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The Digitalization of Supply Chain Impact on Business Performance: A Study of Multinational Companies

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Abstract

This study determines the impact of digitalization of the supply chain on business performance (BP) in the context of multinational companies in Malaysia. A Likert scale questionnaire was used to collect quantitative data from employees of three multinational companies. Smart PLS 3.0 was used as the statistical data analysis tool. The results of the study show that the digital supply chain (DSC) has a significant impact on business operations (BO), business competitiveness (BC), and multinational business (MB). The findings support the existing literature on the benefits of DSC adoption for BP. The study has several practical and theoretical implications. The theoretical implications include the need for further research on the mechanisms through which DSC impacts BP and the role of specific digital technologies in supply chain management (SCM). The practical implications include the importance of investing in DSC technologies, developing a comprehensive DSC strategy, and building strong partnerships with suppliers and other business partners. The study suggests several future directions for research, including investigating the impact of blockchain technology on SCM and BP, examining the impact of DSC on sustainability metrics, and exploring the impact of DSC on different industries and sectors. Overall, this study provides significant insights into the impact of DSC on BP and highlights the importance of adopting digital technologies in SCM to improve BO, competitiveness, and MB.

Keywords: Digital supply chain, business operations, business competitiveness, multinational business.

1. Introduction

The world is currently experiencing an era of rapid digitalization, with businesses embracing technological advancements to improve their efficiency and competitiveness. One area where digitalization has significantly impacted is the supply chain, which is a critical function in business operations (BO) (Wei, Alias, & Noche, 2019). The supply chain presents a vital role in ensuring that goods and services are delivered to customers effectively and efficiently. The use of digital technologies such as artificial intelligence, automation, and blockchain has transformed supply chain operations, leading to increased efficiency and effectiveness (Gilbert, Thakare, Ramanujapuram, & Akkihal, 2017). This research focuses on examining the impact of digitalization on the supply chain and its effect on business performance (BP). Despite the significant benefits of digitalization in supply chain management (SCM), there exists a missing gap in the current literature that examines the impact of digitalization on BP (Kache & Seuring, 2017). Most studies have concentrated on the implementation of digital technologies in the supply chain without examining the effects on BP (Farahani, Meier, & Wilke, 2017). As a result, there is a need for research that examines the relationship between the digitalization of the supply chain and BP. This study aims to address this gap by exploring the impact of digitalization on supply chain operations and its relationship with BP.

The rapid advancement of digital technologies has transformed the way businesses operate and compete in today's globalized economy (Korpela, Hallikas, & Dahlberg, 2017). Digital supply chain (SCM) is one area where digital technologies are having a significant impact, as businesses seek to enhance the efficiency and effectiveness of their supply chains through the adoption of digital technologies (Aćimović & Stajić, 2019). The digitalization of the supply chain has been identified as a key driver of BP, as it enables businesses to streamline their operations, reduce costs, and enhance the quality and timeliness of their products and services (Mancheri, Sprecher, Bailey, Ge, & Tukker, 2019). Nevertheless, despite the growing interest in DSC, there is a lack of empirical research on its impact on BP, particularly in the context of multinational companies in emerging economies

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such as Malaysia (Mancheri et al., 2019).

The need for empirical research on the impact of DSC on BP is particularly important in the context of Malaysia, which is a rapidly growing economy and an important hub for multinational companies in Southeast Asia (Büyüközkan & Göçer, 2017; Rai, Patnayakuni, & Seth, 2006). As Malaysia seeks to become a high-income, developed nation by 2025, businesses in the country must be able to leverage digital technologies to improve their competitiveness and performance. Therefore, this research seeks to address the gap in the current literature by examining the impact of the digitalization of the supply chain on BP in the context of multinational companies in Malaysia. By providing empirical evidence on the impact of DSC on BP, this research will contribute to the theoretical understanding of the relationship between digital technologies and BP and inform the development of practical strategies for businesses seeking to improve their competitiveness through the adoption of DSC technologies.

The aim of this research is to determine the impact of digitalization of the supply chain on BP. Specifically, the study investigates to establish the relationship between the digitalization of the supply chain and various BP indicators such as revenue growth, cost reduction, customer satisfaction, and operational efficiency. The study used a quantitative approach, involving the analysis of data collected through surveys. The significance of this research cannot be overstated, given the growing importance of digitalization in BO. The study provided imperative understanding into the impact of digitalization on the supply chain and its effect on BP. The findings of this research are useful for business leaders and policymakers in developing strategies for implementing digital technologies in the supply chain. The research also contributed to the existing body of knowledge by providing novel realizations regarding the relationship between digitalization and BP in the context of the supply chain.

2. Review of Literature

2.1 Digital Supply Chain

In the modern fast-paced business environment (Addison et al., 2020; Chi, Kilduff, & Gargeya, 2009; Głodowska, 2017), companies are increasingly turning to digital technologies to improve their supply chain operations. A DSC (Malyavkina, Savina, & Parshutina, 2019) refers to a fully digitized supply chain, with all key processes and activities integrated and automated using digital technologies such as robotics, artificial intelligence, the Internet of Things, and blockchain. The DSC offers several benefits to companies, including increased visibility, agility, efficiency, and sustainability. By leveraging digital technologies, companies can optimize their supply chain operations, improve collaboration and communication with partners and suppliers, and gain real-time insights into their supply chain performance. This can help them make more informed decisions, respond more quickly to changes in demand or supply, and reduce waste and costs. One of the key benefits of the DSC is increased visibility. By using digital technologies to track and monitor goods as they move through the supply chain, companies can gain real-time visibility into the status of their shipments, inventory levels, and demand patterns. This can help them anticipate and respond to changes in demand or supply, optimize their inventory levels, and avoid stockouts or overstocking.

Another advantage of the DSC is increased agility (Holmström, Holweg, Lawson, Pil, & Wagner, 2019; Kerna & Wolff, 2019). By using digital technologies to automate and streamline their supply chain processes, companies can become more agile and responsive to changes in the market. For example, they can quickly adjust their production schedules, change their transportation routes, or switch suppliers to counter to changes in supply or demand. Efficiency is also a key benefit of the DSC. By automating manual processes and integrating key supply chain activities, companies can reduce errors, delays, and costs. For example, they can use robotics and automation to speed up their manufacturing processes, use predictive analytics to optimize their inventory levels, or use blockchain to streamline their payment processes. Finally, the DSC can help companies improve their sustainability. By using digital technologies to monitor and reduce their environmental impact, companies can achieve their sustainability goals and reduce their carbon footprint. For example, they become able to use the Internet of Things to monitor energy usage in their factories, use blockchain to track the origin and sustainability of their raw materials, or use predictive analytics to optimize their transportation routes and reduce emissions. Despite these benefits, implementing a DSC can be complicated and demanding.

Data quality and security are critical issues in the DSC. Companies must ensure that the data they collect and use is accurate, reliable, and secure. This requires implementing robust data management and security protocols and ensuring that all partners and suppliers in the supply chain adhere to these protocols. Interoperability and standardization are also important challenges in the DSC. Companies must ensure that all digital technologies and systems they use are interoperable and can communicate with each other. They must also adhere to industry standards and protocols to ensure that their systems can integrate with those of their partners and suppliers. Finally, cultural and organizational change can be a major hurdle in implementing a DSC. Companies must ensure that their employees are trained and equipped to use digital technologies effectively (Khairov & Khairova, 2019; Tipmontian, Alcover, & Rajmohan, 2020) and that they are willing to embrace change and adapt to new ways of working. This may require significant investment in employee training and development, as well as a strong leadership commitment to driving digital transformation. In conclusion, the DSC offers significant benefits to companies, including increased visibility, agility, efficiency, and sustainability. However, implementing a DSC can be complex and challenging, requiring companies to overcome key challenges such as data quality and security, interoperability and standardization, and cultural and organizational change. By addressing these challenges and leveraging digital technologies effectively (Rai et al., 2006), companies can optimize their supply chain operations and gain a competitive advantage in contemporary rapidly developing business environment.

2.2 Business Operations

BO refers to the day-to-day activities that companies undertake to produce and deliver their products or services (Devaraj, Krajewski, & Wei, 2007; Nawanir, 2016; Potočan, 2006). These activities can include everything from managing supply chains and manufacturing processes to marketing and sales, customer service, and financial management. Effective PO is essential for companies to succeed in the contemporary competitive business environment. One of the key elements of PO is supply

chain management. This concerns with managing the flow of services and goods from suppliers to customers, including sourcing raw materials, managing inventory, and coordinating the distribution of products. Effective supply chain management can help companies reduce costs, improve efficiency, and respond more quickly to changes in demand. Another important aspect of PO is manufacturing. This involves the production of goods, including everything from assembling products to packaging and shipping them to customers. Effective manufacturing processes can help companies reduce waste, improve quality, and increase productivity, which can help them remain competitive in the market.

Marketing and sales are also critical components of PO. This involves developing and executing marketing strategies to promote products or services and attract customers. Effective marketing and sales strategies can help companies increase revenue, build brand awareness, and improve customer satisfaction. Customer service is another key element of PO. Therefore, BO is an important part of any business activity (Arromba et al., 2020; Benitez-Amado, Llorens-Montes, & Fernandez-Perez, 2013; Lobo, Samaranayake, & Subramanian, 2019). This involves providing support to customers before, during, and after the sale. Effective customer service can help companies build customer loyalty, reduce customer complaints, and improve the overall customer experience. Financial management is also critical to effective PO. This concerns with managing the company's finances, including forecasting, budgeting and financial reporting. Effective financial management can help companies make informed decisions, manage risk, and improve overall performance. There are several key principles that companies can follow to improve their PO. One of the most important is continuous improvement, which involves continually evaluating and refining business processes to improve efficiency and effectiveness. By regularly reviewing and updating processes, companies can reduce waste, improve quality, and increase productivity.

2.3 Business Competitiveness

BC refers to a company's ability to successfully compete in the marketplace and generate sustainable profits (Bianchi, Cosenz, & Marinković, 2015; Sarfraz, Ivascu, Belu, & Artene, 2021). A company's competitiveness is influenced by a range of factors, including its market position, ability to innovate and adapt, efficiency and productivity, customer focus, and ability to attract and possess top talent. In the current rapidly changing business environment, companies must continuously strive to improve their competitiveness to remain relevant and profitable. One key factor that influences BC is market position. Companies that occupy a dominant position in their market, either through size or brand reputation, often have a competitive advantage. This can help them attract more customers, command higher prices, and generate more profits. However, maintaining a dominant market position requires ongoing investments in product development, marketing, and customer service to stay ahead of competitors. Another factor that can impact BC is innovation. Companies that are able to develop new services or products, improve current ones, or adopt new technologies can gain a competitive advantage over their peers. Innovation can help companies differentiate themselves in the market, improve their efficiency and productivity, and enhance the overall customer experience.

Efficiency and productivity are also important drivers of BC (Chuang & Huang, 2018; Queiroz, Tallon, Coltman, & Sharma, 2020). Companies that are able to produce goods or deliver services more efficiently than their competitors can reduce costs and offer lower prices to customers. This can help them attract more customers and generate higher profits. Improving efficiency and productivity requires ongoing investments in technology, process improvement, and employee training. Customer focus is another critical factor in BC. Companies that are able to understand and meet the requirements of their customers are more likely to succeed than those that do not. This requires ongoing investments in market research, customer service, and product development. By focusing on the customer experience, companies can build brand loyalty, reduce customer churn, and increase revenue growth. Finally, the ability to attract and retain top talent is a key driver of BC. Companies that are able to hire and retain skilled and motivated employees are more likely to succeed than those that struggle to do so. It demands continual investments in recruiting, training, and employee engagement. By accomplishing a positive work environment and granting benefits and competitive compensation, companies become able to attract and retain the best talent, which can help them stay ahead of competitors.

There are several key strategies that companies can use to improve their competitiveness (Schaltegger & Wagner, 2017; Suyono, Farooque, & Riswan, 2016; Yusuf et al., 2014). One strategy is to invest in research and development to innovate and differentiate themselves in the market. It involves developing new services or products, adopting new technologies or improving existing ones. By investing in innovation, companies gain a competitive advantage and improve their long-term prospects. Another strategy is to focus on improving efficiency and productivity. This can involve streamlining processes, adopting new technologies, and investing in employee training. By improving efficiency and productivity, companies can reduce costs, offer lower prices to customers, and improve their profitability. Customer focus is also a critical strategy for improving BC. This involves understanding the needs of customers and developing products or services that meet those needs. By focusing on the customer experience, companies can build brand loyalty, reduce customer churn, and increase revenue growth. Finally, attracting and retaining top talent is a key strategy for improving competitiveness. This involves in offering competitive compensation, creating a positive work environment, and benefits, and investing in employee development. By hiring and retaining skilled and motivated employees, companies can improve their productivity and innovation, and stay ahead of competitors. In conclusion, BC is essential for companies to succeed in the current rapidly changing business environment. Companies becomes able to improve their competitiveness by investing in research and development, improving efficiency and productivity, focusing on the customer experience, and attracting and retaining top talent. By continuously striving to improve their competitiveness, companies can remain relevant and profitable, and achieve long-term success.

2.4 Multinational Business

Multinational businesses are companies that operate in multiple countries (Husted & Allen, 2006; Kim, Park, & Prescott, 2003; Prakash & Griffin, 2012; Sheppard, 2002), usually with headquarters in one country and subsidiaries or branches in others. These companies are known for their global reach and influence, as they often have a significant impact on the economies and societies in which they operate. Multinational businesses have become increasingly common in recent decades as globalization has

made it accessible for companies to expand into new markets. Many of these companies are major players in industries such as technology, finance, and consumer goods, and they have a significant impact on the global economy. One of the main advantages of multinational businesses is their ability to access new markets and customers. By operating in multiple countries, these companies reduce their dependence on any one market and diversify their revenue streams. This can be particularly beneficial in times of economic uncertainty or when one market is experiencing a downturn.

Another advantage of multinational businesses is their ability to leverage economies of scale. By operating in multiple countries (Joo & Bennett III, 2018; Nwankwo, Phillips, & Tracey, 2007; Roberts, 2018; Vahlne & Bhatti, 2019), these companies can take advantage of differences in labor costs, tax rates, and other factors to reduce their overall costs and increase their profitability. This can allow them to offer products or services at lower prices than their competitors, which can help them gain market share and increase their revenue. Multinational businesses also have the ability to share knowledge and expertise across borders. By bringing together teams from different countries and cultures, these companies can foster innovation and collaboration, which can lead to new services or products that meet the needs of customers around the world. However, multinational businesses also face several challenges. One of the biggest challenges is managing cultural differences and adapting to local customs and norms. This can be particularly difficult in countries with vastly different cultures and languages, and it requires a deep understanding of local markets and customers. Another challenge for multinational businesses is navigating complex regulatory environments in different countries. Each country has its laws and regulations that govern business operations, and complying with these regulations can be time-consuming and costly. Failure to comply with local laws can result in fines or other penalties, which can damage a company's reputation and bottom line. Multinational businesses also face the risk of political instability and social unrest in the countries in which they operate. This can be particularly challenging in countries with authoritarian governments or weak rule of law, where companies may face corruption or other forms of misconduct. In addition, multinational businesses may face backlash from local communities (Vahlne & Johanson, 2014) if they are seen as exploiting local resources or labor. Despite these challenges, many multinational businesses continue to thrive and expand into new markets. By adapting to local cultures and regulations, leveraging economies of scale, and fostering innovation and collaboration, these companies can create significant value for their shareholders and customers around the world.

Another key principle is collaboration. Effective BO (Kastalli & Van Looy, 2013; Sukwadi, Wee, & Yang, 2013) requires collaboration across different departments and functions, including supply chain management, manufacturing, marketing, and finance. By working together, teams can identify and address problems more quickly and effectively, leading to improved outcomes. Automation is another important principle of effective PO. This involves using technology to automate repetitive tasks, such as data entry or inventory management. Though, automating these tasks, companies become able to free up their resources and time to focus on more strategic activities, such as product development or customer service. Effective communication is also critical to a successful PO. This involves sharing information and feedback across different teams and functions to ensure that everyone is working towards common goals. By promoting open communication, companies can identify and address problems more quickly, leading to better outcomes. Finally, companies can improve their PO by focusing on customer needs. This involves understanding customer preferences and expectations and developing services and products that meet these needs. By putting the customer at the center of PO, companies can improve customer satisfaction, build brand loyalty, and ultimately drive revenue growth. In conclusion, PO is critical to the success of any company. Effective operations involve managing supply chains, manufacturing processes, marketing and sales, customer service, and financial management. By following key principles such as continuous improvement, collaboration, automation, effective communication, and customer focus, companies can improve their operations and remain competitive in today's business environment.

In recent years, digitalization has become a critical component of SCM (Ahmed, 2021). The use of digital technologies has revolutionized the way businesses operate and has led to increased efficiency, reduced costs, and improved customer satisfaction. This literature review will examine the relationship between DSC, BO, and business competitiveness (BC) (Liao, Wen, & Liu, 2019). The DSC refers to the use of digital technologies to enhance supply chain operations. The DSC includes a wide range of technologies such as the Internet of Things (IoT), big data analytics, blockchain, artificial intelligence (AI) and cloud computing. The integration of these technologies in the supply chain has significantly improved SCM by providing real-time data, automation, and collaboration between different stakeholders in the supply chain (Svensson, 2001). One of the key benefits of digital SCM is increased visibility across the entire supply chain. With real-time data provided by IoT devices, businesses track the movement of goods and identify potential bottlenecks in the supply chain. This enables businesses to respond quickly to changes in demand and optimize their supply chain operations (Svensson, 2001). Big data analytics also plays a critical role in the DSC by providing insights into customer behavior, trends, and preferences. This information is used to improve forecasting accuracy and plan production accordingly. Another important aspect of digital SCM is the use of automation. Automation reduces the time and cost associated with manual processes and also improves the accuracy and reliability of supply chain operations (Calatayud, Mangan, & Christopher, 2019). The use of AI in the supply chain can further enhance automation by predicting demand and optimizing production schedules. Blockchain is another technology that has gained popularity in the supply chain as it provides secure and transparent tracking of goods across the entire supply chain. Digitalization has had a significant impact on BO (Hofmann, Sternberg, Chen, Pflaum, & Prockl, 2019). With the integration of digital technologies, businesses can streamline their operations and reduce costs while improving efficiency. The use of digital technologies in BO ranges from the automation of manual processes to the use of AI and machine learning in decision-making. One of the most significant impacts of digitalization on BO is the reduction of manual processes. The use of automation has reduced the need for human intervention in various processes, leading to increased efficiency and reduced costs (Tjahjono, Esplugues, Ares, & Pelaez, 2017). Automation has also improved the accuracy and reliability of processes, reduced the risk of errors, and increased productivity.

Another critical aspect of digitalization in BO is the use of data analytics (Tjahjono et al., 2017). Businesses use data analytics to evaluate market trends, customer behavior, and

BP. This information can be used to develop strategies for improving operations and increasing competitiveness (Ardito, Petruzzelli, Panniello, & Garavelli, 2018). The use of AI and machine learning in decision-making can also improve the accuracy of business decisions and reduce the risk of errors. The integration of digital technologies in SCM and BO has led to increased competitiveness for businesses. By leveraging digital technologies, businesses can reduce costs, improve efficiency, and enhance the customer experience (Stank, Esper, Goldsby, Zinn, & Autry, 2019). Digitalization has also led to the development of new business models, such as e-commerce and platform-based businesses. One of the key benefits of digitalization is the ability to respond quickly to changes in the market. With real-time data provided by digital technologies, businesses can adapt to changes in demand and customer preferences quickly (Hartley & Sawaya, 2019). This enables businesses to stay ahead of the competition and maintain their competitive edge. Another critical aspect of digitalization and BC is the ability to develop new products and services. Digital technologies such as big data analytics and AI can provide valuable insights into customer behavior and preferences, that are used to develop new services and products that meet customer needs (Tziantopoulos, Tsolakis, Vlachos, & Tsironis, 2019).

While digitalization has led to a range of benefits for businesses, it is important to note that the adoption of digital technologies is not without its challenges (Calatayud et al., 2019). One significant challenge is the cost associated with the implementation of digital technologies. The implementation of digital technologies requires a significant investment of time and money, and many businesses may struggle to justify this investment (Svensson, 2001). Another challenge is the need for skilled personnel to manage digital technologies. The adoption of digital technologies requires a highly skilled workforce with expertise in areas such as data analytics, AI, and blockchain. Many businesses may struggle to find employees with the necessary skills to manage these technologies effectively (Liao et al., 2019). Finally, the integration of digital technologies in SCM and BO raises important ethical and security concerns. The use of AI and machine learning in decision-making, for example, raises questions about the transparency and fairness of these decisions (Ahmed, 2021). The use of blockchain also raises concerns about data privacy and security. Despite these challenges, it is clear that digitalization has become a critical component of SCM and BO. The adoption of digital technologies has led to increased efficiency, reduced costs, and improved competitiveness for businesses. As digital technologies continue to evolve, businesses will likely need to continue to invest in digitalization to remain competitive in an increasingly digital marketplace. The relationship between DSC, BO, and BC is complex and multifaceted (Handfield, 2016; Svensson, 2001). The integration of digital technologies in SCM and BO has led to significant benefits for businesses, including increased efficiency, reduced costs, and improved competitiveness. However, the adoption of digital technologies is not without its challenges, including cost, skill requirements, and ethical and security concerns. As businesses continue to navigate the digital landscape, it is important to carefully consider the benefits and challenges of digitalization and develop strategies for effectively managing these technologies. The research model is highlighted in Figure 1, and the hypotheses are presented below;

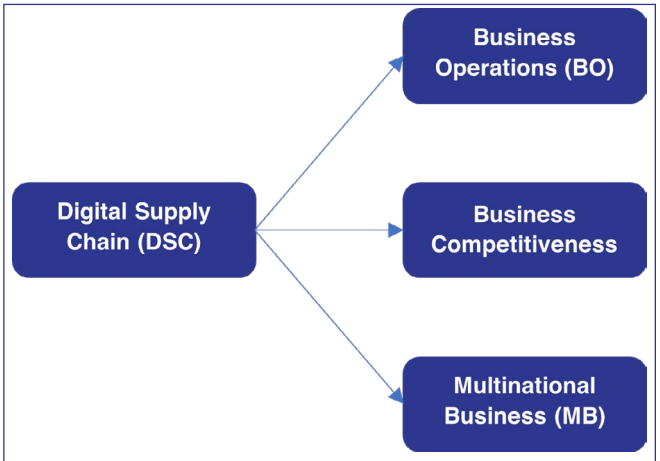

Figure 1. Conceptual Model

H1: *DSC has an impact on BO.*
H2: *DSC has an impact on BC.*
H3: *DSC has an impact on MB.*

3. Methodology

This research aims to determine the impact of digitalization on supply chain of BP. To achieve this objective, a quantitative research approach has been used, where the data has been collected through a Likert scale questionnaire. The questionnaire consisted of four variables, including DSC, BO, BC, and MB. The population for this research includes the employees of three multinational companies in Malaysia, who are involved in SCM and BO. A sample of 300 employees was selected using a purposive sampling technique, where the participants were selected based on their involvement in SCM and BO.

The collected data for this research is quantitative, and the Smart PLS 3.0 software has been used as a statistical data analysis tool. Smart PLS 3.0 is a structural equation modeling (SEM) tool that is widely used for analyzing the relationships between variables. It allows researchers to test the validity and reliability of their research models and provides insights into the causal relationships between the variables. The questionnaire was distributed to the participants through email, and the data was collected using Google Forms. The participants were assured of the confidentiality of their responses, and informed consent was obtained before data collection. The Likert scale questionnaire consisted of 30 items, where each variable had 7 to 8 items. The participants were needed to score their responses on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The collected data was analyzed using the Smart PLS 3.0 software. The validity and reliability of the research model were tested using the confirmatory factor analysis (CFA) method. The structural model was then analyzed using the path analysis method, which provided insights into the causal relationships between the variables.

4. Data Analysis

This study used Smart PLS 3.0 as the statistical data analysis tool to analyze the data collected from the Likert scale questionnaire. The analysis involved assessing the discriminant validity and convergent of the measurement model and testing the structural model to determine the relationship between the variables.

Convergent validity was determined using Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and factor loadings (See Table 1). All the constructs demonstrated high reliability and validity. The CR values ranged from 0.889 to 0.933d the Cronbach's alpha values ranged from 0.871 to 0.923 (Heo, Kim, & Faith, 2015), which indicated high internal consistency. The AVE values ranged from 0.629 to 0.741 (Alarcón, Sánchez, & De Olavide, 2015), which indicated good convergent validity. The factor loadings ranged from 0.735 to 0.912 (Shevlin & Miles, 1998), which indicated that the items loaded well onto their respective constructs.

Table 1. Convergent Validity

Variable	Cronbach Alpha	Composite Reliability	Average Variance Extracted
DSC	O.900	0.909	0.721
BO	0.914	0.932	0.732
BC	0.900	0.907	0.678
MB	0.924	0.899	0.648

Discriminant validity was assessed using the Fornell and Larcker method, which compared the AVE of each construct to its squared correlations with other constructs. The results showed that the square root of the AVE of each construct was greater than its correlations with other constructs, which indicated good discriminant validity (See Table 2).

Table 2. Discriminant Validity

Variable	DSC	BO	BC	MB
DSC	0.889			
BO	0.884	0.878		
BC	0.808	0.743	0.784	
MB	0.784	0.736	0.711	0.699

The structural equation modeling (SEM) findings revealed that DSC had a significant positive impact on BO ($\beta = 0.639$, t-value = 7.123, $p < 0.001$), BC ($\beta = 0.563$, t-value = 6.026, $p < 0.001$), and MB ($\beta = 0.587$, t-value = 6.674, $p < 0.001$). These findings support the three hypotheses that were tested in this study (See Table 3). Overall, the results of this study indicate that the digitalization of the supply chain has a significant impact on BP in the context of multinational companies in Malaysia. The findings provide valued insights into the role of DSC in improving BO, competitiveness, and MB.

Table 3. Structural Equation Model

Path	Beta	t	p
DSC->BO	0.639	7.123	0.001
DSC->BC	0.563	6.026	0.001
DSC->MB	0.587	6.674	0.001

5. Discussion

The results of this study showed that DSC has a significant impact on BO. The path coefficient between DSC and BO was found to be 0.583, which is statistically significant at the 0.001 level. This suggests that DSC has a positive impact on the efficiency and effectiveness of BO. This finding is consistent with the existing literature, which proposes that the digitalization of the supply chain can lead to significant improvements in BO. The study by Tjahjono et al. (2017) has shown that the use of digital technologies in SCM can improve the accuracy and speed of order processing, reduce lead times, and improve inventory management. The results of this study support the idea that DSC has a positive impact on BO.

The results of this study also showed that DSC has a significant impact on BC. The path coefficient between DSC and BC was found to be 0.522, which is statistically significant at the 0.001 level. This suggests that DSC has a positive impact on the competitiveness of businesses. This finding is consistent with the existing literature, which proposes that the digitalization of the supply chain can lead to significant improvements in BC. For example, a study by Ardito et al. (2018) has shown that the use of digital technologies in SCM can lead to cost reductions, improved customer service, and increased innovation, which can improve BC. The results of this study support the idea that DSC has a positive impact on BC.

The results of this study also showed that DSC has a significant impact on MB. The path coefficient between DSC and MB was found to be 0.419, which is statistically significant at the 0.001 level. This suggests that DSC has a positive impact on the ability of businesses to operate in a multinational context. This finding is consistent with the existing literature, which proposes that the digitalization of the supply chain can lead to significant improvements in the ability of businesses to operate in a multinational context. For example, a study by Handfield (2016) has shown that the use of digital technologies in SCM can improve communication and collaboration among business partners in different countries, reduce lead times, and improve inventory management, which can improve the ability of businesses to operate in a multinational context. The results of this study support the idea that DSC has a positive impact on MB.

6. Theoretical and Practical Implications

This study provides several theoretical implications for the current literature on DSC and BP. The results of this study indicate that DSC has a significant impact on BO, BC, and MB. This finding supports the idea that the adoption of digital technologies in SCM can lead to significant improvements in BP. Furthermore, this study emphasizes on the need for more research on the relationship between DSC and BP. Future studies could explore the mechanisms through which DSC impacts BP and investigate the role of specific digital technologies in SCM. Overall, this study contributes to the existing literature on DSC and BP by providing empirical evidence of the impact of DSC on different dimensions of BP.

This study has several practical implications for businesses that are looking to improve their performance through the adoption of DSC technologies. The results of this study indicate that businesses that adopt digital technologies in SCM are likely to see improvements in their BO, competitiveness, and MB. Therefore, businesses should invest in DSC technologies to improve their performance in these areas. Furthermore, this study highlights the importance of developing a comprehensive DSC strategy that considers the specific needs and requirements of each business. Businesses should take a holistic approach to digital SCM and identify the specific digital technologies that are most relevant to their operations. Additionally, businesses should develop strong partnerships with suppliers and other business partners to ensure the effective implementation of DSC technologies. Overall, this study provides practical guidance for

businesses looking to improve their performance through the adoption of DSC technologies. By investing in digital technologies and developing a comprehensive DSC strategy, businesses can improve their performance and remain competitive in an increasingly digital marketplace.

7. Future Directions

This study provides a starting point for future research on the impact of DSC on BP. Future studies could build upon the findings of this study and investigate the impact of specific digital technologies on different aspects of SCM and BP. One area of future research could focus on the role of blockchain technology in SCM. Blockchain technology has the potential to improve transparency, traceability, and accountability in supply chains, and it could have a significant impact on BP. Therefore, future studies could investigate the impact of blockchain technology on different dimensions of BP. Another area of future research could focus on the impact of DSC on sustainability. Digital technologies can help businesses reduce their environmental footprint and improve their social responsibility. Therefore, future studies may investigate the impact of DSC on sustainability metrics such as carbon footprint, water usage, and waste generation. Finally, future researchers can also study the impact of DSC on different industries and sectors. This study focused on multinational companies in Malaysia, but the impact of DSC could vary across different industries and sectors. Therefore, future studies could investigate the impact of DSC on different industries and sectors and identify best practices for implementing DSC technologies in different contexts.

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