal Radar Establishment in Norway.

1974	Bolt, Beranek & Newman opens Telenet, the first commercial version of the ARPANET.
1976	Queen Elizabeth goes on-line with the first royal email message
1979	Tom Truscott and Jim Ellis, two graduate students at Duke University, and Steve Bellovin at the University of North Carolina establish the first USENET newsgroups
1981	ARPANET has 213 hosts. A new host is added approximately once every 20 days.
1982	The term "Internet" is used for the first time.
1984	William Gibson coins the term "cyberspace" in his novel "Neuromancer." The number of Internet hosts exceeds 1,000.
1986	Case Western Reserve University in Cleveland, Ohio creates the first "Freenet" for the Society for Public Access Computing.
1987	The number of Internet hosts exceeds 10,000.
1989	System administrator turned author, Clifford Stoll, catches a group of Cyberspies, and writes the best-seller "The Cuckoo's Egg." The number of Internet hosts exceeds 100,000.
1990	A happy victim of its own unplanned, unexpected success, the ARPANET is decommissioned, leaving only the vast network of networks called the Internet. The number of hosts exceeds 300,000.
1991	Traffic on the NSF backbone network exceeds 1 trillion bytes per month.
1992	The first audio and video broadcasts take place over a portion of the Internet known as the "MBONE." More than 1,000,000 hosts are part of the Internet.
1993	Mosaic, the first graphics-based Web browser, becomes available. Traffic on the Internet expands at a 341,634% annual growth rate.

1994	The Rolling Stones broadcast the Voodoo Lounge tour over the M-Bone. Backbone traffic exceeds 10 trillion bytes per month.
1995	NSFNET reverts back to a research project, leaving the Internet in commercial hands. The Web now comprises the bulk of Internet traffic. The Vatican launches www.vatican.va. James Gosling and a team of programmers at Sun Micro systems release an Internet programming language called Java, which radically alters the way applications and information can be retrieved, displayed, and used over the Internet.
1996	Users in almost 150 countries around the world are now connected to the Internet. The number of computer hosts approaches 10 million.

The ARPANET is a success from the very beginning. Although originally designed to allow scientists to share data and access remote computers, email quickly became the most popular application. The ARPANET became a high-speed digital post office as people use it to collaborate on research projects and discuss topics of various interests. The general public gets its first vague hint of how networked computers can be used in daily life as the commercial version of the ARPANET goes on-line. The ARPANET started to move away from its military/research roots.

In 1982 Bob Kahn and Vint Cerf are key members of a team which created TCP/IP(Transmission Control Protocol or Internet Protocol), the common language of all Internet computers. For the first time the loose collection of

networks which made up the ARPANET is seen as an "Internet", and the Internet as we know it today was born (Erikson 1995).

The mid-80s marked a boom in the personal computer and super-mini computer industries. The combination of inexpensive desktop machines and powerful, network-ready servers allowed many companies to join the Internet for the first time. Corporations began to use the Internet to communicate with each other and with their customers.

By 1988 the Internet became an essential tool for communications; however it also began to create concerns about privacy and security in the digital world. New words, such as "hacker," "cracker" and "electronic break-in", were created.

These new worries are dramatically demonstrated on Nov. 1, 1988 when a malicious program called the "Internet Worm" temporarily disabled approximately 6,000 of the 60,000 Internet hosts. The Computer Emergency Response Team (CERT) was formed to address security concerns raised by the Worm.

In 1990, corporations wishing to use the Internet faced a serious problem: commercial network traffic was banned from the National Science Foundation's NSFNET, the backbone of the Internet. In 1991 the NSF lifted the restriction on commercial use, clearing the way for the age of electronic commerce.

At the University of Minnesota, a team led by computer programmer Mark Macahill released "gopher," the first point-and-click way of navigating the files of the Internet in 1991. Originally designed to ease campus communications,

gopher is freely distributed on the Internet. MaCahill calls it "the first Internet application my mom can use." This is also the year in which Tim Berners-Lee, working at CERN in Switzerland, posted the first computer code of the World Wide Web in a relatively innocuous newsgroup, "alt.hypertext." The ability to combine words, pictures, and sounds on Web pages excited many computer programmers who saw the potential for publishing information on the Internet in a way that can be as easy as using a word processor.

It is also in 1990, Marc Andreessen and a group of student programmers at NCSA (the National Center for Super computing Applications located on the campus of University of Illinois at Urbana Champaign) eventually developed a graphical browser for the World Wide Web called Mosaic.

As the Internet celebrates its 25th anniversary, the military strategies that influenced its birth become historical footnotes. Approximately 40 million people are connected to the Internet. More than \$1 billion per year changes hands at Internet shopping malls, and Internet related companies like Netscape are the darlings of high-tech investors (Erickson 1995).

Within 30 years, the Internet has grown from a Cold War concept for controlling the tattered remains of a post-nuclear society to the Information Superhighway. Just as the railroads of the 19th century enabled the Machine Age, and revolutionized the society of the time, the Internet takes us into the Information Age, and profoundly affects the world in which we live.

Today some people telecommute over the Internet, allowing them to choose where to live based on quality of life, not proximity to work. Many cities view the Internet as a solution to their clogged highways and fouled air. Schools use the Internet as a vast electronic library, with untold possibilities. Doctors use the Internet to consult with colleagues half a world away.

As a new generation grows up as accustomed to communicating through a keyboard as in person, life on the Internet is becoming an increasingly important part of life on Earth. However, even as the Internet offers a single Global Village, it threatens to create a 2nd class citizenship among those without access (Erickson 1995).

2.2 Levels of Internet Connectivity

There are generally four levels of Internet connectivity although there are several variations on the four levels.

Level one: Access Through a Gateway

This is access to the Internet from a network that really isn't "on" the Internet. The gateway allows the two networks to "talk" to each other, but users of the non-Internet network are limited in their ability to fully access all of the tools of the Internet. Here users are limited to what they can access on the Internet by what your service provider allows them to access. A good example of networks with level one connectivity is America on-line (AOL) and CompuServe.

Level two: Remote Modem Access

This is access through a dial-up terminal connection. This is where, through the use of a modem, users access a "host" and their computer acts like it is a terminal on that mainframe. Users may type the commands on their computer, but it is the host that carries out their commands. It is the most popular (in the sense that more people have level two connectivity than any other level). Here whatever users are doing it is through the host, not through their own computer.

Level three: Direct Internet Access

It is the highest and most expensive, level of connectivity. Users are directly wired into the Internet using high-speed telephone lines, and they are "on-line" twenty four hours a day. It is used normally by sites with hundreds of users, it is mostly limited to large corporations and Universities.

Level four (On-Demand Direct Connectivity)

Here users are not forced to connect twenty four hours a day, they can connect whenever they want using a high speed modem and something called "Point to Point Protocol (PPP)" or "Serial Line Protocol (SLIP)" connection. The client software is stored in the users' computer.

2.3 Internet Applications

The Internet is actually very boring since it is nothing more than hardware connections and TCP/IP, it is the Internet applications that make the Internet come alive (Nelson 1996). Applications of the Internet include electronic mail (e-

mail), the World Wide Web (WWW), newsgroups (or Usenet), Internet Relay Chat (called IRC or just chat), File Transfer Protocol (FTP), Gopher, Telenet and a handful of other applications.

Electronic mail (E-mail)

E-mail is the most commonly used Internet application. More people have e-mail access than any other type of Internet access and more e-mail is sent each day than postal mail. The basic concept behind e-mail parallel those of regular mail. The most obvious advantage of e-mail is speed. "One of my e-mail letters can arrive at its destination on the other side of the planet within seconds of me hitting the Return key on my keyboard" (FutureNet 1994).

There are other advantages, besides raw speed an e-mail message isn't restricted to just text. We can send sound, images, video, and even a computer software. E-mail is also a lot cheaper than its traditional counterpart, it costs the same to send a message to Tokyo as it does to Tottenham (FutureNet 1994).

Usenet (Newsgroups)

Unlike e-mail, which is usually "one-to-one," Usenet is "many-to-many." Usenet is the international meeting place, where people gather to meet their friends, discuss the day's events, keep up with computer trends or talk about what ever on their mind (Gaffin 1994).

Technically, Usenet messages are shipped around the world, from host system to host system, using one of several specific Net protocols. The host system stores all of its Usenet messages in one place, which everybody with an account on the system can access. The basic building block of Usenet is the newsgroup, which is a collection of messages with related theme.

Telenet

Like any large community, cyberspace has its libraries, places one can go to look up information or take out a good book. Telenet is one of the keys to these libraries (Gaffin 1994). Telenet is a program that lets one use the power of the Internet to connect to databases, library catalogs, and other information resources around the world. Users can telenet to their account from another city and check their e-mail while they are on vacation or away on business.

File Transfer Protocol (FTP)

FTP is named after the application protocol it uses: the "File transfer Protocol" (FTP). As the name implies, the protocol's job is to move files from one computer to another. It doesn't matter where the two computers are located, how they are connected, or even whether or not they use the same operating system.

Gopher

Gopher is a menu driven application that allows one to hop around the globe looking for information. It was developed at the University of Minnesota. Gopher's interconnected menus

allow one to "burrow" deeper and deeper until the required information is found.

Internet Relay Chat (IRC)

"If you fancy a real time, real life, chat, try the Net version of Citizens' Band radio, Internet Relay Chat" (FutureNet 1994). IRC is a program that lets users hold live keyboard conversations with people around the world. It's a lot like an international CB radio , it even uses 'channels.' Users type something on their computer and it is instantly echoed around the world to whoever happens to be on the same channel with (Gaffin 1994).

2.4 The World Wide Web: Origin and Development

People have dreamt of a universal information database since late nineteen forties. In this database, not only would the data be accessible to people around the world, but it would also "easily link to other pieces of information, so that only the most important data would be quickly found by a user." (Zeltser 1995)

Only recently has the technology caught up to make such systems possible. The most popular system currently in use is the World Wide Web. The official description defines the WWW as a "Wide-area hypermedia information retrieval initiatives aiming to give universal access to a large universe of documents." (Zeltser 1995)

The world wide web extends the well-established concept of hypertext by making it possible for the destination document

to be located on a completely different computer from the source document, either one located anywhere on the network. This was made possible by exploiting the existing capabilities of the Internet, a World wide network of interconnected computers developed over the preceding 20 years, to establish a rapid connection to any named computer on the network (Johnson 1994).

To achieve this, the World Wide Web uses a client-server architecture. A user who wants to access information runs a world Wide Web client (sometimes referred to as a browser) on his local computer. The client fetches documents from remote network nodes by connecting to a server on that node and requesting the document to be retrieved. A document can be typically requested and fetched in less than a second, even when it resides on the other side of the world from the receiver.

The client-server model offers advantages to both the information provider and the consumer. The information provider is able to keep control of the documents he maintains by keeping them on his own computer. Furthermore the documents can be maintained by the information provider in any form, so long as they can be transformed by the server software into the format the client software expects to receive. This model can naturally extended to allow documents to be dynamically created in response to a request from users, for example by querying a database and translating the result of the query into a hypertext document (Johnson 1994).

From the information consumer's perspective, all the documents on the web are presented in the form of hypertext. The consumer remains blissfully ignorant of how the documents

are maintained by the information provider and, unless he really wants to know, from where the documents are being accessed (Johnson 1994).

The Hypertext Concepts

The term hypertext was coined in 1965 by the American Scientist Ted Nelson in his book literary Machines. Nelson predicted in this book that one day it would be possible to have an electronic system that could include all the documents in the world, and that any document could be retrieved and viewed instantly.

Hypertext is defined as a non-linear text. The text is organized in such a way that inside the "text space" one can easily jump from topic to topic, reading without a predetermined sequence. Hypertext is a tool for creating differently structured documents, which can be multi-level, cross-referenced and annotated in a way impossible to accomplish with a "DBASE" application or a standard word processor. Although hypertext could be developed without a computer, with a number of documents and references organized around this concept, hypertext reaches its maximum potential when implemented in a computer system, since a computer provides the user with the possibility of moving through a tremendous number of texts, from one topic to another, rapidly and with flexibility.

Growth of the Web

The World Wide Web began in March 1989 at CERN. CERN was originally named after its founding body the Conseil European

pour la Recherche Nucleaire, and is now called "European Laboratory for Particle Physics". CERN is a meeting place for physicists from all over the world, who collaborate on complex physics, engineering and information handling projects." Thus, the need for the WWW system arose "from the geographical dispersion of large collaborations, and the fast turnover of fellows, students, and visiting scientists," who had to get "up to speed on projects and leave a lasting contribution before leaving."

The Hypertext Project proposal at CERN

According to Berners-lee (1992), the following were the hypertext project objectives at CERN originally:

- . To provide a common (simple) protocol for requesting human readable information stored at a remote system, using networks;
- . To provide a protocol within which information can automatically be exchanged in a format common to the supplier and the consumer;
- . To provide some method of reading at least text (if not graphics) using a large proportion of the computer screens in use at CERN;
- . To provide and maintain at least one collection of documents, into which users may (but are not bound to) put their documents.
- . To provide a keyword search option, in addition to navigation by following references, using any new or

existing indexes. The result of a keyword search is simply a hypertext document consisting of a list of references to nodes which match the keywords. To allow private individually managed collections of documents to be linked to those in other collections.

- . To use public domain software wherever possible, or interface to proprietary systems which already exist; and
- . To provide the software for the above free of charge to anyone.

The initial implementation of the Web client at CERN was for the "NEXT platform". This earliest browser was able to display documents using multiple fonts and styles and was even able to edit documents, but access was limited to users fortunate enough to have a NEXT box on their desks. This was followed by development of the CERN "linemode" browser, which could run on many platforms but which displayed its output only on character based terminals. These early browsers were followed by the first browsers designed for X-windows, Viola developed at the University of California, Berkeley, and Midas developed at the Stanford Linear Accelerator Center (Johnson 1994).

Initially the growth of the World Wide Web was relatively slow. By the end of 1992 there were about 50 hypertext transfer protocol (HTTP) servers (Johnson 1994). At about the same time, Gopher, a somewhat similar information retrieval tool to WWW but based on menus and plain text documents rather than hypertext, was expanding rapidly with several hundred servers.

During 1993 the situation changed dramatically, driven in large part by the development of the Mosaic client by a talented and extremely enthusiastic group at the National Center for Supercomputer Applications (NCSA) at the University of Illinois in Urbana-Champaign. The Mosaic client for World Wide Web was originally developed for X-Windows under UNIX, with subsequent versions released for both the Macintosh and PC platforms

The Mosaic client software added a few new key features to the World Wide Web: the ability to display embedded images within documents, enabling authors to greatly enhance the aesthetics of their documents; the ability to incorporate links to simple multimedia items such as short movie and sound clips; and the ability to display forms. Forms greatly enhance the original search mechanism built into WWW by allowing documents to contain fields that the user could fill in, or select from a list of choices, before clicking on a link to request further information. The introduction of forms to the WWW opened a new arena of applications in which the World Wide Web acts not only as a way of viewing static documents, but also as a way of interacting with the information in a simple but flexible manner, enabling the design of Web-based graphical interfaces to databases and similar applications.

During 1993 the usage of WWW began to grow exponentially. As new people discovered the Web they often became information providers themselves, and as more information became available new users were attracted to the Web. While the growth in WWW traffic is enormous, it is worth noting that it is still not the dominant protocol; in fact, FTP, e-mail and

NNTP (Network News Transfer Protocol) traffic are all substantially larger.

Owing to the distributed management of the Internet and the World Wide Web, it is very difficult to obtain hard numbers about the size of the Web or the number of users. One illustration of the size of the Web came in early 1994 when a server was set up to provide information and up-to-the minute results from the Winter Olympics being held in Lillehammer, Norway. The implementation of the server wasn't started until the day before the Olympics were scheduled to start, but two weeks later the server (together with a hastily arranged mirror server in the United States) had been accessed 1.3 million times, by users on somewhere between 20,000 and 30,000 different computers in 42 countries (Johnson 1994).

NCSA now estimates that more than a million copies of the Mosaic software have been taken from their distribution site, and approximate counts of the number of HTTP servers indicates there are more than 3000 servers currently operating (Stanford University alone has over 40 HTTP servers, not including one for the Stanford Shopping Center!) (Johnson 1994).

As the size of the web has increased, so has the interest in the WWW from outside the academic community. One of the first companies to take an active interest in the World Wide Web was the publisher O'Reilly and Associates. For over a year they have provided an on-line service, the Global Network Navigator, using the World Wide Web. This includes regularly published articles about developments in the Internet, the "Whole Internet Catalog," an index of information available on the Web, travel section, business section, and even daily

on-line comics and advertising, all illustrated with professionally designed icons.

The Global Network Navigator is one of the many examples of commercial publishers making information available on the Web, including a number of print magazines and newspapers which are available partially or in their entirety on the Web.

2.4.1 Architecture of WWW

The architecture of the hypertext world is one of data stored on server machines, and client processes on the same or other machines. The machines are linked by some network proposed model for the hypertext world. A workstation is either an independent machine in the office or a terminal connected to a close-by computer, and connected to the same network. The servers are active processes that reply to requests. The hypertext data is explicitly accessible to them. Servers can be many on the same computer system, but then each caters to a specific hypertext base. Clients are browser processes, usually, but not necessarily, on a different computer system. Information passed is of two kinds: nodes and links.

Building blocks

Browsers and servers are the two building blocks of WWW. According to Berners-Lee(1992), a browser is a native application program running on the client machine:

It performs the display of a hypertext node using the client hardware & software environment. For example, a

Macintosh browser will use the Macintosh interface look-and-feel.

It performs the traversal of links. For example, when using a Macintosh to browse on CERNVM FIND it will be the Macintosh browser which remembers which links were traversed, how to go back etc., whereas the CERNVM server just responds by handing the browser nodes, and has no idea of which nodes the user has visited.

It performs the negotiation of formats in dialogue with the server. For example, a browser for a VT100 type display will always negotiate ASCII text only, whereas a Macintosh browser might be constructed to accept PostScript or SGML(Standard General Markup Language).

A server is a native application program running on the server machine:

It manages a web of nodes on that machine.

It negotiates the presentation format with the browser, performing on-the-fly (or cached) conversions from its own internal format, if any..

Operation

A link is specified as an ASCII string from which the browser can deduce a suitable method of contacting an appropriate server. When a link is followed, the browser addresses the request for the node to the server. The server therefore has nothing to know about other servers or other webs and can be kept simple.

Once the server has located the requested node, it will know from the node contents what the node's format is (e.g. pure ASCII, marked-up, word processor storage and which word processor etc.). The server then begins a negotiation with the browser, in which they decide between them what format is acceptable for display on the user's screen. This negotiation will be based only on existing conversion programs and formats: it is not in the scope of W3 to write new converters. The last resort in the negotiation is the binary transfer of the node contents to a file in the user's file space. Negotiating the format for presentation is particular to W3.

2.4.3 World Wide Web Protocols

Technically the World Wide Web hinges on three enabling protocols, the Hyper Text Markup language (HTML) that specifies a simple markup language for describing hypertext pages, the Hyper Text Transfer Protocol (HTTP) which is used by web browsers to communicate with web clients, and Uniform Resource Locators (URL's) which are used to specify the links between documents.

Hypertext Markup Language

The Hypertext pages on the Web are all written using the hypertext markup language (HTML), a simple language consisting of a small number of tags to delineate logical constructs within the text. Unlike a procedural language such as Postscript, HTML deals with higher level constructs such as "headings," "lists", "images," and so on. This leaves individual browsers free to format text in the most

appropriate way for their particular environment, for example, the same document can be viewed on a Mac, on a PC, or on a linemode terminal, and while the content of the document remains the same, the precise way it is displayed will vary between the different environments.

The earliest version of HTML (subsequently labeled HTML 1), was deliberately kept very simple to make the task of browser developers easier. Subsequent versions of HTML will allow more advanced features. HTML2 (approximately what most browsers support today) includes the ability to embed images in documents, layout fill-in forms, and nest lists to arbitrary depths. HTML3 allows still more advanced features such as mathematical equations, tables, and figures with captions and flow-around text.

Hypertext Transfer Protocol

Although most web browsers are able to communicate using a variety of protocols, such as FTP, Gopher and WAIS, the most common protocol in use on the Web is that designed specifically for the WWW project, the Hypertext Transfer Protocol. In order to give the fast response time needed for Hypertext applications, a very simple protocol which uses a single round trip between the client and the server is used.

In the first phase of a HTTP transfer the browser sends a request for a document to the server. Included in this request is the description of the document being requested, as well as a list of document types that the browser is capable of handling. The Multipurpose Internet Mail Extension (MIME) standard is used to specify the document types that

the browser can handle, typically a variety of video, audio, and image formats in addition to plain text and HTML. The browser is able to specify weights for each document type, in order to inform the server about the relative desirability of different document types.

In response to a query the server returns the document to the browser using one of the formats acceptable to the browser. If necessary the server can translate the document from the stored format into a format acceptable to the browser. For example the server might have an image stored in the highly compressed JPEG image format, and if a browser capable of displaying JPEG images requested the image it would be returned in this format; however, if a browser capable of displaying images only if they are in GIF format requested the same document the server would be able to translate the image and return the (larger) GIF image. This provides a way of introducing more sophisticated document formats in the future but still enabling an older or less advanced browser to access the same information.

In addition to the basic "GET" transaction the HTTP is also able to support a number of other transaction types, such as "POST" for sending the data for fill-out forms back to the server and "PUT" which might be used in the future to allow authors to save modified versions of documents back to the server.

Uniform Resource Locators

The final keys to the world Wide Web are the URLs which allow the hypertext documents to point to other documents located

anywhere on the Web. A URL consists of three major components: <protocol>://<node>/<location>

The first component specifies the protocol to be used to access the document, for example, HTTP, FTP, or Gopher, etc. The second component specifies the node on the network from which the document is to be obtained, and the third component specifies the location of the document on the remote machine. The third component of the URL is passed without modification by the browser to the server, and the interpretation of this component is performed by the server, so while a document's location is often specified as a UNIX-like file specification, there is no requirement that this is how it is actually interpreted by the server.

2.5 Internet and Ethiopia

The information technology tide that is sweeping the rest of the world is rapidly approaching Africa (Adam, 1997). Most African countries are drinking from the sea of information available through electronic communication, which most African countries are using ranging from low cost dial-up networks to large Internet service providers. However full Internet connectivity is available only in few countries, with local links often limited to the urban elite.

2.5.1 PADISnet (Pan African Development Information system network)

Electronic networking in Ethiopia began under a project funded by International development research center (IDRC) entitled "Computer Networking in Africa" (Adam, 1996). The specific objectives of the project in Ethiopia were to:

Improve the exchange of scientific information within Ethiopia by establishing a working, efficient, and reliable electronic network that brings contact with other networks locally, regionally, and internationally.

Develop human resources in electronic networking through training, transfer of skills, and university teaching;

Develop corps of skilled users in the country through training, trouble shooting, and ongoing technical support;

Establish a national Scientific network that supports all levels of technologies for various categories of users under different situations; and

Set up an Internet link through development of the user base that justifies the cost of a TCP/IP connection.

PADISnet has been a local network service provider in Ethiopia since 1990. The local PADISnet node offers a wide range of network services to all users (government, academic, NGOs, international, individuals, etc.). The system began with a Fido connection with gateways to UUCP and Internet and giving E-mail and conference services (User guide ... 1996, 29). There is five times a day connection to the Internet gateway GreenNet. The PADISnet communication which has got 710 customers or sites encompasses more than 3000 users.

2.5.2 ETC Internet

Ethiopia has been using the PADISnet store and forward E-mail only system for the last six years. The store and forward

fidonet system created a user base which started pushing government authorities to consider the need for direct Internet connectivity in Ethiopia which lead to the Establishment of an Internet office under the Ethiopian Telecommunication corporation. The Internet connection became functional starting from January 1, 1997.

The ETA Internet is connected to the global Internet at Washington D.C. through a SPRINT link connection, with 256 kbps bandwidth. The gateway router, which is 7500 is connected to the SPRINT gateway and the domestic routers at the various locations are connected to the 7500 gateway router in turn. Users are getting a dial up connection, where a leased line with 64 kbps with 3000 USD per month rate is also available but not functional as of this study.

ETA Internet is giving only the connection infrastructure at the moment but at seen from its plan ETA is planning to start File Transfer service (FTP), Newsgroup service and hosting a Web server.

Chapter III

Information About Ethiopia to be Published on the WWW

As discussed in section 1.4 of chapter 1, questionnaire, interview and discussion with selected resource persons were the methods used to collect data and important facts. The following sections analyse the collected data from all the categories mentioned in such a way that it can meet some of the objectives of this study.

3.1 Percentage of Respondents

Out of the 110 population size only 80 respondents filled and returned the questionnaire which amount to 72.2%. The profile of respondents is as follows according to the strata mentioned in the data collection method.

Table 3.1: Percentage of respondents

Sample Strata	Number of respondents	Percentage of respondents
Business Organisation	8	10%
Educational Institutions	7	9%
Travel & Tourism organisation	6	8%
UN organisations & NGO's	9	11%
Individuals	50	62%
Total	80	100%

3.2 Major areas that could be published on the Internet

The following are the percentage of the respondents and the major four sectoral areas that could be published in the World Wide Web about Ethiopia according to the rank given by the respondents.

Table 3.2: Rank of the possible areas that could be published on the Web

Sector	Rank			
	1 st	2 nd	3 rd	4 th
Tourism	42%	24%	21%	10%
Education	29%	4%	53%	8%
Business	22%	50%	13%	10%
Museum & Art	5%	12%	12%	66%

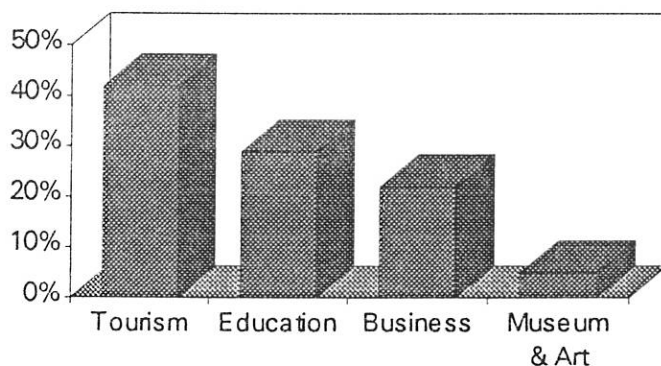


Fig 3.1: Bar chart showing possible areas that should be given 1st priority (according to the respondents of the questionner)

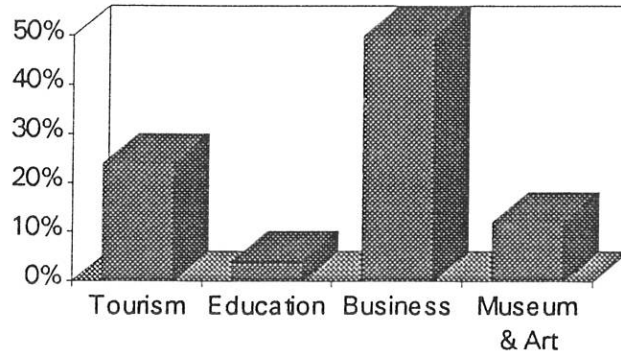


Fig 3.2: Bar chart showing possible areas that should be given 2nd priority (according to the respondents of the questionner)

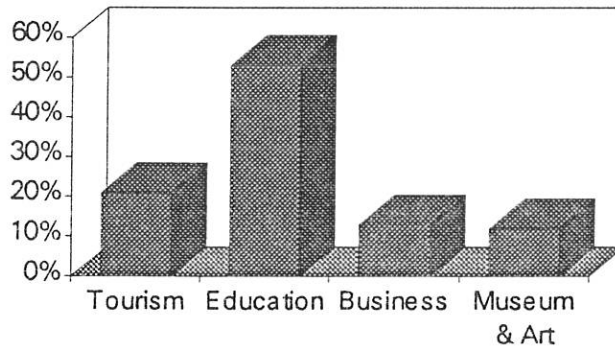


Fig 3.3: Bar chart showing possible areas that should be given 3rd priority (according to the respondents of the questionner)

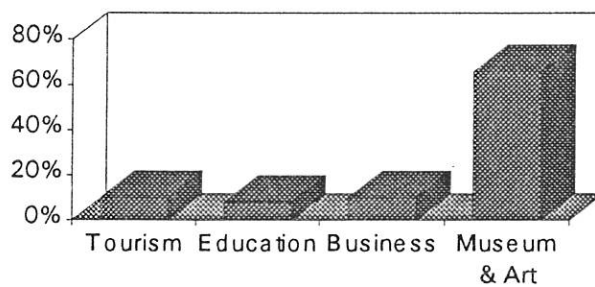


Fig 3.4: Bar chart showing possible areas that should be given 4th priority (according to the respondents of the questionner)

The part of the questionnaire which had specific questions for Educational Institutions, Travel & Tourism organisations and Business organisations is analysed in the following sections.

3.3 Educational Institutions

The respondents were asked how they distribute the activity and program of their departments and faculty; their responses are shown in Table 3.3.

Table 3.3: Media used to disseminate the activity of the department or faculty

Postal mail	E-mail	Occasionally through seminars & workshops
72%	14%	14%

Seventy percent of the respondents said that the activity and program of the department or faculty is not much known to other similar departments in the world. The respondents were asked how they distribute the department's or faculty's publications, and 65% said they use postal mail whereas 35% said they use E-mail.

The next question the respondents were asked was whether they have a catalogue which describes who is who in the department or in the faculty; 28% said they do have so and 71% they don't. However, all of them mentioned that there

is a University catalogue which contains brief description of all the academic staff.

For the question they were asked whether they have ever advertised their department's research activity and program, 57% said yes and 42% said no. The respondents who said yes mentioned that they use occasional seminars, workshops and brochures to advertise the activities and programmes.

3.4 Business Organisations

The first question asked for the respondents was whether their businesses need world wide advertisement or not; to this end 30% of the respondents said their business need world wide advertisement and 60% of the respondents said their business doesn't need world wide advertisement.

The respondents were asked how they advertise their business (i.e. what type of media they use to advertise their business), the replies to which are shown in Table 3.4.

Table 3.4: Media used to advertise their business

Media used	Percentage of respondents
Newspaper/ Magazine	75%
Television	50%
Radio	40%
Others	23%

The respondents that mentioned other media said that they use banners and posters occasionally during bather and exhibitions to advertise their business.

The next question the respondents were asked was whether they have been advertising their business on international media; 25% responded yes and 75% responded no. Those who responded yes mentioned, the Ethiopian Airlines in-flight Magazine called "Selamta" is the one they use to advertise their business in the International media.

The last question this group were asked was how they distribute their business brochure to their customers ; 85% said they use postal mail and 15% said they use E-mail.

3.5 Travel and Tourism

The first question this group was asked was "What is the identity that makes Ethiopian tourism sites unique compared to other sites?" All of them mentioned its very old history, but 45% of them have mentioned its religious festivals and diverse culture are also the identity that makes Ethiopian tourism unique.

The respondents were asked which identity they want to promote most; 34% said they want to promote all of the identities, 66% said they want to promote most the very old history of Ethiopia, and 10% of them said they want to promote the very old history as well as the diverse culture of Ethiopia most.

The next question the respondents were asked was which class of tourists are their target audience; 70% said all levels of tourists are their audience, 20% said educated middle class, and 10% said middle class tourists from all over the world. The respondents were asked whether they have been advertising their tourism and travel organisation and all of them replied yes. When asked what type of media they have been using they replied as shown in Table 3.5.

Table 3.5: Media used to advertise the travel & tourism business

Media used	Percentage of respondents
News papers	83%
Magazine	66%
Television	16%

The respondents were also asked whether they have been advertising their organisations on any international media or not; 66% of the respondents said yes and 33% of them said no.

Out of the respondents who said yes 25% said they use a magazine called "Selamta", the Ethiopian Airlines in-flight Magazine; 25% said they use various Spectrum guide books like "Spectrum guide to Ethiopia" and "BRADT guide", and 50% of them said they use the magazine "Selamta", "International Tour Operator Magazine" and the "African Safari" magazine.

The next questions the respondents were asked was how can they get a feed back from their customers about their business. All of them mentioned that they use Postal mail and telephone system; 25% of them mentioned that they also use E-mail.

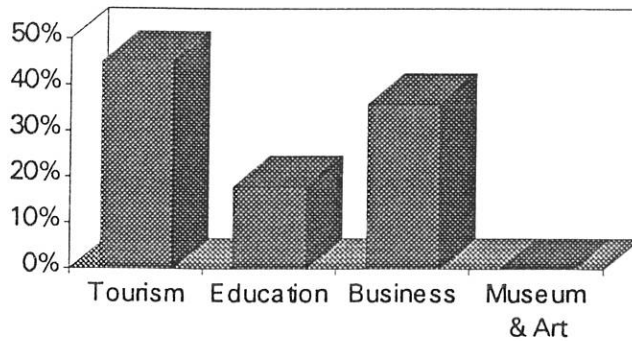
3.6 Interview

The number of population which were interviewed are 11 according to the data collection method discussed in chapter 1. This content of the interview is the same as the questions in the questionnaire filled by all of the sample population. The purpose of the interview was to supplement or to do away with some misunderstanding that might arise in the questionnaire survey.

The major question the interviewees were asked is which areas should be given priority on the World Wide Web about Ethiopia and they ranked the major four areas as follows.

Table 3.5: Rank of the possible areas that could be published on the Web

Sector	Rank			
	1 st	2 nd	3 rd	4 th
Tourism	45%	27%	18%	9%
Education	18%	36%	27%	18%
Business	36%	36%	18%	9%
Museum & Art	0%	0%	36%	63%



Graph 3.5: Possible areas that could be given 1st priority (according to the interviewees)

3.7 Discussion with selected Resource people

As discussed in section 1.4.2 of chapter 1, the purpose of this discussion was to get some useful and supportive opinion from pertinent persons who are engaged in the field of electronic communication and tourism management.

The first resource person that gave her explanation is Dr. Nancy Hafkin, officer in charge of Pan African Development Information System (PADIS).

- The first point she discussed was the need of having a World Wide Web page about Ethiopia on various sectors.

She mentioned that there are a lot of information on Ethiopia that is hidden to the rest of the world that would help Ethiopia a lot if there is a very good mechanism of disseminating this information. She said the Web is the recent very feasible and applicable technology in disseminating information World Wide compared to other media's. She supported her explanation by giving the example of tourism information; she mentioned Ethiopia has

got the best tourist attraction sites, which includes its cultural and historic heritage's but it is mostly through word of mouth that even the small number of tourists visit Ethiopia. She also mentioned that in the west there is hardly any information about Ethiopian tourist sites. Ethiopia could benefit more than any other country in Africa through its tourist attraction sites, if there is a mechanism which could disseminate these tourism information world wide like the World Wide Web.

- The next point she discussed was why the tourism information is not exploited yet in Ethiopia in relation to its uniqueness.

She cited a recent statistics on the local newspaper about the number of tourists arrived in Ethiopia and she said among 80, 000 visitors that arrived in Ethiopia only 20, 000 were tourist but the others just came for other reasons like transit and meeting. This can show how the other part of the world is deprived of the tourism information in Ethiopia. She also mentioned the case of Egypt where it disseminates its tourism and trade information through World Wide Web, which ultimately supports economic development. She further said the World wide web technology is being used by most people in the developed nations and it is known from experience that most tourists come from this part of the region. In this regard it would help Ethiopia to increase its hard currency income if it publish its tourism information on the World wide Web. She also emphasised that World Wide Web technology has a very high return on small investment.

- On the priority areas that could be published on the World Wide Web about Ethiopia, her responses were as follows:

She ranked business opportunity (trade) and educational institutions as the priority areas respectively after tourism information. She also discussed how the educational institutions could benefit by having their Web page on the world Wide Web. Here she mentioned that the researchers could publish their research work on the web which are very difficult to publish in renowned journals in the world.

The second resource person was Mr. Solomon Gebreab, General Manager of Galaxy Express service, a Tour and Travel Agent found in Addis. This is one of the few travel & tour agents which uses E-mail service from PADISnet.

- The first point raised for discussion was how aware are the other parts of the world about Ethiopian tourism information.

He said, " I can say most of the people in the world including Africa are absolutely ignorant about Ethiopian tourism sites; it is only the famine and war which are always raised by the media in the west and therefore are found in the mind of the other parts of the world." He elaborated what he said by his experience of visiting other countries; he mentioned that most of the tour operators he visited hardly know any thing about Ethiopia. Even most of them don't know the geographical location of Ethiopia which is very embarrassing.

- The next points raised for discussion was how the current tourism information is distributed to the other parts of the world.

He said it is only through some publications by the Ethiopian Tourism Commission and through Ethiopian Embassies outside that the tourism information is disseminated, but this is only accessible to those people who came to the embassies for other purposes and he further said the embassies are not even well known where they are.

Concerning advertisement of the tourism information or his organisation, he mentioned that the organisation tried to advertise its service basically the tourism sites of Ethiopia through international magazines, for which they are charged with 2000 USD for a quarter page advertisement in one quarterly issue. He further said that it was very expensive compared to Web advertisement which is not more than 30 USD for 3 page or four page multimedia brochure. He also mentioned the disadvantage of advertising on magazines and brochures, where updating information is very difficult and you may not get the customer directly which is the case in Web advertisement. He also mentioned the advantage of Internet by saying that it has World Wide Coverage, 24 hours on-line advertisement, directly contact with the consumer and it is very cheap.

- On the issue of Ethiopian tourism sites that make them unique among the world tourism sites, the responses were as follows:

He mentioned the ancient cultural heritage, its old history and its special landscape are the unique features that may not be found in the other parts of the world. He also identified the areas that he wants to promote most and mentioned that the historic route and the various cultures are the top priorities that a tourist and travel agent should focus to promote most.

Mr. Solomon elaborated this by evidence he got from tourist who visited Ethiopia through his company and mentioned a Japanese tourist who said that the Ethiopian tourist attraction sites are on of the best five tourist sites in the world.

- On the use of World Wide Web to promote tourism, the responses were as follows:

He said the World Wide Web is the right technology which tour & travel agents should apply to increase the number of tourists in Ethiopia compared to any media that he experienced. He even mentioned that it is time now to design tourism web page which contains all rounded tourism information in Ethiopia which is supported by text, graphics, audio and even video.

The next resource person was Mr. Lishan Adam, Networking Project co-ordinator, Pan African Development Information System (PADIS).

- The first discussion was on the idea of how Ethiopia could benefit by publishing its information on the WWW.

He said there are tremendous benefits for Ethiopian business men, researchers, institutions and public service organizations that can be reaped by publishing information on the WWW. The business man could make its product available to users, undertake a market survey through feedback from site visitors. Researchers could make their findings available and empower their students and organizations. Organizations could make announcements of their activities. WWW could help improve the country's image specially in tourism governance. It can boost the country's overall image that was often linked to war and poverty. International community would know very much about the rich culture of the country including world class tourist attractions. This would bring substantial income for the economy.

- On the major areas that should be given priority on the World Wide Web about Ethiopia, the responses were as follows:

He mentioned that the business sector products should be available on WWW as much as possible. WWW could empower small and medium enterprises to open up to global markets and buy new products. Tourism is one of the areas that should be available with high priority. As more tourists coming to the country due to favorable political situations, information on national tourist sites would be critical.

- On the issue how institutions and organizations should go about publishing their information on the World Wide Web, the responses were as follows:

He said, institutions should organize information in various format. They have to change their understanding of information first. The traditional assumption was that information organized only on structured and data base formats. The WWW pulls non-structured information together through HTTP. The concepts of WWW and how information is organized in multi-media format should be introduced to users. Users should be able to build strategic information systems (data bases, text and multimedia information, that they can sell) to be on the WWW. Then they have to get trained on various aspects of making information available on WWW including HTML, CGI script programming, Active X or Java to present information both in static and dynamic formats. Being on WWW is not enough to organizations. They have to update their information continuously.

3.8 Findings

As seen from the survey results through tables, or the graphs, tourism information should be given top priority on the world wide web followed by business, education and museum & arts.

Most of the respondents in the various categories mentioned that they use postal mail to distribute brochures about their organisations or institutions, where cost for publishing is very high, it is very difficult to correct mistakes in the brochure after distribution, it needs another cost to update the brochures and distribute, it can only reach to specified customers or people, and, it can take several weeks to reach where at that time the information can be outdated. In this regard the Web technology is the right choice where the brochure can be

read by any one on the Internet, can be updated easily, the brochure can be 24 hours on-line, and it can be read directly by the customer.

Most of the respondents in the educational institutions mentioned that the activity or program of the department or faculty is not well known by most users world wide. They also mentioned that who is who in the department is not known to other similar institutions or generally to the users at large. This is because the institutions use old traditional media like postal system to distribute their information and the faculty members are known to others only through workshops and seminars. In this regard the Web technology can be used by institutions to disseminate their programs and activity world wide and also to advertise who is who in the department which can help to mix the staff of the faculty to the world wide community. It should be noted that most universities and colleges in the west have a web site which is used to show their activity and program to the world wide community.

Regarding publishing their research product or findings most of the respondents from the educational institutions said that they have got a difficulty in publishing their research work on international journals or publications. It is a known fact that World Wide Web is becoming a virtual library where any one can store or disseminate its publication, to this end the researchers in higher institutions can use the Web technology to publish their research work or finding world wide.

In the case of business organisations most of them who mentioned they need world wide advertisement said that they

use Magazines to advertise, which is very expensive media, as mentioned by one of the resource persons, and they can shift to advertise on the World Wide Web which has got a facility of attracting the global market at a much lower cost.

Regarding the identity that makes Ethiopian tourism sites unique, the old history, diverse culture and the religious festivals should be given due consideration in designing the tourism web site for Ethiopia. In this regard it is also seen from the survey that the unique tourism sites among the identities that should be promoted most are the historical sites that are found in the historic routes according to Ethiopian tourism documents. As have been noted through this survey, the tourism Web site should be able to entertain all levels of tourists, and the tour and travel agents should be able to have their home page which can help them to advertise their organisation world wide easily and with a cheap price as compared to the currently used media.

From the overall survey result it is seen that it is time for Ethiopian tour organisations , business men, researchers, and institutions to shape their information system in such a way that it could be published on the World Wide Web. As seen in Chapter 2 of this study, the Ethiopian Telecommunications Corporation has a plan to start a Web Server in the near future which will make the situation conducive to the above sectors to publish in the Local Web server. It is also seen how the World Wide Web can benefit to advertise information cheaply compared to other media which pushes many organisations to advertise on the World Wide Web. With respect to tourism information,

travel and tour agents can directly address tourists using World Wide Web technology which is also a very interactive mechanism to get on-line feed back from the customer. However, it has been learnt that tour operators do not have adequately trained manpower to develop their own home pages. Same is the case with other sectors such as education, business, etc. Therefore, a prototype home page with necessary documentation might help and encourage the tourism and other sectors in developing their own home pages.

Chapter IV

Tourism Information and World Wide Web

4.1 Tourism Information System

A tourism information system is a specific type of information system, which consists of all the information channels used in a business or community to promote itself as a tourist attraction (Maureen et al 1986). These information channels include commercials, advertisements, brochures, repeat visitors, employees, friends, and relatives.

Characteristics of Tourism Information systems

According to Maureen et al (1986) there are three characteristics that all effective tourism information system have:

1. Each channel in the system has its own function. Travelers use different channels to get different kinds of information. An example is deciding where to go on vacation;
2. All the information channels used in the system relate to each other. A tourism information system is like a novel because it has many different parts tied together by the theme; and
3. All channels used in the system are interdependent. A tourism information system functions like a puzzle. If any of the puzzle pieces are missing, the puzzle's picture is incomplete.

If one or more of the above characteristics is missing from a tourism information system, then its message will be inconsistent and ineffective.

4.2 Tourism Information and World Wide Web

Tourism has become an extremely dynamic system that must respond quickly with flexible service configurations to significant environmental changes such as fast altering customer behaviors (Bloch 1996). Tourism products are characterized by their individuality, for example their location, their facilities, their appeal, their ownership or their trading basis. The tourist products have so far essentially be related to the physical location - the consumer cannot physically test the service before traveling to the destination. Tourist demand is concentrated in time and space and is happening on a final and on a intermediate level. Tourist economy is characterized by the diversity of its demand. This demand is aggregated, of high heterogeneity and we can observe that there's always a little bit of tourist demand, even in case of a crisis. Tourist demand is closely linked to the moving in space of the consumer.

According to Steiner (1995), Money is definitely not the traveler's primary motivation to move in space. There is a multitude of motivations such as culture, sports, education, etc. This implies that a strictly economical approach of tourism is insufficient and that we have to take into consideration more global meta economical facts.

Information is predominant in tourism: a minimal error in route planning, a wrong information about an airplane's

departure time or a misinterpreted reservation is supposed to heavily influence the image of the service provided.

The tourist economy can not be seen as an exception to the shift from industrialization informationalism (Steiner 1995). Even if or because the tourist economy is an economy of service, we can now say that this fact does not deny the importance of information technology underlying the effectiveness and productivity of the process of production and distribution of these services, and in the same way of their management.

Most tourist sites are having severe difficulties embracing the change, remaining constrained by traditional approaches to exploit and invest in technology. As a result, developments in technology often appear as a barrage of random, unrelated events in this segment of the tourist industry. The majority of the tourism industry's marketplace activity has so far remained primarily paper based (Steiner 1995). Entering any travel agency or tourist office is a proof of this. Racks of brochures and other sales material dominate.

The impact of the Internet on the public consciousness and the whole Information superhighway debate is highlighting the opportunities which low cost electronic distribution can provide for the tourism industry. With computer technology fast becoming commonplace in the home as well as the office, the potential customer base is also increasing rapidly (Steiner 1995). The Internet has considerably brought service providers and end users together.

In travel and tourism the World Wide Web bears enormous potential to serve as a direct distribution channel for all kinds of travel services by providing a platform for rich multi-media presentation of travel destinations. At the same time, customers demand for higher service levels, better quality of information and tend to book shorter vacations and to travel more spontaneous. These trends and the immaterial nature of the product itself may explain the fast growth of travel and tourism information on this new medium (Steiner 1995).

In the same way that the railroads were the indispensable infrastructure for the creation of a national tourist market in the nineteenth century, so the expansion of information systems, based on telecommunications and information processing computers, has provided the technological medium for the information of world tourist economy that starts functioning in real time on a day to day basis. Mastery of the technological medium becomes an indispensable requirement to win a competitive edge in a merciless world wide tourist competition, with new actors entering every day, struggling to survive, in search for domination.

4.2.1 Tourism Promotion using World Wide Web

Before any promotion, an identity must be established. Identity is based on characteristics that make one what it is, and should equal the image in the minds of the public. The main purpose of promotion is to make sure that the identity and the public image match. There are many things that make up identity. According to Steiner (1995), when promoting a tourist site, identity includes:

- Location
- types of businesses in the destination
- lodging facilities
- dining facilities
- destination appearance
- recreation activities
- unique features
- unique historical events
- community hospitality
- etc.

The above list has to be considered and completed by the things that make the destination unique. Completeness is important because this list is a picture of the identity. Once identity is established it is time to decide what to promote. It is impossible to promote effectively every characteristic of the identity. one has to Select which characteristics to promote. The characteristics now become the product that are going to be marketed to potential consumers. As cited by Steiner (1995) there are three things to consider when choosing characteristics to promote:

1. Target audience's needs and desires;
2. Uniqueness and positioning; and
3. Honesty and Reality of the promotion.

People buy or use something because it satisfies a need or desire for them. It is needed to choose those characteristics of the site or business that will show the target audience that it can satisfy their needs or desires.

The Internet is now considerably enlarging this audience and we are close to conclude that the target audience can even no

longer directly be identified on the Internet (Steiner 1995). The implications of this shift to the hidden audience have not yet been identified.

When choosing characteristics to help meet the needs or desires of maybe hidden target audience, one has to try to choose those that are unique to the specific site or business. Every tourist site has something that makes it different from the rest. By using traits that are unique it is possible to distinctly 'position' the site in people's minds (Steiner 1995).

If it is possible to satisfy the needs of a large part of the Internet community, the positioning may probably be right. If there is no effect on the Internet, then the promotion has either not been correctly targeted on Internet people's needs, or the approach of this new promotion channel has been inappropriate (Steiner 1995).

One has to make especially sure to follow the trends and codes of culture that are specific to the Internet. The destination must be able to respond to the promotion or people will not visit again.

To promote a product effectively, it is needed to decide on a theme for the promotional strategy. According to Steiner(1995), a theme is not to be considered as a gimmick to get people to buy something or as a slogan to attract attention. A theme is the main idea the promoter want people to have about its community. The product becomes the basis for the theme. Each characteristic or part of the product should be reflected in the theme.

Deciding who determines what a tourist destination's promotional theme will be is very important. Two important considerations often overlooked are community and employee participation (Steiner 1995). Community participation is crucial for two reasons. First, the community as a whole projects the identity. Second, everyone and everything a visitor has contact with communicates and promotes something about the site. Therefore, it is necessary to have a cohesiveness within the community to promote it effectively.

How to get the community involved in theme development? This can be done by holding special meetings or forums to get input from the community, running contests in local newspapers, or having exhibitions in local schools. And there would be another way - the Internet itself.

The principal products that recreation and tourism business provide are recreational experiences and hospitality. The factors that create a quality recreational experience often differ among people. Decisions on what facilities, programs and services to provide should be based on the needs and desires of the target market(s). According to Steiner (1995), a tourism experience includes five elements. Seeing these experiences related with Internet we will get a picture as depicted in table 4.1.

Table 4.1: Tourism Experience and Example of Internet Applications

Elements of tourism experience	Example of Internet applications
Trip planning and anticipation	Information about the site
Travel to the site	Highway/flight conditions
The experience at the site	On-line programs of destination activities, travel experiences, etc.
Travel back home	Feedback forms, etc.
Recollection	Image gallery

Selecting promotional media in the age of information technologies

Selecting the right media is a key to develop a promotional strategy. When choosing the promotional media that match target market needs , message, and budget, it is necessary to know what media are available, their advantages and disadvantages, and how to use them.

Advertising is a \$300 billion world wide industry, and until now, it has been mainly a one way street, with consumers passively absorbing advertising messages (Steiner 1995). Destination advertisers hoped that potential visitors would remember their slogan long enough to make a trip to the destination and purchase the services.

Interactivity turns the traditional concept of advertising upside down by putting the buyer in the driver's seat (Steiner 1995). Interactivity allows consumers to increase their control over buying process. We are all deluged with data. Given the opportunity, we will be more selective about the kind of information we choose to receive. Interactivity gives us that option. That means, now the audience is not captive any more, and marketers are going to have to work harder to entice them. Marketing efforts will have to be information rich and user friendly: It must be easy for prospects to find and select the information that appeals to them. As consumers with favorable demographic qualities spend more and more time on-line, advertisement dollars will shift right along with them.

It's time now to recognize three new market segments for the age of information (Steiner 1995):

Cyberbuyers are professionals who spend a good deal of time on-line, mainly at their places of business. They are most often engineers, technicians, and researchers, but more and more often

there are also managers and executives right alongside them in cyberspace. These professionals often have to make complex purchasing decisions that require lots of data and difficult to locate sources of supply, all within a tight time frame.

Cyberconsumers are the home computer users wired up to commercial on-line services and the Internet. This group represents the pot of gold at the end of the digital rainbow that the retail and entertainment industry hopes to cash in on. Marketers and on-line service providers simply need to find ways to make it easier and more attractive to shop and buy on-line than to go to the local mall.

Cybersurfers use on-line technology to expand their horizons, challenge their abilities because it's fun. This market segment is typically younger and has shorter attention spans. If something looks interesting to them, great, if not, they're off to the next place in cyberspace. This is a difficult demographic to appeal to, but they're attractive to marketers because they're influential and impulsive. If they like it, they'll buy it, and buying it right off the net is no sweat.

Steiner (1995) lists some characteristics that pertain to all of the three new segments above:

They are proactive. Cyberconsumers are definitely not couch potatoes. They are on-line, plugged in, and aggressively hungry for the data that will help them make informed buying decisions.

They are demographically attractive. The demographics of this consumer group (like the demographics of computer users in general) is very attractive. They're affluent, they're intelligent, and they're technology-literate. Best of all, they enjoy interacting with information. If we present information to them in an interesting way - even if it's advertising information - they will respond to it.

They prefer information in a digital format. The main reason marketers have to start considering how to create an advertising presence on-line is simply that there's a growing market that prefers to receive information in a digital, interactive format. In fact, a recent study noted that children nine years old and younger would rather receive information from a computer monitor than from a printed source (Steiner 1995).

So, marketers and particularly tourist marketers - should add now on-line advertising to a media mix that may already include TV, radio, print, direct mail, and other traditional forms of advertising.

To react to the market changes, a tourist site needs to implement proactive advertising strategies including modern communication facilities in order to stay competitive on an international level. On-line advertising might be one way to

respond to current market changes in the tourist industry. According to Steiner (1995), the following advantages of on-line advertising can be pointed out:

Rapid presentation. The lead time to run an advertisement in a business trade journal or consumer magazine can often be weeks, or in some cases even more. That's definitely not the case with an on-line advertisement. It is possible to have an advertisement up on a BBS or in an Internet cybermall the same day you create it.

Easy modifications. To make changes on a four-color advertisement or direct-mail piece; it can be very expensive and time-consuming. Making changes to an on-line advertisement, on the other hand, is often a snap.

Low cost. The cost to reach a given number of reader using an advertisement in a print publication, such as newspapers and magazines, is often measured with a formula known as CPM or cost per thousand, meaning the cost to reach a thousand readers. The viewership, or readership, of on-line advertising can in some cases be a little bit more difficult to measure. By creating an Internet server and placing advertisements for the destination - and of some smaller neighborhood-destination, who knows ? - on it, it is possible to amortize the initial cost of the system. That means that the advertisement is except the communication fees, free (Steiner 1995). To place an advertisement in an Internet Cybermall, some on-line advertisement charge as little as fifty dollars per month for advertising, and the presentation may be hit (visited) hundreds of times a day (Steiner 1995).

The bottom line is simply that on-line advertising can be a very inexpensive way to reach thousands of users.

Buyer involvement. Print and direct mail advertisements can include involvement devices like coupons and toll-free numbers that prospects can use to obtain more information. But an on-line advertisement can offer so much more to involve the prospect in the presentation. On-line advertisements typically offer several levels of information, sometimes presented in a menu format. Prospects use the menu to select the information that's of interest to them, and they're able to retrieve it immediately, instead of waiting for it in the mail. It is possible also to use reply forms that prospects fill out while they're on-line, either surveys that they can complete or messages asking specific questions.

No limits on time and space. On-line advertising doesn't have the same time and space limitations as radio, TV, or print publications. In other words, it may not be necessary to pay more for more space on-line. While a cybermall may charge by the megabyte, or according to how many pages are in the presentation, but by creating ones own Internet server, it is possible to stock it with as much information as its hard drive will hold. As far as the time limitation, it's not realistic to think that on-line advertising services will charge for customers spending a lot of time reading the advertisement. Unlike TV or radio advertising, where we pay more for a sixty-second spot than we pay for a thirty-second spot, the on-line relationship between a prospect and the advertisement can develop at whatever pace works for that prospect.

4.3 Steps to follow in Cyberspace Advertising

One can ask an obvious question: how tourist advertisers can enter cyberspace. According to Steiner(1995) the practical steps that will make on-line advertising experience a beneficial one are:

Get comfortable with the on-line culture. Doing business in cyberspace is somewhat like doing business in a strange country. The people are a little different and the customs and the culture are new. It's a good idea to take a little time to find out about the people, experience and customs, and acclimate with the culture before starting promoting the destination on-line (Steiner 1995). "If you become an on-line user before you try to do business on-line, you'll instinctively know to be a good on-line business person"(Steiner 1995).

Play it straight. Create the advertising message carefully. Try to stick to the facts and avoid exaggeration and hype. Keep it honest and accurate, and focus as much on providing good information as on making the sale (Steiner 1995). The on-line world isn't the free-for-all that some would have you believe. The authorities are out there, lurking in the wires. If they don't catch the bad guys, well, the net has its ways of taking care of transgressors (Steiner 1995).

Brush up on the 'Netiquette'. Advertising on-line is, in at least one way, more of a challenge than advertising on TV or radio. Advertising is an accepted presence on most traditional forms of media, but the reality of a commercial presence in cyberspace still upsets some long-time denizens of the net. Their

lingering animosity toward the concept of on-line advertising revolves around a fear of seeing their on-line world 'cluttered' with commercial messages. On-line service providers are reasonably concerned that if they offer advertising, a portion of their membership might revolt. So it's best to consider the virtual mailboxes as those real ones with a sticker saying 'No advertisements please !'. It's best to stick with established advertising outlets. Don't advertise on Usenet, and don't send intrusive messages, Steiner (1995) says, and he's particularly right. Follow newsgroups that relate to the area of interest and respond when appropriate. Release genuine news if allowed and when appropriate. But don't advertise there. It's not good business.

Remember, avoid intrusion. All advertising is an intrusion in some way, unless it is captivating (funny, creative, interesting, unique), the consumer is in the market or he even requests the advertising information. The best way to overcome consumer resistance to on-line advertising is to offer the something extra in the way of information, Interactivity, or benefits that will pay the on-line user back for the time they will invest in the message.

Use time-tested advertising methods. Cybermarketing is about using new media. Sometimes new media demand to be used in new ways. But there are also valuable lessons to be learned from the past. Set the objectives. Give readers reasons to buy. Use testimonials. Stick with it - consistency has always been one of the keys to an effective advertising plan. Keep

testing - it will take time for the destination to develop just the right kind of presence on-line. Evaluate and experiment. According to Steiner(1995) a tourist destination's presence on the Internet can take different forms as shown in Table 4.2.

Table 4.2: Forms of tourist destinations presence on the Internet

E-mail	Start including Internet e-mail address on business cards, letterhead, and sales materials
Mailbots/Mail reflectors	An automatic response to visitor's e-mail inquiries. Potential visitors e-mail a message to a special address you've set up, typically something like info.... Immediately after the mail enters the mailbot, it automatically sends a prepared message back to the customer.
E-mail sig files	Many e-mail programs allow to automatically include a brief, business-card-like E-mail sig files at the top or the bottom of an e-mail messages.
FTP	Thousands of companies have made information files available to the Internet community by setting up 'anonymous' ftp (file transfer protocol, a standard tool for moving files around on the Internet) sites.
Gopher	Gopher servers allow users to access information files from simple menu systems.
World Wide Web	Web-based advertising presentations can include a variety of fonts, graphics, photos, sounds, and even video material. Here we can have two basic options when it comes to advertising on the Web: Rent space in a cybermall or set up our own dedicated Web server.

4.4 Tourism Promotional Strategy and World Wide Web

Day in and day out, people are bombarded with messages. There is no way to evaluate and act on all these messages so we pick and choose between them. This makes the choice of promotional tools extremely important.

Developing an effective promotional strategy demands more than just being aware of the tools of promotion. Promotion is an ongoing process that requires much planning. A strategy is simply a careful plan. The effectiveness of the strategy depends on more than how much money you put into it. Effectiveness results from the thoroughness of the planning and the consistency with which you carry it out.

Steiner(1995) proposes an easy to follow procedure in nine steps for developing an effective promotional strategy:

Step 1 - Establishing identity: When people talk about developing a promotional image, they often forget about first developing their identity. Identity and image are not synonymous. Identity is what the destinations really are. Image is how others see the destination. This is an important distinction because how the destination see by the promoter may not be how it is seen by the public. To manage how others see the destination, first clarify the identity. The promoter can then project it in such a strong way that identity and image are the same. To accomplish this step, make a list of all the characteristics including such things as facilities, location, price, and attractions.

Step 2 - Developing a theme: The list of characteristics that make up the identity will be a long one. It is impossible to

promote all of these characteristics. It is necessary to decide on what part of the identity to promote. This will be the theme for the promotional strategy. As we have already seen above, a theme is the one main idea, or message the promoter want to communicate with the promotional efforts. The theme must be intimately tied to the identity. To determine a theme, the promoter should ask the following questions. 'What is there about my facility that would be appealing to visitors? What can I tell them that would make them want to come and visit us?', 'What makes my facility unique?'

Step 3 - Identifying the target audience: Deciding on the identity and theme is the foundation for the strategy. Build on this foundation by deciding on when to reach. It is needed to decide on and contact the target audience. With the Internet, the target audience can be enhanced by millions of people. But deciding on who to attract is important also there. To reach the target audience, it is must to identify their needs and how they obtain information about recreation and tourism opportunities. As we have already seen above, this becomes a little bit more complicated for the Internet. Different groups have different needs. When developing the message it is vital to address some of these needs. Different groups also get information from different sources. Identifying these sources of information is important to find the target audience and distribute the information directly to them.

Step 4 - Establishing the objectives: Before going any further, decide what to accomplish with the promotional strategy. This means establishing objectives that are very specific based on what to get from the outcome of the

strategy to be. Objectives should have the following characteristics: They should identify whom to reach, state how much change to accomplish through the promotion, state how much time it will take to accomplish the objectives, and state what people to do because of the promotion.

Step 5 - Developing the message content: An important part of the content is the theme. Do not try to get across two or more ideas in the same message. This does not work, and will hinder the message. All information in the message must center on the theme. The theme has to bind the message together. Keeping the content centered on the theme will also help limit the amount of information to present. This will help keep the message short and at the point.

Step 6 - Developing the message structure: Putting the message together is called message structure. How it is put together depends on the type of information used, and on the presentational capabilities of the promotional tools. It can have three parts: the claim of the message (this is what the promoter want people to believe is true of the site), the evidence (facts that the promoter use to support the claim), and the warrant (a generally hypothetical statement that ties the evidence and the claim together). For motivational messages, there are two parts: the claim (this is what the promoter want people to believe is true of the site), and the appeal (a statement aimed at the audience's particular needs or desires to motivate them to do what the promoter want). When using rational or motivational messages, make sure the promotional tool that is being used is credible with the audience. Informational messages are different from persuasive messages. For them, organization is the key. Since this is an informative message, all the information needs to be presented in a logical and orderly manner. Finally,

whether using informative or persuasive messages, there is one problem that always arises - where to place the punchline, the key to the message. On the Internet (surfers are particularly non-captive), the punchline is generally at the beginning of the message - and most of the time even in the head of a mail - to get and keep the attention of the audience.

Step 7 - Deciding how to present it (Developing the message format): Formatting the message is the next step. Format refers to how the message will appear to people when it is distributed. The media or the method used to convey the message will determine the format. The number of types and combinations of media available to use are almost endless. Generally, the promoter is only limited by his imagination. This is true for the Internet, too. Recent World Wide Web pages include interactive multimedia and some of the latest on-line applications even periodically update pages on client screens. A good way to decide what to use is to look at what others are already using. On the Internet, recent browsers - such as Netscape - allow to consult the specific code written behind every page that appears on the screen. Before starting first advertisement on the Internet, the destination should probably use the Internet to surf around and have a look on several pages and the - relatively simple code that is written behind. This teaches the good and bad points of this new media, including its limitations. During placement of the actual message, attention should be given to its nonverbal aspects. Things such as graphics, animation, color selection, type style and size will have a big effect on how people perceive your message. It is important that these things

relate to the theme, message, and audience for a maximal effect.

Step 8 - Taking the message to the audience (Choosing the delivery system): Coming up with a good promotional message is only half the battle. The other half is getting the message to the target audience. How does this work on the Internet? Or, how to be sure that the message reaches the audience in this billion-messages jungle out there? As stated above, there are two ways to deliver the message: the formal and the informal one. But whether formal or informal, each delivery system is composed of a message and the media that is used to present it. People willing to promote on-line often overlook how they intend to distribute their brochure or display their exhibit. For the Internet, it should be known in advance how to use its possibilities, and this specific knowledge can only be acquired by - surfing on the Internet. Finally, different audiences obtain the information in a different way. Some netpeople tired of waiting for a download of a nice little pictures, and will simply read the pages without the graphics. It is necessary to figure out in which ways the media could be used partially and try to respond to this part of the audience, too.

Step 9 - Evaluation and the link to the audience: Creating and implementing a promotional strategy can drain resources if the promoter do not regularly evaluate the strategy to see how effectively it is working. This is where the objectives come in handy.

On-line advertising and on-line sales are closely entwined. One parallel is mail order advertising in which a consumer

responds to advertising and then may place an order using a reply form or coupon. In the same way, on-line advertising can act as a kind of doorway leading to an electronic order form where a purchase takes place.

Some Selected Tourism and Travel Web Sites

There are a number of tourism and travel web sites on the World Wide web. The search engines that are used to search various topics or items on the World wide Web such as <http://www.yahoo.com>, <http://www.infoseek.com>, and <http://www.lycos.com> give award for the best web sites periodically in various discipline. The following are three Travel and tourism Web sites among the top 10 mentioned by <http://www.lycos.com>.

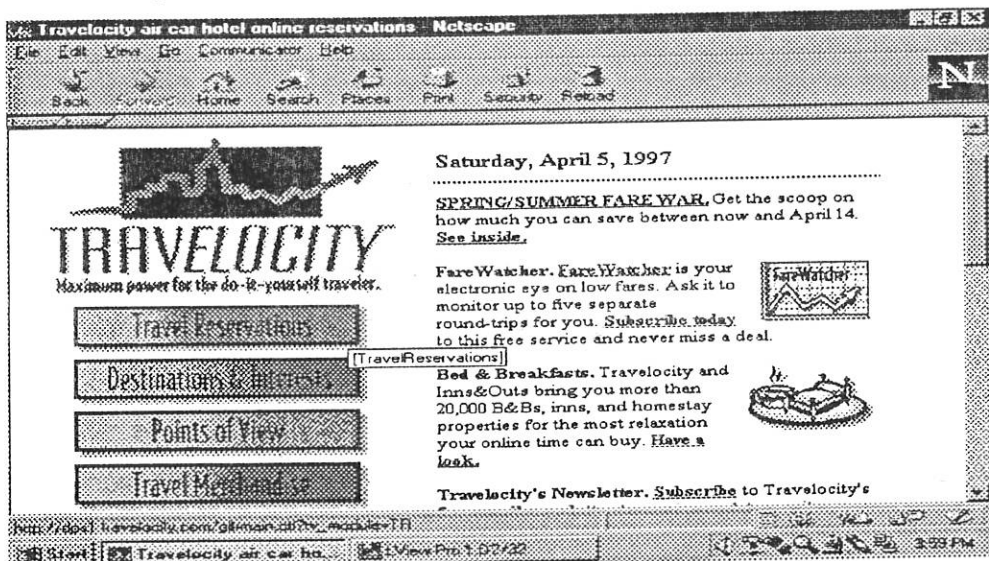


Fig 4.1 Travelocity Web site at <http://www.travelocity.com>

Travelocity is one of the best commercial travel information and reservations web site.

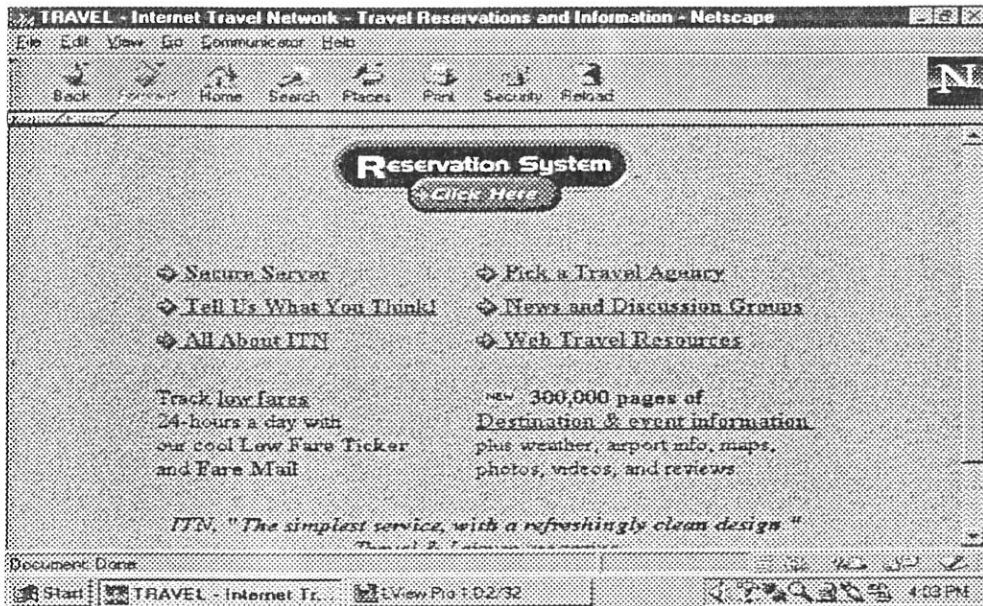


Fig 4.2 the Internet Travel Network at <http://www.itn.net>

Internet Travel Network is one of the industry leader in providing leisure and corporate travel offices with advanced on-line reservations technology on the Internet.

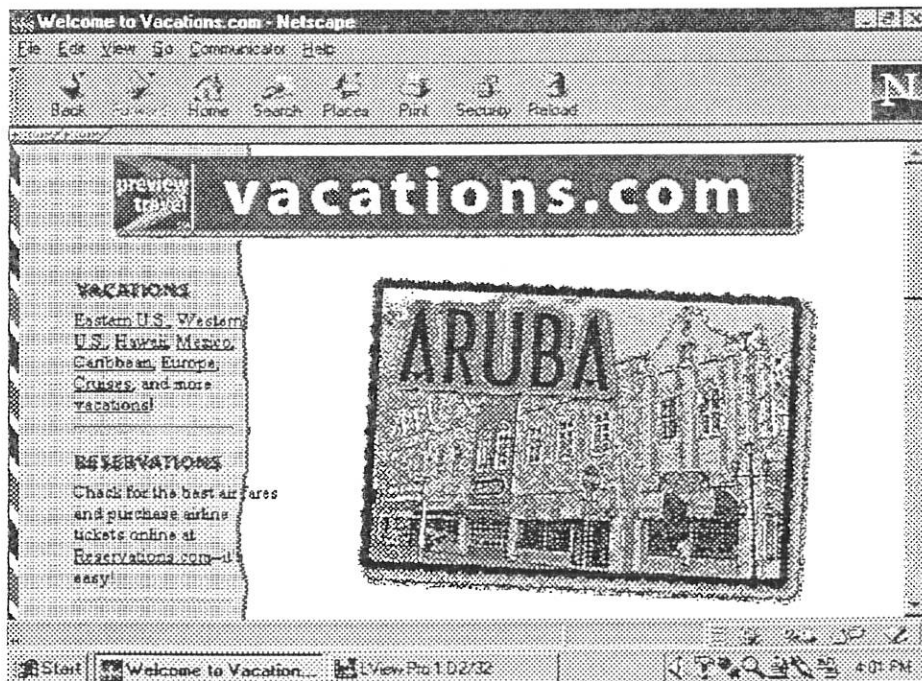


Fig 4.3 Vacation Web site at <http://www.vacations.com>

Vacations.com is used to reserve vacations on-line which include also booking and pleasure travel shop.

4.5 Tourism Industry in Ethiopia

Ethiopia is old; old beyond all imaginings. As Abyssinia, its culture and traditions date back over, 3,000 years. And far earlier than that lived 'Lucy' or Dinkenes, meaning 'thou art wonderful', as she is known to the Ethiopians the oldest hominid, whose remains were found in a corner of this country of mystery and contrasts (Spectrum Guide 1995, p19).

Addis Tribune(1997) cited that, Ethiopia has more unique species of animals and plants than any other African country. Ethiopia has one of the congenial climates in the world, the best airline in Africa, some of the wonders of the world, including the 3000 year old obelisks of Axum, the rock-hewn churches of Lalibela, the source of the Blue Nile River, Marvelous game reserves inhabited by rarities such as the Walia Ibex and the Nyala, rich and diverse cultural heritage's dating back to the dawn of Christianity and before; and numerous unpolluted beaches and resorts.

4.5.1 Tourism Developments in Ethiopia

Movement of people for different purposes or motives out of the normal domicile or permanent residence to other destinations within or out of the country, has been usual in Ethiopia like in all countries all over the world since the existence of man in this country (Ayalew 1992). Legends, coupled with real history, give us evidences that in Ethiopia, as the only independent nation in the black continent for about twenty five centuries and as the cradle

of human-race, was chosen as a destination of pleasure among the ancient slave owing kingdoms.

Ethiopia has been so far known as the land of rest and convalescence particularly for the Greek gods, after their fatigue and anger (Ayalew 1992). As cited by Ayalew(1992), the famous writer Homer the blind in his Epic the Illiad wrote as follows: "Zeus went yesterday to oceanus to the blameless Ethiopia for rest and all the gods followed with him."

The major event believed to contribute a lot to the evolution of tourism in Ethiopia was the adoption of Christianity as a state religion since the fourth century (Ayalew 1992). It was also religion that insisted the persecuted Nine saints of the Roman Empire to flee and enter Ethiopia where they contributed for religious enlightenment translating the bible and other books connected to Christianity from foreign language into Geez. As the time went, Christian and Islam followers of Ethiopia have begun to flock to Jerusalem and Mecca, respectively, creating by the way religious tourism out of the country (Ayalew 1992).

It is believed that earlier visitors of the world to Ethiopia were the Portuguese missionaries and other Europeans who made explorations to the source of the Blue Nile. In addition to other economic sectors, tourism as an industry was given great attention by the Imperial Government of Ethiopia, particularly because of external influences and the United Nations development plan, which stimulated the first office creation in Addis Ababa for the initial development of the sector.

The initial year of tourism industry, which creates the first tourist office in Ethiopia is 1961 (Ayalew 1992). Taking further, into account the importance of tourism the Imperial Government of Ethiopia, set up in 1963, a tourist enterprise known as "The Ethiopian Tourism and Hotels Investment Corporation (ETHIC) as part of the general reorganization of the financial institutions (Ayalew 1992).

4.5.2 Current situations of Tourism in Ethiopia

Today as a result of the economic policy and the regulation No.9/1990, private investors are allowed to compete in tourist business. Therefore, private investors are have been mushrooming in the field of travel agency and tour operation. Since 1990, these private firms and individuals have applied for this trade licenses of related business, and among those applied for this trade licenses, most of them began operation in travel agency and tour operating business (Ayalew 1992).

The foreign exchange earnings in dollar terms corresponding to the numbers of arrivals are in the neighborhood of 20 million US dollars (Addis Tribune 1997). The following table as cited in Addis Tribune(1997) shows there has been a growth in tourists in the past few years.

Table 4.3: Tourism Statistics for the year 1990/94

Year	No.	Earnings in Million Birr
1990/91	79,495	51.8
1991/92	82,333	59.5
1992/93	84,139	89.8
1993/94	94,534	118.2

The majority of international tourists visiting Ethiopia fall under four categories when classified by purpose of visit namely "business", "vacation," "transit" and "Not stated" for the year 1993/94 as cited in Addis Tribune (1997).

Table 4.4 Categories of tourist classified by purpose for 1993/94

Purpose of visit	No. of tourists
Business	23,350
Vacation	18,056
Transit	15,220
Not stated	22,499

Chapter V

Developing a tourism Web site for Ethiopia

5.1 Elements of Style for Web Design

It's one thing to create a set of web pages, it's another thing entirely to make a good looking, cohesive and well-designed set of web pages (Christine 1995). Just as other media needs thoughtful consideration into layout, format, white space balance, so too the web. Of all the style and beauty in the world, it seems not enough has met the web.

5.1.1 Elementary Principles of Composition

Christine (1995) outlines the steps that one must take in designing a web. The following questions should be taken in order to allow for the natural flow of the design process of web pages.

1. What is the purpose?

What the pages are used for? They might entertain, sell, inform, or report. They might keep records, impress clients (though they won't if the design is bad!), recruit members, gain customers or provide services. Each of these should help dictate the design process. Entertainment pages would be much differently designed from pages that are for reporting of information.

Once it is determined the goals for the pages it should be easy to decide what type of design, what level of quality and how much to spend on the project.

2. Who is the Audience?

Decisions based on audience will affect many aspects of the design as well. Things to take into account here include whether the reader is an existing client or someone who's never heard of the organization. It should be considered : will they be using a Mac, PC, or high-end workstation? Would the majority have a high-speed connection or use modem access to the Internet? Also consider age, activity level, professionalism, and common interests among the majority of the perceived readers.

3. What is the Competition doing?

Keep an eye on what the other sites are doing - this can help to decide the quality level, and perhaps the breadth and depth of material presented. The best bet is to look for a singular style that doesn't alienate, yet provides the basic services that need to be supported.

4. What will the pages say?

Examine the goals and decide how to reach them using a combination of words, images, sounds, etc. in the pages. Don't forget that people have different ways of needing to find the same information. Consider multiple views into the same material to account for this. As in any medium, good writing and good illustration are critical to conveying the message and to keep the audience returning to the site.

Consider short descriptions with text linking to longer information, giving the person browsing the choice - similar to the way thumbnail sketches of images or photographs are linked to bigger, more detailed images - allowing a user to make the choice as to whether or not they care to wait for the download.

5. How will the pages look?

The text on the pages may give a user the information he/she needs, but design will keep him/her intrigued and coming back. The concept of the organization should also affect the design. Is the organization perceived as a dignified and formal or casual and informal? Is the organization seen as stable and reliable, or innovative and dynamic? Each of the qualities should stimulate the design process.

6. What is the timeline?

A big promotion on the horizon might dictate a speed up in the production cycle but one should not put the site up until it's really ready. There's nothing worse (when it comes to the web) than visiting a site and hitting one or two buttons only to find "Under Construction" or worse "404 Not Found".

All of these steps should lead to the first pass design of the pages. That design can be done on paper or on the computer, but should not be lead to an announced site until the design is complete, the pages created, and the site tested.

7. Who can test the site?

Just as software has its alpha and beta testers, so too should the web site. One has to solicit uninvolved parties to try the links and look for information about the organization they might want to know; to use their feedback to modify the design or individual pages accordingly.

5.2 Elementary Rules of Usage

According to Christine (1995), the following are the elementary rules of usage:

1. Make sure all the links work.

This will prevent disappointment of readers. The best way to make sure this doesn't happen is to test the pages several times - from different domains if possible, at minimum from different machines. Then check the error logs on a regular basis to make sure others aren't finding bad links on the pages that are missed.

2. Page content should be limited.

The axiom less is more holds particularly true for the web. The nature of browsing has allowed us to break information into suitably digestible pieces, with a quick link to the next piece in the flow. This also gives the reader a chance to change their mind before going on without the necessity of loading a very long document to decide. Exceptions to the rule exist - if the sole reason a document exists on the web is to have someone print it out, then the content being on a single page is quite handy.

3. Consider white-space balance

As in art, balance between objects, between dark and light, is necessary. It is necessary to Look at the page from a moderate distance.

4. Maintain stylistic coherence with graphics

This is just a common sense design approach - continuity of design elements. It is necessary to carry throughout the pages. Another way to say this is that buttons and icons should look like they were created by the same artist.

The key to creating graphics suitable for web pages is to keep the file sizes small. That way, they will download quickly. Large graphic files can take a long time to download, especially at slow modem speeds. According to Paradesa Media (1996), a good rule of thumb is to keep the total image size per page at 100k or less. To get a graphic file small enough to put up on the Web, it is necessary to convert to one of two formats: JPEG(a compression method developed by the Joint Photographic Experts Group) or GIF(Graphic Interchange format, a compression scheme developed by CompuServe). GIF is the more common of the two, because all Web browsers have built in support for it, whereas some Web browsers may require a separate, "external" viewer application to display a JPEG file.

5. Avoid dead-end links

Give the readers a "way out" of the pages. Don't make them dependent on the back button to see more. Perhaps after

reading one section of the information the next logical place to go would be to another section, and not necessarily back to the top. Give them a choice to take either path.

6. Place important information at or near the top of the page

It should be visible when the page first appears. If someone needs to scroll to see it they may miss it. This is particularly true with What's New links and chronological listings - the latest information should be first.

7. Indicate size on large files that will be downloaded. This is a courtesy to modem users in particular!

8. Place links on the word that describes where the link goes never on the word "here".

9. Avoid "generic web information"

Don't waste space helping users get to NCSA or CERN - they came to the pages to read about this specific page (exception - it is only necessary when providing a web indexing)

10. Make titles very descriptive

Titles show up at the top of browsers, get saved on bookmark lists and hotlists - they need to say more than "stuff" for them to be a good reference back to the pages.

5.3 An Approach to Style

According to Christine (1995), some of the basic elements that one must consider for web pages in particular are the following:

1. Consider Position of Graphics vs. Text

The typical set of pages now has large, showy graphics on the home page, with minor graphics on the following pages. In some cases repeated elements are used throughout the pages such as a set of bullets at the bottom that take you to a set of pre-defined locations. Graphics that add information to the text should be strategically placed so as to provide it in the right place. Thumbnail images are useful to show an idea of an image, with a link to the bigger version provided.

2. Number of links in a paragraph

Having a paragraph a link on every other word is very distracting to read, first the color change is annoying and second, one has a tendency to follow the link and get distracted from the initial intent of the paragraph - particularly if the link is off to some other site full of lots of neat stuff on its own. Better to reserve those links for beneath the paragraph unless they add clarity to what is being said.

3. Location of "content"

If it takes several steps through graphical images and pretty screens before the reader actually get to read what he was

looking for, he'll be annoyed. Consider having some "real" content at least one step away from the home page.

4. Continuity of design

The best sets of pages are those that have a continuity of design that helps the user feel comfortable in knowing that he is still in the "realm" of pages he had hoped to traverse. This might mean a single icon designating a link to the home page is present on all pages, or it might mean that the same colors and graphical style are used on all buttons and bars that appear on the various pages. Since linking off to other sites is so easy and so common, carrying the design through the pages will make a user aware of the site in a much broader context.

5. Level Indication

It can be quite helpful to know just how "far down" the web tree one has climbed. Level indicators - or graphical indications of level - can be useful for folks browsing the pages. For instance, consider a full-on graphic as a home page, a graphical heading for second level pages and a bar or set of buttons for any level below that. The continuity of the elements will help with cohesiveness and the changes at each level will aid traversal.

6. Ease of traversal

Speaking of traversal, what is the best way to help someone get to the information that he/she needs? This, predictably, varies from person to person. Therefore, it might be reasonable to consider various views of the information. It

is necessary to consider providing two views into the information for instance, by organization vs. by functionality.

7. Mapping use of information to design of information

Once folks have perused the documents it might be easy to tell how the information is used. It would be great to have a program that mapped the use of pages from a given reader, so consider this a hint to developers. By looking at that, it is possible to tell what better links would make a difference. Without that aid it is also possible peruse the logs to see, ask in surveys, or contact readers of the pages directly to see how they use them.

8. Breadth Vs Depth

This argument has been around as long as tree structured anything has been around. How deep can the information go (i.e. how many links to get there) before the reader is lost. On the other hand, how many direct links from the top page make for too long a list to consider.

9. Use of HTML extensions

Will the (non-standard) extensions you use today be in the browsers of tomorrow? With more and more browsers hitting the market, It is a must to depend on them following the Netscape trend. Not including them may be seen as behind the times. The best call is to use those extensions that don't interfere with the documents when seen on browsers that don't support them.

10. Provide a search mechanism

If the site is of any size at all, give the readers a break and give them a quick way to find something. It is possible to invest in a commercial search tool, or get something free from the net. It will come in handy for them and the site.

According to Christine (1995) the following are some do's and don'ts to remember while creating web pages.

1. Don't put "Under Construction" on a page full of information. Most people recognize that the web is like that - everyone's pages are currently under construction - that's a feature! This phrase should be reserved for elements of the pages that are not presentable and hence not even reachable.

2. In a similar vein don't have a link to a page that just says "Under Construction" - that's too frustrating to the person browsing. It is necessary to indicate that on the page where the link will eventually be.

3. Don't use icons/images/designs that are unrelated to what the button does - make sure there is a connection.

4. Don't use a background (Netscape feature) that interferes with the message, text or other information on the page.

5. Don't forget ALT tags on images, text equivalents for audio files, text only versions of your pages, information about video in the cases where someone can't see video. Particularly for the sake of disabled readers or those coming to the net on low-speed modems.

6. Provide webmaster information on at least the home page. Timestamp where appropriate - static information such as the history of the company doesn't necessarily need it, but product information does.

7. Don't steal someone else's graphics. This doesn't mean it is not possible to create a page with a graphic someone else created. It is necessary to get permission to do so.

5.4 Finding a Home for the Web site

Rather than setting up a web server, it may be necessary to consider the option of renting Web space from someone else. Renting is a nice alternative to set rather than having a web server. Before setting a web server it is very important to ask several questions and think about the information that are going to be published. How large is the budget allocated for publishing information on the Web? Does somebody have time budgeted for keeping the Web site on-line? Also think about how much time to dedicate to administering a Web server.

According to Perry (1995, 341) the advantages of not having a Web server include the following:

- No need to provide the initial cash investment;
- No need to maintain the site;
- Many companies that rent Web space will create the Web pages themselves. It is not necessary to learn HTML,

although it may be necessary to tell the service provider what should be available to users; and

- An outside firm usually has an extremely fast connection to the Internet and is available 24 hours a day, 7 days a week 365 days a year.

According to Perry (1995, 341) the disadvantages of not having a Web server include the following:

- It may be necessary to pay a higher monthly fee;
- Less control of how quickly the Web pages are updated; and
- When using interactive forms at the Web site, the web site owner will have less control of access to the information that could be solicited from users.

After deciding to establish a site on the World Wide Web, it is necessary to decide where to put it. The web page files should reside on a computer (Web server) connected to the Internet 24-hours a day. This server can be a computer located in house, or it can be one of the growing number of Internet service providers (out of house) who will take care of the technical details, allowing to concentrate on developing content. There are pros and cons to either scenario.

Servers are becoming easier to configure and run, but still require considerable time and technical know how to manage, not to mention the cost of the equipment itself. It is better

to go for an Internet service provider for those who have relatively small number of files and then move the pages in house as the site becomes larger and more complex (Paradesa Media 1996). Another option is "co-hosting" or "Hosting". Here an Internet service provider physically maintains a computer at their site for the page, but the owner of the page is responsible for all the content on the machine.

5.4.1 Choosing a Web Service Provider

If it is a must to go out of house, it is necessary to find a stable, cost effective, customer-friendly provider. According to Paradesa Media (1996), the following questions are used as a guide to choose a service provider.

How fast and stable is their connection to the Internet? do they guarantee 24 hour a day support? do they have uninterrupted power supplies and robust backup system?

The Internet service provider should have at least two high speed connections (T1 or T3) to the Internet.

How long have they been in business?

It is important to choose an operation that has professional programmers, network specialists and customer service staff.

Do they offer full domain name service?

It is vital to choose a service provider which offers full domain name not long and cumbersome URL that couldn't fit on business cards and marketing materials.

How many megabytes of data storage are you allowed? Are there extra charges for a high volume of traffic to the site?

Choose a provider who offers at least 25MB of space, which is standard nowadays.

How do they measure "hits" on the pages? Can it be possible to get a list of sites that access the pages?

There is a wealth of data in those files which can help to fine tune the site to the needs and wishes of the readers.

How will it be possible to update the pages?

The most common way to update pages is to edit them on the owner computer and upload the files to the file server with an FTP program.

Does the ISP support CGI (Common Gateway Interface)

To use forms, database searches and image maps the ISP should let the owner to have full access to the CGI-bin directory (the directory where CGI scripts and other executable programs are stored).

What are the provisions for security and keeping out hackers?

Customers will most assuredly not be happy if their data is not secure. The ISP should have a security expert which handles special security concerns.

5.5 Hardware and Software Requirement for a Web Server

The type of machine required to set up a Web server depends on the volume of users that could access the Web site. The limiting factor usually is the communications bandwidth rather than computing power. Some commercial systems get 700,000 users per day and require several computers to work in tandem. Other sites get 0 to 500 users per day a volume that can be handled by a standard desktop computer (Perry 1995, 340).

When planning to have a hardware that will be used for the Web site, it is necessary to consider other Internet services that could be possible. Providing other Internet services requires a more powerful computer. Common Internet services that can be included above and beyond the Web are electronic mail (if only to receive mail from users) and ftp (which allows users to download files from the server).

Electronic mail can be difficult to set up and requires a great deal of hard disk space for storing the messages. Using the Internet Service Provider for the e-mail needs may be easier (Perry 1995. 340).

Providing ftp support is a good idea if the site is run by a software compatible that wants to make new files available to users. Adding ftp support to the system requires a substantially more powerful computer, because an ftp site usually requires constant use of the computer. If there are not many files to provide an alternative method is to make them accessible through a hyperlink in the Web documents.

Having a presence on the Web is likely to have several implications for the organization. Depending on the purpose for the Web server, site maintenance can require substantial time, effort, and expertise. Web servers actually are rather easy to get up and running; the real work is in writing good HTML documents and maintaining the system. A Web system administrator, commonly called a Webmaster, can spend a great deal of time simply maintaining a site; in some companies, this is a full-time job in itself.

5.5.1 Hardware Requirements

No matter what operating system to use, it is must to meet several basic hardware requirements, including the following according to Perry (1995, 342):

Main computer

Although the Intel 80 x 86 microprocessor is most commonly associated with the DOS and Windows operating systems, some versions of UNIX run on the same computers. Apple Macintosh computers are based on Motorola's 68K or PowerPC chip.

CPU

The rule is to use the fastest processor that can be found around. For Intel-based systems, it is good to use a Pentium-based computer. For Apple Macintosh systems, it is good to use Power Macintosh computer. UNIX users can opt for more power, such as a Sun or Sparc workstation.

RAM

Since increased RAM gives the system the capability to handle more users it is better to choose 32MB RAM.

Network-interface card

This is very important When planning to connect multiple computers.

Hard disk drive

Here it is necessary to have a hard disk that has space for the Web-server software, along with the HTML documents, along with graphics, sound, and video files. A 1GB hard drive should work fine. But if a great deal of graphics, audio, and video are used, more disk space is needed.

CD-ROM drive

This drive is for installing the operating-system and Webserver software. It is also important to provide software (or digital video) for downloading.

Tape backup

A tape backup to back up the computer's hard drive is needed. The appropriate size is one that can back up the entire hard drive on a single tape.

Backup power

An un interruptible power supply (UPS) to the system to prevent the system from going down during power failure is needed. UPS systems are best for preventing a system from going down if the power is out for a short time. It may be also good to consider a power generator for keeping your system up longer.

Modem

To access the Web site from a remote location, it is necessary to consider adding a modem. A V.34 modem, which permits the fastest transmission of data at rates up to 28.8 Kbps will be good.

Many of the business transactions that take place over the Internet are said to be worldwide. Local users probably would not be affected if the system is down at night, but users in a different time zone would be. It is to remember that somewhere on the Internet, the sun is always shining.

Using a UNIX system

UNIX, which has been in existence for more than 20 years, probably is the most debugged operating system ever written. Many versions of the UNIX operating system are installed on hundreds of thousands of machines all over the world. The system runs on virtually every class and kind of computer, from PC-based systems to the most-powerful supercomputers. UNIX runs on computer hardware from vendors including AT&T, DEC, IBM, NCR, Hewlett-Packard, and Sun Microsystems.

In addition to being a multitasking operating system, UNIX is a multi-user system the fact that makes it ideal for use as a Web server. An advantage of the UNIX operating system is that it can address as much memory as the hardware can accommodate. The file system is designed to become as large as necessary and is limited in size only by hardware barriers.

The disadvantage of UNIX is that users who are accustomed to a great deal of hand-holding are likely to be in for a difficult time. Many people find UNIX to be archaic and user-hostile. The UNIX command line, for example, contains an abundance of commands. Without a manual as a guide, inexperienced UNIX users have a hard time.

When it comes to providing Internet services, UNIX is the operating system against which the others are measured. Most Internet services originally were available on UNIX. But because UNIX gained a reputation for being difficult to configure and confusing to use, the software was converted for other platforms.

Many personal-computer users are under the assumption that the Apple Macintosh operating system and Microsoft Windows are the only way to gain access to a graphical user interface (GUI). A graphical user interface also is available for UNIX. This interface is known as X Windows (or simply X). This GUI does make using UNIX easier, although it still is more difficult to use than either Windows or the Macintosh operating system. What is especially difficult is configuring the system.

UNIX was designed to be a universal operating system that could run on a variety of computers. This concept led to many versions of UNIX that can run on many computer systems.

When deciding to use a UNIX machine as the Web server, the following questions must be asked:

- How familiar with UNIX are the users? (Have the user ever used it)
- How capable are the user of mastering a new operating system?
- Are resources available to help the user?

Because so many versions of UNIX are available, selecting one can be difficult. All the PC-based versions are usable as Web servers, but they come with varying amounts of documentation. The core UNIX technology now is owned by Novell. Most notable in the PC UNIX market are SCO, Linux, and Berkeley BSD.

SCO is a commercial version of UNIX, available from the Santa Cruz Operations. The product costs several hundred dollars but has the advantage of being a supported product that includes technical support. Linux is a freeware version of UNIX; you can obtain it from an Internet ftp site .

Using a Windows based PC system

For most Windows users, the best bet in setting up a Web server is sticking to a familiar platform. Web-server software is available for Windows; this software works very similarly to other Web-server software.

A computer system running Windows NT is the most robust and provides the best security. Windows NT has relatively high hardware requirements, however if the system load is expected low, it is possible to run Web-server software under Windows 3.x, Windows for Workgroups, or Windows 95.

A Pentium system running Windows 3.x along with an ISDN line should be able to support at least 500 callers at a time. Part of the reason for this rather large number is the way that TCP/IP networking works. The Web-server load is lessened, because each user who accesses the Web server is addressed as packets of information. So rather than requiring the computer's complete attention for the data transfer, TCP/IP lowers the individual load requirements but increases the number of requests for data.

Phone Lines

It is necessary to consider how the organization will be physically connected to the Internet when planning to operate as a publicly accessible Web-server site, it is necessary to have a permanent connection to the Internet. Permanent connections are available in speeds ranging from 9600 bps to 57.7 Mbps.

Generally, the faster the connection, the more expensive it is. The best bandwidth is affected by a combination of the volume of Internet traffic at the site and the speed at which the web owner want the connection to be made. When planning to use many graphics and to provide multimedia elements (such as sound and video), a faster connection is needed, but it depends on the type of Internet Service Provider available and its policy.

5.5.2 Web Server Software Requirement

The original Web-server software was developed for the UNIX operating system; server software now is available for all the major operating systems. Several free versions of Web-server software are available on the Internet, the main ones being the CERN, NCSA, and GN servers.

The CERN and NCSA servers are full-featured, although the CERN server offers more functionality. The servers are similar in their configuration methods.

Web servers communicate with browsers by using the Hypertext Transfer Protocol (HTTP). As a result, Web servers often are called HTTPD servers. The D stands for daemon, which is a UNIX term for a program that waits in the background for a system request. When a system request is received, the Web server processes the command and then goes back to waiting.

The Web server software for the various computer platform and how they can be acquired from the Internet is as listed below according to (Perry 1995. 352).

UNIX servers

The NCSA Web-server software is available for several UNIX platforms, including the following:

- Silicon Graphics Indy, IRIX
- Sun Microsystems SPARC server 690MP, SunOS 4.1.3

- Sun Microsystems Sparc 20, Solaris 2.4
- International Business Machines IBM RS/6000 Model 550, AIX 3.2.5
- Hewlett-Packard HP 9000 Model 715, HP-UX 9.05
- DEC Alpha, OSF/1 3.0
- Intel-based PC Pentium 90 using Linux 1.2.8
- DEC MIPS 3100, Ultrix 4.0

The NCSA Web-server software for the preceding computer systems is available at:

<http://hoohoo.ncsa.uiuc.edu/docs/setup/PreCompiled.html>.

Because so many versions of the UNIX operating systems exist, it is possible to download the actual source code for the Web server and compile this source code if the users is familiar with C programming. Another popular Web-server software package is available from CERN available at:

<http://wWw.w3.org/hypertext/WWW/Library/User/Platform/.CERN>

HTTPD is a generic, public-domain, full-featured hypertext server that can be used as a regular HUP server. The program can serve hypertext and other documents.

Since most of the Web server software available are UNIX based it is taken as the operating system upon which the Web is based. However this doesn't meant that it is not possible to use other platforms for the Web server. The following sections provide information about Web servers for other popular platforms according to Perry (1995, 353).

Macintosh servers

To connect the Macintosh computer to the Internet, it is necessary to have a version of MacTCP, which provides TCP/IP support for the Mac. Additionally, if the Internet connection is a dialup connection either MacPPP or InterSLIP is required.

MacPPP (available at <ftp://ftp.merit.edu/internet.tools/ppp/mac/>) is for Macintosh users who are using a dialup connection. Mac Point-to-Point Protocol (PPP) provides the necessary networking complement to MacTCP on the server. The file that is important to download is macppp2.0.1.hqx.

InterSlip available at:

<ftp://ftp.intercon.com/InterCon/sales/InterSLIP> is provided by Intercon Systems Corporation of Reston, Virginia. The software is a free (but unsupported) product for the Macintosh that provides SLIP connectivity. The filename is InterSLIPInstaller1.0.1.hqx.

The choice of which Web-server software to use is easy, because only one Webserver package is available for the Macintosh. MacHTTP Server (available at <ftp://oac.hsc.uth.tmc.edu/public/mac/MacHTTP>) is a full-featured Web server, by Chuck Shotton, that allows to serve hypermedia documents to Web users from the Macintosh. The file that is required to download is machttp.sit.hqx.

Windows and Windows NT Servers

Windows NT has many of the same advantages as UNIX: It comes with built-in TCP/IP support, has excellent security, and is much easier to administer than UNIX at sites where no one has UNIX experience. Windows NT also has the horsepower to handle many simultaneous connections, as well as to support multiple physical network connections.

Windows NT3.5 comes in two types: server and workstation. The two packages have different performance optimisation priorities. Windows NT Server probably is the version that is necessary to use as a server, because the disk-caching software has been fine-tuned to work better for a server. Otherwise, the main difference between the two versions is the fact that Windows NT Server supports up to 255 SLIP/PPP connections; Windows NT Workstation supports only 1. Both versions of Windows NT provide built-in support for ftp.

The downside of using either version of Windows NT is the fact that the packages are less mature than UNIX. A rather new Web server, called HTTPS, is written specifically for Windows NT. This software allows a Windows NT machine to serve information by using the Web hypermedia system. HTTPS version 0.3 is an HTTP version 1.0 server that runs as a Windows NT system software service. Executables for Intel-based systems and DEC Alpha-based systems are available at <ftp://emwac.ed.ac.uk/pub/https>.

This Web server software was produced as part of the European Microsoft Windows NT Academic Centre (EMWAC) project. EMWAC was set up to support and to act as a focus for Windows NT within the European academic community. The server is

sponsored by Datalink Computers, Digital, Microsoft, Research Machines, Sequent, and the University of Edinburgh.

There is one other site for Windows 95 and Windows NT server software. It is called Website and can be found at <http://website.ora.com>.

OS/2 servers

GoServe (for more information, see <http://www2.hursley.ibm.com/goserve/>) is a multipurpose server for OS/2, from IBM, that supports both the Web (HTTP) and the Gopher protocols. The emphasis in the design of GoServe appears to be on making it easy to become an information provider for the Internet and yet not inhibiting full use of the protocols by sophisticated users. GoServe is available at <http://www2.hursley.ibm.com/goserve/goserve.zip>.

Working with Windows HTTPD

Windows HTTPD features include the following:

- Low impact. The software is designed to be small and very fast.
- True multithreaded operation. The software handles up to 16 simultaneous transactions.

- Out-of-the-box operation. This software is easy to use and truly runs out of the box, requiring little initial configuration.
- Directory index & It is possible to support file transfer through the Web without having to set up an ftp server.
- Dual-mode CGI 1.1 script support for interactive forms. It is possible to set the system so that it generate documents, support queries, and accept user input by using CGI along with interactive forms. This provides support for interactive forms. It is also possible to allow users to control CGI scripts with form-based inputs.
- Image mapping. This feature allows users to navigate the Web site by clicking different regions of a picture.
- Built-in security. It is possible to limit access to certain directories contained on the Web server.
- WinSock 1.1 compliance. The software works with the newest version of Windows sockets-based TCP/IP packages.
- Diagnostic tracing. Built-in tracing facilities help diagnose problems.

Perhaps the greatest advantage of Windows HTTPD is the fact that it is possible to use it on a platform that are already familiar by the user. It is not necessary to learn new UNIX commands.

5.6 The Prototype Tourism Web Page

The Web page is designed by taking into considerations the major Web page design styles discussed in the section 5.1 and from the users feed back for the questionnaire prepared for travel and tourism section. The beauty of a web page mostly depends on the content of the Web page, as it is said to contain the lions share of the Web page. In this regard the content of the tourism Web page is based on various documents available on Ethiopian tourism. However, most of the contents are taken from a book by CAMERAPIX "Spectrum guide to Ethiopia", and from a publication by the Ethiopian tourism Corporation "Ethiopia: A guide for travel & tour agents".

As already mentioned in Chapter 1 in the methodology section, the Web page has not been tested on-line and also has not been tested by users, but several Web browsers are used to check whether the various parts of the Web page can be accessed by users at different levels these include Internet Explorer and different versions of Netscape.

The Home Page

The home page is divided into three sections, where the first part is the Welcome message including the title, the second is the main part of the home page which contains four hot links which divide the site into four important sections and a box which shows the number of people who visited the home page, and the last part which is found at the foot of the page is a suggestion form and information about the Webmaster.

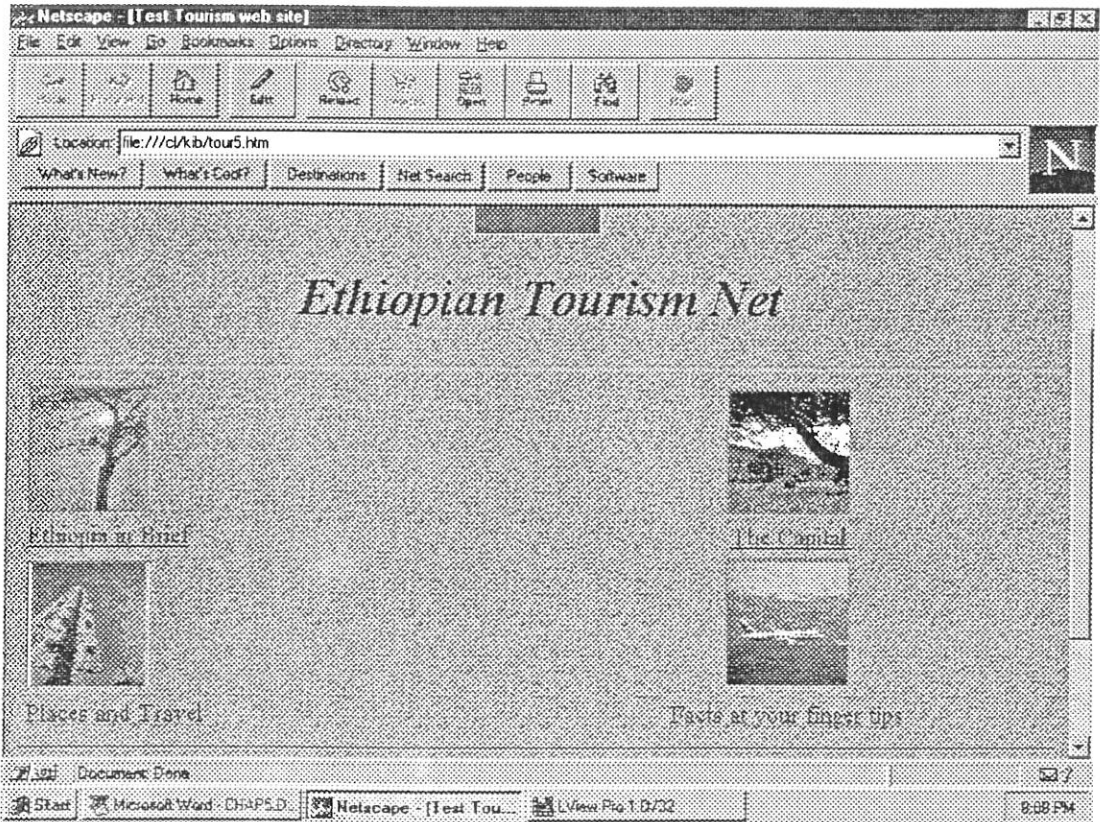


Fig 5.1: The prototype Tourism home page

Parts of the main home page

As mentioned above, the main part has got four sections, these are *Ethiopia in brief*, *The Capital*, *Places & Travel*, and *Facts at your finger tips* and there is a link where the number of users who visited the home page (i.e. the number of hits) is recorded.

Ethiopia in brief

This link explains Ethiopia briefly to tourists by taking Ethiopian culture, history, and nature into consideration. Moreover, it contains important links on the World Wide Web

about Ethiopian culture, history and country studies at different sites world wide.

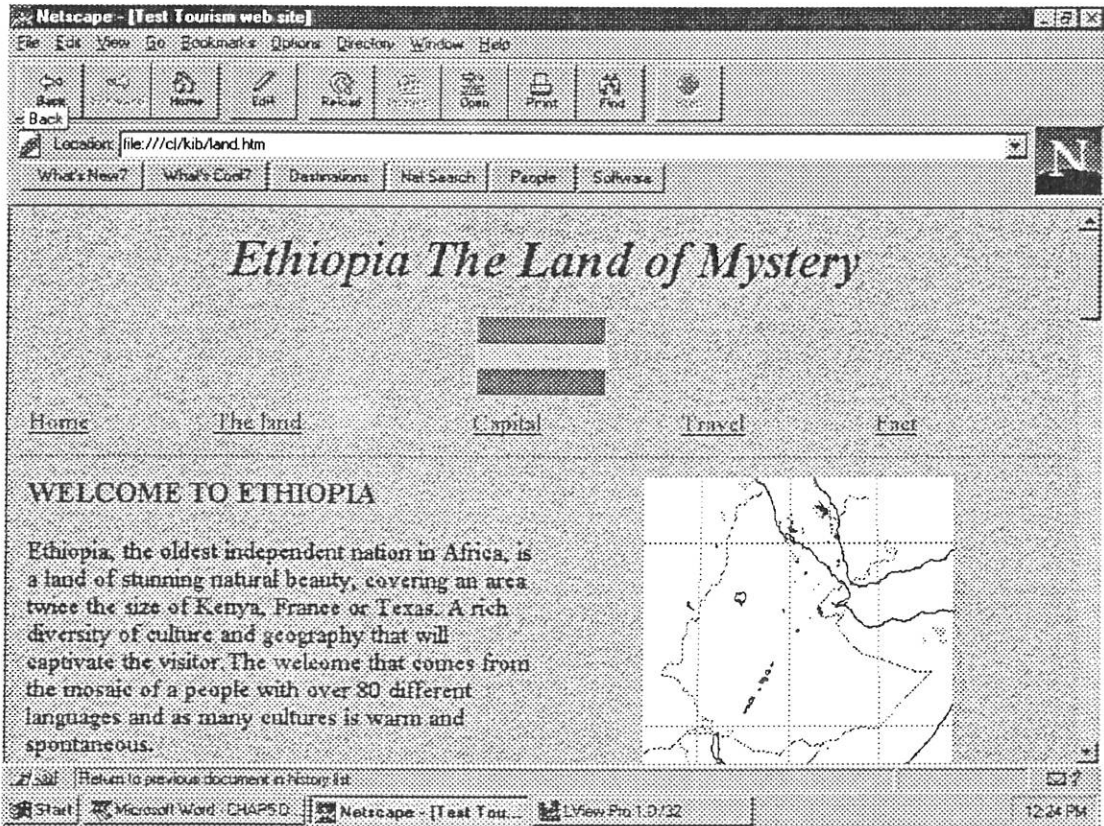


Fig 5.2: "Ethiopia in brief" page

The Capital

This link is used by taking into consideration the important part Addis Ababa plays in the politics of Africa, and due to the fact that Addis Ababa is the place where Organisation for African Unity (OAU) and Economic Commission for Africa (ECA) are found. In this link some of the important places in Addis are discussed and possible Excursions from Addis are also highlighted.

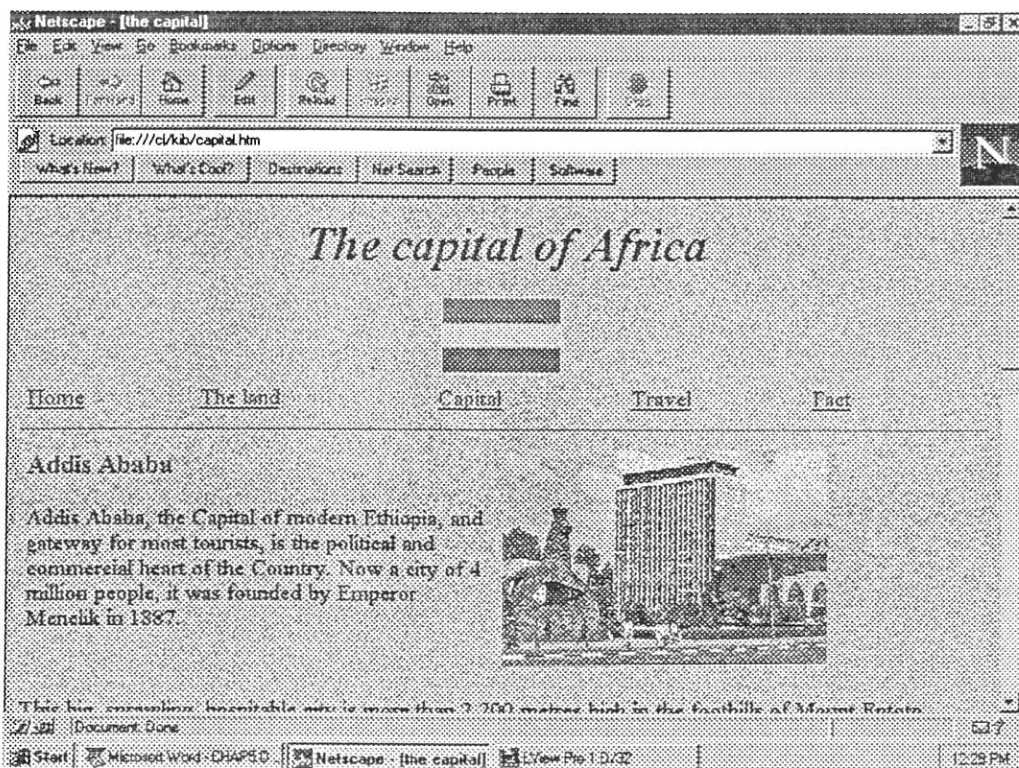


Fig 5.3: The "Capital" page

Places & Travel

This is the most hyperlinked hot link among the links in the home page. This link opens a page which divides the Travel & tourism link into six sections: East, South, South west, North, North west Ethiopia, and Historic route. Each of the six sections discusses the travel and tourism attraction in that part of Ethiopia and the Historic section in particular discusses the major areas identified by the respondents about the major area that should be promoted in Ethiopian tourism that makes Ethiopian tourism sites unique in the world. Each of the six sections contains possible links that should be attached to the page.

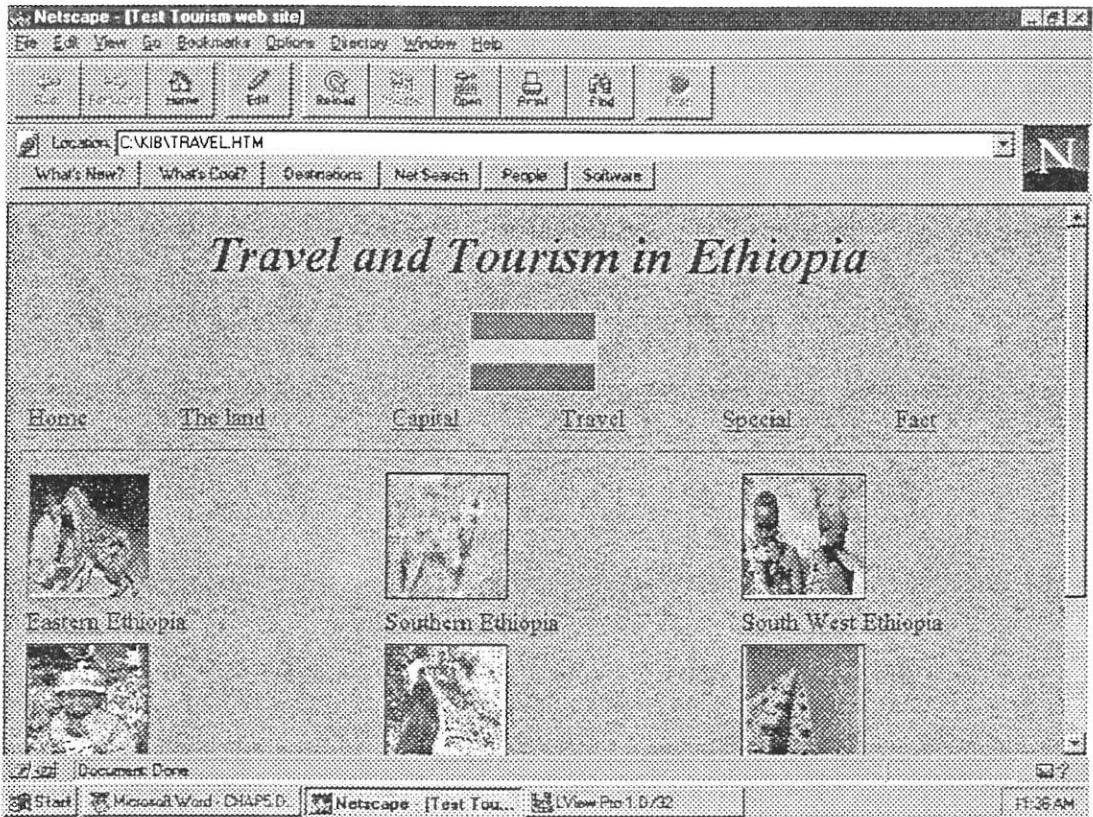


Fig 5.4: The "Travel & Tourism" page

The above page is linked to possible pages accordingly, for example if users click on Eastern Ethiopia they will get a page as shown in figure 5.5.

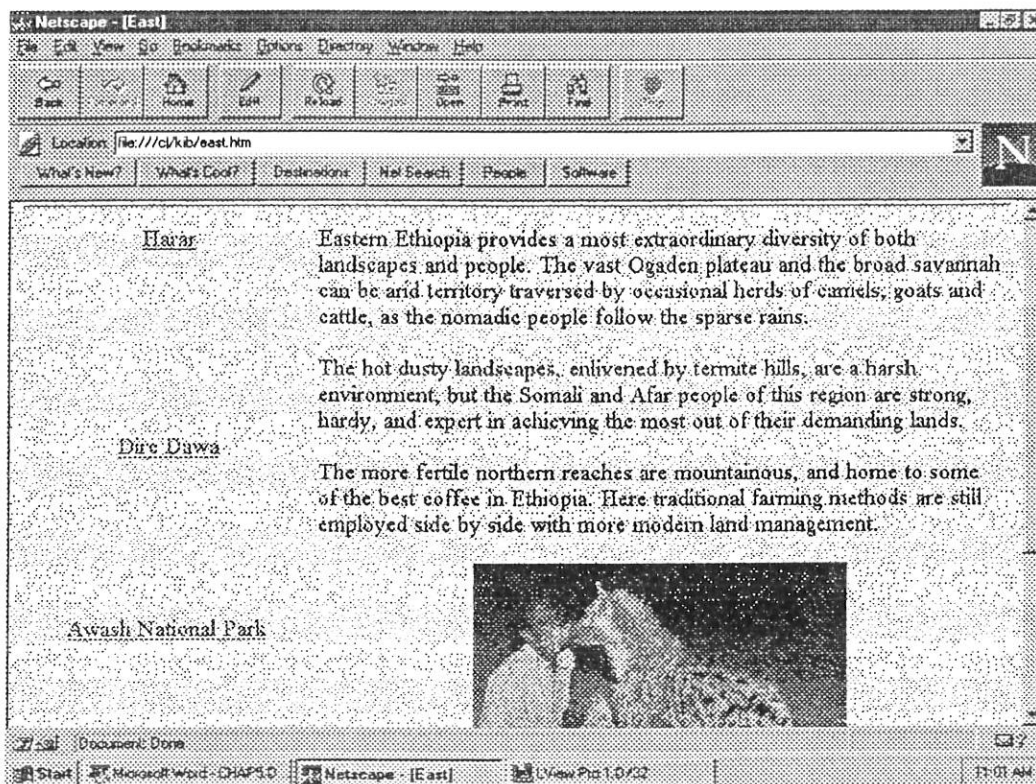


Fig 5.5: The "Eastern Ethiopia" page

This page contains a brief explanation about eastern Ethiopia and a hypertext link which will take users to various tourism sites in Eastern Ethiopia like Harar, Dire Dawa, and Awash National Park. The page users can get by clicking on "Harar" is shown in figure 5.6.

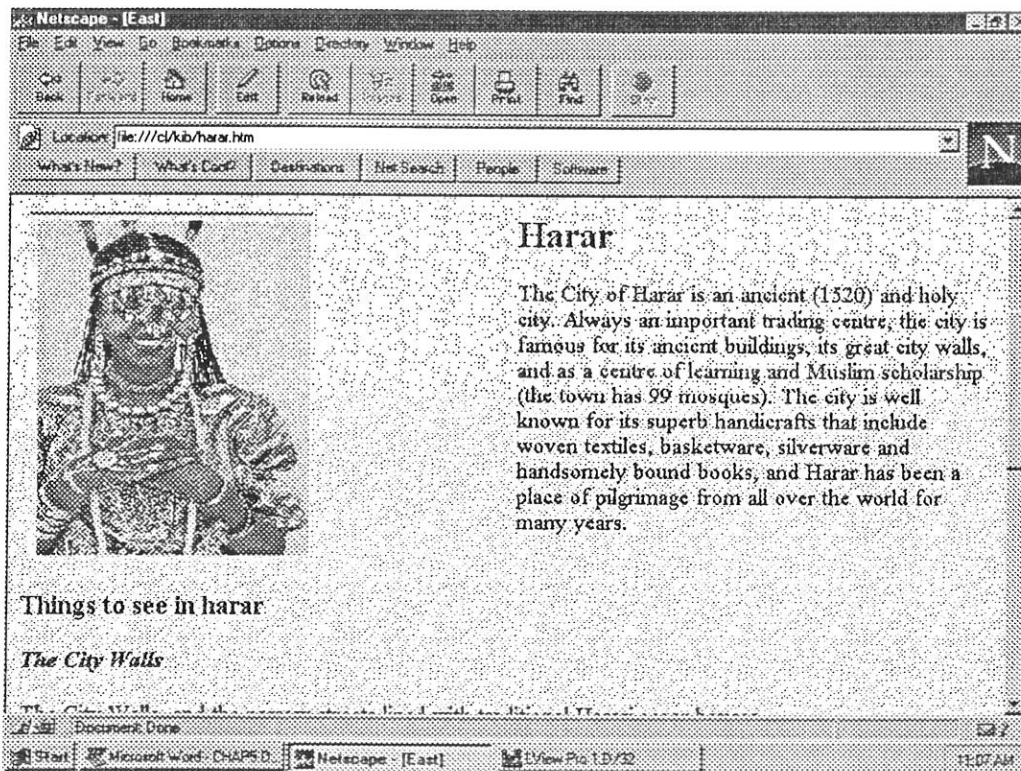


Fig 5.6: The "Harar" page

This page gives an introduction to Harar using representative picture of the region and also give details of tourism sites that could be seen by tourists like the City walls.

Facts at your finger tips

This section elaborates to tourists the necessary information they should know before coming to Ethiopia, which includes Hotels, travel & tour agents, transport, and rules & regulations of the country.

Each page in the site contains a link which can take the user any where among the four links in the home page, that means users can go deep searching and with a click of the mouse

they can come to the home page or to any part of the home page.

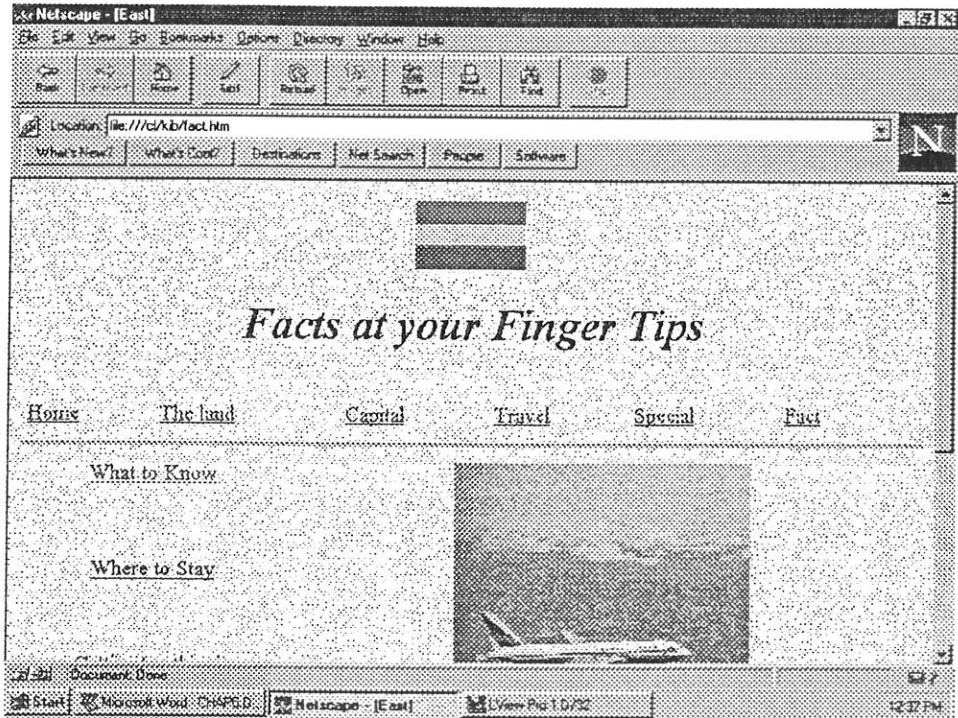


Fig 5.7: The "Facts at your finger tips"

Suggestion Form

This is a form where users who browse the web page can give their suggestions about the page, how it should be improved to entertain more users and so on. Users can submit the form on-line by simply clicking the submit button. The form is available in any page as link to make users fill the form from anywhere in the page.

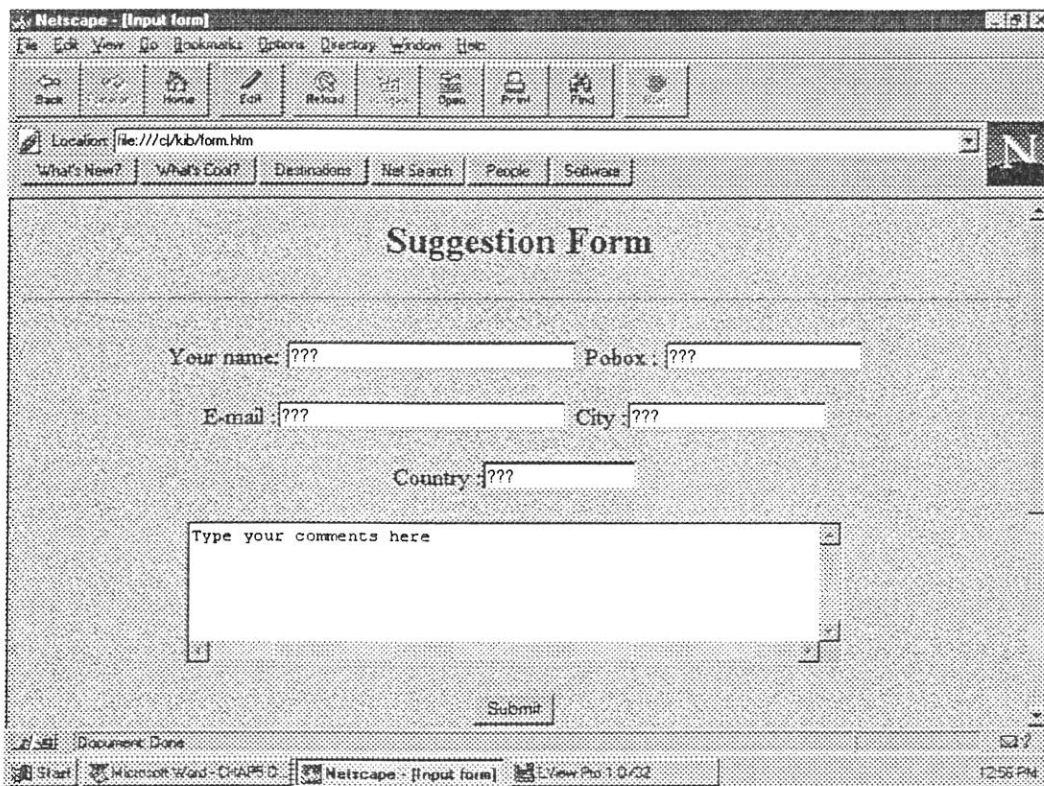


Fig 5.8: The "suggestion form" page

Webmaster information

This will give users brief information about the Webmaster and also let them E-mail to the webmaster directly from the page using an E-mail form.

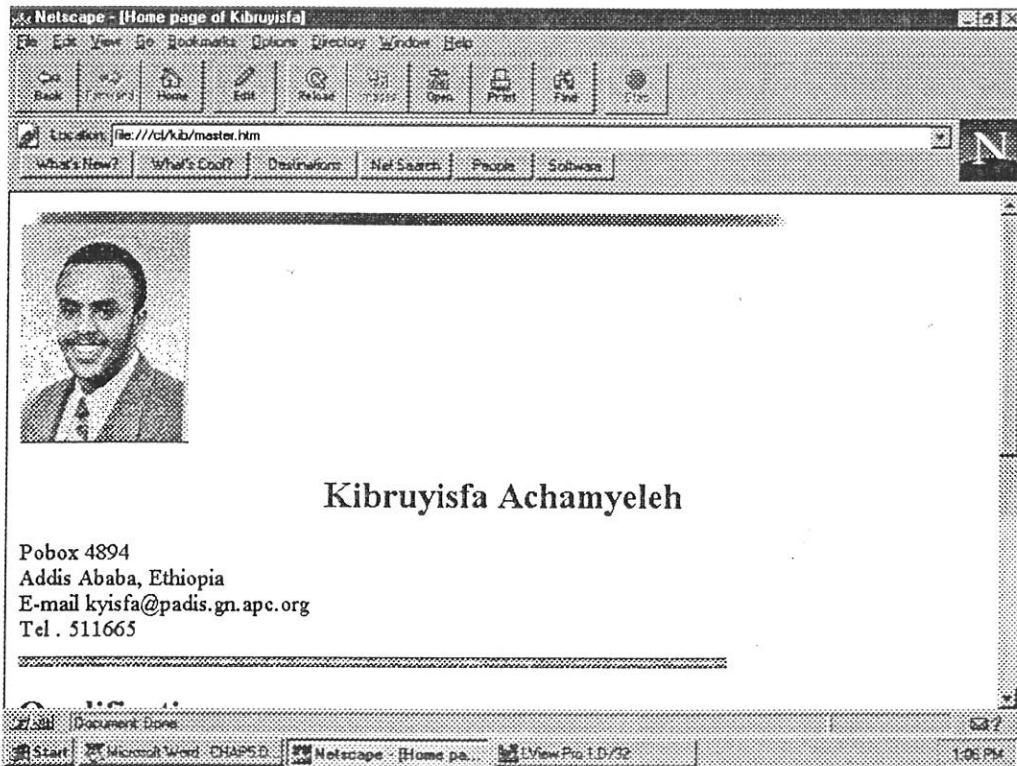


Fig 5.9: The "Webmaster" page

Number of Visitors

This will record the number of visitors that comes to the home page and record the number to the server mentioned in the link. This should be incorporated when designing the server which will host the site and it is shown in the web page as a means of analysing how many times the web page is visited. Number of hits are used in Web pages as a tool to judge the effect of the web page in disseminating the information contained in the Web page.

Chapter VI

Conclusion and Recommendations

6.1 Conclusion

We are exiting the age of software and hardware engineering and entering into an era of social engineering, and that's what the Web is about. The challenge today is to enable thousands of people inside an organisation to communicate, interact, collaborate with thousands of people in other organisations in other parts of the world independent of what kind of technology they may be using. This is being made possible today because of the Internet. Local markets are becoming global markets.

Now, of course, the Web is enabling the creation of content and the sharing of content in new and exciting ways so the result of these trends is a rapid shift to a new computing model, a model that does not replace the model that we have today, but rather a model which extends what we have today, TCP/IP extending existing network protocols, of which there are many that won't go away, but they will be extended in new and important ways.

As the Internet becomes more crowded and web sites jostle for attention, making one's own presence unique and valuable to users becomes more important than ever. Getting your feet wet with dynamic content development will put you ahead of the pack when the next technology wave comes rolling in.

One thing is certain: thousands of organisations are already on the Web, and the number increases each day. According to

Steiner (1995), businesses are coming to cyberspace now because the Internet is spreading as a communications tool faster than television spread, faster than the telephone spread and faster than the fax machine spread, and every indication is that in a very short time it is going to be ubiquitous.... There's a window of opportunity here, and the ones who get out there first can take advantage of it.

Ethiopia has finally become one of the few countries in Africa that are connected to the Internet. The Ethiopian Telecommunication Corporation (ETC) is currently the sole Internet service provider for Ethiopia. ETC has already identified few institutions to give them leased lines in the near future, and ETC didn't start yet renting a web server. Moreover the Pan African Development Information System Network (PADISnet) E-mail only service is still functioning with its 710 customer base. Due to the fact that Internet is a very recent phenomenon and Most of the user who has been using PADISnet are only familiar with E-mail people in Ethiopia are not very aware of the potential benefits of the Internet and particularly the World Wide Web.

As seen from the survey in Chapter 3, it is time for Ethiopia to organise its information in tourism, business, education and museum & arts in such a way that it could be published on the World Wide Web. This trend should be supported by local Internet service provider which, at the moment is the Ethiopian Telecommunication Corporation which will create an opportunity to publish locally.

As indicated by the survey result the tourism sites in Ethiopia are not well known to the other parts of the world due to a shortage of proper information dissemination tools,

which result in shortage of tourist visiting Ethiopia. Ethiopian tourism information should therefore be given priority to be published on the World Wide Web and it is proven in this study that the World Wide web technology is the appropriate technology to publish tourism information world wide, which directly addresses tourists that need to visit Ethiopia. It is shown also that the World Wide Web technology is very cheap technology to advertise organisations or business world wide with respect to the number of audience it reaches, its easiness in updating information, its cost of advertising, its features of encompassing multimedia formats, and its 24 hours on-line advertising characteristics.

There are various options for publishing information on the World Wide Web; though at the moment options are limited in Ethiopia due to the fact that ETC didn't start giving leased lines to the selected institutions and also ETC didn't start renting a Web server. To this end some institutions should rent to Web servers found outside the country using the criteria for choosing a Web server provider discussed in section 5.4.1 .

In general it can be concluded that with the advent of Internet in Ethiopia it is time for the various organisations and institutions specifically tourism, business, and educational institutions to plan how to publish their information on the World Wide Web and also to organise their staff in such a way that they know the art and technology of publishing on the World Wide web.

6.2 Recommendations

The following are some recommendations this study has come up with:

1. The responsible body in any organisations or institutions should create an awareness to decision and policy makers about the use and advantage of the World Wide Web and in particular Web publishing.
2. The Ethiopian Telecommunication Corporation should start as soon as possible building a Web server so that institutions and organisations can publish their information locally.
3. The Ethiopian Telecommunication Corporation should act as soon as possible in giving leased lines to the institutions and organisations which already asked for leased lines, so that these institutions can have their own web server which will help others to rent these Web servers.
4. Even if the Ethiopian Telecommunication Corporation has not yet started to have a Web server, it is time for organisations and institutions in the various sectors to organise their information in the Web format and train their staff in the area of Web authoring and publishing.
5. Institutions like the Ethiopian Tourism Commission should start publishing their information on international Web servers until the Ethiopian Telecommunication Corporation start giving the service.

6. Government policies and regulations should support private companies in starting Web authoring service which in turn would create strong Web publishing firms in the country.
7. The mushrooming computer training centres should incorporate HTML and Web publishing techniques in their curriculum and moreover these companies should plan to have leased lines which would help them to give Web authoring service to other institutions.
8. If there was enough time to test and improve the prototype tourism Web page in such a way that the Web page can run in a Web server, the prototype Web page could be used as a tourism Web site for Ethiopia. In this regard the appropriate body specifically the Ethiopian Tourism Commission can overtake and pursue along this study for the fulfilment of a Tourism Web site for Ethiopia.
9. The prototype Web page can be a very good spring board for further research in the field, such as by incorporating the current new features of web technology such as JAVA appletes in the Web pages.

Bibliography

1. Addis Tribune News Paper. February 28, 1987. Tambek International publication, Addis Ababa.
2. Ayalew, S. 1992. Development of Tourism in Ethiopia. Addis Ababa, Ethiopian Tourism Commission.
3. Berners-Lee, T. 1992. World Wide Web: The Information Universe. Electronic Networking 2(1).
4. Bill, M., 1995. What use is the World-Wide Web. PC Magazine, 14(21): 83-88.
5. Briggs, P. 1995. Guide to Ethiopia. Bradt Publications, UK.
6. Christine A. Q. 1995. Elements of Style for Web Page Design. Stanford University.Cochran Interactive.
7. Davis, P. 1995. Welcome to the World Wide Web. Internet Librarian (January): 51-55. Descy, D.E.
8. Edward, H.H. 1993. The History of the Net. Master's Thesis, School of Communications, Grand Valley State University, MI, USA.
9. Erickson, B. 1995. Life on the Net. <http://www.pbs.org>,
10. Ethiopia: A Guide for Travel Agents. 1997. Ethiopian Tourism Commission. Addis Ababa, Ethiopia.

11. Fanta, A. 1996. Internet as an Information service: opportunities in Ethiopia and connectivity conditions. MSc. Thesis. Addis Ababa University. Addis Ababa.
12. FutureNet 1994. Easy Internet.
<http://www.futurenet.co.uk>
13. Gaffin, 1994. Extended Guide to the Internet. Textinfo Edition 2.3, EFF's. <http://www.eff.org/papers>.
14. Guide to Cyberspace: What is the World Wide Web? 1996.
<http://www.eit.com:80/web/www.guide.01.htm>.
15. Internet 101, 1996. <http://www.learnthenet.com>,
Paradesa media.
16. Jhonson, T. 1994. Spinning the World Wide Web. Beam
Line.
17. Krol Ed, 1994. The Whole Internet. O'Reilly &
Associate, Inc, U.S.A.
18. Laine, S. 1993. Welcome to cyberspace. EXE 8(1): 65-
69. Process Communication Ltd, Uk.
19. Lennon, M. 1995. Tourism promotion using the World
Wide Web. <http://inet.nttam.com>.
20. Lishan, A. 1996. Electronic Networking for the Resarch
community in Ethiopia. Bridge Builders: African
Experiences with Information and Communication
Technology. National Academy press, Washington D.C.

21. Lishan, A. 1997. Content and the Web for African development. Journal of Information Science 23(1): 91-97.
22. Maureen, H. McDonough. Ackert A. 1986. Managing Tourism Information System. Tourism Information series (9).
23. Menaker D., 1995. Africa Yearns to go on-line. San Francisco Examiner, USA.
24. Methvin, D. 1996. Sites for sore eyes. Windows magazine, 7(7): 208-213, CMP publications Inc.
25. Miller, Michael J., 1996. The Web at War: the battle for the future of the Internet. PC Magazine, 15(10): 39-49.
26. Nelson, J. 1996. Defining the Internet and how it operates. <http://www.i-tutor.com/961111.htm>.
27. Paradesa Media. 1996. Learn The Net. <http://www.learnthenet.com>.
28. Patrick, J. 1996. Transcript of "Get connected" - Beyond the Internet. Fifth International World Wide Web Conference, Paris, France, May 6-10, 1996.
29. Perry, P. 1995. World Wide Web Secrets. California: IDG Books Worldwide, Inc.

30. Pesc, M. 1996. Connective, Collective, Corrective. Fifth International World Wide Web Conference, Paris, France, May 6-10, 1996.
31. Proceeding of the First EthCITA E-Mail Conference on-Community-Wide Networking Strategy. EthCITA Inc, Oct 31 - Nov 3, 1994.
32. Ray, D., 1995. Electronic Publishing on the World-Web. PC Magazine 14(7): 257-264.
33. Spectrum Guide to Ethiopia. 1995. Ethiopian Tourism Commission. Camerapix Publishers International, Nairobi, Kenya.
34. Steiner, T. 1995. Information Technologies and Destination Managment in Tourism: A conceptual framework. MBI Thesis. University of Lausanne. Germany.
35. Stynes, D. 1987. Tourism Planning. Tourism Information series (2). Cooperative extension Service, MI State University.
36. Teague, J.H. 1995. Marketing on the World Wide Web. Technical Communication, second quarter.
37. Tony, P., 1996. More Notes for the Web. PC Magazine 15(12): 24-35.
38. Tschanz, N, Klein, S. 1996. Internet Strategy Development in Tourism - Concept and Case Study. SISnet Resarch Workshop 'Internet and Business', July 1996, Lisbon, Portugal.

39. Ulanoff, L.N. 1996. Building Your Own Web Site. PC Magazine 15(15): 101-109.
40. User's Guide to Electronic Networks in Africa, revised edition. 1996. AAAS for Sub Saharan African programe, New york.
41. User's Guide to Electronic Networks in Africa. 1996. Second Edition, April, AAAS, NW, USA.
42. Wilson E.J., 1996. The Information Revolution Comes to Africa. CSIS Africa Notes, (185), 1-10.
43. Wilson, R. 1996. What is the purpose of your Web site? Web marketing today, Issue 6, Wilson Internet services.
44. World Wide Web: adding Multimedia to Cyberspace. Tech Trends, September 1994.
45. Zeltser, L. 1995. The World Wide Web: Origins and Beyond. <http://www.seas.upenn.edu/~lzeltser>

Annex 1.

Questionnaire, Interview guide and Discussion guide used for the Survey.

Dear sir/Madam

Internet is defined as a network of networks. Group of networked computers, such as those at universities, large governmental agencies and fortune 500 companies are all connected together. Additionally, small business, local non-profit organizations and plenty of individuals and families are also connected to this same inter-network structure, usually through an Internet service provider. This common linkage of computers via satellite, coaxial cable and phone lines is collectively known as the Internet. Any computer on the Internet that is properly configured can share information with any other computer found there. One of the requirements of a computer connected to the Internet is that it must speak a common language (or protocol). This protocol, called Transmission Control Protocol/Internet Protocol (TCP/IP) is what enables small desktop personal computers to converse with huge super-computers across this network connections. The Internet is nothing more than hardware connections and TCP/IP, it is the Internet applications that make the Internet come alive.

Applications of the Internet include electronic mail (e-mail), the World Wide Web (WWW), Newsgroups (or Usenet), Internet Relay Chat (called Chat), File Transfer Protocol (FTP), Gopher, and a hand full of other applications. The most exciting thing to happen to the Internet is the World Wide Web. Replacing the comparatively boring, mono-sized, text-only Gopher, the WWW offers graphics, animation, sound and video to colored, multi-sized text. The Web ethic is that any one can publish, and anyone (Who is authorized) can read information. You can connect from your desktop to thousands of Web services simply by "clicking" on a selection. Many of the world's major companies, Universities, and research organizations are on the Web today with many others joining daily. As of may 25, 1996, "Internet solutions estimated there were 59,628,024 people on the Internet, and an estimated 304,177 World Wide Web sites on the Internet.

The Ethiopian Telecommunication Authority have recently introduced Internet to Ethiopia, which help users of the service to swim in the Sea

of information (the World wide web). But Ethiopia should also participate in the information world by making available information from various sectors to the other Internet users. This is possible by designing a Web site in various areas. In this regard I am doing a research on the issue of developing a World wide Web for Ethiopia on the Internet for the fulfillment of MSc program in Information Science in AAU. To this end, I would like you to give your frank responses for the following questions attached here with this letter.

Thank you in Advance

Kibruyisfa Achamyeleh

I. General

(a)

1. Name: _____ 2. Address: _____
3. Organization: _____ 4. P.O.Box: _____
5. Tel: _____ 6. E-mail: _____
7. Nationality: _____

(b)

1. How long have you been using e-mail?
2. How do you rate your e-mail usage?
Very good _____ Good _____
Moderate _____ Poor _____
3. Have you ever browsed the world Wide Web? Yes ____ No ____
4. In which of the following areas do you think Internet contribute a lot?
Education _____ Business _____ Tourism _____
Science & Technology _____ Mass media _____
Others (please specify) _____

5. Which of the following area(s) should get priorities in the WWW about Ethiopia? Please rank them using 1, 2, 3, etc.
Educational Institutions _____ Legal Information _____
Tourism and Travel _____ Literature _____
Business opportunities _____ Museums and Art _____
General Information _____ Music and Audio _____
Others (please specify) _____ Organizations _____

Note: The above section is the one which is also used as an interview guide.

II. For Educational Institutions

1. Where do you publish your research work?
Professional Journals _____ University publications _____
Others (Specify) _____

2. Do you have a problem in publishing your work on international journals? Yes ___ No. _____. If Yes, Why?
3. How do you announce your on going research projects?
 Local seminars/Workshop _____ Brochures _____
 Others (please specify) _____
4. Is your department activity known to other similar departments in the world? Yes ___ No. ____
5. Do you have a department or professional publication? Yes ___ No. ____
 If Yes, How do you distribute to other similar professionals world wide?
 E-mail _____ Postal mail _____
 Other (please specify) _____
6. Do you advertise your departments publications or generally your department or faculty? Yes ___ No. ____
 If yes, How?

7. Do you have a department or faculty brochure? Yes ___ No. ____
8. How do you distribute the brochure of the department or the faculty world wide?
 E-mail ___ Postal Mail _____
 Others (please specify) _____
 Occasionally (through workshop/seminar)
9. Does your department or faculty or University has a catalogue, which shows who is who in your departments?
 Yes ___ No. ____
10. How do you distribute the department or university catalog world wide?
 E-mail ___ Postal Mail _____
 Others (please specify) _____
 Occasionally (through workshop/seminar)
11. How do you announce the departments or University programs and plans to other parts of the world?

III. Business Organizations

1. Is your business needs world wide advertisement?
Yes ___ No ___
2. How do you locate related business organization in the world? Through:
Chamber of Commerce _____
Trade catalogs _____
Other (Please specify) _____
3. How do you exchange Trade information from similar business organization in the World?
Fax _____ E-mail _____ Telephone _____
Postal Mail _____
4. How do you advertise your business product?
Television ___ Radio _____
Newspapers/Magazines _____
5. Have you ever advertise your business on International Media?
Yes ___ No ___
If yes, please specify the Media you used and the name?

Media used	Name of the Media
_____	_____
_____	_____
_____	_____
6. How do you distribute your business brochure to your customers world wide?
E-mail ___ Postal Mail _____
Others (please specify) _____
Occasionally (through workshop/seminar)

II. Travel and Tourism

1. What are the identity that makes Ethiopian Tourism sites unique from others?

2. What do you want to promote (Which characteristics or identity do you want to promote most)?
3. Who are your target audience's?
4. What are your target audience needs?
5. Have you advertised your service? Yes _____ NO _____

If yes, Which of the following medias are you used?

TV _____ Magazines _____
 Radio _____ News Papers _____
 Others _____ (please specify)

6. Have you advertise your service on medias which has world wide Coverage? Yes _____ No. _____

7. If yes, list the media you used and the name of the media

Media used	Name
_____	_____
_____	_____
_____	_____
_____	_____

9. How do you distribute your brochure to your customers?

Postal Mail _____ Telephone _____
 Fax _____ E-mail _____
 Other (please specify) _____

10. How do you collect feed back from your customers?

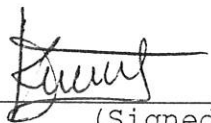
Postal Mail _____ Telephone _____
 Fax _____ E-mail _____
 Other (please specify) _____

Discussion Guide

1. What is the need or advantage of having a World Wide Web page about Ethiopia on the various sectors?
2. What are the priority areas on the World Wide Web about Ethiopia? Why?
3. What are the reasons for the Ethiopian Tourism Information to be hidden to the other parts of the world related to its uniqueness?
4. How much aware are the other parts of the World about Ethiopian tourist attraction sites?
5. How is the current tourism information distributed to the other parts of the world?
6. What are the Ethiopian tourism sites that are unique compared to others?
7. What are the advantages of the World Wide Web in promoting tourism in Ethiopia?
8. How should organizations and institutions in Ethiopia go about in publishing their information on the world wide web?

Declaration

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



(Signed)

Kibruyisfa Achamyeh

June 7, 1997

This thesis has been submitted for examination with my approval as a university advisor.



(Signed)

Dr. G.G Chowdhury

June 7, 1997