SOCIAL NETWORK ANALYSIS OF SUPPLY CHAIN AGILITY

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ABSTRACT

Purpose: To explore the applicability of social network analysis for supply chain agility assessment. To investigate the relative agility across a range of indicators of different supply chains using appropriate social network analysis tools and techniques.

Design/methodology/approach: An empirical study of a rural New Zealand supply chain network was conducted. 50 firms were interviewed regarding their supply chains and in particular their agility attributes. In addition to the 50 central nodes 406 secondary nodes were identified as unique suppliers and customers resulting in 728 business ties. Two distinct supply chains were identified in the network, agricultural and tourism. UCINET software was then used to model the network to compare the agility of these two supply chains.

Findings: At the network level, the agriculture supply chain is generally more agile than the tourism supply chain. The focal businesses in the former benefit from greater flexibility, visibility, and faster responses. However, those in the latter have better integration which facilitates information sharing and synchronisation. Examination at the subgroup level once more identifies the agricultural supply chain as more agile, in this instance in regard to tight and close connections, cliques and k-plexes.

Research limitations/implications: The use of secondary nodes in the network analysis, as reported by the interviewees, may have undermined data accuracy. Social network analysis has a range of tools that can be used to model supply chain agility.

Practical implications: The agricultural supply chain outperformed the tourism supply chain across a range of agility measures. However, both had their relative strengths and could learn from one another to enhance their agility.

Originality/value: The study is novel in regard to the application of social network analysis to evaluate supply chain agility. As such it has added to the increasing body of knowledge in regard to the applicability of social network analysis to model supply chains.

Keywords: Agricultural supply chains, tourism supply chains, Supply chain modeling, New Zealand, Social network analysis, Supply chain agility