

Supply Chain Network Design using Game-Theory

V. Maru, K. Krishnan, S. Nannapaneni, and A. Arishi

ISME Department, Wichita State University
Wichita, USA

Corresponding author's Email: vkmaru@shockers.wichita.edu

Abstract: Supply chain network is one of the problems businesses come across when they are dealing with finished goods. From making the goods to providing them to the consumer is part of the supply chain. Considering the market size and 21st-century population demands, it is crucial to have the optimal design of the supply chain network. This research aims to optimize the supply chain network design in external dealings and provides insight into the decision-making framework. The experiments are performed in NetLogo for agent-based modeling and mechanism design to portray how the supplier and customer relationship behaves in relation to price and negotiations. The study provides promising insight into more negotiations that will reduce the prices for customers and those customers at least should wait out in the first negotiation round. Lower the auction, supplier benefits. With a lower number of auctions, suppliers can manage to sell more frequently as well.

Keywords: *Mechanism design, supply chain, agent-based*