Personalization of Government Internet Services

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Abstract: This paper reports on a portion of the findings of a national survey of public managers on the Future of Public Sector Internet Services For Citizen Participation and Service Delivery. The study was conducted by the Carl Vinson Institute of Government and was supported by the National Science Foundation.

It was once the case that having a few government web pages with some basic descriptions of government services was sufficient to make a mark in cyberspace.   As Internet technologies become more sophisticated, however, the potential to use of the Internet to enhance citizen-government interactions has clearly grown substantially. The likely nature of the future of E-government was the focus of an exploratory survey of elected officials and public managers in local, state, and federal governments. The survey attempted to sample the opinions of public administrators and officials in a random sample of 422 cities and counties with populations above 50,000, as well those of public managers in a sample of 427 state and federal government subscribers to *Government Technology* magazine. The total response rate for both groups was 26 percent. The survey covered five major Internet service issue areas: 1) current Internet activities, 2) opinions about privacy protections, 3) the development of personalized Internet services, 4) the development of on-line pubic dialog, and 5) the management of electronic rule making and its impacts on public managers. In addition, respondents were asked to provide information about themselves and the governmental environment. This paper outlines the findings for the third issue area, personalization.

Respondents Home Institution

Other 1%
Federal 6%
State 25%
City 29%
County 39%
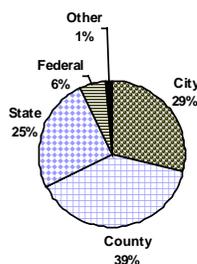
The survey findings that follow are for the total group of respondents. The majority of the respondents are from local government, including 29 percent of the total from cities and 39 percent from counties. State government made up the next largest group of respondents (25 percent). Only six percent of respondents reported from the perspective of a representative of the federal government.

Personalization

Personalization and customization in general refers to the ability of an Internet web site or service to be shaped or re-shaped so as to better meet the individual needs or wants of a user. (Taking a more nuanced view, personalization would refer to a customer, client or citizen making choices about what they will be exposed to, while customization would refer to the efforts on the part of a service provider to select information or prioritize information for a citizen/customer. For the purposes of this survey, however, the term personalization will refer to both processes).

Personalized/customized services can potentially provide a number of benefits such as:
- automated reminders of the need to attend to something,
- user-centered information delivery (Kramer, Noronha & Vergo; Manber, Patel, & Robinson, 2000)

- suggestions for ways that one can better use government services,
- streamlining of application and transaction processing (Wells, Wolfers, & Riecken, 2000)
- enhanced help with the ordering and delivery of services
- ability to cull relevant information from across the Internet (Cingil, Dogac, & Azgin, 2000)

The actual shape, experience, or product of personalization services can vary substantially. Specifically, *personalization can occur along a number of different dimensions* including:
- Learning style or ability levels of the end-user
- The choice, amount, organization and prioritization of content
- The timing of the content (e.g., around birthdays, biorhythms, etc.)
- The granularity of the personalization itself (e.g., at the level of word choice, sentence choice, paragraph choice, page choice, etc.)

Personalized services can be individually fashioned to take into consideration one's:
- Status (e.g., as a parent, taxpayer, land owner, business owner),
- Condition (e.g., being impoverished, being behind on a payments, being due for a license renewal)
- Environment (e.g., living in a neighborhood where crime has just gone up, living next door to someone who has requested a zoning change)
- Interests (e.g., in joining a softball team, inbeing kept abreast of commission meeting times)
- Behavior (e.g., a recent series of clicks on web pages, images, and links) (Mobasher, Cooley, & Srivastava, 2000)
- Similarity to others. Being able to statistically associate a web site visitor with another person that one knows more about, it becomes possible to predict the information needs of the visitor based on one's knowledge of people who are like the visitor. This similarity can be based on similar content interests or on similar patterns of clicks through a web site or sites (Mobasher, Cooley, & Srivastava, 2000; Hirsch, Basu & Davison, 2000)

Personalization technologies can be based on any combination of:
- Profile data in a database
- Profile data supplied in real time
- Click stream data within the host site
- Click stream data from across a number of cooperative sites
- Collaborative filtering or choices based on what other people like the end-user have found desirable or useful

If private sector E-commerce developments and business strategies are any guide, personalization of pubic-sector Internet services is likely to be the next level of development in technology-mediated interactions between governments and their constituents (Tapscott, Lowy, &Ticoll, 2000; Evans & Wuster, 1999, Fonseca, 2000; Toonkel, 2000). shorter search time for information that meets one's needs (Smyth & Cotter, 2000). Traditionally, the effective practice of niche marketing or message customization has been limited by the cost of gathering and formatting customer/citizen profiling and by the cost of producing numerous customized messages and service delivery mechanisms. Whereas private sector firms can more easily justify the cost, for public sector agencies, cost, when combined with an ethic of "equal standardized treatment" tends to act as a barrier to personalization (except with respect to political campaigns.) The emergence of low-cost computer-mediated communications via the Internet has dramatically lowered the cost

of and increased the effectiveness of personalized service delivery. Consequently, governments are not likely to ignore the advantages of personalization for very long. Actual attempts to personalize Internet services in the public sector are still in the rudimentary stages of development and have to-date been based on citizen choice rather than on some combination of citizen/customer choice and pro-active government customization, which appears to be the emerging model in the private sector (see sites such as FireFly, NetPerceptions or WebWatcher for examples). While personalization inherently involves the consideration of privacy, the survey identified a number of other issues that governments need to consider as they go about personalizing online services.

First, it was found that public managers will likely need to wrestle with several potential barriers to personalization in the public sector, including:
- The cost of building profiles
- The marketing expertise needed to customize messages to specific audiences
- Open records acts that might force governments to make personalization profiles public
- The multiplicity of jurisdictions, programs, funding sources, and authorities that might make the collection of data on individuals or households across programs difficult
- The lack of technical expertise
- Protective privacy standards and/or multiple standards of confidentiality
- The multiplicity of personal identification systems, data formats, architectures, and protocols that might make difficult the matching of data in different systems that are related to the same individual or household
- The lack of enterprise level information systems (i.e., the relative underdevelopment of computer systems and the unevenness of these systems across programs).

Taken together, these factors tend to make it more difficult for government agencies to share and use information for the purposes of personalization. In terms of issues public managers believe represent the most salient barriers, the survey suggests that issues related to privacy, confidentiality and open records are at the top of the list, while other, often-touted concerns such as lack of technical expertise are less prominent.

Second, is the question of whether personalization should be applied generically across the functions of government or whether it should be applied only (or primarily) in some domains (National Academy of Sciences, 1998).
To address this question, respondents were asked how important it is for government to provide personalization services of different types. Because of the importance of privacy protections in personalization services (Volokh, 2000), survey respondents were directed to answer the question of importance based on the assumption that all of the seven privacy safeguards identified earlier in the survey were in place. [1]
Public managers' ratings of the importance of personalization services tend to cluster into three groups. Managers for the most part indicated a moderate level of support for personalization of the first group of services. These services include:
- Planning and zoning information

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[1] Notification, Opt-In (Citizens must give permission before government can use information) ;Opt-Out (Citizens can remove their permission once given); Limited Access (Citizen's information is only used for personalization of WWW content) ;Citizen Customization (Citizen can adjust the level of personalization/profiling to their desires); Security (Information used to personalize is only accessible by the citizen or authorized authority) ;Security Technology (High level of password/encryption technology is used to safeguard citizen's information).

- Notification about policy hearing and council meetings
- Social services information
- Reminders about political duties
- Emergency information
- Education information
- Volunteer opportunity information

The second group contains services for which respondents indicated a mild or tepid level of support for personalization of information about these service functions. These services include:

- Policy and political issues
- Leisure recreation service information
- Business and employment information
- Tax information

The third group is of services for which respondents did not indicate support for personalization. This group includes:

- Life episode information
- Common citizen interests information

The pattern of responses suggests that respondents, who are primarily local government public managers, tended to identify services that were important to personalize as those that were closest to the core functions of government (e.g., emergency management, political duties, planning/zoning), functions that are generally seen as being required by state or federal open meetings and records acts (e.g., notification of hearings and meetings), or functions that are widely viewed as non-controversial (e.g., volunteer opportunities).

In contrast, functions in the second and third groups tend to be ones that are more about personal development and citizens' interests than the interests of government administration. In particular, the functions that falls into the third group (i.e., information about fellow citizens who have common interests with one's own interests and life episode information) are functions that are purely about personal and community (or social capital) development rather than about a core government service. The findings suggest that most public managers do not see government becoming involved in using technology for personal or social capital development of this type. Similarly, respondents showed only tepid support for personalization of services such as recreation or business and employment services that only more pro-active or interventionist governments have customarily provided.

Some implications of these findings for public sector Internet development strategy should be noted. In particular, if we assume that governments are unlikely to invest in personalization of the services in the second and third groups, there may be a lower probability of governments developing successful (or popular) Internet sites than would otherwise be the case. This conclusion is based on research by Arthur Armstrong and John Hagel. Writing in *Harvard Business Review*, Armstrong and Hagel argue that successful web sites are ones that build on-line electronic communities. These communities are ones whose members are able to meet multiple needs in one place. Specifically, in addition to the need that citizens may have related to transacting business with their government, Armstrong and Hagel would argue that governments could have more successful Internet sites if they were also able to meet citizens' needs related to their common interests, including their recreational or fantasy interests. The survey findings suggest that public managers are unlikely to strongly support investment in this type of strategy for Internet development.

A third personalization issue is the appropriateness of basing personalization profiles on particular sources of information. While this is a policy issues that is likely to be answered by elected officials, public managers will probably define the policy options.

To assess respondents' views of the appropriateness of basing personalization profiles on particular sources of information, respondents were asked to indicate how frequently they felt that their government might use particular types of information in order to create a profile for personalization of services. Respondents were asked to assume that citizens had given their approval of the profile creation and were provided with the full set of privacy safeguards. Specific information sources they were asked to identify expected frequency of use (from "very often" to "never") included:

Membership in professional organizations   Income or financial information
Membership in leisure organizations   Property ownership
Library records   Health information
Citizen's consumer activity   Legal or court information
Educational information   Voting information
Occupational information

The respondents indicated a basic, though only lukewarm level of comfort with their government developing and using profiles based on information that is quite personal. That is, only approximately an eighth of the respondents on any one profile data source item indicated that they could not see their government ever using a particular type of information to personalize services— if the citizen wanted that level of personalization and was willing to risk a breach of privacy.

Beyond the issue of willingness to use personal information in a profiling process, the pattern of responses to these question items also suggests that respondents were as or more concerned with whether the information was related to a core government function such as legal or court information as they were with the degree to which the information might be considered as "very personal." For example, studies of privacy have shown that people are much more concerned with the privacy of their health information than they are with information that relates, for example, to their consumption habits (Remarks of Dr. Alan A. Westin, 1999). Nevertheless, the survey responses indicate that public managers would be more likely to use health information in a personalization profile than they would use consumption information. Most likely this was the case because health was viewed as more central to a core function of government than consumption in general.

The pattern of these findings is not unexpected in that public managers have little or no experience on which to base opinions about the appropriateness of using particular types of information to build personalization profiles. Most public managers are probably aware that there exist a number of interest groups that would be concerned about governments using profile information of particular types—even when the citizen has given the information and has given permission to use it in order to provide better services.

The concerns of privacy fundamentalists—for example, that profiles may make it too easy for governments to cross reference data in order to better take actions that might not be in the best interests of the citizen-- are real and need to be addressed through policies, practices, and technologies that will enable a higher level of citizen service where it is possible.

Fourth, the appropriateness of government including particular types of external resources as part of its personalization output is likely to become an issue as the more popular government web sites begin to include information from multiple sources in order to develop a one-stop, personalized portal service for citizens.

One of the more important strategies emerging from the business side of the Internet is the idea of information syndication. Information syndication occurs whenever an information provider contracts with several producers of information in order to reshape (and possibly resell) the information in new, more digestible, compact, or comprehensive formats.

Many of the more successful web portals, or sites where a person can easily access any of the available services provided by an organization, as well as other related or value-added information, are based, in part on a syndication model (Werbach,2000). If personalized government portals are to provide the same level of service that exists in many of the better private-sector web portals, they will also likely need to follow a syndication model. The appropriateness of governments acting as syndicators of content generated by nongovernmental organizations or interest groups is a question that is rarely raised in the context of print media. As such, government policy makers and managers have little experience on which to develop policies for the Internet.

In addition, the experience of governments with the appropriateness question in the print world may not be particularly applicable to the environment of the World Wide Web. For example, in the print world one can easily distinguish among three ways of including outside information: 1) government publishing information that comes from outside under its own imprimatur; 2) government acceptance of an advertisement from an outside party; and 3) the inclusion of a footnote reference to a publication of an outside group within an article written by a government official. All of these cases also appear in the Web environment, but in addition, in a Web environment, one can: 4) provide a link to an outside resource (with or without identifying the link as going to a nongovernmental web site) or 5) automatically incorporate the information from outside within the framework and brand of the government. While there are parallels to print world situations, the differences that exist could potentially involve governments in new types of linked relationships for which there is no governing policy or understanding on the part of the public.

The respondents were asked to assess the appropriateness of governments offering hyperlinks to particular types of information that are related to governmental issues, but that are produced by organizations outside of government. The appropriateness level was measured in terms of the frequency at which respondents felt that government-sponsored personalization services should make available outside resources of particular types. Specifically, respondents were asked about the appropriateness of links or incorporation of materials from: nonpartisan groups that provide public forums for candidates, candidates' official web site(s), political party organizations, interest groups that provide information about a campaign issue, interest groups that provide information about a public policy issue, other government agencies that provide information about a policy issue, issue-specific public forums, private-sector advertisements.

The pattern of responses to these questions suggests that respondents' concern regarding links to outside resources and groups was strongest related to the possibility that the government might link to commercial advertising. The high level of concern (56 percent of respondents thought this should never happen) is probably based on the worry that the government's brand would be seen as something that could be bought. Linking to political party organizations was also identified by a larger percentage of respondents as an activity that should probably be avoided or prohibited. Forty-five percent of respondents thought that such links should never be made available as part of a government personalization process. Respondents expressed a lower level of concern for links to other information, but were nevertheless not particularly enthusiastic about linking or incorporating information from outside sources, even to other governments' information.

Essentially, such caution on the part of public managers could result in the public sector remaining a second-class player in the development of in-depth, syndicated web resources. While there are legitimate public administration concerns with hyper-linking, the danger here is that by

protecting its brand and traditional norms too much, governments may cede control over their information and services to outside providers who are better able to provide comprehensive, one-stop services.

Fifth is the issue of allocation of control over the personalization/customization choices. It has been suggested that if governments allow citizens to fully control the personalization of their government Internet experiences, citizens may choose to expose themselves only to what they want to hear, see or read.   An alternative to full citizen control over personalization involves governments balancing citizen-chosen information with mandatory' information that is delivered in conjunction with the citizen chosen information.

Allowing citizens to fully control the content of their personalized government web portal (or one-stop government information and service delivery web site) is an attractive option from the point of view of likely service satisfaction. Some cyberspace theorists (see: Shapiro, 1999; Lessig, 1999), however, have expressed concern about the potential for citizens making personalization choices that would severely limit their exposure to information that might challenge their current point of view or prejudices. Shapiro (1999) has called this process one of "oversteering," or an effort on the part of individuals to limit their own interest horizons. The key policy issue in this regard is whether or to what extent governments should enable users of their web sites to insulate themselves from issues, ideas, or data that might differ from or contrast with their current views of the world. Governments that accede to the public's wishes in this regard are likely to be more popular than governments that do not. Over the long term, however, governance may suffer in that people's prejudices are confirmed or at least never challenged.

In our survey of public managers, respondents were asked four questions related to the issue of control over personalization of government-sponsored Internet applications. Respondents were asked to indicate on a seven-point scale the degree to which they agreed with statements regarding control of personalization by citizens or governments under certain circumstances. Given the constraints of space, only a limited number of control options could be explored.

The responses to the control issues indicated, however, that public managers may still be conflicted about establishing a firm locus of control for personalization. That is, while the survey findings suggested manager support for a high level of citizen-controlled personalization on one question, when asked about whether government should be able to present opposing views (i.e., overriding a citizen-set personalization), at least some of the respondents who supported citizen control also appeared to support governments being able to present citizens with opposing points of view on policy information. Obviously, it would take a number of additional questions to be able to fully understand the real meaning of the contradiction between these two sets of responses. What this contradiction suggests, however, is that public managers may not have yet been challenged to fully explore the policy options related to the control of personalization services or to come up with a philosophically consistent position in this regard.

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