

Simulation Model for Optimizing Energy in Supply Chain Management

Authors : Nazli Akhlaghinia, Ali Rajabzadeh Ghatari

Abstract : In today's world, with increasing environmental awareness, firms are facing severe pressure from various stakeholders, including the government and customers, to reduce their harmful effects on the environment. Over the past few decades, the increasing effects of global warming, climate change, waste, and air pollution have increased the global attention of experts to the issue of the green supply chain and led them to the optimal solution for greenery. Green supply chain management (GSCM) plays an important role in motivating the sustainability of the organization. With increasing environmental concerns, the main objective of the research is to use system thinking methodology and Vensim software for designing a dynamic system model for green supply chain and observing behaviors. Using this methodology, we look for the effects of a green supply chain structure on the behavioral dynamics of output variables. We try to simulate the complexity of GSCM in a period of 30 months and observe the complexity of behaviors of variables including sustainability, providing green products, and reducing energy consumption, and consequently reducing sample pollution.

Keywords : supply chain management, green supply chain management, system dynamics, energy consumption

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