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Panel 6 What's So Different about the World Wide Web Anyway?

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PANEL 6

WHAT'S SO DIFFERENT ABOUT THE WORLD WIDE WEB ANYWAY?

Chair: **Michael Bieber**, New Jersey Institute of Technology, U.S.A.

Panelists: **Sue Conger**, Southern Methodist University, U.S.A.
Blake Ives, Louisiana State University, U.S.A.
Wolfgang Janko, Vienna University of Economics and Business Administration, Austria
Bob O'Keefe, Brunel University, United Kingdom

PANEL THEME

Many predict a shift in the way organizations function as the World Wide Web becomes the predominant way that people gain access to computer applications and information. As organizations graft Web interfaces to their legacy systems and conceive of entire new information systems that take advantage of the Web infrastructure, a new field called Web Information Systems (WIS) is emerging. There is a clear difference between a set of Web pages and a WIS. The WIS supports work, and is usually tightly integrated with other non-Web-based information systems such as a databases and transaction processing systems.

But, what is so different about WIS from other distributed information systems? And for that matter, how do WIS really differ from more traditional systems? Don't WIS developers face the same needs for systematic analysis and design, robust implementations, economic return on investment and competitive advantage, etc.? Are the users of WIS that much different from other information system users? How much do the lessons we've learned over the last several decades of IS research and development apply to the Web?

This panel will explore the young field of Web Information Systems, examining issues in Web development and usage contrasted with our experiences with traditional systems. Our goal will be to come away with a better understanding of the Web, Web Information Systems, and traditional information systems.

PANEL FORMAT

We have designed the panel to encourage a lively debate and actively engage the audience.

- The moderator will introduce each panelist briefly.
- Each panelist will be asked to respond briefly to two introductory questions, briefly introducing a particular WIS to back up his or her viewpoint.
- The audience will be invited to ask questions for the rest of the session.

POSITIONS

Sue Conger

Web IS are different from traditional IS in very fundamental ways: analysis and design, content and purpose, users, and designer skill set.

The purpose of a WIS can be information, entertainment, or exchange. Of these purposes, only exchange relates to traditional IS in requiring background applications to process the interactions with Web users. Each of these purposes has different content, requires different analysis skills, and requires different design look and feel.

Users differ in that the audience for a Web site has two constituencies—intended users and surfers, some of whom you, as presenter, want to be users. The intended user category describes those with whom you already have a traditional business relationship. Surfers are the global audience, some of whom share characteristics of your current users and some of whom are new audiences with whom you desire to do business. Designing an application to target those specific groups requires conscious understanding and integration of their needs and wants in the Web site.

The analysis for Web design requires semantic and business skills that lead to understanding of goals of presenters and needs of users. In addition, the designer skill set is very different. Web site design is visual, requiring the use of graphical design and editorial layout design, in addition to traditional IS design skills. Designers with a traditional skillset can provide the links with legacy and database IS to manage and process real-time interactions with users. Designers with the new skillset are necessary to creating a Web site's visual look-and-feel and its content so that they are effective (complete and correct), affective (appropriately, emotionally pleasing and interesting), and navigationally efficient (requiring the fewest clicks to gain desired information, entertainment, or business function). Few individuals currently are taught any of these skills in IS programs, and fewer practicing professionals have them.

Because of these differences, analyzing and designing an effective Web site differs in important and substantive ways from analyzing and designing traditional IS systems. Therefore, when we teach and/or practice Web site design, the approach and methods should necessarily attend to these differences.

Blake Ives

A cruise of institutional World Wide Web sites and intranets, suggests that they are either a creature of advertising/communications consultants or a great experiment in trying to carve organizational nervous systems from the clay of chaos. The organizational nervous system vision is appealing, and perhaps achievable, but an institution's use of the web will not reach this potential if haphazardly stitched together from an unintelligently connected fabric of intelligent nodes. Some might argue, perhaps even my fellow panelists, that "the objective is not a system at all, but rather an organism, that must be given the freedom and creativity to grow." Indeed, in most of our universities, we see the two models growing side by side, as the administration seeks to put a public, information rich face on its web presence, while students and faculty create a far larger mass of pages with wild, often unbridled, enthusiasm. The end result is often chaotic pudding lightly dusted with a thin veneer of marketing sugar and speckled with a few morsels of real brilliance.

Although the opportunity for self expression and creativity is a useful, probably necessary, stage in organizational web maturation, it cannot be an end in itself and is unlikely to lead to competitive advantage. Nor will competitive advantage evolve from a committee led approach to communications design or information access. Rather, management must recognize the strategic potential of its web information system, particularly as it can be used to harness the vast resources of existing legacy systems, to serve as a new distribution channel, to provide new information based services to customers, and to more fully integrate the human resources of the firm. This strategic view of web development requires senior executive involvement, focused objectives, and carefully targeted resource allocation. But, it also will require information technology management schemes based on incentives more than on controls.

The developers of strategic applications face the same requirements for systematic analysis and design, robust implementations, economic return on investment, and competitive advantage, as developers of traditional systems. Thus far, much of that knowledge has been ignored—interfaces have been primitive, data redundancy has been common, technological possibilities have won out over business requirements, security has been lax, and maintenance has been largely ignored. The baby of web-driven strategic advantage is too often being drowned in the wash water of creativity and individual expression.

Wolfgang Janko

The main difference between creating a WIS and traditional IS lies in a shift of emphasis toward graphical design, social role management, the programming of multimedia elements, and the homogenization of these elements.

The main difference of running a (consumer oriented) WIS versus a traditional distributed IS lies in the steady effort to adapt their state-of-the-art look and feel as they are designed to attract interest versus to deliver specified information.

The main difference for running inter- and super-organizational WIS lies in the necessity for an increasing need for updated and compressed information in various forms and short intervals, as well as smart presentation.

Technically, the difference seems to be small. The difference lies in the intent. In traditional distributed IS, information could be asked for; in WIS, "information customers" have to be attracted. WIS increasingly does not generate an "ordered" product, rather it delivers an information product to a competitive information product market.

Bob O'Keefe

If some academics and many journalists are to be believed, we don't seem to build Information Systems anymore; we built intranets, Web Information Systems (WIS) and extranets. In certain industries we even build specialist versions of these; in the U.K., for example, the major banks now talk about their BWW (Bank Wide Web).

It is tempting to suggest that we haven't built "IS" since about 1975. What we've built are systems that get labeled with the latest jargon or TLA to catch the imagination (and more importantly, the budget) of senior management. Perhaps WIS are just the latest TLA following on from DSS, KBS, EIS and the rest? My opinion is that, like all bandwagons, WIS (a) exhibit elements of a larger, more important trend, and (b) create some fundamental questions that should occupy academics.

The fundamental trend is that, in effect, we don't really build vertically integrated systems anymore. Time was many an IS project would include everything from hardware procurement through systems software implementation to the bit that we more typically consider to be "IS." While there are no doubt such projects still active, the 1990s have witnessed a major move toward the separation of IT from "systems" and also the separation of functionality that was previously integrated. We now run IT architectures as a separate activity, create and manage databases for multiple uses, and "build" systems that rely heavily on existing data (and perhaps even existing components). Much of this has been driven, of course, by open systems and the philosophy of the Open Systems Foundation and others. It strikes me that the main contribution to internal IS of the Web is not HTML or multi-media, but the browser. This has become, for many organizations, a standard interface to other system components. "It's on the Web" is now the common answer to many requests for information, but what that really means is "go and point your standard interface at the information." Thus, the browser is part of this separation of functionality.

One advantage of all this is that if we want to research fundamental questions concerning the distribution and use of information, and if we want that research to be driven by practice, we are now in a position to do it. All too often we have studied "systems" that have been poor implementations of excessive expectation, and reflections of organizational structures and processes rather than information. Now, we can study (if so inclined) millions of individuals in millions of organizations using WIS or intranets to access information and employ it in their jobs. Browser technology is a common denominator. The IS is perhaps a less imposing variable that has reduced impact on our study of organizations, people, and information.

From a pedagogical point of view, WIS have a big impact on what we teach and how we teach it. We try to teach students to program in Java; what they end up doing is gluing together existing components. We teach students development methodologies; what they end up doing is molding and extending intranets via bits of Java, ODBC, and XML. It strikes me that we are still educating people for the world of vertically integrated projects. Increasingly, business appears to need plumbers and mechanics, not civil engineers. Moreover, as the opportunities for gluing things together grows, IS strategy becomes coincident with business strategy and less concerned with management of the IT/IS function.

BIOGRAPHIES

Michael Bieber teaches Information Systems at NJIT's CIS Department, both face-to-face and in the Virtual Classroom program. Michael directs NJIT's Hypermedia Information Systems Lab and is an Associate Director of NJIT's Electronic Enterprise Architecture and Design Initiative. He currently is working on several projects to extend the functionality of the World Wide Web, and ways of developing applications for and migrating to the WWW more effectively. He is leading ACM SIGWEB's Digital Library project, and recently launched a research initiative on Networked Improvement Communities.

Sue Conger is an Associate Professor of MIS at the Edwin L. Cox School of Business at Southern Methodist University, Dallas, TX. She has over 20 years of industry and academic experience in the MIS field. She has recently published a book with Richard O. Mason entitled *Planning and Designing Effective Web Sites*. Her current consulting activities concentrate on Electronic Commerce and Web site development. She has developed or managed the development of over 100 Web sites.

Blake Ives is Professor and Edward G. Schlieder Chair of Information Systems at the E. J. Ourso College of Business Administration. He is also Director of the Center for Virtual Organization and Commerce. He is the founder and past Editor-in-Chief of ISWorld Net, a virtual community consisting of some 2,000 information systems faculty from over 50 countries. Blake has a long time involvement in executive education, including the development of many case studies for use with executive audiences. He is a past member of Board of Directors for the Society for Information Management International, past Editor-in-Chief of *MIS Quarterly*, and currently serves as that journal's Senior Editor of Electronic Productions and Editor-in-Chief of MISQ Discovery. His research and consulting interests focus on electronic commerce and, particularly, the use of virtual communities. He was Co-Conference Chair for ICIS in 1994 and will serve in that capacity again for ICIS 2001, to be held in New Orleans.

Wolfgang H. Janko has been Head of the newly founded Department of Applied Computer Science at the Vienna University of Economics and Business Administration since1986. He is President of the Society of Data Processing in Vienna (ADV) and Vice President of the Austrian Society of Computer Science (both since 1989). He has founded a new field of study at the University of Economics and Business Administration: "Information System Economics and Management." Wolfgang's interests have always been concerned with interdisciplinary problems, especially with information and information systems, information system construction, artificial intelligence, system analysis, and applications of the mentioned methods in areas with regard to finance, information engineering, and organizations. He is a keen sportsman and his many hobbies include modern literature and modern paintings.

Bob O'Keefe is Professor of Information Management and Head of Department in the Department of Information Systems and Computing at Brunel University, and an associate faculty member at Henley Management College. He is the co-author of the Wiley book entitled *Re-wiring Business*. He has undertaken consultancy for a number of large companies (including Xerox, Mars, General Electric, and Ernst & Young) and also small companies and public organizations.

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Reference

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