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AN ALLOCATION HEURISTIC FOR MULTI-ATTRIBUTE SUPPLY CHAIN REVERSE AUCTIONS

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Abstract

Today's supply chains require more dynamic trading practices to better match suppliers with their customers. Additionally, the purchase decisions faced are rarely made on price alone; but rather on a bundle of attribute values. With ubiquitous computing and Internet connectivity, newer types of negotiation are emerging such as reverse auctions. This paper presents a heuristic algorithm for multi-attribute reverse auction bid selection that considers two tiers of the supply chain. The suppliers place bids to meet just-in-time requirements of a manufacturer to quote their consumers' RFQs. The heuristic solution is a collection of near optimal bids that attempt to maximize overall profit subject to capacity constraints, supplier delivery dates, and component costs, as well as consumer late delivery penalties.

Keywords: Supply Chain, Multi-Attribute Auction, Heuristics