

**Title:** Dynamic Transportation Capacity Planning for New Product Diffusion: An Integrated ABMS- Optimization Framework

**Description:**

This study will be developing a dynamic transportation capacity planning method for a newly introduces product, where estimated demand a different stages of a new product life-cycle provides input to the planning process. The new approach would combine agent-based simulation modeling to represent the new product diffusion, a module for optimizing price and time duration contract parameters, and a risk assessment/mitigation module. As a case study, the new dynamic transportation capacity planning method would be applied to development and design of suppliers network of raw biomaterials for biofuels manufacturing, where the raw biomaterials is treated as “new product.” The embedded uncertainties of supplier counts, supply quantity, and supplier locations induce a significant level of complexity into the decision-making environment. The goal of this research is to develop, validate and test a mechanism for integrating issues of marked growth and supplier identification with transportation capacity planning.

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