Planning Support by PSS: an inventory

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Abstract. In our contribution we would like to present some details concerning an Internet-based inventory on Planning Support Systems (PSSs). PSS refers to the diversity of geotechnology tools, which are primarily developed to support planning processes both in terms of derivation and evaluation of alternative futures. These details concern the aim, context, rationale, set-up and first tentative results of this inventory.

Keywords : GIS; Planning Support Systems (PSS); Physical Planning

1. Introduction

In our contribution we present some of the tentative outcomes of an Internet-based inventory of Planning Support Systems (PSSs). This inventory has been held by NexpRI (Netherlands Expertise Center of Geographical Information) at Utrecht University in cooperation with

the School of Geography at the University of Leeds from June 2000 onwards (www.nexpri.nl, and then click on PSS-inventory). As a result of this inventory we received about fifty contributions from all over the world of different kinds of PSSs that are applied within planning practice, in particular land use planning.
In this paper we would like to present the first tentative results of this inventory (a more elaborated summary of results will be presented at the ISOCARP-conference and later on in the book published by Springer Publishers).

The content of our presentation will start with a sketch of the current role/position of geotechnology tools within current planning practice. From that it will be concluded that this role is foremost rather one-sided: widely applied for two main tasks: geo-data management and the production of nice colour maps. However, these tools are scarcely applied for more sophisticated forms of planning support, e.g., especially for design- and/or research tasks within planning. From that conclusion some real-world examples of so-called PSS in practice will be shown which are attuned precisely on the proposed planning design or research tasks. Moreover, the first – still tentative – results of our Internet based inventory on PSS in practice will be shown and some conclusions will be drawn (a more elaborated overview of results and conclusions will be presented in the book by Stan Geertman & John Stillwell 'Planning Support Systems in practice', which will be published by Springer Publishers at the end of 2001 or the beginning of 2002).

2. Planning Support Systems

Planning Support Systems (PSS) are systems that have been developed and are being used to support current practice in any public or private sector planning context at any spatial scale. In fact, PSS is a term that refers to the diversity of geotechnology tools, which are primarily developed to support planning processes both in terms of derivation and evaluation of alternative futures.

Underlying the work on PSS is the assumption that a greater degree of access to relevant information will lead to the consideration of a greater number of alternative scenarios, which will result in a better informed public debate (Shiffer, 1995). Although the term PSS itself is fairly recent, the ideas go back to the 1950s. Harris has long been arguing for an approach to planning that combines sketch planning – the rapid and partial description of alternatives – with state of the art modelling of the implications of these alternatives. Sketch planning facilitates the exploration of new ideas and planned alternatives in various combinations (Harris, 1999). According to Klosterman (1999a), PSS have matured into a conception of integrated systems of information and software, which brings together the three components of traditional decision support systems - information, models, and visualization - into the public realm.

In the literature, a variety of conceptual or operational prototypes of PSS can be found ranging from the electronic conference board rooms (Group Decision Support Systems) discussed by Laurini (1998) to the GIS-supported collaborative decision making tools outlined by Nyerges and Jankowski (1997) and WWW-based mediation systems for cooperative spatial planning (Gordon *et al.*, 1997; Singh, 1999; Kammeier, 1999; Klosterman, 1999b; Hopkins, 1999).

3. Aim, context and rationale

The aim, context and rationale behind our inventory of PSSs can be summarized in some points:

- An assessment of planning practice at the beginning of the 21st century suggests, rather depressingly, that the adoption and use of geotechnology tools (geographical information and spatial modelling systems) is far from widespread and far from being effectively integrated into the planning process (Stillwell et al., 1999).

- Planners and designers remain, at best distrustful, or at worst downright antagonistic toward highly systematic and computer-based models (Harris, 1998).

- Klosterman (1998) suggests that the tools for planning support now, are no more developed than they were ten years ago. Although prospects may seem exciting, it is more likely that the adoption of new tools and the development of computer applications in planning for the next 25 years will remain disappointing.

- The reasons for this situation are primarily associated with the diversity of analytical tasks which planners perform, the relatively small market for public sector software, and the expense of developing and supporting commercial software. As a consequence, analytical tools for planning purposes will continue to lag far behind those of other professions such as transportation engineering and other areas of government.

- Nedovic-Budic (1998) has shown that within planning practice, whilst the quality of information generated with GIS technology has improved, GIS is consistently underemployed for more sophisticated analytical and modelling exercises, and its impact on planning decisions remains low.

- It is the case that many planners now have access to the geodata and meta-geoinformation facilities of their organisations, and it is also a fact that many are proficient in using their GIS tools to perform spatial queries and generate thematic maps.

- Sadly, however, progress towards the use of GIS beyond these basic activities to help solve key planning problems, through more sophisticated analyses, has been very limited (Geertman, 2001).

- The percentage of planners who consider their geotechnology as an intrinsic and indispensable tool for performing their job properly (as financial experts use their spreadsheet software and as medical specialists use their ECG technology) is still far too low (Geertman, 2001).

- The shortcomings of the current situation and the desire to progress the development of planning practice provide the rationale for wanting to create an inventory of successful applications of geotechnology and

to produce a book that demonstrates innovative examples of geotechnology use and good practice in a number of different contexts.

4. The PSS Inventory

At the moment, people at a diversity of scientific, research and/or planning institutions worldwide are involved in the development, testing and application of a whole range of PSS. However, the extent of the developments and implementation of PSS is totally unknown. As a consequence, a great deal of overlapping work may well be undertaken by different groups of researchers and developers. At the same time, the planning community has little idea of where to look for instruments, advice and support for PSS, beyond the employment of expensive consultants. This is problematic for both the potential consumers and producers of PSS – given that planners possess an increasing need for geotechnology support, but geotechnology vendors have to prove the worth of their products in real world planning situations.

NexpRI (Netherlands Centre for Geographical Information) at Utrecht University in cooperation with the School of Geography at the University of Leeds have started to produce an inventory of PSS, including those in development, as a prototype or as a commercial product, as well as those PSS now implemented and operational in planning practice. By collecting this information in the form of an inventory and publishing it in due course, we hope to improve the insight of the planning community into the state-of-the-art in PSS, their availability and use, the opportunities that PSS provide, and the current limitations that exist. Moreover, it can help developers of PSS to contact others and learn from their experiences.

This inventory has been held from June 2000 onwards. As a result of this inventory we received about fifty contributions from all over the world of different kinds of PSSs that are applied within planning practice, in particular land use planning. In our contribution to the ISOCARP2001 conference we would like to present some of the tentative outcomes and conclusions of this Internet-based inventory of Planning Support Systems (PSSs). Up till now, these conclusions are

still having a tentative nature. A more definitive summary and especially reflection can be expected at the end of 2001/ at the beginning of 2002, when a book on PSS in Planning Practice will be published (Springer Publishers).

5. Some first tentative results

A wide diversity of PSSs forms the tentative outcome of the internet-based inventory. Quite some are heading for supporting the phase of analysis and design in a planning process and contain all kinds of tools to perform simulations, sketch functionality, modeling, et cetera. Other PSSs are focused on the visualization, communication and interaction of geographical information to a restricted (e.g., professionals) or a much more wider (e.g., the public) audience. Another category of PSSs can be categorized as real Decision Support Systems in that they are attuned to help professional decision makers in making and understating their choices. And a last group of PSSs is focused primarily on the management, monitoring and/or evaluation of real world processes and/or planning regions. Each of these different categories of PSSs possesses – logically – different kinds of functionalities to perform their tasks within planning practice.

It is the prime goal of the presentation at the ISOCARP2001 conference to present some of the tentative outcomes of this internet-based inventory. In that, it is hoped for to show the wide diversity of PSSs found: their different goals, functionalities, system structures, et cetera.

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