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**Determinants of Coordination Effectiveness of Selected International Agri-food
Supply Chains: A Structural Equation Modelling Approach**

A thesis presented in partial fulfilment of the requirements for the degree of
Doctor of Philosophy in

Logistics and Supply Chain Management
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by

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DECLARATION

The thesis entitled, “*Determinants of Coordination Effectiveness of Selected International Agri-food Supply Chains: A Structural Equation Modelling Approach*” is submitted to Massey University for the degree of Doctor of Philosophy. I, Pervaiz Akhtar, declare that this thesis is the outcome of my own research work. The material used from other resources is acknowledged. I also certify that the work contained in the thesis, or any part thereof, has not been previously submitted for a degree, diploma or other qualifications.

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ABSTRACT

One of the current discussions in the literature is that intangible (chain coordinators' competencies/skills) and tangible resources are the key determinants of the effectiveness of supply chain coordination (operational, social and financial performance). Chain coordinators' abilities (formal and informal education, training and experience), leadership styles (participative and directive), effective communication (communication quality and frequency) and analytical skills (internal and external applications) are found to be the promising intangible resources. The tangible resources consist of human (a number of people for coordination activities) and non-human (budget and technology for coordination activities) assets.

Both tangible and intangible resources determined the effectiveness of supply chain coordination. In other words, the theoretical model proposed that the above mentioned resources were significantly correlated with the effectiveness of supply chain coordination. Also, operational (service and product quality) and social (satisfaction with and trust in supply chain partners) dimensions significantly influenced financial performance (profit, sales and market share). Therefore, these resources, including operational and social dimensions, were considered as the key determinants for coordination success among supply chain partners.

Thus, the development of the proposed model and subsequent testing it based on collected data achieved the study objectives. This first led to investigate the nature of supply chain coordination and to identify chain coordinators from the selected international agri-food supply chains (dairy, meat, apples, onions and wine) of New Zealand, UK and Pakistan. The nature of supply chain coordination showed potential close interactions occur among farmers, chemical suppliers, logistics providers, food processors, wholesalers (importers and exporters) and retailers. These chain partners exchange information and work together to achieve the effectiveness of supply chain coordination. Moreover, these chain partners generally believe in closer coordination rather than arm's-length relationships. However, the intensity of coordination varies across regions. For instance, it was found that the limited coordination (low-to-medium) occurs in Pakistani selected chains but the chains in New Zealand and the UK use a better integrated approach.

Additionally, importers and exporters play a major role and they also support other chain partners. At organizational level, they (importers and exporters) act as chain coordinators. Within these organizations, chain coordinators (as person) are managing directors or owners in small companies. Chief executive officers (CEOs) and head of departments (marketing managers, supply chain managers, channel or chain managers) play the role of chain coordinators in medium-sized enterprises.

Following the identification of chain coordinators and collecting the data from them, the quantitative analyses were conducted based on a total of 225 and 112 useable responses received from New Zealand and the UK respectively. Overall, the results obtained from the New Zealand sample showed that nearly 85% of the total structural coefficients were significantly correlated with the effectiveness of supply chain coordination whereas the findings based on the UK sample revealed that almost 77% of the total structural coefficients were significant. The findings indicated that education (formal and informal – excluding multiple language skills), training, experience, a participative leadership style, effective communication and analytical skills were the key competencies for chain coordinators. Chain coordinators' competencies together with non-human resources (budget and technology) determined the effectiveness of supply chain coordination. Additionally, operational and social dimensions had highly significant effects on financial performance.

Therefore, it was concluded that chain coordinators who have the above mentioned competencies or skills are in a better position to understand modern agri-food supply chains. They also perform supply chain activities effectively, in turn, it keeps supply chain partners connected and motivated to achieve the effectiveness of supply chain coordination. Thereby, the study made substantial contributions in the field where there has been a lack of such findings. Also, the directions for future research provide further interesting outcomes and useful guidelines.

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