

Technology and Supply Chain Performance Measurement: Bayesian Network Modelling Approach

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Abstract

Measuring supply chain performance leads to improved organizational performance. Monitoring the performance of supply chain activities throughout the upstream and downstream supply chain network will help to achieve meeting customer demand. In spite of the importance of monitoring supply chain performance is vivacious, the organization must ensure their supply chain monitoring practice is in place and workable notably to respond to any unexpected situation in business such as crisis. In the recent event of Covid-19 crisis, many businesses and supply chain are affected and disrupted. Since many business organizations do not know how to model disruptions or their effects on performance in the event of a pandemic, resulting in delayed responses, an incomplete understanding of the pandemic's effects, and late deployment of recovery measures. As a result, it is critical for a company to monitor supply chain operations. This paper provides new insight on the usage of Bayesian Network (BN) network modelling to develop and monitor supply chain performance metrics. Airline maintenance repair and overhaul (MRO) sector is adopted in this study to explain on the use of BN in measuring supply chain performance. This study is a continuation work from past study on BN with extending the concept of BN and supply chain performance from technological standpoint view. Specifically, this study extends the concept of BN and supply chain performance through the technological means, such as performance measurement via artificial intelligence.

Keywords: Bayesian networks, supply chain, artificial intelligence, COVID-19, MRO