Abstract

The enterprise risk management is crucial for high-stakes investment corporations. The contemporary value-based management seeks to maximize the shareholder value. To achieve value creation, enterprises need to identify the key value drivers, also called key risk factors where they cause unexpected value and loss. Key value drivers are the variables that can be
maximized to raise the entire enterprise value and influenced by the corporate strategy. This study presents an approach to applying Bayesian Network to determine key value drivers or key risk factors for the prediction of enterprises value, economic profit of Expressway Authority in Thailand. The experimental results showed that this technique provides high prediction accuracy. The eight key risk factors that affect the enterprise value comprise Traffic volume per day, Time of travel, Cost of Route Maintenance, Income from rental area, Speed of toll collection, Volume per capacity rate, Rate of Accident, and Income from Tollway. The results of multiple regression analysis indicated that all the independent variables (eight key risk factors) in the Bayesian Network model directly affected the dependent variable or economic profit. Furthermore, the model is applicable for scenario analysis in expressway management to discover the factors that would increase economic profit. The results of various scenarios reported that the high level of service quality must be sustained if the enterprise desires to increase the economic profit.

Reference

- Rui, C. 2010. Advanced algorithms of Bayesian network learning and inference from inconsistent prior knowledge and sparse data with applications in computational biology and computer vision. The article in Bayesian Networks. Edit by Ahmed, R. In Tech. USA.

**Index Terms**

Computer Science  
Decision Supporting

**Key words**

Bayesian Networks  
Expressway Management

Enterprise Value  
Scenario Analysis

Enterprise Risk Management