

A New Framework for Strategic Risk Analysis in a Global Pump Manufacturing Network

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This paper presents a new risk analysis framework applied to a global production network for pump manufacturing considering strategic decisions regarding alternative suppliers and markets. External and internal risk scenarios are defined and alternative network configurations are evaluated considering the constructed risk scenarios. Inoperability of individual nodes in the global production networks caused by identified risks are determined by taking into account propagation of risks due to the interdependencies between nodes. Fuzzy arithmetic is applied to track the level of uncertainty inherent in the model parameters and the outcomes. It is demonstrated how recommendations can be made with regard to the network configuration and handling of the uncertainty in the results.