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Designing new products and engineering supply chain systems with SoSE

Abstract: The concept of designing smartness of new products and systems from a business perspective has been investigated in operations literature. The problem of understanding, designing, engineering and governing the technologies behind these new products requires new concepts. The emergence of these modern technologies causes a myriad of interconnected systems, which are working together to satisfy the necessities of modern life. Development of System of System Engineering (SoSE) is an attempt by the systems engineering and science community to fulfill this requirement.

Keywords: New-Products, Supply-Chain-Management, SoSE

1 Introduction

The literature has signaled a change in buyer-supplier relations in the context of new product/service development, since, as Chesbrough explains suppliers' proposals may be equal to or better than those that occur internally in the organization. The main purpose of a SoS model is to understand a very complex system by studying not only its components, but also the system as a whole.

2 Objectives

Our objective is to examine the potential of SoSE and identify policies achieving organization's supply chain competence when designing new products.

3 Methods

Understanding the implications of the development of System of System Engineering (SoSE) is an attempt by the systems engineering and science community to fulfill this objective.

4 Results

Based on initial values, the optimal design increases product performance from different parameters. The optimal investment plan considers different budgets, components and resources through simulations at each SoSE level. A dynamic resource allocation problem was proposed for developing optimal designs. Optimal design products consider components and resources through simulations from the level of products to the inter-organizational service capability level.

5 Conclusion

It is not just approach to product development. SoSE consider the limits of available technology and manage the risks in the interaction among different components and suppliers. The main contribution of our study is to analyze the strategic approach of SoSE when leveraging innovation opportunities from the s. SoSE improves organization's supply chain competence.

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