

A Reference Framework Integrating Lean and Green Principles within Supply Chain Management

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Abstract : In the last decades, an increasing set of companies adopted lean philosophy to improve their productivity and efficiency promoting the so-called continuous improvement concept, reducing waste of time and cutting off no-value added activities. In parallel, increasing attention rises toward green practice and management through the spread of the green supply chain pattern, to minimise landfilled waste, drained wastewater and pollutant emissions. Starting from a review on contributions deepening lean and green principles applied to supply chain management, the most relevant drivers to measure the performance of industrial processes are pointed out. Specific attention is paid on the role of cost because it is of key importance and it crosses both lean and green principles. This analysis leads to figure out an original reference framework for integrating lean and green principles in designing and managing supply chains. The proposed framework supports the application, to the whole value chain or to parts of it, e.g. distribution network, assembly system, job-shop, storage system etc., of the lean-green integrated perspective. Evidences show that the combination of the lean and green practices lead to great results, higher than the sum of the performances from their separate application. Lean thinking has beneficial effects on green practices and, at the same time, methods allowing environmental savings generate positive effects on time reduction and process quality increase.

Keywords : environmental sustainability, green supply chain, integrated framework, lean thinking, supply chain management

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