CHAPTER II
BACKGROUND
2.1 Introduction

The chapter introduces the background and basic concepts related to the topic, like Social Sciences, World Wide Web and its related mechanism etc. Besides, it discusses in detail, the mechanism of Web operation and its salient features. It analyses Web resources, their types, features and development in detail to make the study more logical.

2.2 Social Sciences

Man is a social being. He normally spends his entire life in association with other human beings, and as a member of various organized social groups. In some cases, as within the family, his association with others is constant and close. In other cases, as with the majority of the citizens of his village or town, his association is occasional and often impersonal. In the case of the larger social groups to which he belongs, he may have no direct contact at all with many of the other members. But all of them are bound together to some extent by a common language, common interests and ways of living, common loyalties, and reliance on a common local, national or international government for their defence and for much of their general welfare.

In short, group or social relations witnessed distinct and far reaching changes in diverse forms, right from ancient times. Many academicians contributed to the study of these relations through ideas which were both innovative and advanced. Such a study was of general as well as specialized nature. In both cases, however, the writers, thinkers, philosophers, historians, sociologists, economists, geographers, etc. of distinct nationalities and backgrounds, analysed various facets of man’s relation with his fellowmen in a group form. This contributed not only to the understanding of the societies from early times, but also to the promotion of knowledge in the subjects hitherto unknown to man. Their objectives were set to serve humanity by highlighting the human problems related, for instance, to gender discrimination, social exploitation, human rights violation, citizen and state
responsibilities, etc. It was indeed because of their common thinking that the idea of multi-disciplinary and inter-disciplinary approach developed in knowledge about society which, in due course of time, was facilitated by quantitative, mathematical and computational aspects. All this, forged unity in an otherwise diversified whole, i.e. "Social Sciences".

So, knowledge concerned with the origin and development of human society and the institutions, relationships, social activities and ideas involved in Social existence is termed as Social Sciences.

The various aspects of Social Sciences are expressed by the following definitions.

Brown and Brown (1975) term Social Sciences as disciplines that are concerned with people and / or their organization. Agreeing with Brown and Brown, Hunt (1961) remarks on Social Sciences as the study of the group life of man. Biertedt, Meehan and Samuelson (1964) characterize Social Sciences in a more liberal way as the disciplines that study various aspects of human society. (Social Sciences, 1993). Encyclopedia Britannica Online establishes a vivid description of Social Sciences (2006 a) as any discipline or branch of science that deals with the human behaviour in its social and cultural aspects. However, condensing the views of various authorities Commission on the Social Sciences (2003) provide a wider canvas for Social Sciences as sciences, being about people, about their relationships and conflicts, about human institutions and governance, about the efficiency, competitiveness, fairness and justness of societies and about the quality of life experienced by different groups of people.

From the above definitions, it becomes conspicuous that Social Sciences are disciplines that are focused to the social life of man. These conceptualize various facets of human life in their social, political or economic dimensions. The networked relations of man and his connectivity and conflict with his kith and kin, neighbours, groups, communities, etc., form entire vista of Social Sciences.
2.3 Scope of Social Sciences

It is not convenient to draw boundaries to Social Sciences. Some disciplines whose claim of being Social Sciences are undisputable; while others candidature is debatable, and can be challenged. Some like to include all those subjects in the category of Social Sciences which deal with one or the other aspect of society. Social scientists have divergent opinions about the disciplines that constitute Social Sciences. The overlapping of Social Sciences with other disciplines or other fields of knowledge has resulted in conflicted views.

Encyclopedia Americana, view **Social Sciences (1991)** as those fields of learning and research that are primarily concerned with human relationships. Disciplines, like Anthropology, Economics, History, Political Science, Psychology, Sociology, Criminology, Education, Geography, Law, Psychiatry, Statistics and sometimes Philosophy and Religion are included under the scope of Social Sciences. Furthermore, it also considers recent fields like Ethnology, Demography, Economic Geography, Geopolitics and Social Psychology under the roof of Social Sciences.

Grolier International Encyclopedia has limited the scope of **Social Sciences (1993)** to fields like Anthropology, Economics, Geography, Political Science, Psychology and Sociology only.

However, one way to limit the scope of Social Sciences in the Indian context is to include those disciplines that get assistance for research from ICSSR. ICSSR has clubbed about eighteen categories of fields under the purview of Social Sciences. These disciplines include Economics, Commerce, Education, Management, Business Administration, Political Science, International Relations, Psychology, Public Administration, Sociology, Criminology, Social Work, Anthropology, Demography, Geography, History, Law and Linguistics. **(Atal, 2003)**

Analysing various definitions of scholars for Social Sciences, it is evident that there is no agreement in its scope. However scope listed by Encyclopedia Americana serves more acceptable to researchers and investigators to put the broader perspective of Social Sciences to include wider sphere of human life in its social aspect.
2.4 World Wide Web (WWW)

World Wide Web or simply Web is a vast, seamless world of information accessible in a consistent and simple way. The invention of Web has made, access rather than ownership a key consideration of information resources. Information, which used to be a property of an individual, a nation or a region, has become a rivulet crossing all the borders due to WWW. The WWW has accelerated the growth of the Internet giving it an easy to use, point and click, graphical interface. Users are attracted to the WWW for its interactivity, easy usage, and combination of graphics, text, sound and animation besides a rich communication medium.

The synergy of economy, Internet and Information has meant WWW many things to its millions of users. It may serve as a market place, art gallery, library, community centre, school, publishing house, and whatever else its authors wish it to be. (Leon & Leon, 1998). In short, Web has become an enormous library of information and ideas, both old and new, an arena of communications among all generations and cultures all over the world.

A number of definitions representing concept, dimensions and technology of WWW have flooded the literature. A search made for Social Sciences on Google search engine returned 433,000 hits and printed sources have also recorded innumerable definitions and explanations. The investigator has selected few important ones from the literature to express connotation of WWW for the study. Crumlish (1998) defines Web (or sometimes WWW, W3 or W³) more technically as a huge collection of interconnected hypertext documents. ITLES L¹ (2003) has also defined WWW as a collection of linked documents, or pages, stored on millions of computers, and spread over entire Internet. Castro (2000) recalls Web, as the Gutenberg press of present times. He thinks of the Web as a revolution like that of Gutenberg that budded in Germany. Berners-Lee (1996), the creator of Web, on the other hand views it as an interactive world of shared information through which people could communicate with each other and with machines. Willard (2001), one of the distinguished personalities in the field of computer sciences pens down Web

¹ Information Technology Education Solutions Limited
as a set of technologies that allow information on the internet to be linked together through the use of links, or connections, in documents. However, definition of Web given by Okin (2005) also visualizes this service as an Internet based hypermedia initiative for global information sharing.

It is clear from the above definitions that the extension of the Internet i.e. WWW, allows users to retrieve documents, view images, animation and video, listen to sound files, speak and hear voice messages and view programs, interactivity, non-hierarchally in a ubiquitous manner, has become a communication tool that links people from different geographical regions together and acts as a bridge between the documents scattered over the horizon.

2.4.1 History

WWW is the brain child of Tim Berner’s Lee, Director of World Wide Web Consortium (W3). (Backet, 2004). In 1989 Tim Berner’s Lee and Robert Cailliav created the WWW at CERN (an International Scientific Organization in Geneva, Switzerland) (Minoli, 1999 a). CERN was originally named after its founding body the ‘Conseil European Pour La Recherche Nucleaire’. Tim Berner’s - Lee coined the term World Wide Web in 1990 and wrote the 1st Version of the “Hypertext Markup Language” (HTML), the document formatting language with the capability for Hypertext links that became primary publishing format for Web. Later HTML became a major language of the Internet’s World Wide Web.

However, the origins for the ideas on hypertext can be traced back to historic work of Vanevar Bush’s famous article “As we May Think” in Atlantic Monthly in 1945, (The World Wide Web: The beginning and now, 2005) where he proposed "Memex" machine as a “device in which an individual stores his books, records and communications and which is mechanized so that it may be consulted with exceedingly speed and flexibility. It is an enlarged intimate supplement to the individual's memory”. This description, which was written so many years before the invention of Personal Computers and the birth of Public World Wide Web, lays out the notion of the modern link. The Memex was to be a storage and retrieval device.

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2 Conseil European Pour La Reserches Nucleaire now European Laboratory for Particle Physics
using microfilm storage. The machine would augment human memory by allowing
the user to make links, or “associative trials,” between documents. Bush proposed
the notion of the blocks of the text joined by links and introduced the term links,
linkages, trials and Web through his description of a new type of textuality. Bush
believed that using this associative method of information gathering was not only
practical in its own right, but was closer to the way the mind ordered information.
Bush’s article greatly influenced the creators of what we know as “hypertext” and
how we use the Internet today. (Massachusetts Institute of Technology, 2002). It
continued with Dough Englebart’s “NLS” system which used digital computers and
provided hypertext, e-mail and documentation sharing, with Ted Nelson’s coining of
the term “Hypertext”. (Berners-Lee, 1996). Ted Nelson defined it as a “non-
sequential writing”, and only later it became considered a medium limited to
computers. Although Memex was never implemented, in 1960, it inspired Ted
Nelson to develop the modern version of hypertext. In the period of 1960-1972, Ted
Nelson, had been working on various designs of hypertext software.

No one knew at that time that future of humanity was at the interactive
computer screen, that the new writing and movies will be interacted and interlinked.
But hypertext helped in uniting the bridges of transclusion and helped the
information from world wide to be delivered with royalty. Hypertext- the text with
links brought a new change in the world of information communication.

Learning from Ted Nelson’s ideas, Tim Berners- Lee of CERN conceived the
idea of the WWW in 1989. The reason behind the creation of the WWW was to have
a global hypertext space. Meanwhile HTML had evolved from a simple language with
a small number of tags to a complex system of Mark-Up, enabling authors to create
all-singing and dancing web pages complete with animated images, sounds and all
manner of gimmicks. (Longman, 1998). Tim, through his innovative mind developed
an attractive way of publishing text by the aid of software which he had developed
himself, and also his own simple protocol-HTTP (Hypertext Transfer Protocol) for the
purpose of retrieving other document’s text via hypertext links. The HTML which was

\[1 \text{ NLS was a Hypertext Digital Library}\]
the product of Tim was strongly based on SGML (Standard Generalized Markup Language) which is a standardized and internationally agreed upon method for making up text into structural units such as paragraphs, headings, list items and so on. Tim’s invention of HTML made a remarkable change in Web publishing.

In the year 1992, Dave Ragget from Hewlett-Packard’s Lab in Bristol, England discussed with Tim how HTML might be taken from its current beginnings and shaped into something more appropriate for mass consumption. He tried to anticipate the kind of features what users really would like. Dave looked through magazines, newspapers and other printed media to get an idea of what sort of HTML features would be important when that same information was published online. Due to his tireless efforts a richer version of HTML came in to existence in the form of HTML+ (Longman, 1998).

In August 1993, Web became more popular among masses. Marc Andreeson and his fellow programmers released free version of their first ever graphical web browser, Mosaic, for Macintosh and Windows Operating System. This was a significant event in the evolution of Web in that, for the first time, a World Wide Web client, with a relatively consistent and easy to use point-and-click GUI (Graphical User Interface), was implemented on three of the most popular operating systems available at that time. A dramatic and major development in the history of browsers was the porting of the UNIX software to the Microsoft Windows Operating System. Marc Andreeson co-founded Netscape, after leaving NCSA. (National Centre for supercomputing Applications) Netscape was a company which emphasized on the development of new web browsers.

In early 1994, an Internet Engineering Task Force working group was set up to deal with HTML. During 1993 and 1994, lots of browsers had added their own bits to HTML. Dan Connolly and his colleagues collected all the HTML tags that were widely used and collected them in to a draft document that defined the breath of what Tim Berner’s-Lee called HTML 2. He wrote a document type Definition for HTML 2, a kind of mathematically precise description of the language (Longman, 1998). In order to promote the standards for the evolution of the Web and interoperability between WWW products by producing specification and reference software, WWW
consortium (W3C) was formed on October 1994 at the Massachusetts's Institute of Technology, Laboratory for Computer Science [MIT/LCS] in collaboration with CERN, where the Web originated with support from DARPA(Defense Advanced Research Projects Agency) and European Commission.

In March 1995, HTML 3 was published as an Internet draft. The draft was presented by Dave Raggett in which all HTML features were covered. Later on it was altered which resulted in HTML 3.2 for providing a layout grid for organizing pictures and text on screen. (Bleber & Andrew, 2006)

On October, 1996 W3C developed a portable Network Graphics (PNG) 1.0 to provide a cross platform alternative to the graphics format most prevalent at that time, some of which had raised some patent licensing concerns. In December 1996, a mechanism known as Cascading Style Sheets (CSS) was launched in order to add style (e.g. fonts, colors, and spacing) to the Web documents. This made Web more interested by adding more sophisticated and interesting features to it. (Clive & Donald, 2005)

By January 1997, HTML 3.2 was ready which included tables, applets, text flow around images, subscript and superscript. The guidelines for the Web content user agents, and authoring tools were launched on February 1997 in the form of W3C Web Accessing Initiative (WAI). WAI, in coordination with organizations around the world, pursues accessibility of the Web through four primary areas of works: technology, tools, education and outreach, and research and development. HTML 4.0 Version was launched on December 1997 which added tables, script, style sheets, internationalization, and accessibility features to Web Publishing. Whereas HTML 3.2 had been published to capture the then current state of support for HTML on the Web, HTML 4.0 added new features to enable authors to create significantly richer Web content. HTML 4.0, also included important features to promote more internationalized content and more accessibilities to some users with disabilities. (Jacob, 2006).

XML 1.0 (Extensible Markup Language) was launched on February 1998 which promoted interoperability and domain specific markup. Scalar Vector Graphics
SGV 1.0 enriched the Web graphics on August 2000 and made Web more lively and enchanting. (Jacob, 2006).

XML has three main advantages over HTML according to Chang (2000). They are enlisted below:

- Extensibility – use of tags or attributes to semantically qualify data;
- Structure – representation of document structure or hierarchies; and
- Validation – allows consuming applications to check data for structural validity.

Commenting on the development of XML, Sperberg-McQueen (as cited in Jackson & Gilstrap, 1999) notes that, “XML is the future of digital libraries”. So, the authors have witnessed a very bright future of the digital libraries in collaboration with XML. Web service Activity was launched on January 2002. It provided a standard means of interoperability between different software applications, running on a variety of platforms and/or frameworks. W3C adopted free Patent Policy on May 2003. The W3C Patent Policy governed the handling of patents in the process of producing Web standards, and explicitly encouraging the development of open standards. W3C gave voice to the Web with Voice XML 2.0, on March 2004. It escaped the physical limitations of key pads. The goal of Voice XML was to bring the advantages of Web based developments and content delivery in interactive Voice Response Applications. In December 2004, in Boston, Massachusetts (U.S.A), and in June 2005, in Sophia-Antipolis, France, W3C celebrated its tenth anniversary with symposium about the history and future of Web and W3C. Various pros and cons were discussed to bring the better amongst the best in WWW. (Jacob, 2006). W3C’s internationalization core working group published character “Model for the WWW 1.0: Fundamentals”, on February 2005 with a goal of making it easier for all people to use the WWW, regardless of their language, script, writing system, and cultural conventions, in accordance with the W3C mission of Universal Access. Building on the Universal Character set (defined jointly by the Unicode standard and ISO/ICE

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4 World Wide Web Consortium

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10646), the character model provides authors of their specifications, software
developers, and content developers with a common reference for interoperable text
manipulation on the WWW. (Jacob, 2006). Mobile Web initiative was launched in
May 2005, to facilitate mobile Web access. The mission of launching Mobile Web
Initiative(MWI) was to make Web accessible from a mobile device as simple as web
access while sitting on a chair and viewing a desktop device.

However, Berners-Lee, Hendler and Lessila (2001) comment on an extension
of the current web namely “Semantic Web” as a special service of web in which
information is given well-defined meaning, better enabling people and computers to
work in cooperation. This prospect of the Web in the form of Semantic Web is
helping the users especially scholars to access the resources spread over the Web.
Remarking on Semantic Web, Lee et al. (as cited in Sure & Studer, 2005) comments
on it as: “an extension of the current Web in which information is given well-defined
meaning, better enabling computers and people to work in cooperation”. Semantic
technologies allow for the description of the objects and repositories, i.e.; the need
to establish common schemes in form of ontologies, e.g.; for the naming of digital
objects. A main goal is to enable interoperability, i.e.; the ability to access,
consistently and coherently, similar classes of digital objects and services, distributed
across heterogeneous repositories. It is wiser to say that harnessing the enormous
network of information and services on Web.

So, the budding Web in earlier 90’s has reached its full glamour now, but it
has yet to cover the heights. The Web of human readable documents is now being
merged with a Web of machine understandable data. The potential of the mixture of
humans and machines working together and communicating through Web has
revolutionized all spheres of life.
2.4.2 Components

The Web is a compound of the following essential elements which integrate to formulate a holistic view of an interactive communication medium for accessing and sharing information, knowledge, entertainment, music and news etc.

a) Web Server: A Web server is a host system containing Web documents on the Internet whose task is to store, retrieve and distribute the Web documents. A server is the basic part that differentiates a provider from a user. To provide information on the Web one must either have his own server or rent space on a server. The most common platforms used are Microsoft Windows, UNIX, VMS, and Macintosh. Since the server and client run independently, the server can provide information to other clients and servers on different platforms. According to a survey conducted by Hoffman, (as cited in Minoli, 1999b) the most popular and widely used server was NCSA httpd. (the letter "d" here stands for daemon which is a programme that runs continuously but spends most of its time idling until a message arrives for its process). Out of 1722 surveyed servers, 54 percent stated that they use a form of the NCSA httpd. The second most popular server in the aforementioned survey was CERN http. The server keeps no information on where we have been because it needs to serve many users all over the world currently. (Strauss, 1996). Some of the examples of the web servers are Apache, IIS (Microsoft's Internet Information Server), etc.

b) Web Browser: A Web browser may be defined as a program that helps to search various web sites containing web pages. It acts as a client program to the web servers. The first browser that allowed pictures and animation was called NCSA Mosaic. (Madan & Siddiqi, 2002b). This browser brought Web to masses. The browser is the client part of the system and is responsible for providing the Web user interface. The server delivers the information to the browser and browser displays it. (Strauss, 1996). The browser decodes the HTML symbols in Web documents, turning them into richly formatted documents with graphics and other media.

The most popular available Web browsers include Netscape's Navigator, Spyglass Enhanced Mosaic, Spry's Air Mosaic, NetManager's Web Server, Cello, Win
Web, Hot Java, Net Cruiser, Internet Explorer, and many more.

c) URL (Uniform Resource Locator): Every webpage has a unique identifier called a URL (Uniform Resource Locator) that takes us directly to the page one is looking for. It is an address of a resource on the internet. It uniquely identifies that resource in the world, just as a person’s e-mail address identifies an individual. (Todd, 1999). The URL is the complete location of the page, just like a telephone number completely defines the location of a phone. (Strauss, 1996). URLs look like:

\[
type://address/path
\]

- In a URL, \textit{type} of server in which the file is located, \textit{address} is the address of the server, and \textit{path} is the location within the file structure of the server. The path includes the list of folders where the desired file (the web page itself or some other piece of data) is located. (Norton, 2006 a)

For example:

The Library of Congress has the following URL:

\begin{itemize}
  \item \textbf{http (type)://www.loc.gov/(address)}
\end{itemize}

d) Websites and Web Pages

- **Web Site**: A Website is a related collection of Web files having an opening file called Home Page.

- **Web Page**: A Web page is a HTML document with a specific URL with unique folder name in the website. Web pages are basically of two types:
  \begin{itemize}
    \item **Home Page**: A home page is a starting point or a “front door” to a web site. It is a Web page from which all other Web pages of that site can be reached in a simple but structured way. The home page can lead to innumerable pages depending upon the scope of the website.
    \item **Portal**: In the vast ocean, the landing point for a ship is a seaport or simply a port. An Internet portal is intended to be the same. It offers us the landing point, which can serve all our needs on the WWW. In other words, a portal is intended to be a Web site where we can find an “entry point” to the WWW or a subset of it.
  \end{itemize}
e) Http (Hypertext Transfer Protocol)

The Hypertext Transfer Protocol (HTTP) is a set of rules for exchanging files (text, graphic images, sound, video and other multimedia files) on the World Wide Web. Any Web server machine contains, in addition to the HTML and other files it can serve, an HTTP program that is designed to wait for HTTP requests and handle them on arrival. Our web browser is an HTTP client, sending requests to server machines. When the user enters a file request in the browser program by either opening a web file (typing in a URL) or clicking on a hypertext link, the browser builds an HTTP program in the destination server machine which receives the request and after any necessary processing returns the requested file. (Jacob, 2006)

f) HTML (Hypertext Markup Language)

HTML is the programming language used to create documents for the World Wide Web. Using HTML one can define a Web document’s structure by using such components as attributes and tags. Tags provide links to other points of the document, to other document on the same site, or to other documents on the other sites. HTML tags also are used to format a Web page’s look, to position graphics and multimedia elements, and to incorporate components created in other programming languages such as Java or Flash.

A next generation Web content development languages like Extensible Markup Language (XML), XHTML (Extensible HTML), XSL (Extensible Style Sheet Language) etc; are becoming the standard languages for writing web pages.

In recent years, more and more people have begun using tiny devices (such as PDAs) to connect to Internet using a wireless technology, such as cellular modems. This demand has created the need for new development environment such as Extensible Markup Language Mobile Profile (XHTML MP), formerly known as Wireless Markup Language. Web designers can use WML to create documents that can be viewed by handled devices such as Web enabled cell phones, PDAs and even digital pagers. As miniature hardware makes greater gains in display quality and bandwidth-processing capabilities, languages such as XHTML MP will become commonly used. (Norton, 2006 b).
Following are the features of HTML that make a widely acceptable language for the creation of Web Pages:

- It is designed to specify the logical organization and formatting of general text documents, with extensions to include online images, audio, video clips, fill-in forms and hyperlinks to other HTML documents and other Internet resources. (Foo & Lim, 1997)

- It provides a means to describe the structure of text-based information in a document — by denoting certain text as headings, paragraphs, lists, and so on — and to supplement that text with interactive forms, embedded images, and other objects.

- HTML is written in the form of labels, created by greater-than signs (>) and less-than signs (<).

2.4.3 Working

The Web allows rich and diverse communication by displaying text, graphics, animation, sound, and video. Web is a seamless and vast world of digital information stored in the form of Web pages, which combine text, pictures, forms, sound, animation and hypertext links called hyperlinks. These Web pages are stored on special type of host computers called Web servers. These pages can be viewed with the help of a special client program called web browsers.

The Web physically consists of a personal computer (host computer), web browser software, a connection to Internet Service Provider, computers called Servers that host the digital data and routers and switches to direct the flow of information. Figure 2.1 make it easier to understand, how the Web works.
Source: CERN

Available at:

http://public.web.cern.ch/public/content/chapters/AboutCERN/Achievements/worldwideweb/Howworks/Howworks-n.html
The Web is a client server system. The host computer is a client and the remote computers that store electronic files are servers. All Web documents are stored on so called server computers, represented in the image by a factory. Users can inspect these documents by requesting them from their local (personal) computer, represented by the house, and are called a client.

All the computers involved in the Web are connected by the Internet, represented by roads. When we click on a hyperlink, our computer asks a server computer to return our document. (CERN, 2005).

2.4.4 Features

The basic idea of WWW was to merge the technologies of personal computers, computer networking and hypertext into a powerful and easy to use global information system. The features that have made it a remarkable service are:

a) Massive Source of Information

Web has become a massive source of information stored in the form of Web pages. It is a vast ocean of information resources. There are no words to describe its vastness, depth and explosive growth. Web is growing day by day like viruses. A study conducted by Net craft, an Internet monitoring company, has revealed that 2005 has seen the highest web growth, with an increase of over 17 million sites in the year to October and an overall total of 74.40% million web addresses counted. The growth has exceeded largely when compared to the 16 million sites in 2000. (All business.com Inc, 2006). The growth is so explosive that Tim was himself not knowing that his creation will dominate the whole information transfer process market. Fig.3.3 helps in understanding the growing trend of WWW in a more lucid manner. It plots the growing trend of websites across all domains from August 1995-February 2006. (Netcraft Ltd, 2006).
Source: NETCRAFT NEWS

Available at:

It is evident from Fig. 2.2 that there is a growing trend in the host names and active servers right from October 1995. It is found that between January 2002 and April 2002 the number of hostnames raised to more than 38,000,000. A decline was seen during October 2002 and January 2003 but there was an abrupt increase from 2003. It is estimated that by January 2003 the number of hostnames will be more than 76,000,000.

The graph clearly indicates that there is a continual growth in the number of active servers. The study also reveals that by January 2006 the number of active servers will be more than 30,400,000 approximately.

b) Interactive

“Interactiveness” is the ability to ‘talk back’. The Web is inherently interactive, the act of selecting a link and jumping to another Web page. A number of Web pages have a link or an e-mail address and we can simply click on the link or e-mail address and visit the next document or can send the mail to the author of the site. Recommendations can be sent to the owners of the Web pages. Opinions for the revision or upgrading the web pages are also an integral part of some web pages. Persons can even interact with each other which makes it best option on the Internet.

The above mentioned points are cleared as under. If one will click on the links below, he/she will be directly linked to the source.

- http://nsdl.org/

- http://www.sciencedirect.com/science?ob=MiamiSearchURL&method=requestForm&temp=all_search.tmpl&acct=C000056730&version=1&urlVersion=1&userid=2248543&md5=30a1b545709ec1ed718fd88a71ba10e1

Again if one wishes to have access to the resources available in the National Science Digital Library they have to click on the highlighted or hyperlinked resources in the above mentioned links. Other online web resource providers provide the same facility. Apart from linking to the original resource one can even send suggestions
and recommendations through the “Contact Us” part which is an obligatory part in every source.

c) Hyperlinks

Each Web page is linked to other web pages through the use of links or connections. One can click on a link and can obtain a document anywhere in the network, without knowing the physical location of the document. One can easily jump to the related Web pages. The greatest advantage of the Web is its hyperlink technology, which makes it more popular among the masses.

Hyperlinks are meant to be read in no particular order and have no true beginning or ending. Unlike printed texts, which generally compel readers to read in a linear fashion.............hyperlinks encourage readers to move from one text –chunk to another, rapidly and non-sequentially.

So, it is quite appropriate to say that hyperlinks provide multiple beginnings and endings rather than single ones.

d) Multimedia

By the advent of new technologies, text, pictures, sound, computer games and scrolling text have become a part and parcel of the WWW. One is able to watch animated text and pictures, which has made WWW a more attractive feature of the Internet. Artistic Web pages have now become the most interesting feature of the WWW, which were once dead like newspaper pages.

Strictly speaking multimedia refers to the use of more than one medium at a time. The most common media that get together are text, graphics, video, audio and animation. They help in creating a rich experience for the user.

e) Convenience

Easy use of the Web has become its most interesting and everlasting feature. URL’S provided with the Web pages have made location of pages easier. One can download, copy, print and perform many tasks with Web pages. These have resulted in new types of documents and interactive communication.
f) Abolishing Publishing Barrier

On Web one is able to create his/her Web pages. Organizations, colleges, schools, groups, individuals can make their own Web pages resulting in the formation of their own Web sites. One is comfortable to prepare papers, reports, teaching materials, etc., and get them conveniently published on the WWW.

Web publishing is becoming the need of the hour as a surrogate to the printed version and is considered necessary for its survival. A number of publishers all over the world are publishing their paper products with an online version. Publishers like Emerald, Taylor and Francis, Elsevier, Chandos, Oxford University Press, SAGE, EBSCO, Science Direct, Oxford; etc are providing online versions of their publications accessible to the public.

The concept of the Web as an easy publishing tool has given rise to a new concept like wikis and weblogs. Canadian Weblog expert Peter Scott has developed a widely accepted definition of a ‘blog’ or ‘Weblog’: it is, he says, “a Web page containing brief, chronologically arranged items of information”. (Peter Scott, as cited in Clyde, 2004). Some commentators insist that Weblogs are “personal Websites”, usually maintained by an individual, constantly updated with new information, personal experiences, analysis, hyperlinks and commentary. (Maish & Venkat, as cited in Clyde, 2004). Richardson (2006 b) views Weblogs as easily created, easily updateable, Websites that allows author(s) to publish instantly on the Internet from any Internet connection. Blogs have become a common place for an easy publishing process. Richardson (2006 a) reports that at the beginning of 2006 Technorati.com, one of many blog tracking services listed almost 25 million blogs (short for Weblogs). He further considers blogs as the first easy publishing tool of the Read/Write Web, which people use to create personal journals of their lives, build resource sites with colleagues, or filter the news of the day for audiences large and small with no need to know how to code pages or transfer files. Blogs help in content creation in a more easier way. According to Jill Walker in her jill/txt blog, “a Weblog, or blog, is a frequently updated Website consisting of dated entries arranged in reverse chronological order so the most recent post appears first”. (as cited in Bhatt,
Clyde (2004) views that a Weblog can take any one of a number of forms. It might be a personal journal or diary, or the public diary of a political leader, or the journal of an expedition, or the record of a family holiday. It could be a news service (or provide summaries of and links to other websites, perhaps with annotations or commentary. It could be a series of book reviews, reports of activity on a project, a photographic record of life with a new puppy or the random thoughts of a new egomaniac.

Like blogs, Wikis are also making inroads in just about every area of life. Corporations like Disney, McDonalds, Sony and BMW have started using Wikis to manage documents and information. MIT, Stanford, and other colleges and universities are testing the waters with their faculty and students. The city of Calgary is using Wikis to let people share resources, experiences and favourite diversions (http://calgary.wikicities.com/index.php/Main Page). (Richardson, 2006 a). To have ease in publishing Wikimedia Foundation has created a largest reference Website in 2001 on the Internet, Wikipedia the content of which is written collaboratively by people from all over the world. This web site is a wiki, which means that anyone with access to an Internet-connected computer can edit, correct, or improve information throughout the encyclopedia, simply by clicking the edit this page link (with a few minor exceptions, such as protected articles and the main page). (Wikipedia, 2006). In addition Wikis are also used by project teams as a way to keep track of their work, by businesses who want to keep their employees to share information and collaborate in an easy way and teachers who want to collaboratively build resource site for their classes. (Richardson, 2006 a)

The introduction of blogs and Wikis (user-edited, collaborative Websites) has brought to fruition some of the earliest hopes for the internet – a democratic, accessible community of users responsible for its own content, supported by an open model of knowledge creation and communication. Blogs can incorporate text, images, audio and video, the latter known as “vlogs”, and are of three general types:
1. aggregators that collect other blog postings and writings from various digital media;
2. personal narratives; and
3. a synthesis of the two. (Ramos & Piper, 2006)

g) Decentralization

Web is a network of information resources where information is not centralized. Any resource on the WWW is owned by the people who make it. There is no central place to collect information, edit it, classify, and make available to the public. No one is checking the correctness of information. No one knows how long the information will be available. Users depend on the people who offer it. Decentralization means a network of servers having information at different places and accessible by people from different places, as if centrally available but in fact it is hosted at million places.

h) Authenticity and Integrity:

The resources on the Web can be authoritative or they may lack authenticity and integrity. Any anonymous person can publish his/her information on the Web and present unauthentic information. Different ways can be used to evaluate the web resources. The World Wide Web offers information and data from all over the world. The authoritative resource can provide information like:

- About Us
- Philosophy
- Background
- Author
- Last Updated
- Author’s credentials on the resources
- Sponsor and maintenance agency of the page
- References and Bibliography may be an important component of the resources as it adds to authenticity of the resources on the web as opined by Kirk (2004).

So, considering the above points as an evaluative tool, one can easily establish the authenticity and integrity of the information published on the Web.
2.4.5 Searching Tools

The explosive growth of WWW is making it difficult for a user to locate information that is relevant to his/her interest. So, new tools and strategies have evolved to solve key problems derived from the explosive intensification of resources on the Web. To extract relevant, resources from the Web comprehensively and regularly, the best method is to use search and discovery tools already available, such as general search engines, directories, meta search engines, and subject gateways etc.

Until recently, surfing was a typical approach for finding information on the WWW. Surfing is unstructured and random browsing. Starting with a particular Web page, the approach is to follow links from page to page, make educated guesses along the way, hoping sooner or later to arrive at the desired piece of information. Surfing is browsing without tools. But, with the advent of Web search tools there is a dramatic growth in retrieving the information from Web in a better way. Search tools like Web indexes are designed to assist in locating information on the WWW. Web indexes are also referred to as catalogues or directories. A Web index collects and organizes resources available via the WWW. There are a number of web indexes available. Northedge (2007) comments on the Web directory as a human compiled list of links to Web pages, typically organized into a hierarchical structure of subject categories. So, the resources available via Web index or directory move from general to specific. Some of the popular Web indexes include Magellan, Appolo, BizWeb; etc. Tools like search engines and meta search engines also aid in location of information scattered all over the Web. The former is an interactive tool to help people locate information available via the WWW with an underlying databases that contain references to thousands of resources. Poulter (1997) visualizes it as a "retrieval service, consisting of a database (or databases) describing mainly resources available on WWW, search software and a user interface also available via WWW". The later transmits the key words submitted in its search box simultaneously to several search engines and presents the search results in an integrated format. (Drellinger & Howe, 1996). The format lets the users see at a glance which particular search engine returned most relevant web pages retrieved.
for query without visiting to search each engine individually. Thus, metasearch engines can significantly save searching time and eliminate the need to use and learn several search engines. (Hu, Chen, Schmalz & G, 2001). Some of the most commonly used metasearch engines include All-in-One Search, Clnet, Eureka, MetCrawler; etc. To provide more specific and highly filtered resources to a specific community of users, subject gateways have evolved as a web tool that provides highly evaluated resources and contribute to teaching, learning and research in a definite subject area. A subject gateway helps in a systematic resource discovery by the consistent application of quality measures such as high levels of resource description, usability and accessibility that comply with international standards. Subject gateway as viewed by Debbie (2000) is, “a web based mechanism for accessing a collection of high quality, evaluated resources identified to support research in a particular subject discipline.” A more descriptive definition as presented by Koch (2000) of subject gateway is as, “Internet services which apply a rich set of quality measures to support systematic resource discovery.....this service is based on resource description. Subject gateways help in accessing the resources freely on web. They provide efficient access to these resources for researchers and students.

A wide variety of subject gateways in a number of disciplines have enriched the Web. The resources are chosen and maintained by subject specialists and content in them is evaluated on parameters of academic quality. These are more reliable way of finding information on web than traditional search engine methods such as Google or Yahoo and save the users from information overload.

Some important and well renowned subject gateways in Social Sciences are:

1. **SOSIG** (Social Science Information Gateway).
   
   [http://www.sosig.ac.uk](http://www.sosig.ac.uk)

   It is useful for all branches of the Social Sciences.

2. **AusLit** (Australian Literature Gateway).

   [http://auslit.edu.au](http://auslit.edu.au)

   It is a premiere resource discovery service for Australian Literature.
3. **WebLaw**

   http://seblaw.edu.au/weblaw/info_weblaw.phtml#

   It is helpful to the Australian Legal researchers.

4. **eldis**: gateway to development information

   http://www.eldis.org

   It is particularly useful for development studies; and is also useful for some aspects of International Relations.

5. **Blz/ed**: an Economics and Business gateway.

   http://bized.ac.uk/

   This gateway is useful for students in Economics and EBMS.

The Web has dawned the information communication process. The increased development of Web and its increased use across the globe has meant that there is a wide and growing audience that is hungry and in some cases, desperately in need of the information resources in the form of Web resources that traditionally were accessible by a few. Every discipline is trying to make itself dearer to Web as it gives them wider audience and Social Sciences also have formed the part of the resource family of Web. These too have well evolved themselves in the form of tremendous Web resources like online books, online journals, ETD’s, online newspapers, online manuscripts; etc.

### 2.5 Web Resources

Web technologies have changed the whole scenario of information access right from their inception. Before the inception of the Web, access to the information was either through the traditional means of visiting a library or going through a document or accessing it in an offline manner. But Web publishing made the access to documents easy. The two cutthroat needs of the hour for higher education (formal and informal) are authentic and faster access to scholarly information. Users are in search of their required information in a fast and easier way. Due to these requirements, Web resources made their presence as the online face of the traditional resources (both print and electronic). In a layman’s language, a
Web resource is a unit of replication on Web. It is an entity referenced by a URL. Almost all the printed documents are now available online and an offline resource without a Web version is considered either non-existent or lacking modern vision of style.

The importance of Web resources in day-to-day lives continues to grow. A number of leading institutes all over the world are giving preference to Web resources. With the initiatives like consortia systems, archives, databases etc, the importance of Web resources in distance learning and higher education programmes are growing faster. Web resources are becoming more powerful than they were in their earlier stages in different disciplines and Social Sciences are no exception to it. Web resources are developing at a very fast rate from time to time in the various subjects under the umbrella of Social Sciences. The provision of Web resources is accelerating. The Web resources occupy a high rung on the ladder of educational priorities. The implementation of Web resources allows creativity, experimentation and innovation along several intriguing lines beyond the obvious concerns of cost, time and distance.

2.5.1 Features

Web resources are gaining momentum due to their unique features. Some distinguishing features make them currently acceptable as compared to their printed counterparts:

a) **Accessibility** An online version of any information resource is accessible earlier as compared to its print version.

b) **Ubiquitous** These can be accessible anywhere in the world, at any time, by any number of people as long as the connectivity of Internet is available.

c) **Multimedia** Web resources are much more flexible in presenting content in rich manner. These have flexibility to incorporate colour, animation, audio and video content to make themselves more resourceful.

d) **Search Facility** Strong search facility and support is one of the best provisions of Web resources.
e) **Hypertextuality** Web resources help to overcome the linear sequence of documents and bibliographies are no longer “dead letters”, they point to something useful, that is immediately accessible. We can leap back and forth between literature references and content. All the resources on the Web are interwoven as a result sun will never set on Web resources.

f) **Storage** These save physical storage space.

g) **Physical Processing** These do not require physical processing (receiving and binding). *(Mounissamy & Swaroop, 2005 b).*

h) **Portable** These are portable, when used with e-book reading machines or laptops and can be delivered instantly.

i) **Environment friendly** Web Resources are kinder to environment in the sense that use of paper industry is minimized to large extent and industrial waste and destruction of natural resources for production of paper is reduced to a large extent.

j) **Interesting** Online resources catch the interest of the modern youth and help children to develop a love of reading due to new multimedia capabilities.

The above mentioned features of Web resources are valuable for the global research and education community. These have proved the best communication mechanism for playing a pivotal role in creation and transformation of knowledge

### 2.5.2 Factors Responsible for the Growth of Web Resources

The following factors are responsible for the growth of Web resources:

a) The attention of the users as well as publishers is collecting attention towards Web resources due to their economically feasible cost.

b) Information explosion is also a factor for users and publisher’s diversion to Web resources for easy management (handling).

c) Web resources are easier and faster for consultation than accessing print media.
d) Multiple files can be searched at one time and Web resources possess such features.

e) Web resources can be printed, downloaded, uploaded and even printed for distribution for convenient study.

f) Web resources are the best way to bring the highest quality research to the widest possible audience.

g) Web resources have resulted in globalization as these are interwoven in a networked fashion.

h) Through fair pricing policies, Web resources ensure the affordability and wide distribution of the research published.

2.5.3 Types of Web Resources and their Development

The resources available on the Web are growing and taking different formats and versions. The information resources without a Web version are now rare and seem probably endangered. All established print resources represent themselves with a Web version and from the inception of the Web, various disciplines; Social Sciences too, are gaining momentum. The resources can be either born digital (Web born) or converted or transformed later in to Web format. The various Web resources include periodicals, books, theses, dissertations, papers, reports, articles, bibliographies, audio, video, etc.

With a number of Web resources being regularly added to Web, online books and online journals are common place resources in high demand. These have undergone a transformation as dramatically as any other resource and are attempting to overturn the information communication system.

2.5.3.1 Online Journals

Access, rather than ownership has become a key consideration of the resources available on the Web and journals have transformed themselves from printed to online versions. They are gaining popularity due to ease of access and ease in browsing. Everyday a number of new online journals are being added to Web. Ulrich's periodical directory (43rd edition, 2005) records nearly 39,000 serials.
available exclusively online. Scholarly research in the form of online journals is the leader among other resources on the Web.

An online journal is a journal which is available in an electronic or computerized format on the Internet. Seeing the various potentialities of online journals, different authors have visualized them in their own way.

Smith (2005) comments on online journal as any journal available through Web electronically, including online version of conventional print journal available for subscription from publishers or aggregators. He further adds to the definition of online journals as open access periodicals only available over the Internet that includes review process for at least part of their content. The definition given by Smith doesn’t sound proper as all the online journals don’t follow the open access policy. Most of the online journals are available through a license or subscription fee.

Online journals have been defined more precisely and clearly by Ravichandra (as cited in Mounissamy & Swaroop, 2005 a) as those journals which are available in electronic media; some may be available on CD-ROM; but with an online availability.

Mounissamy (2005) has given a clear cut definition of online journals as periodical literature that are made available as individual titles via electronic medium, typically WWW. So, Mounissamy has given it the full fledged family status of Web resources. The definition given by Mounissamy fulfills all the criteria that are necessary for a journal to be online.

Mahapatra and Chakrabarti (2000) have characterized online journals as any serials produced, published, and distributed nationally and internationally via electronic networks such as “Bitnet and the Internet”. The definition by Mahapatra and Chakrabarti however relate with Mounissamy.

So, from the above definitions we can conclude that online journals are the electronic journals accessed via World Wide Web. Mounissamy and Mahapatra and Chakrabarti have concluded definitions of online journals as digital journals spread over the networks and accessible globally with or without license.
History and Development

The journal is fundamental to scholarly communication. The first scholarly journal "Journal des Scavans", was published as a new medium of communication in January 1665, and was soon followed by, "The Philosophical Transactions of Royal Society". For more than three centuries, the journals are playing a pivotal role in the creation and transformation of knowledge by serving as a primary medium of scholarly communication, and have remained essentially unchanged in form and function over their life time.

The dramatic explosion of WWW has resulted in creating alternative electronic forms of the conventional paper journals. This new form of computer based communication helped in transforming the scholarly communication system. The result of this explosion was electronic journals or online journals. Thus, a new communication age was born.

According to Tenopir (as cited in Mounissamy & Swaroop, 2005 b) first online journal appeared during 1970's. Online journals were not available to a large number of users: this was one of the reasons why they were not widespread. Although online journals have been under development since 1970's, online journals in their non experimental phase did not begin until 1990's, with a few exceptions. The first peer-reviewed, electronic, full text online journal in electronic format including graphics was "Online Journal of Current Clinical Trials" (OJCCT).

With the increase in the use of WWW and PC's, the number of online journals rapidly grew. Until 1995, this number was rather low, but then it started to rise, as was observed by Hitchcock and etal (as cited in Mounissamy & Swaroop, 2005 b)

Later 1990s witnessed a great revolutionary trend in the number of online journals. Various educational institutions, libraries and publishers began to provide online journals to their users to meet their research and academic needs and also pacify the budgetary expenses of the subscribing institutions.

Various Web resource providers like Digital Libraries, Archives, Repositories, Data Banks; etc enrich Web with online journals. Many projects at a global level like University of Warwick's National Ethnic Minority Data Archive Centre for Research In
Ethnic Relations (NEMDA, in 1991), California State University's Social Science Database Archive (SSDBA, 1991), Yale University's Electronic Text Centre, University of Virginia's Electronic Text Centre (1992), South Africa Data Archive (SADA, 1993), Swiss Information and Data Archive Service for the Social Sciences (SIDOS, 1993), International Dunhuang Project (IDP, 1993) by British Library International Association for Social Sciences – Information Service and Technology (IASSIST), Project Muse (1995), Stanford University Libraries HighWire Press (1995), JSTOR (1996), Oxford University's Internet Library of Early Journals (ILEJ, 1996), SIAM Journals Online (1997), EBSCO Host Electronic Journals Service (EJS), The Elektronische Zeitschriftenbibliothek EZB (Electronic Journals Library), Council of Library and Information Resources (1997), Online Archive of California (OAC), Australian Museums Online (AMOL), Early Canada Online (ECO), National Diet Library (Japan), Council of European Social Science Data Archives (CSSDA), Canberra – Social Science Data Archives (SSDA – ANU) by the Australian National University, University of Tampere’s Finnish Social Science Data Archive (FSD), Indian Council of Social Science Research, University of Essex’s Economic and Social Research Council (ESRC), Oxford Journals Digital Archive (2006), and many more support online journal collaboration between libraries of academic and research organizations and ultimately give rise to new life to online journal movement as a new version of scholarly communication.

Till October, 2003 the journals were usually subscription based and their growth was slow but the first open access peer-reviewed journal, “The monthly PLoS Biology”, first issued online in October 2003 by the Public Library of Science (PLoS), a nonprofit organization of scientists and physicians hoosed the growth of online journals via Web, as one was able to access the contents of the journals free of cost. (Reitz, 2006 a). By open access one means that information content is made freely and universally available via Internet in an easy to read format as opined by (Reitz, 2006 b). Open access is a new model of scholarly publishing developed to free researchers and libraries from the limitations imposed by excessive subscription price increases for peer-reviewed journals.
Thus, online journals have a bright future in this age of WWW. Online journals are generally presumed to represent the leading edge of innovation in the presentation and delivery of scholarship. These are the latest fruit of longstanding and farsighted efforts to make print journals convertible in to online form. Online journals are coming online both for free and fee for scholars and professionals in a variety of fields including Social Sciences. Publishers like Emerald, Science Direct, John Hopkins, Oxford University Press, Blackwell etc are offering the service of online journals to the users for ease and convenience, and making the online journals as the main vehicles of scholarly publishing.

2.5.3.2 Online Books

The new world in the publishing industry is not a word but a letter “e” - as seen in electronic or e Books. e- Books are revolutionizing the publishing industry through the rapid proliferation of digital reading material in the market place. Online books are the most important developments in the the world of literature since Gutenberg Press.

Utilizing the latest technologies to bring the information from the traditional print formats to the desktops of the users around the world, here are online books also referred to as electronic books with a promise of providing high quality and exhaustive information in all disciplines including Social Sciences. These have become a key driver for the information that used to be a part of the traditional books in print formats having a number of limitations. These help in disseminating the ideas that have been available only in print. These can reach potentially enormous academic and lay audiences in a fraction of time and at a fraction of the cost of printed books.

Online books refer to electronic files of words and images that are of book length, formatted for display on one or more electronic devices accessible via Web. Das and Mazumdar (2005) present their views regarding online books as non-serial monographic resources to be accessed by a computer directly or remotely.

Feather and Sturges, (as cited in Das & Mazumdar, 2005) portray online books as the result of integrating classical book structure, or rather the familiar concepts of a book, with the features that can be provided within an electronic
environment. They further comment on them as the electronic documents which are intended as an interactive document that can be composed and read on a computer remotely.

From the above definitions, one can conclude that online books are those books in which the text is in digital form or books converted in to digital form or digital reading material or book in a computer file format or electronic file of words and images to be displayed on a computer screen or read on a computer through a network or viewed on a desktop/notebook/dedicated portable device or read on all types of computers or formatted for display on e-book readers.

**History and Development**

Although the development of online books is regarded as the most recent trend in the book industry, and the potential to be the most far-reaching change since Gutenberg’s invention (Hawkins, 2000), the term “electronic book” also referred to as “online book” was coined by Van Damm over 30 years ago (Reynolds & Derose, 1992). The history of online books traces back to 1945, with the idea of Memex, a design envisaged by Vannaevar Bush. Memex was to be a storage and retrieval device using microfilm storage. The machine would augment human memory by allowing the users to make links, or “associative trials”, between documents. Bush proposed the notion of the blocks of the text joined by links and introduced the term links, linkages, trials and Web through his description of a new type of texuality. Bush believed that using this associative method of information gathering was not only practical in its own right, but was closer to the way the mind ordered information. Bush’s article greatly influenced the creators of what we know as “Hypertext” and how we use the Internet today. (Massachusetts Institute of Technology, 2002). Online book industry seems to be new, at least according to coverage in newspapers and magazines, the industry is based on the ideas that began with theorists such as Bush and Kay and continued with the ideas introduced with Project Gutenberg (the first digital library created in 1971), a project dedicated to converting public domain books and documents in to ASCII files, and electronic book vendors like Sony Data Discman and Bookman.

Since the inception of the online books a number of projects started by
various educational institutes like libraries, universities, colleges etc have resulted in the access of online books on the WWW via directories, databases, archives, subject gateways, etc.

In a wide variety of disciplines including Social Sciences, online books are generally presumed to represent the leading edge of innovation in the presentation and dissemination of information. After all, online books use the latest in Internet technology to disseminate ideas which for centuries had been available in print. A number of projects have been launched which paved the way for the books to leave their traditional format and highlight themselves online on the Web. An exponential growth has been seen in the number of online books which has made them more favourite among the Internet users. Online books are the best format for dissemination of ideas in the age of the Internet.

In an interview with Vaknin (2004) Micheal Hart (master mind behind Project Gutenberg: the first Internet Digital Library) said, "Archimedes said, "give me a lever long enough, and I will move the world." Project Gutenberg is just such a lever, enabling a single person to create something of immense value that is made available to millions of people. If we have reached a mere 1.5% of the world's population, we have already given away a trillion e-Books.", said Micheal Hart. That clearly shows how positive Micheal Hart was regarding online books and their benefits.

This ground-breaking project became both the first Internet information site and the world’s first digitized library. Michael himself typed in the first hundred books. When the Internet became widely-used, in the mid-1990s, the project got a boost. The increase in the online books is clearly seen because the number of electronic books rose from 1,000 (in August 1997) to 2,000 (in May 1999), 3,000 (in December 2000) and 4,000 (in October 2001). Project Gutenberg had 5,000 books online in April 2002 and topped 10,000 in October 2003, when it had a team of 1,000 volunteers around the world making 350 new books available every month. (Labert, 2004). There are 18,000 free books in the Project Gutenberg online book catalog. (as on July 14, 2006). To speak of the users attitude and user increase in the number of books accessed, it is estimated that a total of 2 million ebooks are downloaded each
month. Michael hopes to have a million online books available by 2015.


Google, one of the leading search engines didn’t lack behind in the online market when online books were the need of the hour and were spreading like the jungle fire to unveil the hidden treasures of information that was burdened in the closed hooks. It launched its programme by the name of Google Print in late 2004 now known as Google Book Search (2006) with an attempt to scan the contents of the world’s books. It has grabbed the attention of the user community from all over the world. With the five major university libraries of the world initially (University of Michigan, Harvard University, Stanford University, The New York Public Library and Oxford University), Google Book Search is providing access to the hidden treasure from December 2004.

So, it is evident that leading institutions from whole of the world are exploring the rich treasure of online books and are themselves joining this hort run.

Apart from journals and books a number of other resources also form a part of Web. They have made the users Web fanatical.

Scholarly papers in the online format also form a wide spectrum of Web resources. Google’s “Scholarly articles” programme has brought a wide variety of articles live on Web and Social Sciences are also contributing a lot towards the same. Scholarly articles through Google Scholar (2006) provides a simple way to broadly search for scholarly literature. From one place, one can search across many
disciplines and sources: peer-reviewed papers, theses, books, abstracts and articles, from academic publishers, professional societies, preprint repositories, universities and other scholarly organizations. Google scholar helps one to identify the most relevant research across the world. A simple search on Social Sciences in Google gave 1,340,000 scholarly articles which clearly speak of the multidimensional growth of scholarly articles on Web in Social Sciences. (as on July 04, 2006)

In the past quality of university was linked to its library, but now it is linked to its digital library of theses and dissertations, which are easily accessible over the Web. According to Gail Mc Millan, Director of Virginia Tech's Digital Library and Archives, Electronic theses and dissertations are becoming extremely popular and are much more accessible than traditional theses and dissertations. ETD's have come out the attic and have become a promising Web resource. These are providing faster and better information transfer. These empower students to convey richer messages through multimedia. Further, these improve higher education through effective sharing of information. Thus, a new resource in the form of ETD has enriched the Web, making it wealthier.

The seeds of ETDs were sown by Virginia Tech (2006) in 1992 and it is the founding institution for the Networked Digital Library of Theses and Dissertations (NDLTD).

International interest spread the concept to Canada, UK, Germany, and other countries. To coordinate all these efforts, the free, voluntary federation called Networked Digital Library of Theses and Dissertations (NDLTD) was established and quickly began to expand.

To provide access to the world’s primary information online, and that too of no charge, “University of Waterloo Electronic Theses and Dissertations Programme” in 1996, Korean Institute of Science and Technology information’s (KISTI) “Electronic Theses and Dissertation System” and “University of Waterloo’s Tri University Group Electronic Theses Project” in 1999, “Australian University Libraries Australian Digital Theses Programme” in 2000, “Theses Alive Programme” by Edinburgh University Library (U.K) in 2004 and large numbers of institutions world wide are providing access to their scholarly content free of cost in a networked environment. Budding
institutions all over the world are providing this Web resource to the users globally and day by day their number is increasing. Virginia Tech, the pioneer and recognized leader in the area of ETD's enlists 8509 ETD's (as on July 04, 2006).

Digital Libraries of theses and dissertations help promote the distribution of student research, enhance graduate education, improve information and network technology in universities, and advance digital library technology, Fox, 1999; Kipp et al., (as cited in Zhang, Lee, & You, 2001). More and more universities are beginning to embrace the idea of creating and maintaining repository of electronic theses and dissertations (ETDs). As of early October 2001, the Networked Digital Library of Theses and Dissertations (NDLTD had 120 members, including 105 member universities (three consortia) and 15 institutions from the USA and many other countries (Zhang, Lee & You, 2001)

The NDLTD over the last 10 years has worked tirelessly to improve access to research by supporting and encouraging the development of ETD initiatives at institutions around the world. Membership stands at 233 individual institutions and consortia. (Reeves, Hagen & Jewell, 2006)

In addition there are many individual universities, colleges, research institutes; etc that have initiated their own ETD Projects and have not yet become NDLTD members.

Making theses and dissertations available electronically dramatically widens their exposure and usefulness. (Moxley, 2001). They are the need of the hour as they are the messengers of the primary research work. No longer are researchers bound to submit their works through the traditional print medium. In the years to come they will be universally accepted. The researchers work will be provided in a technological medium to express their ideas.

Resources in the form academic discussion lists, newsletters, zines, conferences, etc. are also enriching the Web. ARL Directory of Scholarly Electronic Journals and Academic Discussion Lists (2006) provide access to a large number of online journals and academic discussion lists from a variety of subjects ranging from Arts and Humanities; Life Sciences; Physical Sciences; Technology and Social Sciences also with its first edition published in 2000. The Association of Research Libraries
through its most recent edition of the Directory of Electronic Journals, Newsletters and Academic Discussion Lists (1997) includes over 7,000 listings of journals, newsletters, zines, and professional e-conferences accessible via the Internet and has become the standard reference work for these resources.

Traditional information media like Newspapers, also have reassessed their role in the modern Web age. Newspapers at regional, national as well as international level are proving useful for those who access information via WWW. Yahoo news and Media Directory listed not less than 114 UK newspapers online (as of November 1998) as surveyed by Williams and Nicholas (1999). Internet Public Library (2006 a) also provide access to thousands of newspapers around the world. One can search the newspapers from different parts of the world. One can view newspapers from around the world from the sites like http://www.online newspapers.com at his/her fingertips. A website maintained by Drudge (2006) provides access to newspapers from U.S.A and worldwide. The Paperboy (2007) one of the leading online newspaper directory provides access to over 6000 online newspapers. (as of January 24, 2007). Famous newspapers like The Wall Street Journal, The New York Times, LA Times, Boston Globe, U.S.A Today (from U.S.A); The Times, The Guardian, The Independent, The Financial Times (U.K); Times of India (India) and a lot more are available through the directory.

Apart from the dead letters, Web resources have presented themselves more attractively by dressing themselves with the multimedia features. Social Sciences are no longer now, only to view the age old civilizations and social life of man, but these have become more attractive due to advancement of Web technologies. Web resources in Social Science have come of age, and in relatively short time have become a mature medium for reporting of scholarship and research and other thought contents. These have become attractive resources for users and increasingly they are becoming accepted as credible sources of scholarship and authorship. A number of resources are being added to Web sometimes in the form of a paper, sometimes in the form of an ETD, sometimes an article, sometimes a newspaper, sometimes a magazine and much more but both online journals and online books are becoming a significant and dominating forces on the Web.
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