INTEGRATION OF DEMATEL (TRIAL AND DECISION MAKING LABORATORY EVALUATION) AND ANP (ANALYTIC NETWORK PROCESS) METHODS FOR EVALUATING THE SUPPLIER’S PERFORMANCE IN PT. XYZ

By : Yosta Yoserizal
Student Identity Number : 9109201409
Supervisor : Prof. Ir. Moses L. Singgih, M.Sc, Ph.D

ABSTRACT

Evaluating the supplier’s performance is a strategic step in a supply chain management that must be carried out periodically by the company to keep the supplier performance in order to fit with the needs of the company. Identification criteria for supplier’s performance evaluation is a crucial step. The identification of criteria can be determined by the Delphi approach. In addition, it is necessary to determine the priority of all chosen criteria weights, so that the evaluation process can be run in accordance with the needs and company goals. Based on that purpose, so in this research was used an integrated approach of Dematel and ANP methods. The methodology can be applied to the performance evaluation of paper suppliers case at PT. XYZ.

Based on the Delphi approach has been selected 14 criteria that can be used to evaluate the supplier’s performance. These criteria are summarized in the accuracy, service, price, and green suppliers variables. Dematel analysis resulted that responsiveness is the most dominant criterion in the prominence and causal relations groups, while the quantity accuracy of delivery is the most dominant criterion in effect relations groups. Dematel also showed that the criteria in suppliers performance evaluation system has a relationship, such an inner-dependence and an outer-dependence relationship. Based on the weighting process by the ANP method, can be concluded that the company is prioritizing five assessment criteria to evaluate a supplier’s performance, namely the accuracy of quality, green process, quantity accuracy of delivery, green product, and timeliness of delivery.

The research showed that PT. CMI is the best supplier on the evaluation period from April up to June 2011, while D.R.W.S.N be the best on the evaluation period from July up to September 2011. Based on the traffic light system analysis, PT. CMI and D.R.W.S.N have a very good performance on 13 evaluation criteria, except the price of paper criterion. PT. P has a very good performance on all of criteria used for evaluation. PT. SKH and PT. PD showed their advantages in the accuracy of quality and the timeliness delivery criteria. While, CV. DG has a good enough performance on the accuracy of quality criterion.

Keywords : Evaluating the supplier’s performance, Delphi, DEMATEL, ANP, and Traffic light system