An Overview of Web-Enabled Technologies Assessment and Management:
Critical Issues

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INTERNET TECHNOLOGY EVOLUTION

During the past two decades, the world has witnessed a technological evolution that has provided a totally new medium of communications entirely new to mankind. Through the use of networks, information in all forms has been disseminated throughout the world. What is known today as the World Wide Web (WWW) grew out of a project that began with a different intent ARPANET). The ARPANET was designed and developed in 1969 by Bolt, Beranek and Newman under a contract for the Advanced Research Project Agency (ARPA) of the U.S. Department of Defense. The purpose of the Network was to study how researchers could share data, and how communications could be maintained in the event of a nuclear attack (Grimshaw, 1997; Raisinghani, 2000). The ARPANET Project was eventually turned over to the National Science Foundation (NSF) and ultimately became known as "Internet" which the NSF allowed access to businesses, universities, and individuals. In the beginning, many resources such as electronic mail, news, telnet, FTP, and Gopher were offered through the Internet to its users (Misic, 1994; Rao & Minakakis, 2001).

One of the early applications of the Internet was its most popular application, the World Wide Web or sometime known as the "the Web." The WWW is one of the software tools that through the use of hypertext allow computers to link information in new ways different from a sequential reading approach, to make it easy to retrieve and add information from different computer sources through the use of communication links (Berners-Lee, Cailliau & Groff, 1992). In short time since its inception, the Internet has indeed revolutionized business, in that it redefines the methods used in traditional business practices and offers another important channel for mass communication (Foo & Lim, 1997). In the short time since its inception, the Internet has indeed revolutionized business, in that it

redefines the methods used in traditional business practices and offers another important channel for mass communication (Foo & Lim, 1997).

Initially, the Internet was primarily utilized as a medium for communication (e.g. e-mail) purposes. Soon after many organizations from both public and private sectors began to discover that they could utilize this technology in support of marketing and information dissemination purposes. This resulted in organizations realizing that the greatest payback in investing in the technologies of WWW would be sharing information about the organization's products and services with the organization's stakeholders (Khosrow-Pour & Herman, 2000). As result, successful organizations of all sizes and types have been adopting different applications/technologies of WWW and discovering emerging ways of doing business that even a decade ago could not be imagined (Prawitt, Romney & Marshal, 1997; Khosrow-Pour & Herman, 2000). Table 1 summarizes some of the Web-Enabled technology applications.

Table 1: A Summary of Web-Enabled Applications and Technologies

- Electronic Interchange
- Electronic Data Interchange (EDI)
- Electronic Commerce (EC)
- Network Management
- Organizational Intranets/Extranets
- On-Line Analytical Processing (OLAP)
- Teleconferencing

In recent years, the WWW has become the glittering palace of information and electronic trading that some visionary pundits promised it would become (Jacobs, 1998). The Web has provided many improvements in the marketing business sector particularly in areas such as "identification of sales prospects", immediate access to information (i.e. product/service specifications and pricing) and allowing customers to obtain goods regardless of their geographical locations around the world (Hacker, 1996; Presti, 1996; Terrasse, Becker & Savonnet, 2003). The primary reason for organizations to utilize the Web is marketing related; however, other reasons are motivating organizations to increase their utilization of this new technology (Khosrow-Pour & Herman, 2000). Table 2 summarizes some of these reasons.

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Table 2:  A List of Reasons for Utilizing the Web for Marketing

    •   To establish a presence
    •   To network
    •   To make business information available
    •   To serve customers
    •   To heighten public interest
    •   To release time-sensitive data
    •   To sell products and services
    •   To reach a highly desirable demographic market
    •   To answer frequently asked questions
    •   To stay in contact with salespeople
    •   To open international markets
    •   To create 24-hour service
    •   To make changing information available quickly
    •   To allow feedback from customers
    •   To test market new services and products
    •   To reach the media
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CRITICAL ISSUES OF WEB-ENABLED TECHNOLOGIES

Despite all its promises and glories, the Web-enabled technologies are not free of associated risks and controversies. In order to clearly understand the potential of these technologies, one must also assess the limitations, stipulations, and provisions of these technologies in modern organizations. Table 3 summarizes many of the issues, problems and limitations of the Web-enabled technologies.

Among other important issues that can be listed as issues of the Web-enabled technologies include, global laws to deal with net crimes, censorship, and unsolicited access to website particularly the inappropriate ones.

Table 3: A Summary of Critical Issues of Web Technologies

Bandwidth Restrictions and Latency
Slow transmission and methods and large
Number of access to a site in a given time

User Ignorance and Perceptions
Lack of adequate understanding of the
Internet and it usefulness

Cyberloafing
Surfing the Internet, wasting time and
accessing inappropriate materials

Equity
Inability to access the Web due to the
economic and geographical reasons

Exposure Points
Risk associated with accessing firm's
Web sites remotely

Flooding of the Web with content
Including information that is not helpful

to the site viewers

Inadequate search facilities on the WWW
lack of a high level query language search
engines for locating, filtering, and presenting
information

Maintaining and integrity of data
Maintaining up-to-date and accurate
information on the site for viewers to use

Security
Maintaining secure and safe systems and
Keeping unauthorized user access out

System incompatibilities
Cross-platform incompatibility that prevent
A broad system integrations and access

Web Performance Tracking
Maintaining account of traffic volumes
And utilization of the site and its contents

C O N C L U S I O N

The WWW is a vast collection of linked documents that reside on computer systems around the world. It is an exciting technological breakthrough offering new emerging capabilities for sharing and disseminating information. The critical issues discussed in this paper offer many implications and challenges to business, governments, and the user community alike. With greater emphasis being placed on this technology and its capabilities, these issues must be dealt with continuously without delay, and as the Web continues to expand, newer issues will arise that will present new challenges to the user and development communities to address.

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Terms and Definitions

Webware : A program executed upon accessing a Web page. This is a security risk because users end up running programs they don't know and/or trust.

Viruses: A malicious code added to an email program or other downloadable file that is loaded onto a computer with out the users knowledge and which runs often without their consent. Computer viruses can often copy themselves and spread themselves to a users email address book or other computers on a network.

SPAM: unsolicited email, often advertising a product or service. Spam can occasional "flood" an individual or ISP to the point that it significantly slows down the data flow.

Vector Graphics: The creation of digital images through a sequence of commands or mathematical statements that place lines and shapes in a given two-dimensional or three-dimensional space.

Email Flaming: Responding in a negative, critical way to a post on a bulletin board, a person's opinion in a Web discussion or a response to an email distribution list.

Information Vandalism: Vandalism in this context is the unauthorized modification of database that is available on the Web. Often this action takes place in a form of "graffiti" appearing in the text of a home page which is unauthorized and often embarrassing to the firm that has been victimized.

ISP: Internet Service Providers (ISP) provides access to the Internet via different communications channels such as traditional telephone lies or high speed fiber optics channel.