

The influence of supply chain partners' integrations on organizational performance: The moderating role of trust

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ABSTRACT

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Supply chain management and integration have become more important business topics mainly addressed within the different businesses industries in order to influence the organizational performance. The current research study aims to investigate this effect by involving some key of supply chain partners on organizational performance. Also, the moderation role of trust as an influential aspect in the business was also studied in this work. To conduct this research and meet the stated research objective, a quantitative research method was used to collect data from food products manufacturers in Jordan due to the main contribution of this sector to the national economy of Jordan. PLS-SEM approach was selected in the phase of analysis and the findings revealed a significant effect of all hypothesized research assumptions and a significant moderating effect of trust on the relationship between supply chain partners' integration and organizational performance. The research findings also provided expected implications and supported the relevant evidence and literature in this area, as well it would contribute to cover the existing research knowledge gaps by integrating a new model including sets of new variables that have not been examined together within a single conceptual framework.

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1. Introduction

The topic of Supply Chain Management (SCM) widely has received more concern and increasingly research involvement of the current scholar works in light of the issue related to the strategic planning (Lee, Azmi, et al., 2022; Lee, Romzi, et al., 2022; Shamout et al, 2022). Today's organizations during the operations of the supply chain process show more attention and focus to sustain the business development and fierce competition (Sutduean et al., 2019; Alshurideh et al., 2022). Although the improvements and success have been done with the support of the SCM, many organizations overlooked the issues associated with the environment issues that may include global energy, global warming, logistics, and ecological aspects over this competition (Alshurideh et al., 2019; Piprani et al., 2020). The increasing supply chain concern over the last few decades has recently been involved within the management activities and regulations for business success (Chienwattanasook & Jermisittiparsert, 2018; Hamadneh et al., 2021). The companies become aware of this aspect to satisfy the stakeholder's obligations and wants and make more collaboration with the key members of the supply chain since the companies are also considered accountable and for their several parties e.g. customers and suppliers (Hervani et al., 2005). This would create urgency among the companies to incorporate with the different parties over the major activities to achieve a sustainable business performance (Joghee et al., 2021; Alshurideh, 2022).

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Achieving sustainable performance of an organization strives to meet greater levels of satisfaction for the most different logistic relationships with others. According to Chen & Yano (2010), establishing sustainable approaches in the business is the perfect method to achieve greater and sustainable performance. Initiating a constructive and innovative organizational culture is also one of the major constituents in the sustainability business process. Moreover, developing such a culture would result in improved organizational performance, thus assisting reaching optimal using the existing assets which in turn obtain good several organizational outcomes (Kim, 2006). These outcomes will assure the wholesalers, suppliers, and customers' satisfaction. The literature also indicated that due to the growing awareness of the role of supply chain integration and operational performance, the practitioners and researchers have presented keen interest in SCM integration as an important management approach to improve a sustainable organizational performance particularly among the firms (Mackelprang et al., 2014). SCM demands that all main phases should fulfill key stakeholders' expectations and satisfaction.

This would require the manufacturers to incorporate the supply chain integrations to employ the management activities with the customers and suppliers (Al Kurdi et al., 2020; Madi Odeh et al., 2021). However, from a business perspective, trust is an important factor, a lack of reliable communication and anonymity would create uncertainties which led to more perceived risks and privacy concerns. As supply chain adds uncertainty and risks to the transactions, the biggest concern for the suppliers, customers and wholesalers is incomplete information and distorted or improper behaviors in a marketplace (Sahay, 2003). However, the markets are untrustworthy and characterized with cheating is more likely to lead to business failure. The literature mentioned that over the uncertainties of supply chain activities, trust significantly influences organizational performance, since the factor of trust supports cooperative partners' relationships (Abdullah & Musa, 2014). Jordan is one of the rapidly growing Arab economies and the national economic operations are widely based on production and export. The concept of SCM has been lauded over many industries, although it is quite undeveloped to the kingdom of Jordan (Zhang & Huo, 2013). Meanwhile supply chain is playing a key role in determining an influence on organizations' performance in general. The current study is planned to answer the following questions. How does supply chain integration influence the organizational performance in Jordan? How does trust moderate the influence of supply chain integration on the organizational performance in Jordan?

2. Literature Review & Hypothesis Development

The interdependency recognition motivates the integration. In earlier times, the vertical integrated times concerned numerous functional fields in an organization to work together in order to meet strategic organizational goals. During the portion of the product's value that is partitioned to the different entities outside of the organizations, the organizations must integrate as much as their activities over the key partners and supply chain processes to effectively deliver the products to the marketplace (Lin, 2004). It could define the supplier integration as a status of syncretism amongst the suppliers, and constituents of the purchasing of the food products. Moreover, integration is a thematic focus from many studies that deal with supply chain management (Das et al., 2006). The rationales of the Transaction Cost Analysis TCA shape the arguments for a positive effect between supplier integration and performance. TCA however suggests that the companies can employ governance mechanisms to save their particular assets, and it classifies these mechanisms into two types: unilateral and bilateral (Tan et al., 1998). The bilateral links the groups through legal or powerful enforceable means without bridging the relational distance. Meanwhile, the bilateral approach improves the relational capital across the communicating parties by using social factors and interests (Kim, 2006). The relational ties could be generated by knowledge-based integration activities which provide flexibility and capability during the uncertain environments. The supplier integration is the focus of this work. It differs and distinguishes from the broader concepts of supply chain integration. Hence, the study would formulate the following hypothesis:

H₁: *Suppliers' integration has a positive effect on organizational performance.*

The wholesaling sector is continuously increasing with competition in logistics management and performance. This factor has also become essential for achieving a stable competitive edge for a business as stated in the literature which provides some empirical evidence (SAP, 2012). Management performance like service levels is thus essential. Integrating supply chain partners is one of the effective ways to improve both performance and competitiveness as stated by Mellat-Parast & Spillan (2014). Some general types of this integration are vertical integration which identify different types of supply chain integration. This study would focus on wholesalers' integration. Although there is no clear widely accepted definition of this type of integration, a conclusion is that concepts like supply chain partners integration has been jointly conducted and agreed upon or skipping duplicated actions are frequently included in the definitions of supply chain integration (Sandberg, 2013). On other hand, the performance is seen as a process in the relevant literature. It has also explored and classified supply chain integration forms between suppliers and wholesalers and customers alongside with the performance management which this consist of the processes such as selecting performance factors, defining the metrics, setting the objective and measuring and "analyzing different forms of supply chain integration processes (Papakiriakopoulos & Pramatar, 2010). Hence, the study would formulate the following hypothesis:

H₂: *Wholesalers' integration has a positive effect on organizational performance.*

Retailer performance is an achievement of the goals for a certain period of time. It also can determine the increasing competitiveness of retailers compared with others. Retailer integration of the supply chain was used as an indicator for

performance suggested by Ltifi & Gharbi (2015) which is the availability of the inventory and product information with no stock out or ease of shopping and purchases. The ease of returning the products to the retailers enhances the retailer performance which can measure the performance. Traditionally, this is determined by the prices of the products produced or the quality of the services provided, and the strategic locations of the retailers (Petljak et al., 2018). For instance, the businesses provide services to their retailer in order to improve the overall retailer performance. The services provided consist of some important terms such as efficient order processes, mismatched order rectification, promised lead time and deliveries consistency, speed of goods delivery before the due date (Piprani et al., 2020). Other important measurement items that can be used to evaluate the supply chain integration and performance at a retailer are low inventory and transportation costs, high labor costs, lower waste costs and more generated profits (Jie & Gengatharen, 2018). However, the literature suggested the measuring items of the retailer integration and performance called volumes and schedules flexibility, on-time deliveries and deliveries reliability or consistency. Gandhi et al. (2017) suggested another additional indicator to measure supply chain integration with performance at businesses namely forecasting and planning the material requirements with good accuracy; the companies have timely delivery of the commodities; reliable suppliers with appropriate delivery, and reliability. The companies can control the costs and supply chain knowledge. They also can have a fast response time with the right level of inventory (Bernon et al., 2013). Therefore, based on the above discussion, the study would postulate the following hypothesis:

H₃: *Retailers' integration has a positive effect on organizational performance.*

Customer integration is appropriate inherently for the services industry because a lot of services can't be provided without active contribution and participation of the customers over the marketplace. The general economic significance of the customer integration moreover is grown through more traditional products that oriented the companies to develop their business frameworks as well value market propositions to include services (Dohmen et al., 2012). Furthermore, the customer integration approach comprises more typical functions for the customers and they are known as customer roles. A lack of a critical evaluation of using the customers' roles in an industry. The customer integration is recognised with a positive effect on the companies, and other studies findings also report a reverse effect (Enkel et al., 2005). Using the customer integration and the effective methods to implement an approach enable the organizations to consider the possible effects of customers' roles on the organizational operations. This would also include consideration of whether positive or negative effects and consequences of the customer integration (Flynn et al., 2010). The positive effect of customer integration ultimately influences the customer relationship as well the efficiency and effectiveness of the business performance. Thus, the literature highlighted some key factors that are positively influenced by the integration of customers such as decrease the costs, increase customer satisfaction and market shares (Mackelprang et al., 2014). Accordingly, the study would postulate the following hypothesis:

H₄: *Customers' integration has a positive effect on organizational performance.*

The current study focuses on trust as it is predominantly responsible for the upstream activities of the supply chain integration and has considerable opportunity to communicate with the customers, suppliers, retailers, and wholesalers compared to other stakeholders within a company. The internal integration for instance happens when the companies structure their main activities, procedures, behaviours, and operations into an integrated process in order to fulfill customers and suppliers requirements (Moyano-Fuentes et al., 2016). However, the internal integration facilitates the product's demands and translates it into purchasing behaviors which improve production movements and order processes. Even though the scheduled orders and interaction or contacts, suppliers and wholesalers can exchange important information and performance feedback. The usage of the cross functional partners also enables the firms processes of purchasing and productions to make joint decisions (Li et al., 2006), so the internal integration contacts the functional activities as well facilitates the information flows. Thus, the internal integration is seen and identified as an essential approach that assists the companies to develop their capabilities. The concept of trust is defined as the extent to which the individuals are confident and willing to depend on others' words, actions and decisions (Huo, 2012). In the emotional attachments and the concerns of the welfare, the trust refers to the commitment and harmony among the internal integration processes which also reflects an appreciation of other's roles and compatibility with the companies. In the same setting, the internal trust also indicates goodwill which also creates a base for reliability. According to the discussion above, the study would postulate the following hypotheses:

H₅: *Trust moderates the influence of suppliers' integration on organizational performance.*

H₆: *Trust moderates the influence of wholesalers' integration on organizational performance.*

Lamb & Hair (2011) stated that customer integration is a capability that enables the organizations to provide distinctive and value-added to the customers and it also represents the good value for the supply chain integration. As well, Chavez et al. (2015) mentioned in general the customer integration is related to sets of collaborative activities like frequent contacts with the customers. Also the collaboration forms and both internal and external partnership could formulate effective strategies, practices and partners for the organizations within collaborative and synchronized processes including customers. Customer integration can explain in the supply chain the companies that they have a framework for particular needs and requirements in order to serve the key partners e.g. customers. To obtain important information from these partners like purchasing transactions, this would integrate the customers' preferences consuming ability in the decision making to purchase products

(Lotfi et al., 2013). The companies' collaboration with the key partners e.g retailers or customers indicates excellent response which means a very efficient way to achieve business targets. The literature findings associated with the customer integration is significantly connected with other partners' integration e.g suppliers so the coordination between partners ultimately affects the organization performance (Lau et al., 2010). On other hand, the concept of trust is more significant in collaborative relationships due to its key role in building long sustainable communication and cooperation while dealing with critical issues and problems solving that arise in this relationship (Zhang et al., 2018). The parties in the supply chain processes who have mutual trust in a partner company will show higher integrity. Building a trust needs to show that the company should rely on its major activities and operations and they should be consistent to achieve the promised performance. As an essential factor, trust in the process of building a supply chain integration contributes in reducing the uncertainties (Marlin & Dwiyanto, 2017), the principle of the companies and giving priorities to the customers or other partners can generate profits and enhance the products/services quality. Relatively, the stable and affordable prices and credibility are crucial in establishing trusted and long-term relationships and commitment resulting from effective communication and cooperation. According to the discussion above, the study would postulate the following hypotheses:

H7: *Trust moderates the influence of retailers' integration on organizational performance.*

H8: *Trust moderates the influence of customers' integration on organizational performance.*

3. Method

The current research has used a quantitative method study to achieve the research stated major objectives. It is also interesting to address and examine the sample perspectives of the supply chain integration towards organizational performance with moderating roles of trust, thus this method is appropriate for this research work. Accordingly, the provided prior discussions and related literature motivate this study to propose a conceptual model as illustrated in Fig. 1, which presents sets of the hypothesized effects. The model also illustrates the independent construct (supply chain integration with four sub-variable) which is assumed to have a significant effect and can predict the dependent variable (organizational performance). Moreover, trust is postulated to significantly moderate the supply chain integration of on organizational performance. The research sample included the various customers and suppliers of the food sector in Jordan. As a result of the essential role supply chain practices over all businesses and the interests of all partners need to show more trust during these practices to continue the relationship with the key suppliers. The study used a convenience sampling method to collect data since this approach makes this research more easily to reach out the target sample as well the numbers of sample is not finite (Etikan & Bala, 2017).

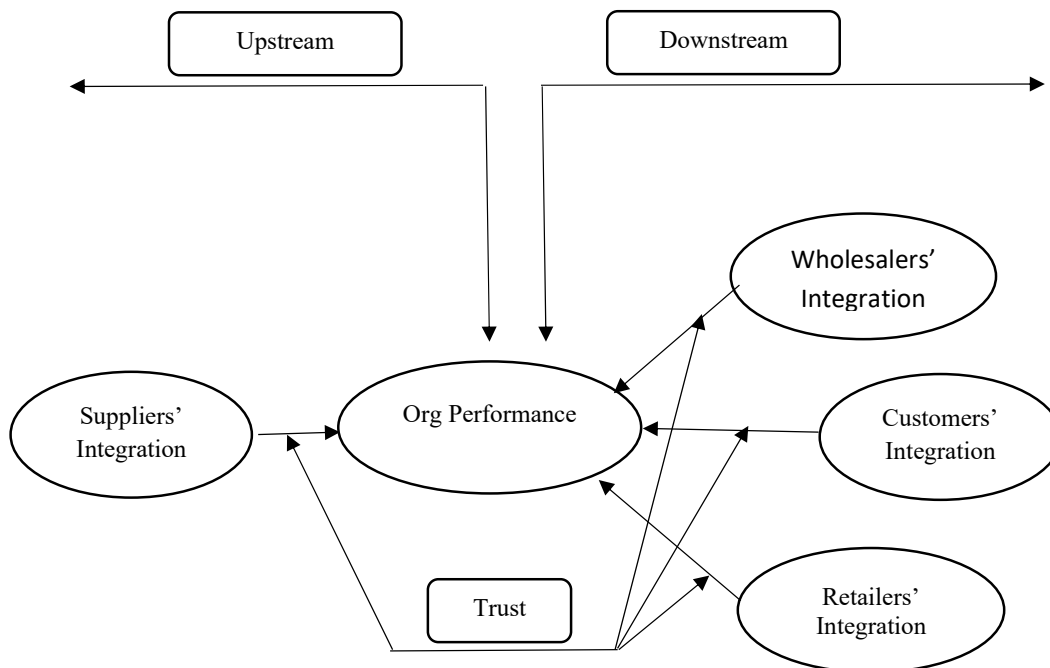


Fig. 1. Research Conceptual Model

The study also involves the suitable participants in this study that obviously represent different backgrounds of the sample which enables them to obtain many different and diverse perspectives to enrich the study findings. The current study has also used a survey questionnaire approach that has been established based on the previous studies and literature as well it has been distributed to the target participants after the measuring items and content was validated and screened from a panel of professional and academicians in this field. The research considered the feedback of the examiners of the instrument and

made some modifications to make some items more understandable. The frame time of data collection was extended for a couple of weeks, and a total of 411 responses were involved for further analysis.

The measurements of the supply chain integration were measured using four dimensions namely: suppliers' integration, customers; integration, wholesalers' integration and retailers' integration. All factors were measured by adopting and adapting measurements that existed in the related literature. With using a five-point Likert scale which ranked as (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree) the research has scaled the measurements and the sample was asked to indicate their level of agreement or disagreement with the stated measuring items in the research instrument. Furthermore, the research has utilized the approach of Partial Least Squares Structural Equation Modeling (PLS-SEM) by using a software of SmartPLS3 in order to conduct some key statistical analyses and procedures. The justification of using this method relies on the benefits provided through utilizing this approach and the important outputs given from this analysis.

This approach can also provide sets of advantages that enable the researchers to analyze several main variables at once as well as manage the complicated frameworks within both main and sub-constructs. The empirical studies often suggested and recommended involving this analysis mainly in the business studies due to the validity and reliability tests could be provided from this program. The evidence has supported the trends of supply chain management studies avenues while comparing this analysis with the traditional basic and analytical processes which generally depend on the single-variable study frameworks with less effective ways of the analysis processes (Hair et al., 2019). Further, the PLS-SEM technique also provides sets of unique validity and reliability tests which assist the research to investigate the critical aspects of the factors or variables which indicate the ability of the measurements to measure these variables. However, the study provided and examined two main types of models namely measurement model and structural model, the measurement model used in this study in order to validate the model as well test the reliability through diverse validities called convergent and discriminant, meanwhile the structural model was used to test the hypothesized research model (Memon et al., 2021).

4. Results

The current study results have been presented by using a program called Partial Least Squares (PLS-SEM) that widely suggested and recommended in the most empirical studies, since it enable the studies to offer several essential statistical outputs that also could help a study to provide clear perspectives about the research findings. Thus, the study has suggested this analysis due to the ability to give clear good views of the data analysis, procedures as well measurements validation (Sarstedt et al., 2016). Furthermore, this research work has selected this method in order to examine also the moderation role of trust which can be tested by using this analysis to be more obvious while making a decision whether or not to support the hypothesized model. Conducting the analysis by using the PLS-SEM in the current research study also could enable good handling with the complicated issues associated with the process analyzing the proposed conceptual framework with numerous different constructs (Hair Jr. et al., 2017). Also, the justification behind applying the analysis by this approach is associated with the ability to carry out sets of tests for the research model with many options, for example using the bootstrapping approach to support the research objectives. In general, this approach has two types of models that are largely used over the analysis namely measurement and structural model which are presented in the next sections.

4.1 Measurement model assessment

The assessment procedures and processes of the model measurement initially require examining the main requirements that link to the indicators validation for the used measurements to ensure their capabilities to measure the respective variables. The main tests of this assessment include conducting some critical tests as stated and suggested by (Hair Jr. et al., 2017). For instance, the factor loadings for the indicators for the involved variables indicate the capacity of these indicators to measure the target factors. In addition, the indicators are also required to be tested through checking their reliability using a calculation by a common approach largely utilized in this analysis namely Average Variance Extracted AVE, Composite Reliability CR as well Cronbach's Alpha. This approach on other hand enables the research to provide some key procedures important to be addressed and checked to know how these indicators are reliable (Afthanorhan et al., 2020). Providing the variables reliability also refers to the important aspects of the analysis of the study model and its validity which is often called internal consistency. To run and conduct this test, the study carries out this type of analysis in order to check the reliability issues using the outputs of the PLS-SEM known with Average Variance Extracted AVE and Composite Reliability (CR). Table 1 provides these outputs that they mostly achieved a satisfactory level and exceed the minimum cut-offs. For instance, a type of validity namely convergent was calculated by both AVE and CR and the results revealed great outputs of the measurement model. The findings also indicated acceptable ranges of >0.50 and >0.60 respectively of the convergent validity (Fornell & Larcker, 1981). However, the results of the measurement model for this study also generally supported all proposed assumptions and asserted the constructs' reliability as well validity. The first initial run of the measurement model indicated no poor lower factor loadings indicators (<0.70) which this issue may influence the results, so the study accepted all indicators since mostly they met great factor loadings (>0.70).

The existing research work has also been checked using different types of important types of validity namely discriminant validity which is mostly used to evaluate and check the issues related to the high interrelationship between the respective

latent variables. Henseler et al. (2015) suggested that a procedure utilized in this way in order to check this validity through the approach of cross-loadings.

Table 1
Descriptive Statistics, Validity, & Reliability

Constructs	Items	Mean	SD	FL	VIF	CR	Alpha	AVE
Supplier integration	Q1	3.95	1.09	0.87	2.32	0.89	0.85	0.68
	Q2	3.83	1.08	0.80	1.80			
	Q3	3.82	1.16	0.83	1.93			
	Q4	3.95	1.13	0.80	2.78			
Wholesaler integration	Q5	3.85	1.21	0.82	1.99	0.89	0.84	0.68
	Q6	4.09	1.03	0.81	1.21			
	Q7	3.99	1.05	0.83	1.36			
	Q8	3.91	1.11	0.83	1.23			
Retailer integration	Q9	3.87	1.14	0.84	1.19	0.90	0.86	0.70
	Q10	3.90	1.14	0.85	2.04			
	Q11	3.80	1.18	0.84	2.12			
	Q12	3.77	1.16	0.82	2.10			
Customer integration	Q13	3.83	1.10	0.83	2.06	0.91	0.87	0.73
	Q14	3.90	1.07	0.86	2.37			
	Q15	3.88	1.14	0.84	2.10			
	Q16	3.89	1.18	0.86	2.37			
Trust	Q17	3.82	1.16	0.84	2.59	0.93	0.91	0.69
	Q18	3.90	1.14	0.84	2.80			
	Q19	3.90	1.18	0.82	2.55			
	Q20	3.76	1.20	0.85	2.80			
	Q21	3.91	1.22	0.85	2.48			
	Q22	3.83	1.21	0.78	1.93			
Organizational performance	Q23	3.77	1.18	0.85	3.04	0.93	0.91	0.70
	Q24	3.81	1.10	0.84	2.64			
	Q25	3.87	1.19	0.85	3.04			
	Q26	3.94	1.14	0.76	1.87			
	Q27	3.91	1.22	0.89	3.52			
	Q28	3.83	1.21	0.80	2.18			

FL: Factor loading; SD: Standard deviation; VIF: Variance inflation factor

Moreover, this study has provided the important outputs of this analysis like Fornell-Larcker and Heterotrait-Monotrait (HTMT) that mostly indicate the variable correlations as presented in Table 2 and Table 3. The gained results were calculated by using the square root the AVE and mostly they illustrated in a bold off-diagonal cell and they indicated greater than the constructs' correlations itself (Fornell & Larcker, 1981). Hence, the measurement model asserted good findings of the discriminant validity, further the current study has involved another important analysis procedure to assess the discriminant validity by using the HTMT approach. The results were presented in Table 3 and showed that the HTMT met a good threshold of (≤ 0.90). so, this fulfills this key analysis of the discriminant validity of HTMT ≤ 0.90 (Kline, 2015), and meets satisfactory indications of this validity for all study constructs.

Table 2
Fornell-Larcker Criterion

Variables	1	2	3	4	5	6
1 Customer integration	0.854					
2 Organizational performance	0.832	0.839				
3 Retailer integration	0.825	0.826	0.841			
4 Supplier integration	0.745	0.779	0.779	0.830		
5 Trust	0.837	0.811	0.829	0.779	0.835	
6 Wholesaler integration	0.780	0.792	0.801	0.814	0.776	0.827

Table 3
Heterotrait-Monotrait (HTMT) Ratio

Variables	1	2	3	4	5	6
1 Customer integration						
2 Organizational performance	0.829					
3 Retailer integration	0.883	0.852				
4 Supplier integration	0.864	0.833	0.812			
5 Trust	0.757	0.784	0.778	0.882		
6 Wholesaler integration	0.704	0.698	0.638	0.796	0.875	

4.2 Structural model assessment

The further next step of this analysis using PLS-SEM is testing the structural model after assessing the overall measurement model. The procedures of structural model assessment is generally suggested and recommended over many scholarly works in order to test the research hypotheses. Hair et al. (2017) stated some important and critical analytical processes that are largely used to get the key results as well evaluate how the research model goodness is. The current study also depends on the main identified results mainly used in this analysis to provide a clear review of this analysis that they include path estimates, corresponding t-value and p-value that importantly involved in the study to represent the result of the structural model through the approach of bootstrapping as shown in Fig. 2. The provided direct effects results given in Table 4 revealed that the most of supply chain integration (supplier integration, wholesaler integration, retailer integration and customer integration) had a significant influence on organizational performance ($p < 0.05$), so the presented research results have supported all study hypotheses. On other hand, the results of the moderation effect of trust on the influence of supply chain integration on the organizational performance revealed a significant role of the trust as a moderator, so H₅, H₆, H₇, and H₈ were also supported ($p < 0.05$).

Table 4
Hypotheses Testing

Hypotheses		Beta	T-value	P-value	Result
H ₁	Supplier integration → organizational performance	0.168	2.600	0.010	Supported
H ₂	Wholesaler integration → organizational performance	0.131	2.768	0.008	Supported
H ₃	Retailer integration → organizational performance	0.348	5.911	0.000	Supported
H ₄	Customer integration → organizational performance	0.307	4.234	0.000	Supported
H ₅	Supplier integration → trust → organizational performance	0.147	3.659	0.000	Supported
H ₆	Wholesaler integration → trust → organizational performance	0.163	4.248	0.000	Supported
H ₇	Retailer integration → trust → organizational performance	0.100	2.028	0.043	Supported
H ₈	Customer integration → trust → organizational performance	0.122	2.620	0.009	Supported
R ² for organizational performance				0.854	
Q ² for organizational performance				0.594	

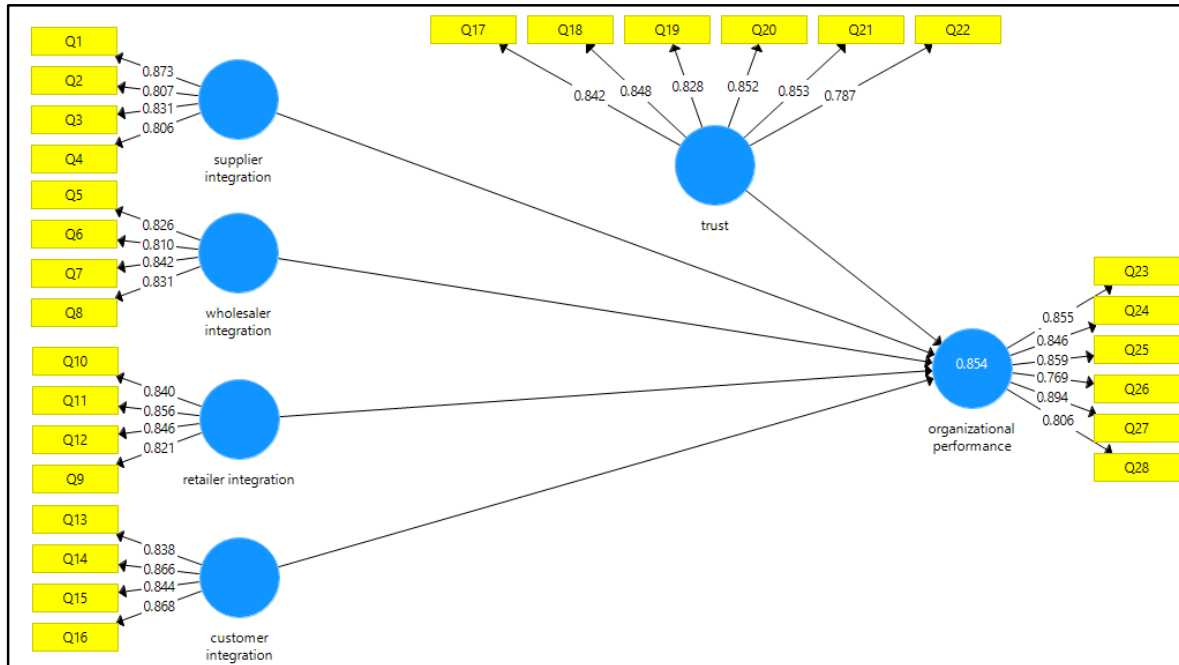


Fig. 2. Structural Research Model

Hair et al. (2017) stated that a critical important test should be also checked in the study linked with the variance explained at the dependent called coefficient of determination which symbol (R^2) also the cross-validated redundancy (Q^2) that significantly to be assessed and indicated to evaluate the quality of model of prediction. The results of the structural model explained 85.4% of the variance in organizational performance. Because the results had ranged from 0 to 1, the structural model data also confirmed a good explanatory power (Shmueli et al., 2019). In addition, to confirm the model goodness of

the predictability, the current research examined the predictive value of Q^2 of the dependent (endogenous) construct which should be more than zero to assert this analysis, finding this test as given in Table 4 supported this assumption with a level with more than zero.

5. Discussion

This study offers a significant contribution to the topic of supply chain integration literature and the results provided some insightful implications for better understanding at both theory and practice. The results contribute to the supply chain theory for example through empirically examining the model that suggested association between supply chain partners integration and the organizational performance through a moderating role of the trust. The study further enables the current trends of this issue through the findings that could contribute to the current knowledge and research that empirically test the consistent findings on the previous stated association (Kim, 2006; Tan et al., 1998). This research study also extends the theory of supply chain management by asserting the multi-dimensional factors linked to the supply chain variable which empirically confirmed some different effects of numerous dimensions on different supply chain integration as well organizational performance (Mackelprang et al., 2014). The study findings confirmed some prior works (e.g Moyano-Fuentes et al., 2016) that revealed the dimensions of the supply chain process integration have a differential effect on the different organizational outcome.

This research work has also extended the others' study and confirmed the moderating role of trust on the interrelationships between supply chain integration and the organizational performance. In addition, the research study also extended the applications of the dynamic capabilities as a base theoretical framework in order to explain the ability to share the key resources across within the supply chain integration process as facilitator of the integration process that also can establish dynamic capabilities which in turn improve the organizational performance. In terms of supporting the current understanding of this issue, the study adds and contributes to the literature of supply chain management in another fold, for example it has identified and tested the role of trust factor in facilitating the supply chain partners' integration, thereby offering new evidence of reasons that the organizations need to take a recognition of the particular dimensions when the integration processes with the supply chain partners. The findings on other hand are in line with the prior works findings and confirmed customer, supplier, wholesaler, and retailers' integration as key dimensions of the supply chain process integration.

Furthermore, the results provided and identified four moderating paths of the trust while examining the moderating role of trust, and the findings supported generally these effects and testing their effects in the supply chain integration which this also extended the trust literature and pointed out the urgent need for more empirical works to focus on the role of different dimensions in the supply chain integration. However, the identification of the significant effects and association between supply chain integration obviously point to the need of the supply chain scholars to give more focus and emphasize on different non-technical or operational factors and involve within more proper original theoretical models and theories to explain clearly this relationship and identify hidden gaps in the current research scope. The findings further showed different perceptions towards the factors would be more influential among the supply chain integration and this expanded the topic implications for this concept and suggests for the academics and practitioners to show more considerable attention to identify unique factors e.g technical, operational or even cultural that main influence the supply chain integration. It would infer from the results that given dynamic characteristics like trust can moderate the association between supply chain integration and organizational performance, their need for the supply chain managers and practitioners would increase the understanding of the views about supply chain integration as a strategic process towards favorable performance outcomes.

The discussions given based on the results of this study at the organizational level refer to the concept of trust which indicates the extent to which the organization's management has a collective handled trust orientation toward the partners of the food producers. This concept is regarded as salient factors and has more significance for the success of the supply chain relationship. The inter organizational exchanges, the trust would create a good environment where the organizations struggle to exceed the minimum needs and requirements of the key relationship among the partners to increase the mutual benefits for all partners. The need for examining trust factors with other factors refer to the need to consider the importance of this construct and its role to enhance long term strategic relations with the effective partners e.g. customers, suppliers. This study comes from the increasing research interests that mainly regard the inter-organizational trust creates desirable outcomes. Despite the existence of some evidence of the relationship between firms' trust and direct/indirect effects or outcomes have proven a variety of research scopes and focused the connections with interesting findings, there is a lack in this topic to be fulfilled in the future with integrated the trust and supply chain in a new original research framework. In general, the inter-organizations trust has been presented to less business transaction costs and times cycling within planned supply chain integration with vital partners, and this would improve the capacity of the supply chain responsiveness and equally implement agile supply chain integration process that required to increase the trust levels between organizations in different numbers of industries.

6. Implications

From a theoretical perspective, the current study has proposed and conceptualized some unique different groups of constructs of a modern topic of supply chain integration effect within an integrated research model through a different important developing context in order to address the RBV theory and application in the setting of supply chain integration and performance. The discussion of this research as well the provided debates and evidence within this work in terms of business changes has been incorporated toward the different business aspects. The modern organizations' managers through the current study results would benefit from the critical perceptions and concerns with the importance of supply chain trust over the organizational performance as a business success feature to achieve greater organizational outcomes not only the overall performance but also extended into other aspects. However, the study supported the previously evidenced discussions presented in the literature associated with this topic which addressed the role of trust of supply chain integration on organizational performance. This work has also further supported the significant effects of all forms of the supply chain integration on the organizational performance in the food sector in Jordan as well supported the role of trust as a moderator in this relationship.

At the practical perspectives and implication, the study results found that the trust would support the model of the organizational performance in the field of supply chain management, the significant supply chain practices and operations would also support some critical issues enhance the organizational positive issues which this requires from the top management to focus more and handle effectively the interrelated organizational activities over the modern marketplace. The research thought the suggested model also helped the practitioners and supply chain managers to understand several forms of the supply chain integration and the requirements to adopt numerous trust activities with the key partners e.g. customer, supplier...etc. For example, the products with high trusted supply chain integration mainly need more focus and grasp of this issue to ensure successful practices for the supply chain integration in order to target the key partners. A sufficient handling of this topic indeed requires wide adoption with the emerging changes in the supply chain partners preferences to effectively maintain good outcomes of supply chain integration. The companies should perceive the significant role of trust and engage within these characteristics for greater business outcomes.

7. Conclusion

The research has mainly met and achieved the stated previously aims and identify the role of supply chain integration on organizational performance with moderating effect of trust. The main findings revealed all aspects of the supply chain integration had a significant effect with the organizational performance. A subsequent moderating analysis also showed that the trust moderated all supply chain integration on organizational performance. However, the relevance of trust had also a significant value of the beta coefficient on organizational performance. Based on study findings, it is important for the supply chain management and managers to consider and show more focus on their key partners of the suppliers, customers and wholesalers through trusted communication that can improve their performance. The companies can also diversify the forms of the trust to ensure greater effects and influence their partners' experiences since the trust has an outstanding role to shape these partners perceptions and attitude. The extending of the understanding of this issue would also support the organizational operations to improve the overall performance and integration of new activities to be involved within non-untraditional business operations which in turn lead to desirable business outcomes. Moreover, while conducting this paper, the research pursues to stand and in line with the previous results as well match with their findings through deep discussions and evidence.

The study implications for supply chain management practices for this study propose to well perceive the partners' profiles on the supply chain integration and the ways that these partners build their trust. Today's supply chain management practices have different influential effects, and their impact capacities growingly change the suppliers and customers and other partners. Through the previous level of trust of the supply chain integration, the companies can incorporate confident relationships and contact with these partners and show them adequate confidence in the business transactions. The recommendation for supply chain managers is linked generally with the variety of the forms of the integration and trust aspects to impact these partners integration and integration within adequate levels of trust. The future research recommendations would suggest some potential research that importantly increases the understanding of the topic of supply chain integration and its relationship with organizations' operations. Also the future studies may contrast this analysis finding with their new results as well identify some possible variations. A future analysis can be conducted by using different context for a wide explanation of this topic. On other hand, the study limitations also restrict the aspect of research generalizability of the results to different context and sector, as well this limit the suggested constructs being discussed and analyzed in this research and examine the interrelationships between sets of variables over single research scope.

References

- Abdullah, Z., & Musa, R. (2014). The effect of trust and information sharing on relationship commitment in supply chain management. *Procedia-Social and Behavioral Sciences*, 130, 266–272.
- Afthanorhan, A., Awang, Z., & Aimran, N. (2020). An extensive comparison of CB-SEM and PLS-SEM for reliability and

- validity. *International Journal of Data and Network Science*, 4(4), 357–364.
- Al Kurdi, B., Alshurideh, M., & Al afaishata, T. (2020). Employee retention and organizational performance: Evidence from banking industry. *Management Science Letters*, 10(16), 3981–3990.
- Alshurideh, M. (2022). Does electronic customer relationship management (E-CRM) affect service quality at private hospitals in Jordan? *Uncertain Supply Chain Management*, 10(2), 325–332.
- AlShurideh, M., Alsharari, N. M., & Al Kurdi, B. (2019). Supply Chain Integration and Customer Relationship Management in the Airline Logistics. *Theoretical Economics Letters*, 9(02), 392–414.
- Alshurideh, M. T., Al Kurdi, B., Alzoubi, H. M., Ghazal, T. M., Said, R. A., AlHamad, A. Q., Hamadneh, S., Sahawneh, N., & Al-kassem, A. H. (2022). Fuzzy assisted human resource management for supply chain management issues. *Annals of Operations Research*, 1–19.
- Bernon, M., Upperton, J., Bastl, M., & Cullen, J. (2013). An exploration of supply chain integration in the retail product returns process. *International Journal of Physical Distribution & Logistics Management*, 43(7), 586–608.
- Chavez, R., Yu, W., Gimenez, C., Fynes, B., & Wiengarten, F. (2015). Customer integration and operational performance: The mediating role of information quality. *Decision Support Systems*, 80, 83–95.
- Chen, F. Y., & Yano, C. A. (2010). Improving supply chain performance and managing risk under weather-related demand uncertainty. *Management Science*, 56(8), 1380–1397.
- Chienwattanasook, K., & Jermstittiparsert, K. (2018). Supply chain integration, supply chain risk practices and supply chain performance: a contingent view. *Opcion*, 34(86), 2160–2177.
- Das, A., Narasimhan, R., & Talluri, S. (2006). Supplier integration—finding an optimal configuration. *Journal of Operations Management*, 24(5), 563–582.
- Dohmen, P., Kryvinska, N., & Strauss, C. (2012). “SD Logic” Business Model-Backward and Contemporary Perspectives. *International Conference on Exploring Services Science*, 140–154.
- Enkel, E., Kausch, C., & Gassmann, O. (2005). Managing the risk of customer integration. *European Management Journal*, 23(2), 203–213.
- Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6), 215–217.
- Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, 28(1), 58–71.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39–50.
- Gandhi, A. V., Shaikh, A., & Sheorey, P. A. (2017). Impact of supply chain management practices on firm performance: Empirical evidence from a developing country. *International Journal of Retail & Distribution Management*, 45(4), 366–384.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to Use and How to Report the Results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated Guidelines on Which Method to Use. *International Journal of Multivariate Data Analysis*, 1(2), 107–123. <https://doi.org/10.1504/ijmda.2017.10008574>
- Hamadneh, S., Pedersen, O., & Al Kurdi, B. (2021). An Investigation of the Role of Supply Chain Visibility into the Scottish Bood Supply Chain. *Journal of Legal, Ethical and Regulatory Issues*, 24(Special Issue 1), 1–12.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Hervani, A. A., Helms, M. M., & Sarkis, J. (2005). Performance measurement for green supply chain management. *Benchmarking: An International Journal*, 12(4), 330–353.
- Huo, B. (2012). The impact of supply chain integration on company performance: an organizational capability perspective. *Supply Chain Management: An International Journal*, 17(6), 596–610.
- Jie, F., & Gengatharen, D. (2018). Australian food retail supply chain analysis. *Business Process Management Journal*, 25(2), 271–287.
- Joghee, S., Alzoubi, H. M., Alshurideh, M., & Al Kurdi, B. (2021). The Role of Business Intelligence Systems on Green Supply Chain Management: Empirical Analysis of FMCG in the UAE. *The International Conference on Artificial Intelligence and Computer Vision*, 539–552.
- Kim, S. W. (2006). Effects of supply chain management practices, integration and competition capability on performance. *Supply Chain Management: An International Journal*, 11(3), 241–245.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
- Lamb, C. W., & Hair, J. F. (2011). JR., and Carl McDaniel. *Marketing. 11th Ed. Mason, OH: South-Western Cengage Learning*.
- Lau, A. K. W., Tang, E., & Yam, R. C. M. (2010). Effects of supplier and customer integration on product innovation and performance: Empirical evidence in Hong Kong manufacturers. *Journal of Product Innovation Management*, 27(5), 761–777.
- Lee, K., Azmi, N., Hanaysha, J. R., & Alzoubi, H. M. (2022). The effect of digital supply chain on organizational performance: An empirical study in Malaysia manufacturing industry. *Uncertain Supply Chain Management*, 10(2), 495–510.

- Lee, K., Romzi, P., Hanaysha, J., Alzoubi, H., & Alshurideh, M. (2022). Investigating the impact of benefits and challenges of IOT adoption on supply chain performance and organizational performance: An empirical study in Malaysia. *Uncertain Supply Chain Management*, 10(2), 537–550.
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., & Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *The International Journal of Management Science*, 34(2), 107–124. <https://doi.org/10.1016/j.omega.2004.08.002>
- Lin, B.-W. (2004). Original equipment manufacturers (OEM) manufacturing strategy for network innovation agility: the case of Taiwanese manufacturing networks. *International Journal of Production Research*, 42(5), 943–957.
- Lotfi, Z., Sahran, S., & Mukhtar, M. (2013). A product quality—Supply chain integration framework. *Journal of Applied Sciences*, 13, 36–48.
- Ltifi, M., & Gharbi, J. (2015). The effect of logistics performance in retail store on the happiness and satisfaction of consumers. *Procedia Economics and Finance*, 23, 1347–1353.
- Mackelprang, A. W., Robinson, J. L., Bernardes, E., & Webb, G. S. (2014). The relationship between strategic supply chain integration and performance: a meta-analytic evaluation and implications for supply chain management research. *Journal of Business Logistics*, 35(1), 71–96.
- Madi Odeh, R. B. S., Obeidat, B. Y., Jaradat, M. O., Masa'deh, R., & Alshurideh, M. T. (2021). The transformational leadership role in achieving organizational resilience through adaptive cultures: the case of Dubai service sector. *International Journal of Productivity and Performance Management*. <https://doi.org/10.1108/IJPPM-02-2021-0093>
- Marlin, A., & Dwiyanto, B. M. (2017). ANALISIS PENGARUH LONG-TERM RELATIONSHIP, INFORMATION SHARING, TRUST, DAN PROCESS INTEGRATION, TERHADAP KINERJA SUPPLY CHAIN MANAGEMENT (Studi Pada Industri Knalpot di Purbalingga). *Diponegoro Journal of Management*, 6(4), 46–57.
- Mellat-Parast, M., & Spillan, J. E. (2014). Logistics and supply chain process integration as a source of competitive advantage: An empirical analysis. *The International Journal of Logistics Management*, 25(2), 289–314.
- Memon, M. A., Ramayah, T., Cheah, J. H., Ting, H., Chuah, F., & Cham, T. H. (2021). PLS-SEM statistical programs: a review. *Journal of Applied Structural Equation Modeling*, 5(1), 1–14.
- Moyano-Fuentes, J., Sacristán-Díaz, M., & Garrido-Vega, P. (2016). Improving supply chain responsiveness through advanced manufacturing technology: the mediating role of internal and external integration. *Production Planning & Control*, 27(9), 686–697.
- Papakiriakopoulos, D., & Pramatari, K. (2010). Collaborative performance measurement in supply chain. *Industrial Management & Data Systems*, 110(9), 1297–1318.
- Petljak, K., Zulauf, K., Štulec, I., Seuring, S., & Wagner, R. (2018). Green supply chain management in food retailing: survey-based evidence in Croatia. *Supply Chain Management: An International Journal*, 23(1), 1–15.
- Piprani, A. Z., Mohezar, S., & Jaafar, N. I. (2020). Supply chain integration and supply chain performance: The mediating role of supply chain resilience. *International Journal of Supply Chain Management*, 9(3), 58–73.
- Sahay, B. S. (2003). Understanding trust in supply chain relationships. *Industrial Management & Data Systems*, 103(8), 553–563.
- Sandberg, E. (2013). Understanding logistics-based competition in retail—a business model approach. *International Journal of Retail & Distribution Management*, 41(3), 176–188.
- SAP. (2012). “Setting the standard for supply chain performance”, white paper.
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, 69(10), 3998–4010.
- Shamout, Rabeb Ben-Abdallah, Muhammad Alshurideh, H. A. (2022). A conceptual model for the adoption of autonomous robots in supply chain and logistics industry. *Uncertain Supply Chain Management*, 10, 1–16.
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322–2347.
- Sutduean, J., Prianto, A., & Jermstittiparsert, K. (2019). The moderating role of marketing communications in the relationship between supply chain integrations and supply chain performance. *International Journal of Innovation, Creativity and Change*, 5(2), 193–210.
- Tan, K.-C., Kannan, V. R., & Handfield, R. B. (1998). Supply chain management: supplier performance and firm performance. *International Journal of Purchasing & Materials Management*, 34(3), 1–23.
- Zhang, M., & Huo, B. (2013). The impact of dependence and trust on supply chain integration. *International Journal of Physical Distribution & Logistics Management*, 43(7), 544–563.
- Zhang, M., Lettice, F., Chan, H. K., & Nguyen, H. T. (2018). Supplier integration and firm performance: the moderating effects of internal integration and trust. *Production Planning & Control*, 29(10), 802–813.



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