

Antecedents and Consequences of Supply chain innovation: Empirical evidence from Vietnamese agricultural supply chain

by **Phi Yen Phan**

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Principal Supervisor: Associate Professor Renu Agarwal

Co-Supervisors: Associate Professor Christopher Bajada and
Dr Sanjoy Paul

University of Technology Sydney
UTS Business School

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ABSTRACT

Many firms today are striving to adopt innovations for their survival and competitiveness. As a large part of a firm's innovation capability resides in its external relationships, innovation is increasingly seen as a collaborative process that involves the participation of various stakeholders in the supply chain. This gives rise to the notion of Supply chain innovation (SCI). In the context of agriculture, the role of SCI has become increasingly important due to growing global demand for food and an increased consumer focus on food quality, traceability and safety. As evident from extant literature, there has been a lack of empirical investigation of SCI as a capability, including its antecedents and consequences, which are highly relevant to and vital for an effective SCI adoption. Relevant past research has been found to focus on a particular type of innovation, such as a product, process or technological innovation, in the context of an individual firm or a binary relationship. Consequently, drawing on Transaction cost theory (TCT) and Dynamic capability theory (DCT), this study aims to: (1) explore the critical antecedents of SCI, including Contract, Trust, Supply chain collaboration (SCC) and Supply chain learning (SCL); (2) investigate the influence of SCI on supply chain performance (SCP), which is moderated by Environmental uncertainties (ENU). This study is conducted based on a mixed methods design, comprising case studies (phase 1) and a survey (phase 2), with empirical evidence from Vietnamese agricultural supply chains.

The results of four exploratory case studies not only provided preliminary support, but also enriched the theoretical model by suggesting an important impact of Awareness on SCI, which has been unexplored in the current literature. The enriched model was then empirically tested, based on a survey of 318 actors in the rice and coffee supply chains in Vietnam, using different analytical methods including Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structure Equation Modelling (SEM). The quantitative results reveal four main findings. First, Contract, Trust, SCL and Awareness are all positively associated with SCI. Second, SCC partially mediates the effects of both Contract and Trust on SCI. Third, SCI has positive impacts on SCP. Last, while demand uncertainties have an adverse effect on the SCI-SCP nexus, technology uncertainties have no statistically significant effect.

The findings of this study are significant in terms of theoretical, methodological and practical contributions, as well as policy implications. Initially, this study provides the

first systematic review of relevant research on the antecedents and consequences of SCI, to produce an integrated and multi-dimensional framework for these constructs as applicable to an agricultural SC. More importantly, this study extends and makes novel contributions to TCT and DCT, based on the first and only investigation of: (1) the mediating role of SCC in the effect of Contract and Trust on SCI; (2) the impact of Awareness and SCL on SCI, which has been unexplored in the current literature; (3) the influence of SCI on SCP moderated by ENU. Furthermore, the investigation of SCI – covering different types of innovation collectively, and involving multiple functions in the supply chain within the distinctive context of Vietnam’s agriculture supply chain – makes this study unique. Of practical application, by establishing the consequences of SCI, this study’s findings can stimulate SCI implementation and success. The study has managerial implications for supply chain/innovation managers and their like. As managers acknowledge the critical determinants of SCI, they will be able to manage their business operations and supply chain activities in an effective and efficient manner, instrumental in SCI. This study also offers some implications for policymakers in Vietnam. Lastly, from a methodological perspective, this study demonstrates the effectiveness of mixed methods research based on a combined case study and survey approach, which has rarely been undertaken in this research area.

CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Phi Yen Phan, student ID – [REDACTED], declare that this thesis, is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Business School at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

Signature:

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Phi Yen Phan

Date: 13 May 2021

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“I was always busy through the day;

I didn't have much time to play.

The little games you asked me to –

I didn't have much time for you.

I'd go to work, study and cook.

But when you'd bring your picture book.

And ask me to share your fun.

I'd say: “a little later son”.

I will always be there for you, no matter what, and you will always be my number one. I wish you all the good things that life can offer you. Mommy loves you to the moon and back!

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List of Acronyms

ACSCMP	American Council of Supply Chain Management Professionals
AMOS	Analysis of Moment Structure
ASV	Average Shared Variance (ASV)
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CR	Composite reliability
DC	Dynamic Capability
DCT	Dynamic capability theory
df	Degrees of Freedom
EFA	Exploratory Factor Analysis
ENU	Environmental uncertainties
ERC	Efficient Consumer Response
ERP	Enterprise Resource Planning
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFI	Goodness-of-fit Index
HOELTER	Hoelter's index
IT	Information technology
KBV	Knowledge-Based View
KMO	Kaiser-Meyer-Olkin
ML	Maximum Likelihood
MSV	Maximum Shared Variance
NFI	Normed Fit Index
OECD	The Organisation for Economic Co-operation and Development
RBV	Resource-Based View
RDT	Resource Dependence Theory
RFID	Radio Frequency Identification Device
RMSEA	Root Mean Square Error Approximation
SC	Supply Chain
SCC	Supply Chain Collaboration
SCI	Supply Chain Innovation
SCL	Supply Chain Learning
SCM	Supply Chain Management
SCP	Supply Chain Performance
SEM	Structure Equation Modelling
SET	Social Exchange Theory
SMI	Supplier Managed Inventory
SPSS	Statistic Packages for Social Sciences
SRI	System of Rice Intensification
SRP	Sustainable Rice Platform
TCT	Transaction Cost Theory
TLI	Tucker-Lewis Index
VMI	Vendors Managed Inventory