

# **Towards Interactive Public Decisions: Connecting Participatory Processes and Institutional Contexts**

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**Abstract:** In view of scarce resources and increased demands, efficient and effective use of resources becomes increasingly important. This is evident not least in societal planning, in which resources are brought into use for the benefit of many with as few side effects as possible. In a democratic local government setting, taking into account the dissemination of information by current and new media, this will require the decision processes to include citizens as true participants. In order to enable participation in decision processes, the joint decision-maker/citizen processes must be reasonably transparent and contain support for analyses of the decisions. Herein, we present an outline for participatory decision-making that allows for modelling of outcomes based on different preferences and includes a negotiating process where views can be adjusted in view of calculated outcomes.

## **1. Introduction**

It is often argued that a fundamental shift is taking place in modern societies, variously labelled as a shift from governing to governance, from hierarchies to networks, from representative to deliberative democracy, and from direct control by the state to strategies designed to engage civil society in collaborative governance. Within this broader shift of governance, it has become a trend to experiment with new participatory arrangements such as electronic discussion forums, e-panels, and polls, especially at the local government level. However, these new forms of e-participation (formerly e-democracy) are not without problems. Recent experiences suggest that although local governments initiate participatory processes, they do not actively support them when they are actually in progress. The outcomes of the participatory processes are therefore seldom used in the formal political procedures that ensue. Put simply: participatory processes and institutional contexts are often disconnected.

The field of e-participation has approached the issue of improving democratic decision-making by emphasizing the encouragement of broad participation [13]. Experiences so far show that while the use of electronic tools in local contexts in combination with redesigned democratic processes have indeed affected participation positively, both scaling and quality require more sophisticated technical tools of at least two types: (i) tools supporting cooperative work for facilitating communication among humans [2, 18, 20, 22, 29], and (ii) tools for more formal problem modelling. The e-participation field has so far almost exclusively been concerned with encouraging and, at best, modelling, moderating, and reviewing discussions. Decision Support Systems (DSSs) have been successful in businesses and other organizational contexts, and their features can also provide mediated

expert participation in virtual groups and in communication with the public. To achieve this, there is a need to carefully consider both the usability of DSSs and their role in the overall democratic system.

In the literature concerning (e-)participation and trials, there is ample discussion about democracy and participation. Both concepts are problematic, and no single best solution exists as to how to organize processes to become “better”. However, the key idea here is that decision support methods could provide a valuable framework for connecting participatory processes and institutional contexts. Empirical studies show that interactions with the general public have the best potential to affect policy making when they are embedded in the institutional contexts and thus when the different aspects of participation – and technologies supporting them – are integrated. Decision support methodologies have the potential to structure and facilitate public participation so that it more easily can be integrated into decision-making procedures.

## **2. Objectives**

In this paper, we will discuss some issues that arise when taking the step to connecting participatory processes and institutional contexts by developing decision support methods to support public participation. The paper describes issues concerning the design of a project for investigating how earlier e-participatory results [5, 6] can be generalized into a generic transparent and participative democratic decision model for societal decision making and which modifications have to be made. Section 3 introduces the domain and sections 4 and 5 present the methodology and developments, respectively.

## **3. Domain**

Urban planning has since the 1980s been increasingly perceived as a political and democratic activity [10, 11]. Therefore, it must be understood in its political and democratic institutional setting (cf. [19]). On the one hand, the emergence of new technologies provide the opportunities for handling large amounts of information and data and may therefore pave the way for comprehensive planning and a possible strengthening of the professional/expert planner. It could lead to an updated version of elite democracy and rationalistic planning in line with what is sometimes called neo-rational planning [27]. Alternatively, the introduction of ICT may change the values and purposes of participation in the direction of participatory democracy and communicative planning (cf. [1, 11, 15, 23, 24]). One important tension to discuss and handle is thus the one between representative and participatory democracy.

Against this background of actually attempting to make the democratic decision making process more visible, structured, and transparent, a pilot study was carried out in the municipality of Nacka outside of Stockholm. The municipality and its politicians faced a set of three complicated societal planning problems in one of the suburbs. Long-time stalled processes were restarted and fairly quickly completed using a transparent, web-based system and with the aid of decision support tools [5, 6]. The pilot study proved the viability of the concept but was originally not designed for enabling a generalization into a generic model for societal planning.

## **4. Methodology**

During the policy making process, several instruments may be deployed to enable participants to interact. In the field of e-participation these instruments have often been discussed separately. Some have focused on interactions with (1) the general public, while others have focused on interactions (2) among politicians, or (3) between politicians and administrators. Since the contexts for interaction differ, both technologies and methods to

support them are expected to be different. For instance, most decision support applications are designed specifically for context (3), while most e-participation trials focus on context (1). This mismatch leads to lesser levels of participation.

Generally, the main challenge is to strike a balance between precision and accuracy. Precision here means the need for better modelling of problems and of outcomes of different preferences. Accuracy means that the process must match stakeholders' demands and world views. Democratic processes must be sensitive to interests of various stakeholders, and therefore also (i) allow for modelling of outcomes based on different preferences, and (ii) allow for a negotiating process where views can be adjusted in view of calculated outcomes. While decision support systems traditionally are used to find a "best" solution, democracy is by definition a negotiation between world views where there may be many "best" solutions, each pertaining to a specific set of preferences. The democratic decision making process must pay attention to both these models. On the one hand, stakeholders' different views must be acknowledged as input; on the other hand available facts must be used to increase stakeholders' insights into the outcomes of applying different preferences. This means that (1) the decision process must be iterative so as to allow for modifications in preferences, and (2) there must be conflict-reducing measures allowing stakeholders to modify their views without "losing" in the process.

More specifically, the design of a clear, transparent, and interactive decision process encouraging active participation will include the development of an interaction part containing the communication channels directed towards the stakeholders, an elicitation part containing the attitudes and opinions of the stakeholders, and a decision process part consisting of a three-layered working process model carrying the decision from problem issue to solution: an outer, semi-political stakeholder layer, a middle layer investigation process, and an inner loop containing the specific decision process. There are several interaction paths between the process layers. Building on the pilot case, it is proposed that the stakeholder layer will contain the political process and the interaction with the citizens. This is the layer where the goals will be set and later measured. The investigation layer will consist of the administrative process of the government during which civil servants make the investigations and assessments necessary for carrying the process further. The responsibility for processing the information from the stakeholder layer, i.e. the views of the citizens and of the political governing council lies here. This is the layer where most of the structuring will take place along with the processing of the information obtained into decision data. The analysis layer will consist of a decision support process carried out in a number of steps. The initial information is gathered by the investigation layer from different sources such as previous investigations and information submitted by the citizens. Then the information will be formulated into statements and entered into the decision loop layer. Following that, an iterative process begins where, step by step, the process participants gain further insights and views are negotiated.

Due to the uncertain information in these processes, the evaluations are based on a formal decision support method [3, 4]. The method has been used and validated in several decision projects in the public sector ranging from deposition of spent nuclear fuel in Sweden, over large purchasing decisions at the Swedish Railway Administration and investment analyses [7], to the design of a public-private flood insurance system for Hungary [9]. The method has been packaged into a decision tool that accompanies the method [8]. By doing so, the project handles difficulties in the acceptance of the decision modelling approach, taking into consideration that all decision steps must be accepted and understood by the representatives of the interest groups.

## 5. Developments

The role of a particular system may be quite different depending on how the process in which it is embedded is designed and conducted. Evaluations of e-participation trials (e.g. [12, 17, 18, 22, 30, 31]) are few in number and somewhat inconclusive. They suggest that there are limits to current procedures, including web information often being static and representing only one view, goal-oriented discussions being hard to pursue [30, 31], and scale being a teething problem [26]. Furthermore, some important problems have not so far been addressed at all within the e-participation debate, such as formal problem modelling and modelling consequences of applying certain preferences. This project addresses both the problem of modelling and that of communication, and hence bridges two fields: e-participation and decision support. This bridging is intellectually and practically challenging as it simultaneously addresses the formal problem of modelling and the communicative problem involved in democratic processes where there is no single “best” solution because different values lead to different evaluations of technical facts.

The proposed framework will be developed in relation to the context in which it will be used. Even though there has been an increasing critique towards lacking citizen participation [16] in Swedish planning, contemporary research on increased participation has not been altogether positive to the experiments of increased citizen participation [14]. It has been stated that increased citizen participation promotes the already resourceful citizens and that the role of the planner is strengthened at the expense of the local politicians since citizen participation tends to be directed to the planners rather than towards locally elected politicians and political parties. This will be closely monitored in the project.

## 6. Results

The primary target group for the research results is policy makers and citizens at local (and national) levels, as well as other stakeholders in policy processes. The result of this design stage is an inventory of the issues most pertinent to a successful project, scaling up earlier results and building on previous experiences. The intent is to involve representatives of the eventual audience from the beginning by asking selected persons to act as advisors to this research. For this purpose, we will invite a reference group from university and from one or two companies working with municipalities and decision support systems. In addition, we will also recruit advisors from local and/or national governments and some authorities, from Sweden or other countries. The results will be applicable to a number of stakeholders facing similar issues. Specifically, the results will be useful for Swedish municipalities in relation to e-government applications. Furthermore, this project is designed to yield insights that will be useful as well to emerging-economy countries and to developing countries. These countries face special problems considering information availability and transparency in decision processes, both within and outside of governments.

In short, the project will generate a model for systematically informed democratic decision processes consisting of the following elements:

- A web-structure for all documents from government and stakeholders.
- A system for continuously reporting on all progress and problems to the public.
- A process for preparing and carrying out the decision.

The latter will include structures and tool supports for:

- Describing the alternative options available.
- Describing the criteria (perspectives) under which to view the alternatives.
- Describing the consequences of each alternative with respect to each criterion.
- A procedure that can evaluate and compare the alternatives, taking all relevant criteria into account while aiming at transparency and cost efficiency.

Furthermore, one component will include a mechanism for following up the actual process as well as the decision made in each case.

## 7. Benefits

There are numerous benefits associated with e-participation using transparent decision support tools, at least if benefit is taken in a broad sense including government and its relations with citizens. The benefits range from better use of available resources, over fairer distribution of wealth, to transparency in allocation. The costs for complicated allocation problems can be brought down and the efficiency in allocation can be increased. From the view of the citizens, this leads to increased democracy.

## 8. Conclusions

Based on the successful implementation of a pilot project for participatory democracy, we are designing a transparent and participative democratic decision model for interactive decision making. A main challenge is to suggest processes in conformity with common democratic processes, but with a higher emphasis on accuracy and precision. At the same time, the processes must be sensitive to interests of various stakeholders, and allow for modelling of outcomes based on different preferences as well as containing a negotiating process where views can be adjusted in view of calculated outcomes. The goal is to connect participatory processes and institutional contexts in a seamless way in order to improve the e-participatory efficiency of the proposed framework.

Stakeholders' different views must be acknowledged as reasonable input. On the other hand, available facts must be used to increase stakeholders' insights into the outcomes of applying different preferences. Therefore, the decision process must be iterative and there must be conflict reducing measures so as to allow for stakeholders to modify their views in several respects and at several check points. At the same time, facts and preferences must be kept apart as far as possible and be aggregated in a controlled manner.

## References

- [1] Albrechts, L. and Denayer, W., 2001. "Communicative Planning, Emancipatory Politics and Postmodernism" in Ronan Paddison (ed.) *Handbook of Urban Studies*. London, Thousand Oaks, New Delhi, SAGE Publications.
- [2] Aurigi, A., 2000, "Digital city or urban simulator?," in T. Ishida, and K. Isbister (eds.), *Digital cities. Technologies, experiences, and future perspectives*, pp.33–44, Springer-Verlag.
- [3] Danielson, M. and Ekenberg, L., 2006, "Computing Upper and Lower Bounds in Interval Decision Trees," *European Journal of Operational Research*.
- [4] Danielson, M., 2004, "Handling Imperfect User Statements in Real-Life Decision Analysis," *International Journal of Information Technology and Decision Making*, vol.3, no.3, pp.513–534.
- [5] Danielson, M., Ekenberg, L., Ekengren, A., Hökby, T., and Lidén, J., 2008, "A Process for Participatory Democracy in Electronic Government," to appear in *Journal of Multi-Criteria Decision Analysis*.
- [6] Danielson, M., Ekenberg, L., Grönlund, Å., and Larsson, A., 2005, "Public Decision Support – Using a DSS to Increase Democratic Transparency," *International Journal of Public Information Systems* 1, pp. 3-25.
- [7] Danielson, M., Ekenberg, L., Johansson, J., and Larsson, A., 2003, "Investment Decision Analysis - A Case Study at SCA Transforest," *Proceedings of the 2003 International Conference on Information and Knowledge Engineering*, CSREA Press.
- [8] Danielson, M., Ekenberg, L., Johansson, J., and Larsson, A., 2003, "The DecideIT Decision Tool", in Bernard, J-M., Seidenfeld, T., and Zaffalon, M. (eds.), *Proceedings of ISIPTA'03*, pp.204-217, Carleton Scientific.
- [9] Ekenberg, L., Brouwers, L., Danielson, M., Hansson, K., Johansson, J., Riabacke, A., and Vári, A., 2003, "Flood Risk Management Policy in the Upper Tisza Basin: A System Analytical Approach - Simulation and Analysis of Three Flood Management Strategies," *IIASA Report IR-03-003*.
- [10] Forester, J., 1989, *Planning in the Face of Power*. Berkeley and Los Angeles, University of California Press.

- [11] Forester, J., 1999, *The Deliberative Practitioner. Encouraging Participatory Planning Processes*. Cambridge, MA, MIT Press.
- [12] Grönlund, Å., 2001, "IT, demokratin och medborgarnas deltagande" (IT, democracy, and the citizens' participation), Vinnova and Teldok, Stockholm, in Swedish.
- [13] Grönlund, Å., 2003, "Framing electronic government: e= mc<sup>3</sup>", in R. Traunmüller and K. Lenk (eds.) *Proceedings of DEXA 03*, Springer-Verlag.
- [14] Gustafsson, G., 1981. "KPP-projektet om kommunal demokrati och planering". Rapport Byggnadsforskningsrådet 1981:5, Statens råd för byggnadsforskning. Stockholm, in Swedish.
- [15] Healey, P. and A. Khakee, 1997. *Making Strategic Spatial Plans: Innovation in Europe*. London, UCL Press.
- [16] Khakee, A., 1989. "Kommunal planering i omvandling 1947-1987". Gerum nr 13, Gerum, Geografiska institutionen, Umeå universitet. Umeå, in Swedish.
- [17] Macintosh, A., 2003, *The report to e-e-Forum Conference*, Barcelona.
- [18] Macintosh, A., Davenport, E., Malina, A., and Whyte, A., 2001, "Technology to Support Participatory Democracy", in Åke Grönlund (ed.) *Electronic Government - Design, Applications, and Management*. Idea Group Publishing.
- [19] March, J. G. and J. P. Olsen, 1989, *Rediscovering Institutions: The Organizational Basis of Politics*. New York, Free Press.
- [20] Musso, J. A., Weare, C., and Hale, M. C., 2003, "Designing web technologies for local governance reform: Good management or good democracy", [http://www.usc.edu/dept/LAS/SC2/junior\\_publications.html](http://www.usc.edu/dept/LAS/SC2/junior_publications.html).
- [21] Pateman, C., 1970, *Participation and Democratic Theory*. Cambridge University Press.
- [22] Ranerup, A., 1999, "Internet-enabled applications for local government democratisation. Contradictions of the Swedish experience", in Heeks, R. (ed.) *Reinventing government in the information age. International practice in IT-enabled public sector reform*, pp. 77-193, Routledge.
- [23] Sandercock, L., 1998, "The Death of Modernist Planning: Radical Praxis for a Postmodern Age" in Mike Douglass & John Friedmann (eds.) *Cities for Citizens*. New York, John Wiley & Sons.
- [24] Sandercock, L., 1998, *Towards Cosmopolis*. New York, John Wiley & Sons.
- [25] Sartori, G., 1987, *The Theory of Democracy Revisited Part Two: The Classical Issues*. Chatham House Publishers Inc.
- [26] Schulman, S. W., 2006, 'Whither Deliberation? Mass E-Mail Campaigns and U.S. Regulatory Rulemaking', *Journal of E-Government*, Vol. 3, no. 3, pp 41-64.
- [27] Sehested, K., 2001, "Investigating Urban Governance - From the Perspective of Policy Networks, Democracy and Planning". Research Paper no. 1/01, The Department of Social Sciences. Roskilde University. Roskilde.
- [28] Snellen, I. Th. M., 1995, "Channeling Democratic Influences Through Bureaucracies", in W.B.H.J. van de Donk, I.Th.M. Snellen, and P.W. Tops (eds.) *Orwell in Athens – A Perspective on Informatization and Democracy*, pp 51–60, IOS Press.
- [29] Thorleifsdottir, A., Fraser, C., Liotas, N., Lippa, B., Mach, M., Macintosh, A., Sabol, T., Tambouris, E., Tarabanis, K., Westholm, H., Mentzas, G., Marzano, F., 2006, DEMO-net: Deliverable 5.1. Report on current ICTs to enable Participation. Demo-net.
- [30] Wilhelm, A. G., 2000, *Democracy in the digital age. Challenges to political life in cyberspace*. Routledge.
- [31] Öhrvall, R., 2002, "Det digitala torget – en studie av kommunala debattforum på Internet". (The digital agora – a study of municipal debate forums on the Internet). Uppsala University, Dept. of Political Science, <http://dm.statsvet.uu.se/>, in Swedish.