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# Knowledge Mobilization for Agri-Food Supply Chain Decisions:

## Identification of Knowledge Boundaries and Categorization of Boundary-Spanning Mechanisms

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## ABSTRACT

The current world business environment is characterized by increasing uncertainties, complexities, and risks, which require agri-food supply chain (AFSC) managers to respond and act quickly in a context full of instability and unpredictability. Increasing pressure placed on AFSC managers intensifies the need to combine knowledge management (KM) and decision support that rapidly overcome knowledge boundaries. It has been recognized that the research issue related to the knowledge mobilization crossing boundaries in the AFSC needs to be addressed. This paper investigates knowledge boundaries and boundary-spanning mechanisms by collecting data from experienced AFSC practitioners. Empirical results verify that knowledge boundaries such as syntactic boundaries, semantic boundaries, and pragmatic boundaries could be effectively tackled by four specific boundary-spanning mechanisms: boundary spanners, boundary objects, boundary practices, and boundary discourses.

## KEYWORDS

Agri-Food Supply Chains, Boundary-Spanning Mechanisms, Decision Making, Knowledge Boundaries, Knowledge Mobilization

## 1. INTRODUCTION

In today's turbulent business environment characterized by digitization, rapid changes, fast-changing of customer demands, exponential growth of technology, and increased interconnectedness, competition between organizations has shifted to competition between supply chains (Ketchen & Giunipero. 2004; Craighead et al., 2009; Bolivar-Ramos et al., 2012; Bhosale & Kant. 2016; Attia & Eldin. 2018). For supply chains to survive in the face of worldwide competitive rivalry and achieve

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superior performance, they must develop and promote their knowledge management (KM) capabilities that are congruent with the requirements of customers and markets and consistently improve their performance and competitive advantage (Weldy and Gillis. 2010; Argote and Miron-Spektor. 2011). However, it is extremely difficult for agri-food supply chain (AFSC) managers to promote their KM capabilities through learning new practices and technologies due to the involvement of different knowledge boundaries that hinder managers' decision-making (Chen et al., 2017; Liu et al., 2019). A knowledge boundary is considered the border around the specialized knowledge domain of agents (Hawkins & Rezazade. 2012).

An AFSC is a complex system responsible for the circulation of agri-food products in a "farm-to-fork" sequence from the initial stage of production to the final stage of consumption (Luo et al., 2018; Zhao et al., 2019). Additionally, stricter food quality standards, globalization, agro-sustainability, rapid industrialization of agricultural-based products, and increasing customer and government concerns over food safety have resulted in the AFSC activities becoming more complex (Zhao et al., 2020). From a process and value-adding perspective, an AFSC can be seen as a transformation system, which takes in inputs such as seeds, fertilizers, energy, and water to transform them to become desired agri-food products (Taylor and Fearne. 2006; Fischer. 2013; Dania et al., 2018). Important activities such as raw material supply, postharvest, testing, packaging, storage, distribution and marketing, are all necessary for the agri-food products' transformation (Nakandala et al., 2017; Siddh et al., 2017). Nowadays, consumers are increasingly looking for high-quality organic agri-food products that are vitamin-rich, with high-protein and low-fat content and low pesticide contamination, which requires stakeholders in the AFSC to share and combine their knowledge, and further to transform their knowledge into products' innovations (Corso et al., 2010; Cillo et al., 2019; Fait et al., 2019). Thus, KM capabilities such as exploring and exploiting available knowledge, identifying and overcoming knowledge boundaries, and sharing/transferring knowledge with AFSC stakeholders appear to be the necessary response to the continually changing and evolving customer requirements. However, most of the existing literature on supply chain KM focuses either on tools and practices that can facilitate KM in supply chains (Martin et al., 2008; Shih et al., 2012; Reyes et al., 2015) or on the barriers to the adoption of KM in supply chains (Sun & Scott, 2005; Patil & Kant, 2014; Batista et al., 2019). Only limited research has identified knowledge boundaries and corresponding boundary-spanning mechanisms in the context of AFSC (Marra et al., 2012; Cerchione & Esposito. 2016).

The aim of this study is to advance the understanding of tackling knowledge boundaries for adopting different boundary-spanning mechanisms within the context of AFSC. Accordingly, three research questions are formulated: (1) What are the knowledge boundaries and boundary-spanning mechanisms that exist in the AFSC? (2) How can boundary-spanning mechanisms be used to tackle knowledge boundaries? (3) What is the most effective element that can be used for tackling knowledge boundaries? Based on data from in-depth interviews with experienced AFSC practitioners from Chile that were analyzed using thematic analysis, total interpretive structural modeling (TISM), and Cross-Impact Matrix Multiplication Applied to Classification (MICMAC) analysis, this study provides insights into understanding knowledge boundaries and boundary-spanning mechanisms used in the AFSC, and makes the following contributions. First, this study empirically identifies the knowledge boundaries that exist in Chileans' AFSC. Second, four boundary-spanning mechanisms to tackle knowledge boundaries have been identified; these are boundary objects, boundary spanners, boundary practices, and boundary discourses. Further, the most effective element for tackling knowledge boundaries has been identified. Finally, an integrative framework linking knowledge boundaries and boundary-spanning mechanisms has been built by serving as a foundation for AFSC practitioners to acquire knowledge and advance collaboration efforts effectively.

The structure of this study is organized as follows - section two reviews related work, followed by the research methodology in section three. Then, the empirical data collection is presented in section four. In section five, we provide the main empirical findings of the research. Further, the discussion is included in section six. Finally, conclusions are drawn in section seven.