A Framework of ICT Exploitation for E-Participation Initiatives

by

Chee Wei Phang
Atreyi Kankanhalli

Department of Information Systems,
School of Computing
National University of Singapore
3 Science Drive 2, Singapore 117543,
Republic of Singapore

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Corresponding Author: Chee Wei Phang
E-mail: phangcw@comp.nus.edu.sg
Phone: +65 65161185
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Governments around the world are tapping on the potential of information and communication technologies (ICT) to transform the public sector, a phenomenon broadly known as e-Government. Deployment of ICT in government is expected to improve internal efficiency and provide citizens with better information and services. The increasing interest in e-Government is evident in the rising public expenditure on ICT. As an indicator, INPUT estimates that the U.S. government’s spending on e-Government systems and services will increase at a compound annual growth rate of 12% to reach over $5 billion in 2007 compared to 2002 [6].

As e-Government efforts mature, the exploitation of ICT is being extended to the realm of democracy e.g., in enhancing citizen participation in policy-making [9]. The use of ICT for facilitating citizen participation, or e-Participation initiatives, refers to governments’ efforts in employing ICT for disseminating policy planning information and soliciting citizens’ inputs in planning. E-Participation initiatives have been referred to variously as e-Consultation [12], web-based citizen input [4], and online public engagement [3].

Instances of e-Participation initiatives can be found globally, e.g., Singapore’s Government Consultation Portal (http://app.feedback.gov.sg/), UK’s Askbristol e-Panel (http://www.askbristol.com), and US’s Regulations.gov portal (http://www.regulations.gov/). The impetus for e-Participation initiatives can be attributed to governments’ growing awareness of the need to attain more democratic governance [3], coupled with a widespread public interest in the potential of ICT to empower citizens [7]. It is believed that e-Participation initiatives can serve to encourage two-way communication between government and
citizens, educate citizens about the rationale and complexity of policy-making, legitimize government decisions, and provide opportunities for mutual learning [3]. Further, e-Participation initiatives may offer a number of advantages over offline channels of participation such as public hearings or newspaper forums. They can enhance accessibility by overcoming the offline physical constraints of time and space. The internet’s capabilities of mass transmission and reception of information allow citizens to participate anytime and anywhere convenient to them.

E-Participation initiatives can serve varied objectives such as informing citizens, generating support among citizens, utilizing citizens’ input in decision making, and probing for citizens’ needs. An array of ICT tools has been employed in these initiatives such as online discussion forums, e-mail, online surveys, online chat, and group support systems. To date there is a lack of systematic study of how ICT can be exploited to better achieve different objectives of e-Participation initiatives. Without such knowledge, ad-hoc use of ICT may result in inefficient resource utilization and may impair the effective attainment of e-Participation objectives. This problem may be particularly salient with the increasing choices and sophistication of ICT tools available.

With this motivation in mind, we investigate the fit between e-Participation objectives and ICT tools to help achieve them. Building on Glass’ [5] work of matching citizen participation objectives with participatory techniques, we develop a framework of the appropriate ICT tools to employ for the attainment of different e-Participation objectives. The fit is further extended to indicate which objectives and ICT tools are important in different phases of a typical government policy-making cycle.

A Framework of ICT Exploitation for E-Participation

In the context of offline participation, Glass [5] proposed a framework that matches participatory techniques to different objectives of citizen participation programs. Commonly employed offline participatory techniques include drop-in centers, public hearings, citizen advisory committees, citizen
panels, nominal group processes, value analysis, and citizen surveys. Each of these techniques offers different advantages and limitations and can help achieve specific participation objectives. Adapting Glass’ [5] work to the electronic context, we propose that e-Participation initiatives can be deployed to achieve four general objectives of citizen participation: information exchange, education and support-building, decision-making supplement, and input probing. Based on [5], we examine the offline participatory techniques that best support each of the objectives. Using these techniques as a bridge, we then identify the different ICT tools that can be employed to support the techniques, and in turn help in attainment of the respective e-Participation objectives. Below we discuss each objective along with the rationale for the participatory technique and the ICT tools that best support it.

**E-Participation Efforts with Information Exchange Objective**

E-Participation efforts with the information exchange objective aim to bring government planners and citizens together for open sharing of ideas and concerns. Such efforts intend to foster communication and discourses between planners and citizens and among citizens. Opinions, views, and ideas are exchanged and deliberated between the different parties involved, so as to promote mutual understanding of the different positions and their rationales. Participatory techniques such as drop-in centers (a location where planners and citizens can interact) and public hearings (open forums where interested public hear agency proposals and respond) may serve to achieve this objective. These techniques expose planners to a large number of citizens and create the opportunity for direct exchange of information in an open manner. They impose minimal restrictions on the selection of participants and the process of participation and allow for open exchange of information.

Accordingly, ICT to support e-Participation efforts with the information exchange objective should be able to create an environment for easy and open communication between government planners and citizens and among citizens. Web portals with online chat and online discussion forums may serve to achieve such an objective. A web portal can act as an online drop-in center where interested citizens come
to obtain policy planning information and to interact with government planners and other citizens. As part of the portal, online chat and online discussion forums can serve as virtual meeting places where planners and citizens gather to communicate and share their views, much like the public hearing context.

E-Participation initiatives with information exchange as the main objective are perhaps the most common at present. Denmark’s Nordpol.dk (http://www.nordpol.dk/) represents one such example [8]. The e-Participation initiative was initiated by a county government in Northern Denmark prior to their regional election in 2001. The aim of the initiative was to strengthen the dialog between citizens and politicians. The main ICT tool employed was online discussion forums, in which citizens and politicians exchanged their views on a number of topics relevant to county politics. Another example of such initiatives is Singapore’s Government Consultation Portal (http://www.feedback.gov.sg). The portal utilizes online discussion forums to consult citizens on a range of policy issues, from community and education to politics and national security.

**E-Participation Efforts with Education and Support-Building Objectives**

E-Participation efforts with education and support-building objectives aim to inform citizens about the why and how of government’s policy plans, and create a favorable climate for execution of these plans. Such efforts seek to gain support from citizens on a policy to be implemented by educating them about the diverse and often contradictory viewpoints requiring consideration and the resource constraints faced in planning. Participatory techniques to help achieve this objective should allow planners to work with a relevant group of citizens over a period of time in order to educate them about the particular policy. Institutionalized techniques such as citizen advisory committees (groups of citizens formally attached to an agency) and citizen panels (groups of citizens selected for consultation on a specific policy plan) fit this requirement. These techniques involve the selection of a citizen group from the target demographic population and engage them in a series of policy planning efforts. The ongoing interaction with these citizens serves to educate them and to build support among them for the new policy. The citizen group
can then be used as a base to reach out to larger segments of society and to build policy support in the community.

Similarly in the online context, ICT tools to support the education and support-building objectives should facilitate the selection of target participants and maintaining contact with them over a period of time. For example, ICT can be employed in the selection of panel or committee members based on electronic profiling of their demographic information (e.g., age, gender, profession, and area of residence). Online chat, teleconferencing, and videoconferencing tools can be deployed to hold regular meeting sessions among members in distributed locations. An exclusive member area and dedicated discussion forum with login feature can be set up to help foster a sense of community among members in a panel or committee. The discussion forum may also serve as a repository to record the history of the group’s interactions. “Push” technologies can be employed by planners to maintain regular contact with the citizen group. For example, email can be used to broadcast items such as newsletters indicating policy planning progress to the group without them having to explicitly request for the information.

An example of an e-Participation initiative with education and support-building as the main objective is the Askbristol e-panel effort in Bristol, UK (http://www.askbristol.com). The Askbristol initiative was set up in January 2005 as part of UK’s local e-Democracy National Project. Market research companies were employed in two Askbristol pilots to recruit e-panel members from the Internet-using population in Bristol. The e-panel members participated in discussions on issues concerning the city of Bristol e.g., whether or not to control the city’s seagull population. ICT tools such as online discussion forums with login feature and live chat have been set up for the e-panel members to deliberate on policy issues with government planners and experts. The Canadian’s Youth Connection Forum (http://www.youth.gc.ca/) presents another example of this objective. The initiative invites youths between 15-30 years of age who have Internet access to participate in an online panel to provide feedback on Government services for
youths. The main ICT tool employed in this initiative is an online discussion forum with restricted access to the panel members.

**E-Participation Efforts with Decision-making Supplement Objective**

E-Participation efforts with the decision-making supplement objective aim to extract specific information from citizens, e.g., citizens’ preferences on the use of an empty plot of land in the city. The views obtained can be used as supplementary input for government planners to consider in decision-making (e.g., whether to build a park or business centre on the plot of land). In these e-Participation efforts, citizens are given an opportunity for direct input into the planning process. In contrast to the previous two objectives, communications between government and citizens in this objective are mostly one-directional in nature (from citizens to government). Participatory techniques to help achieve this objective should allow the systematic collection of a specific set of information that can be used to supplement decision making. Structured techniques such as nominal group process (step-by-step process ending in ranked recommendations) and value analysis (process producing ranked consequences of various proposals) may fulfill such requirements. In these techniques, citizens are guided through a series of prescribed activities with the aim of producing a final set of information required.

ICT tools that can be employed to support these techniques should provide control over how the process of participation occurs. Group support systems that offer process restrictiveness feature are particularly helpful to structure the participation process. Process restrictiveness involves limiting group interactions to the sequence of activities specified by a set of rules or heuristics [11]. For example, group support systems with process restrictiveness can be designed to incorporate an agenda of anonymous idea generation on a given topic, followed by a discussion to elucidate the underlying assumptions and rationales of the ideas, and ending with a cycle of anonymous voting towards reaching consensus. Online pair-wise structured surveys that provide pairs of proposals for participants to choose from can be used to
produce ranked preferences of participants for the proposals. Such surveys can be supplemented with visualization tools to facilitate understanding of alternative scenarios (e.g., in the case of town planning).

The Netherlands’ Almere Co-production of Interactive Policy (now closed, see [10]) presents an example of such an e-Participation objective. The initiative was launched in late 1999 to provide citizens in the Almere municipality an opportunity to influence the redevelopment planning of the city. Citizens were asked to fill in a structured survey that presented pairs of redevelopment proposals depicting different design layouts of the city. The participants had to compare the proposals and decide which of the pair was more beneficial for the future of the city. As a result of the initiative, 20 redevelopment proposals for the city listed in order of priority were produced. Another example of such initiatives is reported in [2]. The initiative was launched by the Dutch Ministry of Economic Affairs (MEA) to invite citizens’ inputs on the use of technological innovations to help solve societal problems, such as in crime prevention. In the initiative, group support systems were employed to produce a list of technology-based project ideas that was used to supplement decision-making by the steering committee.

**E-Participation Efforts with Input Probing Objective**

E-Participation efforts with the input probing objective aim to obtain citizens’ views on relatively under-explored policy issues. Such efforts provide planners with an initial understanding of citizens’ opinions about a new policy area (e.g., building the very first casino in a country), to facilitate subsequent preparation of the new policy (e.g., what are the primary concerns of citizens towards the building of casinos). It is important that the opinions gathered are objective and representative of the target population. Participatory techniques to achieve such objectives should enable the systematic collection of citizens’ opinions on a large scale. Data collected should truly reflect citizens’ own attitudes and needs that are neither biased nor influenced by others. Further, techniques are required to analyze the data collected so that the direction and scope of new policy planning can be developed. Citizen surveys represent one such technique. They provide well-developed methodologies and procedures for data
collection (e.g., instrument design, sampling, and survey administration) and data analysis (e.g., regression). Here citizens act mainly as passive contributors of inputs in that they do not have direct contact with the planners, nor are they actively participating in the sense of attending a meeting or interacting with others in the process. In fact, the lack of interaction among citizens in these techniques is desired for input probing, so that noise and biases can be minimized in the data (e.g., dominance of vocal participants in a discussion forum may bias inputs on the needs of citizens with regard to a policy issue).

The particular ICT tools to support such e-Participation objectives are online survey questionnaires, web comment forms, and data analysis tools. An online survey questionnaire resembles its offline counterpart i.e., mail survey, while offering a number of advantages over it such as lower cost of administration and faster turnaround time. Web comment forms can supplement online surveys by probing more open-ended inputs from citizens. Data analysis tools (e.g., SPSS) facilitate systematic analysis of the inputs such that a clear picture of citizens’ needs and concerns with respect to a policy issue can be obtained.

One such example of e-Participation efforts aiming for input probing was Sweden’s Kalix first consultation that employed online survey questionnaires to supplement offline surveys [10]. Through the surveys, all citizens over 11 year-old were given the opportunity to express their views on the redesign of the city centre of Kalix. Over 7% of the citizens of Kalix participated in the exercise with 86% of the respondents participating electronically.

The matching of ICT tools to participatory techniques and in turn, e-Participation objectives, leads to the framework of ICT exploitation for e-Participation initiatives shown in Table 1.
## E-Participation Initiatives

<table>
<thead>
<tr>
<th>E-Participation Objectives</th>
<th>Information exchange</th>
<th>Education and Support-building</th>
<th>Decision-making supplement</th>
<th>Input Probing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Features Desired</strong></td>
<td>Avenue for citizens to participate freely, Opportunity for two-way open exchange of information</td>
<td>Formal selection and engagement of participants from target demographic population, Maintenance of contact with participants over time</td>
<td>Control of participation processes, Mechanisms to obtain specific set of information useful for decision making (e.g., ranked preferences) from relevant group</td>
<td>Mechanisms for systematic collection and analysis of citizens’ input, Collection of citizens’ opinion that is neither biased nor influenced by others</td>
</tr>
<tr>
<td><strong>Best-fitting Participatory Techniques</strong></td>
<td>Drop-in center, Public hearing</td>
<td>Citizen advisory committee, Citizen panel</td>
<td>Nominal Group Process, Value analysis</td>
<td>Citizen survey</td>
</tr>
<tr>
<td><strong>Restriction on number and target of participants</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Depends on sample size needed and resources available</td>
</tr>
<tr>
<td><strong>Control of participation processes</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Maintenance of long-term contact</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Interaction among planners and participants</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Limited (mainly one direction)</td>
<td>No</td>
</tr>
<tr>
<td><strong>Mechanisms for data collection</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Statistical analysis of data</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>ICT Tools that Provide the Features Desired</strong></td>
<td>Web portal with Online discussion forum, Online chat</td>
<td>Electronic profiling, Online chat, Discussion forum with login feature, Teleconferencing, Videoconferencing, E-mail</td>
<td>Group support systems with process restrictiveness feature, Online pair-wise structured survey, Visualization tools</td>
<td>Online survey questionnaire, Web comment form, Data analysis tools</td>
</tr>
<tr>
<td><strong>Example of E-Participation Initiatives</strong></td>
<td>Denmark’s Nordpol.dk, Singapore’s Government Consultation Portal</td>
<td>UK’s Askbristol E-Panel, Canadian’s Youth Connection Forum</td>
<td>Netherlands’ Almere Co-Production of Interactive Policy and Technological Policy Solution for Societal Problems</td>
<td>Sweden’s Kalix Consultation</td>
</tr>
</tbody>
</table>

Table 1. A framework of ICT exploitation for e-Participation initiatives

(\* Salient characteristics of the participatory techniques are in bold)
Implications and Conclusion

Our framework shows that there is no single participatory technique and ICT tool that can satisfy all four objectives of e-Participation initiatives. The appropriate technique and corresponding ICT tools are contingent upon the objectives sought for the e-Participation initiative. We propose that to improve the probability of success of an e-Participation initiative, it is important to first identify the objective to be served by the initiative, followed by a careful selection of the best-matching techniques and ICT tools for the objective (Figure 1).

![Figure 1. A three-step procedure for e-Participation initiative implementation](image)

E-Participation initiatives with different objectives and the appropriate ICT tools can be implemented in a complementary manner during different phases of a typical policy-making process i.e., agenda setting, policy formulation, policy adoption and implementation, and policy evaluation [1] (Figure 2). We highlight the e-Participation objectives that are likely to be important for each of the policy making phases below.

Implementation of e-Participation initiatives with the input probing objective is particularly important during the agenda setting phase of a policy. The purpose of agenda setting is to identify relevant problems and issues that will become the inputs of subsequent policy formulation. It is important that the problems identified truly reflect the concerns and needs of citizens at the start, as policy-making is an expensive exercise. Online surveys may be used together with offline surveys to explore citizens’ opinions on new or under-explored policy issues.
In the policy formulation phase, e-Participation initiatives with both information exchange objective and decision-making supplement objective will be useful. For instance, online discussion forums can be set up for open deliberation of the identified policy problems (from the agenda setting phase) so that the likelihood of considering all possible alternatives of tackling the problems can be increased. This can be followed by nominal group process techniques implemented through group support systems to produce ranked preferences of the identified alternatives to tackle the problems. The policy can be formulated using the preferences obtained as a supplement for decision-making.

Once the target policy has been formulated and needs to be implemented, e-Participation initiatives with the education and support-building objective can be launched. Citizen panels can be set up and maintained using e-mail and videoconferencing tools to disseminate detailed information about the formulated policy, educate the panel about rationales of the policy, and to create a favorable climate for the policy implementation. The panels can then be employed to reach out to the society at large.

After the policy is implemented, its performance needs to be monitored and evaluated. E-Participation initiatives with information exchange objective can again be employed in this phase. Through these initiatives information about the performance of the policy can be openly exchanged between citizens and government. For instance, citizens may express their views about the limitations of the new policy through online discussion forums and government officials can respond to their concerns.

Here it should be noted that Figure 2 does not suggest a strict one-to-one mapping between objectives and policy phases. E-Participation initiatives with objectives other than those shown in Figure 2 can be implemented, but caution needs to be exercised. For instance, initiatives with the information exchange objective may also be implemented in the agenda setting phase, but planners need to ensure that the discussion is not dominated by a few vocal participants such that it biases majority views. Initiatives with the input probing objective can also be implemented in the policy evaluation phase, but follow-ups are
needed to obtain citizens’ view on what can be done to improve the policy if the probing indicates general dissatisfaction.

In conclusion, this article offers insights into how e-Participation initiatives can be systematically implemented and how ICT tools can be selected to achieve the desired e-Participation objectives. The use of appropriate ICT tools for different e-Participation objectives at various phases of the policy-making process can serve to increase the effectiveness of e-Participation initiatives. This eventually contributes to the success of e-Government efforts in enhancing democratic processes.

![Figure 2. Important e-Participation initiatives in different phases of policy-making](image)

REFERENCES


