

Supply Chain Performance Analysis Using Model Supply Chain Operations Reference (SCOR®) 11.0: A Case Study for Educating Engineering Student

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Abstract

The condition of the newspaper industry in Indonesia is encountering problems with the decline of newspapers demand every year. One of the examples is a newspaper publisher, which originated from Surakarta. Moreover, it is also encountering the replenishment cycle and manufacturing cycle difficulty. These issues can be improved by mapping and measuring the performance of the supply chain using the Supply Chain Operations Reference (SCOR) model. In this case, we solved the problem using the SCOR model, and then we take the result as a case study to educate engineering students through problem-based learning (PBL). Research data include primary and secondary data. Questionnaires are structured to verify the Key Performance Indicators (KPI) by the conditions of the company. KPI calculated the value of performance and compared with target companies and similar companies using a gap analysis. The supply chain process is associated with KPIs to evaluate the process and improve performance based on best practices. Two of the most prioritized practices are implementation designs. Based on the measurements made, it is perceived that the performance values that have not reached the target are perfect order fulfillment, returns rate, total cost to serve, cash-to-cash cycle time, return on fixed assets and return on working capital which has gap successively by 0.25%, 0.33%, 1.76%, 15 days, 5%, and 9%. The results show that several supply chain process processes are affecting the inefficiency of the metric to be corrected. Two practices designed are the identification of obsolete assets and ABC inventory classification. By using the PBL approach, we also demonstrate the teaching process as an engineering capstone design project.

Keywords

Performance measurement; Problem-based learning; Supply chain; Supply chain operations reference

Biographies

Wahyudi Sutopo is a Professor in Industrial Engineering and Head of Industrial Engineering and Techno-Economics Research Group (RG-RITE) of Faculty Engineering, Universitas Sebelas Maret (UNS), Indonesia. He earned his Ph.D. in Industrial Engineering & Management from Institut Teknologi Bandung in 2011. He has done projects with Indonesia endowment fund for education (LPDP), sustainable higher education research alliances (SHERA), MIT-Indonesia research alliance (MIRA), PT Pertamina (Persero), PT Toyota Motor Manufacturing Indonesia, and various other companies. He has published more than 160 articles indexed Scopus, and his research interests include logistics & supply chain management, engineering economy, cost analysis & estimation, and technology commercialization. He is a member of the board of industrial engineering chapter - the institute of Indonesian engineers (BKTI-PII), Indonesian Supply Chain & Logistics Institute (ISLI), Society of Industrial Engineering, and Operations Management (IEOM), and Institute of Industrial & Systems Engineers (IISE).

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