

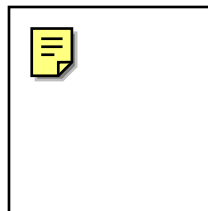
*The Cyberspace Policy Research Group tracks the diffusion and use of the Web in governments around the world and their survey serves up some fascinating findings.*

# WEBBING GOVERNANCE: GLOBAL TRENDS ACROSS NATIONAL- LEVEL PUBLIC AGENCIES

It goes without saying that the Internet and the Web have the potential to change how organizations work in the most fundamental ways. Technologies, organizations, and administrative practices have always co-evolved. The railroad and the telegraph underpinned the modern business firm, and main-frame computers and satellite communications enabled the rise of the truly global multinational corporation. A modern military would be unthinkable

without globe-girdling, space-based surveillance and command and control systems, themselves the offspring of earlier undersea cable systems that tied field commanders and diplomats to headquarters back home.

Technology and organizations co-evolve in public bureaucracies as well, and although they often lag developments in the private sector, they



are nonetheless vital to the structure, function, and goals of government, and ultimately to the character and quality of civic life. Interest in the effect of the Internet to revitalize democracy leads many observers to focus on the role of the new technologies on participation and interest group formation and representation. While such efforts are important, the role of the Internet and the Web

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in transforming government administration—the nuts and bolts of government—is no less significant for the ultimate success of any reform.

Changes in an organization's control and use of information are often the mundane substance of these developments. New technologies and organizational practices frequently occur in remote places and affect unexciting business processes. Changes in accounting procedures, financial reporting systems or internal analysis and review practices, for example, may be wholly unremarkable. And because these functions usually occur deep inside an organization, they can be difficult to observe. Enabled by new technologies, however, these new tools for doing business may result in better use of resources or more effective organiza-

agencies, while others in less-developed nations have surprisingly open Web sites. Furthermore, Web masters everywhere have to constantly sell the technology internally, and as a result much more depends on the personality and political acumen of the Web master than on the efficiency or communication speed gains of the technology itself. The vast majority of people responsible for Web content are self-taught but not self-referent, thus producing a community that looks to commercial sites for guidance about how to provide public goods.

As technology spreads globally, it carries (via Web masters) a definite social component and set of values that is more of Silicon Valley than legislative assembly or legal obligations. This article presents a research



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tional response. If these changes are broad-based and enduring, they may constitute a significant evolutionary step in organizational life.

This may be particularly true for large organizations that face increasingly complex environments where simple hierarchies interacting in simple markets have given way to complex networks of public and private organizations engaged with one another—and the public—in a variety of market and network relationships. The pace of change has been tremendous; understanding its implications will take considerably more time.

Yet understanding such changes matters because technologies and organizations evolve in concert with larger political and social values. Values we care about, such as democracy, openness, effectiveness, and accountability, shape new technologies. However, they are also deeply affected by them, in a continuous process of mutual adjustment and adaptation. Because the implications of the Internet and the Web for these important values are unclear, we have undertaken a long-term research program to track how the technologies evolve, how public organizations use them, and what the outcome is for the quality of governance. We have found Web technologies are reaching deep inside public organizations, but not through the normal paths of technological diffusion. The effects these tools have are different from what is generally expected.

For example, some exceptionally democratic nations are deciding to curtail Web access to public

effort by the Cyberspace Policy Research Group, that elaborate on recent findings and their implications.

### **The Cyberspace Policy Research Group**

With two grants from the National Science Foundation, the Cyberspace Policy Research Group (CyPRG; [www.cyprg.arizona.edu](http://www.cyprg.arizona.edu)) has tracked the diffusion and use of the Web in 192 governments around the world since 1996. CyPRG team members, based at the University of Arizona and George Mason University, have established the world's most comprehensive database of national-level public agency Web sites. This extensive database is now available for public use (though navigation and data extraction requires some assistance at this point).

Each spring each national agency site is evaluated (now nearly 2,000 in over 120 countries) for organizational transparency, interactivity, and openness, using the Web site Attribute Evaluation System (WAES) developed by the team in 1997.

WAES is an evaluation instrument that uses mostly simple binary criteria to build a nuanced picture of an organization's transparency and interactivity in Web operations across cultures, regions, and sectors. Criteria consist of organizational attributes citizens most care about—contact and other organizational information, issue information, including links, availability of reports and other documents, ease of use, levels of security and privacy given to contact with agencies, and so on.

Over a four-year period, we have surveyed and

interviewed agency Web masters in nine advanced industrial countries to understand the specific contexts and policies shaping the evolution of Web operations. A worldwide online survey of Web masters is being administered on the Web itself. This data permits broad national and sector comparisons and detailed organizational assessments. (For more information on WAES and CyPRG's research methodology, visit [www.cyprg.arizona.edu/method.html](http://www.cyprg.arizona.edu/method.html)).

We have sought to identify the conditions and choices associated with organizational transparency, openness, and effectiveness, the improvements often stated as the objective of government reform initiatives. These goals are among the most important to citizens, for they are at the core of common notions of government service, trust, and legitimacy. CyPRG work is particularly timely because it offers the only detailed, longitudinal data on Web operations at the organizational level, which is where the unheralded, but vital, transformations of government structure and practice occur. It contributes empirical reality to this major debate.

### **CyPRG Findings**

CyPRG's quantitative and qualitative work has yielded a number of preliminary findings. The U.K. and the U.S., leaders in a number of Web-based agencies, are virtually even in the number of national-level government Web operations, at about 330. Other heavily "Webbed" governments include such diverse nations as India, Australia, Canada, and Japan. The bulk of countries with few or no national-level Web sites are in sub-Saharan Africa, the Caribbean, and the Pacific. However, contrary to common explanations of technology diffusion, a nation's wealth only explains about 30% of the variation in the number of Web sites across national ministries [3].

Furthermore, some regions considered electronic backwaters exhibit surprising results when compared with the leaders. The Middle East and Southwest Asia have relatively few sites but have also had strong growth in the last two years. The number of government agencies online in Latin America is also increasing, with Argentina and Brazil in the lead.

Advanced nations also tend to have more regional or local Web sites, though not necessarily due to the separate sovereignties of countries with independent provinces or states. Federal nations such as the U.S. and Germany are ranked with unitary states such as the U.K. and Spain in having large numbers of regional or municipal governments online.

Sectoral differences are also surprising. Judicial agencies generally lag in having an online presence. U.S., German, and Brazilian courts also appear to be

widely deployed on the Web. For the early years 1996–1998, the defense sector was surprisingly vigorous in having Web sites earlier than other sectors such as labor or agriculture.

Most countries are not making extensive use of the Web. The global average score for transparency through 1999 is less than half of a possible 21, and for interactivity less than a quarter of a possible 18.

Cluster analysis suggests, however, that considerable learning has taken place; the longer a country's agencies have been online, the more likely they are to be more transparent and more interactive. One reason for this may be these countries are more likely to have an articulated government policy on a national information infrastructure or information society, such as the U.S., Denmark, Singapore, and the Netherlands [2]. This assessment is corroborated by field interviews with Web masters in various countries.

Closer inspection of these results reveals some non-intuitive observations. The Western nations lead in openness, as might be expected, but they fail to show a clear connection between wealth and how openness is expressed. Some nations' government agencies are willing to tell their citizens about their activities, but less willing to permit citizens to direct specific questions to ministry employees. Other nations prefer to make less information available, but provide easier access to it.

For example, Denmark has the most consistently open government in the world, but the U.S. is not far behind. Both were well above the world average in transparency and interactivity. On the other hand, Sweden, whose ministries score about average for all sites found worldwide, rates alongside Egypt, India, and Uruguay. Other Nordic countries fall between these two extremes. Finland also has a more modest national government Web presence than might have been predicted from the vigor of its commercial and local Internet activity.

Canada's government has consistently been more interactive than transparent, while Australia's agencies have been the just the opposite. Neither of these countries are as open as the U.S., despite their cultural and institutional similarities. These results do not appear to relate significantly to levels of democracy or regime type, and only weakly to the level of economic development.

Middle Eastern nations have few sites but the ones they do have are often more open than sites in more advanced nations, probably due to entrepreneurial individual Web masters. Traditional regime typologies and categories such as families of nations or types of democratic states do not do a very good job in grouping affiliated countries together.

**Table 1. Factor analysis of variables.**

Hypothesis	Finding
1. National income	strong support
2. Central government expenditures	-
3. Integration with world economy	weak support
4. Science, research, and education	-
5. Computers and Internet hosts	weak support
6. Cultural values	-
7. Democracy	-
8. Legal system	-

Similarly, France is among the leaders in openness, though its strong traditions and traditional administrative structures are not known for their transparency to citizen scrutiny, and even Parliament is largely a bystander in the policy process.

However, having more ministries on the Web does not necessarily mean greater transparency or interactivity, as in the cases of Israel, Malaysia, Slovenia, and Pakistan. Agency Web masters and their managers are clearly making decisions about content as well as the forms of interactivity [1]. In-depth, onsite interviews with Web masters and other key staff in key agencies have largely confirmed these inferences. If the technological ability is present to be highly interactive and yet the site is not, it is most likely due to a conscious policy decision, according to our informants. Security and privacy concerns are the main reasons, but fear of being overwhelmed by citizen demands for information or service due to low transaction costs of email also figures prominently.

In fact, to uncover why some nations score higher on openness than others with similar technological conditions and level of economic development, we performed standard factor analysis of variables with the level of statistical support listed in Table 1 [3].

When these variables are assessed using CyPRG data, a combination of national income and globalization are the only significant identified factors influencing openness. However, they account for about a quarter of the observed variance in the both Organization for Economic Coordination and Development nations and non-OECD nations. Global linkages also play a role in explaining openness, but this is likely to be related to national income, since the world's wealthier countries tend to have more liberal trading regimes. None of the other hypotheses are supported by CyPRG data.

Furthermore, in-depth onsite interviews with Web masters in over 150 agencies yield the following observations. First, establishment history and senior-level support for the external Web site has unexpected influence over site development speed and purpose of

organizational intranets. An enthusiastic senior manager placed in a key position such as the IT division head will advance the technical level of the Web site enormously. However, content may lag if the same person fails to nurture change agents responsible for providing Web site content. Clearly, the Web is viewed first and foremost as a publicity outlet, not an interactive method of service provision.

Second, rollout and use of extranets lags across agencies, with some exceptions in the defense and education sectors where agency interdependence is recognized.

Third, key actors rely on external commercial firms in making Web design and use decisions, rather than the normal professional, sectoral, or political referent groups. When technical ability and funds are available, a site may leap forward in graphic design emulation of commercial sites without a similar improvement in content.

Fourth, the experimentation period is shortening as the commercial definitions of acceptable Web site features and uses are taken as the norm for public sites as well. As a result, alternative designs, content, control, and direction are increasingly ignored or abandoned to comply with emerging practice.

Fifth, security concerns are sometimes used as an excuse to control or avoid openness on the Web. In this regard, commercial notions of the requirements associated with e-commerce have reinforced the legitimacy of using security in policy debates about access and content. In short, the commercial security industry has a greater influence on the speed of development and content of sites than the public service community.

The death of distance at the hands of the Internet has also resulted in the decline of specific public agency norms for Web site structure and practice. The result is even seen in the language used by Web masters. In 1997-98, interviewed Web masters spoke of "new knowledge management" and "making all information public." By summer 2000, Web masters spoke more of navigation strategies, writing in a more journalistic style, and enabling individual organizational sections to upload their material automatically. The challenge of opening up agencies to the public has changed to a steady drive to make what is available easy to read; a marked rolling back of much of the earlier commitment to government transparency.

Finally, intranets routinely lag external sites for months to years in agencies all around the world. External sites, however, have a striking effect on the ways in which later intranets will be accepted and used in the agency. In most cases, the internal Web is designed and imposed on the organization by the IT department with little input from future clients, the

various units of the organization. Unlike external-site Web masters, most IT departments are not concerned with content, resulting in weak intranets largely viewed as boring, useless, and irrelevant (except to find telephone numbers or order lunch). Intranets sites grow slowly and it may take work groups years to decide to use it to publish their work internally.

However, external-site Web masters sometimes create networks of Web-savvy staff who share ideas about effective Web operations. Such groups complain about weak internal Web operations. In these agencies, the intranet itself may be relaunched several times as IT departments attempt to get the system right. These agencies are less likely to use security concerns as a cover for avoiding interactivity.

## Conclusion

The Web commands attention for its great organizational potential and its global spread. However, its governance needs considerably more inspection for us to understand what different structures, content, control, and direction might mean. CyPRG is creating a database to allow inspection and explanation of these developments both chronologically and laterally. These are still the early days of development, but as with any complex system dependent on initial conditions, it is precisely these days that will set the path of technology for decades. We must understand what is happening now to explain, perhaps predict, or even shape what may happen in the future. ■

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