University of Macau

Abstract

FUZZY ADAPTIVE AGENT FOR SUPPLY CHAIN MANAGEMENT

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Abstract.

Recent technological advances in electronic commerce have fuelled the need for designing effective strategies for supply chain management. These strategies are essential in guiding various activities within a supply chain such as component acquisition, inventory management, customer orders bidding, scheduling for production, and delivery. Among these activities, planning of raw material acquisition for inventory and bidding for customer orders can be extremely complex since such activities are required to deal with external entities such as suppliers and customers. Specifically, in the context of the manufacturing industry, acquiring raw materials for maintaining a flexible yet adequate inventory level is a complex issue due to the potential fluctuation in suppliers' production capacity and market demand. Designing an effective strategy for bidding customer orders is also an intricate problem due to the intense competition in fast changing market environments. In this research, we describe the strategies of a supply chain management agent which adaptively adjusts its target inventory level and customer order bidding price based on fuzzy logic reasoning. The agent has competed in the 2006 Trading Agent Competition for Supply Chain Management and has achieved good results.