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Diversity and Public Decision Making

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***Abstract*—**Within the realm of e-government, the development has moved towards testing new means for democratic decision-making, like e-panels, electronic discussion forums, and polls. Although such new developments seem promising, they are not problem-free, and the outcomes are seldom used in the subsequent formal political procedures. Nevertheless, process models offer promising potential when it comes to structuring and supporting transparency of decision processes in order to facilitate the integration of the public into decision-making procedures in a reasonable and manageable way. Based on real-life cases of urban planning processes in Sweden, we present an outline for an integrated framework for public decision making to: a) provide tools for citizens to organize discussion and create opinions; b) enable governments, authorities, and institutions to better analyse these opinions; and c) enable governments to account for this information in planning and societal decision making by employing a process model for structured public decision making.

***Keywords*—**Negotiation games; Agenda setting; Multi-criteria decision analysis; Elicitation method.

I. Introduction

URBAN planning decisions are often complex, involving many stakeholders. The decisions often have a large impact on society as well as on the environment. Many citizens and organisations are affected by the outcomes. Therefore, it is important to aim for a transparent and democratic process for planning decisions. In such a process, it is important but difficult to strike a balance between precision and accuracy in the design and implementation of models for public decision-making such as urban planning. Stakeholders' views should be acknowledged as input; at the same time available facts should be used to increase the stakeholders' insights into the outcomes of applying different preferences.

Furthermore, claims are made that the urban development process suffers from a democratic deficit caused by a lack of transparency and means for participation. Lack of transparency in these processes will restrain a widespread understanding of the urban planning issues at hand, and thus fail to meet modern society's needs of effectiveness and social cohesion [1]–[2]. In parallel, our contemporary society is characterized by a development of information and communication technologies and tools, not least the current development of social media for efficient interest group communication. Such tools could be utilised for the enhancement of governance and public information quality as well as for decision support purposes [3], but the much farther reach of newer social media have not hitherto been investigated.

Previous research on decision support for public decision making has mainly been focused on finding procedures and representations for the incorporation of decision data obtained from decision makers and experts (for instance in environmental engineering, urban planning, and ecosystems). Less work has been done on providing means for the public to develop opinions and provide decision makers with information in various forms, facilitating decision-makers' understanding and make planning decisions partly based on stakeholders' views, values, and opinions. Another issue is that the potential mutual benefits of a negotiation process have been neglected in this context.

This article discusses a more elaborated decision process, where stakeholder input is crucial, negotiated, and provoked. It describes some typical features of such processes and suggests how more democratic measures can be systematically implemented in a structured framework.

The next section provides some background to the questions involved in public decision-making. Section III discusses methodological components necessary to enhance the procedures involved herein. Section IV outlines an integrated process framework for democratic public decisionmaking. Finally, Section V provides some concluding remarks.

II. Public Decision Making in Complex Urban Planning Processes

Interests of stakeholder groups and citizens are often articulated in late stages of the planning process and thus problematic to accommodate in decisionmaking. As a consequence planning processes are often lined with conflict, time-consuming and do not seldom end up in impasses.

The recent development of the suburb Husby in Stockholm is a case that exemplifies how time-consuming conflicts can be. Here, the plan to develop the area was first presented in 2007 and is still (2012) frozen for the time being due to inhabitants' protests. Husby has slightly more than 11,000 inhabitants and is a suburb in the northern part of Stockholm built in the 70s as one part of the Swedish "One Million Homes" housing program. It has over time come to be regarded as a problem area and is one of the parts of Stockholm associated with segregation, exclusion,

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unemployment, and other social problems. In addition, the houses have become run-down and there is a great need of renovation in the area. Therefore, there is a broad perception in the dominating public discourse that Husby need to be developed, and there are a number of players in different areas that have plans for Husby's development. But many of the people who live in Husby today have another opinion than the one held by the city. The development plans also coincide with cut-downs and changes in public services, and there are political controversies surrounding many of the initiatives included in the planned investments.

Urban planning projects can be complicated even without open conflicts. UpplandsVäsby is a municipality with slightly more than 40,000 inhabitants, located in the northern part of the Stockholm region. The municipality grew fast in the 1960-70's and became a commutersuburb providing labourforces to the work places in the more central parts of the region. The rapid growth of the Stockholm region has opened up new possibilities for the future development of UpplandsVäsby. Municipal plans include to increase its population, but also the number of workplaces and to strengthen public and commercial services. An important feature of the municipality's development strategy is to change its image, from being a mono-functional 'sleepy' suburb to being a part of the region characterised by urban qualities; i.e. creating an urban fabric with higher density where different functions are physically integrated. The significance of culture and the promotion of street-life are stressed in the visions for the future. At present, the municipality is engaged in a number of activities to realise these ambitions. A long-term vision is being developed. This activity includes a variety of measures aiming at active involvement of the residents. Substantial new construction and 'fill-in' are carried out in the central part of the municipality with the ambition to create and strengthen urban qualities. Also, priorities on the municipality's political agenda are the development of new municipal districts. This comprehensive change process is complicated as it involves a number of stakeholders with varying interests.

In both these cases, it is vital for the municipality to actively engage the residents in the development process. First it is a question of legitimacy; if residents don't approve of development plans there is a risk that protests and obstructions will aggravate or block implementation as happened in Husby. Second, promotion of the ambition with the changes cannot be achieved unless residents perceive that the development projects contribute to real improvements. Further, besides residents also other stakeholders play vital and powerful roles in the development process, e.g. landowners, investors, real estate companies, and providers of commercial services. These stakeholders must be given voice, otherwise chances of successful implementation will be slim.

A. Diversity and Representation in the Public Sphere

Neither in Husby, nor in UpplandsVäsby residents can be regarded as a homogenous group. Within a neighbourhood differences in interest due to intersecting factors such as age, sex, professional status, ethnicity, or religion might occur. Some people spend their entire lives at the site, while others are in a stage of transfer, and the local common is intertwined with many parallel social commons. Further, residents living in a neighbourhood might have very different interests compared to residents in adjacent areas in the municipality and in the region. An initial task is to explore the public spheres that create discourse at the site and to map the problem definitions and interests. Besides existing data and local initiatives, e.g. public meetings and information materials models for social media as a tool for information, communication and mutual learning can be developed. The initial focus on residents can also include elaborations on how to map the interests of residents not having the capacity to give voice. Given the fact that residents have conflicting interests it can be analysed and discussed to what extent these differences can be overcome by reformulations of possible solutions, and how mechanisms for conflict resolution can be incorporated.

B. Identifying Conflicts and Common Interest

The interplay with other stakeholders besides residents has to be addressed by the municipality. This effort includes a mapping of interests among stakeholders involved. Analysis must be made of how weight could be assigned to various interests and to what extent different interest and proposals could be reformulated to accommodate various stakeholders' preferences. The objective of this activity is to analyse and discuss how the planning and decisionmaking process can be rethought and reorganized to accommodate different interests and thereby enable structured negotiations that would allow and promote value creation rather than power struggles. Here, the challenge for the municipality is to develop communication and negotiations in such a way that they don't end up in a stalemate with what the parties find to be poor compromises.

III. Support for a Diversity of Public Spheres

The goal here is thus to involve stakeholder groups and citizens early in the process. Therefore we need to define what a decisionmaking process is and when it starts. According to the democracy theory of Dahl (1989) decisionmaking is just a small part of the democratic decision process. Before taking any decision, the problem has to be clarified, and the stakeholders in the problem have to be defined. Starting from the perspective of Husby one can ask how the political agenda is created, and where and by whom the problems are defined, and who the representation looks like in this discussion. Here we have at one side the elected politicians that represent the citizens, and one the other side we have a discussion in a public sphere that influence the politicians and their voters. The democratic problem is that the public sphere is not representative of all but most often dominated by powerful groups. Digital media strengthens the influence of these groups. Research on the so-called digital divide shows that the technology rather enhances socio-economic inequalities than reduces them [4]–[5]. The dominating public image of Husby is for example that it is a problem area with high crime rate and social problems. People that live in Husby has

unsurprisingly a much more nuanced image of the site, and donot recognize themselves fully in the public image. But the discourse in the public sphere, dominated by groups that have no personal experience of Husby, restricts what types of questions are being asked and how the problems are defined. Furthermore, the public sphere is fragmented and one might talk about multiple public rooms rather than one. Therefore it is important to understand how the public opinion about the area is formed in order to identify the communication structures on site. This can give us an informed understanding of how the public sphere is formed and which the problems are that are defined (and not defined) in public and by whom.

This might help to clarify the representativeness of the so-called public opinion, and thus give elected politicians a better understanding of the opinions expressed in this room. It might also give us insights into how we can design communication systems that support alternative public spheres, in order to strengthen a broader citizen participation in the formulation of the public agenda. In Husby, e.g., social media have been important to support the organization and expression of local counter-publics, which has been important for the local community and have had a great impact on the planning process, but with huge costs and time losses for some stakeholders. In order to avoid locked situations like the one in Husby, we will therefore develop models for a more active use of social media to involved citizens early in the process, not as informers but as active citizens in defining the agenda. Thus, an important part of the research project is to create means for active citizenship and communality and the development of a diversity of public discourses.

A. Multimodal Media Facilitating Interaction

A common perception is that systems for public planning contains for means enabling for different stakeholders (such as the public, NGOs, businesses, and authorities/agencies) to express their views, concerns and opinions, both to obtain well-informed decision-makers and to enable a participatory decisionmaking process. However, contemporary methods are locked into traditional ways of using computer-based text and images that largely restricts the capacity for communicating. Therefore, it is important to investigate modern techniques (such as social media, crowd-sourcing, and geo-tagging) and develop tools enabling the enrichment of the content communicated between decision-makers, stakeholders, and the general public. Thus, the use of new media facilitating interaction is a key future component since e-government ought to be both ready for mobile/flexible usage as well as accessible to people with different kinds of disabilities. Therefore, in the context of public administration in general and public planning in particular, multimodal communication using a variety of techniques and tools for the mediation of preferences, opinions, and values should be encouraged.

B. Participatory Mapping of Conflicts and Common Interests

Of importance is then to design process models for how such enriched content may be incorporated in public decision making and planning. This calls for a common model encompassing different points-of-view, different perspectives, multiple objectives, and multiple stakeholders using different methods for appraisals. Decision making with such prerequisites is the main concern of the area of multi-criteria decision analysis and integrated assessments modelling.

Multi-criteria decision analysis methods and means for participation have previously been suggested in e.g. [3]–[6]. Multi-criteria decision analysis (MCDA) has been recognized as an important means for formalizing and evaluating decision problems with competing decision objectives. Current research is mostly concentrated on providing models to support the structuring of the problem in order to increase understanding and identify possible problematic elements. Means for participation include tools like web-based platforms supporting public and transparent decision-making processes in an informative and participatory manner, such as the web-platform Gov2demOSS [7]. Other tools include software supporting the structuring and evaluation of planning options with multiple objectives and stakeholders. With respect to integrated assessments modelling, inclusion of several stakeholders will require that they assess different courses of action using different methods for appraisals. Hence, a decision framework should allow for different stakeholders providing their assessments of planning options using methods designed for different points-of-view. Typically in planning decisions, this includes environmental impact assessment methods such as life-cycle assessments (LCA), return-on-investment calculations, equality and ethical assessments as well as political ideology alignment assessments by necessity made by decision-makers. The objective of these tools is to enable the use of a process model for public decisionmaking, specifically aimed at the inclusion of many stakeholders and possibly also many decision-makers integrating assessments made from a vast flora of methods and consigners. This calls for a generic theory of decision making such as MCDA. A process model with accompanied tools and methods have been developed and applied during our earlier research [8]–[10].

IV. An Outline of an Integrated Framework for Public Decision Making

We have earlier arrived at solutions to issues regarding elicitation processes [9]–[11], collaborative decision making [12]–[15], and decision analysis in public decision making [8], [16]–[17], but a main concern became how to involve the public on a much broader scale, not least groups that normally are alienated from democratic processes. In other words, we need to formulate a generic method for the incorporation and encompassment of public expressions and opinions in public decisionmaking.

We will base our work on the completion of three case studies carried out in Stockholm and UpplandsVäsby, in which different kinds of tools for multimodal communication together with the analytical decision layer approach will be employed. Each case will focus on a particular decision problem at hand or on a specific issue for the municipality. In the case studies, some of the researchers will act as facilitators, i.e. be actively involved in the implementation of the case, whereas other researchers will be less involved in the implementation but instead assess the perceived value, problems, and potentials of each tool from a government, public administration, urban planning, and citizen/stakeholder perspective. The latter will be done using focus group interviews in both pre- and post-case evaluations of the approach and the work will partly build on action research methods. The ambition of this project is to utilize the experiences from the completed case studies, and to conduct expanded multimodal case studies together with Stockholm and UpplandsVäsby.

Such a process should be transparent, encouraging participation, and enabling a rational treatment of the information delivered through a multitude of participation channels. Thus, the process includes a) a discursive part, where opinions are developed and the agenda defined; b) an interaction part, facilitating communication and mapping of interests among stakeholders; c) an elicitation part, containing means for modelling the interests, ideas, assessments, as well as attitudes of the stakeholders and decision makers; and d) a decision evaluation and analysis part enabling the use of methods for evaluating decision alternatives with multiple objectives where the alternatives are assessed from different perspectives having conflicting and/or information. This approach has resulted in a *Participatory Analytic Decision Model* (PAD), which is organized into four process layers. The four PAD layers are:

1. The *discursive layer* that contains the deliberative process of setting the agenda, using a broad spectra of multimodal tools to support organization and discussion, and using web statistics to clarify the representativeness of the information.
2. The *public interaction layer* containing interaction with affected stakeholders, organized stakeholder groups and citizens, using web-based techniques for interaction.
3. The *investigation layer* consisting of the local government's administrative process making the investigations and assessments necessary for taking the process further.
4. The *analysis layer*, or inner decision layer, in which data and information from the other three layers are gathered and modelled using techniques and tools from multi-criteria decision analysis. The results of the analyses carried out in this layer are communicated to the investigation layer.

Transparency is an important feature of the model and the iterative communication flow between the layers is essential for the recursive process of PAD.

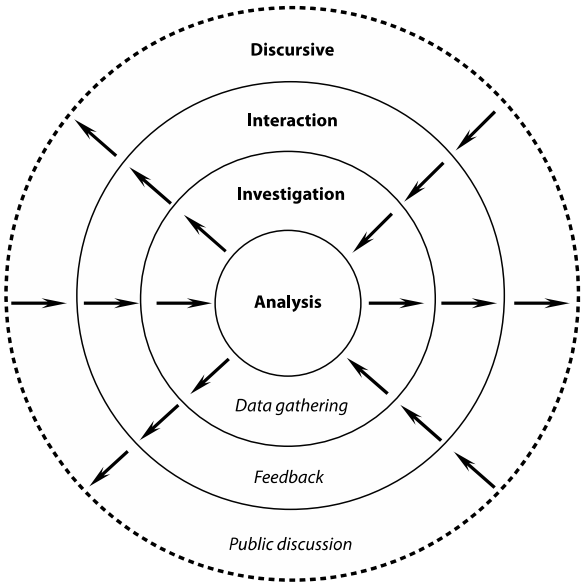

Fig. 1 The Participatory Analytic Decision Model (PAD) consists of four interacting layers; the discursive layer where public opinions are developed; the interaction layer that enable feedback from inhabitants and stakeholders;the investigation layer where data is gathered; and the analysis layer where data is modelled and analysed using multi-criteria decision analysis

The process model carries the decision from agenda setting, problem awareness to feasible courses of action via objectives formulations, alternative generation, consequence assessments, and trade-off clarification.

PAD is a refinement of the ADL approach discussed in [8] where PAD explicitly recognizes the diversities in the public sphere and the lack of representation. In earlier efforts, to execute the decision steps appropriately, the decision structuring and evaluation procedure has been developed as an extension to a proven decision analytic method [8], [18]. The method has been used in large decision problems with many stakeholders and has been validated in several decision domains; deposition of nuclear fuel, purchasing decisions at the Swedish Rail Administration, investment decision analyses [17], flood management [19], emergency management [20], energy pricing [21] and public decision making [10]. The elicitation part has recently been further enhanced by studying how groups of political decision-makers desire to express values and priorities [9]–[11].

V. Concluding Remarks

The overall objective of our research project is to enable rich communication employing the use of modern communication technologies from a planning, a decision making, and a democracy perspective. We emphasize means for communication of opinions and preferences and assess the

added value of increased accuracy in societal decision-making. We will study a communication platform for public decision processes, enabling broader public participation including technological solutions that will:

- Provide tools for citizens to organize discussion and create opinions using text, images, audio and video
- Enable governments, authorities, and institutions to better understand the opinions, and prerequisites of the citizens
- Enable governments to account for this information in planning and societal decision making by employing a process model for structured public decision making.

We aim at using tools and techniques together with a model for informed decision processes in planning, including processes for utilizing decision analytical methods in combination with various interaction channels and methods. In particular, the following elements will be developed:

- Tools for multimodal communication in e-government between citizens, stakeholders, and decision makers.
- Process models for the distribution of content mediated through multimodal communication between decision makers, stakeholders, and the general public
- Process models for the incorporation of this content in public planning and decision making, decision methods included
- The role and effect on public administration and urban planning such process models have.

The main interest in this is thus to investigate and develop the use of multimodal communication in order to achieve a higher degree of "accuracy" as discussed in the introduction. We are therefore in the process of designing models for how such enriched content may be utilised in a process model for public decision making and planning for decision making authorities. The research project will include all four layers of the PAD process. The public interaction layer will contain tools for agenda setting, the interaction with stakeholders and citizens and the tools for multimodal communication. The investigation layer will consist of the administrative process of the government during which investigations and assessments necessary for taking the process further are carried out. 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. The analysis layer will consist of the decision analytical method and be based on multi-criteria decision analysis.

As the information is gathered in the investigation layer from different sources, such as investigations and information submitted by the citizens, this layer together with the stakeholder layer will be in focus for the project (although adaptation of the tools used within the analysis layer will most likely be called for during the project). Within this context we will study how the use of various techniques and tools mediates opinions, preferences, and values. This includes how appropriate a chosen media is to present such information to decision makers and stakeholders. In conclusion, we aim at finding adequate means and methods for broad groups of citizens, other stakeholders and decision-makers to create and communicate expressions and opinions using combinations of text, images, audio, and video in various forms and integrate this in a structured process for transparent public decisionmaking. We will draw from the extensive theoretical literature on communication, see, e.g. [22], and discuss governance arrangements and how the formal planning process as such can be structured to effectively accommodate inputs from various stakeholders.

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