

Universiti Teknologi MARA

**Preliminary Design of a Spatial Decision Support
System with Multi-Agent for
Universiti Kuala Lumpur Staff Development**

Hana Munira Muhd Mukhtar

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ABSTRACT

This study initiates the preliminary design of a Spatial Decision Support System (SDSS) especially for Universiti Kuala Lumpur's (UniKL) staff development focusing on further studies module. This will help decision makers in making complex choice, that is to decide a group of academic staff to further their studies from 8 branch campuses and 2 faculties that specialized in 40 different field of study, whether in local university or oversea, part time mode or full time mode, the area of study, costs and etc. that must aligned with further studies requirement, economic and policies issues. This involves designing a user friendly front-end, a database and "what-if" analysis for ranking process back-end. The approaches taken for this study was based on the methodology of problem definition, system analysis and system design. The design of this study is influenced of geography and spatial variables as determinants for further studies module, that is, the spatial dimension of the problem for further studies module. Attempts are increasing being made to use Geographical Information System (GIS) for further studies module analysis and visualization in the emerging field of further studies mapping sees which further studies maps as useful input into decision-making. This paper describes the preliminary design of the Geographic Targeting Geo-Information System (GTGIS), which integrates various GIS tools, further studies module data modeling and Decision Support System's (DSS) capabilities of choice modeling for UniKL staff development management. Besides, the design of this study also incorporates multi-agent by using the RETSINA multi-agent architecture.

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CHAPTER 1

INTRODUCTION

1.1 Overview

1.1.1 Decision Support System

Decision Support System (DSS) is Information System (IS) “application”, but with characteristics that make it significantly different from a typical data processing application. It is the hardware/software that allows a specific decision maker or a group of decision makers to deal with a specific set of related problem (Sprague, 1980).

Decision-making is a complex process, influenced by many factors, both human and non-human. DSS is a well-established area of information system (IS) application. Academic research in the DSS field dates from the work of Gorry and Scott-Morton in 1971 (cited in Keenan, 1997). Earliest definition of DSS, introduced by Scott-Morton in 1978 (cited in Sprague, 1980) was: *“Interactive computerized systems that help decision makers utilize data and models to solve unstructured problems”.*

Fabbri (1998) defined DSS as an integrated, interactive and flexible computer system that supports all phases of decision-making with a user-friendly interface, data and expert knowledge (cited in Zahra and Sattri, 2003). There is a spectrum of definitions on DSS, which reflects the fact that heterogeneous groups view it differently. Most DSS designers refer to a developed man-machine interface between user and system. This has lead to a generalized perception of calling