Investigating E-Planning in Practice: An Actor-Network Case Study Approach

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ABSTRACT

The call by Geertman (2008) for research into the factual support role and organizational context in which a form of e-planning referred to as planning support systems (PSS) are created, implemented and used in planning practice is the basis for this research. Actor-Network Theory (ANT) is used as a framework to investigate and evaluate the social and technical interactions involved in PSS implementation and usage. Allowing the researcher to trace interactions between human and non-human actors, focusing on what causes actors to align with a network and what constitutes a stable network. Case studies have been conducted on three PSS implementations in the Australian State of New South Wales. The case studies document the complex and wide ranging resources that are necessary to create and implement a PSS and the organizational context in which three PSS implementations either succeeded or failed. This article explores the end result of this study further in the article.

Keywords: Actor-Network Theory, Australia, E-Planning, Information Technology Adoption, Planning Support Systems (PSS)

INTRODUCTION

Research suggests that a mismatch exists between the supply and demand of Planning Support Systems (PSS) that result in an underutilisation of software by planners (Geertman, 2008). Further, Vonk et al. (2005) argue that because demand is lagging behind the supply, PSS are not reaching maturity due to a slow product life cycle that does not benefit from an information feedback loop from real-world examples, which may be referred to as the PSS implementation gap. While numerous articles and edited books address the utility of PSS in research-based scenarios, there is limited research on the demand side factors involved in the adoption and use of PSS in practice (Geertman, 2008). The research goals of this article are to document real world examples of PSS implementations in planning practice, and provide information in a feedback loop fashion from the demand side as to who is involved in a PSS implementation and why an implementation may fail. To do this, this article presents three case studies of PSS usage in the Australian State of New South Wales (NSW).
The focus of each case study is on the formation and maintenance of a network of staff and external elements to either, introduce a PSS into an organisation or design, build and implement a custom built PSS.

Australia has seen two rounds of Federal funding aimed at supporting e-planning initiatives in the past decade. Firstly, the Regulation Reduction Incentive Fund (RRIF), in 2005, of which the Landsurfer case study in the article was funded, and more recently the Housing Affordability Fund (HAF), in 2008. Both funding programs were an attempt to provide local government with an incentive to improve their business processes by developing or purchasing e-planning tools, with the understanding that these tools could help reduce red tape for small businesses and the public when dealing with the NSW planning system (Williamson & Parolin, 2012). There are only two recently published examples of research conducted in Australia that focuses on evaluating the level of e-planning usage by local government (Yigitcanlar et al., 2003; Yigitcanlar, 2005). Both articles are attempts to determine if the infrastructure is in place and how much effort local government is making to implement computer software for planners.

Vonk et al. (2005) found that information is scarce within planning communities about PSS adoption and usage, which is the exact situation faced by the authors, who encountered significant difficulties in collecting published information on e-planning initiatives. Due to the difficulties encountered, there was no pre-determined case study strategy, other than to locate PSS and people willing to discuss their implementation. In one case study, only a single person was interviewed, which is a weak research method; however, it was the only opportunity to collect information regarding that PSS. The three case studies present a cross-section of planning practice environments, while, all three attempts to implement a PSS could be described as failures or at best partial successes. This situation concurs with recent research (Geertman & Stillwell, 2004; Vonk et al., 2005) that notes the continued failure of PSS implementation in planning practice, and secondly, the lack of communication through feedback loops to the PSS supply side.

This article will present a review of PSS literature devoted to the implementation gap; however, the authors acknowledge that there is a broad range of literature published on PSS dating back two decades. Secondly, a summary of ANT concepts is provided. The article then presents three case studies, followed by a discussion of the implications of the case study findings for PSS research and future e-planning initiatives.

**LITERATURE REVIEW**

PSS are defined as geographic information systems (GIS) based software tools that may contain a number of components, including, theories, data, information, methods, tools, and visual models which are used to support planning tasks. PSS are typically designed to support the planning process and are usually based on several technologies, while using a common interface (Harris & Batty, 1993; Brail & Klosterman, 2001; Geertman & Stillwell, 2004; Geertman, 2006). Klosterman (2012) places PSS, as well as spreadsheets, expert systems and GIS under the broader definition of e-Planning. Brail and Klosterman (2001) predicted that increased use of PSS would be aided by the rapid development of computer hardware and software, however, an inventory of PSS conducted by Geertman and Stillwell (2004), concluded that the majority of PSS had not progressed past the prototype stage, with little evidence of PSS reaching stages of maturity and use in planning practice. The situation is considered somewhat surprising by Geertman (2006) as a small number of PSS have reached a level of maturity that allows them to be sold as off-the-shelf software tools, typically as ArcGIS plug-ins. To the author’s knowledge, there is very little published evidence of PSS prototyping in researcher laboratories and only a limited number of examples of PSS development and usage in practice in the context of New South Wales, Australia.
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