

Supply chain strategy under VUCA world for Sustainable of the Tea Entrepreneur in Thailand

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Abstract. Introduction – Supply chain strategy is a cluster of decisions related to goals, actions to take, and management resources to achieve the corporate goals. In the current situation, the business environment has dramatically changed. Under the VUCA (volatility, uncertainty, complexity, ambiguity), a suitable supply chain strategy will support the company to meet its goals. Supply chain resilience is a crucial area that many academics suggest helps the company better performance and competitive advantage in the industry. Purpose – This paper reviews supply chain strategies that affect supply chain resilience and sustainability. It focuses on the tea producers' supply chains in Thailand. Methodology/Approach – This paper reviews the empirical knowledge and research for supply chain strategy and resilience related to the VUCA situation. Originality/ Value/ Implication – The study results found that planning, collaboration, and innovation are related to supply chain resilience. They support supply chain performance and sustainability through supply chain resilience.

Keywords: Supply chain resilience, Sustainability, VUCA, Supply Chain Strategy

1 Introduction

Nowadays, businesses face an environment of vulnerability (V), uncertainty (U), complexity (C), and ambiguity (A). In general, they are known as VUCA. At present, economic war, technology disruption, climate change, and the COVID-19 pandemic have resulted in severe economic disorders of varying degrees of severity with many health, social, and legal consequences [1–3](Belaid et al., 2023; Yousfi et al., 2021; Zhang et al., 2020). The effect size of COVID-19 affects the supply chain of all industry sectors. This circumstance presented a supply chain disruption (SCD). It causes scarcity of resources [4](Sarkis et al., 2020), the inability of the supply chain to supply products to the customer, and the redundancy between the size and quantity of available products and those needed [5](Queiroz et al., 2020). SCD leads to a long lead time. It increases the holding cost of inventory and delays production, resulting in missing time delivery of goods to customers. That affects the firm's service quality to customers.

Climate change is an uncontrollable factor directly affecting the operation of the agricultural sector. In nature, the farmers are a micro-unit in the supply chain (SC). They are

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upstream in SC. The volatile weather affects the quality and quantity of micro-unit in the SC. It reduces the yield of crops and increases the cost of harvest. According to chaos theory, the situation from a micro-unit of the supply chain will affect the following tier levels in the SC network. Unpredictable supply and high costs upstream of SC will affect all units in the chain. The consumers are downstream of SC. Thus, they receive the ending result of production from the supply chain: products and the cost of buying products.

In the VUCA environment, SC management is more complicated and complex than in a stable business environment because of the global supply chain connectivity, network complexity, and business relationships. In contrast, SC was challenged by globalization, technological disruption, climate change, and societal change. The SC and the firm should have a dynamic capability to cope with the issues [6](Saenchaiyathon & Liengjindathaworn, 2019). The firm must keep up with and align with the changing competitive environment, which is crucial to the business's success[7] (Lin et al., 2015).

Dynamics capabilities are essential to the business's survival under the current circumstances or after the economic crisis[8] (Naidoo, 2010). However,[9] Cucculelli Peruzzi (2020) stated that managing a diversified company's resources will support the firm's capabilities to cope with unstable situations. According to the resource-based view theory, valuable, rare, difficult to imitate, and nonsubstitutable Fields[10] (Barney, 1991). A firm with different resources leads to differences in efficiency and better handling of crises than other companies [11](Xu et al., 2022). It can adapt to the external environment simultaneously, maintaining an optimal mix of resources [12](Arikan et al., 2020). Moreover, a firm with a well-managed resource pool will survive after crises from repeated economic "shocks"[9] (Cucculelli & Peruzzi,2020) due to the fast changing business environment and technology disruption. The consumer will change profoundly shortly[13] (He & Harris, 2020). It constantly creates new threats and poses a variety of challenges. To survive, all business units in SC should consider and examine their internal capabilities [14](Backman & Kohlbase, 2020).

The food supply chain is vital in driving socioeconomic growth in building food and nutrition security to promote the balance of the chain. While crises, conflicts, and natural disasters with changes affecting food supply chains threaten finite resources [15–18](Jiang et al., 2021; Estes et al., 2018; Pereira et al., 2021; Roth & Zheng, 2021). During the crisis, food shortages, consumer goods supply disruptions, and health complications [19– 21](Lal et al., 2020; Laing, 2020; Prideaux et al., 2020). Many areas in the world apply circular economy concepts to increase efficiency and reduce the effect of supply chain disruptions [22– 25](Boulding, 1966; Pearce et al., 1990; Stahel, 2016; Geng et al., 2019). The circular economy principle is sourcing, delivering, and recycling necessary local raw materials [26](Wuyts et al., 2020). It leads to supply chain connectivity[4, 27, 28] (Voysey et al., 2021; Sarkis, 2020; Wuyts et al., 2020) and increases supply chain resilience to such crises.

Food consumption demand was increasing and changing patterns. Many years ago, the world concentrated on the phenomenon of food security. They should have focused more on a sufficient amount of food. Later, they were concerned about accessibility, nutrition, and quality. However, food security is related to natural resources. It is under threat and limited [29](Wunderlich & Martinez, 2018). To manage the food supply chain in the VUCA. Key supply chain operation components should be implemented. As mentioned above, it can be assumed that supply chain strategy is critical for firms to survive in unstable and crises. However, the key questions are what method and essential elements suit the firm to keep and compete in the industry.

During the past crisis, thai tea products have experienced higher growth rates in production quantity, domestic sales, and export volume. However, the current situation in the tea industry is likely to be more competitive. Consumers' tastes most impact tea demand in the industry, and now they dramatically change preferences and behavior from the past. The

tea production system is primarily a push strategy, not a pull. An appropriate supply chain strategy is required to respond to a market that is changing rapidly and continuously. Information sharing and collaboration with suppliers and customers are vital to the responsiveness strategy. These help the company to position itself in a globally competitive environment.

In modern times, it has changed and fluctuated rapidly. As a result, industries are increasingly focusing on applying innovation and modern technology to their operational processes. In line with the government's policy to encourage the industry to adopt innovation, the Thai tea industry has adopted this principle and may be unable to comply with such changes. Thereby, the Thai tea industry must be designed and invented to add value through innovation and advanced modern technology.

Consequently, to create a competitive advantage for the Thai tea industry. SMEs need to adapt and develop their operations to be competitive in the era of market liberalization and the current crisis, but investing in all innovations or technologies by the organization alone will require a large budget, which is a problem for small and medium enterprises (SMEs) that do not have enough investment. In joint production, instead of investing in oneself, it allows one to achieve organizational improvements, such as a better return on investment. [30](Nikolchenko et al., 2018)

The research advances the field by delving into customized supply chain strategies crafted to thrive in the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) scenario. These strategies specifically aim to bolster the sustainability of Thailand's tea producers during critical periods. Additionally, the study is devoted to devising crisis-resilient supply chain plans that equip businesses, especially tea producers in Thailand, to navigate and endure crises. This study underlines the pivotal role of supply chain planning in ensuring the survival and revival of businesses post-crisis. Moreover, the study sheds light on the vital aspects of fostering cooperation and establishing sustainable relationships within the supply chain network.

By emphasizing collaboration and supply chain resilience capability. This contribution is not limited to addressing immediate crisis challenges but extends to ensuring the long-term sustainability of tea producers in Thailand. Lastly, the research takes a tailored approach by applying these findings and recommendations directly to the Thai tea industry. This industry-specific application renders the research contextually pertinent and actionable for tea producers, addressing Thailand's tea sector's unique challenges and opportunities.

2 Literature review

2.1 Resource-based View: RBV

Resources are a source of competitive advantage for building competitive advantage. Using resource-based theory as the basis for business success, the key to this theory is managing resources to create competitive advantage and business success [31, 32] (Barney et al., 2011; Amores-Salvadó et al., 2014: 356). An essential element of supply chain strategy formulation is establishing relationships between supply chain partners [33–36] (Knight & Cavusgil, 2004; Malehorn, 2005; Pradabwong et al., 2015; Ramanathan & Gunasekaran, 2014). Resource sharing will give organizations access to valuable, unique, and incompatible resources and skills from their supply chain partners [37] (Singh & Power, 2009). The competitiveness within a specific Resource sharing with other businesses in the supply chain can be leveraged to overcome this shortcoming [38] (Zacharia et al., 2009).

When the crisis is an event or disaster that results in the interruption of work processes or the conduct of business activities, it must be dealt with promptly to ensure the well-being,

health, and safety of persons. The firm should prepare to deal with unfamiliar situations to achieve the ultimate business goal. They should reduce damage through prevention, preparation, response, and remediation [39](Coombs, 2021). The firm should detect crises before they occur. Moreover, they should promptly repair and respond post-crisis [40–42](Chowdhury & Quaddus, 2016; Pearson & Mitroff, 1993; Pedersen et al., 2020).

In times of crisis, SC resource management's efficiency can recover businesses from disfavor situations. They should collaborate, communicate, and contingency planning for the unpredictable event[43] (Glenn Richey, 2009). SC needs to reconfigure, adapt, and reorganize its resources in response to crises[44, 45] (Ambulkar et al., 2015; Kumar et al., 2021). It is necessary to properly manage available resources (e.g., human and financial) to mitigate the impact of a crisis. In addition, SC considers the role of resource dependence [46](Bundy et al., 2017) and balances resource dependence with each other[47, 48] (Casciaro & Piskorski, 2005; Su et al., 2014). All SC units should control, manage, and reduce the vulnerabilities to reduce unusual events[49] (Bode et al., 2011).

The supply chain network is a pivotal resource to gain a competitive advantage. Adding several partners in the supply chain will improve efficiency and reduce costs. It increases the scope and scale of SC and can help SC to reach a new point of economies of scale. Moreover, all business units in SC can find new business opportunities from new members of supply chain partners and gain new markets [48, 50](Garnett et al., 2020; Su et al., 2014). In addition, it gains significant innovation and resource sharing under constraints [51] (Senbeto & Hon, 2020).

2.2 Relational View

The relational perspective theory is a theory for constructing inter-organizational correlation networks. This theory has a background in network-based relationships, supply chain relationships, and strategic alliances. In uncertain situations, businesses must prepare to build strength to maintain a stable position[52] (Yang et al., 2009), being agile and quick to return to a challenging situation [53](Prater et al., 2001). Simultaneously, network-based relationships can create value, and relationships with these partners should be protected over the long term through facilitation, trust, loyalty, and collaboration. Collaboration is the glue that holds businesses together. The interdependent relationships of companies produce mutually beneficial outcomes [54](Jap, 2001) and touch on the aspects of the relationship between the actors in the supply chain, including trust, commitment, loyalty, and opportunism[43](Glenn Richey, 2009). The supply chain actors use their emotional intelligence to monitor their and others' feelings. At the same time, the supply chain process is functional. However, it is the emotional side of doing business with each other. It is essential to link by promoting relationship quality [55](Guillén et al., 2020).

Communication and business relationships help the firm cope with disrupted supply chains. Effective communication includes the formal and informal exchange of information between actors within the supply chain and is central to developing relationships [56](Hung & Lin, 2013). In the long run [56, 57](Hung & Lin, 2013; Trada & Goyal, 2020), communication is essential to keeping value-added relationships within the supply chain [57](Trada & Goyal, 2020). The exchange of information is directly relevant to supply chain operations and social communication. It is the sharing of work-related information between operators across the supply chain. Collaborative strategic planning combines multiple strategies with unpredictable critical conditions to achieve goals or mitigate the impact on the supply chain's ability to reduce the effects of such crises [43](Glenn Richey, 2009).

In theory, a business's relational perspective can strengthen the supply chain to deal with change proactively through learning and supporting a flexible supply chain. Therefore, cooperation with various partners fosters full participation and deals with crises

3 Result and Summary

Planning involves identifying and selecting the company's suitable goals and course of action. It includes supervising and controlling the movement of goods from the manufacturing to consumers. In the process, it must be resilient and agile and can be adapted to align with changing situations. [58](Gumte et al., 2021). Collaboration refers to the process of collaborating through a supply chain network. The objective of the collaboration is to share resources [36](Cao et al., 2010) and to achieve common goals for manufacturers and partners [59, 60](Nagehan et al., 2017; Civelek & Çemberci, 2020).

Innovation is a new product, process, service, and business model. It includes the improvement of existing products. Innovation is a positive utility in the social. It fulfills the current unmet needs in the market [61–63](Varadarajan, 2018; Granstrand & Holgersson, 2020; Kahn, 2018a). Resilience is predictability, adaptability, and agility from disruptive events [64–68](Gunasekaran et al., 2015; Tukamuhabwa et al., 2015; O’Grady et al., 2021; Wieland & Wallenburg, 2013a; Kennedy & Linnenluecke, 2022).

Performance is the management of available resources to meet goals; efficiency is often measured in terms of cost in the output [69](Zahid et al., 2020). Sustainability is the integration of resources, information, capital flows, and enterprise collaboration. Systematically with agility through the business development process for long-term efficiency [70–74](Ciliberti et al., 2008; Carter & Rogers, 2008b; PAGELL & WU, 2009; S. Seuring & Müller, 2008; S. A. Seuring, 2008).

The results of documentary research found that supply chain planning is a crucial operation to support supply chain resilience capabilities - collaboration in the supply chain with sharing information and resources. Involvement in the planning process or innovation development will increase the capability of supply chain resilience. Innovation is a crucial part of supporting resilience capabilities. It helps a company to absorb, adapt, and recover from disruption within a short time. Supply chain resilience supports the responsiveness supply chain strategy. It supports better performance and sustainability. The model of the relationship is presented as shown in Figure 1.

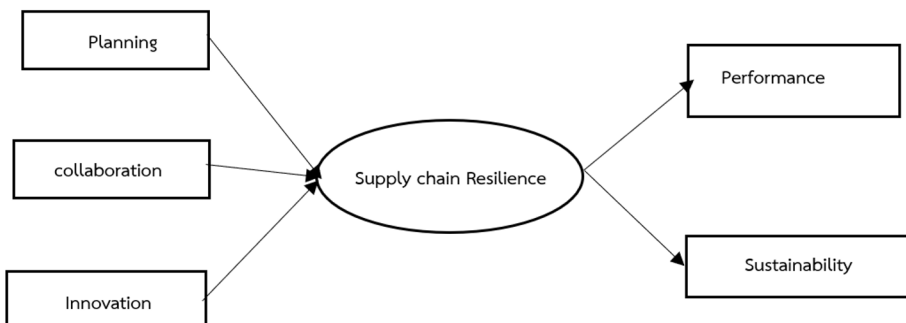


Fig. 1. The model of the relationship.

In summary, the study's results found that supply chain resilience capability is critical to the company's performance and sustainability. However, the driving forces influencing supply chain resilience are planning, collaboration, and innovation. To use this model in

generalization is limited because it has yet to be testing the model. Therefore, future research should evaluate this model with a quantitative method.

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