



## “You can't make this a science!” – Analyzing decision support systems in political contexts

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### ABSTRACT

This paper reports on problems and conflicts encountered when using decision support systems (DSS) in political contexts. Based on a literature study and two case studies we describe problems encountered in relation not only to the DSS itself, but also to the political decision process. The case studies have been carried out in two cities in Sweden that at different times but in similar situations have used DSS in order to reach a decision in complicated and contested matters. In both cases we have previously found that the method and IT tool used for decision analysis were appreciated by most participants, but the inherent rationality of the DSS was in conflict with how participants usually make decisions as well as with the political process. The assumption was that a strict and open method would make grounds for clear decisions, but the results of the decision process were none of the cases implemented. In one case the result of the decision analysis was that no clear decision was made. In the other case the lowest ranked alternative was implemented. Furthermore, in neither city the method was ever used again. We therefore ask: What are the challenges and limitations to using DSS in political contexts? Our study shows that challenges relate to *selecting and using criteria; eliciting weights for criteria* (high level of subjectivity); *understanding all the amount of facts available in the system; time constraints; and lack of impact on the final decision*. This study contributes to both research and practice by increasing the understanding of what challenges are experienced in DSS use, since the findings can be used as a framework of challenges that should be addressed, in design of systems as well as method for use. The study also contributes to understanding the role of politicians in decision-making and the consequences for the use of DSS. Further, the literature study showed that there are overall very few studies on the actual use of DSS in a political context, and we therefore conclude by encouraging more studies reporting actual use.

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### 1. Introduction

In the public sector – whether referring to local or regional authorities, national governments, or other public bodies – decisions are made every day. On a general level the decision-making process can be described as based on three activities (Simon, 1977): Intelligence (identifying the need for a decision), Design (starts when a decision need is identified), and Choice (emerges when a decision is ready to be made). Public sector decision-making is, however, often multi-faceted and complex. Cooper's often-cited decision-making model (Cooper, 2006), aiming at supporting public sector decision makers to make ethical and rational decisions, includes the following steps and activities. First there is the descriptive task where the decision maker (or the administrator preparing a proposal) must make sure that the description

is objective. This is usually done by identifying key stakeholders and integrating their views. The second step concerns ethical issues and calls for an identification of conflicting values and principles underlying the decision to be made. The third step is about identifying possible alternative courses of action in order to force the decision maker to openly consider every possible alternative (not rejecting any alternative at this stage). Thereafter the model stipulates that the decision maker use his/her “moral imagination” by thinking through what the consequence of each alternative would be. Finally, the decision maker needs to “find a fit” where the alternative chosen should be balanced between various moral and ethical principles.

The process of public sector decision-making of course varies depending on country, administrative level and what kind of decision is to be made, but the basic principles are the same – i.e., that the decisions taken should be based on fairness, objectivity, thoroughness, and in compliance with the law. As an example, when decisions are being made in the European Union the decision makers are supposed to first make an impact assessment (potential economic, social and environmental consequences) before proposing a new initiative. The

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commission is also supposed to consult stakeholders such as non-governmental organizations, local authorities and representatives of industry and civil society and seek legal advice. Decisions in European public sectors are usually made by political representatives, but even so these representatives are supposed to invite citizens, businesses and organizations to participate in consultations about the issue at stake (EU, 2011).

These prescriptive models of how decisions should be made are often contrasted by analysis of how decisions are made in practice. The core insight into decision-making by Charles Lindblom (1959) was that decision-making in practice usually proceeds by successive limited comparisons rather than by complete assessment of values, alternatives, costs and benefits. Further, deciding through successive limited comparison involves simultaneous analysis of facts and values. Instead of specifying objectives and then assessing what policies would fulfil these objectives, the decision maker reaches decisions by comparing specific policies and the extent to which these policies will result in the attainment of objectives.

While many are prepared to accept the validity of Lindblom's incrementalism as a descriptive theory, the incrementalist mode of decision-making has nonetheless been criticized for insufficient analysis of alternative policies and conservatism (i.e., Dror, 1968). It has also been criticized from a participatory point of view, since access is limited to political coalitions already in power and stakeholders that have already established themselves as influential actors (Bäcklund, 2010; Sager, 1994). In Europe, for instance, citizen participation in policy processes has been low and it is accompanied by a disconcerting decline of voter participation in European elections (Rayner, 2003). With stronger calls for a more deliberative democracy – partly due to EU laws and directives (Horlitz, 2007) – attempts have been made to include more actors in the decision-making process. It is believed to be of future strategic importance to facilitate that those citizens and citizen groups who want to participate in democratic processes can do so (Dawes, 2009) and this means that different alternatives will have to be discussed openly. Including citizens or citizens' groups in a decision-making process is a cumbersome process not only due to the many actors involved but also due to the need for clarity in argumentation – e.g., clarifying the motives for a standpoint, analyzing the consequences of the suggestions, balancing demands against costs – in order to allow for all actors to make *informed* choices. For informed choices to be made there is thus a need to create easy-to-use and transparent choice-making models for complex matters where many actors are involved. This is where decision support systems (DSS) become an attractive and viable option.

### 1.1. Decision support systems in public sector

Decision support systems (DSS) are computerized information systems designed to help decision makers and stakeholders define and discuss different problems and come up with various solutions and paths to take. DSS typically take use of different criteria, show the interrelations among multiple criteria, and also enable a comparison of the results (Horlitz, 2007). The use of computers as support for decision-making is nothing new – the public sector has a long history of using computers to make correct calculations and reasonable assessments. However, the advances made in technology, accompanied by an accumulated knowledge in the fields of decision theory, cognitive science and information science, have made it possible to use the computers in “more expansive ‘advisory’ roles to the decision making” (Saunders-Newton & Scott, 2001, p. 47).

The hopes have thus long been set for computerized systems that can support and improve the decision-making in the public sector. But whereas the roots of DSS stem from the private sector we need to be aware that decision makers in the public sector and private sector “operate in different decision-making contexts and employ different decision processes” (Dillon, Buchanan, & Corner, 2010, p. 229; Papadakis &

Barwise, 1998). The political context in public sector affects the logic and mode of thinking (Murray, 1975) as well as the level of public involvement (Posas & Fischer, 2008). As for the logic and mode of thinking, public politicians and administrators have less flexibility and autonomy in identifying the problem that requires a decision – this may be politically governed or regulated by law. Public sector goals are also often vague and emphasize notions of equity (e.g., “a school where everyone belongs”), which affects the way strategic decisions are made (Nutt, 2006). Decision-making in the public sector is also more often than in the private sector supposed to be based on consensus and the broadest social good (Murray, 1975) and the expectations and accountability claims will therefore often differ (Nutt, 2006). Moreover, organizational survival in the public sector is more likely to depend on public perceptions that management is responsible and that procedures are “rational” than on objective efficiency, which may be difficult to measure (Langley, 1989). As for the level of public involvement, this is often supposed to be higher in public decision-making (EU, 2011; Posas & Fischer, 2008).

For the public sector it is unfortunate that most research on DSS use concerns the private sector because there are differences that restrict generalizations from one sector to another (Papadakis & Barwise, 1998). Ranerup (2008), scanning the field of DSS, found that most DSS are targeted toward the private sector and that in the few instances where reports of public sector use were made even fewer were aimed at citizens as users. Against this backdrop, there is clearly a need for more research on instances where DSS have been used in the public sector. Two such instances can be found in Sweden where two Swedish cities, Nacka and Örebro, used a decision support system (DSS) to help various parties involved in city planning processes come to a consensus in complex and contested issues.

#### 1.1.1. Two cases of DSS use in Sweden

The traditional model of decision-making in Swedish municipalities is similar to what was previously described as the European model, where the politicians in majority are in control of decision-making. Even though the Committees in Sweden are appointed proportionally, they are usually governed by the majority coalition. Decisions are most often based on one single proposal, prepared by civil servants in dialogue with the Chair of the Committee. The City Council or the Committee will either reject or accept the proposal, but acceptance is common as the majority coalition is involved already in the preparation. If the proposal is rejected it is sent back to the civil servants who prepare a new proposal for the politicians to consider. However, with stronger calls for a more deliberative democracy, and in cases where the matters at stake are known to be complicated and contested, attempts have been made to include more actors in the decision-making process. We have researched two such contested cases in the two Swedish cities, Nacka and Örebro.

The contested matter in Nacka was about whether services such as roads, water supply, and sewers should remain private or be run by the municipality. The conflict in the municipality related to the islands Älgö and Gåsö which are situated in the attractive Stockholm archipelago. On these islands expensive houses owned by well-off newcomers were neighboring older houses inhabited by residents since generations and the conflict was mainly between these two groups. They had opposite opinions on the road, water, and sewers issues. Citizen groups from each camp had lobbied politicians for years, and there were political parties to support both fractions. In 2003, after years of failing to reach a decision, the City Planning Office decided to try to solve the problem by inviting all political parties and the civil society to the decision-making process. In order to manage all various arguments and options it was decided to use a decision support system (Grönlund, 2005).

In Örebro the complex matter concerned which measures to take to clean the Svartå River running through the city. For many years the river had been deemed unhealthy to swim in, and drinking water for the municipality tapped upstream needs to be filtered. The debate had been

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