Universiti Teknologi MARA

Application of Fuzzy Cognitive Map in Simulating Strategic Information System Planning Process

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Thesis is submitted in partial fulfillment for
Bachelor of Science (Hons) in Business Computing
Faculty of Information Technology And Quantitative Sciences

November 2005

DECLARATION

This declaration is to clarify that all the submitted contents of this diesis are original in its stature, excluding those, which have been, acknowledge especially in the references. All the work process involved is from my own idea and work. All of the content of this thesis has been submitted as part of partially fulfillment of B.Sc. (Horn.) in Business Computing program. I hereby declare that this thesis project is the work of my own excluded for the references document and summaries that have been acknowledged.

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ABSTRACT

In this day and age, more researches have been conducted in the domain of Strategic Information System Planning (SISP). However, this is just the continuation from the 1980*s where various articles began to probe the underlying causes for the relationship between Information Technology (IT) and businesses. Since men, many academicians and theoreticians have come out with models and approaches to analyze the use of IT from a strategic point of view. Reflect to that, this research is to show the application and capabilities of Fuzzy Cognitive Map (FCM) in simulating SISP business scenarios. This research was conducted because of the level of infancy held by FCM in the SISP domain. Moreover, SISP environment frequently deals with uncertainties and the "what-if" circumstances. So, rather than practicing other SISP tools such as Boston Consulting Group (BCG) Matrix, Porter's Five Forces Model and Generic Business Strategies, this research is intended to use FCM as the technique in formulating SISP strategies. In order to achieve the objective, two SISP business scenarios have been designed using FCM technique before being simulated in an open-source simulation program. The simulation program has been developed by its author and using Java programming language. From the simulation, its output and results have been analyzed and discussed. For the first scenario, it is found that FCM did not provide enough information in decision making for SISP. However, the second scenario showed some promising feature by providing meaningful and interpretable output that can offer broader view for managers in formulating SISP. As recommendations, future researchers should run the simulation on other programs, simulate more SISP scenarios and should also be able to propose a more intricate and extended FCM.

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