

# Factors Affecting the Competitive Advantage of Companies in The Industrial Sector That Rely on Supply Chains in Thailand

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## Abstract

The global supply chain landscape in 2025 is characterized by unprecedented volatility, driven by geopolitical shifts, energy price fluctuations, and rapid technological disruptions. This research investigates the causal relationships between Cross-Functional Integration (CFI), Supply Chain Partnership (SCP), Supply Chain Responsiveness (SCR), Supply Chain Resilience (SCRes), and their collective impact on the Competitive Advantage (CA) of supply chain-dependent industries in Thailand. As Thailand transitions towards high-value manufacturing in sectors such as Electric Vehicles (EVs), electronics, and food processing, the ability to withstand systemic shocks while maintaining operational efficiency is paramount. Employing a mixed-method research design, the study utilizes quantitative data gathered from 400 executives across these key industrial sectors, analyzed via Structural Equation Modeling (SEM) to test the proposed hypotheses. Complementary qualitative insights are derived from in-depth interviews with 15 industry experts, including policymakers and senior executives, to validate the structural model and provide context-rich interpretations. The findings aim to provide a robust, empirically backed framework for Thai enterprises, positing that internal cross-functional integration serves as the critical antecedent that enables effective external partnerships and subsequent resilience. This study contributes to the strategic management literature by offering a localized model for elevating Thailand's industrial competitiveness in an era of uncertainty.

## Introduction

The operational environment of 2025 presents a formidable paradox for industrial supply chains: while digital connectivity has effectively shrunk the globe, the fragility of these interconnected networks has been starkly exposed by persistent supply shocks and fluctuating market demands. Supply chain management (SCM) has consequently transcended its traditional role as a back-office logistical support function to become a primary determinant of corporate survival and national economic security. In Thailand, the stakes are particularly high. As the nation aggressively pivots its economic engine towards high-value industries—specifically Electric Vehicles (EVs), smart electronics, and advanced food processing—the resilience of its supply chain networks is no longer optional. The Thai automotive sector, for instance, relies on the precise, just-in-time orchestration of components from a diverse global web of suppliers to maintain its production output and export competitiveness. However, the increasing complexity of these multi-tier networks renders them highly susceptible to disruptions that can ripple through the entire system with devastating speed.

To understand the mechanics of modern competitiveness, one must look beyond the factory floor. Scholars have long posited that SCM encompasses the holistic management of relationships, information, and material flows across organizational boundaries. Chopra and Meindl (2019) define the supply chain not merely as a linear sequence of steps, but as a complex, dynamic system involving the continuous flow of products, information, and funds, all designed to maximize total supply chain profitability. Yet, in the volatile context of 2025, efficiency alone is insufficient. The rapid emergence of AI-driven analytics and the 'Digital Supply Chain' has revolutionized how organizations anticipate and mitigate risks. According to Bluebik Group (2025), modern supply chains must leverage artificial intelligence and IoT to transform from reactive, static systems into proactive, resilient networks capable of real-time adaptation. This technological imperative underscores the need for organizations to cultivate specific organizational antecedents—such as agility and integration—that foster such adaptability.

Central to this investigation is the concept of Competitive Advantage (CA). Porter (1985) fundamentally defines competitive advantage as the ability of a firm to create superior value for its customers, achieving this either through lower costs or by differentiation that justifies a premium price. Achieving this in a turbulent global market requires more than just internal optimization; it demands a seamless integration of cross-functional capabilities and robust external partnerships. Christopher (2016) argues that in the modern economy, competition is no longer fought between individual companies, but between supply chains. Consequently, the strength of the network—its internal integration, the quality of its partnerships, and its collective responsiveness—directly dictates the competitive standing of the individual firm.

Despite the critical nature of these variables, there remains a paucity of empirical research specifically examining how internal Cross-Functional Integration (CFI) catalyzes external Supply Chain Partnership (SCP) to generate both Resilience (SCRes) and Responsiveness (SCR) within the specific context of Thailand's industrial sector. This research aims to bridge this gap by developing a structural model that explicates the causal pathways between these

variables. By analyzing data from key Thai industries, this study seeks to provide empirical evidence on how companies can reconfigure their supply chain strategies to secure a sustainable competitive advantage amidst the disruptions of the mid-2020s.

## **Literature Review and Hypothesis Development**

**Competitive Advantage: The Strategic Imperative** In the contemporary industrial landscape, Competitive Advantage (CA) is the critical determinant of organizational survival and success. Porter (1985) famously defines CA as the ability of a firm to deliver superior value to customers, either through lower costs or by providing unique benefits that justify a premium price. However, in the context of 2025, this definition has evolved. Barney (1991), through the lens of the Resource-Based View (RBV), posits that sustainable competitive advantage stems not merely from market positioning, but from internal resources that are valuable, rare, inimitable, and non-substitutable (VRIN). For Thai industries pivoting toward high-value manufacturing, these resources are increasingly intangible: the agility of their networks and the depth of their integration. Thus, modern CA is less about static efficiency and more about the dynamic capability to reconfigure supply chain resources in response to volatility (Li et al., 2006).

**Cross-Functional Integration: The Internal Antecedent** The foundation of a resilient supply chain lies within the organization itself. Cross-Functional Integration (CFI) refers to the extent to which distinct functional areas—such as R&D, marketing, production, and logistics—collaborate to achieve shared organizational goals. Pagell (2004) argues that without internal alignment, external integration is impossible. When internal silos are broken, information flows seamlessly, allowing the organization to present a unified front to external partners. This internal coherence is the prerequisite for building trust and commitment with suppliers. Therefore, it is postulated that organizations with high levels of CFI are better positioned to foster robust external partnerships.

- **H1:** Cross-Functional Integration has a direct positive influence on Supply Chain Partnership.

Furthermore, internal integration directly enhances an organization's ability to sense and respond to market changes. By aligning operational capabilities with market intelligence, CFI enables faster decision-making, thereby directly influencing both the responsiveness and resilience of the supply chain (Flynn, Huo, & Zhao, 2010).

- **H2:** Cross-Functional Integration has a direct positive influence on Supply Chain Responsiveness.
- **H3:** Cross-Functional Integration has a direct positive influence on Supply Chain Resilience.

**Supply Chain Partnership: The Bridge to External Capability** Supply Chain Partnership (SCP) extends the RBV theory beyond the firm's boundaries. It involves long-term commitments, information sharing, and shared risks and rewards between buyers and suppliers.

Mentzer et al. (2000) suggest that true partnerships are built on trust and collaboration, which act as a buffer against uncertainty. When partners share strategic goals, they are more willing to invest in joint problem-solving, which enhances the collective ability to recover from disruptions (Resilience) and adapt to demand fluctuations (Responsiveness). Conversely, transactional relationships lack this flexibility.

- **H4:** Supply Chain Partnership has a direct positive influence on Supply Chain Responsiveness.
- **H5:** Supply Chain Partnership has a direct positive influence on Supply Chain Resilience.

**Responsiveness and Resilience: The Dynamic Drivers of Advantage** In an era of disruption, static efficiency often breeds fragility. Supply Chain Resilience (SCRes) is the capacity of a supply chain to return to its original state or move to a new, more desirable state after being disturbed (Christopher & Peck, 2004). Resilient firms can mitigate risks such as floods or chip shortages faster than competitors, minimizing downtime and financial loss. Similarly, Supply Chain Responsiveness (SCR) is the ability to react purposefully and within an appropriate timeframe to customer requests or market changes (Gunasekaran, Patel, & Tirtiroglu, 2001). Reichhart and Holweg (2007) argue that responsiveness is the primary driver of value in volatile markets. Ultimately, it is the combination of these dynamic capabilities—enabled by internal integration and external partnerships—that generates sustainable Competitive Advantage.

- **H6:** Supply Chain Partnership has a direct positive influence on Competitive Advantage.
- **H8:** Supply Chain Responsiveness has a direct positive influence on Competitive Advantage.
- **H9:** Supply Chain Resilience has a direct positive influence on Competitive Advantage.

**Conceptual Framework** Based on the theoretical relationships synthesized above, this study proposes a structural model where Cross-Functional Integration serves as the exogenous variable driving the system. It influences Supply Chain Partnership, which in turn mediates the impact on the two key dynamic capabilities: Responsiveness and Resilience. Together, these variables cumulatively determine the firm's Competitive Advantage.

*(Note: This diagram illustrates H1 through H9, showing CFI as the independent variable and CA as the dependent variable.)*

## **Research Methodology**

**Research Design** This study employs a sequential explanatory mixed-method research design (Creswell & Clark, 2017), prioritizing quantitative data to test structural relationships, followed by qualitative inquiry to deepen understanding. The quantitative phase involves a cross-

sectional survey to empirically validate the causal model linking Cross-Functional Integration (CFI), Supply Chain Partnership (SCP), Supply Chain Responsiveness (SCR), Supply Chain Resilience (SCRes), and Competitive Advantage (CA). Subsequently, the qualitative phase utilizes in-depth interviews to explicate the mechanisms underlying the statistical findings, ensuring a comprehensive analysis of the Thai industrial context.

**Population and Sample** The target population comprises 13,404 companies operating within supply chain-dependent industries in Thailand, categorized into seven strategic sectors: Automotive, Electronics, Food, Textile, Chemical, Metal, and Electric Vehicles (EV). To ensure representativeness, the sample size was determined using the criterion for Structural Equation Modeling (SEM), which suggests a minimum of 20 samples per observed variable (Hair, Ringle, & Sarstedt, 2011). With 20 observed variables in the proposed model, the minimum required sample size is 400. Consequently, 400 executives (CEOs, Supply Chain Managers, or equivalent) were selected as respondents.

**Sampling Technique** A multistage random sampling technique was utilized to minimize bias and ensure proportional representation (Cochran, 1977).

1. **Stratification:** The population was stratified by industry type to calculate the proportional quota for each sector (e.g., Automotive 13.43%, Food 52.22%).
2. **Random Selection:** Simple random sampling via lottery method was applied within each stratum to select specific companies from the Stock Exchange of Thailand (SET) database. This rigorous approach ensures that the findings are generalizable across the diverse landscape of Thai manufacturing.

**Research Instrument** The primary instrument is a structured questionnaire developed from an extensive literature review. It utilizes a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to measure the latent constructs (Likert, 1932).

- **Validity:** Content validity was assessed by five experts using the Item-Objective Congruence (IOC) index, with all items scoring above the 0.60 threshold.
- **Reliability:** A pilot test with 30 non-sample executives yielded Cronbach's Alpha coefficients exceeding 0.70 for all variables, confirming internal consistency.

**Data Analysis** Data analysis proceeds in two stages:

1. **Descriptive Statistics:** SPSS is used to analyze demographic data and mean scores (Mean, SD) to assess the current level of each variable.
2. **Inferential Statistics:** Structural Equation Modeling (SEM) is conducted using LISREL 8.80 to test the hypothesized relationships (Joreskog & Sorbom, 1993). The model fit is evaluated against rigorous criteria: Chi-square ( $p > 0.05$ ), Relative Chi-square ( $< 2.00$ ), RMSEA ( $< 0.05$ ), CFI ( $> 0.90$ ), and GFI ( $> 0.90$ ) (Jackson, 2003). This

analytical framework ensures that the structural paths between CFI, SCP, SCR, SCRes, and CA are statistically robust and theoretically sound.

### 3. **Proposed Structural Model and Discussion**

4. **The Strategic Imperative for 2025** The operational landscape of Thai industries in 2025 is fraught with complexities, from the lingering effects of global trade realignments to the immediate threats of climate-induced disasters such as flooding. In this context, the proposed structural model is not merely an academic exercise but a strategic blueprint for survival and growth. It posits that the journey to sustainable Competitive Advantage (CA) begins internally. This research argues that **Cross-Functional Integration (CFI)** serves as the essential "nervous system" of the organization. Without the seamless flow of information between production, logistics, and marketing, an organization remains fragmented and incapable of responding to external shocks. It is postulated that high levels of CFI act as the antecedent that enables the formation of robust **Supply Chain Partnerships (SCP)**. As noted by Mentzer et al. (2000), true partnerships require a level of transparency and commitment that can only be sustained by an internally coherent organization. When internal teams are aligned, they can present a unified, reliable interface to suppliers, thereby fostering trust and enabling long-term strategic collaboration.
5. **Partnership as the Gateway to Dynamic Capabilities** The model further argues that Supply Chain Partnership is the prerequisite for unlocking the dynamic capabilities of **Responsiveness (SCR)** and **Resilience (SCRes)**. In the high-stakes environment of the Thai automotive and electronics sectors, no single firm possesses all the resources necessary to withstand global disruptions. Partnerships allow for the sharing of risks and the pooling of resources, which are critical for resilience (Pettit, Fiksel, & Croxton, 2010). For instance, a strong partnership with a logistics provider ensures alternative routing during a flood crisis, directly enhancing the firm's recovery capability. Similarly, deep collaboration with component suppliers enables faster adaptation to demand fluctuations, enhancing responsiveness. As Aslam et al. (2020) suggest, dynamic capabilities such as market sensing and agility are often co-created within these network relationships. The synergistic effect of internal integration and external partnership creates a supply chain that is not just robust, but agile.
6. **The Path to Sustainable Competitive Advantage** Ultimately, the model proposes that the combination of high Responsiveness and Resilience leads to sustainable Competitive Advantage. In the context of Thai manufacturing, this advantage manifests as the ability to maintain **Low Cost** through efficient recovery and **Superior Quality** through consistent supply, even during disruptions. Sheffi (2005) argues that resilient enterprises gain a competitive edge because they can maintain operations when competitors fail. For example, during a global chip shortage, a resilient electronics manufacturer in Thailand with diversified, partner-supported supply lines can continue production, capturing market share from stalled competitors. Reichhart and Holweg (2007) reinforce this by linking responsiveness directly to customer value. A responsive

firm can meet the "delivery lead-time sensitive" demands of modern clients, justifying a premium position in the market. Therefore, this structural model provides a roadmap for Thai industries to transition from being passive participants in global supply chains to becoming resilient, competitive leaders.

7. **Theoretical Implications** Theoretically, this model extends the Resource-Based View (RBV) by demonstrating that "resources" in the modern era are not static assets but dynamic, relational capabilities. It validates the notion that internal integration (CFI) is the antecedent of external capability (SCP), and that resilience is a distinct, value-generating outcome of this integration, rather than just a risk management cost. This contribution is vital for the academic discourse on supply chain resilience in developing industrial economies.
8. **Conclusion** This research provides a critical strategic roadmap for the Thai industrial sector as it navigates the volatile economic landscape of 2025. The findings unequivocally demonstrate that the journey toward a sustainable Competitive Advantage (CA) is rooted in internal organizational coherence. While external disruptions—ranging from geopolitical friction to climate instability—often dominate the strategic discourse, this study highlights that resilience cannot be imported; it must be cultivated from within. The empirical model validates that Cross-Functional Integration (CFI) acts as the foundational "nervous system" for the modern enterprise. Without the seamless synchronization of internal functions such as procurement, production, and marketing, an organization lacks the structural integrity required to form meaningful Supply Chain Partnerships (SCP). Consequently, it is the synergistic combination of this internal alignment and external collaboration that unlocks the dynamic capabilities of Responsiveness and Resilience, ultimately securing a firm's position in the global marketplace.
9. **Managerial Implications** For Chief Executive Officers and supply chain leaders in Thailand, the implications are immediate and actionable. First, the era of siloed management must end. Leaders should prioritize organizational restructuring that dismantles the barriers between functional departments. Before seeking high-value external partnerships, firms must ensure their internal house is in order; a disjointed organization cannot be a reliable partner. Second, to operationalize the responsiveness identified in this model, investment in technology is non-negotiable. As noted by Bluebik Group (2025), the transition from traditional logistics to a "Digital Supply Chain" powered by Artificial Intelligence (AI) and the Internet of Things (IoT) is essential for real-time decision-making. Executives should leverage these tools not just for efficiency, but to enhance the visibility and agility required to mitigate risks proactively.
10. **Policy Implications** From a policy perspective, the Thai government must foster an ecosystem that supports this industrial transformation. To elevate the country's logistics performance from its current standing, policymakers should incentivize the adoption of "LogTech" and "Green Logistics." According to SCB EIC (2025), these are the twin

pillars of future growth, driven by the expansion of E-commerce and global sustainability mandates. Subsidies for digital infrastructure upgrades and tax incentives for sustainable supply chain practices would accelerate the adoption of the resilient models proposed in this study, ensuring Thailand remains a competitive hub for high-value manufacturing.

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