



UvA-DARE (Digital Academic Repository)

Making planning support systems matter : improving the use of planning support systems for integrated land use and transport strategy-making

te Brömmelstroet, M.

Publication date
2010

[Link to publication](#)

Citation for published version (APA):

te Brömmelstroet, M. (2010). *Making planning support systems matter : improving the use of planning support systems for integrated land use and transport strategy-making*. [Thesis, fully internal, Universiteit van Amsterdam].

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Intermezzo

The Relevance of Research in Planning Support Systems



[This intermezzo has previously been published as: Te Brömmelstroet M. (2009), "Commentary: The Relevance of Research in Planning Support Systems" Environment and Planning B: Planning and Design 36. pp.4-7. © 2009 Pion Ltd.]

Writing in volume 35 of **Environment and Planning B: Planning and Design**, Janssen et al (2008) present a paper which explores the usability of a specifically developed Spatial Decision Support System (SDSS) for the support of land-use planning problems. In their words, this paper is a planning oriented follow up to a more technical one that deals with the heuristic algorithm and numerical experiences. This paper aims at issues linked to implementation and application” (Janssen et al., 2008, p. 741). We will use this paper as an illustration to argue that, although it has legitimate claims and interesting outcomes, this type of research that is currently employed in the fields of SDSS and other planning supporting instruments is not helping to bridge the wide gap between developed instruments and daily planning practice.

Such a goal seems to follow recommendations made in a growing body of academic articles and edited books that deal with the so-called implementation gap of computer aided planning support instruments (see e.g. Brail, 2008; Brail and Klosterman, 2001; Geertman, 2006; Geertman and Stillwell, 2003; Vonk et al., 2005). These instruments (commonly referred to as Planning Support Systems (PSS)) have been developed in a large variety of planning domains and contexts by consultants and universities. Including the latest technological opportunities and academic insights, these PSS are expected to support planners in their increasingly complex endeavour to plan and manage regions, cities and neighbourhoods. However, they are hardly used in daily planning practice. Studies into the reasons for this found that the gap between the modelling- and planning community is too large, PSS are technology rather than planning oriented and these instruments do not fit the complex dynamics of real world planning contexts. If PSS, and SDSS as a sub domain, wants to close this gap, the focus should shift from developing rigorous instruments that include all the latest insights to the relevance of their creations in daily planning practice.

The introduction to the article by Janssen et al. seems to follow these recommendations in exploring the implementation and application potentials of their SDSS. However, if one reads further, one can question if this self stated goal is really met. First of all, the authors begin with four requirements for the SDSS to be useful to planners. These requirements are defined by themselves (whether based on their own experience or on the literature remains unclear). After introducing the algorithm of the SDSS, the article continues with the formulation of an experimental planning problem to which it can be applied. An interesting area in the northwest of the Netherlands is selected and described, again by the authors themselves, without referring to clear reasons for it; is it an area with typical land-use problems which serves as a example or is it a very specific area where the authors think to find specific conditions for their SDSS? The description of the area is translated into mathematical assumptions and parameters for the SDSS. In the fourth section, a design interface is constructed and a (typical) design session simulated. The design process of the land use planners apparently follow a strict protocol of translating plans into the model and use the output to adjust their plans: “It is assumed that the planner sharpens his or her priorities in response to the plans presented” (Janssen et al., 2008, p. 749). These rounds are simulated and their possible output (maps and

tables) are presented. From this, the article concludes that the interactive establishment of priorities, the inclusion of different kinds of objectives and response time of the SDSS are all positive factors in supporting planners. In short, the SDSS has a potential for the support of land-use problems especially in first rounds of policy design as long as maps are used as an interface. However, computational problems hinder realistic detail in the representations.

In the entire article and the research that lies behind it, planners or other planning actors have not been consulted on their view on the usability of the SDSS. Their working processes in designing solutions for land use problems are assumed to follow a generic protocol and their need for support in this by an SDSS is also assumed to be in the form of certain maps with “high realistic detail” still “hindered by computational problems” (Janssen et al., 2008, p. 740). In the complex processes of designing and visioning planning problems, such assumptions are not very likely. It is not realistic that this holds for the daily work of a planner, let alone for an ever changing team of actors with different backgrounds, skills and ways of looking at reality. The promised focus on implementation and application of the SDSS seems to be lost in the process of assuming and simulating planning practice. Why are *real* planning actors not included in the experiment to really tell us something about how the SDSS is used and how planners react to it? Why is there a simulated, and thus not a real, link with planning practice? We would argue that there seems to be fundamental problems with this way of doing research in the domain of PSS and SDSS that hampers this crucial step of including planning practitioners in our development projects. Below we will present our view of the fundamental problems with this type of research and briefly outline a research approach that can overcome this.

Research follows an explanatory program, a general style of thinking about questions of explanation. Without aiming at a definitive classification of methods, Abbott (Abbott, 2004, pp. 27-28) distinguishes three different programs: the syntactic program tries to explain reality by more and more abstract modelling of particular actions and their interrelationships; the semantic program uses patterns to which social particulars are assimilated; and the pragmatic program aims at separating the effects of different potential interventions or causes from one another. These three programs have different levels of research based on their abstraction (see figure i.1). Our main argument is that most researchers in the field of PSS and SDSS development seem, as expected, to be situated in a syntactic research program. Often they come from fields that develop computer models (the most abstract method of syntactic research) and thus they are educated modellers. When confronted with implementation problems, they revert to well known syntactic research methods and use them to make statements about the implementation and application of their instruments. This results in highly general arguments based on making reality more abstract, as the article by Janssen et al. demonstrates. Also research into general guidelines for the improvement of PSS implementation follows this syntactic explanatory program (Geertman, 2006; Vonk, 2006). These claims and guidelines try to abstract reality and are thereby simplified formal representations. This simplicity, although admirable in its intellectual elegance, does not help in

deepening the understanding of why PSS and SDSS are so seldom used and how this can be overcome.

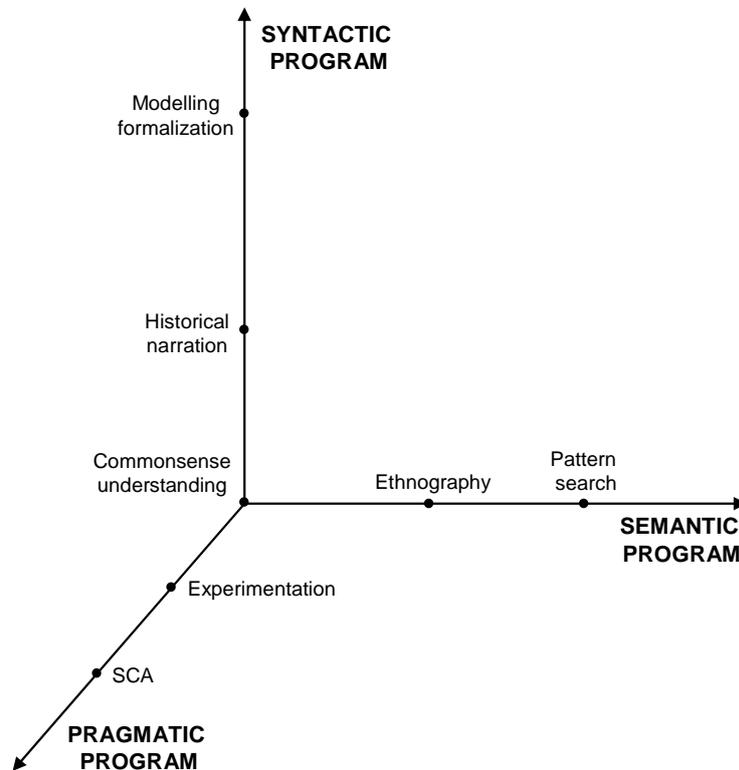


Figure i.1 Explanatory research programmes (Abbott, 2004, p. 24)

Planning practice, and especially strategy-making, is a complex endeavour that is different in every context depending on complex relations between path dependency of planning institutions and local particularities ((Healey, 2007, pp. 174-176). Syntactic research is almost by definition not capable of recognizing this. Therefore we argue that applying semantic and pragmatic research methods are crucial in understanding (and also closing) the PSS implementation gap. The semantic program focuses on single (one-time) analyses of the social world, describing it in categories and patterns. By describing the state of affairs at a certain moment in time in deep case descriptions, it can add to our understanding about the implementation of PSS in certain contexts. Such deep case descriptions of PSS use are hardly found in academic literature. The pragmatic program uses causal analysis to generate claims about practical experiments. Research focuses on one or more variables and analyses interaction effects with other variables by changing the context (as in laboratories). It can tell us about the comparative size of pragmatic effects on the implementation chances of PSS by creating quasi-experimental situations in real planning practice. Because it is difficult (if not impossible) to create such controlled situations in daily practice, the pragmatic program could adopt a more active research method. Instead of explaining the role of variables by observing, PSS researchers can actively change variables as they work with planning actors and modellers in bridging the implementation gap (theoretically explored in e.g. Van Aken, 2005). Describing these cases in detail in academic literature can then result in recipes for the implementation of certain PSS in certain contexts (as done in

concrete studies in Straatemeier, 2008; Straatemeier and Bertolini, 2008; Te Brömmelstroet and Bertolini, 2008).

I have argued, partly based on a recent contribution in **Environment and Planning B** that – following academic insights in the implementation gap – PSS and SDSS developers aim to focus more on implementation issues of their instruments. I have argued that their methodological background in the syntactic program seems not sufficient for this and we propose how semantic and pragmatic methods can help in overcoming these shortcomings. It is up to the PSS developing community if they stay focussed on the substantive improvement of their instruments or address the implementation issues that they face more seriously. If they choose the first (perfectly legitimate) goal, they should leave references to the support of practice out of their arguments. If they choose the latter, they have to engage in real planning practice (instead of attempting to simulate it) and learn to analyse and describe their efforts in less abstract and formalized terms. Their goal should be to understand the interactions between the tools and different contexts instead of only presenting general guidelines. In this, we might lose some elegance and breadth in the academic claims, but probably win on relevance and depth of our presented solutions.

REFERENCES

- Abbott A, 2004 *Methods of Discovery: Heuristics for the social science* (W.W. Norton & Company, New York/London)
- Brail R K, 2008 *Planning Support Systems for Cities and Regions* (Lincoln Institute of Land Policy, Cambridge, Massachusetts)
- Brail R K, Klosterman R E, 2001 *Planning support systems: integrating Geographical Information Systems, models and visualization tools* (ESRI Press, Redlands, CA)
- Geertman S, 2006, "Potentials for Planning Support: A planning-conceptual approach" *Environment and planning B : Planning and Design* **33** 863-880
- Geertman S, Stillwell J, 2003 *Planning support systems in practice* (Springer, Berlin)
- Healey P, 2007 *Urban Complexity And Spatial Strategies: Towards A Relational Planning For Our Times* (Routledge, London)
- Janssen R, van Herwijnen M, Stewart T J, Aerts J C J H, 2008, "Multiobjective decision support for land-use planning" *Environment and Planning B: Planning and Design* **35** 740-756
- Straatemeier T, 2008, "How to plan for regional accessibility" *Transport Policy* **15** 127-137
- Straatemeier T, Bertolini L, 2008, "Joint Accessibility Design: a framework developed for and with practitioners to stimulate the integration of regional land-use and transport strategies in the Netherlands." *Transportation research record* **2077** 1-8
- Te Brömmelstroet M, Bertolini L, 2008, "Developing Land use and Transport PSS: Meaningful information through a dialogue between modelers and planners" *Transport Policy* **15** 251-259
- Van Aken J E, 2005, "Management research as a design science: articulating the research products of Mode 2 knowledge production in management" *British Journal of Management* **16** 19-36
- Vonk G, 2006 *Improving planning support; The use of planning support systems for spatial planning* (Nederlandse Geografische Studies, Utrecht)
- Vonk G, Geertman S, Schot P, 2005, "Bottlenecks blocking widespread usage of planning support systems" *Environment and Planning A* **37** 909-924