INTERNATIONAL JOURNAL OF eBUSINESS AND eGOVERNMENT STUDIES
Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102
Received: 10.01.2022 | **Accepted:** 20.03.2021 | **Published Online:** 01.04.2022

-RESEARCH ARTICLE-

THE ROLE OF E-BUSINESS TECHNOLOGIES IN SUPPLY CHAIN PERFORMANCE: EVIDENCE FROM SAUDI ARABIAN TEXTILE INDUSTRY

Abdulaziz Aljoghaiman

Department of Management, College of Business Administration,
King Faisal University, Al-Ahsa 31982, Saudi Arabia.
Email: aaljughaiman@kfu.edu.sa

Muhammad Awais Bhatti

Associate Professor
Department of Management, College of Business Administration,
King Faisal University, Al-Ahsa 31982, Saudi Arabia.
Email: mbhatti@kfu.edu.sa

─Abstract─

This study investigates the role of e-business technology in supply chain performance (SCP) within Saudi Arabian textile companies. This study explores the interaction between e-business technology, information quality, information breadth, coordination knowledge, partnership flexibility, providing flexibility, and SCP to accomplish this purpose. Additionally, the indirect effects of information quality, information breadth, and coordination knowledge are explored in addition to the direct consequences. The study's target demographic comprises persons who work in Saudi Arabia's textile industry. Thus, data is gathered from Saudi Arabian textile enterprises whose employees are study respondents. The partial Least Squares technique analyzes the 232 valid responses (PLS). It has been discovered that e-business technology is critical for promoting supply chain operations in the Saudi Arabian textile industries. Improved use of e-business technologies can increase SCP. Additionally, e-business technology has a vital role in boosting information quality, breadth of information, and coordination expertise, contributing to increased partnering flexibility, which increases SCP.

Citation (APA): Aljoghaiman, A., Bhatti, M. A. (2022). The Role of E-Business Technologies in Supply Chain Performance: Evidence from Saudi Arabian Textile Industry. *International Journal of eBusiness and eGovernment Studies, 14* (1), 18-42. doi: 10.34109/ijebeg. 202214102

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

Keywords. E-business technology, information quality, information breadth, coordination knowledge, partnering flexibility, offering flexibility, supply chain performance, Saudi textile industry.

1. INTRODUCTION

In a competitive corporate environment, supply chain management is critical for surviving and achieving improved performance (Muafi, 2021). All businesses rely on supply chain activities to sustain their operations. A more effective supply chain mechanism benefits individual companies in various ways, as it is connected to all stages of production. The supply chain process enables corporate activities to run smoothly from raw materials to finished items and deliver products to the final consumer. Thus, in a competitive climate, the efficiency and effectiveness of this entire process are critical. Supply chain management is a vital factor to consider (Yeniyurt et al., 2019). More effective execution of supply chain strategies may result in the smoothness of the product manufacturing process, reduced time consumption, and cost-efficiency, all of which affect the finished product.

As a result, corporate organizations' supply chain performance (SCP) is required to solve Saudi Arabian firms' difficulties. However, improving supply chain performance is a significant problem for firms. The majority of businesses cannot obtain a higher SCP due to various complications. The supply chain entails multiple processes, from distributing raw materials to the enterprise to delivering finished items to the final consumer (Zanon et al., 2021). Inefficiency at any point in the supply chain can disrupt the entire operation. Thus, to improve supply chain performance, it is critical to assure efficiency and effectiveness at all stages of the process, which is one of the primary obstacles. For most businesses, developing the supply chain mechanism is also costly. Not all companies can employ the most effective and efficient supply chain method. Thus, achieving a meaningful degree of SCP among firms is not easy and is one of the key challenges faced by individuals' businesses or enterprises. As a result, businesses must achieve a high degree of performance in supply chain processes (Altay et al., 2018).

SCP places a premium on e-business technologies (Chandak et al., 2019).Numerous e-business technologies can be used to advance SCP. Mobile commerce technologies, electronic funds transfer technologies, internet marketing technologies, various methods for handling online transactions, electronic data management interchange technologies, inventory management technologies, and automated data collection systems are all examples of e-business technologies. These technologies can help promote supply chain activities since they play a beneficial function in supply chain operations. Implementing cutting-edge technology can address various supply chain difficulties, hence promoting SCP. E-business technologies can also address supply chain concerns among Saudi Arabian businesses.

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

Saudi Arabian businesses, like other businesses, face supply chain difficulties that harm the business's entire operations. The textile sector, like other industries, is experiencing supply chain crises or problems. The Saudi Arabian textile market is depicted in Figure 1 in terms of product market share. The Saudi textile market is divided into several segments, including bed linen, bath linen, kitchen linen, carpets, and floor furnishing. A holistic supply chain approach is used to ensure the supply of items to various divisions. As earlier studies have demonstrated, the supply chain plays a critical role in the textile sector (Basheer et al., 2019; Le, 2019). The textile industry is comprised of several segments, including research, design, product development, manufacturing, and distribution of textiles and fabrics, as well as clothing. Most crucially, textile companies operating in Saudi Arabia face critical supply chain difficulties.

Because Arabia is not a cotton-producing country, they rely on other countries for raw materials for cotton-related products. This process necessitates a robust supply chain infrastructure to ensure that operations are completed on time. Thus, in Saudi Arabia, a systematic supply chain framework is essential to address supply chain concerns in textile companies (Wiengarten et al., 2010). The quality of information is a significant factor affecting SCP. The required level of information quality is always critical when making various decisions (Wiengarten et al., 2010). The other critical issue is data breadth, which is required for efficient supply chain operations. The range of information indicates the extent to which problems are emphasized, enhanced, and examined.

Similarly, coordination expertise is required as it is a critical component of supply chain activities. It is essential to know many stakeholders, including suppliers, partners, and competitors. Thus, according to the current study, organizations lack the information quality, breadth, and coordination knowledge necessary to promote themselves using e-business technology.

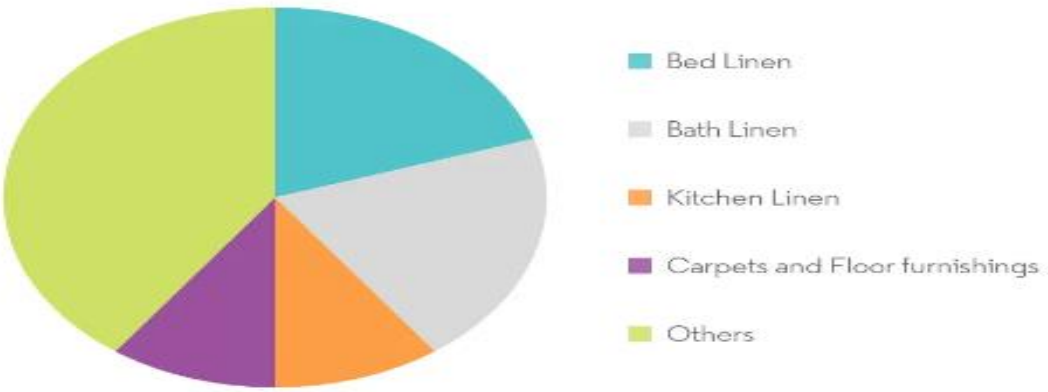

Figure 1. Saudi Arabian home textile market share by-products of 2019
Source: Mordor Intelligence

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

Although there has been considerable research on supply chain management in textile firms (Piprani, 2020; Ruan et al., 2022), there has been little research on e-business in the context of supply chain management in textile companies operating in Saudi Arabia. Additionally, this study examined the mediating effect of information quality, breadth, and coordination knowledge on the relationship between e-business and SCP, which has been overlooked in prior research. As a result, the contribution of this study is critical for textile company management to improve SCP. As a result, this study suggests that adopting e-commerce strategies can remedy supply chain concerns. Technology is consuming all corporate activity in the current industrialized period. The majority of commercial activity has been migrated to internet business platforms. Most crucially, in the COVID-19 era, businesses are migrating to electronic commerce (Almeida et al., 2020). Most businesses are changing their primary transactions to e-commerce, which is a favorable development in the business market. Textile companies, like other businesses, can leverage e-commerce to boost their operations. The use of e-commerce practices can remedy supply chain challenges. According to this study, e-business technologies can improve supply chain operations. As stated in the literature, e-commerce plays a critical role in the supply chain of numerous businesses (Chandak et al., 2020; Chandak et al., 2019; Chi et al., 2020).

As such, the purpose of this study is to assess the role of e-business technology in Saudi Arabia's SCP. Along with e-commerce technologies, this study identified several additional factors critical to the supply chain of textile industries. According to the current research, supply chain flexibility is crucial for SCP (Delic et al., 2020). As a result, this study examined supply chain flexibility in terms of partnership and offering flexibility, both of which affect SCP. Additionally, e-commerce affects the amount of information provided to business partners. It is critical to convey information on time to conduct supply chain activities. Additionally, cooperation among partners involves the supply chain via supply chain flexibility. Thus, in addition to e-commerce, the current study examined the influence of information quality, breadth, and coordination knowledge.

2. DEVELOPMENT OF STUDY FRAMEWORK AND HYPOTHESES

The current study's framework is based on the gaps in the literature. Although multiple studies in the existing literature have identified various features of e-business in connection to the supply chain, past research has omitted several critical factors that the current study addresses. Although the relationship between e-business and supply chain has been established in the literature (Qin et al., 2021; Zhu et al., 2020), the role of e-business technologies in the supply chain is rarely addressed. While e-business technologies have been explored in the literature (Neykova et al., 2019; Sanders, 2007), they have not been specifically documented in the supply chain in most previous research. Only a few studies have studied this association in conjunction with other variables, and the subject has received less attention in any research study. With

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

increased competitiveness, the world is becoming more connected through e-business technologies. The supply chain relies heavily on e-commerce technologies and other corporate activities. This study examined the function of e-business technology in the supply chain in this approach. Particularly in Saudi Arabia, no study has examined the role of e-business technology in supply chain organizations. While several previous studies have addressed e-business in the context of Saudi Arabia (Alshanqiti et al., 2022; Batwa et al., 2019), it is extremely rare for any study to conduct an investigation based on e-business technologies used in the supply chain that may result in improved performance in supply chain activities. As a result, this study addressed a critical gap in the literature regarding Saudi Arabia.

Additionally, this study studied the relationship between e-business technology and supply chain management and other critical aspects of e-business and supply chain management that contribute to the literature and practitioners. This study aimed to examine e-business technologies through the lens of information quality. Although information quality and supply chain management have been explored in the past (El-Garaihy, 2022; Kurniawan, 2021), they are rarely discussed in the context of e-business technology. The SCP of Saudi enterprises, in particular, is hardly considered in the literature. Similarly, this study considers the relationship between information breadth and supply chain, which is not addressed in the literature in many ways; on the other hand, this study finds information breadth concerning the supply chain, which is not discussed in the literature. E-commerce and information sharing has been discussed in the literature (Iizuka, Iizuka, & Suematsu, 2013), but not in the context of supply chains and e-commerce technology.

Additionally, coordinating knowledge is a critical variable that has received little attention in the literature. This variable contributes significantly to the literature because it is frequently overlooked in supply chain management and the context of e-business technology. As a result, the current study considers this variable concerning e-business technology and its significance in the Saudi Arabian supply chain. Along with these gaps, this study used supply chain flexibility in terms of partnering and offering, which is also unique. Finally, to address the effect of e-business technology on SCP, this study analyzed the relationship between e-business technology, information sharing, breadth of information, coordinating knowledge, partnership flexibility, offering flexibility, and SCP, as illustrated in Figure 2.

2.1 E-Business

E-Business (electronic business) refers to any transaction conducted by a business over a computer-mediated network. Electronic funds transmission is the most extensively used technology. Businesses are required to transfer payments, which necessitates using a dependable and trusted source. To facilitate commercial operations, e-commerce provides the necessary technologies for fund transfers. Similarly, e-businesses offer internet marketing, a critical instrument for promoting services.

INTERNATIONAL JOURNAL OF ECONOMICS AND FINANCE STUDIES
Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) (**pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

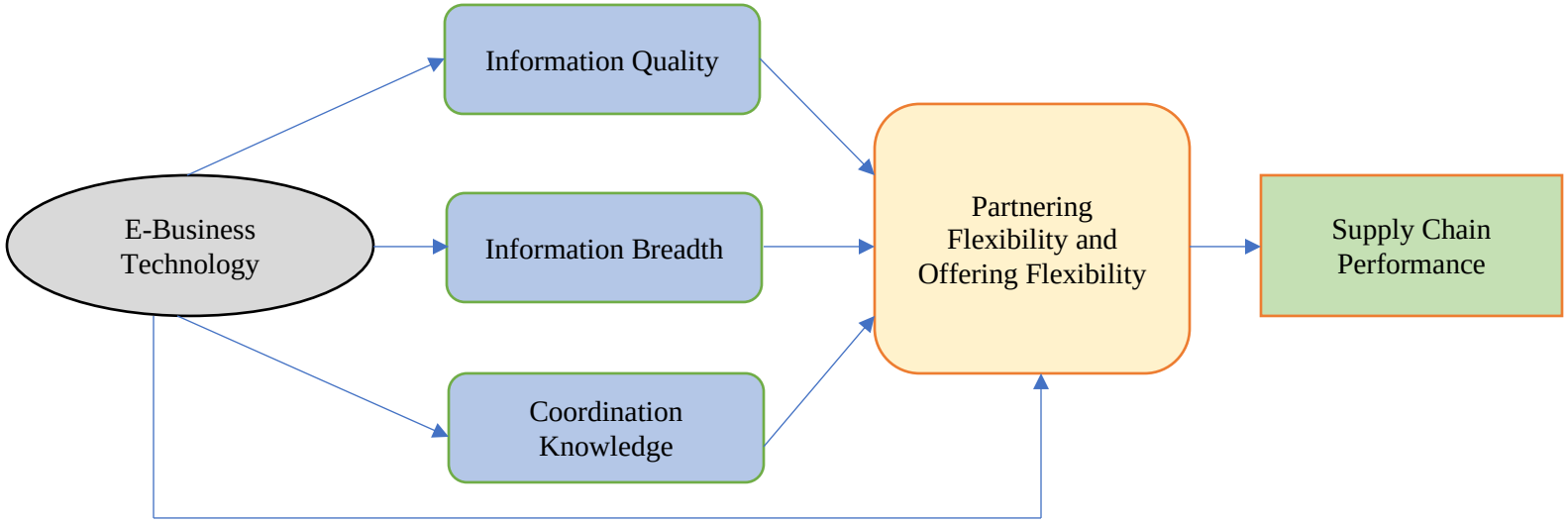

Figure 2. The framework of the study shows the relationship between e-business technology, information sharing, information breadth, coordination knowledge, partnering flexibility, offering flexibility, and SCP

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) (**pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

Additionally, supply chain technology such as mobile commerce and data management is necessary. Numerous businesses utilize e-business technology for data management, with several benefits (Gwangwava, 2011; Tatsiopoulos et al., 2002). Any for-profit, government-based, or non-profit organization is considered a business organization. Their responsibilities include production, customer, and business procedures, focusing on internal or external administration. Nowadays, worldwide e-commerce activity is expanding (Khan, 2021; Yan et al., 2019). The Coronavirus made a global impact in 2019, 2020, and 2021, disrupting commercial operations. Physical commercial activity was impossible in this environment. As a result, most businesses began conducting business online via the Internet, increasing the global prominence of e-commerce. The majority of businesses started purchasing and selling online and transferring payments via internet networks, significantly reducing the scope of physical operations. Similarly, textile industries began operating electronically by adopting e-business methods (Nijaguna, 2010). Textile companies are also moving most of their activities to e-commerce, which has several advantages, including reduced labor costs, increased efficiency, and increased accuracy. Numerous technologies are available in the e-business practices adopted by organizations, including mobile commerce, electronic funds transfer, supply chain management, internet-based marketing activities, online business transaction processing, electronic data interchange (EDI), and inventory management tools addition to automated data collection systems. Additionally, this study included e-business technology.

2.2 Supply Chain Performance

A supply chain is a network of relationships between a business and its suppliers to manufacture and deliver a certain product or service. The supply chain comprises several components, including manufacturers, vendors, warehouses, transportation companies, distribution centers, and retailers. On the other hand, SCP refers to the extensive supply chain procedures involved in meeting end-customer expectations, including product availability, on-time delivery, and all necessary inventory, as well as the supply chain capabilities to assure responsive performance.

The supply chain is critical for businesses (Pundir, Devpriya, Chakraborty, & Ganpathy, 2019) since the supply chain underpins the entire production process and also substantially influences corporate performance. Similarly, supply chain management significantly impacts textile enterprises driven by e-commerce technologies. E-commerce technology is assisting in the direction of supply chain activities. For example, supply chain transactions can be processed using an online system that is more secure and efficient. Data management can also be handled more effectively with improved e-business technology accessible to multiple users and available at all times. E-business enables the transfer of funds to both partners and suppliers. Thus, e-business technologies assist the supply chain process in various ways (Almahamid, 2015; Wiengarten et al., 2010), thereby enhancing SCP.

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

Hypothesis 1. E-business technology has a positive effect on partnering flexibility and offering flexibility.

2.3 Information Quality

The quality of information is defined as the substance of information systems. It can be defined as "the suitability of the information delivered for its intended use." The framework for information quality is founded on a concrete technique for evaluating and quantifying information robustly and rigorously possible. The quality of information is critical for business activities (Balslev et al., 2021),as it directly affects the decision-making process. Customer, supplier, and other stakeholder information about the business product can help encourage commercial activity. While businesses will always know, the quality of that information is critical.

Similarly, information quality is critical when conducting supply chain procedures (Agyei-Owusu et al., 2021). For textile enterprises, inventory availability, raw material required to perform routine operations, and supplier availability are especially critical. E-business technologies enable the management of information quality. E-commerce allows the storage and retrieval of data in various convenient ways. Online storage of business-related data ensures that it is always accessible in the event of a necessity. As a result, e-commerce and information quality are inextricably linked.

Hypothesis 2. E-business technology has a positive effect on information quality.

2.4 Information Breadth

The breadth of information refers to all knowledge available on a subject. The depth of data indicates the extent to which specific themes are emphasized, amplified, and examined. The breadth of information is critical in any company operation since it enables several decisions for the firm's benefit. Rapid responses to change are usually necessitated in a dynamic and evolving business (Iskanius, 2010). Additionally, breadth of information is essential to respond to an unexpected shift. A range of data is necessary because each business change is always based on external data, which may be incorrect, necessitating sufficient rationale and evidence. Organizations with a breadth of information always react to change in the right direction and appropriately. As previously said, activities require a range of information (Hair, 2017). On the other hand, the breadth of information cannot be maintained through e-business platforms. E-business technologies can centralize data collection and are conveniently accessible for corporate activities.

Hypothesis 3. E-business technology has a positive effect on information breadth.

2.5 Coordination Knowledge

Coordination with partners necessitates a thorough understanding of the business and the partners (Gosain et al., 2004). Knowledge of the partners' competencies, in particular, is critical for coordination. The business representative should be familiar with the

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

capabilities of potential partners. Coordination with partners requires process knowledge as well. These factors, including competencies, processes, and content, are needed for supply chain coordination. To collaborate effectively with present and prospective supply chain partners, a business company must be aware of other players' unique techniques and capabilities and understand what it would take to connect with them. Communication between partners necessitated a thorough understanding of the supply chain process (Gosain et al., 2004).The function of e-commerce is critical in this approach. Coordination can be facilitated through improved knowledge via e-business technology. E-business technology has always provided a more efficient method of communicating with firms.

Hypothesis 4. E-business technology has a positive effect on coordination knowledge.

2.6 Partnering Flexibility and Offering Flexibility

Supply chain flexibility is a critical construct that is quantified using the methodology used in various earlier research (Delic et al., 2020; Liao et al., 2015; Palandeng, 2018). The current study defines supply chain flexibility in terms of partnership and offering flexibility. Flexibility in collaboration refers to the ease with which supply chain partners can be shifted in reaction to changes in the business environment (Gosain et al., 2004). It is critical to ensure that business partners change to ensure the continuity of supply chain activities. The changing business environment necessitated necessary improvements that benefited the supply chain.

Flexibility is a term that refers to a business's ability to rapidly shift supply chain partners, which is fundamentally separate from offering flexibility. Offering flexibility can be defined as a supply chain's ability to support changes in product and service offers developed in collaboration with current partners in response to changing market conditions. Both of these flexibilities are possible with improved knowledge. This is because it is necessary to have high-quality information to change partners. The parent organization must be aware of all potential and present partners to select. Additionally, adjustments to products and services produced in collaboration with current partners necessitated information. Thus, information quality, breadth of information, and coordination knowledge affect partnership and give flexibility.

Hypothesis 5. Information quality has a positive effect on partnering flexibility and offering flexibility.

Hypothesis 6. Information breadth has a positive effect on partnering flexibility and offering flexibility.

Hypothesis 7. Coordination knowledge has a positive effect on partnering flexibility and offering flexibility.

Flexibility in supply chain activities also plays a role in enterprise supply chain performance. Supply chain flexibility affects the overall performance of supply chain

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

activities. SCP has a relationship with both partnering flexibility and offering flexibility. As previously said, supply chain flexibility is critical for supply chain operations (Bag et al., 2021; Jin et al., 2014) As a result, textile firms' supply chain stability must support increased performance. Thus, flexibility in partnering and providing plays a favorable effect in affecting SCP. Additionally, the preceding discussion demonstrates the mediating effect of information quality, breadth, and coordination knowledge on the relationship between e-business and partnership and offering flexibility. As a result, indirect consequences are hypothesized and the direct impacts.

Hypothesis 8. Partnering flexibility and offering flexibility have a positive effect on SCP.

Hypothesis 9. Information quality mediates the relationship between e-business and partnering flexibility and offering flexibility.

Hypothesis 10. Information breadth mediates the relationship between e-business and partnering flexibility and offering flexibility.

Hypothesis 11. Coordination knowledge mediates the relationship between e-business and partnering flexibility and offering flexibility.

3. RESEARCH METHODOLOGY

3.1 Variable Measures

Data interchange, real-time linkage with partners and suppliers, online supplier catalogue, online purchase order, online reverse auction, online bidding, e-marketplaces, and private business to business exchanges operated by companies for suppliers, customers, and partners are all indicators of e-business technologies. A total of ten items are utilized to quantify e-commerce. These are the metrics that Johnson et al. (2007).The quality of information is determined by its relevance to business needs, which is quantified using four criteria. Five items are used to assess the breadth of information: changes in supply chain structure, internal supply chain processes, and changes concerning the business environment. Three things linked to the knowledge partner's competencies, processes, and material are used to assess coordination knowledge. These points were taken from Gosain et al. (2004).

Additionally, partnering flexibility and providing reliability are examined using three criteria: operational features of the relationship with the partner, rapid response to change, and partner transformation resulting from business environment change. These points were taken from Gosain et al. (2004). Finally, SCP is quantified using six items derived from (Agyei-Owusu et al., 2021).

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

3.2 Questionnaires Development and Data Collection

The current study used a quantitative research methodology to explore the relationship between e-business technology, information quality, breadth of information, coordination knowledge, partnership flexibility, providing flexibility, and SCP. While this study employed a quantitative approach, it also incorporated primary data. Primary data are gathered by questionnaire survey. The questionnaire was developed based on metrics found in the literature. The study's questionnaire consisted of two key sections: demographic information about the respondents and scale items on e-business technology, information quality, breadth of information, coordination knowledge, partnership flexibility, offering flexibility, and SCP.

The study's sample population is comprised of textile enterprises operating in Saudi Arabia. Thus, data were acquired using simple random sampling from textile enterprises operating in Saudi Arabia. Employees of these companies were recruited for data collection; however, only those in the supply chain department were chosen. The current study excluded employees from other departments. As a result, the present study's sample is unique. Finally, 500 questionnaires were delivered to employees of Saudi Arabian textile enterprises. 240 questionnaires were returned, and eight were removed due to incompleteness. As a result, the current study analyzed a total of 232 questionnaires.

4. DATA ANALYSIS AND RESULTS

The data analysis procedure in this study began with data screening. Data screening is used to identify data problems caused by outliers, the data's normalcy, or missing values (s). While entering data into an excel sheet to prepare data analysis, missing values and outliers in the data can occur, affecting the results. Missing values and outliers are controlled during data screening. However, the normality of the data is not considered. This study used Partial Least Square (PLS). PSL is a statistical technique more capable of handling non-normal data. Additionally, it is a highly recommended statistical tool for primary data analysis (J. F. Hair Jr et al., 2014; J. F. Hair Jr, Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V, 2014; Hair, 2017). As a result, this study used PLS, one of the most trustworthy data analysis methodologies, to investigate the impact of e-business technology on SCP. Prior to doing data analysis, we analysed the measurement model for factor loading. This study employs a total of 31 scale elements to assess e-business technology, information quality, breadth of information, coordination knowledge, partnership flexibility, providing flexibility, and SCP. All items have factor loadings of more than 0.5, which is considered a minimum threshold level in the current study. Table 1 summarises the results of factor loadings.

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

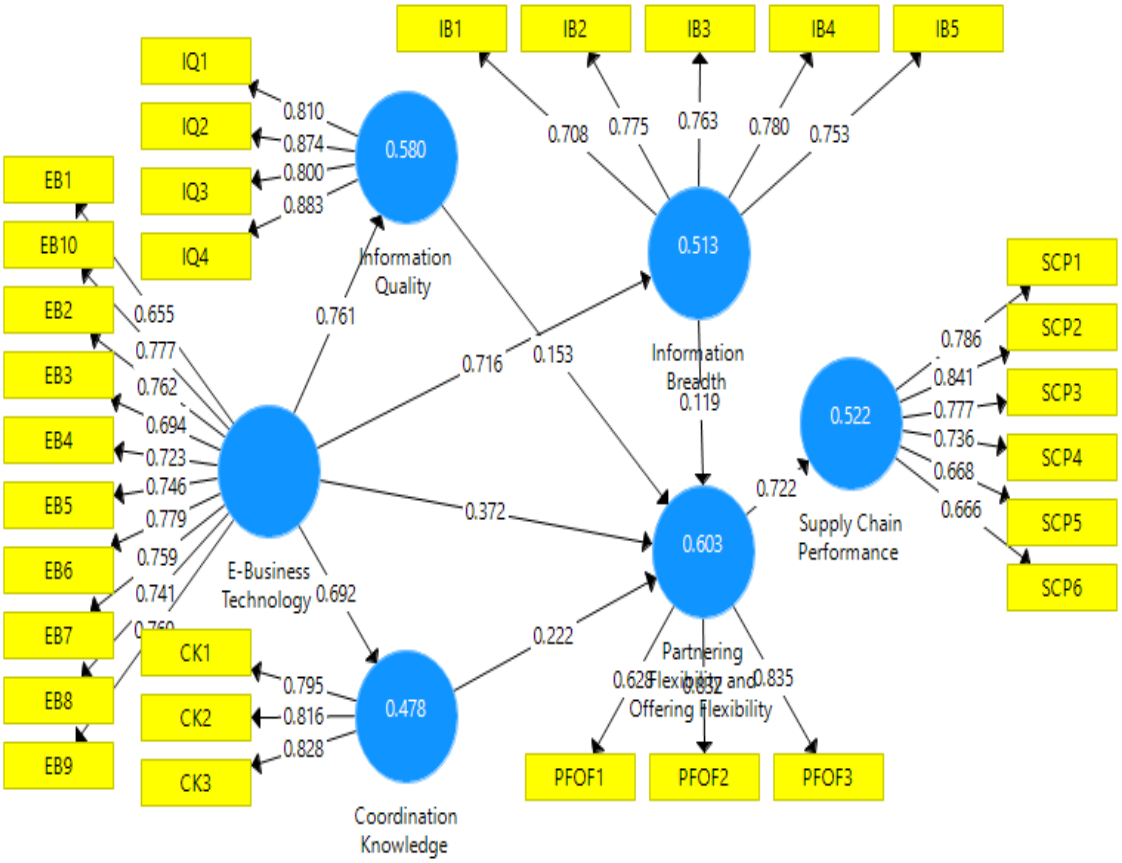

Figure 3. Measurement Model

Note: EB = E-Business Technology; IQ = Information Quality; IB = Information Breadth; CK = Coordination Knowledge; PFOF = Partnering Flexibility and Offering Flexibility; SCP = Supply Chain Performance

After factor loadings were determined, Cronbach's alpha and composite reliability were determined (CR). Cronbach alpha and CR are used to assess the reliability of all structures. Both Cronbach alpha values must be greater than 0.7. The results in Table 1 indicate that all variables under consideration (e-business technology, information quality, breadth of information, coordination knowledge, partnering flexibility, offering flexibility, and SCP) have Cronbach alpha and Cronbach CR values of more than 0.7. Thus, the current investigation establishes reliability.

Additionally, the current study examines the average variance extracted (AVE). To obtain convergent validity, the AVE must be greater than 0.5. The results in Table 1 indicate that AVE is greater than 0.5. Finally, discriminant validity is addressed in the measurement model using cross-loadings (Henseler et al., 2014), as shown in Table 2. Additionally, Table 3 includes the heterotrait-monotrait correlation ratio $(HTMT)_{0.9}$.

Vol: 14 **No:** 1 **Year:** 2022 **ISSN**: 2146-0744 (Online) (**pp.** 18-42) **Doi:** 10.34109/ijebeg. 202214102

Table 1. Factor Loadings, CR and AVE

Variables	Items	Loadings	Alpha	CR	AVE
Coordination Knowledge	CK1	0.795	0.746	0.854	0.661
	CK2	0.816			
	CK3	0.828			
E-Business Technology	EB1	0.655	0.909	0.924	0.55
	EB10	0.777			
	EB2	0.762			
	EB3	0.694			
	EB4	0.723			
	EB5	0.746			
	EB6	0.779			
	EB7	0.759			
	EB8	0.741			
	EB9	0.769			
Information Breadth	IB1	0.708	0.813	0.87	0.572
	IB2	0.775			
	IB3	0.763			
	IB4	0.78			
	IB5	0.753			
Information Quality	IQ1	0.81	0.863	0.907	0.71
	IQ2	0.874			
	IQ3	0.8			
	IQ4	0.883			
Partnering Flexibility and Offering Flexibility	PFOF1	0.628	0.701	0.812	0.594
	PFOF2	0.832			
	PFOF3	0.835			
Supply Chain Performance	SCP1	0.786	0.841	0.884	0.56
	SCP2	0.841			
	SCP3	0.777			
	SCP4	0.736			
	SCP5	0.668			
	SCP6	0.666			

Note: EB = E-Business Technology; IS = Information Quality; IB = Information Breadth; CK = Coordination Knowledge; PFOF = Partnering Flexibility and Offering Flexibility; SCP = Supply Chain Performance

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) (**pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

Table 2. Cross-Loadings

	Coordination Knowledge	E-Business Technology	Information Breadth	Information Quality	Partnering Flexibility and Offering Flexibility	Supply Chain Performance
CK1	0.795	0.446	0.659	0.429	0.481	0.513
CK2	0.816	0.583	0.741	0.559	0.624	0.526
CK3	0.828	0.635	0.656	0.602	0.537	0.561
EB1	0.557	0.655	0.58	0.467	0.463	0.366
EB10	0.555	0.777	0.517	0.569	0.596	0.522
EB2	0.568	0.762	0.596	0.632	0.513	0.559
EB3	0.454	0.694	0.521	0.518	0.528	0.392
EB4	0.44	0.723	0.45	0.579	0.571	0.524
EB5	0.485	0.746	0.49	0.507	0.529	0.422
EB6	0.603	0.779	0.59	0.626	0.563	0.558
EB7	0.456	0.759	0.53	0.568	0.505	0.478
EB8	0.468	0.741	0.507	0.557	0.555	0.548
EB9	0.519	0.769	0.515	0.603	0.557	0.39
IB1	0.614	0.503	0.708	0.618	0.548	0.441
IB2	0.633	0.603	0.775	0.603	0.502	0.512
IB3	0.706	0.495	0.763	0.546	0.495	0.441
IB4	0.649	0.565	0.78	0.539	0.509	0.483
IB5	0.595	0.533	0.753	0.413	0.522	0.524
IQ1	0.59	0.618	0.614	0.81	0.554	0.36
IQ2	0.561	0.668	0.604	0.874	0.516	0.448
IQ3	0.483	0.556	0.54	0.8	0.586	0.501
IQ4	0.588	0.714	0.66	0.883	0.593	0.539
PFOF1	0.406	0.521	0.45	0.492	0.628	0.355
PFOF2	0.626	0.619	0.574	0.508	0.832	0.562
PFOF3	0.524	0.547	0.548	0.551	0.835	0.707
SCP1	0.456	0.477	0.457	0.418	0.616	0.786
SCP2	0.484	0.523	0.47	0.455	0.617	0.841
SCP3	0.563	0.421	0.507	0.501	0.535	0.777
SCP4	0.418	0.389	0.408	0.257	0.493	0.736
SCP5	0.493	0.465	0.444	0.323	0.459	0.668
SCP6	0.557	0.628	0.585	0.502	0.498	0.666

Note: EB = E-Business Technology; IQ = Information Quality; IB = Information Breadth; CK = Coordination Knowledge; PFOF = Partnering Flexibility and Offering Flexibility; SCP = Supply Chain Performance

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) **(pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

Table 3. Discriminant Validity

	SCP	EB	IB	IQ	PFOF	CK
SCP						
EB	0.630					
IB	0.527	0.805				
IQ	0.775	0.782	0.678			
PFOF	0.745	0.593	0.529	0.652		
CK	0.614	0.711	0.706	0.778	0.582	

Note: EB = E-Business Technology; IQ = Information Quality; IB = Information Breadth; CK = Coordination Knowledge; PFOF = Partnering Flexibility and Offering Flexibility; SCP = Supply Chain Performance

The structural model is the second part of PLS-structural equation modeling, which is used to examine and examine the relationship between variables (J. F. Hair Jr et al., 2014; Henseler et al., 2014). This data analysis examines the relationship between e-business technology, information quality, information breadth, coordination knowledge, partnering flexibility, offering flexibility, and SCP. Figure 4 illustrates the structural model, and the results are given in Table 4. T-value 1.64 and beta value is considered to examine the relationship between variables. Eight direct effect hypotheses are tested, which are shown in Table 4. E-business technology has a significant effect on information quality (t-value 13.02, $\beta = 0.761$). E-business has a significant relationship with information breadth (t-value 10.351, $\beta = 0.716$). E-business has a significant effect on coordination knowledge (t-value 10.604, $\beta = 0.692$). E-business technology also has a significant relationship with partnering flexibility and offering flexibility (t-value 5.1, $\beta = 0.372$). Furthermore, partnering flexibility and offering flexibility have a significant effect on significantly affected partnering flexibility (t-value 1.727, $\beta = 0.153$). Information breadth has insignificant effect on partnering flexibility and offering flexibility (t-value 1.15, $\beta = 0.119$). Knowledge coordination also has a significant relationship with partnering flexibility and offering flexibility (t-value 2.421, $\beta = 0.222$). Finally, it is found that, out of eight direct hypotheses, seven hypotheses are supported, and one hypothesis is not supported.

Moreover, this study examined the mediating effect of information quality, information breadth, and coordination knowledge. The mediating effect is examined by following the recommendations of Preacher et al. (2004, 2008). First, the impact of information quality is examined between e-business technology and partnering flexibility and offering flexibility. Second, the mediation effect of information breadth is examined between e-business technology, partnering flexibility, and offering flexibility. Third, the mediation effect of coordination knowledge is examined between e-business technology, partnering flexibility, and offering flexibility. Results are given in Table 5. The mediation effect of information quality between e-business technology and partnering

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) **(pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

flexibility and offering flexibility is significant (t-value 1.674, β = 0.116). The mediation effect of information breadth between e-business technology and partnering flexibility and offering flexibility is insignificant (t-value 1.132, β = 0.085). The mediation effect of coordination knowledge between e-business technology and partnering flexibility and offering flexibility is significant (t-value 2.388, β = 0.153). Thus, the study results showed that information quality and coordination knowledge transfer the positive effect of e-business technology on partnering flexibility and offering flexibility. The indirect effect histogram is presented in Figure 5. Finally, this study examined model quality using predictive relevance (Q^2), which must be higher than zero (Chin, 1998). Table 6 shows that predictive relevance (Q^2) is higher than zero.

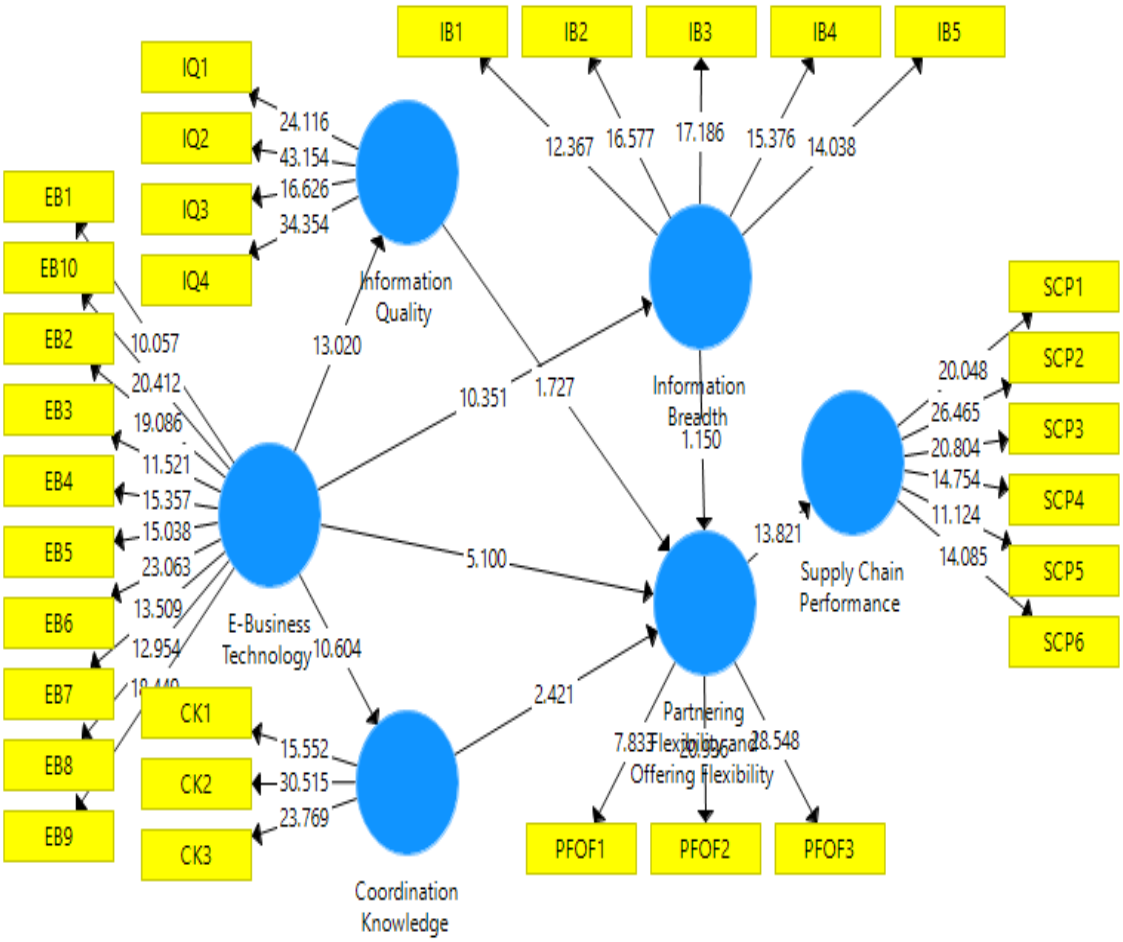

Figure 4. Structural Model

Note: EB = E-Business Technology; IQ = Information Quality; IB = Information Breadth; CK = Coordination Knowledge; PFOF = Partnering Flexibility and Offering Flexibility; SCP = Supply Chain Performance

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) (**pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

Table 4. Direct Effect Results

	β	M	SD	T Statistics	P Values
Coordination Knowledge -> Partnering Flexibility and Offering Flexibility	0.222	0.227	0.091	2.421	0.008
E-Business Technology -> Coordination Knowledge	0.692	0.696	0.065	10.604	0
E-Business Technology -> Information Breadth	0.716	0.717	0.069	10.351	0
E-Business Technology -> Information Quality	0.761	0.763	0.058	13.02	0
E-Business Technology -> Partnering Flexibility and Offering Flexibility	0.372	0.375	0.073	5.1	0
Information Breadth -> Partnering Flexibility and Offering Flexibility	0.119	0.113	0.103	1.15	0.125
Information Quality -> Partnering Flexibility and Offering Flexibility	0.153	0.149	0.088	1.727	0.042
Partnering Flexibility and Offering Flexibility -> Supply Chain Performance	0.722	0.73	0.052	13.821	0

Table 5. Indirect Effect Results

	β	M	SD	T Statistics	P Values
E-Business Technology -> Coordination Knowledge -> Partnering Flexibility and Offering Flexibility	0.153	0.157	0.064	2.388	0.009
E-Business Technology -> Information Breadth -> Partnering Flexibility and Offering Flexibility	0.085	0.081	0.075	1.132	0.129
E-Business Technology -> Information Quality -> Partnering Flexibility and Offering Flexibility	0.116	0.114	0.069	1.674	0.047

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) **(pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

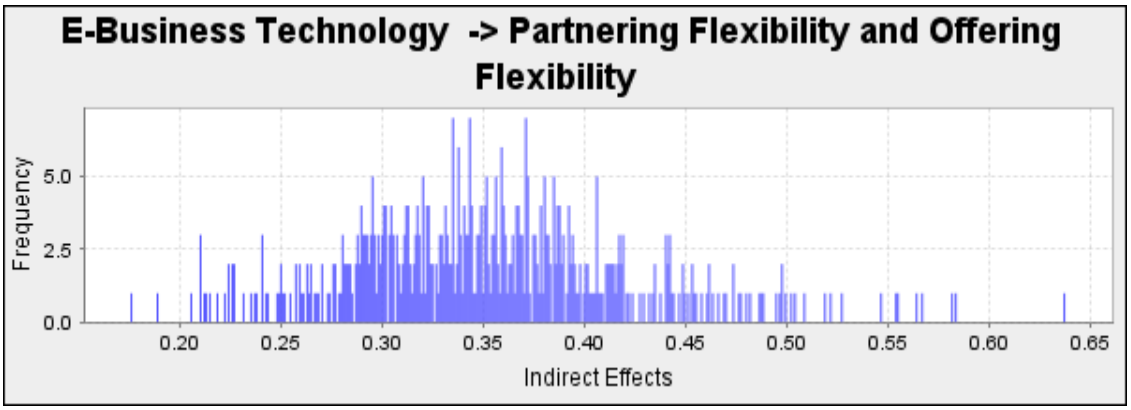

Figure 5. Mediation effect between e-business technology and partnering flexibility/offering flexibility

Table 6. Predictive Relevance (Q^2)

	SSO	**SSE**	**Q^2 (=1-SSE/SSO)**
Coordination Knowledge	492	350.898	0.287
E-Business Technology	1,640.00	1,640.00	
Information Breadth	820	608.245	0.258
Information Quality	656	408.076	0.378
Partnering Flexibility and Offering Flexibility	492	333.837	0.321
Supply Chain Performance	984	725.426	0.263

5. CONCLUSION

The relationship between e-business technology, information quality, breadth of information, coordination knowledge, partnership flexibility, providing flexibility, and SCP was explored in this study. This study aimed to ascertain how e-business technologies are used in SCP in Saudi Arabia. A questionnaire survey was used to collect data from textile enterprises operating in Saudi Arabia, and the data were then analyzed using Partial Least Squares (PLS).

It has been discovered that e-business technology can significantly improve textile companies' supply chain procedures. Previous research on e-commerce and supply chain management in various organizations also showed similar findings (Nurmilaakso, 2008; Simchi-Levi, 2004; Yin et al., 2012).Thus, the current study's findings are congruent with earlier investigations. As a result, it is critical to promote supply chain operations within Saudi Arabia's textile industry. E-commerce affects SCP both directly and indirectly. Indirectly, SCP benefits by improving information quality, breadth, and coordination.

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) (**pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

E-commerce has a beneficial effect on the quality, range, and synchronization of information. As with the current study, Xu et al. (2005) found a significant association between e-business and information technology. Arias-Pérez (2020) reported a positive correlation between e-business and knowledge management, consistent with the current study. As a result, the present study's findings are consistent with earlier investigations. Additionally, information quality, breadth of information, and coordination knowledge positively affect partnership and give flexibility. Thus, growth in e-business technology can improve the quality, -range, and coordination understanding of information, promoting collaboration and enabling flexibility. Finally, increased flexibility in collaborating and offering raises the SCP. As a result, the use of e-business technology may result in a rise in SCP. As a result, it is demonstrated that e-business technologies can improve supply chain processes in the textile industry in the current industrial period.

5.1 Theoretical Implications

The concepts discussed in this study traverse multiple areas and subjects and have not been addressed in earlier research. Previous research has completely ignored the association examined in this study. As a result, this work adds a distinct and pioneering theoretical dimension to the corpus of existing literature on the issue. The study's gaps stimulated discussion on new e-business and supply chain areas, which resulted in various implications for the literature. For instance, this study addressed the issue of supply chain partnership flexibility. Although other studies have addressed supply chain flexibility, the information regarding partnering flexibility is unique and has not been explored in conjunction with e-business technology and the supply chain.

Similarly, another critical aspect of supply chain flexibility is giving flexibility. Additionally, the concept of offering flexibility is not sufficiently concentrated in the available research. As a result, in addition to partnership flexibility, offering flexibility is a unique study aspect for the current research effort. As a result, the present study sparked a new debate about partnering flexibility and providing flexibility in conjunction with e-commerce. Additionally, this study considered the indirect effect of information quality, breadth, and coordination knowledge on the relationship between e-business technology and SCP. Thus, this study addressed the critical interaction between e-business technology, information quality, information breadth, coordination knowledge, partnership flexibility, offering flexibility, and SCP and presented critical theoretical implications in the process.

5.2 Practical Implications

A study's theoretical implications always result in practical ramifications and solutions for practitioners. This paper makes several significant theoretical advances and has many practical applications. The study's practical implications may aid in the management of supply chain organizations seeking to improve performance and provide insights for other practitioners working with supply chain and e-business technology. Different

Vol: 13 **No:** 1 **Year:** 2021 **ISSN**: 1309-8055 (Online) (**pp.** 1-24) **Doi:** 10.34109/ijefs.202112222

stakeholders may also derive significant insights from the current study's findings. As the present study demonstrated that e-business technologies could accelerate supply chain operations among businesses by boosting the SCP, managers of various businesses should push e-commerce. The management should introduce different e-business technologies to promote SCP. Adopting e-business technology can help advance SCP by resolving several supply chain operations-related difficulties through increased effectiveness and efficiency. These technologies are also critical to introduce because they contribute to time savings in various supply chain operations and SCP promotion.

Additionally, this study examined how information quality significantly impacts supply chain efficiency. As a result, top management of businesses should advocate for information quality. Further, practitioners should boost information breadth and coordination expertise since these were critical for supply chain promotion. Improved collaboration between partners can benefit the supply chain by enhancing its flexibility. Similarly, the study's findings demonstrated that cooperating and offering flexibility can help improve supply chain quality, information quality, and coordination. Thus, businesses are encouraged to promote and provide flexibility in their partnership arrangements.

6. LIMITATIONS AND FUTURE DIRECTION

This study contributes to the literature while also providing practical insights based on the study's findings. Despite its significant addition to theory and practice, this study has several limitations. The study's weaknesses can be remedied or addressed in future research to improve the study's outcomes in the supply chain and e-business fields. For example, this study evaluated e-business technologies, yet "e-business technologies" refer to the entire category. E-commerce technologies are not studied apart from other variables. It is viewed as the total of all technologies' effects on the supply chain. As a result, it is advised that future studies segregate e-business technologies and treat them as a distinct variable. Depending on the circumstance, one technology may be beneficial while another may be detrimental. As a result, it is critical to study the role of e-business on SCP in isolation from other technologies. Among the essential technologies of e-business are software packages, numerous hardware components, various mobile solutions, and analytic procedures.

Additionally, this study included partnership and granting flexibility as variables. It could be treated as two factors when assessing the effect of information quality, breadth, and coordinating knowledge. Finally, this study minimized the importance or relevance of several other critical components relating to information quality, range, and coordination knowledge, including structured data connectivity and content interface. These features should also be incorporated into the current study's structure.

7. ACKNOWLEDGMENT

This work was supported through the Annual Funding track by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Project No. AN000663].

REFERENCES

Agyei-Owusu, B., Amedofu, M. K., Asamoah, D., & Kumi, C. A. (2021). *The Effect of Data Driven Culture on Customer Development and Firm Performance: The Role of Supply Chain Information Sharing and Supply Chain Information Quality*, Cham. Cham: Springer International Publishing doi:https://doi.org/10.1007/978-3-030-85447-8_40

Almahamid, S., & Hourani, A. (2015). An empirical study on the impacts of ERP system, e-business technologies and organisational collaboration on supply chain agility: PLS perspective. *International Journal of Advanced Operations Management, 7*(3), 229-254. doi:https://doi.org/10.1504/ijaom.2015.074210

Almeida, F., Santos, J. D., & Monteiro, J. A. (2020). The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World. *IEEE Engineering Management Review, 48*(3), 97-103. doi:https://doi.org/10.1109/EMR.2020.3013206

Alshanqiti, E., Alsharif, A. M., Al-Shamani, M., & Karrar, A. E. (2022). *Toward E-business During Covid-19: The Business Case of Saudi Arabia*, Singapore. Singapore: Springer Singapore doi:https://doi.org/10.1007/978-981-16-5559-3_40

Altay, N., Gunasekaran, A., Dubey, R., & Childe, S. J. (2018). Agility and resilience as antecedents of supply chain performance under moderating effects of organizational culture within the humanitarian setting: a dynamic capability view. *Production Planning & Control, 29*(14), 1158-1174. doi:https://doi.org/10.1080/09537287.2018.1542174

Arias-Pérez, J., López-Zapata, E., & Echeverri-Bedoya, A. (2020). E-business capabilities and innovation performance: The mediating effect of knowledge management strategies. *Serbian Journal of Management, 15*(2), 221-239. Retrieved from http://scindeks.ceon.rs/article.aspx?artid=1452-48642002221A

Bag, S., & Rahman, M. S. (2021). The role of capabilities in shaping sustainable supply chain flexibility and enhancing circular economy-target performance: an empirical study. *Supply Chain Management: An International Journal, ahead-of-print*(ahead-of-print). doi:https://doi.org/10.1108/SCM-05-2021-0246

Balslev, T., Muijtjens, A., de Grave, W., Awneh, H., & van Merriënboer, J. (2021). How isolation of key information and allowing clarifying questions may improve information quality and diagnostic accuracy at case handover in paediatrics. *Advances in Health Sciences Education, 26*(2), 599-613. doi:https://doi.org/10.1007/s10459-020-10001-2

Basheer, M., Siam, M., Awn, A., & Hassan, S. (2019). Exploring the role of TQM and supply chain practices for firm supply performance in the presence of information technology capabilities and supply chain technology adoption: A case of textile firms in Pakistan. *Uncertain Supply Chain Management, 7*(2), 275-288.

Batwa, A., & Alamoudi, R. H. (2019). Designing and deploying an E-business model for small and medium-sized enterprises in Saudi Arabia. *Journal of Economics and Business, 2*(4). Retrieved from https://ssrn.com/abstract=3478928

Chandak, S., & Kumar, N. (2020). Development of a framework to improve supply chain performance through e-business and sustainability enablers. *Management of Environmental Quality: An International Journal, 31*(5), 1045-1070. doi:https://doi.org/10.1108/MEQ-07-2019-0150

Chandak, S., Kumar, N., & Dalpati, A. (2019). The Impact of E-Business on Supply Chain Performance in the Context of Indian Automobile Industry. *IUP Journal of Supply Chain Management, 16*(2), 7-24. Retrieved from https://www.proquest.com/openview/0143eea3f1d0b7baef0796c0185ad041

Chi, M., Huang, R., & George, J. F. (2020). Collaboration in demand-driven supply chain: Based on a perspective of governance and IT-business strategic alignment. *International Journal of Information Management, 52*, 102062. doi:https://doi.org/10.1016/j.ijinfomgt.2019.102062

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research, 295*(2), 295-336.

Delic, M., & Eyers, D. R. (2020). The effect of additive manufacturing adoption on supply chain flexibility and performance: An empirical analysis from the automotive industry. *International Journal of Production Economics, 228*, 107689. doi:https://doi.org/10.1016/j.ijpe.2020.107689

El-Garaihy, W., Badawi, U., Seddik, W., & Torky, M. (2022). Design, building and validating a measuring scale for the supply chain management practices of industrial organizations by assessing their efficiency on SCM measures. *Uncertain Supply Chain Management, 10*(1), 49-68. doi:http://dx.doi.org/10.5267/j.uscm.2021.10.010

F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. *European Business Review, 26*(2), 106-121. doi:https://doi.org/10.1016/j.jfbs.2014.01.002

F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. *European Business Review, 26*(2), 106-121. doi::https://doi.org/10.1016/j.jfbs.2014.01.002

Gosain, S., Malhotra, A., & El Sawy, O. A. (2004). Coordinating for Flexibility in e-Business Supply Chains. *Journal of Management Information Systems, 21*(3), 7-45. doi:https://doi.org/10.1080/07421222.2004.11045816

Gwangwava, N., & Mhlanga, S. (2011). Automation of QFD an e-Learning Tool for Product Development with an Integrated Product Data Management Platform in e-Business. Retrieved from https://d1wqtxts1xzle7.cloudfront.net/15289058/063-z0047a10046

Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems, 117*(3), 442-458. doi:https://doi.org/10.1108/IMDS-04-2016-0130

Henseler, J., Dijkstra, T. K., Sarstedt, M., et al. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods, 17*(2), 182-209. doi:https://doi.org/10.1177/1094428114526928

Iskanius, P., & Anbuudayasankar. (2010). The traditional industry sector in the changing business environment – a case study of the Finnish steel product industry. *International Journal of Electronic Customer Relationship Management, 4*(4), 395-414. doi:https://doi.org/10.1504/ijecrm.2010.036186

Jin, Y., Vonderembse, M., Ragu-Nathan, T. S., & Smith, J. T. (2014). Exploring relationships among IT-enabled sharing capability, supply chain flexibility, and competitive performance. *International Journal of Production Economics, 153*, 24-34. doi:https://doi.org/10.1016/j.ijpe.2014.03.016

Johnson, P. F., Klassen, R. D., Leenders, M. R., & Awaysheh, A. (2007). Utilizing e-business technologies in supply chains: The impact of firm characteristics and teams. *Journal of Operations Management, 25*(6), 1255-1274. doi:https://doi.org/10.1016/j.jom.2007.01.005

Khan, A., Liaquat, S., Sheikh, J., & Pirzado, A. A. (2021). The Impact of Corona Virus (Covid-19) on E-Business in Pakistan. *Journal of Contemporary Issues in Business and Government, 27*(3), 82-87. Retrieved from https://www.semanticscholar.org

Kurniawan, Y. C., Tarigan, Z. J. H., & Siagian, H. (2021). The Effect Of Supply Chain Risk Management On Supply Chain Performance Through Supply Chain Integration And Information Quality In Paper Manufacturer. *Journal of Contemporary Issues in Business and Government, 27*(2), 5339-5345. Retrieved from http://repository.petra.ac.id/19187/

Le, T., Nguyen, T., Phan, T., Tran, M., Phung, X., Tran, T., & Giao, K. (2019). Impact of corporate social responsibility on supply chain management and financial performance in Vietnamese garment and textile firms. *Uncertain Supply Chain Management, 7*(4), 679-690. doi:http://dx.doi.org/10.5267/j.uscm.2019.4.002

Liao, Y., & Marsillac, E. (2015). External knowledge acquisition and innovation: the role of supply chain network-oriented flexibility and organisational awareness. *International Journal of Production Research, 53*(18), 5437-5455. doi:https://doi.org/10.1080/00207543.2015.1008106

Muafi, M., & Kusumawati, R. A. (2021). Green Human Resources Management and Its Impact on Supply Chain and Business Performance: An Empirical Study in

Indonesia. *The Journal of Asian Finance, Economics and Business, 8*(5), 1099-1107. doi:https://doi.org/10.13106/jafeb.2021.vol8.no5.1099

Neykova, M., & Miltchev, R. (2019). Conceptual Approach To Introduce An Integrated Model Improving Smes E-Business Technologies. *Management Theory and Studies for Rural Business and Infrastructure Development, 41*(3), 381-399. doi:https://doi.org/10.15544/mts.2019.31

Nijaguna, D., Kattigenahally, Y., Simha, B. D. S., & Oman, S. O. (2010). Supply Chain Integration and Collaboration Using E-Business Model in Textile Garment Industry. *Chief Patron, 1*(7). Retrieved from https://d1wqtxts1xzle7.cloudfront.net/30522308/vol-1_issue-7

Nurmilaakso, J.-M. (2008). Adoption of e-business functions and migration from EDI-based to XML-based e-business frameworks in supply chain integration. *International Journal of Production Economics, 113*(2), 721-733. doi:https://doi.org/10.1016/j.ijpe.2007.11.001

Palandeng, I. D., Kindangen, P., Tumbel, A., & Massie, J. (2018). Influence analysis of supply chain management and supply chain flexibility to competitive advantage and impact on company performance of fish processing in Bitung city. *Journal of Research in Business, Economics and Management, 10*(1), 1783-1802. Retrieved from https://core.ac.uk/download/pdf/267833343.pdf

Piprani, A. Z., Jaafar, N. I., & Ali, S. M. (2020). rioritizing resilient capability factors of dealing with supply chain disruptions: an analytical hierarchy process (AHP) application in the textile industry. *Benchmarking: An International Journal, 27*(9), 2537-2563. doi:https://doi.org/10.1108/BIJ-03-2019-0111

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior research methods, instruments, & computers, 36*(4), 717-731.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods, 40*(3), 879-891.

Qin, J., Fu, H., Wang, Z., & Xia, L. (2021). Financing and carbon emission reduction strategies of capital-constrained manufacturers in E-commerce supply chains. *International Journal of Production Economics, 241*, 108271. doi:https://doi.org/10.1016/j.ijpe.2021.108271

Ruan, F., Liu, C., Hu, W., et al. (2022). Early life PCB138 exposure induces kidney injury secondary to hyperuricemia in male mice. *Environmental Pollution, 301*, 118977. doi:https://doi.org/10.1016/j.envpol.2022.118977

Sanders, N. R. (2007). An empirical study of the impact of e-business technologies on organizational collaboration and performance. *Journal of Operations Management, 25*(6), 1332-1347. doi:https://doi.org/10.1016/j.jom.2007.01.008

Simchi-Levi, D., Wu, S. D., & Shen, Z. J. M. (Eds.). (2004). *Handbook of quantitative supply chain analysis: modeling in the e-business era (Vol. 74)*: Springer Science & Business Media.

Tatsiopoulos, I. P., Ponis, S. T., Hadzilias, E. A., & Panayiotou, N. A. (2002). Realization of the Virtual Enterprise Paradigm in the Clothing Industry through E-Business Technology. *Production and Operations Management, 11*(4), 516-530. doi:https://doi.org/10.1111/j.1937-5956.2002.tb00475.x

Wiengarten, F., Humphreys, P., Cao, G., Fynes, B., & McKittrick, A. (2010). Collaborative supply chain practices and performance: exploring the key role of information quality. *Supply Chain Management: An International Journal, 15*(6), 463-473. doi:https://doi.org/10.1108/13598541011080446

Xu, H., & Koronios, A. (2005). Understanding Information Quality in E-Business. *Journal of Computer Information Systems, 45*(2), 73-82. doi:https://doi.org/10.1080/08874417.2005.11645833

Yan, M.-R., Tran-Danh, N., & Hong, L.-Y. (2019). Knowledge-based decision support system for improving e-business innovations and dynamic capability of IT project management. *Knowledge Management Research & Practice, 17*(2), 125-136. doi:https://doi.org/10.1080/14778238.2019.1601507

Yeniyurt, S., Wu, F., Kim, D., & Cavusgil, S. T. (2019). Information technology resources, innovativeness, and supply chain capabilities as drivers of business performance: A retrospective and future research directions. *Industrial Marketing Management, 79*, 46-52. doi:https://doi.org/10.1016/j.indmarman.2019.03.008

Yin, F., Yang, R., Yu, H., Zhou, W., Zhao, Y., & Zhang, S. (2012). Edge intelligence-enabled supply chain financial model based on Business-to-Business e-business platforms. *Concurrency and Computation: Practice and Experience, n/a*(n/a), e6353. doi:https://doi.org/10.1002/cpe.6353

Zanon, L. G., Marcelloni, F., Gerolamo, M. C., & Ribeiro Carpinetti, L. C. (2021). Exploring the relations between supply chain performance and organizational culture: A fuzzy grey group decision model. *International Journal of Production Economics, 233*, 108023. doi:https://doi.org/10.1016/j.ijpe.2020.108023

Zhu, Z., Zhao, J., & Bush, A. A. (2020). The effects of e-business processes in supply chain operations: Process component and value creation mechanisms. *International Journal of Information Management, 50*, 273-285. doi:https://doi.org/10.1016/j.ijinfomgt.2019.07.001