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Active Citizen Participation Using ICT Tools

INFORMATION TECHNOLOGY HAS THE POTENTIAL to profoundly affect democracy and civic discourse through active citizen participation. This article outlines how recent developments in Information and Communication Technologies (ICTs) can not only improve public decision-making within the parameters of existing political tradition but also challenge fundamental assumptions about the organization of democratic governments. This article classifies ICT tools along a continuum according to the level of citizen participation that they support and the level of cost-reduction that they could offer. However, digital divide, security, and privacy issues are crucial concerns that need to be addressed in parallel if Internet based ICT tools are envisioned as an integral part of citizen engagement. We further review the presence and position of the majority of tools currently used in U.S. Web sites on this continuum. Using a representative sample of U.S. government web sites, we found that U.S. Digital government initiatives currently lack support for even basic, low-cost, scalable ICT tools (such as asynchronous discussion boards) that can foster citizens'active engagement

within the parameters of current organization of government. We also identify ICT tools on the continuum, that can change the way government and citizens interact with each other, on various non-governmental web sites as well as some that are being tested in research laboratories.

The recent advances in Information and Communication Technologies (ICT) have created a lot of opportunities for transforming the relationship between a government and its citizens. Marchionini[4] divides such government initiatives along three major areas: Access to information, Transaction services, and Citizen participation. While the initiatives that fall under the first two categories have been studied widely, enabling active citizen participation has been an area that has "perhaps been the most controversial and certainly the least developed."[1, 2] Any initiative that encourages meaningful and active participation from its citizens on-line has the potential to impact the underlying mechanisms of democracy and civic discourse.

The new breed of ICTs can be placed in three broad categories along a participation continuum based on the interaction between governments and citizens:

- Communication Component (CC) through which citizens are informed about policies. This is essentially a one-way dissemination of information (e.g. Government Tax forms and guidelines available on-line).
- Deliberation Component (DC) through which citizens can identify and deliberate on issues of importance. This component involves ICT tools that support two-way communication and deliberation (such as deliberation through the use of bulletin boards)
- Voting Component (VC) through which citizens make collective decisions on various issues (for example, electronic voting in physical polling booths; online electronic voting)

Table 1 lists examples of ICT tools available for citizen participation in these

three categories. Borrowing from the Public Choice Framework of the Constitutional Economics literature (see Sidebar 1), this paper argues that the usage and type of these Internet enabled ICT tools can have a significant impact on the two major costs involved in governance (see Figures 1 and 2). According to the literature in constitutional economics, improvements in CC can lead to a decrease in decision-making costs, and improvements in DC and VC can lead to a decrease in both decision-making and external costs. Internet-enabled CC tools that support one-way dissemination of information have the potential to lower decision-making costs as these new technologies have dramatically reduced the cost of citizen's access to information (see Figure 2). The DC and VC tools are higher on the participation continuum as they support citizen consultation and decision-making and can lower both the decision-making and external costs. These tools lower the decision-making costs by reducing the costs of citizens' access to information regarding the available alternatives. The ability of these tools to connect people directly enables deliberation (such as bulletin boards) and decision-making (electronic voting mechanisms), which could help lower the external costs and perhaps influence the nature of democratic discourse in a profound way.

While access to these ICT tools is still an issue (digital divide) that hinders participation of specific groups of citizens, the power of these tools can be amply illustrated by the speed with which antiwar protests were organized in the U.S. in 2003.[10] In comparison, the Vietnam era protests took years to organize primarily due to the lack of such tools. The case studies in the OECD reports[2] also point to the fruitful use of the new ICTs in advancing a more active engagement of citizens with their government.

Table 1

Components	Traditional ICTs	Internet enabled ICTs
Communication Component (CC)	TV, Radio, Newspapers, Printed materials available in public spaces or government offices	Traditional + Digitized information on the government web site; E-mail distribution lists, Recorded Audio and Video
Deliberation Component (DC)	Telephone, Fax, Face-to-Face meetings with government representatives, Town hall meetings	Traditional + Feedback forms, Chat tools, Interactive Discussion Boards, Electronic Petitions, Blogs
Voting Component (VC)	Paper-based Ballots, Electronic Voting Systems designed for physical polling booths	Traditional + Online Electronic Voting Systems

Figure 1. Impact of Online Tools on Costs

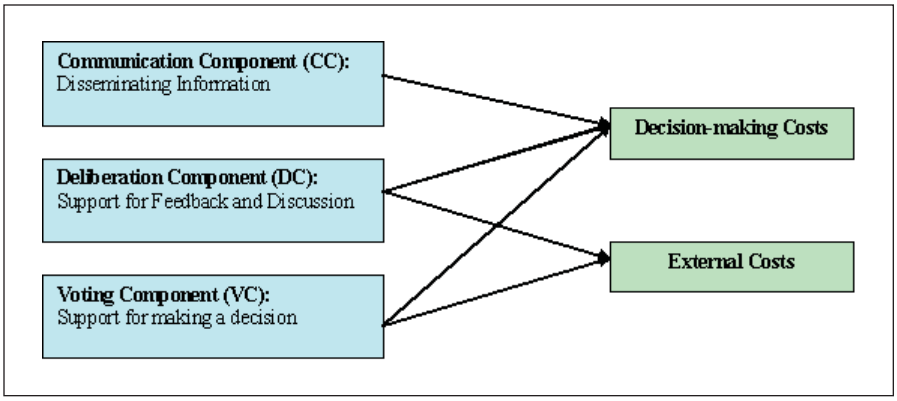
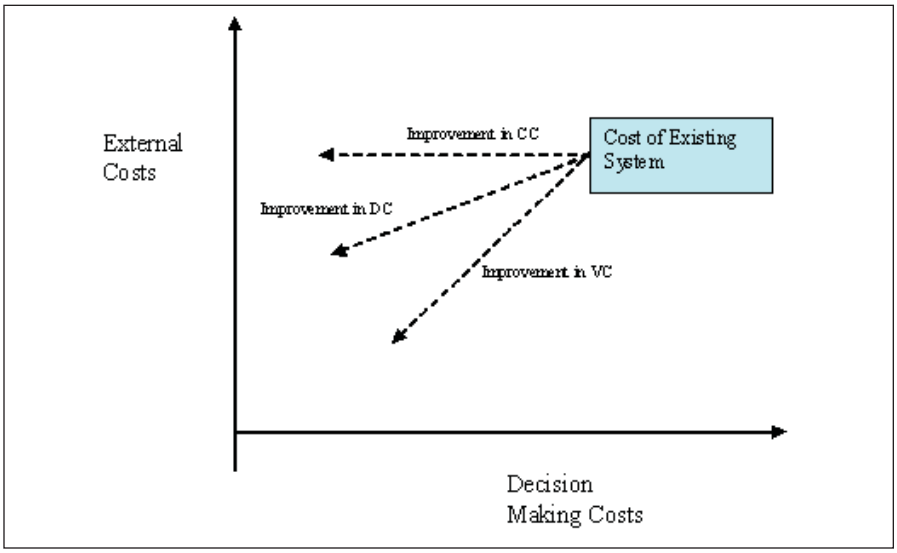


Figure 2. Trade-offs



Support for Online Citizen Participation in U.S. Government Web Sites

We examined the official government web sites at the state level for the United States of America in June 2005 (50 states plus Washington D.C. for a total of 51 Web site portals). We looked at the content of the web sites exhaustively to examine the types of participation mechanisms provided by the web sites for citizen engagement and participation. The results showed that there is a gap in the participation continuum in terms of what is technologically feasible and what is available for interaction between the government and its citizens. A comprehensive review of the Web sites of the 50 States of the U.S. revealed that these G2C initiatives provide good support for the CC, very limited support for the DC, and no support for the VC. The results show that 85.1% of the web sites in the U.S. provide support for CC tools that facilitate one-way communication from the government to its citizens. On the other hand, only 17% of the web sites provide DC tools that promote active participation and deliberation by citizens. Given the

challenges associated with providing online voting support, not surprisingly, none of the Web sites provided support for VC tools.

In terms of support for individual tools, 80% of the Web sites surveyed provided recorded video or audio clips while 55% of the Web sites surveyed provided support for email distribution lists that pushed information to the citizens' email in-boxes. In contrast, only 8% of the Web sites surveyed provided support for discussion boards where citizens could congregate online to deliberate on various issues.

The results for the U.S. support our contention that e-government initiatives are predominantly geared towards supporting one-way communication from the government to its citizens rather than enabling citizens to make connections and deliberate issues using the power of Internet-based ICTs. The lack of support for discussion boards is especially surprising as the asynchronous discussion boards can be designed to foster deliberation and used as repositories of civic knowledge. The contents of these discussion boards are primarily driven by citizens, and are above all eminently scalable (as opposed to providing live help on issues that have been experienced by other citizens). Hence, they cost little to set up and maintain as avenues of active citizen engagement.

Active Participation along the Continuum: What Next?

Non-government entities in the U.S., however, are further ahead in terms of leveraging these ICT tools to support deliberation and public decision-making. There are several blogs on the web at grass-roots level that keep the general public informed and involved about politics and government. For example, there are blogs that track wasteful spending by government (such as money allocated to Alaska for the infamous "bridge to nowhere" in the transportation bill). These blogs also use Internet enabled ICT to mobilize grass-root level support to put pressure on elected representatives in eliminating waste (successfully in many cases). Another good example of the successful use of a different type of ICT is the discussion boards related to U.S. immigration topics run by private and non-profit organizations (http://boards.immigration.com/). In addition there are also web sites that directly link public policy projects in need of money with potential donors (www.donorschoice.org) and therefore deal better with external costs. Bodies Electric and Votia are examples of two private companies that specialize in developing and integrating ICTs to support government decision-making over the Internet. Compared to the U.S., government entities in the E.U. provide more support for online consultation (deliberation component), while the lack of support for voting components is nearly universal.

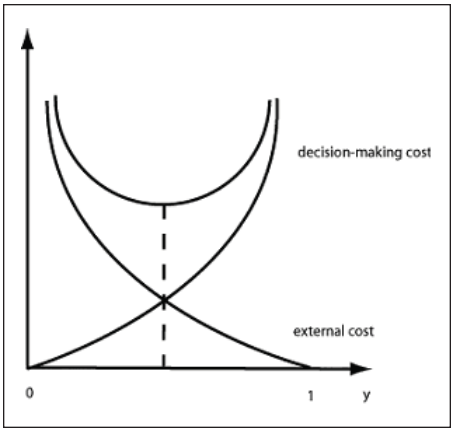
Research on development of new tools is also currently on the way.[5] The Center for Deliberative Polling uses a variety of ICTs to inform citizens about policies and then track how opinions change. This combination of tools directly influences both decision-making and external costs. Online electronic voting is another area that has begun to attract considerable research interest. Security, privacy and digital divide issues engendered by the transition to online voting in government setting are legitimate issues that still need to be solved6 and are the subject of ac-

The Public Choice Framework

The areas of constitutional economics and public choice provide a solid framework for analyzing the new technological tools that might be used to govern in terms of their costs. James Buchanan pioneered this field of research and received a Nobel Prize in 1986 for his contribution. The main role of the government is to provide goods of public nature. These are services that benefit a big group of the population, and at the same time are non-exclusive, i.e. once a service is provided, there is no easy way to exclude citizens from using it. Goods with similar characteristics such as highways, bridges, education, healthcare, national defense, etc, must be provided by the government because of the so-called free-rider problem. In a free market situation, every individual citizen will expect others to contribute to the project while minimizing his or her contribution; therefore, enough demand may not be mustered for the provision of the service.

When the government makes a decision to provide a certain public good or service, there are two important costs incurred in the process: external costs, and decision-making costs.[1] The external costs are ones that are incurred by individuals who are adversely affected by a government decision. For example, the government decides to build a new public stadium in Upper Manhattan. The stadium is beneficial to many people but harmful to citizens who live close to the area during the construction period. The sum of the adverse effects on all such affected individuals represents external costs. The decision-making costs on the other hand are costs that are involved in the process of reaching a decision. These include the cost to provide information for the people to decide on an issue, the cost to provide ways to citizens to voice their opinion and the costs involved in the interaction between the citizen and the decision mechanism used. For example, using a complicated mechanism that takes a long time to reach a decision represents high decision-making costs.

Public choice argues that there is a trade-off between external costs and decision-making costs in every mechanism. For example, decision-making processes that involve unanimity have low external costs but might have large decision-making costs because it is hard to gather all concerned people at the same place and time and have everyone agree on the provision of a public good. On the other hand, a mechanism in which a dictator makes a public decision without too much deliberation and opinion polling has low decision-making costs, but most likely high external costs because many citizens might be affected in a negative way. The Figure to the right shows one possible instance of the trade-off between external and decision making costs (where the horizontal axis represents the proportion of citizens (y) who are required to vote "yes" to a proposal so that the proposal is accepted):



tive research interest. However if one looks beyond these issues that nears resolution in the near future, electronic voting also raises several interesting questions about the fundamental assumptions of decision making in a democracy (see sidebar 2 for a discussion of hierarchy of decisions in a democracy). Hence, research on voting strategies used by participants under different types of electronic voting (yes-no voting, fractional voting etc.) on issues with widely varying preference structure (bimodal distribution for polarized opinions, normal distribution) is necessary in fully leveraging the capabilities of the voting component described in Figure 1. Such research will help sharply reduce external costs while keeping decision-making costs under control.

For example, Vernon Smith[7] describes an application of the electronic voting mechanism at the local level where citizens vote on a zoning law change. The basic idea behind these voting mechanisms is to find more flexible and equitable alternatives to the current yes-no voting systems used in a democracy for certain decision categories as well as expand the categories of decisions that can be voted on by citizens. After some scalability adjustments, many of these tools can be applied to the government itself with the same or better results. A forcible tax system, for example, can be substituted by an on-line system for voluntary contributions. Voting on decisions or in elections can be done in ways that involve direct compensation for citizens hurt by collective action. A combination of surveys, consultations, and voting can be used to discover citizens' preferences. The application of new-generation ICTs to different levels of public policy and government decision-making has the potential to dramatically decrease the costs of the political process. As these tools become more sophisticated, they will start to challenge the political and economic power delegated to the government, as well as the established traditions of electing representatives to office, drafting constitutions, and assembling juries. C

References

1. Buchanan J. M., and Tullock, G. *The Calculus of Consent: Logical Foundations of Constitutional Democracy*. University of Michigan Press, Ann Arbor, MI 1962.
2. Caddy J. and Vergez, C. Promise and problems of e-democracy: Challenges of online citizen engagement," OECD Publications, 2003.
3. Marchionini, G. Digital government research: Understanding co-evolution of government service and citizen expectations. *Developing a Basic Research Program for Digital Government: The Center for Business and Government*, Harvard University, Cambridge, MA, 2002.
4. Marchionini, G., Samet, H., and Brandt, L. Digital government. *Comm. ACM 46*, (2003) 24.
5. Phang, C. W., and Kankanhalli, A. A research framework for citizen participation via e-consultation. Proceedings of the 11th *Americas Conference on Information Systems*. (Omaha, Nebraska, 2005).
6. Rosenberg, R. Privacy protection on the internet: The marketplace Versus the State. IEEE Society on Social Implications of Technology, Indiana University South Bend, 1998.
7. Smith, V. Buy Me Out. *Forbes*, 2004.
8. Shapiro, I. *The State of Democratic Theory*. Princeton University Press, Princeton, NJ, 2003.
9. Zakaria, F. *The Future of Freedom: Illiberal Democracy at Home and Abroad*. W. W. Norton & Company, 2004.
10. Zernike K., and Murphy, D. E. Antiwar effort emphasizes civility over confrontation. *New York Times*. NY, 2003.

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Hierarchy of Decisions in a Democracy

The normative literature in political science differs widely on the meaning of democracy in the context of nation states. While scholars generally agree on broad ideas such as will of the people and common good, there is much disagreement on how best to come up with a system that can determine the will of the people. Most modern democracies function as a democracy by dealing differently with two broad categories of decisions: very important decisions and all other decisions. Certain inalienable rights of individuals are considered too significant to be left to the vagaries of majority opinion and are guaranteed by the constitution - e.g. right to free expression, right to own property.[8, 9] For all other decisions of lesser importance, the central concern of a democracy is to come up with a system that consistently minimizes the sum of external and decision-making costs (see Sidebar 1). For example, in a representational democracy, most of the decisions are left to the judgments of the law makers, who may then delegate this to government, thus continuing the cycle. This keeps the decision-making costs reasonable. Citizens often vote for a candidate who they think will reduce their external costs. Of course, even in a representational democracy, direct democracy is possible through the use of referendums when citizens vote directly on an issue they perceive as important, sometimes even resulting in constitutional amendments. The constitution is designed to allow for changes to the status quo, but the decision-making costs are high in order to keep the external costs low.

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