Information Sciences Letters
An International Journal

http://dx.doi.org/10.18576/isl/120351

Supply Chain Management and Organizational Performance: The Moderating Effect of Supply Chain Complexity

Osama Mohammad Al-Rawashdeh[1], Omar Jawabreh[2] and Basel J. A. Ali [3,]*

[1] Department of Hotel Management and Tourism Science, Aqaba University College, Al-Balqa Applied University, Salt, Jordan
[2] Department of Hotel Management, Faculty of Tourism and Hospitality, University of Jordan, Aqaba Branch, Amman, Jordan
[3] Accounting and Finance Department, Applied Science University, Kingdom of Bahrain

Received: 21 Sep. 2022, Revised: 22 Nov. 2022, Accepted: 24 Dec. 2022.
Published online: 1 Mar. 2023.

Abstract: This study investigates the relationship between various factors in supply chain management (customer relationship, level of information, sharing postponement, sharing quality of information, and strategic supplier partnership) and their impact on organizational performance. This research relies on primary data collected through the use of questionnaires. The research will concentrate on Jordan's tourist industry. Only 261 were approved and examined using SmartPLS.The results of the study indicate that sharing postponement, sharing quality of information, and strategic supplier partnership have a strong positive impact on organizational performance. However, the relationship between customer relationship and organizational performance is not statistically significant. The relationship between level of information and organizational performance is statistically significant. These findings suggest that organizations can improve their performance by implementing strategies to manage and optimize these factors in their supply chain. This study also evidenced that Supply Chain Complexity as moderator helps increase organiizational performance by interacting with Strategic Supplier Partnership, Level of Information, Sharing Quality of Information, Sharing Postponement. However, it should be noted that there is some inconsistency in the results compared to previous studies, and the relationship between these factors and organizational performance is still not fully understood. This highlights the need for further research in this area to gain a better understanding of how these factors impact organizational performance.

Keywords: Organizational performance (OP), Supply chain management (SCM), customer relationship (CR), level of information (LI), sharing postponement (SP), sharing quality of information (SQI), and strategic supplier partnership (SSP).

1 Introduction

Supply Chain Management (SCM) methods are becoming more vital for firms across all industries in order to compete [1]. SCM principles are critical in the tourist sector for regulating the flow of products and services that sustain the business [2]. However, the supply chain (SC) complexity may have a considerable influence on organizational performance (OP) [3]. Jordan's tourist industry is a big contributor to the country's economy, and good supply chain complexity management is critical for the sector's performance [4-7]. The function of supply chain complexity in regulating the link between SCM practices and OP in Jordan's tourist sector is a significant topic of study that may give vital insights into how firms can enhance their performance in this market. Today, we are seeing unprecedented levels of worldwide trade and commerce, ongoing technical innovation, and rapidly evolving customer expectations [8-10]. The finest SC strategies of today need a demand-driven operating model capable of uniting all people, processes, and technology around well-integrated capabilities to provide goods and services with unprecedented speed and precision. The Internet, technical improvements, and the enormous rise of a demand-driven global economy have all changed all of these expectations [11-13]. Today's SC is no longer a straight line. Instead, they are ever-changing assemblages of unconnected networks that are always accessible. Customers are waiting for their orders to be filled when and how they want them at the core of these networks. Although SCM systems have always been critical to every business, they are now much more significant as a performance indicator [1]. In today's volatile and ever-changing business climate, the

*Corresponding author e-mail: basel.ali@asu.edu.bh

only organizations that can survive and thrive are those that are tech-driven and adept at controlling their supply chains [14]. Because the contemporary SC is larger, deeper, and always changing, it must be adaptive in order to be effective. To suit the expectations of companies and their customers, supply chains used to construct an integrated model that was mainly unaffected by change [15]. Customers may now purchase products in a number of ways, including in-person, online, and more. Furthermore, customers want greater levels of personalisation. As a result, SC resilience may meet these requirements.

Furthermore, SC sourcing has evolved to be quite versatile. Changes in the economy, for example, may have a substantial influence on the industrial SC [16]. If a company need aluminum but is unable to get it due to a trade policy imposed by a single supplier, it must be able to find another source. To properly handle this kind of circumstance, your SC must be able to be modified quickly. Flexibility is required to achieve these sorts of real-time reconfigurations [17-19]. The challenges you face in the SC go beyond cost containment and efficiency. Changing circumstances may also have an influence on regulatory compliance [8, 11, 20, 21]. As a result, the SCMsystem must be adaptive enough to minimize any consequences caused by SC changes, such as changes in regulatory requirements. An intelligent SCMsystem helps enhance production and save costs while maintaining compliance with a variety of continuously changing regulatory standards [1, 22].

The importance of SCM in the hotel industry cannot be emphasized. It is an essential component of the hotel industry. SCM creates long-term competitive benefits in the hotel industry since it is the difference between successful and failing hotel operations. As a result of the following factors: The purpose of this research is to look at the link between SCM methods and OP in Jordan's tourist industry, as well as the moderating influence of supply chain complexity in this relationship. The significance of this research rests in its capacity to give a better knowledge of the fundamental elements influencing OP in Jordan's tourist industry. Organizations may utilize this information to improve their SCM procedures and, as a result, their performance. This research may also give insights into how firms can successfully manage supply chain complexity to enhance performance by evaluating the moderating function of supply chain complexity. Furthermore, this research may add to the corpus of knowledge on SCM practices and OP in developing economies.

2 Literature Review

The literature review is an essential part of every research project since it provides a summary of the most recent information on the topic that is being investigated. The literature review for this investigation will center on the relationship between SCM practices and OP in the tourism industry, as well as the moderating effect that supply chain complexity has on this connection. In order to present a comprehensive summary of the current state of knowledge regarding this topic, the literature review will draw from a wide range of sources. These will include academic journals, books, and the proceedings of conferences. The literature assessment will also identify gaps in the existing literature and areas that require more investigation as part of its scope of work. The literature review will lay the framework for the research by identifying key ideas, theories, and empirical studies that have been performed in this field. Additionally, the literature review will be used to influence the research questions and methodologies of this study.

The article [23] investigated the relationship between different SCM components and the influence those components have on the performance of pharmaceutical manufacturing businesses in Pakistan. A total of 35 pharmaceutical companies located in Pakistan's major cities provided their information for this study. In order to collect data from managers working for a variety of pharmaceutical companies in Pakistan, questionnaires in which respondents were required to provide their own answers were used. According to the findings, a strategic supplier relationship, a large quantity of information sharing, and a high quality of information sharing all have a significant positive link with the performance of pharmaceutical manufacturing businesses. The current research will assist enterprises in improving their performance by incorporating SCM ideas into their businesses. The purpose of this study was to determine whether or not each and every independent component had a significant influence on the performance of the firm. The success of pharmaceutical companies is positively impacted by strategic supplier connections as well as the quality and quantity of information that is shared; nevertheless, the quantity of information shared has a detrimental effect on corporate performance. These findings lend credence to the findings of previous investigations. The findings are helpful to policymakers and management in integrating the concepts into the business in order to improve the firm's performance and obtain a competitive edge. [22] studied the association between SCM approaches and SC performance in the industrial sector of Bangladesh's economy. The SCMP was broken up into four different categories: the strategic supplier partnership, the customer relationship, the level of information sharing, the level of information quality, and the delay. The investigation found a beneficial connection between the SCM approaches and the SC performance. On the other hand, strategic supplier alliances, customer relationships, and delay are connected with an increase in SC performance in a way that is significantly more strongly than the degree of information exchange and the level of information quality.

[24] uncovered a connection between East Africa Bottling Company's supply chain management and its operational planning. It hypothesized and created five dimensions of SCM practices, which are as follows: strategic

supplier partnership, customer relationship, information sharing level, information sharing quality, internal lean practices, and it tests the correlations between SCM practices and OP. The investigation revealed that SCM exerts a considerable influence over OP. The degree of information sharing, the quality of information sharing, strategic supplier alliances, customer relationships, and internal lean practices are all factors that have a significant positive impact on operations performance (OP). On the basis of the findings, it has been suggested to the management of the organization that they improve their SCM procedures. [25] conducted research into the effect that SCM techniques have on the business performance of SMEs by analyzing the advantages that firms have over their competitors. Ho Chi Minh City small and medium-sized businesses were questioned for the purpose of collecting data. According to the findings of the research, the level of significance at which customer relationships and the quality of information sharing have an impact on firm performance is 0.01%, whereas the level of significance at which information sharing has a 10% impact on firm performance has a significance level of 10%, and the strategic supplier partnership has no impact on firm performance. In addition, the study found that the quality of customer relationships and information sharing had a significant influence on a company's competitive advantage at a significance level of 0.01%, whereas the quality of strategic supplier partnerships and information sharing had a significant influence at a significance level of 5%. At a significance level of 0.001%, the competitive advantages of a company have a significant and beneficial influence on the company's success.

[26] conducted research into the effects of utilizing SCM methodologies. The degree of information sharing, the quality of the information, strategic supplier connections, and customer interactions are all factors that can affect an organization's level of competitive advantage and overall success. The study also discovered that three of the four independent factors (strategic supplier alliance, customer connection, and degree of information supplied) had a substantial influence on competitive advantage; however, information quality did not have a significant impact on the outcome of the equation. According to the findings of the study, manufacturing companies should engage in the exchange of information that is timely, of high quality, and accurate in order to ensure that their product offerings can be adapted to better satisfy the requirements of customers while preserving their position in the market as a whole. In addition, the report suggested that businesses offer assistance to their suppliers in order to enhance product quality, maintain consistent communication with customers in order to determine reliability, responsiveness, and other criteria, and provide notice to customers. Tradi [27] conducted research to determine the impact that SCM practices had on the manufacturing company OP. According to the findings of the research, having a strategic supplier alliance, being competent in knowledge management, and having a relationship with customers all have a significant effect on the success of an organization. Second, a more developed notion of SCM takes into account the networks that companies make use of in order to create and transport the final product. As a direct consequence of this, the study did not look into the complete domain. It's possible that in the future, research on the higher-order model will be carried out utilizing the same constructs in order to figure out the intricate relationship that exists between the independent components and the variable that's being studied by applying a complex statistical method. [28] investigated the relationship between the SCM practices dimensions (SC partnerships, customer relationships, information sharing in supply chains, information technology, employee training, and company internal operations) and the performance of business organizations in the tourism service industry.

[28] looked at SC partnerships, customer relationships, information sharing in supply chains, information technology, employee training, and company internal operations. The following conclusions can be drawn based on the findings of this study: It was found that a strategically collaborative effort with OP was significantly connected with a beneficial outcome. The quality of the relationships a company has with its clients has a significant impact on that firm's level of success. There was a connection between OP and the sharing of knowledge. OP was significantly impacted by the proliferation of information and communication technologies. A considerable link was found, according to the findings of the study, between successful organizational operations and successful internal operations. [15] investigated how the contributions of SC partners affected the overall functioning of the organization. This inquiry also looked into the moderating function that trust plays as a crucial component in company culture. During the phase of analysis, the PLS-SEM approach was utilized, and the results suggested a large influence of all hypothesized study assumptions, in addition to a significant moderating effect of trust on the link between SC partners' integration and OP. The findings of the study also revealed the anticipated implications and supported the pertinent facts and literature in this field. It would also contribute to filling in the existing research knowledge gaps by integrating a new model that included sets of new variables that had not previously been examined together within a single conceptual framework. This would be done in order to make the most of the information that is currently available. [29] investigated the effects that digital supply chains have on production and supply chain management in Malaysia's industrial industry. This study also investigates whether or not the level of SC performance acts as a mediator in the relationship between the digital SC and OP in the industrial sector of Malaysia. There is no evidence to support any of the three aforementioned hypotheses; nonetheless, seven of the ten total hypotheses, including all of those regarding the moderating influence, are supported. It may be beneficial for manufacturing companies in Malaysia to investigate the possibility of integrating DSC into their operational procedures in order to maintain a competitive advantage in the marketplace by providing improved SC performance and overall OP. The consequences of the study are presented to academics as well as practitioners, particularly those in the manufacturing industry. The restrictions of the study as well as the recommendations for additional research have been taken into account.

[30] looked into how five environmentally friendly supply chain management strategies (internal environmental management, green buying, customer collaboration, eco-design, and investment recovery) impacted three different facets of operational performance (i.e. environmental, economic and operational performance). With the exception of internal environmental management and green purchasing, it has been determined that all of the other parts of GSCM have a significant direct or indirect influence on at least one of the performance measures. According to the data, investment recovery practice is a strong predictor of environmental performance, whereas eco-design is a significant predictor of operational success. According to the findings of the structural equation modeling, GSCM do not have an effect that is directly related to economic performance; rather, they may contribute to an improvement in economic performance indirectly. [31] intended to investigate the links between green market orientation (GMO), GSCM capacity, and OP using the cultural viewpoint of market orientation (MO), and drawing on both the natural resource-based view (NRBV) and dynamic capability view. [31] also intended to draw on the viewpoint of market orientation (MO) (DCV). According to the findings, the capacities of GSCM, environmental performance, and economic performance are all significantly influenced in a positive direction by GMOs. In addition, GSCM expertise is tied to performance in both the environmental and economic spheres. According to the findings, genetically modified organisms (GMOs) also have a significant influence, albeit an indirect one, on environmental and economic performance through the capacities of GSCM. [32] conducted research to see how the five-star hotels in Bali's tourist hotspots fared in terms of their
competitive advantage and overall operations performance when green supply management practices were implemented. According to the findings, eco-friendly supply chain management practices have a beneficial and significant influence on the performance as well as the comparative advantage of five-star hotels. The data also indicate that a competitive advantage serves as a mediator in this relationship. The findings of the theoretical study are the link between variables, in particular competitive advantage as a mediator variable. On the other hand, the findings of the practical research suggest that hotel managers need to establish competitive advantage in order to increase hotel company performance. As a consequence of this, sustainable supply chain management solutions are being pushed for implementation in five-star hotels as a strategy to gaining a competitive edge.

[16] discovered and assessed the impact that organizational compatibilities would have on green SCM activities and OP. This research also analyzes the role that information technology (IT) skills have in modulating the link between GSMC activities and organizational effectiveness (operational, and environmental performance). The findings indicate that organizational compatibilities (both technological and operational, as well as cultural), serve to increase GSCM efforts and contribute to the expansion of dynamic capacity theory in the context of IT capabilities. The data also indicate that a major mediator in the association between GSCM activities and organizational effectiveness is a person's level of expertise in information technology (IT). These findings not only contribute to and bolster the existing body of literature on GSCM projects, but they also provide researchers with a new perspective from which to examine this topic. [33] looked into whether or not there is a connection between the partnership governance framework and the efficiency of GSCM. According to the findings of this study, governance systems between suppliers and manufacturers have a favorable association to GSCM performance. These findings are based on the transaction-cost economics theory (also known as opportunism), as well as relational viewpoints (i.e., trust). It was demonstrated that formal governance is necessary for process management, whereas relational governance is essential for the sharing of information in GSCM. The findings of the study have strategic implications for how the choice of governance mechanism effects GSCM performance and, as a result, a company's level of competitiveness. [34] You should look into whether there is a connection between the benefits and drawbacks of deploying IoT and the performance of businesses. In addition, the purpose of this study is to analyze the role that SC performance plays as a moderator in the relationship between the advantages and hurdles associated with IoT adoption and OP. PLS-SEM, also known as partial least squares structural equation modeling, is utilized in order to test each and every one of the hypotheses contained within the investigation. According to the results of this study, six out of the seven hypotheses that were investigated have some level of support. The constraints of the study as well as the recommendations for additional research are presented here. [3] looked into how operations research is connected to sustainable supply chain management, competitive advantage, and customer relationship management. The investigation revealed that SSCM and CRM have a significant relationship to OP. The data indicated that CA and OP had a beneficial but insignificant association with one another. Businesses in less developed nations are more prone to make use of SSCM and CA in order to obtain OP. The connection between CRM and OP, on the other hand, has gotten relatively less attention. As a method for accomplishing OP, the use of CRM, in conjunction with SSCM, has been advocated. [17] demonstrated the benefits of utilizing cloud computing services, including how organizations can use cloud-based services to promote accessibility, better communication, flexibility, and efficient service offering. [17] also demonstrated the advantages of utilizing cloud computing services for the purpose of reducing costs. The research also looks into how all of these characteristics are connected to one another and how those connections affect the outcomes. According to the data, a successful deployment of internal organizational resources has a good and strong influence on outer CSCM situations, according to the managers who were questioned. In addition to this, they demonstrated that CSCM improves SCM cycle time performance, which results in favorable OP when the link between internal and external resources is adequately constructed.

[35] studied the link between supply network disruption risk factors and the results of SC efficiency and company performance. Drivers of disruption risk in a supply chain are categorized as follows: demand disruption risk, supplier disruption risk, process disruption risk, and environment disruption risk. According to the empirical evidence, both risks associated with supply interruption and risks associated with process disruption have a significant influence on SC performance. In addition, the information presented in this article illustrates that interruptions to business processes caused by demand disruptions, supplier interruptions, or both can have a significant negative effect on business performance. This article explains how SC disruption risks effect SC performance and company success in a variety of ways. The management team has a responsibility to be aware of the possibility that the factors that cause disruption risk have a different effect on the performance of the SC than they do on the performance of the firm. According to the findings of the research, the magnitude of the influence that disruption risks have on the performance of the SC is significantly greater on the upstream side of the SC than it is on the downstream side.

However, it is essential to point out that the findings of these studies and those of other research tend to contradict one another to a significant degree, and that the connection between these parameters and OP is not yet fully understood. The flow-in hypthsis was developed on the basis of the research that was discussed earlier in this section.

Hypothesis

H1: There is a strong association between Strategic Supplier Partnership (SSP) and OP.
H2: There is a strong association between (CR) and OP.
H3: There is a substantial association between the level of information sharing (IS) and the OP.
H4: There is a substantial link between IQ and OP.
H5: There is a substantial link between Postponement (POS) and OP.
H6: There is strong relationship between Supply chain complexity as moderator and high levels of SCM practices.

3 Research Methodologies

MethodologyThis study will employ a quantitative research design to inquire into the connection between SCM practices and OP, and the potential impact of SC complexity on this connection. The tourism industry in Jordan is the target of this research. Six hundred questionnaires will be sent out to Jordanian travel agencies, representing the target population. Only 261 of the 600 total questionnaires were accepted for analysis. Information Gathering: A systematic questionnaire will be sent out via email, regular mail, and telephone to reach a representative sample of the community. We will be asking about SCM methods, operations planning, and supply chain complexity in the survey. Analysis of DataSmartPLS software will be used to analyze the data. We will utilize this program to examine the links between the variables and to weigh the potential moderating role of SC complexity in the connection between SCM practices and OP. The questionnaire's validity and reliability will be examined in a pilot study. To further confirm the validity of the study's findings, other methods of cross validation will be employed.

Frame work of the Study:

SCM Practices

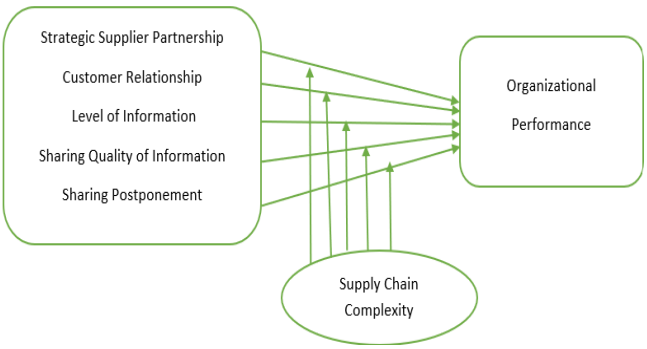

Fig. 1: The model of the study.

4 Data Analysis

Descriptive Analysis

From the table, we can see that the median value of the (CR)variable is 0.155, which means that half of the observations in the dataset have a value lower than 0.155, and half have a value higher. The minimum value of the (CR)variable is -3.802, and the maximum value is 1.760. This means that the observations range from -3.802 to 1.760. Similarly, for the Level of Information variable, the median value is 0.148, the minimum value is -3.633, and the maximum value is 1.683. It's also worth noting that the range of values for the different variables is quite large, which could be an indication of a large spread of observations in the dataset. In general, the values for the (CR)(CR), level of information (LI), and strategic supplier partnership (SSP) variables are relatively positive, indicating that these variables are generally positive in the dataset. On the other hand, the values for the sharing postponement, sharing quality of information and SC complexity are relatively negative, indicating that these variables are generally negative in the dataset.

Table 1: shows descriptive statistics such as mean and standard deviation.

	Median	Min	Max	Standard Deviation	Observati
Customer Relationship	0.155	-3.802	1.760	1.000	261.000
Level of Information	0.148	-3.633	1.683	1.000	261.000
Organizational_Performance_	0.036	-3.589	1.952	1.000	261.000
Sharing Postponement	0.099	-3.260	1.778	1.000	261.000
Sharing Quality of Information	0.065	-4.093	1.845	1.000	261.000
Strategic Supplier Partnership	0.238	-3.506	1.695	1.000	261.000
Supply Chain Complexity	0.034	-3.628	2.030	1.000	261.000

Measurement model

In our study, we will be using SmartPLS software to analyze the relationship between SCM practices, OP, and SC complexity in the tourism sector in Jordan. The software will be used to estimate the measurement model and the structural model of our study. The measurement model in figure No 2 will be used to test the reliability and validity of the measurement items by testing the factor loadings, composite reliabilities, and average variances extracted (AVE) of the measurement items. The structural model figures No 3 will be used to test the relationships between the latent variables by estimating the path coefficients, which indicate the strength and direction of the relationships between the latent variables. SmartPLS will also allow us to assess the goodness of fit of the model by calculating various fit indices such as R-squared, RMSR, RMSEA, and others.

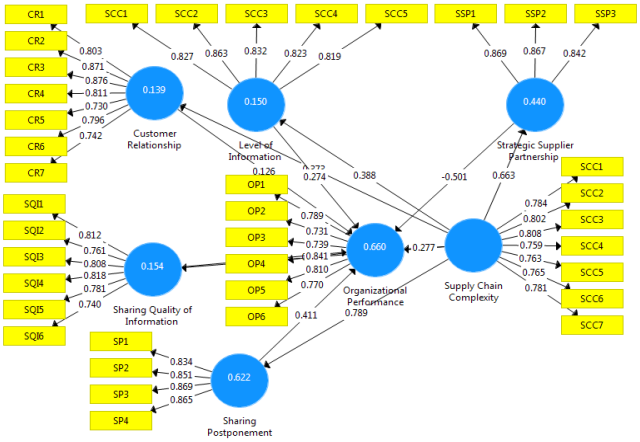

Fig. 2: Measurement model.

Table 2: Construct Loading.

	Customer Relationship	Level of Information	Organizational_Performance_	Sharing Postponement	Sharing Quality of Information	Strategic Supplier Partnership	Supply Chain Complexity
CR1	0.803						
CR2	0.871						
CR3	0.876						
CR4	0.811						
CR5	0.730						
CR6	0.796						
CR7	0.742						
OP1			0.789				
OP2			0.731				
OP3			0.739				
OP4			0.841				
OP5			0.810				
OP6			0.770				
SCC1							0.784
SCC1		0.827					
SCC2							0.802
SCC2		0.863					
SCC3							0.808
SCC3		0.832					
SCC4							0.759
SCC4		0.823					
SCC5							0.763
SCC5		0.819					
SCC6							0.765
SCC7							0.781
SP1				0.834			
SP2				0.851			
SP3				0.869			
SP4				0.865			
SQI1					0.812		
SQI2					0.761		
SQI3					0.808		
SQI4					0.818		
SQI5					0.781		
SQI6					0.740		
SSP1						0.869	
SSP2						0.867	
SSP3						0.842	

From the table 3, we can see that the values of Cronbach's Alpha for all the variables are above 0.8, which is considered as an acceptable level of reliability. The values of Composite reliability for all the variables are also above 0.9, which is considered as an acceptable level of reliability. It's also worth noting that the values of Cronbach's alpha and composite reliability for all the variables are relatively high, which is an indication of high reliability for the variables. In summary, the values of Cronbach's Alpha and composite reliability for all the variables indicate that the measurements in our study are reliable.

Table 3: Construct Reliability and Validity

	Cronbach's Alpha	**Composite Reliability**	**Average Variance Extracted (AVE)**
Customer Relationship	0.909	0.928	0.649
Level of Information	0.890	0.919	0.694
Organizational_Performance_	0.872	0.903	0.610
Sharing Postponement	0.877	0.916	0.731
Sharing Quality of Information	0.877	0.907	0.620
Strategic Supplier Partnership	0.823	0.894	0.739
Supply Chain Complexity	0.894	0.916	0.609

From the table No 4, we can see that the correlation coefficients between the latent variables are mostly lower than the square root of AVE for each variable, which is an indication of discriminant validity. This means that the latent variables of our study are distinct from each other. It's worth noting that some cells in the table have higher correlation coefficients than the square root of AVE for each variable, which could be an indication of weak discriminant validity for those variables. In summary, the results of discriminant validity for our study indicate that the measures of different concepts are distinct from each other, and most of the latent variables are not highly correlated with each other.

Table 4: Discriminant Validity.

	Customer Relationship	**Level of Information**	**Organizational_Performance_**	**Sharing Postponement**	**Sharing Quality of Information**	**Strategic Supplier Partnership**	**Supply Chain Complexity**
Customer Relationship	0.806						
Level of Information	0.802	0.833					
Organizational_Performance_	0.612	0.631	0.781				
Sharing Postponement	0.341	0.375	0.573	0.855			
Sharing Quality of Information	0.748	0.821	0.621	0.364	0.787		
Strategic Supplier Partnership	0.488	0.597	0.404	0.663	0.627	0.859	
Supply Chain Complexity	0.373	0.388	0.562	0.789	0.392	0.663	0.780

Path coffcients and level of significance

The p-values indicate the level of statistical significance of the results. A p-value less than 0.05 (indicated by 0.000) is generally considered statistically significant, meaning that there is less than a 5% chance that the results are due to chance. The p-values for sharing postponement, sharing quality of information, and strategic supplier partnership are all less than 0.05, indicating that there is a strong relationship between these factors and OP. The p-value for (CR)is 0.064 which is higher than 0.05, indicating that the relationship between (CR)and OP is not statistically significant. The p-value for level of information is 0.008 which is less than 0.05, indicating that there is a significant relationship between level of information and OP. In summary, these results suggest that sharing postponement, sharing quality of information, and strategic supplier partnership have a strong positive impact on OP, while the relationship between (CR)and OP is not statistically significant. The relationship between level of information and OP is statistically significant.

Table 5: Path coffcients and level of significance.

	Original Sample (O)	Sample Mean (M)	(STDEV)	T Statistics	P Values
(CR)-> Organizational_Performance_	0.126	0.133	0.068	1.858	0.064
Level of Information -> Organizational_Performance_	0.274	0.255	0.103	2.664	0.008
(SP)-> Organizational_Performance_	0.411	0.407	0.066	6.206	0.000
Sharing Quality of Information -> Organizational_Performance_	0.358	0.354	0.087	4.140	0.000
Strategic Supplier Partnership -> Organizational_Performance_	-0.501	-0.487	0.092	5.457	0.000

Moderation Effect of Supply Chain Complexity

Supply Chain Complexity -> Sharing Postponement -> Organizational_Performance_: The t-statistics value of 5.989 and a p-value of 0.000 suggests that there is a strong positive correlation between (SP)and OP. The t-value indicates that the sample mean is 5.989 standard deviations away from the population mean, indicating that the sample is very different from the population. The p-value of 0.000 indicates that the results are highly statistically significant, meaning that it is very unlikely that the results were due to chance.

Supply Chain Complexity -> Strategic Supplier Partnership -> Organizational_Performance_: The t-statistics value of 4.723 and a p-value of 0.000 also suggests that there is a strong positive correlation between strategic supplier partnership and OP. The t-value indicates that the sample mean is 4.723 standard deviations away from the population mean, indicating that the sample is very different from the population. The p-value of 0.000 indicates that the results are highly statistically significant, meaning that it is very unlikely that the results were due to chance.

Supply Chain Complexity -> Customer Relationship -> Organizational_Performance_: The t-statistics value of 1.622 and a p-value of 0.105 suggests that there is a weak positive correlation between (CR)and OP. The t-value of 1.622 indicates that the sample mean is only 1.622 standard deviations away from the population mean, indicating that the sample is not very different from the population. The p-value of 0.105 indicates that the results are not statistically significant.

Supply Chain Complexity -> Level of Information -> Organizational_Performance_: The t-statistics value of 2.447 and a p-value of 0.015 suggests that there is a moderate positive correlation between level of information and OP. The t-value of 2.447 indicates that the sample mean is 2.447 standard deviations away from the population mean, indicating that the sample is moderately different from the population. The p-value of 0.015 indicates that the results are statistically significant.

Supply Chain Complexity -> Sharing Quality of Information -> Organizational_Performance_: The t-statistics value of 3.193 and a p-value of 0.001 suggests that there is a strong positive correlation between sharing quality of information and OP. The t-value of 3.193 indicates that the sample mean is 3.193 standard deviations away from the population mean, indicating that the sample is very different from the population. The p-value of 0.001 indicates that the results are highly statistically significant, meaning that it is very unlikely that the results were due to chance.

Table 6: Moderation Effect of Supply Chain Complexity.

	Original Sample	Sample Mean	STDEV	T Statistics	P Values
Supply Chain Complexity -> Sharing Postponement -> Organizational_Performance_	0.324	0.322	0.054	5.989	0.000
Supply Chain Complexity -> Strategic Supplier Partnership -> Organizational_Performance_	-0.333	-0.324	0.070	4.723	0.000
Supply Chain Complexity -> (CR)-> Organizational_Performance_	0.047	0.051	0.029	1.622	0.105
Supply Chain Complexity -> Level of Information -> Organizational_Performance_	0.106	0.098	0.043	2.447	0.015
Supply Chain Complexity -> Sharing Quality of Information -> Organizational_Performance_	0.140	0.137	0.044	3.193	0.001

R Square

In this case, the R-squared values for customer relationship, level of information, sharing postponement, sharing quality of information, and strategic supplier partnership are 0.139, 0.150, 0.622, 0.154, and 0.440 respectively. The R-squared value for OP is 0.660, indicating that 66% of the variance in OP can be explained by these independent variables. In summary, these results suggest that customer relationship, level of information, sharing postponement, sharing quality of information, and strategic supplier partnership has a weak relationship with OP, and the results are not statistically significant. The R-squared value for OP is 0.66, indicating that 66% of the variance in OP can be explained by these independent variables.

Table 7: R Square.

Customer Relationship	0.139	0.136
Level of Information	0.150	0.147
Organizational_Performance_	0.660	0.652
Sharing Postponement	0.622	0.620
Sharing Quality of Information	0.154	0.151
Strategic Supplier Partnership	0.440	0.438

5 Conclusion and future Recommendation

Based on the results provided, it appears that the study has found a strong association between certain aspects of supply chain complexity and OP. Specifically; the study found that Sharing Postponement, Strategic Supplier Partnership, Level of Information, and Sharing Quality of Information have a strong positive correlation with OP. However, the study found that (CR)has a weaker correlation with OP. It is concluded that organizations should focus on implementing strategies that involve sharing postponement, building strategic supplier partnerships, improving the level of information, and sharing quality of information within their supply chain in order to improve their OP. Organizations should also focus on building and maintaining strong customer relationships as this is another important aspect of supply chain complexity. Based on the results, organizations may want to consider the following recommendations: Invest in tools and technologies that can help

to streamline the sharing of information within their supply chain. Prioritize building strategic partnerships with key suppliers to better manage supply chain risks and improve overall performance. Invest in building and maintaining strong customer relationships through effective communication and collaboration. Continuously monitor and measure the level of information sharing and quality of information in their supply chain to identify and address any issues. However, it should be noted that these results are based on a single study and should be validated by additional research before drawing definitive conclusions. Future research could also investigate other factors that may contribute to supply chain complexity and their impact on OP. Additionally, it is important to note that the results should be interpreted and implemented with caution as it depends on the context of the specific organization and industry. The contribution of this study is that it provides evidence of a positive relationship between supply chain complexity and OP through certain factors such as sharing postponement, strategic supplier partnership, and sharing quality of information. This indicates that organizations can improve their performance by implementing strategies to manage and optimize these factors in their supply chain. Additionally, the study also highlighted areas for further research, such as understanding the relationship between supply chain complexity, customer relationship, and level of information and OP. This research could guide organizations in identifying key areas for improvement and potentially lead to more effective SCM strategies.

References

[1] Ali, B.J., et al., Integration of Supply Chains and Operational Performance: The Moderating Effects of Knowledge. Information Sciences Letters, 2022. 11(04): p. 1069-1076.

[2] Jermsittiparsert, K., W. Joemsittiprasert, and S. Phonwattana, Mediating role of sustainability capability in determining sustainable supply chain management in tourism industry of Thailand. International Journal of Supply Chain Management, 2019. 8(3): p. 47-58.

[3] Das, S. and H.K. Hassan, Impact of sustainable supply chain management and customer relationship management on organizational performance. International Journal of Productivity and Performance Management, 2021.

[4] Jawabreh, O., et al., Evaluation of The Contents of the Five Stars Hotel Website and Customer Orientation. Information Sciences Letters, 2022. 11(4): p. 1077-1085.

[5] Jawabreh, O., et al., Customer Expectation in Five Star Hotels in Aqaba Special Economic Zone Authority (ASEZA). International Journal of Innovation, Creativity and Change, 2020. 11(4): p. 417-438.

[6] Shniekat, N., O. Jawabreh, and M.M.A. Saleh, Efficiency and effect on the competitive advantage of management information systems (MIS) in classified hotels in the city of petra; type of management as moderator. Academy of Strategic Management Journal, 2021. 20: p. 1-18.

[7] Saleh, M.M.A., et al., Requirements for enhancing the standard of accounting education and its alignment with labor market requirements a case study hospitality and industrial sector in Jordan. Journal of Sustainable Finance & Investment, 2021: p. 1-18.

[8] Alawamleh, H.A., et al., The Challenges, Barriers And Advantages Of Management Information System Development: Comprehensive Review. Academy of Strategic Management Journal, 2021. 20(5): p. 1-8.

[9] Saleh, M.M.A., O. Jawabreh, and E.F.M. Abu-Eker, Factors of applying creative accounting and its impact on the quality of financial statements in Jordanian hotels, sustainable practices. Journal of Sustainable Finance & Investment, 2021: p. 1-17.

[10] Jawabreh, O., Innovation management in hotels industry in aqaba special economic zone authority; hotel classification and administration as a moderator. Geo Journal of Tourism and Geosites, 2020. 32(4): p. 1362-1369.

[11] Shniekat, N., et al., Influence of Management Information System Dimensions on Institutional Performance. Information Sciences Letters, 2022. 11(5): p. 435-1443.

[12] Shan, R., et al., The influence of accounting computer information processing technology on enterprise internal control under panel data simultaneous equation. Applied Mathematics and Nonlinear Sciences, 2022.

[13] Jawabreh, O., et al., The Strategic Deployment of Information Systems Attributes and Financial Performance in The Hospitality Industry. Information Sciences Letters, 2022. 11(5).

[14] ALNawaiseh, K.H., et al., The Relationship Between the Enterprise Resource Planning System and Maintenance Planning System: An Empirical Study. Information Sciences Letters, 2022. 11(5): p. 1-11

[15] Alshurideh, M., et al., The influence of supply chain partners' integrations on organizational performance: The moderating role of trust. Uncertain Supply Chain Management, 2022. 10(4): p. 1191-1202.

[16] Shahzad, F., et al., Untangling the influence of organizational compatibility on green supply chain management efforts to boost organizational performance through information technology capabilities. Journal of cleaner production, 2020. 266: p. 122029.

[17] Lin, M., C. Lin, and Y.-S. Chang, The impact of using a cloud supply chain on organizational performance. Journal of Business

& Industrial Marketing, 2020.

[18] Salameh, A., et al., From Citizens Overview: Which Antecedents' Can Assist to Increase Their Satisfaction Towards the Ubiquity of Mobile Commerce Applications? International Journal of Interactive Mobile Technologies, 2020. 14(17): p. 45-55.

[19] Ali, B.J. and I.A.A. AlSondos, Operational Efficiency and the Adoption of Accounting Information System (Ais): A Comprehensive Review of the Banking Sectors. International Journal of Management, 2020. 11(6).

[20] Thuneibat, N.S.M., et al., The Mediating Role of Innovation On the Relationship Between Information Technologies and Reducing Tax Evasion. Information Sciences Letters, 2022. 11(2): p. 13-23.

[21] Shibly, M., et al., The Relationship between Administrative Empowerment and Continuous Improvement: An Empirical Study. Revista Geintec-Gestao Inovacao E Tecnologias, 2021. 11(2): p. 1681-1699.

[22] Nag, T. and S. Ferdausy, Supply Chain Management Practices and Supply Chain Performance in the Manufacturing Industries of Bangladesh: An Empirical Study. Logistics & Supply Chain Review 2 (1), 2021: p. 1-26.

[23] Khan, A. and D.A. Siddiqui, Information sharing and strategic supplier partnership in supply chain management: a study on pharmaceutical companies of Pakistan. Khan, Ambreen. and Siddiqui, DA (2018). Information Sharing and Strategic Supplier Partnership in Supply Chain Management: A Study on Pharmaceutical Companies of Pakistan. Asian Business Review, 2018. 8(3): p. 117-124.

[24] Seyoum, G., Effects of Supply Chain Management Strategy On Organizational Performance; The Case of East Africa Bottling Sc. 2021, ST. MARY'S UNIVERSITY.

[25] Quynh, D.V.X. and N.H. Huy, Supply chain management practices, competitive advantages and firm performance: a case of small and medium enterprises (SMEs) in Vietnam. Journal of Modern Accounting and Auditing, 2018. 14(3): p. 136-146.

[26] Oshodin, E.A. and O. Omoregbe, Supply Chain Management, Competitive Advantage And Organizational Performance In The Nigerian Manufacturing Sector. Oradea Journal of Business and Economics, 2021. 6(2): p. 57-68.

[27] Alam, M., Supply Chain Management Practices and Organizational Performance in Manufacturing Industry: SCM and Organizational Performance. South Asian Journal of Social Review (ISSN: 2958-2490), 2022. 1(1): p. 42-52.

[28] Sukati, I., S. Sanyal, and A.M.B. Awaain, Supply chain management practices and organizational performance: An investigation from service industry. International Journal of Supply Chain Management, 2020. 9(3): p. 207-213.

[29] Hanaysha, J. and H. Alzoubi, The effect of digital supply chain on organizational performance: An empirical study in Malaysia manufacturing industry. Uncertain Supply Chain Management, 2022. 10(2): p. 495-510.

[30] Sahoo, S. and L. Vijayvargy, Green supply chain management practices and its impact on organizational performance: evidence from Indian manufacturers. Journal of Manufacturing Technology Management, 2020.

[31] Borazon, E.Q., Y.-C. Huang, and J.-M. Liu, Green market orientation and organizational performance in Taiwan's electric and electronic industry: the mediating role of green supply chain management capability. Journal of Business & Industrial Marketing, 2021.

[32] Astawa, I.K., et al., The effect of green supply chain management practices on the competitive advantages and organizational performance. Polish Journal of Management Studies, 2021. 24(1).

[33] Lee, S.M. and D. Choi, Supply Chain Governance Mechanisms, Green Supply Chain Management, and Organizational Performance. Sustainability, 2021. 13(23): p. 13146.

[34] Lee, K., et al., 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, 2022. 10(2): p. 537-550.

[35] Parast, M.M. and N. Subramanian, An examination of the effect of supply chain disruption risk drivers on organizational performance: evidence from Chinese supply chains. Supply Chain Management: An International Journal, 2021.