Resolving the Paradox of Supply Chain Integration: The Dual-Mediating Roles of Operational Visibility and Coordination Capability

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Abstract

As supply chain competition intensifies, Supply Chain Integration (SCI) has become critical for firm survival. However, mixed findings regarding its direct impact on operational performance have led to a debated “Paradox of SCI”. To resolve this conflict, this study explores the underlying causal mechanisms by examining the dual-mediating roles of operational visibility and operational coordination capability. Furthermore, it adopts a contingency perspective by introducing manufacturing production strategies, such as Engineer-to-Order (ETO) and Make-to-Stock (MTS), as moderating variables. This study collected data through a survey of manufacturing managers in South Korea and analyzed it using Structural Equation Modeling (SEM) and multi-group analysis. The results demonstrate that SCI effectively mitigates the risk of information overload and ultimately enhances operational performance by sequentially improving operational visibility and operational coordination capability. Furthermore, the multi-group analysis revealed that the effectiveness of specific integration dimensions varies depending on a firm's production strategy. These findings make a significant academic contribution by elucidating the "strategic black box" inherent in the relationship between SCI and operational performance. From a practical perspective, this study offers tailored strategic guidelines that enable resource-constrained manufacturing firms to optimize their digital transformation and prioritize SCI activities in alignment with their unique manufacturing environments.

Keywords: Contingency Theory; Information Processing Theory; Digital Transformation; Information Overload; Manufacturing Strategy