

The Role of Collaboration and Digital Technology in Supply Chain Management in Micro Enterprises

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ARTICLE INFO

Article history:

Received 20 September 2023

Accepted 30 November 2023

Available Online 10 February 2024

Keywords:

Supply Chain Management,
Collaboration, Technology Digital,
Micro Enterprise, Social Network
Theory

Cite as:

Siskawati, E., Syaputra, H., &
Zahara, Z. (2024). The Role of
Collaboration and Digital
Technology in Supply Chain
Management in Micro Enterprises.
Economics, Business, Accounting
& Society Review, 3(1), 11–19.

<https://doi.org/10.55980/ebasr.v3i1.116>

ABSTRACT

Micro businesses have revived, and many have sprung up after the COVID-19 pandemic, including the Coffee Shop micro business. In addition, technological developments in the increasingly rapid digital era have provided nuances and dynamics in research in micro-enterprise supply chains. This study aims to explore supply chain management behavior in micro-enterprises in the era of digital technology. This research contributes to enriching knowledge from research on micro-enterprise agility after the COVID-19 pandemic. This research strategy uses a qualitative approach that allows the author to conduct an in-depth analysis and sort the data into themes. Data was collected from a micro-scale coffee shop in Padang City, North East Coffee Shop. This paper found that (1) the best strategy is to collaborate with small roasteries that are more open to micro-scale coffee shops. (2) The coffee shop micro business has a level of technology adoption to support its operations. This research contributes to enriching knowledge from research on micro-enterprise agility after the COVID-19 pandemic.



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1. Introduction

The success of a business depends on the performance and quality of a supply chain. During the COVID-19 pandemic, the supply chain experienced disruption (Lee & Choi, 2023). Micro enterprises are the business group most affected by this discourse. In response to these impacts, micro-business economic actors try restoring supply chains (Winter et al., 2023). Effective supply chain management can help small businesses improve their competitiveness, resilience, and profitability (Centobelli et al., 2021; Gandorah et al., 2022; Gao, 2022; González-Serrano et al., 2023).

Nevertheless, complex Supply chain management demands harmonious relationships from supply chain members in a business process. The quality of supply chain management is critical in meeting consumer expectations for quality products (Chatterjee et al., 2022a; Han et al., 2020) and meeting stakeholder expectations on sustainability aspects. Integrating these relationships helps organizations achieve profitability through cost efficiency (Basheer et al., 2019; Budayan & Okudan, 2022; Elibal & Özceylan, 2022; Tripathi, 2020). For example, the availability of organizational data sharing requires support from various supply chain elements to make business operational decisions (Pan et al., 2019). This is bridged by effective communication between

elements in the supply chain. Ineffective communication creates transparency issues between members in the supply chain (Chae & Yen, 2013) and also the availability of data sharing. Ineffective communication also increases the risk of loss from uncertainty and disruption in the supply chain. Unqualified supply chains can lead to excess costs, compliance issues, and disruptions (Xu et al., 2020).

From the perspective of organizational behaviour, certain organizations have control over vital resources needed by other organizations. Therefore, organizations that need resources behave to receive external influences from organizations that control resources (Hillman et al., 2016). Meanwhile, economic value is the focus of the concept of resource exchange. The expected profit is always followed by risk or uncertainty, so the idea of resource exchange from an economic perspective requires a process of evaluation and monitoring (Cropanzano et al., 2017). Business organizations need a supply chain system to meet the diverse resource needs of their operations (Bressan et al., 2023; Honda et al., 2023). At the same time, the supply chain is complex because it involves the interests of many parties that must be passed through in distributing products and services to consumers. Therefore, supply chain dynamics always require analysis, monitoring, and improvement.

Micro businesses have revived, and many have sprung up after the Covid-19 pandemic, including the Coffee Shop micro business. Individuals or groups manage them but do not have the capital of large coffee shops. Micro-scale coffee shops have a simple and limited supply chain for providing raw materials for quality coffee beans. This is an obstacle for micro-scale coffee shops and other barriers to maintaining customer loyalty.

A social network is an interaction or relationship between social entities, such as organizations, groups and individuals (Tabassum et al., 2018). The development of internet technology increasingly facilitates interaction in social networks and transforms the form of social networks from face-to-face to internet-based applications.

Table 1. Examples of social network applications

Examples	Application
Friendships networks	College/students, organizations or web (Facebook, Myspace, etc.)
Follower networks	Twitter, LinkedIn, Pinterest, etc
Preference similarity networks	Pinterest, Instagram, Twitter, etc
Interaction networks	Phone calls, Messages, Emails, WhatsApp, Snapchat, etc
Co-authorship networks	Dblp, Science Direct, Wikibooks, other scientific databases, etc.
User-user citation networks	Dblp, Science Direct, Wikibooks, other scientific databases, etc.
Spread networks	Epidemics, Information, Rumors, etc.
Co-actor networks	IMDB, etc

Source: (Tabassum et al., 2018)

The quality of supply chains in micro-enterprises is critical to support SME resilience. Still, research on supply chains in SMEs generally focuses on barriers that hinder SMEs' ability to build their supply chains (Chatterjee et al., 2022b; Mahmud et al., 2021; Melnyk et al., 2021). Micro-enterprises require resources that organizations with power mostly control. Thus, micro-enterprises often struggle to access the resources to support their business processes. Unlike previous studies, the research provides insight into SME strategies in overcoming post-COVID-19 supply chain disruptions through the lens of social networks. In addition, technological developments in the increasingly rapid digital era have provided nuances and dynamics in research in the field of supply chain in micro businesses (Chatterjee et al., 2022b; González-Serrano et al., 2023; Kawaguchi et al., 2021). Therefore, this study aims to explore supply chain management behaviour in micro-enterprises in the era of digital technology. This research contributes to enriching knowledge from research on micro-enterprise agility after the COVID-19 pandemic.

Northeast Coffee Coffee Shop

Northeast Coffee is one of the businesses engaged in food & beverage located in Padang City. Northeast Coffee was established at the end of 2021, after the Covid-19 pandemic. This micro business was established with a capital of IDR 300,000,000 (Three Hundred Million Rupiah). The business owner is a graduate who has just finished his education at university and feels motivated by the number of young people entering the world of entrepreneurship after COVID-19. This coffee shop business is run by the owner and a management team consisting of 9 people, filling the positions of Head Barista, Head Kitchen, Barista, and Kitchen Staff. Northeast Coffee provides a variety of menus, but the main one is coffee drinks. The café consists of two floors and one terrace on the first floor. The first floor is a closed room equipped with air conditioning, and there is an open room on the second floor and a balcony on the first floor. The room arrangement is intended to provide relaxing services for customers who enjoy drinks and food. In addition, the café also offers live music, which is held on the second floor, while watching events together is provided on the first floor. In its operations, business owners have applied several technologies to support internal operations and customer interactions.

2. Methods

This exploratory paper aims to answer the questions "How" and "why". Therefore, this research strategy uses a qualitative approach that allows the author to conduct an in-depth analysis and sort the data into themes (Braun & Clarke, 2006).

Table 2. Informant Profile

No	Position	Initials	Experience in the food & beverage industry (Months)
1	Owner	OW	13
2	Head Barista	HB	12
3	Head Kitchen	HK	6
4	Barista	B	6
5	Kitchen Staff	KS	6
7	Supplier	SP	24

Data was collected from a micro-scale coffee shop in Padang City, North East Coffee Shop. The interviews were conducted offline, with 14 interviews conducted to coffee shop owners and management. Participants consisted of 9 participants who were interviewed to discover the obstacles they faced in building supply chains and the strategies they carried out to solve these problems. The participants involved represented three lines of management level, namely coffee shop owners, head baristas, and head kitchens. The duration of the interview ranges from one to two hours. All interview sessions are recorded, transcribed into Indonesian, and then translated into English.

3. Results

3.1 The Role of Collaboration in Supply Chain Management in Micro Enterprises

Northeast Coffee requires the main raw material of coffee beans, but they are always limited in capital to obtain quality coffee beans. There are differences in the quality of coffee beans from one coffee shop to another. Coffee shops with roasting machines will look for raw materials by visiting farmers directly. However, this effort is relatively tricky because micro coffee shops compete with large-party buyers to get coffee beans. Another strategy is collaborating with small roasteries that are more open to micro-scale coffee shops. These roasteries can provide quality coffee beans at more affordable prices for micro-scale coffee shops.

Northeast Coffee buys raw materials from other coffee shops that have roasting machines. According to the owner, Coffee shops ready to supply coffee beans to be sold to other coffee shops make it very easy for micro coffee shop owners who do not yet have a roasting machine. Usually,

coffee beans that have gone through the roasting process only need to be ground and can then be processed into coffee drinks according to the desired menu.

After purchasing coffee beans that have been roasted, business owners will assess and evaluate the possibility of maintaining these suppliers in their value chain or may instead switch to other suppliers who have better quality roasted coffee beans. For coffee shop businesses, coffee quality is the most important matter.

... Of course, it is very important, especially if we are engaged in food & beverage, of course, what we sell is the taste of... for this reason, it is important to carry out quality control on the raw materials that we will process, such as coffee beans... we also sort out which coffee beans are of good quality and roasting results... and we also in grinding also try to produce a smooth and good coffee powder. (HB_1st interview).

The owner of the Northeast Coffee business explained that he had encountered coffee beans from suppliers with poor quality as he conveyed as follows:

... to obtain quality coffee bean information it is usually obtained from social networks. Purchasing coffee beans is done by contacting the coffee shop that provides the coffee beans in advance. Information on the availability of coffee beans can also be obtained by sharing information on social media platforms, such as WhatsApp groups. Sharing information through social media in coffee shop business groups helps communication become more effective. After completing the order through social media, the officer will pick up the coffee beans using a motorbike. (OW_2nd interview)

The Northeast Coffee business itself has two main suppliers of roasted coffee beans. The location of this supplier is very strategic because it is not too far from the Northeast Coffee café. This makes it easier for Northeast Coffee to pick up raw materials and is also more efficient in cost and time.

However, the supplier from Northeast Coffee said that in the last period, especially after the pandemic, the vacancy of ingredients to be sold to other coffee shops was relatively rare. Implementing priority distribution of goods causes coffee shops to have difficulty obtaining raw materials from suppliers. In practice, suppliers, one of the coffee shops that provide coffee beans for other coffee shops, prioritize coffee shops with large and routine transactions first. This may make some coffee shops that make transactions not frequent or relatively rare sometimes not get the bean.

... usually, for coffee shops that make regular purchases in large quantities, we prioritize... For example, there are some coffee shops where we deliberately provide ingredients because we have routinely taken ingredients from us. Therefore, sometimes there is a void of ingredients when one of the coffee shops wants to order ingredients. (SP_1st interview)

In addition to supply chain management in providing raw materials for coffee beans, supply chain management in meeting the inventory of other ingredients, such as flavoured variant powder, is quite effective for baristas. Ordering ingredients using the marketplace platform makes it very easy to choose a variety of good ingredients from various suppliers.

3.2 The Role of Technology in The Supply Chain in Micro Enterprises

Findings through interviews and direct observations show that technology facilitates coordination and communication in Northeast Coffee's supply chain. Northeast Coffee management, such as business owners and members, utilizes information technology to find new strategies that can improve the operational performance of Northeast Coffee's coffee shop business.

The openness of a business to knowledge from outside the business has a positive relationship with the level of innovation. The greater the transparency of the business to outside knowledge, the higher the level of innovation that will be adopted. The openness shown by Northeast Coffee business owners in seeing opportunities that can be done with collaboration encourages Northeast Coffee to adopt technology. Various activities were carried out in collaboration with several external parties as described in figure 1. Northeast Coffee business owners involve technology in finding

information and communicating with collaboration partners. Various collaborations by coffee shops have involved internet technology, such as WhatsApp business applications and online transportation applications. It can be concluded that the Northeast Coffee Coffee Shop business has a level of technology adoption to support its operations.



Figure 1. Author's Elaboration (processed 2023)

However, collaboration in supply chain management has not brought about the adoption of technological innovation. Technology in collaboration regarding supply chain management is only limited to the WhatsApp application. There has not been an innovation using specific applications or technologies that the Northeast Coffee coffee shop business has never used. However, the absence of innovation in using certain technologies in the collaboration process must be based on various things. One of the supply chain collaborations in managing materials other than the main raw materials shows that both parties consider the use of WhatsApp's business feature to be sufficient to help the collaboration process in providing other raw materials apart from the main raw materials in the business. The conditions conveyed by the two parties involved in the collaboration, namely Northeast Coffee and its suppliers, indicate that using WhatsApp's business feature is feasible to bridge collaboration activities.

In the current technology and information development era, micro-businesses must involve technology in their business activities, including supply chain management. Northeast Coffee evidences this with the use of technology that business owners apply in their business, namely recording applications that can process and produce accounting information from their business activities.

... I think it is essential for us to do this, even though we are not too large in scale, if it is difficult to find raw materials, it will be troublesome too. That's why we always pay attention to suppliers with good quality raw materials and increase relationships with fellow coffee shops. (OW_1st interview)

In addition, the implementation of technology is involved in generating accounting information. Business owners also believe in the importance of other aspects in supporting optimal supply chain management, such as conducting business collaboration and expanding their social networks.

... for other ways, we believe that increasing various cooperation and expanding networks make our business grow. (OW_1st interview)

In addition to using the marketplace, ordering several ingredients such as milk, liquid sugar, and syrup is often done automatically through WhatsApp. As stated by a Head Barista of Northeast Coffee below:

... ordering other beverage ingredients besides coffee beans, I think it's quite easy. Some we buy through the marketplace and some we have subscribed to one of the minimarkets in the market. So we just live WA after that, directly escorted by them here. Yes I think it's quite efficient. (HB_1st interview)

4. Discussion

Business success is largely determined by the quality of the supply chain, starting from the availability of raw materials, good internal business processes, and customer loyalty or good relationships with stakeholders (Bressan et al., 2023). In micro businesses, the quality of the supply chain is very vulnerable due to constraints such as low product quality, limited capital (Melynk et al., 2021) and, access to markets, and low infrastructure (Schilling & Seuring, 2023). Limited capital affects the difficulty of SMEs in obtaining quality raw materials. Nevertheless, SMEs have implemented several strategies to survive in their business.

This paper found that Northeast Coffee implemented a collaboration strategy to maintain the stability of raw material inventory. Raw materials suppliers play an important role in the culinary business (Smith & Honggen, 2008), including the coffee shop business run by Northeast Coffee. Value chain efficiency spearheads the success of Northeast Coffee's business.

Collaboration is key to the success of a value chain. In achieving its goals, the company cannot stand alone; it requires collaboration with various stakeholders (Mahmud et al., 2021). It can be said that partnership and collaboration can help companies achieve their goals (Mishra et al., 2022). Even (Jadhav et al., 2019) states that every organizational goal can be achieved by maintaining and focusing on supply chain development. Supply chain development through collaboration can create benefits and value for supply chain members (Han & Caldwell, 2020).

The supply chain influences business objectives, such as improving economic, social, and environmental performance. Northeast Coffee utilizes social aspects to develop the quality of its supply chain. The statement explains that information about the availability of roasted coffee beans is obtained through the business owner's circle of friends. Likewise, customer loyalty is part of the Northeast Coffee value chain. In maintaining customer loyalty, Northeast Coffee management cannot ignore social aspects and optimize stakeholder engagement. In addition, the important thing in supply chain management is information sharing. Collaboration can facilitate limited information among supply chain members. Therefore, managers always want to collaborate with reputable partners so that they always get quality information (Ali et al., 2021). As a micro-enterprise, Northeast Coffee faces various limitations in accessing resources, including access to information. However, efforts to develop supply chains involving Internet technology further obscure these limitations. Information can be obtained in real-time, and the quality of service can also be improved.

Supply chain quality affects supply chain transparency. The more qualified a supply chain is, the more able it is to avoid mistrust and ease the difficulty of supply chain members (Brun et al., 2020). In the Northeast coffee business, the difficulties management faces in obtaining quality coffee beans at a lower price can be overcome by relationships with suppliers of roasted coffee beans. Although management must select the quality of coffee beans from suppliers, this further improves the quality of Northeast Coffee's supply chain. Evaluation of products from suppliers increasingly leads management to get better suppliers.

The rapid development of digital technology provides nuances and dynamics of supply chain development. Inventory management is now increasingly efficient and effective with the help of accounting information systems based on Internet technology. In addition, Northeast Coffee has adopted internet-based accounting information. An internet-based accounting information system using the MAJOO application functions to provide various information needed to develop a supply chain. Critical information is inventory and sales information. The internet-based application is

known as an automated information system. The inventory information presented is used by management to monitor optimal inventory. In addition, Northeast Coffee also utilizes internet technology to communicate with supply chain members in real-time. Adopting Internet technology in a supply chain makes it easier to communicate and coordinate in the supply chain. The MAJOO accounting application Northeast Coffee uses can be used online or offline. If the application is connected to the internet, then the stored information can be accessed in real-time from anywhere. The internet is useful in supporting the smooth communication of each actor in the supply chain. Internet-based communication in supply chain collaboration can minimize information delay, loss, and distortion (Jiang, 2019).

5. Conclusion

The paper highlights the struggle Micro-enterprises face in accessing the resources needed to support their business processes. In overcoming supply chain disruption after covid 19, the SME strategy through the lens of social networks provides an understanding of the role of collaboration and technology adoption carried out by SMEs. To achieve common goals, each value chain member needs to maintain transparency in their communications. The importance of building a quality supply chain is driven by the intention to achieve cost efficiency by focusing on the specific expertise of each supply chain member. In this research, cost efficiency is achieved by collaboration strategies and utilizing digital technology. Internet-based communication minimizes information delay, loss, and distortion in the supply chain. This research is the first step in understanding the micro-enterprise dynamics in building supply chains in the era of rapid development of digital technology. This research contributes to enriching knowledge from research on micro-enterprise agility after the COVID-19 pandemic. Future research can develop an understanding of the dynamics of technology adoption in micro-enterprises.

6. Funding Statement

This work was supported by Politeknik Negeri Padang, through research activities of Hibah Penelitian Terapan Unggulan, 2023

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