A Decision Support System to Evaluate Suppliers in the Context of Global Service Providers

Bruno Bruck, Centro de Informática, Universidade Federal da Paraíba, Brazil
Manuel Iori, DISMI – University of Modena and Reggio Emilia, Italy
Daniele Pretolani, DISMI – University of Modena and Reggio Emilia, Italy
Dario Vezzali, DISMI – University of Modena and Reggio Emilia, Italy

Abstract:

In this work, we propose a decision support system (DSS) to evaluate a set of suppliers by considering a multiplicity of variables. The DSS has been implemented to solve a real problem faced by a Global Service Provider (GSP) operating in the Italian market, and is based on a simplified Analytic Hierarchy Process (AHP) application.
GSPs operate in the field of facility management, providing customers with general maintenance services for their real estate assets. To realize this purpose, they subcontract to selected suppliers the execution of services. A comprehensive and multi-criteria evaluation of suppliers is the key element to select the most fitting one for a specific service requested by a particular customer. This process of suppliers' selection directly affects success and duration of the relationship between the GSP and its customers.
The content of our work consists of five parts: first, variables identification and description, necessary to create an objective and comprehensive evaluation of GSP's suppliers; second, weights calculation of defined variables accordingly to the AHP method; third, mathematical model formulation in order to precisely describe the decision problem; fourth, data collection and database creation containing all of the raw data necessary to perform the evaluation; fifth, DSS development and test with potential users through a web application prototype specifically developed for the problem.

Key words:

6. Analytic Hierarchy Process
29. Decision Support Systems
79. Multi-Criteria Decision Aids