ASSESSING THE IMPORTANCE OF SUPPLY CHAIN MANAGEMENT IN STRENGTHENING THE MSMES RESILIENCE IN THE TIME OF DISRUPTION

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Abstract

In the current dynamic business landscape, organizations need to be able to quickly adjust to changing conditions and protect its business against various risks in order to stay competitive. Due to its severe disruption of global supply chains, particularly in the food sector, the COVID-19 pandemic has brought attention to the need for strong supply chain management (SCM) strategies. This study investigates how resilient MSMEs supply chains are, in case of Dfresto company as an MSME in the Indonesian food industry that benefited from the Covid-19 pandemic. In order to reduce the disruptions impact on the MSMEs level, the study identifies some important things that contribute to the supply chain resilience, such as the importance of having various suppliers and an organized distribution network. Moreover, the research proposes strategies for MSMEs to improve the resilience of their supply chains, like maintaining positive relationships with suppliers and having a short payment term to ensure a steady cash flow. The results could provide MSMEs with important information to build more sustain supply chain networks and better prepare for unanticipated circumstances in the future.

Keywords: *Supply Chain Management, MSME, Resilience, Disruption Events*

INTRODUCTION

In the dynamic business environment of today, organizations need to be able to both neutralize potential threats and adjust to changing circumstances. The need for this is further highlighted by the growing volatility of the business environment, which is characterized by both regular and major disruptions (Tatham et al., 2015). The necessity for businesses to quickly and effectively adapt in order to survive has been recognized by events such as the COVID-19 pandemic and the 2008 financial crisis. Particularly, the COVID-19 pandemic has had a major effect on working hours, customer loyalty, employee motivation, and staff turnover in the business (Damilola et al., 2020). Companies have been forced to refocus on critical areas like supply chain management, which has been severely impacted by the pandemic's disruption (Chowdhury et al., 2021).

A supply chain is a network of organizations that facilitates the transfer of products, services, funds, and data from a source to a customer (Mentzer et al., 2001). Because of its integrative nature, supply chain management (SCM), which oversees this flow from source to end user (Cooper et al., 1997, as cited in Mentzer et al., 2001), is an essential component of strategic management (Akyuz & Gursoy, 2019). Lockdowns, travel restrictions, and production halts during COVID-19 caused significant disruptions to supply chains, which caused stockouts and other problems for businesses with complex supply chains (Harapko, 2023; Helper & Soltas, 2021). In response, companies have innovated to build resilient supply chains, focusing on collaborative relationships and enhancing agility (Tukamuhabwa et al., 2015). A Deloitte report notes that companies tracking their response to supply chain disruptions tend to be more robust (Narayan et al., n.d.). However, many MSMEs (Micro, Small, and Medium Enterprises) lack the knowledge and resources to implement such innovations (Suroso et al., 2021). This study explores how MSMEs can build supply chain resilience to survive uncertain situations, using alternative methods to measure and prepare for future challenges.

The main research question of this research is: to what extent does supply chain management contribute to MSME resilience during times of disruption, which also includes on what key supply chain factors contribute to MSME resilience during disruptions, how can supply chain management practices be adapted to build agility and resilience in MSMEs during disruptions, and what is the role of supply chain risk management in building MSME resilience during disruptions. The purpose of this research is to better understand the significance of supply chain management (SCM) integration for MSMEs and to investigate the role of SCM in MSME resilience in uncertain times, such as COVID-19.

THEORETICAL FRAMEWORK AND HYPOTHESIS FORMULATION

Dynamic Capability Theory

The theory of Dynamic Capabilities, or DC, came into being to explain how resources and capabilities are built and developed in response to quickly changing situations. Organizations are able to integrate, organize, and rearrange their resources and capacities in order to respond to quickly changing surroundings according to this concept. Therefore, Dynamic Capability are procedures that allow a company to adjust its resources and strategy in order to attain greater performance and long-term competitive advantages in quickly changing conditions (Bleady et al., 2018).

Organizational Resilience Theory

Ma et al. (2018) describes Organizational Resilience as the capacity of an organization to return to its previous state or even learn a new skill in the midst of disruption, then he explains three key aspects in Organizational Resilience, which two of those explains:

- In such a disruptive and turbulent environment, organizational resilience, which has the capacity to handle crises in a discontinuous and emerging environment—can determine whether an organization survives or fails.
- Organizational resilience places a strong focus on survival, adaptation, the capacity to recover from challenges, and improvement under disruptive conditions. Strongly resilient organizations are able to generate new skills.

Supply Chain Twin Model

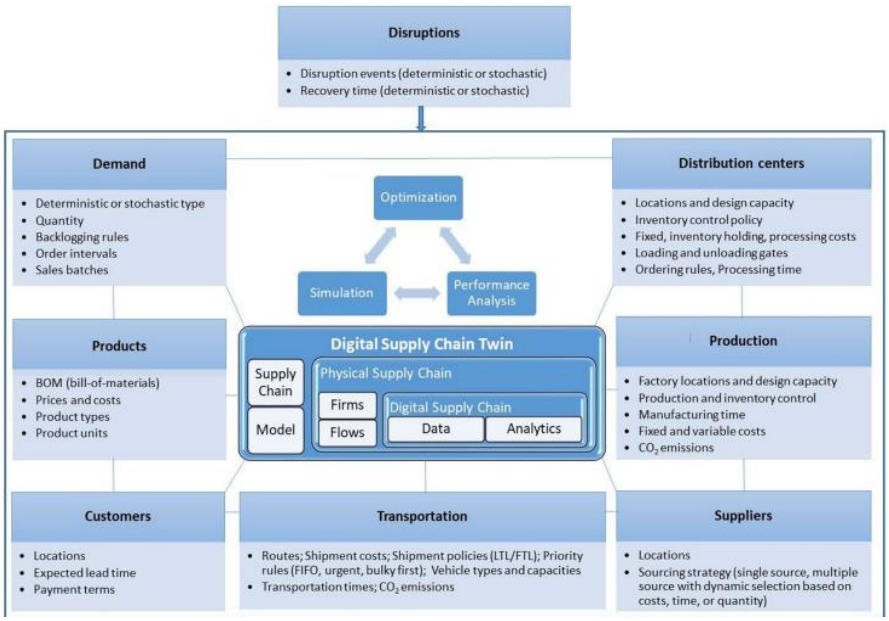

Figure 1. Supply Chain Twin Model

Ivanov and Dolgui (2021) made its digital supply chain design for disruption analysis using the logistic software called anyLogistic. The models describe a scenario for a supply chain network that may be created using various location objects, including manufacturers, suppliers, customers, and distribution centers (DCs), and the network flows can be dynamically organized to symbolize the particulars of various supply chains. Production, inventory, sourcing, and shipment rules are linked to the flows, which are governed by certain design capacities in warehouses, transportation, and production.

Conceptual Framework

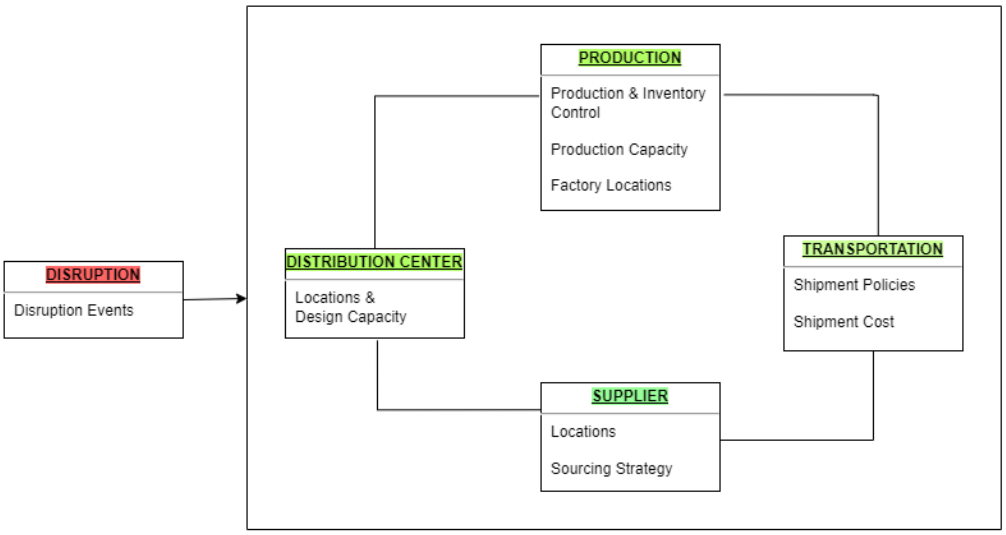

Figure 2. Conceptual Framework

The author will use this framework to explain what strategies and how companies use them to minimize the impact of disruption events and how their policies so far can make them have the strength to be resilient. This framework is based on the supply chain twin model framework used by Ivanov and Dolgui (2021), but only covers 5 aspects, including disruption, suppliers, production, distribution centers, and production. This model is also used in a different way, where the indicators contained in the model will be used to analyze the company's strategy and methods for each indicator, rather than analyzing each indicator in the form of a value.

Supply Chain Management

Supply Chain Management (SCM) is seen as an approach to improve competitive performance by integrating the internal functions of an organization and linking these with the external operations of suppliers, customers and other members of the supply chain (Talib et al., 2011).

Supply Chain Management Practice

Supply chain management practice is known as the planning and strategy that participating organizations use to coordinate their supply chain, including cross-border and internal function collaboration (Sandberg & Abrahamsson, 2010). Two characteristics were used at supply chain management practices: strategic collaboration and lean practices (SCLP) & outsourcing and multi-suppliers (OMS).

Supply Chain Risk Management

In supply chain management, there is one term to study risk in a supply chain ecosystem, namely Supply Chain Risk Management (SCRM). According to the definition given in Ho et al. (2015) paper, Supply Chain Risk Management (SCRM) is an interorganizational collaborative effort that uses quantitative and qualitative risk management techniques to identify, evaluate, mitigate, and monitor unexpected macro and micro level events or conditions that could have a negative impact on any relationship in the supply chain.

Resilience

A company's resilience is its capacity to swiftly adapt its operations to the difficulties posed by supply chain disruptions. The complex concept of resilience covers a range of abilities that companies must develop in order in order to overcome complex and developing challenges that threaten them in the business environment (Saad et al., 2021). Aburn et al. (2016) identify five key definitions or concepts of resilience: the capacity to overcome difficulties, adaptation and adjustment, "ordinary magic," resilience as a substitute for excellent mental health, and the ability to bounce back.

Agility

Speaking of resilience, resilience is usually associated with agility. Agility is the ability to recognize and react to opportunities and threats with ease, speed, and flexibility in the face of rapid and sometimes unexpected change (Tallon and Pinsonneault, 2011). Additionally, other literature explains that agility itself is the capacity to move quick and smoothly as well as thinking and understanding rapidly (Suska and Weuster, 2021).

RESEARCH METHODOLOGY

This study establishes the relationship between supply chain management (SCM) and business resilience by referring to relevant research. Aday & Aday's (2020) study on COVID-19's effects on the food supply chain is a crucial source of information, as it emphasizes the importance of supply chain management (SCM) in lowering market uncertainty and spotting possible disruptions. In order to improve long-term crisis management, Ivanov & Dolgui (2021) stress the significance of resilience analytics for modeling supply chain responses to disruptions. Chowdhury and colleagues (2021) examine methods for achieving supply chain resilience regarding readiness, reaction, and recovery. Additionally, supply chain stress-

testing models, such as those in Jain & Leong (2021), demonstrate how simulation can assess supply chain readiness and support operational planning in response to unplanned events. Moreover, Multiple academic databases and search engines were used to locate relevant research. These databases offer advanced search features to filter results to reliable sources and peer-reviewed journal articles. While using a single search tool can miss up to 75% of relevant citations, utilizing multiple search tools ensures comprehensive coverage (Acharya et al., n.d.).

Qualitative research, characterized by iterative processes and empirical data evaluation, is used to enhance understanding of the phenomenon under study, while content analysis, a method for systematic and objective textual analysis, is employed to test hypotheses and compare data (Aspers & Corte, 2019; Camara, 2007).

The data will be collected using structured interviews with MSMEs to gather valid qualitative data. These interviews are highly organized, with pre-written questions, ensuring the collection of relevant information (Dörnyei, 2007, as cited in Consalvo, 2023). The interviews cover five key areas based on Ivanov and Dolgui's (2021) model, includes: Suppliers, Production, Distribution Centers, Disruption. and Transportation. Benchmarking, the process of comparing and analyzing business data to enhance decision-making will be used to observe how other organizations outperform their competition (Prašnikar et al., 2005; Trisninawati et al., 2016). Data from these interviews will be compared with large companies like Indofood, known for their resilient operations during the pandemic.

RESULT AND DISCUSSION

Company Profile

- **Dfresto Fried Chicken**

  Founded in 2015 by Syahroni and Agung, Dfresto Fried Chicken is a family-run company that operates under the name CV Anugrah Syukur Berkah. It uses a partnership model and focuses on fried chicken. By the middle of 2024, Dfresto had grown to over 2,000 partners throughout Kalimantan, Java, and Sumatra. The company prioritizes growth through new partnerships, preserving solid ties with suppliers, and enhancing partner communication.

- **PT Indofood Sukses Makmur Tbk**

  Founded by Sudono Salim August 14, 1990, with an initial focus on instant noodles before branching out into other food and beverage industries. Indofood offers

an extensive supply chain, working with 20,000 local farmers, 66,000 entrepreneurs, 105 manufacturing facilities, and 27 distribution centers spread throughout Indonesia.

Company Strategies

Business strategies in normal condition

Dfresto has used the partnership system as a basis in its business development. Partnership it self is a business strategy that involves two or more parties partnering for a set amount of time to achieve mutually beneficial outcomes based on the ideas of mutual development and need, where a partnership business model consists of a number of owners who have all made investments in the company (Jordhi, 2020). The company's main business actually revolves around developing the number of partners spread throughout Indonesia, by promoting in cities that have not been reached. With the number of partners reaching 2000, the largest portion of the company's profits actually comes from the the sale of raw materials that will be used by partners.

Business strategies during pandemic

When the pandemic started, the Dfresto company did not yet have a specific strategy in place to overcome the impact of this disruption. However, the company realized that there was significant demand for its product. This can be seen from company data which shows a significant increase. This increase can also be seen from the significant increase in the number of partners who want to join the company. It was recorded that there was an increase of 600 partners joining in 2021 from the previous 200 partners. Apart from that, the Company is also aware that there is a tendency that their fried chicken, works as a substitute product needed by consumers because they have to switch from the competitor fried chicken that is most controlled by fast food companies. This transition was made by consumers because people's purchasing power decreased during the pandemic, so consumers will tend to look for substitute products, in this case is fried chicken that is easier to obtain, having a lower price and a product that have its taste and quality that can be compared to the big fast-food competitor with higher price.

Supply Chain Strategies

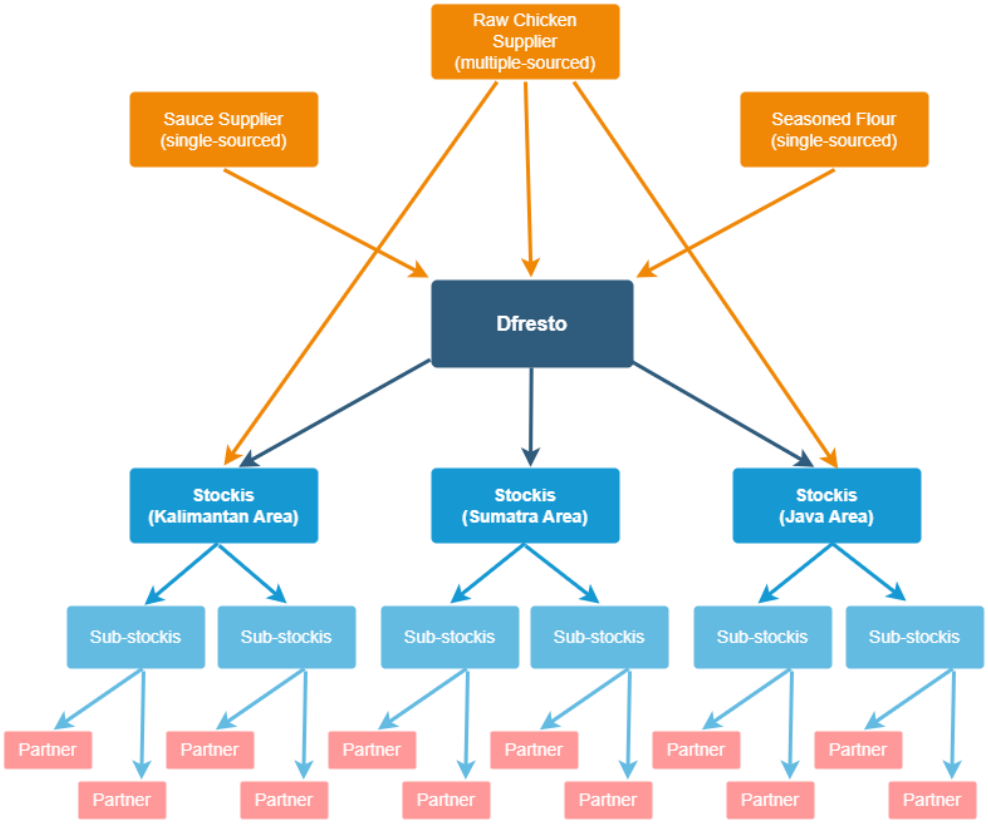

Figure 3. Dfresto Supply Chain

The supply chain starts from the production of raw materials carried out by suppliers chosen by the company. Currently, the company is supported by no less than 42 suppliers spread across Indonesia. These suppliers are responsible for providing raw materials or products that comply with company requirements and standards. The distribution flow then continues with sending goods to the warehouse at the parent company or directly to stockis who are controlled and responsible to the company. For seasoning flour and sauce suppliers, their products must pass through the warehouse at the central company before being distributed because their factory is located in an area closer to the central warehouse, thus allowing for more efficient flow. Meanwhile, the flow for chicken supply is different depending on the area of demand. For example, because the central warehouse is in the western region of Java Island, demand from the eastern part of Java Island and outside Java Island such as Kalimantan and Sumatra will be given to suppliers located nearby. This system allows for more efficient product flow because it can save logistics costs and avoid the risk of delivery delays.

Supplier

Dfresto uses multiple source supplier and single source methods to supply more than 120 stockists who act as distribution centres before distributing to partners. The main requirement for ¾ or 75% of raw broiler chicken production is carried out by 40 suppliers spread across Indonesia, while the remaining 25% of raw broiler chicken supply is produced by another company subsidiary. In contrast to raw broiler chicken which uses multiple source suppliers, the company entrusts the production of seasoned flour and sauce to one supplier each. The seasoning flour supplier was given to PT Piva Trader, while the sauce supplier was given to other partners. The use of a single source supplier for both products is not without reason. The two suppliers are known by the parent company as suppliers who grew and pioneered together with the parent company from the start of doing business, so that the two suppliers have cash flow dependence on the parent company.

The company has one strategy for establishing good relationships with suppliers, which by implementing a time of payment (ToP) that is made with a maximum period of one week. This is done with the aim of making suppliers more confident in doing business with the company because trust exists to minimize the risk of late payments which usually occur between suppliers and the parent company.

Transportation

The company have simple shipment policies: The company makes regulations that require suppliers to deliver goods according to the agreed contract value which includes fixed costs and variable costs such as the price per ton of raw chicken that is already included the shipping costs. The shipping must be arrived at the partners before 10 a.m. in order to make a smoother flow for the partners. In delivery there is also a regulation that if a shortage is found after checking both quality and quantity, the company has the right to return the goods to the supplier or reduce the amount of payment.

Production

Production is carried out by the supplier itself, so the company does not have a processing factory. Every delivery is checked regularly, such as recalculating the quantity in the delivery to see whether it is in accordance with the contract. The quantity of product required is determined by demand from partners and ranges from approximately 280 tons of raw chicken per month. On the other hand, the amount of inventory is also checked periodically by stockists to ensure continuous availability.

Distribution Centers

The company does not distribute goods directly to partners, but the company uses stockis to distribute products to partners. Stockis are registered and communicate directly with the company regarding the order value needed to meet supply needs. In operation, stockis also supervise sub-stockis to assist them in direct distribution to partners, however the number of sub-stockis is not controlled by the parent company, but is controlled by the stockis themselves. The company is recorded as having 120 stockis as distribution centers that is spread across cities with partners in the region. Generally, stockists supervise one or two sub-stockists to help with product distribution channels, but there are also many stockists who directly distribute products directly to partners because there are fewer partner communities in certain areas so it is already enough for the stockist to handle it directly.

Supply Chain Risk Management

- **One week Time of Payment (ToP)**

  The application of the payment period to suppliers is made quite short, namely a maximum period of a week. This method is used by companies to minimize the risk of debt accumulating, causing the company's cash flow to become disrupted and unhealthy. Apart from that, this method is also used by companies to minimize the risk of termination of relationships by suppliers, because this makes the company have a good image with suppliers and makes suppliers have a sense of mutual need because of their dependence on cash flow with the company.

- **Weekly and Daily Order Interval**

  Order intervals are made into two types. First, a daily order system from partners to stockists or companies. This system allows partners to flexibly order raw materials according to their needs. One way to do this is to mitigate the risk of a break in selling due to waiting for a long order time if you use a longer order interval such as 3 days or a week. Second, is a weekly order system between companies or stockists and suppliers. This method is used to minimize the risk of price fluctuations which could result in an increase in raw material prices in a certain period. Compared to longer intervals, placing orders on a weekly basis enables more precise demand forecasting and inventory management, which can lower risks like excess inventory levels and pricey storage expenses.

- **Shipment Risk**

  The company has a shipment policy which indirectly explains that all forms of shipping risks must be covered by the supplier. So this can minimize the risk of unexpected costs due to problems in delivery which must be borne by the company.

Comparative Performance

Supply Chain Indicator	Dfresto	PT Indofood Sukses Makmur Tbk
Disruptions		
Disruption Events	COVID-19	COVID-19
Supplier		
Locations	Multi-region in Indonesia (local)	Multi-region in Indonesia & Countries supplying wheat
Sourcing Strategy	Single Sourcing & Multiple Sourcing	Multiple Sourcing
Transportation		
Shipment Policies	Shipment is the supplier's responsibility in accordance with the agreed contract	Criteria: Periodic demand, Split Delivery, Time Window, Direct Delivery in optimizing the shipment capacity
Shipment Cost	Shipment cost are already included in the contracts that have been agreed	Direct delivery (cost efficient in high shipment capacity)
Production		
Production & Inventory Control	Manual controlling	Use of ERP system to control inventory and production to increase efficiency
Production Capacity	Supplier production capacity is determined by demand	Optimization of supplier production capacity
Factory Locations	No Factory	105 manufacturing units across Indonesia
Distribution Centres		
Locations & Design Capacity	Products distributed to 120 distribution centers known as "Stockis"	1300 distribution point

Figure 4: Performance Comparison with PT Indofood Sukses Makmur Tbk.

CONCLUSION

Micro, Small, and Medium Enterprises (MSME) businesses can become more resilient to disruptions through supply chains. Effective business strategies can also help MSMEs become resilient; Dfresto is one example of this, having grew during the COVID-19 pandemic. According to this study, Dfresto performs exceedingly well in terms of supplier and distribution center indicators within its supply chain. 120 "stockists" make up the distribution network, which makes order processing quicker and simpler. Multiple sourcing strategies offer flexibility and resilience against disruptions, and for suppliers, having multiple raw broiler chicken sources across three islands reduces shipping costs and delivery times. MSMEs with similar business models can develop sustainable supply chain networks by structuring their distribution centers to enhance customer reach and maintain strong supplier relationships. Effective risk management strategies, such as maintaining short payment terms and efficient order intervals, can further bolster MSME resilience.

This research faced several limitations, particularly regarding information from the ESG report of PT Indofood and the Dfresto company. The ESG report lacked of comprehensive details and supplemental data from previous studies. Additionally, some company-specific information was restricted to the owner of Dfresto, which limiting the access to some detailed information, such as sustainability practices due to the company's smaller scale.

To build disruption-resilient businesses, MSMEs should implement clear strategies similar to those of Dfresto, focusing on robust supply chain management and target market determination. These strategies can serve as a strength for smaller-scale enterprises. In future research, the factors that make a business resilient to disruption can be explored in various detailed aspects. Research may be carried out to analyze resilience indicators in smaller businesses such as micro businesses because this type of business still has a simple business system, so some indicators that are suitable for larger business scales may be less relevant to the reality if applied by a smaller and less complex business scale.

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