Abstract

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Study of Supply Chain disruptions and mitigation strategies using Monte Carlo simulation

The aim of this paper is to study the effect of the capacity disruptions and demand disruptions simultaneously on the supply chain performance. It also considers different mitigation plans to reduce the effects of disruptions. A Monte Carlo simulation approach is used to quantify the effects of these disruptions along a large number of periods. The simulation is applied to generate different operational scenarios for each supply chain design. The capacity and the demand are subjected to variability. The capacity of the plants is subjected to variability in performance, availability and quality. Different performance measure are considered such as cost, profit, percentage in full, and fill rate in different disruption scenarios, and for different mitigation strategies.