

Supplier Selection Refinement Using Priority Mapped NSGA-III

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Abstract

This paper aims to provide an evolutionary algorithm-based approach to the Supplier selection problem in the manufacturing supply chain. Supplier selection becomes quite complex when the user priorities need to be incorporated considering various existing complexities like pricing, risk, and flexibility involved with each supplier. We are formulating it as a multi-objective optimization problem while mapping the user priorities onto the optimization space using the reference directions feature available in NSGA- III optimization. Then we execute the NSGA- III optimization on an available lot of suppliers to select the most optimal supplier as per user priority. This way user choice is brought into consideration while optimizing for the suitable supplier.

Keywords: Supplier Selection, Multi-objective optimization, Evolutionary algorithms, NSGA-III