

Investigating Firm Performance Outcomes Under Inter-organizational, Firm level, and Environmental Factors that Motivate Supply Chain Integration

Wael Hassan El-garaihy ^a, Usama A. Badawi ^b, Nisren F. Moawad ^c, Thana A. Azizi ^d, ^aDepartment of Management, College of Applied Studies and Community Services, Imam Abdurrahman Bin Faisal University, Dammam, Saudi Arabia, ^bDepartment of Management Information System, College of Applied Studies and Community Services, Imam Abdurrahman Bin Faisal University, Dammam, Saudi Arabia, ^{c,d}Department of Marketing, College of Applied Studies and Community Services, Imam Abdurrahman Bin Faisal University, Dammam, Saudi Arabia, Email: ^awhgaraihy@iau.edu.sa, ^bubadawi@iau.edu.sa, ^cnfmowad@iau.edu.sa, ^dthazizi@iau.edu.sa

This research aims to investigate corporate performance results (financial performance, non-financial performance and operational performance) based on driving forces and contributing factors of supply chain integration (SCI), including three types of factors: corporate-level factors, internal factors-stimulus The organizational factors and environmental factors of SCI in Saudi industrial companies, the research objects include industrial companies operating in the eastern provinces of the Kingdom of Saudi Arabia (11 provinces). For the purposes of testing the hypotheses of the study and the validity of its model, Structural Equation Modeling (SEM) analysis was used based on the AMOS21 program. One of the most important contributions of the current study is that it gathered the drivers and enablers of SCI in its various aspects, as well as the dimensions of the SCI measurement and finally the outcomes of the firms' performance, while integrating all of these elements into one common topic. The study found that supply chain integration is always driven by drivers and enablers: firm-level factors, inter-organizational factors, and environmental factors that stimulate the SCI in firms, In addition, SCI and all its elements (9 sub-dimensions) affect the company's performance results (financial performance, non-financial performance and operational performance) in some way. In addition, the conclusion of this article

is that integration plays an important role in improving performance through three different factors, but the maturity of integration may be directly related to performance. In addition, the study also found that people's desire for improvement and environmental factors prompted Saudi organizations to integrate with partners to achieve desired results. The study recommended working on raising the level of trust, honesty, commitment, and concern for the interest of each party from the supply chain to maintain a good level of SCI. The paper presented some recommendations as proposals for further study, while identifying some areas for future studies.

Key words: *supply chain integration, drivers and enablers of supply chain integration, non-financial performance, financial performance, and operational performance.*

1. Introduction

Supply chain management (SCM) is regarded as an effective strategy that can help organizations simplify internal and external activities, thereby helping to improve the organization's performance and increase its competitiveness. Currently, we see organizations competing in the entire supply chain in order to be able to quickly deliver and provide innovative and diversified products and services to effectively meet customer needs and create value for them. The field of SCM has become one of the most important research fields that attract practitioners, academia and organizations, trying to make the field more responsive and innovative. We have noticed this in many works (Alam et al., 2014 ; Beheshti et al., 2014; Ayoub et al., 2017). Therefore, the supply chain has become one of the most important competitive weapons. It is possible to establish a cooperative relationship between different organizations and strive to integrate with external partners (Stevens, 1989; Mentzer et al., 2001; Khanuja and Inna Teach, 2020). In general, all these are due to what globalization has caused and the development of information technology. The development of information technology has led to changes in the relationship structure and brought closer and closer distances between organizations. Stevens and Johnson (2016) provided the definition of supply chain integration (SCI), that is, "the coordination, linking and coordination of processes, people, information, knowledge, strategy and communication between various contact points in the entire supply chain", And efficiently deliver materials, information, money and knowledge according to customer needs.. Others (Chen et al., 2007; Flynn et al., 2010) define it as the existence of two organizations that are responsible for coordinating upstream and downstream activities from the source to the customer.

The good implementation of the supply chain is a major factor in the success of the firms to achieve its goals, especially the goal of achieving profits, where the effectiveness of supply



chain management and its integration leads to improving the firm's performance and creating a competitive advantage and its continuation, which requires the firm to improve the level of delivery of products and services to customers and achieve the required performance. One of the means that can be used to achieve the desired performance is the SCI. The SCI has become of prominent importance in recent years at the theoretical and practical levels, many literature has shown great interest in the role of SCI in improving the performance of firms, through the integration of internal and external firm functions and effectively linking them with suppliers, customers, and the rest of the supply chain partners (Otchere et al., 2013; Ashtiani and Bosak, 2013). Through a review of the literature on SCI, it was found that SCI revolves around many dimensions belonging to four organizational levels (Zhang et al., 2015), which were: (Strategic level: Strategic integration; Managerial level: Planning and control integration, Organization integration; Operational level: Process integration, Finance integration, Knowledge integration, Information integration, Material integration; and Fundamental level: Benefit alignment). The SCI contributes to achieving a high degree of strategic cooperation internally and externally between the firm and the supply chain partners, to ensure the effective flow of products, services, information, funds and decisions, in order to deliver the largest possible value to the customer. This interest in bringing about integration constitutes a fundamental change in the management of modern business models, and this change gives an indication for firms operating individually that they cannot as independent units, but competition will be through the efficiency and effectiveness of their supply chains, this change constitutes a strategic direction for the supply chain (Chen et al., 2004). The SCI has been shown to be one of the important tools to achieve the competitive advantage of firms, and helps them achieve their objectives, so that they can compete at the local and global levels to reach the desired performance. The short-term goals that the supply chain seeks to achieve revolve around increasing productivity, reducing inventory turnover, and reducing costs, while the long-term strategic goal revolves around improving customer satisfaction, increasing profits and market share for all supply chain partners (Selim et al., 2008, 2008; Kumar et al., 2014).

Khanuja and Jain (2020) concluded in a valuable research review of the literature in the SCI field that a variety of measures have been studied as SCI measures in the past thirty years. Several SCI measures have been studied in the literature to improve company performance. This article confirms that the driving factors and driving factors of SCI have been extensively studied in the current research. Nevertheless, the paper clarified that through reviewing the literature, these scriptures did not show much consensus on the understanding of SCI or its dimensions (Alfalla-Luque et al., 2013). In addition, the study (Khanuja and Jain, 2020) concluded that the measurement and dimensions of SCI have been studied from various angles and contexts. One of the most important findings of this research is that the SCI engine and its source, various aspects, and its size and output are not assembled together, and all these elements are not combined into a common theme. Based on the focus on SCI issues in the management field, and considering the role of such integration in improving the company's

competitiveness and profitability, this research aims to investigate the results of company performance (financial performance, non-financial performance). Performance and operational performance). For SCI, it includes three types of factors: company-level factors that stimulate supply chain integration, inter-organizational factors, and environmental factors. It also studies the impact of SCI on the performance results of Saudi industrial companies.

2. Literature Review and Theoretical framework

The supply chain represents all activities associated with the flow of products and services, the information from sources of supply to the final consumer (Panayides and Venus Lun, 2009), meaning that supply chain management expresses the level of integration between these activities by improving the relationships between the units of the supply chain, whether they are represent individuals or firms, in order to achieve outstanding performance (Seuring and Muller, 2008).

SCI involves collaborations between functional departments, suppliers, and consumers to arrive at results that benefit all parties. Cooperation is an essential element for the SCI because cooperation, especially at the strategic level, requires effective communication between the different departments and the coordination of joint efforts (Boon-itt and Wong, 2011). SCI leads the company and its supply chain partners to cooperate internally and externally to achieve the effectiveness and efficiency of products, services, information, capital, and decision-making processes, thereby bringing maximum value to the company. Customers (Flynn et al., 2010). Kim (2006) pointed out that SCI is crucial to the continuation of corporate performance excellence, because (Gimenez et al., 2012) research results show that SCI has an impact on corporate performance, especially in the case of very complex supply activities, in view of the diversity of products, the complexity of the supply network, the shortening of product life cycles and the destruction of the environment, the complexity of supply activities will increase, while the complexity of procurement operations is low under the circumstances, the performance of SCI is very limited.

Zolait et al. (2010) conducted a study to determine the impact of SCI operations on company performance and concluded that company operations affect company performance, just as the complementarity of information flows is greater than the impact of integration. The flow of materials and material components. (Beheshti et al., 2014) has the same research direction, aiming to determine the impact of SCI on financial performance. The results show that any level of SCI will affect financial performance. Specifically, compared with some SCI, the overall SCI leads to a higher level of financial performance, because supply chain practices will affect the company's competitive advantage and performance, and competitive advantage will mediate the impact of supply chain practices on company performance. Liu et al. (2013) pointed out that marketing orientation will regulate the impact of SCI on company performance

and concluded that information sharing will affect operational performance but not financial performance. In contrast, previous results are supported by research results (Moshkdanian and Molahosseini, 2013; Flynn et al., 2010; Koufteros et al., 2005) (Fabbe-Costes and Jahre, 2007; 2008; Terjesen et al.) (2012) . Due to lack of sufficient evidence to confirm the impact of SCI on company performance. Huang et al (2014) stated that the integrity of the supply chain will affect the performance of suppliers, especially considering the environmental uncertainty, and overall, SCI has a positive and important impact on corporate performance. In this case, some researchers pointed out that one of the important things that must be considered when studying company performance is to pay special attention to the dimensions of SCI that affect performance. Some studies (Guinipero and Eltantawy, 2004) recommend the establishment of a flexible supply base to help establish and improve relationships between supply chain partners, and strive to select suppliers that can meet the company's resource requirements and maintain capabilities. Communicate effectively with suppliers, and form mutual relationships based on trust, commitment and mutual respect.

2.1 Supply Chain Integration Drivers and enablers:

Wiengarten and Longoni (2015) emphasized: "In the current management thinking, the goal of supply chain management is not limited to improving operational performance, representing the economic aspects of sustainability, but also environmental and social aspects." In addition to the above, a review of the literature shows that SCI has moved towards managing issues related to environmental uncertainty (Wong and Boon-itt, 2008; Flynn et al., 2016) and improving performance (Foerstl et al.). (2013), seeking to create value (Cooper et al., 1997), reduce costs (Chen et al., 2009), etc. According to this, the literature shows that there are a large number of driving factors and contributing factors, which makes classification a very complicated process. However, few studies have proposed a standardized list of driving factors (Mustafa Kamal and Irani, 2014).

Several authors pointed out that the integration of supply chain information is tantamount to "communication with the company and its business partners through electronic means to establish a kind of cooperation in the supply chain" (Schoenherr and Swink, 2012; Wiengarten et al., 2016). Therefore, This integration is similar to a company's capability supervisory agency to generate accurate and timely information distribution to support the coordination of activities between partners across the supply chain (Lai et al., 2008; Huang et al., 2013; Zhou et al., 2014 ; Khanuja and Jain, 2020). In previous studies on SCI, information technology has been recognized as an "ideal factor for improvement", including e-commerce functions (Devaraj et al., 2007), information technology integration (Vickery et al., 2003), and information technology. Many factors have been mentioned in previous studies to control the complementary relationship between organizations, including inter-organizational communication (Jacobs et al., 2016), collaboration plan (Barratt, 2004), and relationship

commitment (Zhao et al., 2011). , Dependence and trust on customers and suppliers (Zhang and Huo, 2013) and long-term partnerships (Prajogo and Olhager, 2012). Not only that, there are other factors that affect the emergence of SCI, including many of the factors mentioned by the author, such as internal resources and support for senior management (Xu et al., 2014), competitiveness (Kim (2009) , Technology adoption (Tseng and Liao, 2015), company strategy (Ralston et al., 2015), and personnel engagement (Pradabwong et al., 2017).

Although there are few standard methods for categorizing SCI drivers and enablers in the current literature, we follow (Khanuja and Jain, 2020) according to (Glenn Richey et al., 2009; Cao et al.). . , 2015a, b). They have divided SCI drivers and contributing factors into three types of factors: company-level factors, inter-organizational factors, and environmental factors that stimulate SCI.

2.2 SCI Dimensions:

The topic of supply chain management system integration has become a topic of discussion, and important discussions have taken place in the past thirty years (Leuschner et al., 2013; Power, 2005). Generally, we find that the concept of supply chain management is mainly based on the integration of activating partners' activities in the supply chain. For example, according to the viewpoint of industrial companies (Flynn et al., 2010, p. 59), the definition of SCI is proposed, which emphasizes the necessity of strategic cooperation and process integration, and considers that supply chain integration is "manufacturers and their supply chain partners The degree of strategic cooperation and joint management of processes within and between organizations". In a similar direction, Lee (2000) pointed out that through the network of suppliers, manufacturers, distributors and customers, there is a large amount of materials, information, and financing. Lee (2000) adopted a framework containing three basic integration dimensions, namely, information coordination and organization linking. Leuschner et al. (2013) expressed the concept of SCI as representing the scope and strength of links found in cross-company supply chain operations. We conclude from the foregoing that there is no clear hierarchical structure and corresponding functional division or realization area, which is lacking in the general conceptual discussion mentioned above. All in all, there are many well-founded theoretical frameworks, including a complete set of elements that can clearly explain SCI (Chen et al., 2009).

Several published studies tend to portray SCI as a multi-dimensional structure. For example, Vaart and van Donk (2008) point to integration based on attitudes, practices, and patterns, while (Cao and Zhang, 2011) go in another direction, portraying SCI as a framework that focuses on relationships and processes. In general, the basic idea of SCI is that it is a common practice among and among organizations for unemployed people, and its pursuit of cooperation helps to create a fruitful supply chain. Khanuja and Jain (2020) described SCI using the

viewpoints proposed by (Kahn and Mentzer, 1996; Mentzer et al., 2001). The works cited here emphasize the three characteristics of supply chain management: a systematic approach that treats the supply chain as a whole; mature and interrelated strategic and operational capabilities; at the same time; at the same time, it creates value for customers.

Mentzer et al. (2001) showed that supply chain management also includes seven activities, these seven activities are: information exchange, risk and reward exchange, cooperation, integrated behavior, process integration, long-term relationship and finally customer-centric. Several published papers, such as: (Kahn and Mentzer, 1996; Cooper et al., 1997; Tan et al., 1998) regard SCI as the mandatory integration behavior of supply chain partners, covering (Mentzer et al. (2001), SCI is still considered as an independent philosophy, so SCI can be considered as the backbone of SCM. Kahn and Mentzer (1996) described SCI, which is essential for supply chain management. They described the integrated features that show two concepts separately but are interrelated, namely SCM and SCI. The three characteristics of integration between departments include: participation, cooperation and information exchange, and finally interaction. The process of inter-departmental interaction and inter-departmental collaboration integrates departments into a cohesive organization. In addition to the above, cooperation, information sharing, and joint work are often considered between the various dimensions of integration. For example, the dimensions proposed by Angeles (2009) for measuring SCI include some dimensions, such as: information flow integration, physical flow integration, and financial flow integration. On the other hand, (Jayaram et al., 2010) considers information sharing and decision-making. Decisions between organizations and active plans with supply chain members are an important part of SCI. Others tend to define only two dimensions of SCI, namely information exchange and operational coordination (Liu et al., 2013).

Some people tend to consider information exchange and interdependence between SCI measures (Huang et al., 2014). Wu et al. (2014) Mentioned the dimensions of information exchange and cooperation, Bruque-Cámara et al. (2016), Introduction, Information and Physical Integration. Several authors (Tan et al., 1998; Frohlich and Westbrook, 2001) believe that SCI has the functions of delivery and information integration. On the other hand, it also includes the physical process of forward delivery from supplier to supplier. The manufacturer shows the information flow to the customer. Some research published by Zhao et al. (2011) and Wang et al. (2016) Analyzed the content of the existing literature, and based on this analysis, determined the three dimensions of SCI, namely strategic alliance, information exchange and operation coordination. Another trend provided by Shou et al. (2017) When they acknowledged information sharing, collaboration, and joint decision-making, they did not agree to link the system to the SCI behavior shown by supply chain partners, but did not regard it as an SCI dimension.



Stevens (1989) uses a different approach to conceptualize "integrated supply chain". According to Stevens (1989), "the scope of the supply chain starts at the source of supply and ends at the point of consumption". Generally, this field includes all activities within and between organizations until the synchronization of customer requirements is completed. Therefore, the integration of business processes is very important to the supply chain, especially the business chain that includes all aspects of the business and its contents, such as market research and development for planning, research, and delivery and related procurement and logistics. Concepts and outbound operations (Cooper et al., 1997). Stevens (1989) proposed the pioneering work of SCI, which is a stage theory that combines key features of integration. Stevens (1989) used his theory to explain the four different stages of realizing SCI, namely: baseline, functional integration, internal integration and external integration. In the internal integration phase, the requirements can be managed at the same time, but the expansion of SCI can be fully realized, which depends on the expansion of the scope of integration until it reaches the supplier and customer Stevens (1989). A large number of documents are based on the same point of view, which helps to strengthen the foundation of SCI, and the experimental work proposed by (Flynn et al., 2010) also supports this method.

The authors have different opinions on SCI measures. For example, Vickery, etc. (2003) showed that SCI has three dimensions, namely: integration between functions; integration between customers and suppliers. So Flynn et al. (2010), Wong et al. (2011), Huo et al. (2014), Ayoub et al. (2017) described the SCI dimensions based on these dimensions. Some published studies have shown that internal integration is the basis for external integration, while some studies rely on dividing the SCI dimension into two aspects: internal integration and external integration (Sun and Ni, 2012; Wong et al., 2013; Kaliani Sundram et al. , 2016), in a completely different direction, others rely on the SCI measurement to be one-dimensional (Willis et al., 2016; Yang, 2016; Feng et al., 2017). These trends are not the only trends. For example, (Huo et al., 2014) interprets SCI as including internal integration, process integration and product integration.

By reviewing the literature published in the field of SCI, we find that it is noticeable that a large number of these literature have unanimously agreed on two important approaches that were previously discussed above, despite the fact that many authors of that literature have acknowledged the lack of clarity of the concepts of the description of SCI, which contributes to the addition of many variables and concepts used to measure SCI. According to the content stated in the literary survey conducted by (Khanuja and Jain, 2020), they identified two methods for the possible dimensions of SCI. The two methods are: first, divide the SCI dimension into internal integration and external integration (divided into For customer integration and supplier integration). The second is information exchange between organizations, business or process coordination, strategic alliances or decision-making. Although the fact is that the vast majority of published documents provide the dimensions of



measuring SCI, they rely on the adoption of two viewpoints/ Methods classify its dimensions, but few documents deal with the dimensions of SCI in a different way from these two methods.

In this article, we rely heavily on the SCI model proposed by Zhang et al. (2015), which is based on an extensive review of published literature in the field of supply chain integration (Zhang et al., 2015; p: 1154). Zhang et al (2015) recorded several viewpoints to help define integration and characterize its dimensions (Autry and Moon, 2016). We also adopted the views of these authors to abstract supply chain management, because integration is the foundation of the supply chain management philosophy, that is, the approach they follow treats the entire supply chain as a whole. Generally speaking, SCM is an integrated mentality method that can help guide supply chain members to conduct virtual collaboration to achieve the goal of improving customer value.

2.3. *SCI Outcomes*

SCI is widely accepted by various organizations and is committed to implementation to improve performance. This is because the SCI research emphasizes this integration and its importance to the organization and its impact on organizational performance (Forslund, 2015). Some people (Sarkis et al., 2011; Beske and Seuring, 2014) tend to view SCI and cooperation as an important basis for achieving strategy and sustainable performance. Cousins and Menguc (2006) measured the results of SCI and noted that it helps to improve market-based and process-based performance, and also pointed out that the results are many recent documents (Danese and Bortolotti, 2014; Abdallah et al., 2017). These studies show that there is a positive correlation between SCI practice and organizational performance, including supply chain performance (Li et al., 2009; Alam et al., 2014; Kumar et al., 2016), resilience (Danese and Bortolotti, 2014; Danese and Bortolotti, 2014). Willis et al., 2016; Cheng et al., 2016), product quality (Alfalla-Luque et al., 2015; Huo et al., 2019; Abdallah et al., 2017), market-oriented performance and customer-oriented performance (Huo et al., 2012). Usually, it is multiple and not limited to the previous one.

From the perspective of Stevens and Johnson (Stevens and Johnson, 2016), SCI on the one hand represents the process of coordination, linkage and coordination among individuals, processes, information, knowledge, and strategies adopted in the supply chain. On the other hand, it represents the coordination between contact and influence point. The process of contact and coordination aims to promote the efficient flow of materials and funds. They also believe that the scope of SCI completely includes governance and systems, organizational structure, business strategy, relationship management, process design and final performance management.

Through the impact of integration on productivity and customer service elements, the empirical results of several studies provide evidence of a positive correlation between integration, operational performance and company performance (Jin et al., 2013). Regarding the relationship between internal integration and external integration, the research results show that there is a strong correlation between them, and emphasizes that they must achieve better results (Stank et al., 2001; Flynn et al., 2010). ; Allred et al. , 2011). Information sharing and trust between customers and suppliers has always had a crucial influence on the methods adopted in cooperation strategies, especially in terms of capital and material flows (Barratt, 2004; Zhang and Huo, 2013; Petersen et al., 2005; Kim etc.). Et al., 2010). On this basis, we found that many authors tried to integrate many different aspects of SCI (for example, information, finance, and physical flow).

Few studies take SCI results as a general topic and divide organizational performance into three dimensions: operational performance, financial performance and non-financial performance (Leuschner et al., 2013). This research puts asset income, profit and investment income in financial income in financial indicators, while non-financial indicators include indicators that help meet customer needs and expectations. Operational performance can be defined as "the actual or realized competitive strength of the manufacturer" (Vanpoucke et al., 2014). Generally, the main indicators of operational performance include a set of indicators that directly contribute to the development of various functions of the organization, including reliability, quality, and delivery flexibility. Several papers have studied the direct impact of SCI on operational performance. The experimental results of these papers show that SCI is directly related to operational performance (Arora et al., 2016; Flynn et al., 2010; Demeter et al., 2016), financial performance (Huo Et al., 2016, 2019; Liu et al., 2016), and the direct impact on non-financial performance (Yang, 2016; Ralston et al., 2015; Yu et al., 2013). In general, we also follow this view (Khanuja and Jain, 2020), which includes the three dimensions of performance, whether it is financial, non-financial or operational.

2.4 Resource-based view and SCI

RBV (Barney, 1991; Penrose, 1959) is based on a basic premise, that is, why companies are not homogeneous and how companies achieve and maintain competitive advantages. From the perspective of RBV, firm-specific factors are more important than the environmental characteristics or industry structure characteristics used to explain superior firm performance. This view is in line with the early industrial organization economics framework (Wernerfelt, 1984). In addition, (Barney, 1991) believes that by relying on precious, scarce, unique and inexchangeable resources, companies can achieve sustainable competitive advantages.

Olavarrieta and Ellinger (1997) pointed out that RBV has gone through three stages of development. In the first stage, the company is considered to be a bundling of resources and



capabilities, which represents the bundling of personal skills, assets and accumulated knowledge exercised through the organizational process, thus helping the company to coordinate activities and use its resources (Amit and Schoemaker, 1993). . In the second stage, companies are regarded as rent-seekers. Barney (1986) believes that the factors that determine the company's ability to earn rent are characteristics of the factor market. Finally, the third stage focuses on excellent performance and strategic resources, and core capabilities have emerged (Prahalad and Hamel, 1990). Generally speaking, the main strategic resources include superior assets and unique capabilities (Barney, 1991; Day, 1994). RBV emphasizes the increasing importance of resources and capabilities. It has been applied to the theoretical analysis of supply chain management through experiments in many documents published in this field, such as: (for example, Brandon-Jones et al., 2014; Dyer and Singh, 1998; Fawcett et al., 2012; Ketchen et al., 2014). First of all, the strategic resources used in the supply chain organization process can be found either within the company or in resources and inter-company common routines (for example, Dyer and Singh, 1998; Fawcett et al., 2012), and are usually available Intangible resources such as information and knowledge are often more difficult than acquiring physical resources (Ketchen et al., 2014). Second, in general, resources cannot provide value for themselves. They must be integrated to achieve capability development (for example, Brandon-Jones et al., 2014).

According to Barney (1991; Wernerfelt, 1984) and RBV, "valuable, rare, and imperfect irreplaceable and irreplaceable resources can be transformed into competitive advantages." Generally, these resources can be divided into human capital resources, organizational capital resources or physical capital resources. Xu et al. (2014) confirmed that information technology is considered a valuable material resource, and they believe that supporting senior management is also human capital because they contribute to the realization of SCI functions. External partners can be regarded as a very important resource for an enterprise, because it is necessary to synchronize internal and external resources to obtain a competitive advantage for the enterprise. In order to improve the external capabilities of institutions and thereby improve their financial performance, these institutions must share knowledge with each other and obtain important information from partners (Zhang and Huo, 2013; Schoenherr and Swink, 2012; Wong et al., 2017; Zhang and Cao, 2018). According to Yang (2016) and according to RBV, SCI is an excellent capability, but it is indeed an unparalleled scarce resource, which helps to realize the SC capabilities of the organization, such as service flexibility, efficiency, and reliability And value-added services can greatly help achieve advanced financial and market performance. Drawing on the views of RBV, several authors support all aspects and promoters of SCI, regard shared IT capabilities as an indispensable material resource, and focus on representing business electronic functions. IT-based infrastructure helps improve operational performance (Devaraj et al., 2007; Bruque-Cámara et al., 2016). In another direction, some authors (Alfalla-Luque et al., 2015; Huo et al., 2015; Huo et al., 2016) have studied human capital as a resource to support the variables they studied. Et al., 2016), both employee



engagement and human capital are represented, with the purpose of improving SCI performance and gaining competitive advantage. All in all, researchers have explored the potential mechanisms by which the mix of resources and capabilities affect performance in their published literature (for example, Brandon-Jones et al., 2014; Gunasekaran et al., 2017). Based on RBV, this research also aims to contribute to the literature flow.

2.5. SCI Framework:

We have previously pointed out that this paper relies heavily on the model proposed in (Khanuja and Jain, 2020; Zhang et al., 2015), which shows that SCI has a positive effect on performance. There is a large amount of literature supporting this proposal, for example, Klassen and Vereecke (2012), who demonstrated in this article that integrated practices mean better synchronization between the company and its suppliers and customers, which in turn helps to improve social performance result. Wu (2013) pointed out that integration with customers and suppliers can significantly improve environmental performance and supply chain processes, and ultimately have a positive impact on organizational performance. Khanuja and Jain (2020) summarized in a review of published literature that SCI provides a comprehensive framework to try to establish the relationship between the three basic elements of supply chain research: First, the SCI process. It can be regarded as the ability to change or respond to uncertainty. It can be divided into two dimensional categories. The first category includes internal integration, customer integration and supplier integration, and the second category includes information sharing and operation coordination. And strategic alliance/making decisions; Second, the environmental factors that drive SCI are internal and inter-organizational factors. Third, measure SCI results as financial performance, non-financial performance and operational performance.

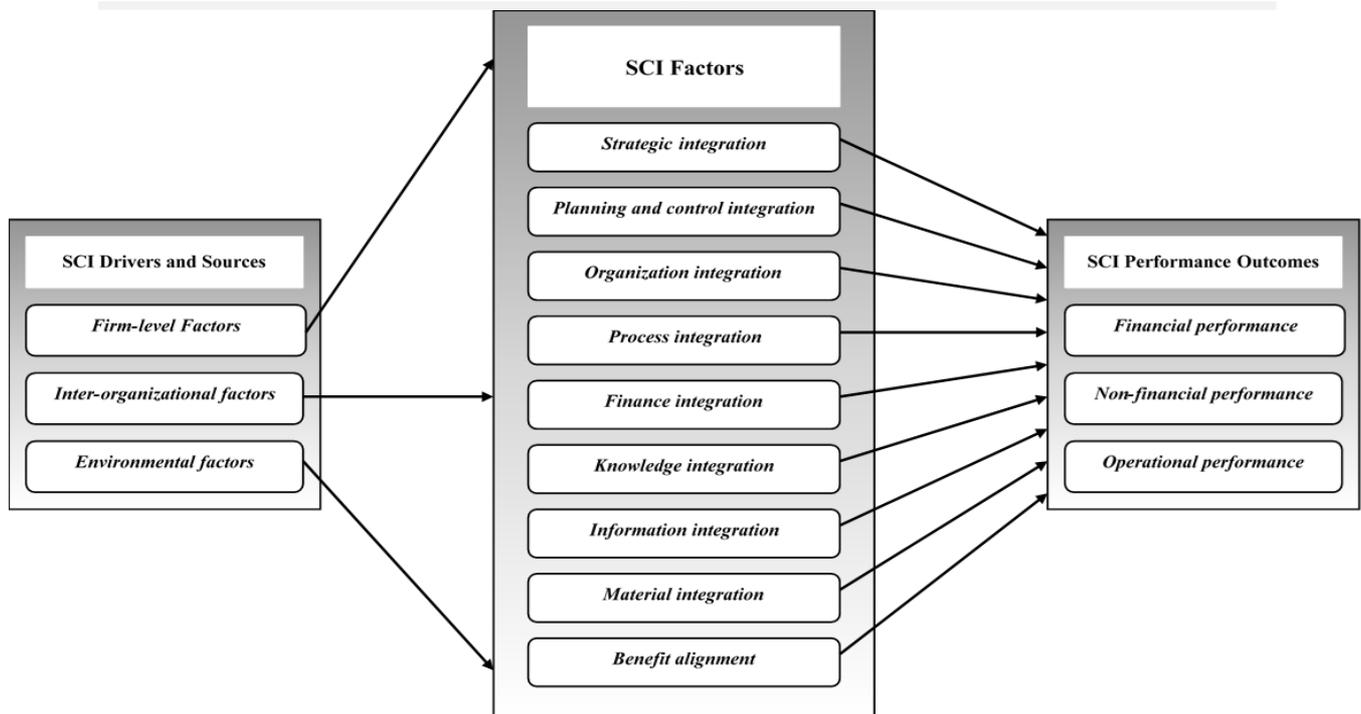


Figure (1): The proposed study model

Figure (1) above shows the general framework of the model used in this article and the relationship between the model construction. Based on the model (Khanuja and Jain, 2020; Zhang et al., 2015) provided by this paper using opinions and research, the framework shown in the figure illustrates the relationship between the above three components and makes recommendations. Evaluate the practice of SCI practices in the organization. SCI prompts immediate practitioners to consider the size and scope of SCI that affect their business. The evaluation of this framework refers to following SCI practices to achieve the expected results.

3. Study problem and methodology:

Increasing competition, changing customer needs, new technology development and pressure from globalization have caused companies in the corporate world to face a series of challenges. This makes companies give up competition and turn to cooperation and integration, especially supply chain integration. Many companies rely on supply chain integration to meet these challenges (Fantazy et al., 2010; Baharanchi, 2009). The importance of SCI has prompted many researchers to conduct research to address the impact of SCI on company performance, but their research has not received the same attention in the Arab environment, especially Saudi Arabia., In addition to the fact that there are still differences in the results of research on the impact of SCI on performance, because some studies have shown the impact of SCI on company performance (Molahosseini, 2013; Liu et al., 2013; Liu et al., 2013; Beheshti et al., 2014; Koufteros et al., 2005; Zolait et al., 2010; Moshkdanian and; Flynn et al., 2010; Gimenez

et al., 2012). In contrast, (Fabbe-Costes and Jahre, 2007, 2008; Terjesen et al., 2012) research shows that there is insufficient evidence to confirm the impact of SCI on corporate performance. Based on the above, it requires determining the impact of SCI on performance. This research aims to investigate the results of corporate performance (financial performance, non-financial performance, and operational performance) based on corporate-level factors, inter-organizational factors, and environmental factors that stimulate SCI in Saudi industrial companies. Therefore, the question that this research attempts to answer is:

1. What are the dimensions that represent the drivers and enablers factors of SCI? Do these drivers and enablers factors motivate industrial firms to adopt SCI?
2. What are the dimensions that represent SCI in the industrial firms? Do these dimensions positively affect the performance outcomes of these firms? What performance outcomes are affected by SCI?

The importance of this study comes from the vital role played by the SCI, internally and externally, technologically, and at the strategic level, to reach the target performance and increase the firm's growth. The importance of the study also stems from the scarcity of studies that dealt with the issue of SCI in the Arab environment in general and Saudi Arabia in particular, especially after the SCI has become one of the important issues adopted by industrial firms. SCI is also a strategic tool that firms use to reach their target performance because each level of SCI focuses on a set of objectives. The study of SCI provides a deeper understanding of the study variables at the theoretical level and helps managers to determine what factors affect the performance of industrial firms, so that they are considered when preparing their future plans. Finally, the study is expected to open up prospects for future research dealing with the SCI from various aspects.

3.1. Hypotheses:

Depending on the variables contained in this study model, and based on the study problem and its objectives, hypotheses that can be tested to answer the study questions and achieve its objectives have been formulated, the following are these hypotheses in their nihilistic form:

1. Ho1: There is no significant effect of statistical significance at the level of significance ($\alpha \leq 0.05$) for firm-level factors in adopting Saudi industrial firms SCI.
2. Ho2: There is no significant effect of statistical significance at the level of significance ($\alpha \leq 0.05$) of inter-organizational factors in adopting Saudi industrial firms SCI.

3. Ho3: There is no significant effect of statistical significance at the level of significance ($\alpha \leq 0.05$) of environmental factors in the adoption of Saudi industrial firms SCI.
4. Ho4: There is no significant effect statistically significant at the level of significance ($\alpha \leq 0.05$) of SCI on the financial performance of Saudi industrial firms.
5. Ho5: There is no significant effect statistically significant at the level of significance ($\alpha \leq 0.05$) of SCI on the non-financial performance of Saudi industrial firms.
6. Ho6: There is no significant effect statistically significant at the level of significance ($\alpha \leq 0.05$) of SCI on the operational performance of Saudi industrial firms.

3.2. Research methodology:

To achieve the study objectives, the descriptive and analytical approach based on the desk survey method of literature dealing with the issue of SCI for the purpose of building our study theoretical framework, in addition to using the field method to collect data through a questionnaire distributed on the study sample and its statistical analysis to describe the study variables and test their hypotheses, explaining them and clarifying the different aspects to reach conclusions that contribute to determining the drivers and enablers of SCI and studying the effect of the SCI on the financial, non-financial performance, and the operational performance of Saudi industrial firms.

The study population consisted of Saudi industrial firms operating in the Eastern region of the Kingdom. The number of governorates in the Eastern region is 11 governorates, each of which has at least one or two industrial zones, in which all industrial firms registered in the Saudi Chamber of Commerce and Industry are located. For the purposes of taking a probability random sample, the simple random sampling method was used at an estimation error level equivalent to (5%), and a confidence level (95%), the sample size reached was 253 firms, this method has been used in some previous studies (Berenson and Levine, 1999), (300) questionnaires were distributed to the firms under study, and (261) questionnaires were retrieved, i.e. a rate of (87%), (9) questionnaires were excluded because they were not valid for analysis, while the questionnaires were valid for analysis (253) of the questionnaires that have been distributed. Table (1) shows a description of the characteristics of the study sample.

Table (1): Description of the study sample characteristics

<i>Details</i>	<i>Frequency</i>	<i>percentage</i>
Age of the company		
From 5 years to less than 10 years	39	% 15.4
From 10 years to less than 15 years	44	% 17.4
From 15 years to less than 20 years	74	% 29.3
20 years or more	96	% 37.9
Total	253	%100
The number of employees in the company		
From 50 workers to less than 100 workers	30	% 12.25
From 100 workers to less than 500 workers	76	% 30.05
From 500 workers to less than 1000 workers	71	% 28.06
1000 workers or more	75	% 29.64
Total	253	100%
Number of suppliers		
One supplier	32	% 12.6
Two suppliers	97	% 38.3
Three suppliers	46	% 18.2
Four suppliers	35	% 13.8
Five or more suppliers	43	% 17.1
Total	253	100%

This part focuses on describing the characteristics of the firms researched in terms of the age of the firm, the nature of their work, their size (in terms of the number of employees in the firm), and the number of suppliers that the firm deals with, as in Table (1) above:

Age of the firm: From Table (1) it becomes clear that firms whose age exceeds 10 years, their percentage reached about (85%), and among them are public joint stock firms, Which means that the firms of the study sample are firms operating in the market for a long time, and this gives an indication of the possibility of applying the researched firms to the SCI. Number of employees: Table (1) shows that firms that have more than 100 workers constitute (87.75%) of the study sample firms, which are firms that meet the standard of medium and large firms in terms of the number of employees. Thus, such firms play an important role in solving unemployment problems and supporting the Saudi economy, because they provide a good number of jobs for Saudi community.

Number of suppliers: It is evident from Table (1) that 50.9% of the firms surveyed in the study sample deal with two or fewer suppliers. This means that more than half of the firms enjoy cooperation and partnership relations based on the long-term orientation, as the few number of suppliers indicates a lack of alternative supply sources and the partnership relationship is considered natural because it is the only source of the product components, or because of the emergence of partnership relations with a specified number among a group of suppliers who supply the needs of the organization, this matter is in line with the modern trend of the supply chain. As about what (49.1%) of firms deal with three or more suppliers and from the point of view of their managers, they resort to this to create a state of competition between suppliers,

and according to Porter's five forces model, firms that have more than one source of supply have greater bargaining power (Johnson et al, 2008).

3.3. *Statistical Processing*

The current research relies on statistical analysis using structural equation models (SEM) to test the validity of various factorial models and to test the validity of complex assumptions related to the structure of the concepts used, so the research used the following statistics Method: SEM is used for the purpose of testing hypotheses. The validity of research and its model, as well as factor load testing, are used to measure the discriminative validity and convergence validity of research tools. Frequency and percentage are also used to describe the characteristics of the research sample, describe the research variables, and finally perform the Cronbach alpha test to test the internal consistency of the research instrument.

3.3.1. The study instrument:

The research relied on the questionnaire as the main tool for collecting information, because the questionnaire was designed and designed to achieve the purpose of the research and answer the questions that the research was trying to answer. Each part of the questionnaire is divided into two parts. The first part is about the demographic information of the researched company, which was reviewed in the previous part; the second part tries to study first: the dimensions of driving factors and the promoters of SCI (here is Reliance on the dimensions representing the promoters and promoters of SCI. (Khanuja and Jain, 2020; p: 274,275) The SCI drivers and enablers provided are based on (Glenn Richey et al., 2009 and Cao et al., 2015a, b) the classification of SCI drivers and enablers is divided into three Class factors. Enterprise-level factors, inter-organizational factors and environmental factors), and secondly: SCI dimensions (here we rely on the SCI model proposed by (Zhang et al., 2015; p: 1154)). An extensive review of the published literature in the SCI field, third: the dimension of company results. Here, we also follow the dimensions of company results proposed by (Khanuja and Jain, 2020; p:284:287). The three dimensions of performance, whether it is financial performance, non-financial performance or operational performance.

3.3.2 Validation and Reliability of the Study Instrument

Reliability: To test the reliability of the study instrument, the Cronbach's Alpha test was used to measure the reliability of the measuring instrument according to the answers of the 253 firms surveyed. Table (2) shows the test results, as the data in this table indicate that the Cronbach coefficient. The alpha of all study variables is more than (60%), which indicates a high consistency and correlation between the questionnaire statements (Sekaran and Bougie, 2010). Composite reliability (CR) has also been used, which confirms the interdependence of the study

paragraphs, as the results in Table (2) indicate that (CR) values are greater than (0.70), which confirms the interdependence of the instrument (Kline, 2005), and this indicates the possibility of establishing the results that may outcome from the application of this tool, as well as the possibility of generalizing the results reached by the study in light of its practical limits.

Content validity: The validity of the study tool was tested by following the ostensible truthfulness approach, by presenting the study instrument to a group of academics in Saudi universities, where it was judged by them using a scientific methodology, and most of their observations were taken. In addition, the study tool was presented to a sample of managers in advance, with the aim of identifying the extent of the respondents' understanding of the phrases and terms used and their degree of clarity, until the study tool reached its final form (all the elements suggested by the two studies were presented (Khanuja, and Jain, 2020; Zhang et al., 2015), but most academics and practitioners agreed to exclude a number of elements, and the elements of the current study ended up as shown in the following Table (2). As for Discriminate validity, it measures the extent to which the study variables differ from one another, and thus the variables are not similar and that each variable represents itself, as the results in Table (2) indicate that the average variance extracted (AVE) for all study variables is higher than (0.5), which means that the study instrument is characterized by content validity (Hair et al., 2010).

As for the Convergent Validity, it measures the degree of compatibility between the multiple paragraphs that measure the variable, as the results of Table (2) indicate that the factor loading values for all variables are greater than (0.50), the composite reliability (CR) values for all variables are greater than (0.70). This means that the study instrument is characterized by convergent validity (Hair et al., 2010).

Table (2): Results of testing the reliability and validity of the study instrument

Factors and its items	Factor Loading	Cronbach's alpha	CR	AVE
<i>SCI Drivers and Sources</i>				
<i>Firm-level Factors</i>		0.812	0.87	0.611
Communication and information sharing	0.67			
Cost orientation – Cost savings, Efficiency, Less inventory	0.73			
Cross functional integration	0.79			
Customer orientation – Service level, Responsiveness	0.89			
Employee multiskilling, incentive, and participation	0.84			
Information system integration	0.78			
IT implementation	0.81			
IT integration capability	0.82			
Organizational culture	0.71			
Performance management	0.77			
Technology adoption	0.78			
Top management support	0.86			
<i>Inter-organizational factors</i>		0.831	0.89	0.617
Business process integration	0.82			

Collaborative planning, execution, decision making	0.74			
e-Business Capabilities – Customer, Purchasing, Collaboration	0.77			
Knowledge exchange	0.79			
Logistics Integration	0.82			
Long-term relationship	0.75			
Strategic alignment	0.87			
Supplier involvement	0.71			
<i>Environmental factors</i>		0.827	0.91	0.681
Competition	0.67			
Market complexity	0.74			
Shortening product life cycle	0.78			
Supply delivery risk	0.73			
Uncertainty	0.91			
<i>SCI Factors</i>				
<i>Strategic integration</i>		0.917	0.93	0.727
Communication of strategic goals and strategic policy	0.76			
Collaborative strategic investment plan	0.91			
Capacity and facility planning	0.76			
Interrelated implementation programme	0.92			
<i>Planning and control integration</i>		0.873	0.91	0.779
Collaborative forecasting, planning and control	0.79			
Collaborative performance evaluation	0.78			
Risk management	0.77			
<i>Organization integration</i>		0.944	0.959	0.774
Multiple inter-organizational linkages	.081			
Regular communication	0.83			
trans-organizational working team	0.87			
Compatible organization culture	0.75			
<i>Process integration</i>		0.853	0.94	0.728
Customer relationship management	0.66			
Customer service management	0.70			
Demand management	0.73			
Order fulfilment	0.72			
Manufacturing flow management	0.77			
Procurement	0.78			
Product development and commercialization	0.65			
Returns	0.63			
<i>Finance integration</i>		0.947	0.96	0.777
Credit terms	0.76			
Payment or repayment schedules	0.88			
Consignment and title ownership arrangements	0.95			
Financial help to each other	0.96			
<i>Knowledge integration</i>		0.919	0.91	0.763
Product knowledge	0.74			
Producing knowledge	0.68			
Facility knowledge	0.70			
Management knowledge	0.71			
Market and customer knowledge	0.74			
Environment knowledge	0.91			
<i>Information integration</i>		0.887	0.92	0.812
Platform or technological tools	0.63			
Information format and contents shared	.079			

Mechanism of information use and confidentiality	0.84			
Material integration		0.847	0.94	0.837
Logistics alliance	0.91			
Delivery decision support	0.84			
handling management	0.79			
Material handling	0.67			
Benefit alignment		0.839	0.87	0.788
Mechanism of sharing rewards, costs, and risks	0.92			
Long term commitment	0.86			
SCI Outcomes				
Financial performance		0.822	0.93	0.855
Cost of goods sold	0.67			
Financial liquidity	0.78			
Growth in profit	0.81			
Growth in return on investment	0.92			
Growth in return on sales	0.88			
Growth in sales	0.81			
Profit	0.88			
Profit margin on sales	0.82			
Return on assets	0.69			
Return on equity	0.73			
Return on investment	0.79			
Return on sales	0.88			
Non-financial performance		0.829	0.88	0.810
Competitive position	0.72			
Customer satisfaction	0.81			
Customer Service	0.84			
Differentiation	0.94			
Entering new market	0.93			
Growth in market share	0.86			
Information flow	0.95			
Responsiveness	0.87			
Relationship with customer and supplier	0.79			
Quality of customer service	0.81			
Operational performance		0.911	0.94	0.888
Cost of manufacturing	0.68			
Cost reduction	0.77			
Cycle time	0.80			
Delivery	0.96			
Flexibility	0.90			
Innovativeness	0.83			
Inventory turnover	0.90			
Lead time	0.84			
New product development	0.69			
Product variety	0.78			
Quality	0.81			

3.3.3 Study hypotheses test:

This part focuses on describing the study variables based on the descriptive statistics, and on testing the hypotheses and modeling of the study using the (SEM) test through the statistical analysis software (AMOS Version 21):

Table (3) shows that among the most drivers and enablers affecting industrial firms adoption of SCI are the firm-level factors at the forefront, with an average of (3,812), followed by inter-organizational factors with an average of (3,771), the last factors affecting firms' adoption the SCI was environmental factors at an average of (3,661). Table (3) indicates that the researched firms are interested in strategic integration, with an average of (3.841), this reflects a high level of interest by industrial firms' administrations and indicates a good case of alignment between the long-term strategic direction of the firm and the rest of the supply chain partners. Then the organizational integration with an average of (3.787), which reflects the importance of internal integration of the Saudi industrial firms, since this ensures the effective flow of information between the internal units and raises the level of coordination among them, then the factor of financial integration with an average of (3.762). Then the Benefit alignment factor with a mean of (3.733), which indicates a reasonable level of interest by the management of industrial firms, and that firms have the ability to face potential changes in the market and respond to the needs of the target market and align supply chain capabilities with the needs of customers and meet them, this may be due to weakness research and development departments in those firms and the inability to develop products that meet the needs and desires of customers. It is also evident that there is an effect of SCI in its various dimensions on the supply chain outcomes, whether financial, non-financial, or operational. From Table (3) it is clear that financial performance is most affected by the SCI with an average of (3.783), then we find that the operational performance comes in second order affected by integration with an average of (3,697), finally, non-financial performance is the least affected with an average of (3,660), so based on these results, we find that Saudi industrial firms are fully aware of the huge role that SCI plays in improving financial performance and operational, which is confirmed by the high of these averages due to the importance that these firms attach to integration within the supply chain.

Table (3) Description of the study variables

Factors	Mean	Standard deviation
Firm-level Factors	3.812	0.468
Inter-organizational factors	3.701	0.850
Environmental factors	3.661	0.511
Strategic integration	3.841	0.663
Planning and control integration	3.669	0.703
Organization integration	3.787	0.519
Process integration	3.617	0.758
Finance integration	3.762	0.592
Knowledge integration	3.617	0.637
Information integration	3.713	0.723
Material integration	3.593	0.593
Benefit alignment	3.733	0.777
Financial performance	3.783	0.591
Non-financial performance	3.660	0.638
Operational performance	3.697	0.723

The statistical analysis program AMOS Version 21 was used to test the hypotheses of the study, as well as to test the acceptability of the study model as follows:

Table (4): Results of testing the study hypotheses using (SEM)

Hypothesis	(β) Value	Computed t value	Result of the null hypothesis
There is no impact of the firm level factors for industrial firms to adopt SCI	0.294	**2.151	rejected
There is no impact of the Inter-organizational factors for industrial firms to adopt SCI	0.285	***5.218	rejected
There is no impact of environmental factors for industrial firms to adopt SCI	0.197	***2.757	rejected
There is no impact of SCI on firms' financial performance	0.269	**2.197	rejected
There is no impact of SCI on the firms' non-financial performance	0.237	***4.967	rejected
There is no impact of SCI on firms' operational performance	0.294	**2.488	rejected

P<.001, **P<.005***

With regard to the first hypothesis, the results presented in table (4) indicate that ($\beta=0.194$), and this is a statistically significant because ($t = 2.151, p<0.05$), which means rejecting the null hypothesis, and accepting the alternative hypothesis that is, there is a statistically significant effect at firm level factors in adopting Saudi industrial firms for SCI. As for the second hypothesis, the results presented in table (4) indicate that ($\beta = 0.294$) and this is a statistically significant because ($t = 5.218, p<0.05$) which means rejecting the null hypothesis and accepting the alternative hypothesis, there is a statistically significant effect at inter-organizational factors in adopting Saudi industrial firms for SCI. The third hypothesis, the results presented in table (4) indicate that ($\beta = 0.285$) and this is a statistically significant because ($t = 2.757, p<0.05$), which means rejecting the null hypothesis, and accepting the alternative hypothesis, there is a statistically significant effect at environmental factors in adopting Saudi industrial firms for SCI. Regarding the fourth hypothesis, the results presented in table (4) indicate that ($\beta = 0.197$) and this is a statistically significant because ($t = 2.197, p<0.05$), which means rejecting the null hypothesis, and accepting the alternative hypothesis, that there is a statistically significant effect of SCI on the financial performance of Saudi industrial firms. Regarding the fifth hypothesis, the results presented in table (4) indicate that ($\beta = 0.269$) and this is a statistically significant because ($t = 4.967, p<0.05$), which means rejecting the null hypothesis, and accepting the alternative hypothesis, that is, that there is a statistically significant effect of SCI on the on the non-financial performance of Saudi industrial firms. As for the sixth hypothesis, the results presented in table (4) indicate that ($\beta = 0.237$) and this is a statistically significant because ($t = 2.488, p<0.05$), which means rejecting the null hypothesis, and accepting the alternative hypothesis, that is, that there is a statistically significant effect of SCI on the operational performance of Saudi industrial firms.

3.3.4 Study framework acceptance test:

In order for the study model to be accepted, analyzes must be conducted to ensure that the acceptance of the study model is identical or acceptable. There are three analytical stages, which are:

Absolute Fit Index: This tests determines the degree of acceptance of the study framework, it does not determine whether the study framework is appropriate or inappropriate, but rather determines the extent of acceptance, and if the study framework is not accepted, the study topic will not be researched. From the tests used, (GFI), (RMSEA), (RMR), and (χ^2/df), by reviewing the results in the following table (6), it becomes clear that: (GFI = 0.907), (RMR = 0.056), (RMSEA = 0.067), and ($\chi^2/df = 187$), which means acceptance of the study framework.

Incremental Fit Index: This analysis determines the increase in acceptance of the study framework in its entirety and includes the following tests: (AGFI), (CFI), (NFI), and (TLI). From table (6) it becomes clear that (AGFI = 0.931), (NFI = 0.961), (CFI = 0.935), and (TLI = 0.965), which means that the study framework is fully accepted.

Parsimonious Fit Index: This analysis represents an index of firmness in accepting the study framework completely, and the aim of this indicator is to determine whether the framework is suitable, and from the tests used in this analysis (PGFI and PNFI), and from table (6) it is clear that (PNFI = 0.396, and PGFI = 0.408), which is an acceptable result because it is greater than (0.00), which means that the study framework can be accepted.

Table (6): Test of acceptability of the study framework

	Recommended Value (Hair et al., 2010)	
χ^2/df	≤ 3	187
RMSEA	≤ 0.08	0.067
GFI	≥ 0.9	0.907
RMR	< 0.5	0.056
NFI	≥ 0.9	0.961
CFI	≥ 0.9	0.935
TLI	≥ 0.9	0.965
AGFI	≥ 0.9	0.931
PGFI	The higher, the better	0.408
PNFI	The higher, the better	0.396

4. Discussion

The results of the study indicated that the majority of Saudi industrial firms operating in the Eastern Province deal with two suppliers or less, and according to what referred in (Kalwani and Narayandas, 1995), this indicates the long period of interaction between firms and their suppliers, which gives the impression of an intimate relationship between the firms and their



suppliers (Strategic integration) is characterized by spreading the spirit of trust and joint work to achieve the interests of all parties. In addition to the presence of a good percentage of industrial firms that depend on more than three suppliers in the procurement process, despite the development of suppliers and their meeting the needs of firms in the required time, and it can be said here that industrial firms have more negotiating power. The reason for this can be explained by the desire of firm managers to take advantage of the advantages arising from competition between suppliers.

Research results show that SCI of different scales will have an impact, but whether it has financial, non-financial or operational performance, SCI will have varying degrees of impact on the company's results. This is due to the fact that the company has established partnerships and cooperated with suppliers to meet production requirements in a timely manner so that it can fulfill its obligations to customers within a specified time. The existence of a partnership strategy with suppliers facilitates the joint exchange of information related to products, processes and production plans, which helps to formulate production plans and produce the required goods without delay, and shortens the delivery of products time. Therefore, companies need to establish close relationships with suppliers to ensure the continuity of material flow, without the need for large amounts of inventory to avoid the cost of maintaining inventory, which means that SCI is the key to the successful creation of a supply chain. The state of balance between raw material transportation, manufacturing processes and distribution activities. This result is consistent with the research results of (Patrick, 2013; Danese et al., 2013; Saeed et al., 2005; Huo, 2012; Han et al., 2013;). On the other hand, these results are different from the research of (Fabbe-Costes and Jahre, 2007; 2008; Terjesen et al., 2012). The research results show that SCI affects the performance results of companies because SCI removes barriers between organizational units and stimulates collaborative work to meet customer needs, and the results are consistent with the results of ACI. For example (Germain and Iyer, 2006; Heim and Peng, 2010; Danese et al., 2013; Danese et al., 2013; Ventura and Gimenez, 2005) and other studies, but we found that the results are also consistent with the research (Fabbe-Costes and Jahre, 2007; 2008; Terjesen. et al., 2012).

The research results show that strategic integration has the greatest impact on corporate performance, which is the result of all dimensions of SCI. This indicates that the strategic direction of the supply chain is consistent with the overall strategy of the company. This indicates that consistency enables the company to deal with the number and type of Respond to changes in demand without overstocking. The two companies are also committed to formulating strategic cooperation plans with major suppliers to benefit the supply chain and involve them in the strategic planning process, product and service development. This result is consistent with the results of (Johnson, 1999; Rosenzweig et al., 2003; Droge et al., 2004; Swink et al., 2007).

5. Conclusion and Implications

This research increases the understanding of SCI by providing new data and empirical evidence about the role of SCI in improving the performance of industrial companies, whether it is financial performance, non-financial performance or operational performance. A tool has also been developed to measure the impact of drivers and enablers on industrial companies' adoption of SCI. It can also measure the impact of SCI on industrial companies' financial, non-financial and operational performance. In the Gulf region (Saudi Arabia) countries, hope This will help to conduct more action research in this field in the Gulf region, which has a high and accelerated nature. This research provides many important insights for managers because it reveals the importance of integrating with supply chain partners if the company wants to develop supply chain response. Given the modern market dynamics, the speed of responding to market demand is to maintain the company the main key to leading the competition. The results of this study enable decision makers and decision makers in the field of supply chain management to understand the importance of SCI for improving the operational performance of industrial companies.

As a result of the current study, we believe that it is necessary to work on establishing long-term relationships with customers, through concluding direct contracts with customers, collecting data on customers, and using them in designing and delivering products that meet their requirements. On the other hand, the SCI requires the creation of a state of effective cooperation and coordination between the internal departments (such as marketing, research and development, production, procurement and storage), in a way that guarantees raising the level of flexibility in the delivery of products and services as one of the competitive tools, so that companies can move to information and strategic integration. The SCI in the firms is related to the level of interest that these firms give to maintaining strong relationships with suppliers and customers. Trust, honesty, commitment and attention to the interests of each party must be a motto for those relationships to maintain a good level of external SCI. Given that the results of the study showed that there is an impact of the SCI on the financial, non-financial and operational performance of the Saudi industrial firms, we recommend that firms adopt the strategic approach to the SCI, based on the basis of establishing long-term relationships with suppliers, active communication, and partnership with suppliers, which allows for a long-term agreements that are It is distinguished by stability, firmness and flexibility in the face of future changes. As it became clear that mutual trust and cooperation in various issues, such as cooperation in finding solutions to problems, is the basis for reaching the partnership relationship. It was also found that the SCI is the main key to the long-term success of the company. Finally, we stress the need for industrial companies to seek to take advantage of information technology, for example, data interchange electronic technologies, as they can help increase the speed of electronic exchange of data and thus improve the level of SCI. Based on the foregoing, we believe that there is an urgent need to conduct other studies that take into



account the market trend as a mediating variable that mediates the effect of SCI on performance, in addition to conducting other studies that include the impact of supply chain integration on competitive advantage, and in the end, there is an area that can be that the researchers and practitioners influence the conduct of the study on other sectors such as the service sector, and it may be conducted in other geographical areas around the world.

Acknowledgment

The authors would like to thank the Deanship of Scientific Research at Imam Abdulrahman Bin Faisal University, Saudi Arabia for providing financial support for this research via grant number 2019-395-ASCS. Dr. El-Garaihy is on a sabbatical leave from Port Said University, Egypt.

REFERENCES

- Abdallah, A.B., Abdullah, M.I. and Mahmoud Saleh, F.I. (2017), “The effect of trust with suppliers on hospital supply chain performance: the mediating role of supplier integration”, *Benchmarking: An International Journal*, Vol. 24 No. 3, pp. 694-715.
- Albahussain, S. A., Elgaraihy, W. H., and Mobarak, A. K. M. (2016). “Measuring the impact of human resource management practices on organisational performance with the mediating role of supply chain performance between them in Saudi industrial large organisations”. *Archives of Business Research*, 4(2), 20-35.
- Alam, A.K., Bagchi, P., Kim, B., Mitra, S. and Seabra, F. (2014), “The mediating effect of logistics integration on supply chain performance: a multi-country study”, *The International Journal of Logistics Management*, Vol. 25 No. 3, pp. 553-580.
- Alfalla-Luque, R., Marin-Garcia, J.A. and Medina-Lopez, C. (2015), “An analysis of the direct and mediated effects of employee commitment and supply chain integration on organisational performance”, *International Journal of Production Economics*, Vol. 162 No. 4, pp. 242-257.
- Alfalla-Luque, R., Medina-Lopez, C. and Dey, P.K. (2013), “Supply chain integration framework using literature review”, *Production Planning & Control*, Vol. 24 Nos 8/9, pp. 800-817.
- Allred, C.R., Fawcett, S.E., Wallin, C. and Magnan, G.M. (2011), “A dynamic collaborative capability as a source of competitive advantage”, *Decision Sciences*, Vol. 42 No. 1, pp. 129-161.
- Amit, R. and Schoemaker, P. (1993), “Strategic assets and organization rents”, *Strategic Management Journal*, Vol. 14 No. 1, pp. 33-46.
- Angeles, R. (2009), “Anticipated IT infrastructure and supply chain integration capabilities for RFID and their associated deployment outcomes”, *International Journal of Information Management*, Vol. 29 No. 3, pp. 219-231.
- Arora, A., Arora, A.S. and Sivakumar, K. (2016), “Relationships among supply chain strategies, organizational performance, and technological and market turbulences”, *The International Journal of Logistics Management*, Vol. 27 No. 1, pp. 206-232.
- Ashtiani, P., and Bosak, E., (2013). A conceptual model for factors affecting the relationship between supply chain integration and customer delivery performance. *International Journal of Academic Research in business and Social Sciences*, 3(9): 495-505.



- Autry, C.W. and Moon, M.A. (2016), *Achieving Supply Chain Integration: Connecting the Supply Chain Inside and Out for Competitive Advantage*, FT Press, NJ.
- Ayoub, H.F., Abdallah, A.B. and Suifan, T.S. (2017), “The effect of supply chain integration on technical innovation in Jordan: the mediating role of knowledge management”, *Benchmarking: An International Journal*, Vol. 24 No. 3, pp. 594-616.
- Baharanchi S., (2009). Investigation of the impact of supply chain integration on product innovation and quality. *Transaction E: Industrial Engineering*, 16(1): 81-89.
- Barney, J. (1991), “Firm resources and sustained competitive advantage”, *Journal of Management*, Vol. 17 No. 1, pp. 99-120.
- Barney, J.B. (1986), “Types of competition and the theory of strategy: toward an integrative framework”, *Academy of Management Review*, Vol. 11 No. 4, pp. 791-800.
- Barratt, M. (2004), “Unveiling enablers and inhibitors of collaborative planning”, *The International Journal of Logistics Management*, Vol. 15 No. 1, pp. 73-90.
- Brandon-Jones, B., Squire, B., Autry, C.W. and Petersen, K.J. (2014), “A contingent resource-based perspective of supply chain resilience and robustness”, *Journal of Supply Chain Management*, Vol. 50 No. 3, pp. 55-73.
- Beheshti, M.H., Oghazi, P., Mostaghel, R. and Hultman, M. (2014), “Supply chain integration and firm performance: an empirical study of Swedish manufacturing firms”, *Competitiveness Review*, Vol. 24 No. 1, pp. 20-31.
- Berenson, M., and Levine, D., (1999). *Basic Business Statistics: Concepts and Applications*, Prentice Hall.
- Beske, P. and Seuring, S. (2014), “Putting sustainability into supply chain management”, *Supply Chain Management: An International Journal*, Vol. 19 No. 3, pp. 322-331.
- Boon-itt, S., Wong, C.Y., (2011). The moderating effects of technological and demand uncertainties on the relationship between supply chain integration and customer delivery performance. *International Journal of Physical Distribution & logistics management*, 41(3): 235-276.
- Bruque-Cámara, S., Moyano-Fuentes, J. and Maqueira-Marín, J.M. (2016), “Supply chain integration through community cloud: effects on operational performance”, *Journal of Purchasing and Supply Management*, Vol. 22 No. 2, pp. 141-153.
- Cao, M. and Zhang, Q. (2011), “Supply chain collaboration: impact on collaborative advantage and firm performance”, *Journal of Operations Management*, Vol. 29 No. 3, pp. 163-180.



- Cao, Z., Huo, B., Li, Y. and Zhao, X. (2015a), “Competition and supply chain integration: a taxonomy perspective”, *Industrial Management & Data Systems*, Vol. 115 No. 5, pp. 923-950.
- Cao, Z., Huo, B., Li, Y. and Zhao, X. (2015b), “The impact of organizational culture on supply chain integration: a contingency and configuration approach”, *Supply Chain Management: An International Journal*, Vol. 20 No. 1, pp. 24-41.
- Carr A. S. and Pearson J. N. (2002), The Impact of Purchasing and Supplier Involvement on Strategic Purchasing and its Impact on firm's Performance, *International Journal of Operations & Production Management*, 22 (9): 1032-1063.
- Chen, I., Paulraj, A., Lado, A., (2004). Strategic Purchasing, Supply Management and Firm Performance, *Journal of Operations Management*, 22 (5): 505–523.
- Chen, D.Q., Preston, D.S. and Xia, W. (2013), “Enhancing hospital supply chain performance: a relational view and empirical test”, *Journal of Operations Management*, Vol. 31 No. 6, pp. 391-408.
- Chen, H., Daugherty, P.J. and Landry, T.D. (2009), “Supply chain process integration: a theoretical framework”, *Journal of Business Logistics*, Vol. 30 No. 2, pp. 27-46.
- Chen, H., Mattioda, D.D. and Daugherty, P.J. (2007), “Firm-wide integration and firm performance”, *The International Journal of Logistics Management*, Vol. 18 No. 1, pp. 5-21.
- Cheng, Y., Chaudhuri, A. and Farooq, S. (2016), “Interplant coordination, supply chain integration, and operational performance of a plant in a manufacturing network: a mediation analysis”, *Supply Chain Management: An International Journal*, Vol. 21 No. 5, pp. 550-568.
- Cooper, M.C., Lambert, D.M. and Pagh, J.D. (1997), “Supply chain management: more than a new name for logistics”, *The International Journal of Logistics Management*, Vol. 8 No. 1, pp. 1-14.
- Cousins, P.D. and Menguc, B. (2006), “The implications of socialization and integration in supply chain management”, *Journal of Operations Management*, Vol. 24 No. 5, pp. 604-620.
- Danese, P., Romano, P., Marco Formentini, M., (2013). The impact of supply chain integration on responsiveness: The moderating effect of using an international supplier network. *Transportation Research Part E: Logistics and Transportation Review*, 49: 125–140.



- Danese, P. and Bortolotti, T. (2014), "Supply chain integration patterns and operational performance: a plant-level survey-based analysis", *International Journal of Production Research*, Vol. 52 No. 23, pp. 7062-7083.
- Danese, P. and Romano, P. (2013), "The moderating role of supply network structure on the customer integration-efficiency relationship", *International Journal of Operations & Production Management*, Vol. 33 No. 4, pp. 372-393.
- Danese, P., Romano, P. and Formentini, M. (2013), "The impact of supply chain integration on responsiveness: the moderating effect of using an international supplier network", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 49 No. 1, pp. 125-140.
- Day, G.S. (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol. 58 No. 4, pp. 37-52.
- Demeter, K., Szász, L. and Rácz, B.-G. (2016), "The impact of subsidiaries' internal and external integration on operational performance", *International Journal of Production Economics*, Vol. 182 No. 12, pp. 73-85.
- Devaraj, S., Krajewski, L. and Wei, J. (2007), "Impact of eBusiness technologies on operational performance: the role of production information integration in the supply chain", *Journal of Operations Management*, Vol. 25 No. 6, pp. 1199-1216.
- Droge, C., Jayaram, J., Vickery, S., (2004). The effects of internal versus external integration practices on time-based performance and overall firm performance. *Journal of Operations Management*, 22 (6): 557–573.
- Dyer, J.H. and Singh, H. (1998), "The relational view: cooperative strategy and sources of interorganizational competitive advantage", *Academy of Management Review*, Vol. 23 No. 4, pp. 660-679.
- Fabbe-Costes, N., and Jahre, M., (2007). Supply chain integration improves performance: the Emperor's new suit? *International Journal of Physical Distribution & Logistics Management*, 37(10), 835-855.
- Fabbe-Costes, N., and Jahre, M., (2008). Supply chain integration and performance: a review of the evidence. *International Journal of Logistics Management*, 19(2): 130 – 154.
- Fantazy K., Kumar, V., Kumar, U., (2010). Supply management practices and performance in the Canadian hospitality industry. *International Journal of Hospitality Management*, 29(4): 685-693.



- Fawcett, S.E., Fawcett, A.M., Watson, B.J. and Magnan, G.M. (2012), "Peeking inside the black box: toward and understanding of supply chain collaboration dynamics", *Journal of Supply Chain Management*, Vol. 48 No. 1, pp. 44-72.
- Fawcett, S.E., Wallin, C., Allred, C., Fawcett, A.M. and Magnan, G. (2011), "Information technology as an enabler of supply chain collaboration: a dynamic capabilities perspective", *Journal of Supply Chain Management*, Vol. 47 No. 1, pp. 38-59.
- Feng, M., Yu, W., Chavez, R., Mangan, J. and Zhang, X. (2017), "Guanxi and operational performance: the mediating role of supply chain integration", *Industrial Management & Data Systems*, Vol. 117 No. 8, pp. 1650-1668.
- Flynn, B.B., Huo, B. and Zhao, X. (2010), "The impact of supply chain integration on performance: a contingency and configuration approach", *Journal of Operations Management*, Vol. 28 No. 1, pp. 58-71.
- Foerstl, K., Hartmann, E., Wynstra, F. and Moser, R. (2013), "Cross-functional integration and functional coordination in purchasing and supply management: antecedents and effects on purchasing and firm performance", *International Journal of Operations & Production Management*, Vol. 33 No. 6, pp. 689-721.
- Forslund, H. (2015), "Performance management process integration in retail supply chains", *International Journal of Retail & Distribution Management*, Vol. 43 No. 7, pp. 652-670.
- Frohlich, M.T. and Westbrook, R. (2001), "Arcs of integration: an international study of supply chain strategies", *Journal of Operations Management*, Vol. 19 No. 2, pp. 185-200.
- Germain, R., Iyer, K., (2006). The interaction of internal and downstream integration and its association with performance. *Journal of Business Logistics*, 27 (2), 29–53.
- Gimenez, C., van der Vaart, T. and Pieter van Donk, D. (2012), "Supply chain integration and performance: the moderating effect of supply complexity", *International Journal of Operations & Production Management*, Vol. 32 No. 5, pp. 583-610.
- Gimenez, C., and Ventura, E., (2005). Logistics-production, logistics-marketing and external integration: Their impact on performance. *International Journal of Operations & Production Management*, 25(1):20-38.
- Glenn Richey, R., Chen, H., Upreti, R., Fawcett, S.E. and Adams, F.G. (2009), "The moderating role of barriers on the relationship between drivers to supply chain integration and firm performance", *International Journal of Physical Distribution & Logistics Management*, Vol. 39 No. 10, pp. 826-840.



- González-Gallego, N., Molina-Castillo, F.-J., Soto-Acosta, P., Varajao, J. and Trigo, A. (2015), "Using integrated information systems in supply chain management", *Enterprise Information Systems*, Vol. 9 No. 2, pp. 210-232.
- Guinipero, L. and Eltantawy, R. (2004), *Securing the Upstream Supply Chain: A Risk Management Approach*, *International Journal of Physical Distribution & Logistics Management*, 34: 698-713.
- Gunasekaran, A., Papadopoulos, R., Dubey, R., Wamba, S.F., Childe, S.J., Hazen, B. and Akter, S. (2017), "Big data and predictive analytics for supply chain and organizational performance", *Journal of Business Research*, Vol. 70 No. 1, pp. 308-317.
- Hair, J., Black, W, Babin, B. and Anderson, R., (2010). *Multivariate Data Analysis: A global Perspective*. 7th edition, Pearson Education, Inc., Saddle River, New Jersey.
- Han, J., Lu, H., Trienekens, J., Omta, S., (2013). The impact of supply chain integration on firm performance in the pork processing industry in China, *Chinese Management Studies*, 7(2):230 – 252.
- Heim, G.R., Peng, D.X., (2010). The impact of information technology use on plant structure, practices and performance: an exploratory study. *Journal of Operations Management*, 28 (2): 144–162.
- Huang, M-C., Yen, G-F., Liu, T-C., (2014). Reexamining supply chain integration and the supplier's performance relationships under uncertainty. *Supply Chain Management: An International Journal*, 19(1): 64 – 78.
- Huo, B. (2012), "The impact of supply chain integration on company performance: an organizational capability perspective", *Supply Chain Management: An International Journal*, Vol. 17 No. 6, pp. 596-610.
- Huo, B., Han, Z., Chen, H. and Zhao, X. (2015), "The effect of high-involvement human resource management practices on supply chain integration", *International Journal of Physical Distribution & Logistics Management*, Vol. 45 No. 8, pp. 716-746.
- Huo, B., Qi, Y., Wang, Z. and Zhao, X. (2014), "The impact of supply chain integration on firm performance: the moderating role of competitive strategy", *Supply Chain Management: An International Journal*, Vol. 19 No. 4, pp. 369-384.
- Huo, B., Ye, Y., Zhao, X. and Shou, Y. (2016), "The impact of human capital on supply chain integration and competitive performance", *International Journal of Production Economics*, Vol. 178 No. 8, pp. 132-143.



- Huo, B., Ye, Y., Zhao, X. and Zhu, K. (2019), "Supply chain quality integration: a taxonomy perspective", *International Journal of Production Economics*, Vol 207 No. 1, pp. 236-246.
- Huo, B. (2012), "The impact of supply chain integration on company performance: an organisational capability perspective", *Supply Chain Management: An international Journal*, Vol. 17 No. 6, pp. 596-610.
- Jacobs, M.A., Yu, W. and Chavez, R. (2016), "The effect of internal communication and employee satisfaction on supply chain integration", *International Journal of Production Economics*, Vol. 171 No. 1, pp. 60-70.
- Jayaram, J., Tan, K.-C. and Nachiappan, S.P. (2010), "Examining the interrelationships between supply chain integration scope and supply chain management efforts", *International Journal of Production Research*, Vol. 48 No. 22, pp. 6837-6857.
- Jin, Y.H., Fawcett, A.M. and Fawcett, S.E. (2013), "Awareness is not enough. commitment and performance implications of supply chain integration", *International Journal of Physical Distribution & Logistics Management*, Vol. 43 No. 3, pp. 205-230.
- Johnson, G., Scholes, K., Whittington, H., (2008), *Exploring Corporate Strategy, Text- Cases*, 8th ed, Prentice Hall, London.
- Johnson, J., (1999). Strategic integration in industrial distribution channels: managing the inter firm relationship as a strategic asset. *Journal of Academy of Marketing Sciences*, 27 (1): 4-18.
- Kahn, K.B. and Mentzer, J.T. (1996), "Logistics and interdepartmental integration", *International Journal of Physical Distribution & Logistics Management*, Vol. 26 No. 8, pp. 6-14.
- Kaliani Sundram, V.P., Chandran, V. and Awais Bhatti, M. (2016), "Supply chain practices and performance: the indirect effects of supply chain integration", *Benchmarking: An International Journal*, Vol. 23 No. 6, pp. 1445-1471.
- Kalwani, M. U., & Narayandas, N. (1995). Long-Term Manufacturer-Supplier Relationships: Do they pay off for Supplier Firms? *Journal of Marketing*, 59(1): 1-16.
- Ketchen, D.J. Jr, Wowak, K.D. and Craighead, C.W. (2014), "Resource gaps and resource orchestration shortfalls in supply chain management: the case of product recalls", *Journal of Supply Chain Management*, Vol. 50 No. 3, pp. 6-15.



- Khanuja, A. and Jain, R.K. (2020), "Supply chain integration: a review of enablers, dimensions and performance", *Benchmarking: An International Journal*, Vol. 27 No. 1, pp. 264-301.
- Kim, K.K., Park, S.H., Ryoo, S.Y. and Park, S.K. (2010), "Inter-organizational cooperation in buyer-supplier relationships: both perspectives", *Journal of Business Research*, Vol.6 No.8, pp.863-869
- Kim, S., (2006). Effects of supply chain management practices, integration and competition capability on performance. *Supply Chain Management: An International Journal*, 11(3): 241 – 248.
- Kim, S., (2009). An investigation on the direct and indirect effect of supply chain integration on firm performance. *International Journal of Production Economics*, 119(2): 328-346.
- Klassen, R.D. and Vereecke, A. (2012), "Social issues in supply chains: capabilities link responsibility, risk (opportunity), and performance", *International Journal of Production Economics*, Vol. 140 No. 1, pp. 103-115.
- Kline, R., (2005), *Principles and practice of structural equation modeling* (2nd edition.). New York, the Guilford Press.
- Koufteros, X., Vonderembse, M., Jayaram, J., (2005). Internal and external integration for product development: the contingency effects of uncertainty, equivocality, and platform strategy. *Decision Sciences*, 36 (1): 97–133.
- Kulp, S.C., Lee, H.L. and Ofek, E. (2004), "Manufacturer benefits from information integration with retail customers", *Management Science*, Vol. 50 No. 4, pp. 431-444.
- Kumar, G., Banerjee, R.N., Meena, P.L. and Ganguly, K. (2016), "Collaborative culture and relationship strength roles in collaborative relationships: a supply chain perspective", *Journal of Business & Industrial Marketing*, Vol. 31 No. 5, pp. 587-599.
- Kumar, Y., Khandelwal, A., Shrivastava, S., (2014). A study of integrated supply chain model. *International Journal of Innovative Technology and Exploring Engineering*, 3(8): 15-17.
- Lai, K.-H., Wong, C.W.Y. and Cheng, T.C.E. (2008), "A coordination-theoretic investigation of the impact of electronic integration on logistics performance", *Information & Management*, Vol. 45 No. 1, pp. 10-20.
- Lee, H. (2000), "Creating value through supply chain integration", *Supply Chain Management Review*, Vol. 4 No. 4, pp. 30-36.



- Leuschner, R., Rogers, D.S. and Charvet, F.F. (2013), “A meta-analysis of supply chain integration and firm performance”, *Journal of Supply Chain Management*, Vol. 49 No. 2, pp. 34-57.
- Li, G., Yang, H., Sun, L. and Sohal, A.S. (2009), “The impact of IT implementation on supply chain integration and performance”, *International Journal of Production Economics*, Vol. 120 No. 1, pp. 125-138.
- Lintukangas, K., Peltola, S., Virolainen, V.-M., (2009). Some issues of supply management integration. *Journal of Purchasing & Supply Management*, 15: 240–248.
- Liu, H., Ke, W., Wei, K.K. and Hua, Z. (2013), “Effects of supply chain integration and market orientation on firm performance: evidence from China”, *International Journal of Operations & Production Management*, Vol. 33 No. 3, pp. 322-346.
- Liu, H., Wei, S., Ke, W., Wei, K.K. and Hua, Z. (2016), “The configuration between supply chain integration and information technology competency: a resource orchestration perspective”, *Journal of Operations Management*, Vol. 44 No. 5, pp. 13-29.
- Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N.W., Smith, C.D. and Zacharia, Z.G. (2001), “Defining supply chain management”, *Journal of Business Logistics*, Vol. 22 No. 2, pp. 1-25.
- Moshkdanian, F., and Molahosseini, A., (2013). Impact of supply chain integration on the performance of Bahman group. *Interdisciplinary Journal of Contemporary Research in Business*, 5(1): 184-192.
- Moyano-Fuentes, J., Sacristán-Díaz, M. and Garrido-Vega, P. (2016), “Improving supply chain responsiveness through advanced manufacturing technology: the mediating role of internal and external integration”, *Production Planning & Control*, Vol. 27 No. 9, pp. 686-697.
- Mustafa Kamal, M. and Irani, Z. (2014), “Analysing supply chain integration through a systematic literature review: a normative perspective”, *Supply Chain Management: An International Journal*, Vol. 19 Nos 5/6, pp. 523-557.
- Olavarrieta, S. and Ellinger, A.E. (1997), “Resource-based theory and strategic logistics research”, *International Journal of Physical Distribution & Logistics*, Vol. 27 Nos 9/10, pp. 559-587.
- Otchere, A., Annan, J., Quansah, E., (2013). Assessing the Challenges and Implementation of Supply Chain Integration in the Cocoa Industry: a factor of Cocoa Farmers in Ashanti Region of Ghana. *International Journal of Business and Social Science*, 4(5): 112-123.



- Panayides, P. M., Venus Lun, Y. H., (2009). The impact of trust on innovativeness and supply chain performance. *International Journal P production Economics*, 122, 35- 46.
- Patrick, C., (2013). Impact of integrated supply chain on performance at Kenya tea development agency. *International Journal of Human Resource and Procurement*, 1(5): 1-9. Programming. Mahwah, New Jersey: Lawrence Erlbaum Associated.
- Penrose, E.T. (1959), *The Theory of the Growth of the Firm*, John Wiley & Sons, New York, NY.
- Petersen, K.J., Ragatz, G.L. and Monczka, R.M. (2005), “An examination of collaborative planning effectiveness and supply chain performance”, *Journal of Supply Chain Management*, Vol. 41 No. 2, pp. 14-25.
- Power, D. (2005), “Supply chain management integration and implementation: a literature review”, *Supply Chain Management: an International Journal*, Vol.10No.4, pp. 252-263.
- Pradabwong, J., Braziotis, C., Tannock, J.D.T. and Pawar, K.S. (2017), “Business process management and supply chain collaboration: effects on performance and competitiveness”, *Supply Chain Management: An International Journal*, Vol. 22 No. 2, pp. 107-121.
- Prahalad, C.K. and Hamel, G. (1990), “The core competence of the cooperation”, *Harvard Business Review*, Vol. 68 No. 3, pp. 79-91.
- Prajogo, D. and Olhager, J. (2012), “Supply chain integration and performance: the effects of long-term relationships, information technology and sharing, and logistics integration”, *International Journal of Production Economics*, Vol. 135 No. 1, pp. 514-522.
- Ralston, P.M., Blackhurst, J., Cantor, D.E. and Crum, M.R. (2015), “A structure-conduct-performance perspective of how strategic supply chain integration affects firm performance”, *Journal of Supply Chain Management*, Vol. 51 No. 2, pp. 47-64.
- Riley, J.M., Klein, R., Miller, J. and Sridharan, V. (2016), “How internal integration, information sharing, and training affect supply chain risk management capabilities”, *International Journal of Physical Distribution & Logistics Management*, Vol. 46 No. 10, pp. 953-998.
- Rosenzweig E., Roth A., Dean J.(2003). The influence of an integration strategy on competitive capabilities and business performance: an exploratory study of consumer products manufacturers. *Journal of Operations Management*, 21(4): 437–56.



- Saeed, K., Malhotra, M., Grover, V., (2005). Examining the impact of inter organizational systems on process efficiency and sourcing leverage in buyer–supplier dyads. *Decision Sciences*, 36 (3): 365–396.
- Sanders, N.R. and Premus, R. (2005), “Modeling the relationship between firm IT capability, collaboration, and performance”, *Journal of Business Logistics*, Vol. 26 No. 1, pp. 1-23.
- Sarkis, J., Zhu, Q. and Lai, K. (2011), “An organizational theoretic review of green supply chain management literature”, *International Journal of Production Economics*, Vol. 130 No. 1, pp. 1-15.
- Schoenherr, T. and Swink, M. (2012), “Revisiting the arcs of integration: cross-validations and extensions”, *Journal of Operations Management*, Vol. 30 Nos 1/2, pp. 99-115.
- Sekaran, U., and Bougie R., (2010). *Research Methods for Business: A Skill Building Approach*, 5th Edition, Wiley and Sons. ISBN-10: 0470744790.
- Selim, H., Araz, C., Ozkarahan, I., (2008). Collaborative production–distribution planning in supply chain: a fuzzy goal programming approach. *Transportation Research Part E: Logistics and Transportation Review*, 44 (3): 396–419.
- Seuring, S. and Muller, M., (2008): Form a Literature Review to A Conceptual Framework for Sustainable Supply Chain Management, *Journal of Cleaner Production*, 16, 1699-1710.
- Shou, Y., Li, Y., Park, Y.W. and Kang, M. (2017), “The impact of product complexity and variety on supply chain integration”, *International Journal of Physical Distribution & Logistics Management*, Vol. 47 No. 4, pp. 297-317.
- Stank, T.P., Keller, S.B. and Daugherty, P.J. (2001), “Supply chain collaboration and logistical service performance”, *Journal of Business Logistics*, Vol. 22 No. 1, pp. 29-48.
- Stevens, G.C. (1989), “Integrating the supply chain”, *International Journal of Physical Distribution & Materials Management*, Vol. 19 No. 8, pp. 3-8.
- Stevens, G.C. and Johnson, M. (2016), “Integrating the supply chain ... 25 years on”, *International Journal of Physical Distribution & Logistics Management*, Vol. 46 No. 1, pp. 19-42.
- Sun, H. and Ni, W. (2012), “The impact of upstream supply and downstream demand integration on quality management and quality performance”, *International Journal of Quality & Reliability Management*, Vol. 29 No. 8, pp. 872-890.



- Swink, M., Narasimhan, R., Wang, C., (2007). Managing beyond the factory walls: effects of four types of strategic integration on manufacturing plant performance. *Journal of Operations Management*, 25 (1): 148–164.
- Tan, K.C., Kannan, V.R. and Handfield, R.B. (1998), “Supply chain management: supplier performance and firm performance”, *Journal of Supply Chain Management*, Vol. 34 No. 3, pp. 2-9.
- Terjesen, S., Patel, P., Sanders, N., (2012). Managing Differentiation-Integration Duality in Supply Chain Integration. *Decision Sciences*, 43(2): 303-339.
- Tseng, P.-H. and Liao, C.-H. (2015), “Supply chain integration, information technology, market orientation and firm performance in container shipping firms”, *The International Journal of Logistics Management*, Vol. 26 No. 1, pp. 82-106.
- Van der Vaart, T. and Van Donk, D.P. (2008), “A critical review of survey-based research in supply chain integration”, *International Journal of Production Economics*, Vol. 111 No. 1, pp. 42-55.
- Vanpoucke, E., Vereecke, A. and Wetzels, M. (2014), “Developing supplier integration capabilities for sustainable competitive advantage: a dynamic capabilities approach”, *Journal of Operations Management*, Vol. 32 Nos 7/8, pp. 446-461.
- Vickery, S.K., Jayaram, J., Droge, C. and Calantone, R. (2003), “The effects of an integrative supply chain strategy on customer service and financial performance: an analysis of direct versus indirect relationships”, *Journal of Operations Management*, Vol. 21 No. 5, pp. 523-539.
- Wang, B., Childerhouse, P., Kang, Y., Huo, B. and Mathrani, S. (2016), “Enablers of supply chain integration: interpersonal and interorganizational relationship perspectives”, *Industrial Management & Data Systems*, Vol. 116 No. 4, pp. 838-855.
- Wernerfelt, B. (1984), “A resource-based view of the firm”, *Strategic Management Journal*, Vol. 5 No. 2, pp. 171-180.
- Wiengarten, F. and Longoni, A. (2015), “A nuanced view on supply chain integration: a coordinative and collaborative approach to operational and sustainability performance improvement”, *Supply Chain Management: An International Journal*, Vol. 20 No. 2, pp. 139-150.
- Wiengarten, F., Humphreys, P., Gimenez, C. and McIvor, R. (2016), “Risk, risk management practices, and the success of supply chain integration”, *International Journal of Production Economics*, Vol. 171 No. 1, pp. 361-370.



- Willis, G., Genchev, S.E. and Chen, H. (2016), "Supply chain learning, integration, and flexibility performance: an empirical study in India", *The International Journal of Logistics Management*, Vol. 27 No. 3, pp. 755-769.
- Wong, C.W.Y., Sancha, C. and Thomsen, C.G. (2017), "A national culture perspective in the efficacy of supply chain integration practices", *International Journal of Production Economics*, Vol. 193 No. 11, pp. 554-565.
- Wong, C.W.Y., Wong, C.Y. and Boon-itt, S. (2013), "The combined effects of internal and external supply chain integration on product innovation", *International Journal of Production Economics*, Vol. 146 No. 2, pp. 566-574.
- Wong, C.Y. and Boon-itt, S. (2008), "The influence of institutional norms and environmental uncertainty on supply chain integration in the Thai automotive industry", *International Journal of Production Economics*, Vol. 115 No. 2, pp. 400-410.
- Wong, C.Y., Boon-itt, S. and Wong, C.W.Y. (2011), "The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance", *Journal of Operations Management*, Vol. 29 No. 6, pp. 604-615.
- Wu, G. (2013), "The influence of green supply chain integration and environmental uncertainty on green innovation in Taiwan's IT industry", *Supply Chain Management: An International Journal*, Vol. 18 No. 5, pp. 539-552.
- Wu, I.-L., Chuang, C.-H. and Hsu, C.-H. (2014), "Information sharing and collaborative behaviors in enabling supply chain performance: a social exchange perspective", *International Journal of Production Economics*, Vol. 148, pp. 122-132.
- Xu, D., Huo, B. and Sun, L. (2014), "Relationships between intra-organizational resources, supply chain integration and business performance: an extended resource-based view", *Industrial Management & Data Systems*, Vol. 114 No. 8, pp. 1186-1206.
- Yang, C.-S. (2016), "The antecedents and consequences of supply chain service capabilities in the context of container shipping", *The International Journal of Logistics Management*, Vol. 27 No. 2, pp. 236-262.
- Yu, W. (2015), "The effect of IT-enabled supply chain integration on performance", *Production Planning & Control*, Vol. 26 No. 12, pp. 945-957.
- Yu, W., Jacobs, M.A., Salisbury, W.D. and Enns, H. (2013), "The effects of supply chain integration on customer satisfaction and financial performance: an organizational



- learning perspective”, *International Journal of Production Economics*, Vol. 146 No. 1, pp. 346-358.
- Zhang, M. and Huo, B. (2013), “The impact of dependence and trust on supply chain integration”, *International Journal of Physical Distribution & Logistics Management*, Vol. 43 No. 7, pp. 544-563.
- Zhang, Q. and Cao, M. (2018), “Exploring antecedents of supply chain collaboration: effects of culture and interorganizational system appropriation”, *International Journal of Production Economics*, Vol. 195 No. 1, pp. 146-157.
- Zhang, C., Gunasekaran, A. and Wang, W.Y.C. (2015), "A comprehensive model for supply chain integration", *Benchmarking: An International Journal*, Vol. 22 No. 6, pp. 1141-1157.
- Zhao, X., Huo, B., Selen, W. and Yeung, J.H.Y. (2011), “The impact of internal integration and relationship commitment on external integration”, *Journal of Operations Management*, Vol. 29 Nos 1/2, pp. 17-32.
- Zhou, H., Shou, Y., Zhai, X., Li, L., Wood, C. and Wu, X. (2014), “Supply chain practice and information quality: a supply chain strategy study”, *International Journal of Production Economics*, Vol. 147 No. 1, pp. 624-633.
- Zhou, H. and Benton, W.C. (2007), “Supply chain practice and information sharing”, *Journal of Operations Management*, Vol. 25 No. 6, pp. 1348-1365.
- Zolait, A., Ibrahim, A., Chandran, V., Sundram, V., (2010). Supply chain integration: an empirical study on manufacturing industry in Malaysia. *Journal of Systems and Information Technology*, 12(3): 210 – 221.