ABSTRACT

RICO RIZAL BUDIDARMO. Business Intelligent System Modelling in Decision Making Process of Banking Information Technology. Under the supervision of MARIMIN as the chairman, RINA OKTAVIANI and NOER AZAM ACHSANI as the members of advisory committee.

The objectives of this study are to provide a structured modeling of business intelligence system for helping decision makers in banking information technology (IT) to extract information, to anticipate business environment changes, and to make appropriate and effective decisions. The modeling construction of business intelligence system uses a system approach, combined with a business intelligence roadmap, has an ability to process internal and external data as well as providing intelligence analysis to determine IT strategy.

The business intelligence system model consists of five business intelligence submodels. First, the evaluating submodel based on a rule-based expert system method is being used to swiftly evaluate existing IT application, infrastructure, and implementation. Second, the competition submodel utilizing the Porter’s concept has been designed to determine a proper IT pricing strategy to anticipate the increased competition using neural network tool. Third, the forecasting submodel based on neural network will predicts bank’s optimal IT hardware capacity strategy using main transaction volatility. Fourth, investment feasibility submodel for helping IT managers to determine the feasibility of an IT project considering multicriteria multidimension factors. Fifth, IT strategic submodel is proposed to support IT management with an appropriate tool to make long-term decision making strategies.

The demand analysis and situational analysis are the proper initial techniques in analyzing and describing the modelling needed by managers. IT capabilities is the most critical weapon to win the increased competition. Having intelligent knowledge and information will support the decision makers towards a qualified decision making process. Criterias and factors influenced the banking technology environment in all submodels has to be justified thoroughly. These will lead the management decision into the accurate one. Focus of the good established model is not only optimalization and efficiency, but also considering good corporate governance and risk management factors.

Specific system intelligent techniques like an expert system and artificial neural network are used in this study. The back propagation neural network, radial basis function neural network, and Analytical Hierarchy Process (AHP) techniques will give some priority actions for management to decide the best strategy for each case. Validation and verification through expert judgment were undertaken to show whether the model could give effective decisions and advices for IT management with proper strategies under some circumstances. A limited series of experiments has been conducted on real IT activities to acquire the data for training and testing and it was found that the models could predict the process performance with reasonably accuracy, under varying conditions.

Key words: business intelligence system, banking, information technology, analytical hierarchy process, artificial neural network, expert system.