

Uncertain Supply Chain Management

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Investigating the role of supply chain management on sustainable performance and dynamic capabilities: An empirical study on logistic organization

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ABSTRACT

Article history:

Received January 20, 2024

Received in revised format

January 27, 2024

Accepted March 12 2024

Available online

March 12 2024

Keywords:

Supply chain management (SCM)

Sustainable supply chain

management (SSCM)

Dynamic capabilities (DC)

Logistic organization

This research aims to investigate the effect of supply chain management (SCM) on sustainability performance (SP), the effect of dynamic capabilities (DC) on sustainability performance and finally the effect of SCM on DC. The study uses a quantitative method with a questionnaire approach to investigate the relationship between endogenous and exogenous variables using the Likert scale. The respondents for this research were 680 logistics company owners in Indonesia determined using a simple random sampling method. The results show that SCM had a positive and significant relationship with SP. DC also had a positive and significant relationship with SP and recommends that company owners create policies to increase dynamic capabilities to improve company performance. Finally, DC in our survey had a positive and significant relationship to SP and strengthened the findings of previous findings. Moreover, SCM had a positive and significant relationship with DC, which recommends company owners make policies to improve SCM to increase DC. This research provides input to organizational owners to implement supply chain management, and dynamic capabilities to improve company performance and competitiveness.

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1. Introduction

In this era of Industrial Revolution 4.0, supply chain management (SCM) is a means for companies, especially logistic organizations, to improve performance and competitiveness. Many logistic organizations have supply chain problems such as transportation of raw materials, materials and delivery of goods to customers (Saqib & Zhang, 2021). To overcome this problem, logistic organizations need to innovate supply chain management (SCM) to make it better and need to implement environmentally friendly SCM. Most organizations that have competitiveness have implemented good supply chain management (SCM). This research aims to analyze the role of supply chain management (SCM) on sustainable supply chain management (SSCM) and dynamic capabilities (DC). Part of this research has been carried out in developed countries and research in developing countries has never been carried out. 3 types of things must be managed in the supply chain, namely first, the flow of goods from upstream to downstream, for example, raw materials sent from suppliers to factories, after production is complete, they are sent to distributors, retailers, then to end users (Geng et al., 2017). The best strategy can be implemented by companies by planning, strengthening negotiations, forming partnerships, using ERP technology, and computerization, carrying out real-time management, and supervising other parties involved in the supply chain. Supply chains

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ISSN 2291-6830 (Online) - ISSN 2291-6822 (Print)

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doi: 10.5267/j.uscm.2024.3.008

are necessary for companies that want to expand and that want to connect companies in different locations and allow partners to gain a competitive advantage (Acquaye et al., 2018).

Competitiveness is one of the keys that needs to be considered for every company. Many aspects can influence the competitiveness of a company, one of which is supply chain management (Vanichchinchai, 2014). Supply chain management is a system that a company has from the process of having good relationships with suppliers, to service and delivery to consumers. Production efficiency is one of the goals that is always hoped for and applied to every company, whether manufacturing companies or others. Chardine and Botta-Genoulaz (2014) discussed the influence of supply chain management on competitive advantage and performance in logistics companies. According to Arawati (2011), business activities are not immune from intense competition. The conditions of tight competition between business actors place them in a condition where competitive advantage cannot be achieved only by internal improvements in the company. This requires the role of various parties from producers who produce finished goods, distribution networks that will deliver products to customers, to the relationship between product providers and end customers, or what is usually called supply chain management. The goal of supply chain management is to provide goods appropriately, precisely what is meant is quantity, quality, place, time, conditions, customers, and costs (Varsei et al., 2014). Effective and efficient supply chain management will be able to increase the company's profit margins through company efficiency through production cost efficiency. and distribution and accuracy of the product to the final consumer (Ahmed et al., 2020). Sofjan (2014) argues that the goal of supply chain management is to connect all components of a supply chain so that market demand can be met efficiently.

In research by Chardine and Botta-Genoulaz (2014), supply chain management is applied to achieve and improve performance by enabling cross-functional integration within the company. According to Bai et al. (2012), supply chain integration is divided into internal integration, supplier and customer integration and they influence the strategic importance of increasing the company's competitiveness. Although traditionally supply chains have focused primarily on supplier selection, development and integration, recently they have begun to include environmental factors and social criteria. Supply chain management has a direct impact on the competitiveness of companies, economic sectors and countries. According to Bourlakis et al. (2014), a company must have a sustainable competitive advantage (which is a characteristic of the company) where the company has demonstrated good performance that has outperformed its main competitors in a particularly competitive market over a long period and can withstand the forces of a highly competitive business environment. It is very important to have a good supply chain to improve business, this implies strong relationships with suppliers. To continue the company, innovation needs to be carried out to survive in a tight competitive environment, especially knowledge of supplier and customer needs has significant value for the company's innovation strategy. In this research, there are five variables used so that the focus in this research is not widened so that the objectives of this research can be achieved as expected. Many people think that logistics management and supply chain management are the same thing, which is often interpreted as a series of activities carried out to introduce effective and efficient management of the supply chain process.

2. Literature Review and Hypothesis Development

2.1 Supply Chain Management

Arawati (2011) defines the supply chain as an integrated and joint process of obtaining raw materials, changing raw materials into finished goods, and sending goods to consumers. Based on this explanation, it can be concluded that supply chain management is a system related to the company's relationship with suppliers, production and inventory processes, and relationships with consumers. Bourlakis et al. (2014) define supply chain management as the complex coordination and management of activities involved in delivering products to final consumers and this process includes raw materials, product planning and assembly, storage, ordering, and distribution to consumers. Acquaye et al. (2018) stated that supply chain management applied to manufacturing companies has several main elements, namely, planning new products, searching for raw materials, planning production and inventory quantities, implementing production, and sending and returning goods. In general, supply chain management is a series of activities that include planning, management and product activation. Of course, every activity that has been carried out uses an efficient cost-based strategy. Controlled and able to increase profits (Chardine & Botta-Genoulaz, 2014). The main objective of implementing supply chain management is to increase the efficiency and effectiveness of coordination between supply and demand. However, apart from that, supply chain management also aims to achieve market dominance or at least run a successful business. The supply chain management function includes the procurement of raw materials, such as raw materials and chemicals, production of final products, and distribution to retail stores such as supermarkets and convenience stores. Supply chain management covers every stage in the distribution of goods.

2.2 Dynamic capabilities

Duque et al. (2019) state that dynamic capabilities are a company's ability to change resource strategies when the environment changes uncontrollably. Dynamic capability is an organization's ability to integrate, build and reorganize its internal and external competencies to face rapid environmental changes. Dynamic capabilities can be distinguished from operational capabilities or "ordinary" capabilities, which relate to an organization's current operations (Li et al., 2006). In contrast, dynamic capabilities refer to an organization's capacity to intentionally create, expand, or modify its resource base. The basic assumption of the dynamic capability's framework is that core competencies should be used to transform short-term

competitive positions that can be used to build long-term competitive advantages. The ability to achieve new forms of competitive advantage is referred to as dynamic capabilities (Di Vaio & Varriale, 2020). Both the terms dynamic and capability itself require in-depth understanding when studying competitive advantage. The ability to renovate competencies to suit a changing business environment is called dynamic. The main characteristics of being dynamic are: It requires definite innovation to respond to situations such as the right time to enter the market, timing is very important in such cases (Saqib & Zhang, 2021). In addition, when rapid changes occur in the field of technology and when the character of competition and prospective markets is difficult to ascertain, the dynamic nature becomes vital for sustainable competitive advantage (Kamble et al., 2020). An important function of strategic management is in modifying, combining, and rearranging internal and external organizational skills, sources of power, and functional competence to suit changing environmental needs related to the term capability.

2.3 Sustainability performance

Sustainability performance is a performance that influences stakeholders in decision-making (Duque et al., 2019). The limited number of companies that disclose sustainable performance is one of the obstacles that can answer this phenomenon. Sustainability performance in the supply chain is a performance regarding activities related to the flow of goods, information and funds from suppliers to final consumers. Li et al. (2006) argue that performance of the supply chain is measured by the inventory that serves operational activities as a buffer where inventory at each stage is related to money, the operations of each stage must be synchronized so that buffer inventories can be minimized. General measures for evaluating efficiency are the amount of inventory turnover and the length of supply. For culinary business people, performance assessment can be used as a tool to create strategies for running their business. Corporate sustainability is defined by Huo et al. (2019) as a form of meeting the needs of company stakeholders without sacrificing future interests. Han and Huo (2020) explained in their research that corporate sustainability performance is a multidimensional concept based on the initial idea of sustainability which replaces the traditional understanding of corporate performance which only represents appreciation to capital owners. Sustainability performance based on its type is considered an agency cost because it can be used to serve strict managerial personal interests. Sustainability performance can also increase company value by strengthening the company's relationship with stakeholders (Wolf, 2014). The test results of Kumar and Goswami (2019) prove that the components of governance, environment, employees and society have a positive influence on company value. It is hoped that disclosure of sustainability performance will provide a positive signal to parties outside the company which will then be responded to by shareholders and stakeholders by increasing share value. According to Edwin et al. (2022), all components of a company's sustainability performance are significantly responsible for increasing company value. Dynamic Capability is defined as a company's ability to adapt, integrate and reconfigure organizational resources, competencies and skills, or referred to as capabilities, under changing environmental conditions, the rapid pace of innovation, the nature of intense competition, and the momentum of entering a market that continues to change, and market conditions that are difficult to determine, or are referred to as dynamic (Tracey et al., 2005).

2.4 The relationship between supply chain management (SCM) and sustainability performance

The implementation of SCM can improve company performance, competitiveness and competence (Duque et al., 2019). Several studies by Kamble et al. (2020) and Kumar and Goswami (2019) explain that the application of SCM can encourage increased sustainability performance. Other studies explain that the application of SCM has a positive and significant relationship to sustainability performance. Good implementation of SCM will increase competitiveness, reputation, and sustainability performance (Huo et al., 2019). Based on the results of this analysis, a hypothesis is created.

H₁: *Supply chain management (SCM) has a positive and significant relationship to sustainability performance.*

2.5 The relationship between dynamic capabilities and sustainability performance

Previous research by Kumar and Goswami (2019) and Li et al. (2006) discussing dynamic capabilities has shown that dynamic capabilities have a positive and significant relationship to organizational sustainability performance. Other research also states that dynamic capabilities produce competitive advantages and improve organizational performance. Dynamic capabilities cope with a rapidly changing environment. They suggest the capacity of organizations to achieve new and innovative forms of competitive advantage. Dynamic capabilities are a new concept and still emerging research on dynamic capabilities with sustainability performance (Huo et al., 2019). Other research by Duque et al. (2019) finds that dynamic capabilities have a positive impact on a company's sustainability performance. Based on the results of this analysis, a hypothesis is created.

H₂: *Dynamic capabilities have a positive and significant relationship to sustainability performance.*

2.6 Relationship of supply chain management (SCM) with dynamic capabilities

Supply chain management will encourage organizations to increase competitive advantages and develop dynamic capabilities (Lenny et al., 2007). Supply chain management will promote dynamic capabilities and improve sustainability performance

and is considered the most important means of enhancing a company's competitiveness and dynamic capabilities (Lu et al., 2016). Other research by Kähkönen et al. (2018) shows that SCM has a positive and significant relationship to the dynamic capabilities of SMEs. Based on the results of this analysis, a hypothesis is created.

H₃: *Supply chain management (SCM) has a positive and significant relationship with dynamic capabilities.*

3. Method

This research uses a quantitative method with a questionnaire approach to investigate the relationship between endogenous and exogenous variables. The research uses an online questionnaire with a Likert scale of 1 to 7, a scale of strongly agree = 1 to strongly disagree = 7. Questionnaires were distributed to respondents using social media. The respondents for this research were 680 logistics company owners in Indonesia who were determined using a simple random sampling method. Data analysis for this study adopted a partial least squares—structural equation modelling (PLS-SEM) approach to test direct and indirect relationships. Data analysis uses SmartPLS 3.0 software, the PLS-SEM approach is suitable for abnormal data and small sample sizes. Stages Data analysis includes validity testing, reliability testing and hypothesis testing or significance testing. Factor loading values of less than 0.50 will be deleted to determine the reliability of all indicators. The requirements for convergent validity are that all constructs have a Cronbach Alpha value greater than 0.70 and the average variance is extracted. (AVE) is greater than 0.50 and the composite reliability (CR) value is greater than 0.60. For the significance test the T value must be greater than 1.96 or the p value is less than 0.050.

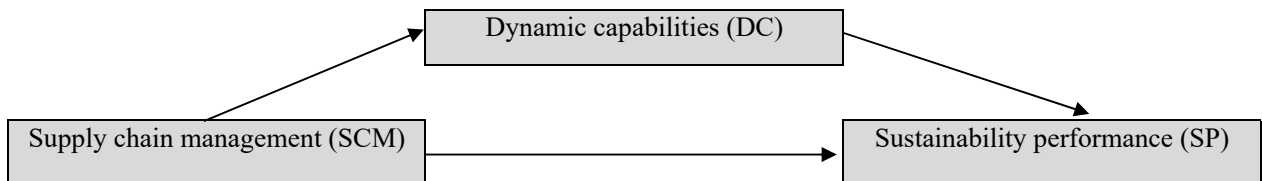


Fig. 1. Research Model

4. Results and Discussion

4.1 Validity and Reliability Testing

In the first stage, the measurement model calculates convergent validity and discriminant validity. Factor loading values of less than 0.50 will be deleted to determine the reliability of all indicators. The requirements for convergent validity are that all constructs have a Cronbach Alpha value greater than 0.70 and the average variance is extracted. (AVE) is greater than 0.50 and the composite reliability (CR) value is greater than 0.60. The research measurement model is shown in Table 1.

Table 1

Measurement Model

Measurement Scale	Items	Loadings	Cronbach's Alpha	AVE	CR
Supply chain management (SCM)	SCM1	0.899	0.765	0.567	0.807
	SCM2	0.908			
	SCM3	0.917			
Dynamic capabilities (DC)	DC1	0.919	0.712	0.532	0.789
	DC2	0.904			
	DC3	0.866			
Sustainability performance (SP)	SP1	0.926	0.765	0.564	0.821
	SP2	0.929			
	SP3	0.943			

All factor loadings less than 0.50 have been removed and all constructs have a Cronbach Alpha value greater than 0.50 and all constructs have an average variance extracted (AVE) value greater than 0.50 and a composite reliability value greater than 0.60 so it is concluded that the model can be continued for next analysis.

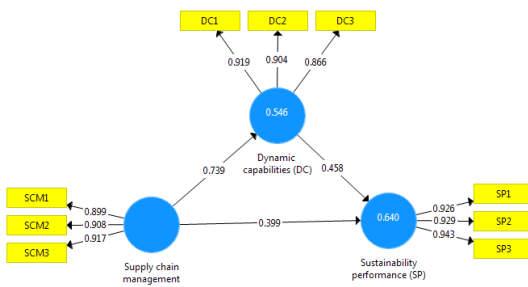


Fig. 2. Validity Testing

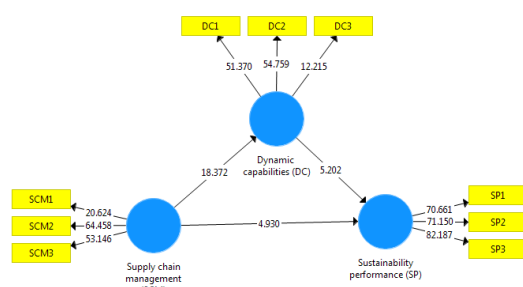


Fig. 3. Hypothesis Testing

To determine discriminant validity using the Fornell and Larcker criteria, the AVE diagonal square value is greater than the construct correlation with other variables and for the HTMT value, it must be smaller than 0.85.

Table 2
Fornell and Larcker Analysis

	SCM	DC	SP
SCM	0.789		
DC	0.421	0.765	
SP	0.564	0.423	0.743

Table 3
HTMT Analysis

	SCM	DC	SP
SCM			
DC	0.732		
SP	0.754	0.712	

4.2 Hypothesis Testing

The next stage is to test the influence of the direct relationship between variables. For the significance test the T value must be greater than 1.96 or the p value is less than 0.050.

Table 4
Direct Effect

Hypothesis	Beta	t-value	P-value	Decision
SCM → SP	0.399	4.930	0.000	Supported
DC → SP	0.458	5.202	0.000	Supported
SCM → DC	0.739	18.372	0.000	Supported

The next stage is to test the influence of indirect relationships or mediation relationships. For a significance test, the T value must be greater than 1.96 or the p-value must be less than 0.050.

Table 4
Indirect Effect

Hypothesis	Beta	t-value	P-value	Decision
SCM → DC → SP	0.434	5.654	0.000	Supported

4.3 The relationship between supply chain management (SCM) and sustainability performance

Based on the results of data analysis, it was obtained that the T value was $4.930 > 1.96$, so it was concluded that supply chain management (SCM) had a positive and significant relationship to sustainability performance. The implementation of SCM was able to improve the company's performance, competitiveness and competency (Purwanto & Juliana, 2022). Several studies by Lenny et al. (2007) and Lu et al. (2016) explain that the application of supply chain management (SCM) can encourage increased sustainability performance. Other studies by Mukaromah et al. (2022) explain that the application of SCM has a positive and significant relationship to sustainability performance. Good implementation of SCM will increase the competitiveness, reputation, and sustainability performance of the logistic organization. Research conducted by Kähkönen et al. (2018) stated that the beginning of the development of the supply chain management concept was when companies attempted to reduce production costs and develop information technology to create cost efficiency in the company implementing supply chain management in a company will have a positive influence on the company's production efficiency. Having a good supply chain system will encourage the company to minimize costs and maximize income or results.

4.4 The relationship between dynamic capabilities and sustainability performance

Based on the results of data analysis, it was obtained that the T value was $5.202 > 1.96$, so it was concluded that dynamic capabilities had a positive and significant relationship to sustainability performance. Previous research by Otto and Kotzab (2003) discussing dynamic capabilities showed that dynamic capabilities had a positive and significant relationship to organizational sustainability performance. Other research also stated that capabilities. Dynamically generates competitive advantage and improves organizational performance (Ou et al., 2010). So dynamic capabilities cope with a rapidly changing environment. They suggest the capacity of organizations to achieve new and innovative forms of competitive advantage (Lenny et al., 2007). Dynamic capabilities are a new concept and still emerging research on dynamic capabilities with sustainability performance. Other research by Mukaromah et al. (2022) finds that dynamic capabilities have a positive impact on a company's sustainability performance.

4.5 Relationship of supply chain management (SCM) with dynamic capabilities

Based on the results of data analysis, the T value was $18.372 > 1.96$, so it was concluded that supply chain management (SCM) has a positive and significant relationship to dynamic capabilities. Supply chain management will encourage organizations to increase competitive advantages and develop dynamic capabilities. Supply chain management will promote dynamic capabilities and improve sustainability performance and is considered the most important means of enhancing a company's competitiveness and dynamic capabilities (Saqib & Zhang, 2021). Other research shows that supply chain management (SCM) has a positive and significant relationship to the dynamic capabilities of SMEs. According to Wolf (2014), the influence of supply chain management on competitive advantage and dynamic capabilities has been discussed. The results of this research found that supply chain management has a positive influence on the company's competitive advantage and dynamic capabilities. Implementing a good supply chain system encourages the aspects of the company that are needed, such as getting the best raw materials, planning and implementing production, and consumer satisfaction. These aspects will help companies encourage and create competitiveness and dynamic capabilities so that companies can survive in the vast market competition (Varsei et al., 2014).

According to Vanichchinchai and Igel (2011) to survive in increasingly tight business competition, supply chain practice capabilities must be managed efficiently and implemented well to meet customer needs and be done in a very short time but the quality of products and services is maintained. Therefore, supply chain management practices have a significant influence on the competitive advantage and dynamic capabilities of a company. Wolf (2014) implemented good supply chain management practices and managed it transparently; this will increase the company's added value to compete with other companies running the same business. The ability to manage suppliers will create certainty in preparing work, and if relationships with customers are well established, trust will grow. If relationships with customers and suppliers can be established well without any obstacles, determining prices will also run smoothly by taking into account each other's interests. If this can continue to be maintained, the company's competitive ability will automatically increase. Tracey et al. (2005) By increasing competitive ability, the company's value will also increase in facing today's industrial world which relies on speed.

In research conducted by Vanichchinchai (2014), supply chain integration has a positive influence on competitive advantage. In carrying out supply chain integration, it is hoped that all the resources owned by the company can increase competitive advantage and dynamic capabilities in the global market. These resources can be tangible, or intangible owned by the company, including relationships with other parties, including customers, goods/service providers and others. Thus, supply chain integration influences competitive advantage. A company's supply chain integration capability is an important factor in increasing competitive advantage, where good coordination needs to be carried out internally. If the internal integration of the company's supply chain is running well and coordination between departments is not problematic, this will enable the flow of goods/services required by customers to be met immediately. In research conducted by Saqib and Zhang (2021), there is an influence between supply chain integration and company performance, in that the company's ability to manage supply chain integration is expected to be able to carry out collaborative, mutually beneficial relationships with other parties such as customers, suppliers and others, otherwise, this can increase competitive advantage so that company performance will get better and increase. This supply chain integration can be the main key to improving company performance and creating value (Sukati et al., 2012).

Supply chain integration influences company performance (Uddin et al., 2023). The integration process carried out by the company both internally, externally and with customers will create added value to the products/services provided by the company. This integration can also bring additional dependency to interested parties where there is a process of sharing information which is expected to have an influence in the supply chain process with the hope that this shared information will improve their respective interests. To achieve success in a globalized and competitive business, an organization cannot function in isolation (Saqib & Zhang, 2021). Organizations in the opinion of Tan et al. (1998) should focus on collaboration with the entire supply chain network (i.e. raw material suppliers, goods manufacturers, wholesalers and retailers, through buyers/customers) of their business, organizations understand that to remain in ahead of their competitor's implementation of supply chain management is a prerequisite. However, due to the increasing influence and pressure of globalization, organizations and supply chain partners involved in business activities must be agile in their movements but at the same time must be very responsive in providing high-quality products and services quickly and consistently at affordable costs. effective. Added by Varsei et al. (2014) and Vanichchinchai (2014) are necessary foundations for organizations that aim to develop viable competitive advantages, improve supply chain performance and maintain excellence in a competitive and competitive market environment. Other research by Saqib and Zhang (2021) and Sukati et al. (2012) indicate that there are three types of supply chain integration that companies need to manage well so they can compete in today's global competition, namely 1) External integration 2) Internal integration and 3) Customer integration. This must be combined well so that the company can maximize its resources so that the company's plans and targets can be achieved. Competitive advantage according to Tracey et al. (2005) is a basic concept in the field of strategic management, because it discusses the main goal of strategic management, namely, to explain what factors cause differences in the performance of an organization throughout the company. One of the leading theories states that in strategic management a company will achieve superior performance only if it has a competitive advantage (Saqib & Zhang, 2021). that is, industrial organization theory ensures that good performance is achieved when there is a competitive advantage that comes from obstacles. The company's ability to manage its supply chain capabilities by properly integrating internal, external and customer management capabilities and being able to maximize

the resources it has will increase the company's value, which will affect the company's competitive ability in global competition. This condition will also have an impact on the company's performance both operationally and financially.

5. Managerial, practical and theoretical implications

The results of this research show that SCM has a positive and significant relationship with sustainability performance. This research recommends that company owners make policies to improve supply chain management to improve company performance. This research contributes to the literature, namely providing empirical evidence about SCM relationships having a positive and significant relationship with sustainability performance and strengthening previous findings. The results of this research have shown that dynamic capabilities have a positive and significant relationship with sustainability performance. The study recommends company owners create policies to improve dynamic capabilities. To improve company performance, this research contributes to the literature, namely providing empirical evidence about the relationship that dynamic capabilities have a positive and significant relationship to sustainability performance and strengthens previous findings. The results of this research show that SCM has a positive and significant relationship with dynamic capabilities. This research recommends company owners make policies to improve SCM to increase dynamic capabilities.

6. Conclusion

The results of this research have shown that SCM has a positive and significant relationship with sustainability performance, dynamic capability has a positive and significant relationship with sustainability performance and supply chain management has a positive and significant relationship with dynamic capability. The application of SCM can improve company performance, competitiveness and competence. Several studies have explained that the application of SCM can encourage increased sustainability performance. Other studies explain that the application of SCM has a positive and significant relationship to sustainability performance. Good implementation of SCM will increase the competitiveness, reputation, and sustainability performance of SMEs. Previous research discussing dynamic capabilities has shown that dynamic capabilities have a positive and significant relationship to organizational sustainability performance. Other research also states that dynamic capabilities produce competitive advantages and improve organizational performance. So dynamic capabilities cope with a rapidly changing environment. They suggest the capacity of organizations to achieve new and innovative forms of competitive advantage. Dynamic capabilities are a new concept and still emerging research on dynamic capabilities with sustainability performance. Other research finds that dynamic capabilities have a positive impact on a company's sustainability performance. Based on the results of this analysis, a hypothesis is created. Supply chain management will encourage organizations to increase their competitive advantage and develop dynamic capabilities. Supply chain management will promote dynamic capabilities and improve sustainability performance and is considered the most important means of enhancing a company's competitiveness and dynamic capabilities. Other research shows that supply chain management (SCM) has a positive and significant relationship to the dynamic capabilities of SMEs.

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