

## **A Supply Network Perspective on Organizational Performance: Empirical Evidence from the U.S. Pharmaceutical Industry**

### **Abstract**

Understanding the relationship between the supply network structure and the firm's resilience to supply network disruption is essential for managing a firm's supply network. In the context of the U.S. pharmaceutical industry, we address three questions related to the performance, resilience, and robustness of the focal firm that are related to its supply network.

First, we develop empirically grounded analytics (EGA) to assess the reachability of the focal firm to its supply network during random disruption analysis, which can assist us in determining the optimal supply network tier level for multi-tier supply network analysis. Based on the analysis of the reachability of the focal firm, we identify the tier at which the supply network converges and provides appropriate visibility to the global supply network structure. We use the results of our EGA analysis to construct our "optimal" supply network to assess centrality measures and examine the effect of a focal firm's supply network structure on the firm's financial performance. Our network analysis shows that the supply network in the pharmaceutical industry converges at the third tier.

Second, we assess the financial performance and financial resilience of a focal firm with respect to its supply network structure, and we determine the effect of supply network centrality measures (degree centrality and betweenness centrality) that increased the focal firm's response to COVID-19. The results provide empirical evidence that both the degree centrality measure and betweenness global centrality measure are significant predictors of the focal firm's financial performance and financial resilience.

Third, building upon the structural contingency theory, we find that firm size (negatively) moderates the effect of measures of network centrality and firm performance, suggesting that the effect of the network measures of centrality on firm performance and firm resilience decreases as the focal firm becomes larger.