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- [Abstract](#)
- [Introduction](#)
- [WWW Creating Opportunities to Interact](#)
- [WWW as Advertiser](#)
- [Control Through WWW](#)
- [WWW as USENET](#)
- [WWW Facilitated Procedures](#)
- [Conclusion](#)
- [References](#)

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Abstract

It is tempting to think of the World-Wide Web (WWW) as a place where individuals and organizations post information. Although web sites are repositories, that view limits our ability to understand the different uses that individuals and organizations have found for the WWW. Many different kinds of collectives are using the WWW to support their needs. Identifying these different kinds of collaboration helps us to understand how new technologies shape social practices while simultaneously the technology is being shaped by those practices.

Introduction

The WWW is a collection of technologies that include sites -- collections of pages made up of text, pictures, programs, hypertext links, e-mail launchers, and forms -- browsers, and HTML. The WWW was designed collaboratively in a technologically heterogeneous environment, the Internet (Berners-Lee, 1996; King, et al., forthcoming). This has two important outcomes. First, most commercially available platforms can support WWW technologies. Second, WWW technologies allow people to move among platforms -- as they move between web sites -- without reconfiguring their browsers. These two reasons were necessary --but not sufficient -- conditions for people to adopt the technology because they allowed those with the technical skills and resources to hook their machines to the Internet to use the WWW.

Examining the kinds of uses that individuals have put the WWW too is not new. Previously, Crowston and Williams (1997) have studied genres of communication used

on the WWW. Their analysis focused on single documents that they randomly selected. My approach differs from theirs by focusing on sites. By examining sites we can start to draw conclusions about the intent and focus of these genres of communication and answer questions about what people were trying to do with the technology.

In the rest of this paper I describe five different kinds of use of the WWW: WWW creating opportunities to interact, WWW as advertiser, control through WWW, WWW as USENET and WWW facilitated procedures. For each style I describe the technologies used, the collectives that have adopted them, and the relationship between the WWW and existing practices.

WWW Creating Opportunities to Interact

When WWW technologies are used to create opportunities to interact, the interaction does not take place on the WWW itself. A number of corporations have WWW accessible on-line directories containing employees names and telephone numbers, and sometimes fax numbers, mail addresses and Internet addresses. People use this information to find people that they want to contact.

Cities have also adopted the WWW to help their residents interact with city departments. The city where I live, Naperville, has a web site that contains information about resources including the police and fire departments, local roadworks, social events, and libraries (<http://www.naperville.il.us/>). Often the information provides telephone numbers. One difference between the Naperville site and the corporate directories is that the information is organized around the resources rather than individuals, as the users of the site may only know the name of the service they want. However, like the corporate directories, Naperville's WWW site creates opportunities for interaction, but pushes the collaboration out to another medium like the telephone.

WWW as Advertiser

Many corporations have public WWW sites. These sites provide potential consumers with marketing information about products and services and often contain contact information for the organization including address and toll-free telephone numbers. At the same time these public sites enable corporations to interact with potential customers through corporation presentation. Public sites are adverts for the organization, but they last longer than television and radio slots and are easier to update.

Universities have also experimented with the presentation aspects of WWW sites in their efforts to attract new students to the college. However, it is not as easy for Universities to sanitize their web sites for this purpose, because this value clashes with the those that allow students and faculty to have uncensored home pages. Universities have taken different positions in this debate, ranging from unrestricted authoring to censoring home page content.

Control Through WWW

In her book Yates (1989) explains how internal communications changed as organizations evolved from small family-owned businesses to modern corporations. During this organizational transformation, internal communications changed from ad-hoc and informal to planned and formal. Three kinds of formal communications were needed to control the modern organization: top-down (orders, memoranda), bottom-up (reports), and among peers.

The WWW offers corporations another mechanism to implement these existing forms of managerial control, and many have adopted it for those reasons. Many corporations have started to put memoranda, procedures, and company newsletters on-line in their corporate web sites (McCarthy, 1996). These pages of information disseminate information down from the management about company sanctioned procedures and policies. Company newsletters allow managers to impart the values and missions of the corporations to their employees, and for the employees to learn about their colleagues in other sections of the company.

At the same time, in a company sanctioned manner, departments can also communicate a variety of information about what they do, and inside those departmental areas, individuals sometimes have internal web pages describing themselves, their work, and their interests. Researchers in industrial laboratories have colleagues both inside and outside their corporate firewalls. A number of these industrial labs have begun to allow their researchers to maintain external homepages. This allows them to communicate with their colleagues in their invisible college.

WWW as USENET

Groups who share a common interest but not a common location have used Internet technologies for years to discuss topics and share information of value to them. The WWW has provided a new interface to these existing mechanisms for interacting with each other. There are many examples of bulletin boards; for example, Meckleburg On-line (<http://www.he.net/~brumley/boards.htm>).

Some commercial corporations have begun to experiment with discussion-oriented spaces on their web sites. CNN and the New York Times both provide users with the opportunity to comment on and discuss the news stories. These discussion sites compliment their broadcast information, but people's personal experiences and thoughts become part of the experience of reading the news story.

Meckleburg On-line, CNN, and the New York Times use WWW forms to allow people to post messages to a common area. A more unusual way of facilitating group conversation happens on the Wiki Wiki web -- a group of people interested in software patterns (see: <http://c2.com/cgi/wiki?FrontPage>) -- where anyone can edit the text of any of the pages on the site.

WWW Facilitated Procedures

The WWW as USENET genre of collaboration is a communications-based way of interacting with others. Not all collaboration happens as a result of communications among people. Formal procedures are often designed to let individuals interact with each other without having to talk. The WWW supports this kind of collaboration too.

Corporations already have procedures in place that some have started to use the WWW to automate. Two examples are reimbursement programs and library loan. Large corporations often have departments responsible for managing reimbursement and the corporate library. Some companies WWW based applications for travel reimbursement and ordering books on-line replacing forms and other manual procedures.

Universities have also begun to experiment with this kind of collaborative support. For example, UC Irvine had already installed a telephone system supporting on-line registration for classes. The WWW provided auxiliary functions by giving students access to information about the classes being offered (as opposed to going to the department), the books required for the classes (instead of a visit to the bookstore) and even access to an unofficial copy of the students' transcript so that they could check what classes they needed to graduate (otherwise a visit to the Registrar's office which cost money or an appointment with the academic counselors).

Conclusion

In this paper I shown that if study the social context in which the WWW is embedded then it is hard to speak of the web as a single entity. Analysis of context reveals that many people have developed a variety of services and sites that support and extend their existing social practices (some of which are already embedded in other technologies). Furthermore, I have offered five initial kinds of use although I am sure that others exist and are being invented as I write this.

New technologies are often positioned as revolutionary. The World-Wide Web is no exception to this. There is no doubt that the web has had an impact on a large amount of people as it has transformed from a research tool for physicists to a multi-purpose technology. However, when we bring social analysis to bear on the WWW we see that it is like many other technologies that worked because they were flexible enough to accommodate a range of existing social practices. Furthermore by being able to accommodate the needs of different user groups the web has allowed people to adapt, extend, and change their own social practices. Fruitful analyses of the WWW will focus on the multitude of uses it serves and how the technology shapes society while simultaneously society shapes the technology.

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