

عنوان مقاله:

Supply Chain Configuration for Re-Configured Product Family as a Game Theory

محل انتشار:

سومین کنفرانس بین المللی تفکر سیستمی در عمل (سال: 1402)

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خلاصه مقاله:

Product Family deals with a group of products with similar modules produced based on assembling to order (ATO) approach. Technology of products are developed over time through product modules and dynamic development of technology cause to change customer utilities and therefore demand level of products. These dynamic change not only have a profound impact on the product family configuration (PFC), but also to supply chain configuration (SCC). Therefore we proposed a novel model for joint-reconfiguration of the product family (PF) and the supply chain (SC) to maximize customer utility and minimize supply chain cost. Leader-Follower Stackelberg game theory proper a suitable framework for handling conflict objectives of joint-reconfiguration of PF and SC: maximizing customer utility and minimizing the supply chain cost. Customer utility maximization is the objective of the leader problem for product family reconfiguration, which results in the optimal selection of modules, and product variants and supply chain cost minimization is the objective of the lower level problem intends to re-configure the supply chain to reach the optimal selection of suppliers, assembly plant and retailers. A bi-level linear programming problem (BLP) is used to model the leader-follower game. We use GAMS to solve the joint-reconfiguration optimization model. A case study of Mountain Bike product family is reported to show the validity of the proposed model. Finally, results in some managerial implications are obtained through sensitivity analysis.

کلمات کلیدی:

supply chain Configuration; Product Family; Re-Configuration; Bi-level programming; Game Theory

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