

Performance Measurement by Analytic Hierarchy Process in Performance Based Logistics

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Abstract : Performance Based Logistics (PBL) is a strategic approach that enables creating long-term and win-win relations among stakeholders in the acquisition. Contrary to the traditional single transactions, the expected value is created by the performance of the service pertaining to the strategic relationships in this approach. PBL motivates all relevant stakeholders to focus on their core competencies to produce the desired outcome in a collective way. The desired outcome can only be assured with a cost effective way as long as it is periodically measured with the right performance parameters. Thus, defining these parameters is a crucial step for the PBL contracts. In performance parameter determination, Analytic Hierarchy Process (AHP), which is a multi-criteria decision making methodology for complex cases, was used within this study for a complex system. AHP has been extensively applied in various areas including supply chain, inventory management, outsourcing, and logistics. This methodology made it possible to convert end-user's main operation and maintenance requirements to sub criteria contained by a single performance parameter. Those requirements were categorized and assigned weights by the relevant stakeholders. Single performance parameter capable of measuring the overall performance of a complex system is the major outcome of this study. The parameter deals with the integrated assessment of different functions spanning from training, operation, maintenance, reporting, and documentation that are implemented within a complex system. The aim of this study is to show the methodology and processes implemented to identify a single performance parameter for measuring the whole performance of a complex system within a PBL contract. AHP methodology is recommended as an option for the researches and the practitioners who seek for a lean and integrated approach for performance assessment within PBL contracts. The implementation of AHP methodology in this study may help PBL practitioners from methodological perception and add value to AHP in becoming prevalent.

Keywords : analytic hierarchy process, performance based logistics, performance measurement, performance parameters

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