

Supply Chain Agility, Complexity and Resilience: An Empirical Study of Blockchain-Technology Application in Indonesia Logistics Service Providers

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Abstract

Supply chain agility (SCA) and resilience (SCR) have become a very important topic and have been widely discussed in various scientific forums, especially during the covid-19 outbreak that hit various countries in the world. The agility relates to how a logistics service provider quickly responds to short-term changes in the market due to uncertainties in upstream and downstream supply chains; Supply chain complexity refers to level of numerousness, variety, variability, and uncertainty exhibited by the services, processes, and network of logistics service provider; Supply chain resilience constitute the capability of a supply chain to prevent disruptions and to reduce the impact of disruptions through developing required level of readiness, quick response and recovery ability. The study intends to verify the effect of supply chain agility (SCA) on supply chain resilience (SCR) moderated by supply chain complexity (SCC). The study has used a quantitative approach and survey cross sectional method. The research model is constructed by three variables namely supply chain agility (SCA) as independent or exogenous variable, supply chain complexity (SCC) as moderator variable, and supply chain resilience (SCR) as dependent or endogenous variable. Supply chain agility (SCA) has five indicators namely alertness, accessibility, decisiveness, swiftness, and flexibility. Supply chain complexity has three indicators namely product complexity, process flow complexity, and network complexity. Supply chain resilience has four indicators namely flexibility, redundancy, visibility, and collaboration. In collecting data, the study used electronic questionnaires (g-form), purposive sampling technique, and sample size 100 logistics service companies in Indonesia. The study examined two hypotheses by using SEM-PLS (Smart-PLS). The research's implications were further discussed both practically and theoretically.

Keywords

Supply Chain Agility, Supply Chain Complexity, Supply Chain Resilience, Logistics Service Provider

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Andre Kreie (PhD) is Director Global Logistics Education with the Kühne Foundation based in Schindellegi, Switzerland. He is a Business Economist and holds a PhD and Masters in Logistics and Supply Chain Management from Heriot-Watt University, Edinburgh, UK. Dr Kreie completed a professional multi-year traineeship with a logistics company to understand and apply all operational procedures required in sea-, air-, and land-transportation. Prior to joining the Kühne Foundation, Dr Kreie gained further work experience in the supply chain business with a globally operating logistics service provider and worked as project manager for logistics design and operations with a leading European DIY-retailer. Dr Kreie has been teaching intensively in business programs at different universities and further education institutions and his research interest is on organizational and network learning, and supply chain risk management to enable the adaptations of logistical systems to a changing environment. Dr Kreie won the International Emerald/EFDM Outstanding Doctoral Research Award for his PhD thesis on “The Adaptation of Supply Chains to Climate Change”. In his current role, Dr. Kreie leads the LSCM Education unit of the Kühne Foundation that addresses logistics and supply chain management topics as well as leadership and strategic elements for academics as well as professionals. Present activities involve global projects in higher education and vocational trainings with a particular focus on university capacity building in logistics and supply chain management, i.e. Bachelor, Master, and PhD-Degree programs.