

Chapter 61

GIS Implementation in Malaysian Statutory Development Plan System

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ABSTRACT

The chapter presents the current state of GIS implementation in Malaysian development plan system. It offers an overview of GIS implementation worldwide, touching briefly on the history of GIS, planners' early acceptance of the system, factors that promote GIS implementation, level of usage among planners, and factors that impede successful GIS implementation. At the end, the chapter provides a comparison between the state of GIS implementation in Malaysian statutory development plan system with the state of GIS implementation worldwide. The evidence was derived from three main sources: literature, empirical observation of GIS implementation in Malaysia, and a survey conducted in 2008.

INTRODUCTION

After over two decades since its introduction into the planning fields, geographical information systems (GIS) has become one of the important tools-of-the-trade for planners (Ceccato & Snickars, 2000; Drummond & French, 2008; Gocmen, 2009). Despite planners' early resentment towards

GIS, they have now become one of the most frequent users of the systems (Budic, 2000; Ceccato & Snickars, 2000; Geertman, 2002; Gilfoyle & Wong, 1998; Gocmen, 2009). In describing planners' early resentment towards GIS, Klosterman (1997) points out that this was largely due to past failures of efforts to computerize planning, such as the failure of large-scale urban modelling. Early GIS implementation was also expensive,

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and the software was highly complicated for planners liking.

Beginning in the middle of 1980s, the adoption of GIS among local governments in the United States of America began to increase slowly, and then sharply in the 1990s (Drummond & French, 2008). Researchers attributed this change in GIS adoption rate to better and cheaper hardware and software availability, as well as better GIS data accessibility (Drummond & French, 2008; Geertman, 2002; Gilfoyle & Wong, 1998; Klosterman, 1999).

Key actions by governments also helped to accelerate GIS adoption in the 1990s. For instance, the publication of Chorley Report in 1987 has helped to increase GIS awareness and provided fundamental directions for GIS development in Britain (Gilfoyle & Wong, 1998). In Wisconsin, U.S.A., the state-funded Wisconsin Land Information Program and the enactment of the Comprehensive Planning Law of 1999 have significantly contributed to increase GIS adoption in the state (Gocmen, 2009).

Since the 1990s, the use of GIS among planners has been widespread. Planners began to adopt this 'new' method in the course of their work, especially in terms of map-making and land data storing. GIS-based information systems were developed and deployed to allow planners and stakeholders better access to information and data (Craglia & Signoretta, 2000; Gilfoyle & Wong, 1998; Heeks, 2002). However, widespread implementation of GIS in the planning field does not translate into full utilization of GIS application. Research indicates that planners' regular use of GIS has been largely limited to the basic functions of the systems, such as mapping and accessing land information, for routine operational and management tasks including permit processing, land data storing and map presentation (Budic, 2000; Gill, Higgs, & Nevitt, 1999; Klosterman, 1997; Mennecke & West, 2001). Even at present, prevalent use of GIS among planners continues to centre on rudimentary applications while advanced ap-

plications, such as spatial analysis and modelling, remain underutilized (Gocmen, 2009).

While GIS application among planners continues to be underutilized, the fate of GIS-based information systems is more difficult to assess, mainly because such assessment is highly subjective and timing-dependent (Heeks, 2002). What is considered a success to one person may be a failure to another, and what is considered a success today may be a failure tomorrow. The difficulty in assessing the success and failure of GIS-based information systems is made worst by the propensity of system developers to only report success story. However, several authors suggest that there are many cases of failed GIS-based information systems (Abdullah et al, 2002; Heeks, 2002; Lee & Ahmad, 2000). For instance, Heeks (2002) says that,

On the basis of...these surveys, one may estimate that something like one-fifth to one-quarter of industrialized-country IS (i.e. information system) projects fall into the category of total failure category; something like one-third to three-fifths fall into the partial failure category; and only a minority fall into success category. (p. 102)

Nevertheless, researchers tend to agree that organisational factors are more important than technological ones in ensuring a successful implementation of an information system (Abdullah et al., 2002; Heeks, 2002; Innes & Simpson, 1993; Ramasubramanian, 1999). Organisational mission to implement and support information system, retaining key and trained staff involved in the development and implementation of the system, data availability, and system designers' understanding of users' needs are among the organisational factors identified as key ingredients for a successful information system.

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