The Impact of Analytics and Collaboration–Based Risk Management on Supply Chain Resilience and Robustness: A Conceptual Model Based on Organizational Information Processing Theory and Relational View

Jayatilake A.C.[1*], Silva C.W.C.[2] and Fernando M.A.C.S.S.[3]

[1] *Department of Business Management, Sabaragamuwa University of Sri Lanka*
[2]*Department of Decision Sciences, University of Sri Jayewardenepura, Sri Lanka*
[3]*Department of Economics and Statistics, Sabaragamuwa University of Sri Lanka*
amaliechathurika@gmail.com

Global Supply Chains (SCs) are highly vulnerable to unpredictable disruptions, which occur in a greater frequency and with numerous consequences on SCs. However, resilient SCs can recover from disruptions and achieve business continuity in turbulent cases, while robust SCs maintain their planned performance following disruptions. Hence, SCs should be both robust and resilient to combat the inevitable risk innate in the firm's operations. However, there were no substantial studies on the investigation of improving SC resilience and robustness simultaneously during disruptions. Literature favours arguing that proper management of SC risks can prevent, detect, respond and recover supply chains from the impacts of disruptions and enhance SC resilience and robustness. Digital technologies, information, and data analytics help firms manage SC risks through the accurate processing of data and sharing of insightful information. In addition, collaborations with SC partners enable firms collectively deal with SC risks and enhance SC resilience and robustness. However, there is a dearth of sufficient literature on empirical investigations into the effect of analytics-based and collaboration-based supply chain risk management (SCRM) on SC resilience and robustness. Apparel manufacturing is a leading industry in Sri Lanka which encountered significant impacts during the recent Covid-19 disruptions. As this sector is working with some of the most globally connected SCs the resilience and robustness of SCs at disruptions are vital for the country's economic stability. As per the Organizational Information Processing Theory (OIPT), firms should develop the capabilities to gather processes and act on information from the environment to mitigate uncertain ambiguity. According to the extended Relational View (RV), relational capabilities such as communication, corporation, and integration would be helpful for firms to enhance corporative relationships and effective sharing of information between SC partners, which are important to reduce SC risks, particularly during disruptive situations. Hence, drawing on the OIPT and the extended RV, this study develops a conceptual model to examine the impact of analytics and collaboration-based SCRM on supply chain resilience and robustness with special emphasis on apparel manufacturing organizations in Sri Lanka.

Keywords: *Analytics-based Risk Management, Collaboration–based Risk Management, Disruptions, Resilience, Robustness, Supply Chain.*