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Mediation Model of Logistics Service Supply Chain (LSSC) Factors Affecting Organisational Performance

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Abstract: This paper presents the modelling of significant Logistics Service Supply Chain (LSSC) factors affecting oil and gas industry performance in the UAE. Data collection involved the projects of Abu Dhabi National Oil Company (ADNOC). The model consisted of six independent constructs, one mediator's construct and one dependent construct. The six independent constructs are Transport Management; Inventory Management; Order Process Management; Information Flow Management; Agility of logistics service and Integration capabilities of logistics. The mediator construct is logistic information, and the dependent construct is organization performance. The modelling used the AMOS-SEM approach, which indicates the graphical interaction of the factors toward the company performance. The data used to develop the model was gathered through the structured questionnaire survey amongst the selected respondents from the ADNOC oil and gas company in UAE, with a response rate of 90%, indicating strong participation from the population. Total 379 questionnaire forms were collected and used for analysis. The model was constructed according to the conceptual model and assessed at the measurement and structural level of the model. All the individual measurement models achieved the threshold criteria while the structural model reached the required fitness index. Then the model was run for hypothesis testing and found that four of the paths which are *Transport Management; Inventory Management; Order Process Management; Information Flow Management* have achieved a significant level. Also, *Logistics Information Systems* has not mediating effect to the relationship of Logistics Service Supply Chain (LSSC) factors affecting oil and gas industry performance in the UAE. This model contributed to the body of knowledge in presenting the relationship of factors affecting the performance of logistics in the oil and gas industry. It is hoped that the oil and gas practitioners can gain from this model to be applied in their profession.

Keywords: Logistics Service Supply Chain (LSSC), mediation model, ADNOC

1. Introduction

The Success or failure of supply chains is determined by the end consumer in the marketplace (Negoro and Matsubayashi, 2021). Bringing the appropriate product to the consumer at the right price and at the right time is the key to competitive success and survival. In the new global period, businesses must create adaptable strategies to fulfil client demand (Lu et al., 2020). Companies are now focusing on streamlining their main activities to enhance the speed with which they respond to client demand. With more sophisticated customer demand i.e., the product diversity and customization (Yang and Burns, 2003) and recent supply disruptions (Lee, 2004). Supply chains must be adaptable to a

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continually changing market and business environment. Managers and scholars must thus aim for a deeper grasp of the responsiveness notion.

The highly competitive environment in which manufacturing enterprises operate today is characterized by increased global rivalry and increasingly demanding consumers (Rich and Hines, 1997). Furthermore, as the new competitive environment becomes more global, technologically oriented, and customer-driven, as product life cycles shrink and new products are introduced more quickly (Duclos et al. 2003), the new world market requires companies to be more customer responsive.

Supply chains must be handled to allow for a fast reaction to deal with variable demand (Sabath, 1998). The underlying cause is the requirement for the supply chain to focus on time, flexibility, and speed of reaction to operate in an increasingly global marketplace, generating a competitive edge for the firm (Duclos et al., 2003). Supply chain flexibility refers to the supply chain's capacity to adjust to internal or external pressures. In contrast, supply chain responsiveness refers to the supply chain's ability to quickly respond to changes and requests in the marketplace (speed mixed with flexibility). Thus, contemporary supply chains are required to adapt quickly, effectively, and efficiently to consumer demand (Duclos et al., 2003) to gain a competitive edge in terms of higher quality, lower prices, shorter time to market, and product innovation (Aquilano et al., 1995).

The supply chain responsiveness literature is predominantly normative and philosophical, with research papers mostly focused on case studies (Holweg, 2005; Storey et al., 2005). There is little empirical research on this topic. Thus, empirical investigation of supply chain responsiveness is highly recommended. Since the importance of supply chain responsiveness in today's business environment has been established, it is now necessary to comprehend what types of practices are required inside and between firms to accomplish supply chain responsiveness. Numerous studies stress the significance of integrating suppliers, manufacturers, and consumers (i.e. supply chain management) to achieve flexibility and speed (Frohlich and Westbrook, 2001; Clinton and Closs, 1997).

SCM practices that contribute to responsiveness is expected to help researchers to better understand the scope and activities associated with SCM. It will create enhanced levels of supply chain responsiveness in today's competitive marketplace, which has not been empirically tested in previous studies. The problems that global competition poses to businesses have forced a greater emphasis on customer demands and expectations to minimize costs by enhancing service quality and efficiency (Lai & Cheng 2009). It is well acknowledged that logistics performance substantially impacts customer satisfaction (Stank et al., 2003). This, in turn, influences their purchasing decisions and preferences, resulting in a negative impact on corporate profitability (Islam et al., 2013). Given the importance of logistics in a company's market position and profitability, it is not unexpected that academics and industry practitioners have sought to identify the critical elements influencing logistics success.

1.1 Hypothetical Model

The theory is a systematically structured body of information that may be applied in a wide range of situations, mainly a collection of assumptions, accepted principles, and procedural norms designed to analyze, "predict, or otherwise explain the nature or behaviour of a given set of occurrences" (Sundarakani and Onyia, 2021). The researcher intended to relate the philosophical foundation of the link between logistics management, logistics performance, and organizational performance in this theoretical framework to come up with methodologies that could be used in the study project and the explanation for the decision.

With a rising knowledge of the strategic significance of logistics and the benefits of leveraging logistics to generate customer value (Stank et al., 2003), monitoring logistics performance has become a top priority (Cheng & Grimm 2006; Stank, Davis, & Fugate, 2005; Griffis, Goldsby, Cooper, & Closs, 2007). The dependent variable in this study was organization performance. It was named dependent since any effective organization's performance depended on many distinct elements, which were referred to as independent variables. The independent variables in this example were the fundamental components that contributed to the success of logistics management, and they were as follows: transportation management, inventory management, order processing, and information flow.

1.2 Transport Management

"Empirical research demonstrated that the main element in a logistics chain was transportation management, which united the separated operations (McNamara and Leimar, 2020), and it affects the performance of the logistics system enormously. Transportation can be described as the actions involved in transporting commodities or completed products from suppliers to a facility or warehouses, and sales sites (Hussein and Mutoka, 2021; Kenyon & Meixell, 2011). Transportation is necessary throughout the manufacturing process, from manufacture through delivery to ultimate consumers and returns. Because the concept included the movement of commodities, transportation appeared to be a natural component of logistics and hence a critical aspect impacting Organizational success. Based on this analysis, the following null hypothesis was developed.

1.3 Inventory Management

Any corporation that sells the things certainly has the raw ingredients and completed products on hand (Mangarulkar et al. 2012). The company's inventory consisted of the supplies and finished products maintained properly. According to Stevenson and Spring (2009), inventories are an essential aspect of the company since they are required for operations and contribute to customer satisfaction. According to Mangarulkar et al. (2012), the stock must be carefully managed to optimize earnings, and many small firms cannot tolerate the sorts of losses caused by poor inventory management. Prior study has offered some empirical support for the importance of inventory management in the company and logistical performance (Mangarulkar et al., 2012). Inventory management was closely tied to warehousing and was critical to the organization's performance. The industry needed to constantly have the appropriate quantity of raw materials for transformation and finished goods accessible for their buyers.

1.4 Order Process Management

According to empirical research, the transmission of the customer's order triggered the logistics processes within the company. Through order processing, the handling and monitoring of an order i.e. from the time the customer placed it to the delivery of the shipment documents and invoice to the customer is addressed (Wardaya, et al., 2013). While several information elements are crucial to logistics operations, order processing is the most important. Failure to properly realize this significance stems from a lack of awareness of how order processing distortion and operational problems affect logistical operations. Customer needs are often communicated in the form of orders in most supply chains. The processing of these orders included all areas of handling client needs, such as initial order reception, delivery, invoicing, and collection. A company's logistics skills are only as good as its order processing expertise (Bowersox and Closs 2006), resulting in the construction of a company's performance.

1.5 Information Flow Management

In today's competitive global corporate world, effective utilization of organizational resources is required, which may be accomplished by utilizing information technology resources for logistical tasks (Savitskie, 2007). According to Stevenson and Spring (2009), the flow of accurate and real-time information in logistics is critical to the material movement. For a successful task, transfer of relevant information is very crucial (Ahmed et al. 2021). It facilitates the transfer or exchange of information reflecting the quantity and location of inventory, sales data, forecasting information, order status, manufacturing schedules, delivery capacity, and organizational performance measurements (Wardaya, et al, 2013). Improved information utilisation may increase the performance of numerous logistical operations such as distribution network design, demand forecasting, transport management, inventory management, and order processing, all of which are critical to an organization's performance (Bowersox and Closs 2006). In addition, effective information exchange raises the visibility of logistical activities (Wardaya, et al., 2013). However, the significance of precise information in generating greater logistical performance has generally been undervalued.

1.6 Logistics Information Systems

Performance measurement may be described as the process of measuring the efficiency and effectiveness of an activity, as well as a collection of metrics used to quantify the efficiency and/or effectiveness of an action" (Gunasekaran and Kobu 2007). Gunasekaran further thinks that performance metrics and measurements are critical for efficiently managing logistics operations. According to Fugate et al., (2010), performance measurement is the effectiveness and efficiency with which logistics operations are performed; it is also defined via differentiation since the value customers obtain from logistics acts as an indication of logistics performance. The logistics information systems and associated delivering the highest quality, delivery performance, customer service, and inventory/logistics costs, and then performance metrics are aligned with customer satisfaction, essentially making customer satisfaction the definition of success and thus positively influencing organizations performance. Logistic Information System (LIS) facilitates the convergence of functional and information flow, resulting in transparent networks for suppliers and customers and successful logistics management. The ultimate objective is to develop a model that would score logistics management in terms of its impact on organizational performance based on various parameters.

1.7 Agility of Logistics Service

Logistics performance provides value through customer service features like as product availability, timeliness and consistency of delivery, and simplicity of making orders, and this may be done through logistics information systems (Fugate et al. 2010).

1.8 Logistics Integration Capabilities

Logistics integration capabilities refer to the degree to which a client firm strategically collaborates with its logistics service providers (LSP) to manage its intra- and inter-organization processes. In a network-based business environment, firms place a great level of strategic importance on logistics integration. According to Chang and Ku (2009) logistics integration is an umbrella term that encompasses a wide range of inter-functional activities between the logistics and marketing department, IT department, and so on. Highly integrated logistics processes involve dynamically coordinated business processes both within and outside the organizational boundaries (Prajogo and Olhager 2012).

The main objective of this study was to assess the effect of various supply chain factors on the performance of Abu Dhabi National Oil Company (ADNOC). Based on the literature review, a conceptual framework was developed to explain the link between dependent and independent variables considered in this study as shown in figure 1.

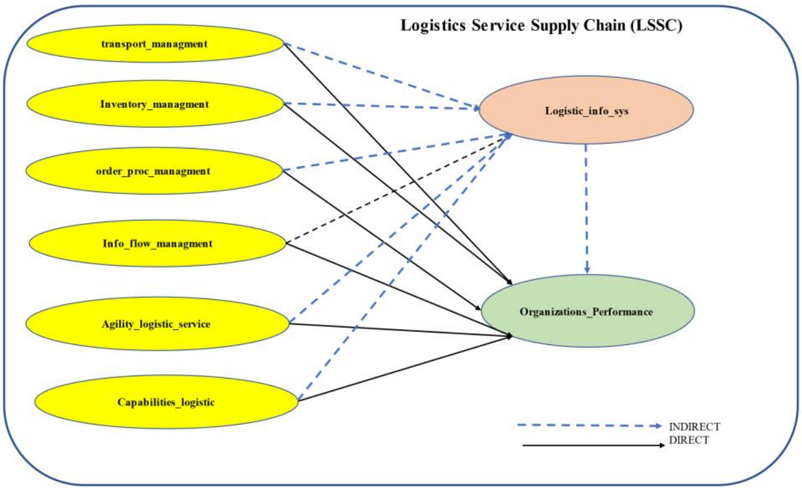

Fig. 1 - Conceptual model

Based on figure 1, total seven hypotheses were drawn to investigate in this study as:
H1: Transport management has a significant effect on ADNOC performance
H2: Inventory management has a significant effect on ADNOC performance
H3: Order process management has a significant effect on ADNOC performance
H4: Information flow management has a significant effect on ADNOC performance
H5: Agility of logistics service has a significant effect on ADNOC performance
H6: Integration capabilities service has a significant effect on ADNOC performance
H7: Logistics information systems has a mediating effect on the relationship between Logistic Service Supply Chain (LSSC) management and ADNOC performance.

Investigation of the hypotheses involved 60 questions for the dependent and independent variables identified from the literature as presented in table 1.

Table 1 - The questions used for hypotheses investigation

Code	Measurement item	Source
Logistics Information System		
Q1	Accuracy of Logistics Information System significantly affect organization performance	Hazen et al. (2014); Bardi et al, (1994); Benotmane et al, (2018)
Q2	Interactive of Logistics Information System significantly affect organization performance	
Q3	Format of Logistics Information System significantly affect organization performance	
Q4	Flexibility of Logistics Information System significantly affect organization performance	
Q5	Timeliness of Logistics Information System significantly affect organization performance	
Q6	Availability of Logistics Information System significantly affect organization performance	
Q7	Logistics information system greatly supports the role of employees in the organization	
Q8	Significantly helps to increase the performance of the supply chain	

Q9	It greatly helps human resources to monitor the performance of the organization	
Q10	Logistics information system is considered one of the important pillars for business success in organizations	
Transport Management		
Q11	Carrier Performance Evaluation	Grandónet al.(2017); Lang et al.(2010); Diplas et al.(2008)
Q12	Mode - Cost Analysis	
Q13	Supplier Compliance Analysis	
Q14	Carrier Relationship Management	
Q15	Capacity Planning	
Q16	Cycle Time Analysis	
Q17	Routing and Scheduling	
Q18	Truck and Driver Performance Analysis	
Q19	Root Cause and Claims Analysis Performance Analysis	
Q20	Assigning Warehouse	
Q21	Picking	
Q22	Warehouse Utilization Application of Bl in Logistics	
Inventory Management Measurement		
Q23	size of single delivery and cost indicator of periodic maintaining stocks	Ancaraniet al.(2016); Machado et al.(2020); Vastag et al.(2005).
Q24	size requirements (e.g. demand) during the period	
Q25	volume of sales or consumption during the period	
Q26	number of nonconforming delivery	
Q27	initial stock during the period	
Q28	final stock during the period	
Q29	number of measurements	
Q30	safety indicator	
Q31	standard deviation of forecast error	
Q32	standard deviation of the cycle time of replenishing and expected life cycle inventory complete	
Order Process Management		
Q33	Clear Goals and Objectives	Boon et al, 2011; Sinclair &Zairi, (1995); Lee, & Dale, (1998)
Q34	Business process reengineering	
Q35	Package Selection	
Q36	Dedicated Resources	
Q37	Architecture choices	
Q38	Minimal customization	
Q39	Top Management support	
Q40	Interdepartmental cooperation	
Information Flow Management		
Q41	The rate at which information is transferred	Tribelsky, & Sacks (2010); Forbes et al. (2015); Tribelsky& Sacks (2011).
Q42	Quantifies the level of detail of information packages	
Q43	The number of available but unused information packages	
Q44	The batch volume of information transferred	
Q45	The velocity of information development as represented by accumulation of detail	
Q46	Identifies possible bottleneck partners in the process at any given time	
Q47	Quantify the rework included in information packages.	
Agility of Logistics Service		
Q48	Our supply chain can improve the level of service customization	Krauth et al. (2005); Doerr et al.(2005); DeGroote & Marx (2013).
Q49	Our supply chain can increase the speed of improving customer service levels	
Q50	Our supply chain can compress the development cycle of service products	

Q51	Our return on investment is higher than that of our competitors	
Q52	Our profit growth rate is higher than that of our competitors	
Q53	We have lower asset-liability ratio than that of our competitors	
Q54	Our market share is growing faster than that of our competitors	
Integration Capabilities of Logistics		
Q55	LSSC partners have established strategic partnerships.	Shaiket al.(2012); Stank et al.(2011);Springinklee&Wallenburg. (2012); Mandal et al. (2017); Kim (2006).
Q56	We applied cross-functional teams in the process of service process optimization	
Q57	Integrators help us improve our service processes to better meet customer needs	
Q58	We contact our key customers via the information network to obtain feedback	
Q59	Members of the LSSC share information regarding our service capabilities	
Q60	Members of the LSSC share planning information on related services	

2. Methodology

This study adopted a quantitative approach as it facilitates in extracting the significant results from enormous data (Almarashda et al. 2021). Data for this study was collected through a questionnaires survey. A simple random sampling method was used to collect the data where 400 questionnaires were distributed among the employees have experience of the supply chain management and operations involved in the oil and gas industry. 379 completed survey sets were received back representing the survey response rate of 94.75%. This indicates a high representation of the population in the survey. Among these 379 survey responses, 54 respondents are from owner organizations, 105 forms are received from consultants' representatives and 220 forms are received from the representatives of 220. A significant number of respondents i.e., 237 respondents have completed bachelors' degree, 96 responses are collected from respondents having master's degree and 46 respondents are PhD holders.

The analysis of the collected data involved multivariate analysis to develop a structural equation model of logistics factors affecting the UAE oil and gas industry performance. The assessment of the model involves two stages where the first stage involves measurement model assessment, and the second stage involves structural model assessment (Khahro et al. 2021). The model was assessed using AMOS-SEM software. The evaluation was conducted through modelling processes until it reached the required fitness criteria.

3. Measurement Model Analysis

This part presents the development and assessment of six individual measurement/construct models, namely Training and development construct, Employee compensation construct, Human resources planning construct, Work environment constructs, ethical climate construct, and Organization Performance construct. The assessment is conducted using Confirmatory Factor Analysis (CFA), where it examines the construct's measures fitness and establishes the validity of the construction Awang (2015). CFA is designed to confirm the effects between the constructs' items and among the constructs adopted from literature review. Outlined goodness-of-fit indices and level of acceptance used to evaluate construct fitness for measurement models and structural equation models is as table 2.

Table 2 - Criteria of goodness-of-fit index

Name of category	Goodness-of-fit indices	Acceptance level
Absolute fit	Chisq	P > 0.05
Absolute fit	RMSEA	RMSEA < 0.08
Absolute fit	GFI	GFI > 0.90
Incremental fit	AGFI	AGFI > 0.90
Incremental fit	CFI	CFI > 0.90
Parsimonious fit	Chisq/df	Chisq/df < 3.0

Source: Adapted from Awang (2012) and Dash & Paul (2021)

All the measurement models were evaluated before developing a complete structural model. A confirmatory factor analysis of the measurement model was performed, and the full latent components in the research evaluation framework were appraised and provided in the following sections. In addition, for each latent construct, initial measurement models, fitness indices, modification indices, and final measurement models were provided progressively. The analysis and assessment results for every individual measurement model are presented and discussed in the following sub-sections.

3.1 Logistics Information System Construct

The logistics information system measurement models consisted of 10 indicators and were analyzed with CFA. The model was graphically developed with AMOS application. The reliability construct's factor loading, squared multiple correlations (R^2), and fitness indexes were investigated as shown in figure 1.

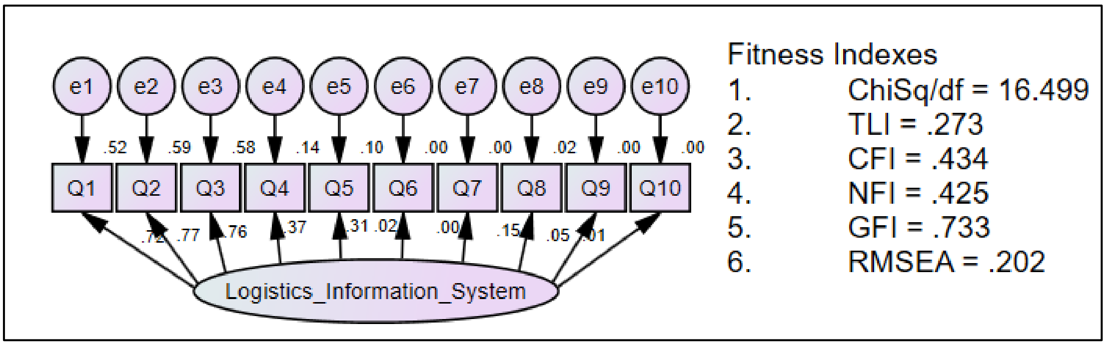

Fig. 1 - Initial logistics information system model

Figure 1 depicts how some measurement items in the construct logistics information system have low factor loading, causing the model to fail to fit based on the fitness indexes. As shown in figure 2, the items with low factor loading are deleted, and the measurement model is modified.

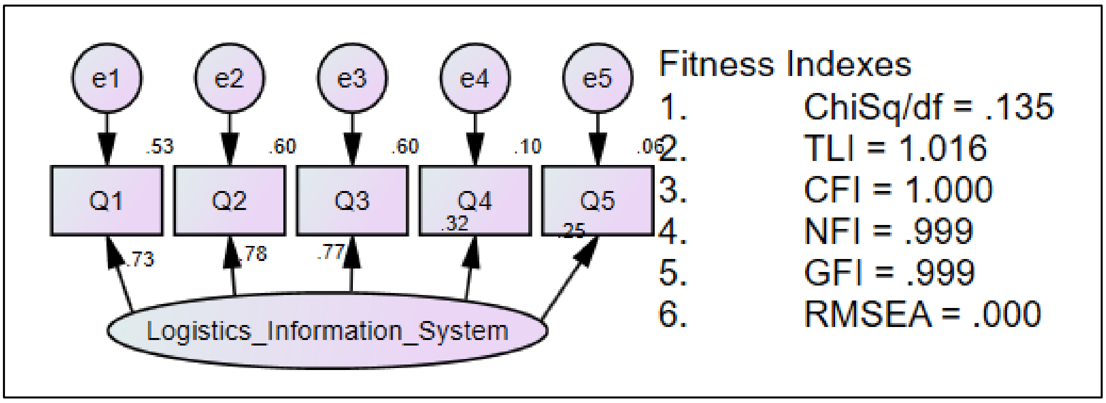

Fig. 2 - Final logistics information system model

Figure 2 shows that the information system measurement model met all of the acceptable cut-off values recommended by the goodness-of-fitness indices.

3.2 Transport Management Construct

CFA was used to analyse Transport Management measurement models, which included twelve indicators. The model was created graphically using the AMOS application. Figure 3 depicts the investigation of the reliability construct's factor loading, squared multiple correlations (R^2), and fitness indexes.

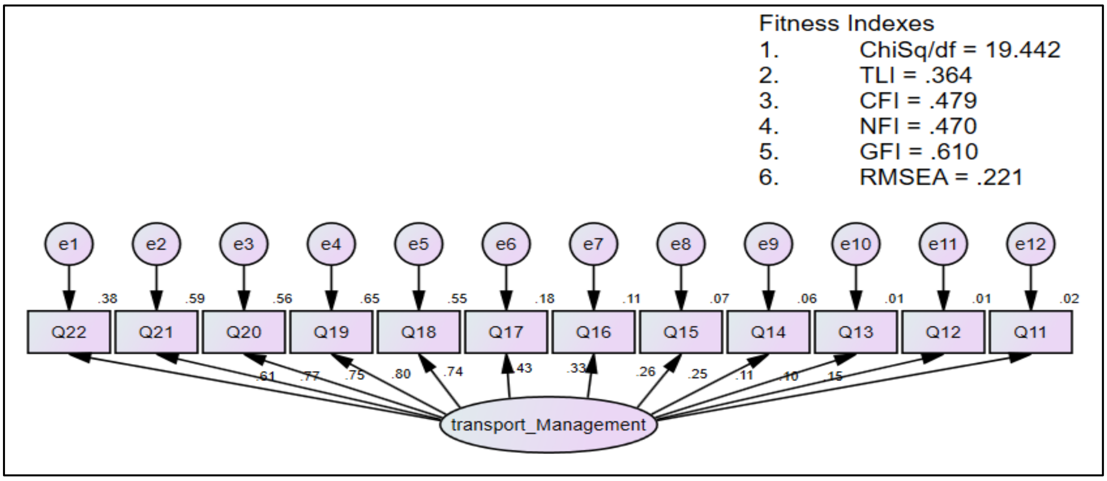

Fig. 3 - Initial transport management model

Figure 3 shows that some measurement items in the construct transport management system have low factor loading, causing the model to fail to fit according to the fitness indexes. As a result, as shown in figure 4, the measurement model is modified by deleting the items with low factor loading.

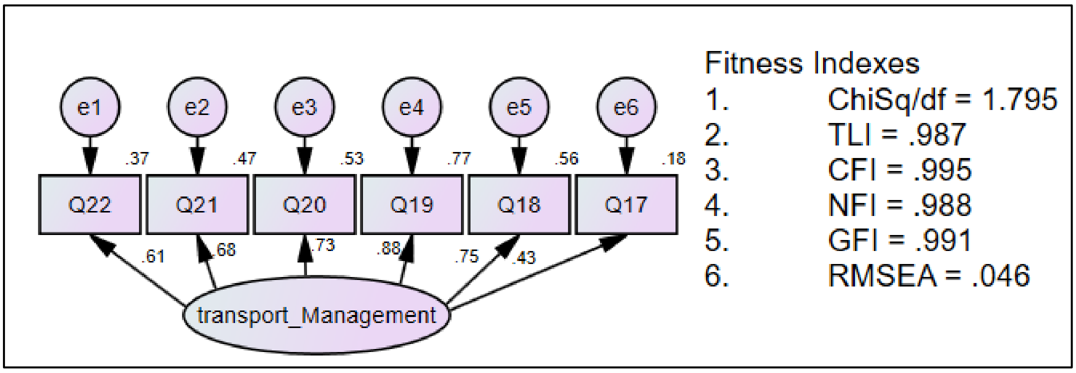

Fig. 4 - Final transport management model

According to figure 4, the transport management measurement model met all of the acceptable cut-off values recommended by the goodness-of-fitness indices.

3.3 Inventory Management Construct

The Inventory Management Measurement model, which included ten indicators, was analyzed using CFA. The AMOS application was used to create the model graphically. Figure 5 depicts the investigation of the factor loading, squared multiple correlations (R^2), and fitness indexes of the reliability construct.

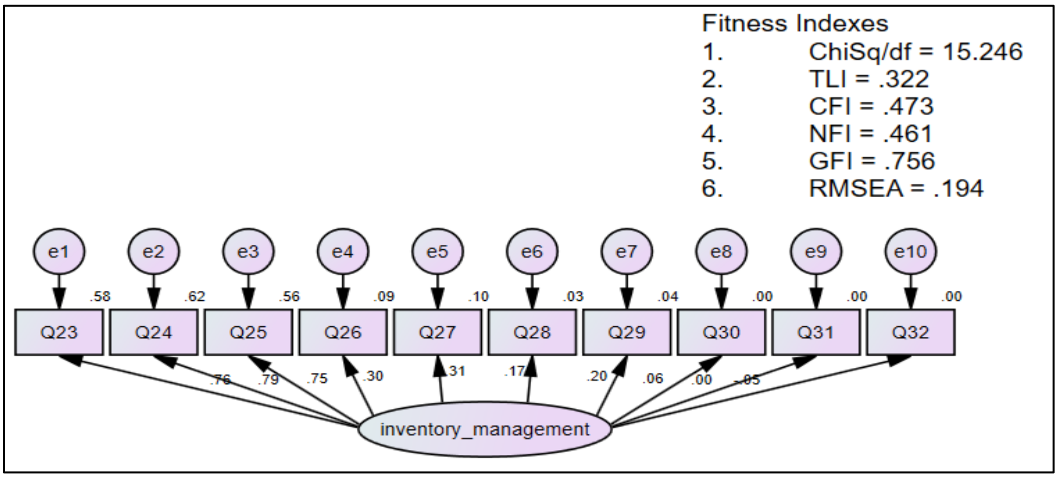

Fig. 5 - Initial inventory management model

Figure 5 depicts how some measurement items in the construct inventory management have low factor loading, causing the model to fail to fit based on the fitness indexes. As a result, as illustrated in figure 6, the measurement model is altered by removing the items with low factor loading.

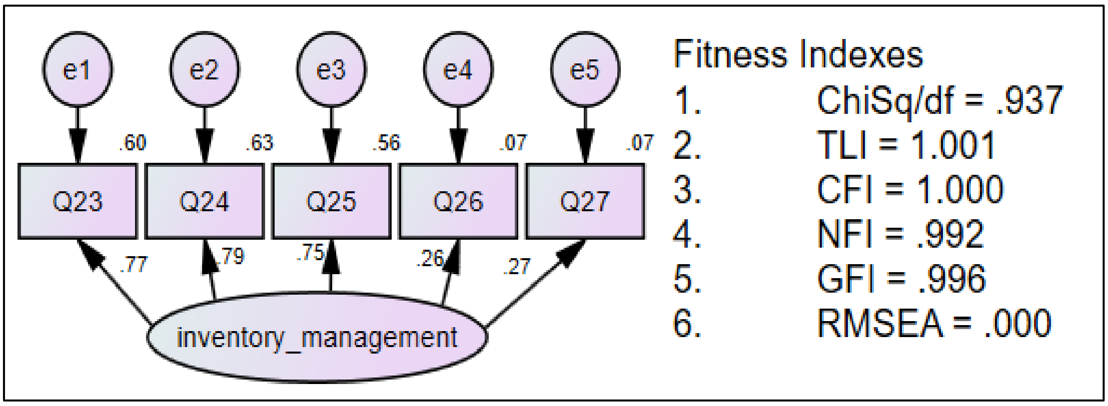

Fig. 6 - Final inventory management model

According to figure 6, the inventory management measurement model met all of the acceptable cut-off values recommended by the goodness-of-fitness indices.

3.4 Order Process Management Construct

CFA was used to analyse the Order Process Management measurement model, which included eight indicators. The model was created graphically using the AMOS application. The investigation of the factor loading, squared multiple correlations (R^2), and fitness indexes of the reliability construct is depicted in figure 7.

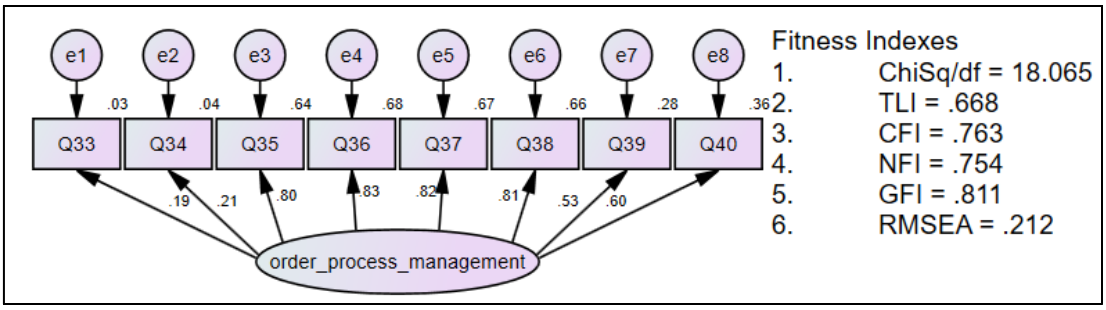

Fig. 7 - Initial order process management model

Figure 7 shows how low factor loading affects some measurement items in the construct order process management, causing the model to fail to fit based on the fitness indexes. As a result, as shown in figure 8, the measurement model is modified by removing items with low factor loading.

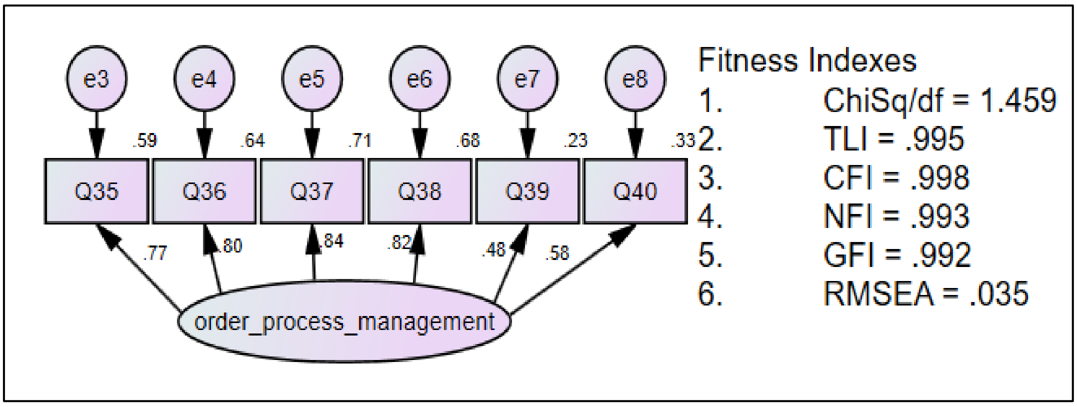

Fig. 8 - Final order process management model

The order process management measurement model, according to figure 8, met all of the acceptable cut-off values recommended by the goodness-of-fitness indices.

3.5 Information Flow Management Construct

The Information Flow Management measurement model, which included seven indicators, was analyzed using CFA. The AMOS application was used to create the model graphically. Figure 9 depicts the investigation of the factor loading, squared multiple correlations (R^2), and fitness indexes of the reliability construct.

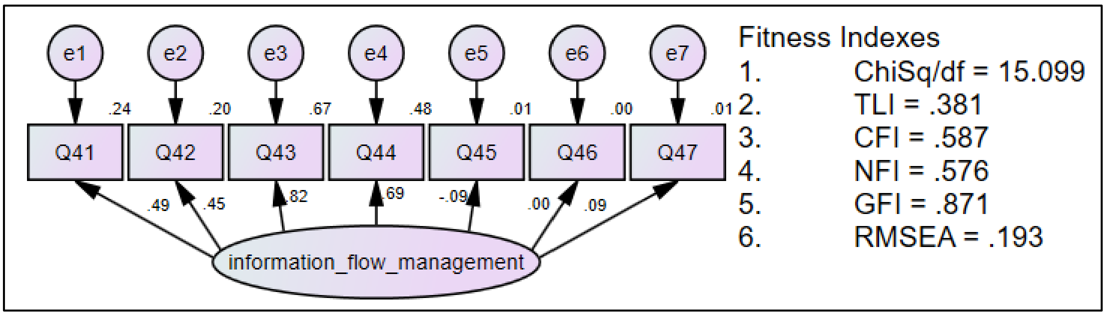

Fig. 9 - Initial information flow management model

Figure 9 depicts how low factor loading affects some measurement items in the construct information flow management, causing the model to fail to fit according to the fitness indexes. As a result, the measurement model is modified by removing items with low factor loading, as shown in figure 10.

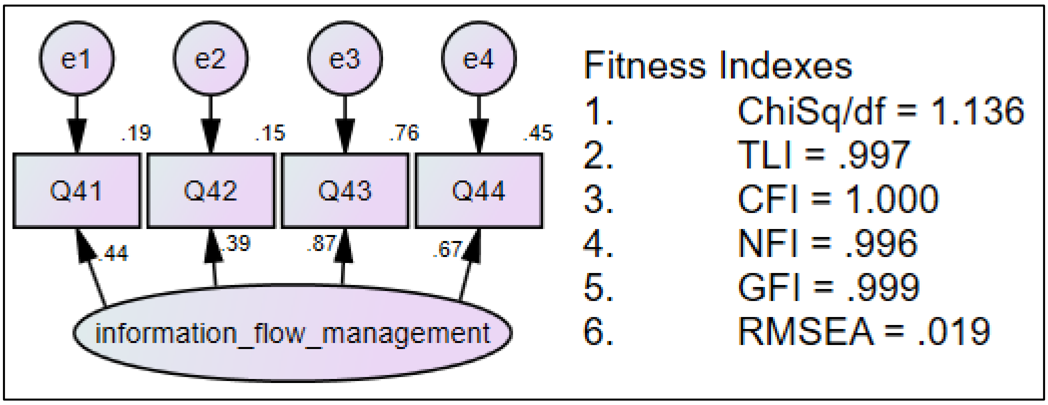

Fig. 10 - Final information flow management model

Figure 10 demonstrates that the information flow management measurement model satisfied all of the acceptable cut-off values recommended by the goodness-of-fitness indices.

3.6 Agility of Logistics Service Construct

CFA was used to analyse the Agility of Logistics Service measurement model, which included seven indicators. The model was created graphically using the AMOS application. The investigation of the factor loading, squared multiple correlations (R^2), and fitness indexes of the reliability construct is depicted in figure 11.

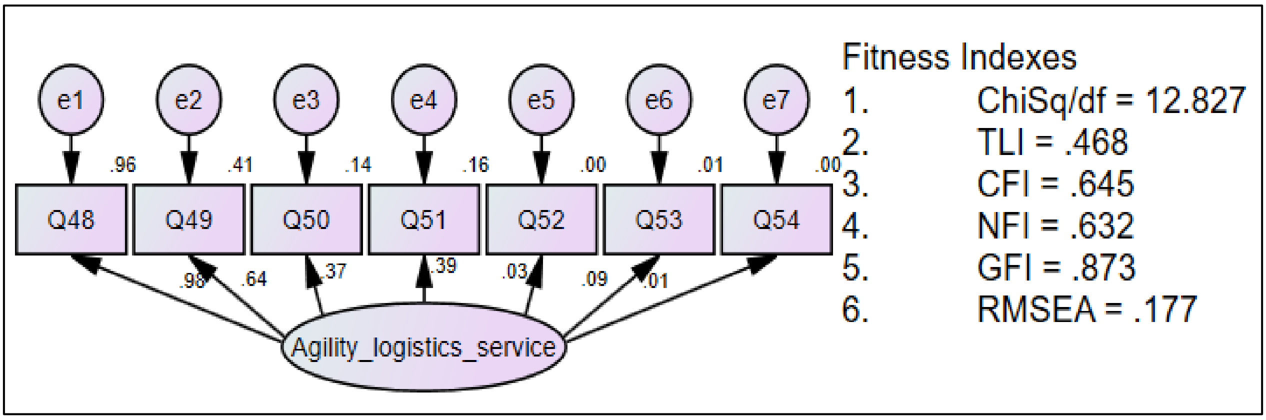

Fig. 11 - Initial agility of logistics service model

Figure 11 shows how low factor loading affects some measurement items in the logistics service Agility construct, causing the model to fail to fit according to the fitness indexes. As a result, as shown in figure 12, the measurement model is modified by removing items with low factor loading.

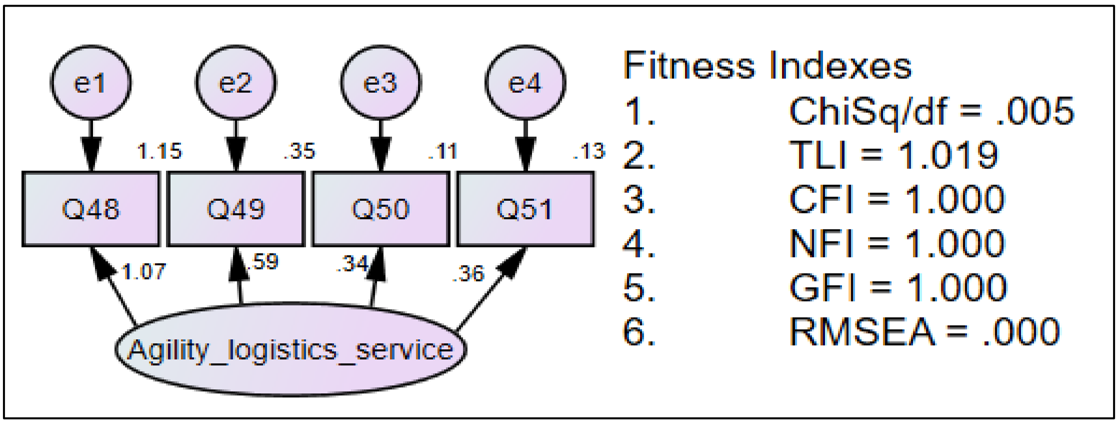

Fig. 12 - Final agility of logistics service model

Figure 12 shows that the Agility of logistics service measurement model met all of the acceptable cut-off values suggested by the goodness-of-fitness indices.

3.7 Integration Capabilities of Logistics Construct

The Integration Capabilities of Logistics measurement model, which included six indicators, was analyzed using CFA. The AMOS application was used to create the model graphically. Figure 13 depicts the investigation of the factor loading, squared multiple correlations (R^2), and fitness indexes of the reliability construct.

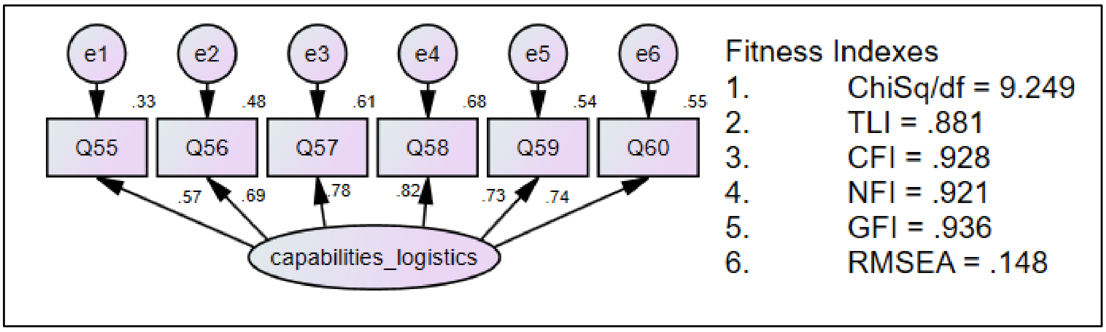

Fig. 13 - Initial integration capabilities of logistics model

Figure 13 depicts how low factor loading affects some measurement items in logistics integration capabilities, causing the model to fail to fit based on the fitness indexes. As a result, as illustrated in figure 14, the measurement model is altered by the removal of items with low factor loading.

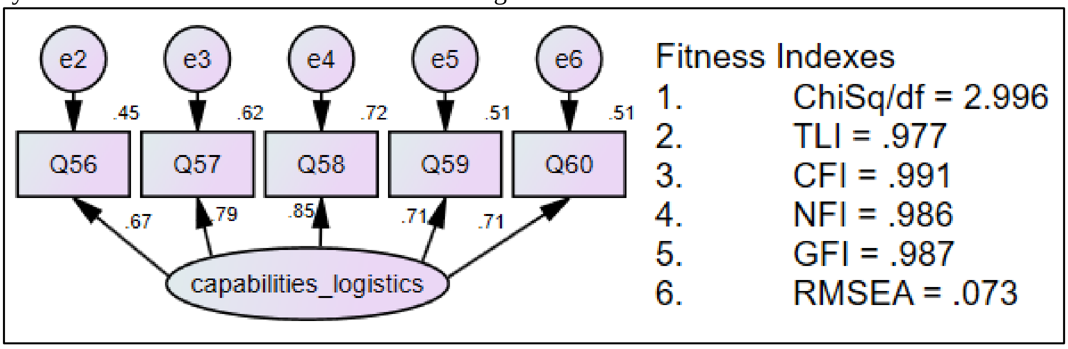

Fig. 14 - Final integration capabilities of logistics model

Figure 14 shows that the logistics measurement model's integration capabilities met all of the acceptable cut-off values suggested by the goodness-of-fitness indices.

3.8 Performance of Organizations Construct

The Performance of Organization measurement model, which included nine indicators, was analysed using CFA. The AMOS application was used to create the model graphically. Figure 15 depicts the investigation of the factor loading, squared multiple correlations (R^2), and fitness indexes of the reliability construct.

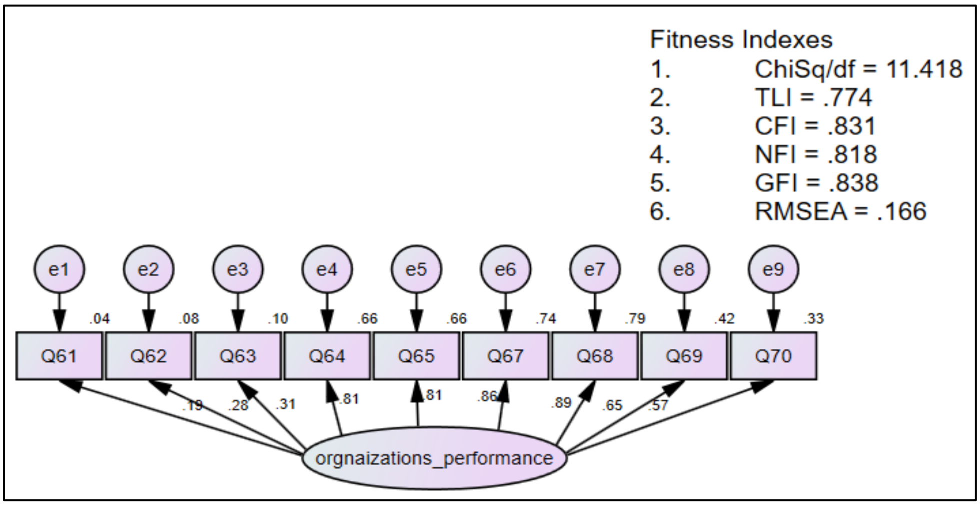

Fig. 15 - Initial organisations performance model

Figure 15 shows that some measurement items in the organisation performance construct have low factor loading, causing the model to fail to fit according to the fitness indexes. As a result, as illustrated in figure 16, the measurement model is altered by removing the items with low factor loading.

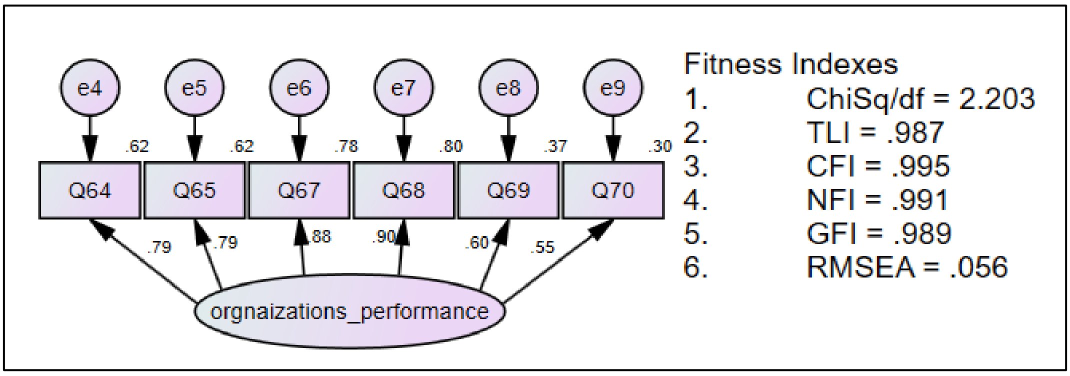

Fig. 16 - Final organisations performance model

Figure 16 shows that the organisations' performance measurement model met all of the acceptable cut-off values suggested by the goodness-of-fitness indices. In conclusion, all the measurement models have met the threshold values.

4. Respondents Perception on Transformational Leadership Styles Characteristics

After determining the uni-dimensionality, reliability, and validity of the study constructs, the next analysis stage is to combine all of the constructs into a single structural equation model using Analysis of Moment Structure (AMOS). The purpose of the pull-out is to demonstrate the causal consequences of one construct on the other in accordance with the specified hypotheses. For assessing the structural model, exogenous and endogenous variable were organized and connected together. The model analysed the multidirectional relationships within the entire research construct with the help of AMOS software and the results are shown in figure 17 and table 3.

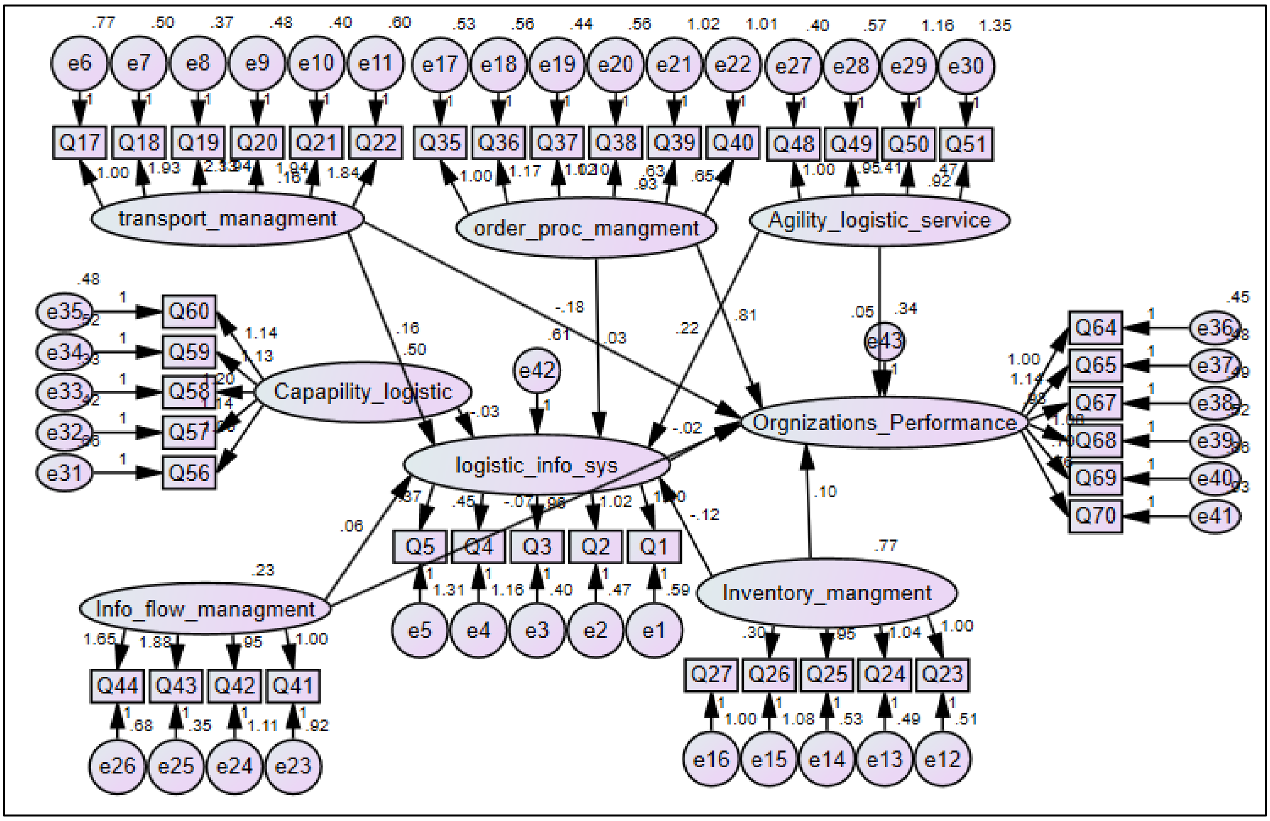

Fig. 17 - Final Model of the Constructs

Table 3 - The Fitness Indices of the structural model

Index	Level of Acceptance	Generated Index Value	Level of achievement
Chisq/df	Chisq/df ≤3	1.436	Achieved
TLI	TLI ≥ 0.9 means satisfactory	0.934	Achieved
CFI	CFI ≥ 0.9 means satisfactory fit.	0.939	Achieved
NFI	NFI ≥ 0.80 suggests a good fit	0.824	Achieved
GFI	GFI ≥ 0.80 suggests a good fit.	0.801	Achieved
RMSEA	RMSEA ≤ 0.08 mediocre fit.	0.040	Achieved
	Model is accepted		

Figure 17 and Table 3 show that the observed factor loadings for the complete constructs are larger than 0.5 and the goodness-of-fitness indexes have reached an acceptable level.

5. Hypotheses Testing

A hypothesized testing was conducted on each respected path of the structural measurement model, and the outcomes from this testing are as in Table 4.

Table 4 - Results of hypotheses testing on the model

Hypothesis	Hypothesis Statement	P-value	Result
H1	Transport management has a significant effect on ADNOC performance	***	Supported
H2	Inventory management has a significant effect on ADNOC performance	***	Supported
H3	Order process management has a significant effect on ADNOC performance	***	Supported
H4	Information flow management has significant effect on ADNOC performance	0.001	Supported
H5	Agility of logistics service has a significant effect on ADNOC performance	0.064	Not Supported
H6	Integration capabilities service has a significant effect on ADNOC performance	0.07	Not Supported

H7	Logistics information systems have a mediating effect on the relationship between Logistic Service Supply Chain (LSSC) management and ADNOC performance	0.031	Not Supported

Key: *** represents P-value is less than 0.001

Results in table 4 indicate that from six independent constructs of LSSC four of the paths significantly affect ADNOC performance. Only two of the constructs, agility of logistic and integration capabilities services, are not significant. For the mediation effect, logistic information has no mediating effect on the relationship between logistic service supply chain management with ADNOC performance. Hence, it indicates that the proposed model can be a strategy improvement mechanism for the UAE ADNOC Oil and Gas Industry performance by adopting the LSSC factors approach.

6. Conclusion

This paper presents the modelling of significant Logistics Service Supply Chain (LSSC) factors affecting ADNOC Oil and Gas Industry performance in UAE. The model consisted of six independent constructs, one mediator's construct, and one dependent construct. The six independent constructs are Transport Management, Inventory Management, Order Process Management; Information Flow Management; Agility of logistics service, and Integration capabilities of logistics. The mediator construct is logistic information, and the dependent construct is organization performance. The modelling adopts the AMOS-SEM approach, which indicates the graphical interaction of the factors toward the company performance. The data used to develop the model was gathered through the structured questionnaire survey amongst the selected respondents from the ADNOC oil and gas company in UAE, with a response rate of 90%, indicating strong participation from the population. The model was constructed according to the conceptual model and assessed at the measurement and structural component of the model. All the individual measurement models achieved the threshold criteria, while the structural model achieved the required fitness index. Then the model was run for hypothesis testing and found that four of the paths which are *Transport Management; Inventory Management; Order Process Management; Information Flow Management* have achieved a significant level. Also, *Logistics Information Systems* has not mediated effect to the relationship of Logistics Service Supply Chain (LSSC) factors affecting Oil and Gas Industry performance in the UAE. This model contributed to the body of knowledge in presenting the relationship of factors affecting the performance of logistics in the Oil and Gas Industry. It is hoped that the oil and gas practitioners can gain from this model to be applied in their profession.

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