

INTERNET AND WEB SERVICES : A TOOL TO EXCEL ACHIEVEMENT IN GLOBALISED WORLD

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Abstract *The influx of technology into institutions of higher education has demanded changes to the traditional support structures at colleges and universities. Higher education students are using technology as a means to communicate with, and seek help from, university personnel, including academic advisors. The Internet is the decisive technology of the Information Age, as the electrical engine was the vector of technological transformation of the Industrial Age. This global network of computer networks, largely based nowadays on platforms of wireless communication, provides ubiquitous capacity of multimodal, interactive communication in chosen time, transcending space. The Internet is not really a new technology: its ancestor, the Arpanet, was first deployed in 1969 (Abbate 1999). But it was in the 1990s when it was privatized and released from the control of the U.S. Internet has the potential to eliminating geographic and prejudicial barriers. Few would deny that the Internet and the World Wide Web (WWW or Web) have the potential to revolutionize the way people conduct themselves in business, education, and personal relationships. Distance Learning Technologies (DTLs) have changed the face of correspondence education. The world has become smaller for those who use internet on a daily basis. In modern era most people today can hardly conceive of life without the internet. This study was conducted to explore the role of internet and web services on higher education and research. Use of internet by the students is being gradually increased in public universities. The universities are expanding the internet facilities to increase services to the teaching and learning communities. Digitization of libraries and internet links between the public universities libraries are in progress. It is expected that the use of internet would bring significant changes in higher education and research systems of developing nations and the institutions of higher education would attain a global standard.*

Keyword: *Internet, Research, WWW, Web 1.0, Web 2.0, Web 3.0, Web services, Web Technology, Web Application*

INTRODUCTION

Internet is a global interconnection of networks that connects computers and devices worldwide.

From a historic point of view 1990/1991 is the official birth of the (commercial) Internet, which was available to the general public. From this date on you see a lot of technical and infrastructural evolution. The area where the Internet can make a contribution is in research and data collection. Three primary categories of research involving Internet technology are; review research, marketing data collection, and participant recruitment projects.

- **Review Research:** This category includes research projects that access existing information on the Internet. Much like a literature review, this research typically involves collecting relevant information about particular topics found on the Internet and it's possible through browsing the Web.
- **Marketing Data Collection:** Internet technology is quickly emerging as a powerful tool for finding and targeting potential customers. Using Internet

technology, companies can glean information from users that can aid in market research. With this information the organization or corporation can more accurately tailor its Web site to specific users.

- **Participant Recruitment Projects:** This type of research uses the Internet as a medium to attract and recruit participants as well as to collect the data for the project. Through internet one is capable of accommodating several forms of communication in a single medium. For example, unlike radio or television, it can accommodate text, audio material, visual material, video, and live interaction. It also allows one to access geographically remote material and people. This might make it much more practical to conduct cross-cultural research and access material that would otherwise be unavailable. Like the participant fills out the questionnaire, usually consisting of a series of check boxes or pull-down menus, and clicks a "submit" button to send the responses to a mainframe or server computer. In these types of research projects participants can be solicited via multiple Internet technologies including, e-mail/list serves, electronic bulletin boards, and registration of

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key words with Internet search engines. Additionally, traditional methods of participant recruitment, such as advertisements in newspapers, as well as trade, academic, or professional journals, can be helpful in enlisting subjects. Retrieval of data is also possible through internet.

A web service is a software system designed to support computer-to-computer interaction over the Internet. Web services take the form of an Application Programming Interface (API). The web is an increasingly important resource in many aspects of life: education, employment, government, commerce, health care, recreation, and more. The web is a system of interlinked, hypertext documents accessed via the Internet. With a web browser, user views web pages that may contain text, images, videos, and other multimedia and navigates between them using hyperlinks. The web was created in 1989 by Sir Tim Berners-Lee, working at CERN (The European Organization for Nuclear Research) in Geneva, Switzerland.

The Semantic Web is an evolution and extension of the existing Web that allows computers to manipulate data and information. The Semantic Web is the extension of the World Wide Web that enables people to share *content* beyond the boundaries of applications and websites. The main purpose of the Semantic Web is driving the evolution of the current Web by enabling users to find, share, and combine information more easily.

The semantic wave embraces four stages of internet growth. The first stage, web 1.0, was about connecting information and getting on the net. Web 2.0 is about connecting people putting the “I” in user interface, and the “we” into a web of social participation. The next stage, web 3.0 is about representing meanings, connecting knowledge, and putting them to work in ways that make our experience of internet more relevant, useful, and enjoyable. The next stage, web 4.0, is starting now.

WEB 1.0- THE SHOPPING CARTS & STATIC WEB

In web 1.0, a small number of writers created web pages for a large number of readers. As a result, people could get information by going directly to the source. The WWW or Web 1.0 is a system of interlinked, hypertext documents accessed via the Internet.



The first implementation of the web represents the web 1.0, which, according to Berners-Lee, could be considered the “read-only web.” In other words, the early web allowed us

to search for information and read it. The average internet user’s role was limited to reading the information which was presented to him. The overall goal was to present products to potential customers, much as a catalog or a brochure does - only through a website retailers could also provide a method for anyone (anywhere in the world) to purchase (their) products. The best examples of this 1.0 web era are millions of static websites which mushroomed during the dot-com boom (which eventually has led to the dotcom bubble). There was no active communication or information flow from consumer (of the information) to producer (of the information). But the information age was born. When the Internet gained momentum, one of the primary benefits was the ability of people and organizations to share information. As the Web grew, tools were developed to help people using the Web find information with ease and accuracy. Tools and technology were developed to facilitate searching, and utilizing the Web in mainstream, everyday fashion. People figured out how to help people use the Web to serve customers, play games, advertise products and services, and share just about every type of information.

Some of the technologies developed during this stage of the Web include:

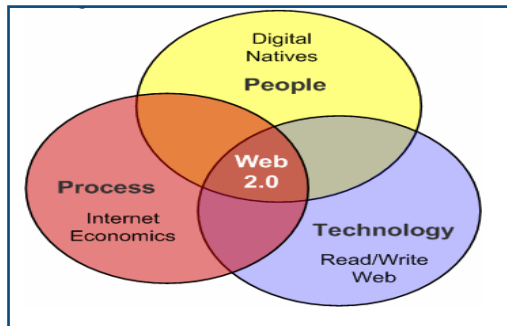
- File and Web Servers
- Content and Enterprise Portals
- Search Engines (AltaVista, Yahoo!)
- E-mail (Yahoo!, Hotmail)
- P2P File Sharing (Napster, BitTorrent)
- Publish and Subscribe Technologies

WEB 2.0 - THE WRITING AND PARTICIPATING WEB

The lack of active interaction of common users with the web led to the birth of Web 2.0. The year 1999 marked the beginning of a Read-Write-Publish era with notable contributions. Now even a non-technical user can actively interact & contribute to the web using different blog platforms. Berners-Lee’s described it as the ‘Web 2.0’, or the “read-write” web has the ability to contribute content and interact with other web users. This interaction and contribution has dramatically changed the landscape of the web. This era empowered the common user with a few new concepts like Blogs, Social-Media & Video-Streaming. Publishing your content is only a few clicks away! Web 2.0 or “the Social Web” was an effort to enable individuals from all around the world to participate in content creation and sharing, and to enhance individual Web users’ experience. Many of the mega “.com” companies grew out of the Web 2.0 era, including Twitter, Facebook, MySpace, YouTube, eBay, and Flickr.

Some of the key technologies developed during this stage of the Web include:

- Blogs (Blogger)
- Wikis (Wikipedia)
- Social Bookmarking (del.icio.us)
- Social Networks (Facebook, MySpace)
- Instant Messaging (Yahoo!, Google Talk, AIM)
- Mash-ups
- Auction Web sites (eBay)
- Professional Networking (Linked-in, Plaxo)



Examples of Web 2.0 based websites

1. **Flickr:** A photo sharing website which allows users to upload their photographs and share it with anyone and everyone.
2. **Orkut:** Social networking site which allows the users to send messages and communicate with other members.
3. **YouTube:** It allows the users to upload their videos and share it with everyone.
4. **Blogs:** Maintained by individuals or groups, they can be used to convey anything.
5. **Google AD Sense:** Allows users to earn money through posting Google ads on their websites.
6. **Wikipedia:** Online encyclopedia wherein the users contribute by writing the articles, definitions, etc. It is completely edited and maintained by the users.
7. **Scribd:** Users can upload any documents on the website where other users can either download or view those documents online.

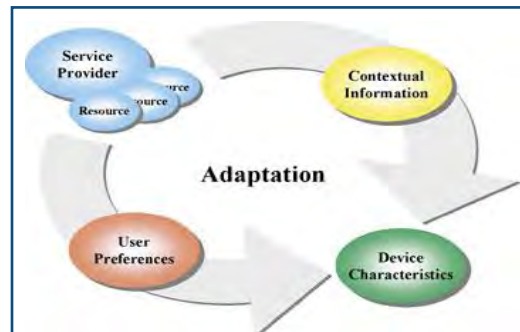
WEB 3.0 - THE SEMANTIC EXECUTING WEB

According to Tim Berners-Lee’s explanations, the Web 3.0 would be a “read-write-execute” web. Web 3.0 is defined as the creation of high-quality content and services produced by gifted individuals using web 2.0 technologies as an enabling platform. Currently, thousands of web services

are available. However, in the context of Web 3.0, they take center stage. By combining a semantic markup and web services, the Web 3.0 promises the potential for applications that can speak to each other directly, and for broader searches for information through simpler interfaces. *Semantic markup* refers to the communication gap between human web users and computerized applications. A *web service* is a software system designed to support computer-to-computer interaction over the Internet. It seems we had everything we had wished for in Web 2.0, but it is way behind when it comes to intelligence. Web 3.0 had better analytical abilities than existing search technologies! Keyword based search of web 2.0 resulted in an information overload. The following attributes are going to be a part of Web 3.0: Contextual Search

- Tailor made Search
- Personalized Search
- Evolution of 3D Web
- Deductive Reasoning

Web 3.0 is a term that has been coined to describe the evolution of Web usage and interaction that includes transforming the Web into a database. Web 3.0 is an era in which we will upgrade the back-end of the Web, after a decade of focus on the front-end



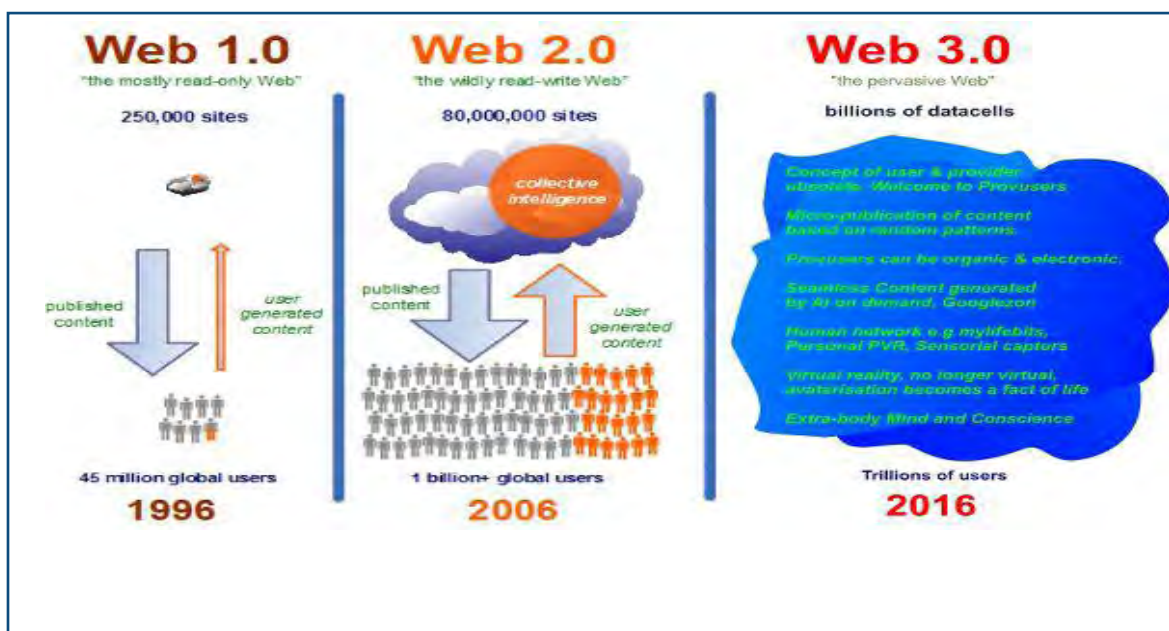
Web 3.0 is a term that is used to describe various evolutions of Web usage and interaction among several paths. These include transforming the Web into a database, a move towards making content accessible by multiple non-browser applications, the leveraging of artificial intelligence technologies, the Semantic web, the Geospatial Web, or the 3D web. Gartner suggests the need to differentiate incremental changes to Web 2.0 from Web 3.0. Tim Berners-Lee coined Giant Global Graph (GGG) as another facet of Web 3.0 . Web 3.0 is a web where the concept of website or webpage disappears, where data isn’t owned but instead shared, where services show different views for the same web / the same data. Those services can be applications (like browsers, virtual worlds or anything else), devices or other, and have to be focused on context and personalization, and both will be reached by using vertical search. One could speculate that the Google / Sun Microsystems alliance to

create a web based operating system for applications like word processing and spreadsheets is an early indicator of this trend. Web 3.0 endeavors to connect the information of the Web together in new ways.

Some of the key technologies that are being developed during this stage of the Web include:

- Ontologies (YAGO, DBPedia)

- Semantic Searching
- Thesauri and Taxonomies
- Personal Intelligent Digital Assistants
- Knowledge Bases



CONCLUSION

The web offers so many opportunities to people with disabilities that are unavailable through any other medium. It offers independence and freedom. However, if a web site is not created with web accessibility in mind, it may exclude a segment of the population that stands to gain the most from the internet. Most people do not intend to exclude people with disabilities. As organizations and designers become aware of and implement accessibility, they will ensure that their content can be accessed by a broader population.

The Semantic Web (Web 3.0) promises to "organize the world's information" in a dramatically more logical way than Google can ever achieve with their current engine design. This is specially true from the point of view of machine comprehension as opposed to human comprehension. The Semantic Web requires the use of a declarative ontological language like OWL to produce domain-specific ontologies that machines can use to reason about information and make new conclusions, not simply match keywords. The effects of Web 2.0 are far-reaching. Like all paradigm shifts, it affects the people who use it socially, culturally, and even politically. One of the most affected groups is the social networks and Wikis are all products of Web 2.0 designers and developers who will be building it - not just because their technical skills

will change, but also because they will need to treat content as part of a unified whole, an ecosystem if you will, and not just an island. First, knowledge of all kinds gets represented in a form that is interpretable both by people and machines. Second, different forms of language in which knowledge is expressed begin to be interrelated and made interchangeable with each other. Third, when knowledge is encoded in a semantic form, it becomes transparent and accessible at any time to a variety of reasoning engines.

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