



*In the last several decades, the supplier selection problem (SSP) has attracted great attention in business management literature and practices. This dissertation is practically and theoretically motivated to study the supplier selection integration in the supply chain respectively under the deterministic, the dynamic and the stochastic demand conditions by using the multi-objective programming (MOP) technique. In the stochastic case, the issue of supplier flexibility is raised. A measurement of supplier flexibility is extended to involve the demand quantity reduction/increase uncertainties and the demand timing reduction uncertainty. A problem specific genetic algorithm (GA) is applied to deal with the combinatorial optimization problems (COPs) raised in the model development. This work contributes to a general decision support system (DSS) for the supplier selection integration decisions in the supply chain and a flexibility indicator system for supplier negotiation.*

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