

Supply Chain Resilience – A Case Study of Three Finnish Manufacturing Companies during COVID-19 Pandemic

Pasi Rönkkö

Industrial Engineering and Management research unit,
University of Oulu, Finland
pasi.ronkko@oulu.fi

Aleksi Isopoussu

Industrial Engineering and Management research unit,
University of Oulu, Finland
isopoussu.aleksi@gmail.com

Jukka Majava

Industrial Engineering and Management research unit,
University of Oulu, Finland
jukka.majava@oulu.fi

Osmo Kauppila

Industrial Engineering and Management research unit,
University of Oulu, Finland
Quality Technology and Logistics,
Luleå University of Technology, Sweden
osmo.kauppila@oulu.fi

Abstract

Global supply chains may be extremely vulnerable in the face of sudden crises, such as the recent coronavirus pandemic. Besides issues related to health and lives of people, the pandemic has negative impacts on supply chains and many companies dependent on them are struggling. An ability to recover from disruptions is called resilience. In this study the resilience of supply chains is evaluated by studying three globally operating Finnish B2B manufacturing companies during COVID-19 pandemic. The theoretical background of the study is based on supply chain risk management and supply chain resilience literature. The empirical data collection includes interviews with the case companies' supply chain and purchasing operations representatives. The results are analysed by using a qualitative method, and the findings are compared with the literature. The results include identification of key vulnerabilities and disruptions in the supply chains of the studied companies, and the methods applied to cope with the disruptions and to improve the resilience. Identified resilience capabilities include supply network structure, visibility,

velocity, flexibility, resilient practices in supply operations, collaboration, and culture of resilience. The key challenges were identified to be decreased availability of components, improper IT-systems and lack of visibility, delivery challenges, and long lead times, whereas the most common methods to address the vulnerabilities and disruptions included the use of higher inventory levels, multi-sourcing, crisis teams, communication and collaboration, employee training, and supplier capability evaluation and development. Companies can utilise these findings to prepare for future crises and disruptions in their supply chains.

Keywords: resilience, supply chains, disruption, global crises, COVID-19, coronavirus