INTERNATIONAL JOURNAL OF SUSTAINABLE CONSTRUCTION ENGINEERING AND TECHNOLOGY
Vol. 12 No. 5 (2021) 61-72

IJSCET

http://penerbit.uthm.edu.my/ojs/index.php/ijscet
ISSN : 2180-3242 e-ISSN : 2600-7959

International Journal of Sustainable Construction Engineering and Technology

Prioritizing the Logistics Management Factors Affecting Company Performance: Case Study of ADNOC

Mohamed Fuad Mohamed Hassan Abdulla[1], Haslinda Musa[1*]

[1]Institute of Technology Management and Entrepreneurship,
Universiti Teknikal Malaysia Melaka, MALAYSIA

*Corresponding Author:

DOI: https://doi.org/10.30880/ijscet.2021.12.05.007
Received 06 June 2021; Accepted 31 December 2021; Available online 31 December 2021

Abstract: This paper presents a study to prioritize the logistics management factors influencing the performance of the oil and gas industry in the UAE. The study discovered 56 logistic elements classified into seven groups: *Logistics Information System; Transport Management; Inventory Management; Order Process Management; Information Flow Management; Logistics Agility; and Logistics Integration Capabilities*. To rank these factors, Abu Dhabi National Oil Company (ADNOC) employees completed a questionnaire survey. The survey data was analysed descriptively, and the elements were ranked based on the mean score and standard deviation of each individual factor. According to the findings, the most critical logistic factor for the Logistics Information System (LIS) group is the accuracy of the logistics information system. The most critical logistic factor for the Transport Management (TM) group is *Routing and scheduling*; the most important logistic factor is *size requirements* for the Inventory Management (IM) group. The most critical logistic factor for the Order Process Management (OPM) group is *top management support*, while for the Information Flow Management (IFM) group; the most critical logistic factor is *quantifying the level of detail of information packages*. The Agility of Logistics Service (ALS) group is *increasing the speed of the supply chain to improve customer service*. Finally, the Logistics Integration Capabilities (ICL) group *shares service information with LSSC members*. These findings will be useful in assisting logistics parties in improving their services for the benefit of the company's performance.

Keywords: Management, logistics information system, supply chain, UAE

1. Introduction

Logistics performance is highly dependent on the quality, efficiency, and effectiveness of managerial involvement in transporting raw materials/products in a supply chain. Consequently, it affects the production speed, capacity to fill the customer orders, delivery flexibility, and creation of an efficient delivery system that meets customers' needs (Alqudah et al. 2020). In addition, it describes the ability to process the orders in the shortest time at the lowest cost without affecting service and product quality (Kersten & Koch, 2010). The aim of logistics is to respond to customer needs while minimizing logistics costs. Logistics performance measurement is typically based on customer order

Corresponding author: haslindamusa@utem.edu.my

fulfilment, it consists of delivery reliability or perfect order fulfilment and responsiveness or order fulfilment lead times (CSCMP, 2021). However, most manufacturing companies in the UAE faced logistical issues, which significantly impacted their performance. These issues stemmed from insufficient technological tools, an inefficient transportation system, a lack of trained logistics employees, and other factors (Sundarakani and Onyia 2021).

So far, most of the research has focused on organisational manufacturing flexibility or agility. Many researchers argue that the competition is no longer between individual firms, but rather between supply chains (Khan et al, 2021; Hassan and Annabi, 2019). Influential companies have control over all supply chain nodes, from supplier to the customer. It is thus critical to investigate the responsiveness of a group of firms that collaborate, sometimes referred to as a supply chain. The significance of critical elements influencing logistics performance cannot be overstated. Logistics-related elements, on the other hand, are regarded as the most fundamental and critical for organisational effectiveness.

Furthermore, the literature review revealed that in previous studies, the emphasis was on identifying the essential elements impacting organisational performance based on the perspectives of diverse stakeholders in organisations. However, quantification of one element's reliance on others has received little attention. It is critical to comprehend the relationship between the various factors influencing logistics performance. It is also clear that there is a gap in the work done in defining the link between the many significant elements influencing logistics performance and a possible forecast of the effects of those components (Aboul-Dahab, 2020). Despite a thorough understanding of general logistics performance elements, industry practises still require further investigation, particularly in areas such as improving logistics performance across major organisations. As a result, the focus of this research is on determining the factors that influence logistics performance in the UAE ADNOC Oil and Gas Industry.

2. Literature Review

Logistics refers to the planning, implementation, and management of processes for the efficient and effective movement and storage of commodities, services, and associated information from point of origin to point of consumption providing a means of utilising the web to meet customer demands in a timely and cost-effective manner (Tilanus 1997). It ensures that customer demands and expectations for the quality of goods and services are met cost-effectively and efficiently at all times (Mangan et al. 2012). Supply chain management integrates logistic management. It entails integrating and optimising the logistical procedures of the supply chain (Stank et al. 2001). Improved logistics integration enables a company to make better use of time and space in order to provide the appropriate quantities of items to any point along the supply chain in a reliable, cost-effective, and timely manner (Prajogo & Olhager 2012). This goal of integration can be accomplished in three ways as (i) external and internal integration (between supplier and customer), (ii) process integration, and (iii) integration of information/data and physical/materials flow (Alfalla-Luque et al. 2013). These attributes are dependent on extensive communication among supply chain network participants in strategic, operational, and tactical decision-making (Bagchi et al. 2005).

Management's involvement in conveying raw materials/products in the supply chain has a strong influence on production speed, order completion ability, delivery flexibility, and creation. Customers' needs are met by an efficient delivery system. In simpler terms, it is the ability to process orders in the shortest amount of time at the lowest possible cost. Supply Chain Logistics Integration entails fully integrated logistics operations within the supply chain that create value across six critical competency areas, all of which are linked to the customer, in-house, supplier of efficient materials/services, technology, planning, measurement, and relationship (Ghoumrassi & Igu, 2019; Bowersox et al, 2000). However, logistical integration is always difficult to achieve because different ideas about how the best efficient multi-dimensional supply chain integration framework should be carried out can result in different results outcomes (Leuschner et al. 2013).

Logistics management is in charge of planning, implementing, and controlling the forward and reverse flow and storage of goods, services, and related information between points of origin and consumption in order to make processes efficient and cost-effective while meeting customer demands (CSCMP, 2021). The majority of logistics services are geared toward urban logistics expansion. Logistics service integrators play critical roles in supply chain operations. They serve as intermediaries and bridge builders between the demand and services of logistics. Because of information asymmetry and limited rationality in actual operations, integrators can freely choose whether to act opportunistically to increase the income of their own firms) or exchange information to alleviate information silos problems.

Sharing and transferring relevant information is very crucial activity (Ahmed et al. 2021). Information sharing influences enterprise performance via the intermediate function of supply chain agility. Supply chain agility is also influenced by environmental dynamics and information system capabilities. Supply chain agility and integration skills are both important topics in the LSSC performance study. Logistics is the resource group responsible for facilitating the physical transportation of items along the supply chain. This category includes transportation, distribution centre operations (inbound transportation, receiving, storage, processing, and goods delivery to retailers), import, and vendor interactions (Tseng & Taylor 2005). When logistics is done correctly, it ensures that all processes in the supply chain are completed correctly and that items of acceptable quality are physically transferred to their intended destination.

In the new global economy, successful organisations effectively predict market trends and adapt quickly to changing client desires. According to Negoro and Matsubayashi (2021), the end consumer in the marketplace determines the success or failure of supply chains. Bringing the right product to the consumer at the right price and at the right time is not only the key to competitive success, but also survival (Borowski, 2021). According to Lu et al. (2020), to meet client demand in the new global period, businesses must develop adaptable strategies. Companies are now focusing on streamlining their core activities in order to respond to client demand more quickly.

Today's manufacturing enterprises operate in a highly competitive environment marked by increased global rivalry and increasingly demanding consumers (Hine, & Carson, 2007). These dynamics, according to Fernie and Sparks (1998), are especially noticeable in the fashion and clothing retail industries. As customers continue to demand higher quality, faster response, and greater dependability from products and services, the new global market necessitates greater customer responsiveness on the part of businesses. These pressures have driven a constant change process within businesses, affecting all aspects of a company, from rapid technological advancements to a significantly shorter product life cycle, according to Womack and Jones (1996). Supply chains must be managed in such a way that they allow for quick responses to fluctuating demand. The underlying cause is the need for the supply chain to prioritise time, flexibility, and response speed in order to operate in an increasingly global marketplace and generate a competitive advantage for the firm (Duclos et al., 2003). This new environment necessitates firms becoming more sensitive to client needs (Benzidia and Makaoui 2020). The ability of a supply chain to adjust to internal or external pressures is referred to as supply chain flexibility. Thus, to gain a competitive advantage in terms of higher quality, lower prices, shorter time to market, and product innovation, modern supply chains must adapt quickly, effectively, and efficiently to consumer demand.

Several researchers have studied the process and underlying issues related to supply chain. But most of the literature on supply chain is primarily normative and philosophical, with focus on case studies (Holweg et al, 2005), and there is little empirical research in the field. Since the importance of supply chain responsiveness has been established in today's business environment, it is now necessary to understand what types of practises are required within and between firms in order to achieve supply chain responsiveness. Numerous studies highlight the importance of integrating suppliers, manufacturers, and consumers (i.e. supply chain management) to achieve flexibility and speed (Frohlich and Westbrook, 2001; Clinton and Closs, 1997). Hence, the current study is expected to help researchers better understand the scope and activities associated with Supply Chain Management (SCM) that create enhanced levels of supply chain responsiveness in today's competitive marketplace, which has not been empirically tested in previous studies.

3. Methodology

3.1 Sampling and Data Collection

This study adopted a quantitative approach. Al Almansoori et al. (2021) cited that quantitative research is deductive approach which facilitates the researcher to infer important results from large data. It also facilitates in extracting the significant results from enormous data (Almarashda et al. 2021). Questionnaire survey was used to collect data as questionnaires are an easy but helpful mode of collecting data in a large population (Almazrouei et al. 2021). The questionnaire was created based on the factors identified as influencing the logistics performance of the UAE ADNOC Oil and Gas Industry organisation. The questionnaire sets were distributed via Google Forms to practitioners in the UAE ADNOC Oil and Gas Industry.

This study used a random sampling technique, in which each sample has an equal chance of being chosen, and it was also intended to be an unbiased representation of the entire population. A total of 400 questionnaires were distributed, with 379 completed sets returned for analysis. This results in a response rate of 94.75 percent, which is considered a high sampling representation.

3.2 Demographic Analysis

The respondents participating in the survey are working at various positions and departments of their respective organisations. The summary of the respondents' working position is presented in Figure 1.

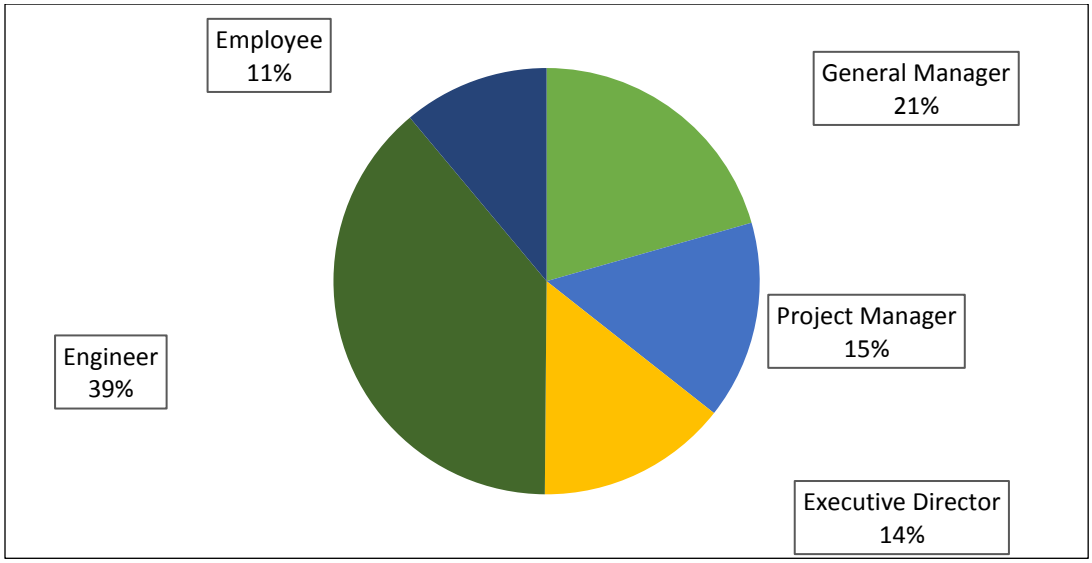

Fig. 1 - Respondent position

Figure 1 show that the participants involved in the data collection are holding several positions such as General Manager, project manager, engineer, executive director. Among these respondents' 21 percent respondents are general managers, 15 percent of respondents are project managers, and 14.6 percent respondents are Executive Directors while remaining 11% respondents are employees. These respondents have completed various levels of educations as summarized in Figure 2.

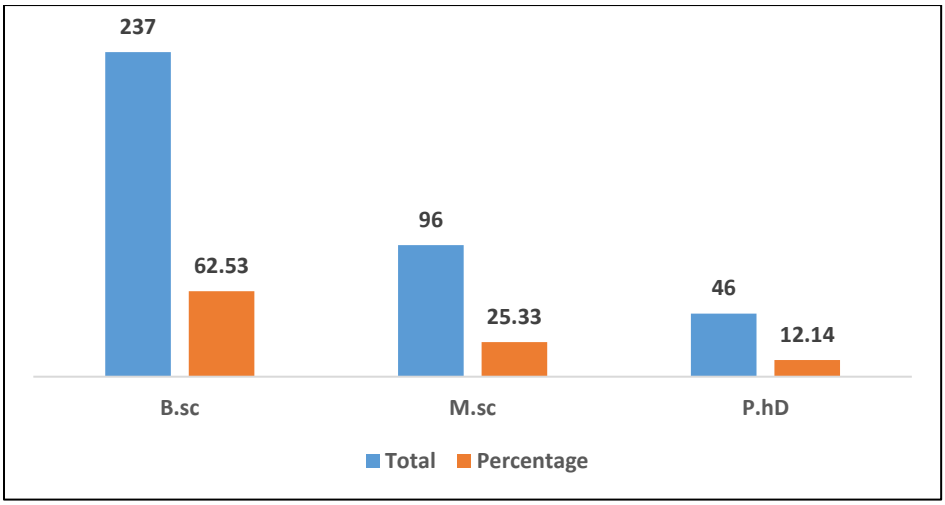

Fig. 2 - Qualification of respondents

Figure 2 depict that about 63% of the respondents have obtained B.Sc. degree, 25% respondents have obtained master degree and 12% are PhD holders. The participants of the questionnaire survey are working for several years. Respondents' experience is an important factor because they can provide better judgement (Alameri et al. 2021) on relevant area of research. The summary of the working experience of the respondents participating in current study is presented in Figure 3.

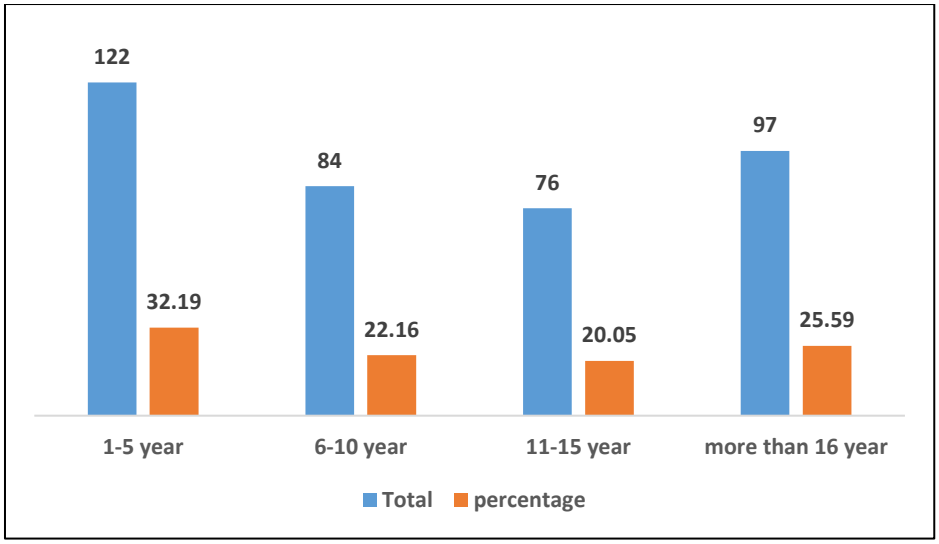

Fig. 3 - Respondent's working experience

Figure 3 show that only 29 of 283 with 10.2% of respondents have working experience below 5 years and 36 respondents (i.e., 12.7%) have experience of over 5 years and below 10 years. Besides these, 96 respondents (i.e., 33.9%) respondents have experience of over 10 years and below 15 years and a significant number of respondents i.e., 122 (34.1%) respondents have experience of above 16 years. These demonstrate that respondents were sufficiently equipped and skilled for participating in the study survey.

4. Data Analysis

Before data analysis, the collected data was checked for normalcy and dependability. Normality of the data distribution is checked with scale data evaluation criterion (Awang 2015) using skewness and kurtosis tests. Highly skewed or strongly kurtosis data distributions exhibit non-normality, indicating that external factors may influence the estimate. Hence, variable distribution must be examined before they are used in the analytic process (Pallant 2011). Skew and kurtosis values between -1 and + 1 be regarded as a parametrically adequate symmetry distribution and assumed normal distribution. After confirming the normality of the data, the data was analysed for ranking to prioritize the factors by computing mean score and standard deviation values.

4.1 Reliability Test

To ensure that the collected data is reliable and valid for further analysis, a reliability test was performed. Cronbach's alpha values are used as indicators of reliability in this test. Cronbach's Alpha is a method for determining a questionnaire's reliability between each field and the mean of all fields. Cronbach's alpha values typically range from 0.0 to + 1.0, with higher values indicating greater internal consistency. Cronbach's alpha criteria will determine the data's internal consistency and reliability as follows: Excellent (>0.9), Good (0.7.9), Acceptable (0.6.7), Poor (0.5.6), and Unacceptable are the levels of performance (0.5) (Bhatnagar et al., 2014; Kline, 2011). Cronbach's coefficient alpha values for each questionnaire field are shown in Table 1 for each category of the factors.

Table 1 - Reliability test results

Nos.	Cluster of factors affecting logistics performance	Cronbach's Alpha
1	Logistics Information System	0.746
2	Transport Management	0.835
3	Inventory Management	0.810
4	Order Process Management	0.885
5	Information Flow Management	0.803
6	Agility of logistics service	0.794
7	Integration capabilities of logistics	0.903

Table 1 displays the computed alpha value for each group and the overall data. The alpha values are larger than 0.7 which implies that the inner consistency of the data is strong and can be extremely acceptable. Therefore, the data is considered valid and trustworthy for further analysis.

1.1 Normality Test

Normality test is used to determine if a data set is well-modelled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. Normal distribution, also known as the Gaussian distribution, is a probability distribution that is symmetric about the mean, showing that data near the mean are more frequent in occurrence than data far from the mean. Normality of the data can be checked with several tests such as Kolmogorov-Smirnov (K-S) test, Lilliefors corrected K-S test, Shapiro-Wilk test, Anderson-Darling test, Cramer-von Mises test, D'Agostino skewness test, Anscombe-Glynn kurtosis test, D'Agostino-Pearson omnibus test, and the Jarque-Bera test. This study used skewness and kurtosis test to check the normality of the data. The generated values of skewness and kurtosis for all items/factors are shown in table 2.

Table 2 - Skewness and kurtosis of the factors

Item's Group	Item' Description	Skewness	Kurtosis
Group 1	**Logistics Information System (LIS)**		
LIS1	Accuracy of Logistics Information System	-0.85	0.51
LIS2	Interactive of Logistics Information System	-0.482	-0.197
LIS3	Format of Logistics Information System	-0.717	0.158
LIS4	Flexibility of Logistics Information System	-0.455	-0.213
LIS5	Timeliness of Logistics Information System	-0.439	-0.409
LIS6	Availability of Logistics Information System	-0.526	-0.082
Group 2	**Transport Management (TM)**		
TM1	Carrier Performance Evaluation	-0.237	-0.127
TM2	Mode - Cost Analysis	-0.352	-0.265
TM3	Supplier Compliance Analysis	-0.559	0.017
TM4	Carrier Relationship Management	-0.465	-0.078
TM5	Capacity Planning	-0.687	0.253
TM6	Cycle Time Analysis	-0.409	-0.631
TM7	Routing and Scheduling	-0.342	-0.295
TM8	Truck and Driver Performance Analysis	-0.687	-0.631
TM9	Root Cause and Claims Analysis Performance Analysis	-0.409	-0.022
TM10	Assigning Warehouse	-0.585	-0.255
TM11	Picking	-0.487	0.253
TM12	Warehouse Utilization Application of Bl in Logistics	-0.469	-0.431
Group 3	**Inventory Management (IM)**		
IM1	Size and cost of delivery for periodic maintaining stocks	-0.687	0.253
IM2	size requirements (e.g., demand) during the period	-0.352	-0.265
IM3	volume of sales or consumption during the period	-0.687	0.253
IM4	number of nonconforming deliveries	-0.409	-0.631
IM5	initial stock during the period	-0.636	-0.022
IM6	final stock during the period	-0.666	-0.022
IM7	number of measurements	-0.545	-0.215
IM8	safety indicator	-0.414	-0.313
IM9	Lower standard deviation of forecast error	-0.555	-0.245
IM10	Lower the cycle time of replenishing and life cycle of inventory	-0.494	-0.313
Group 4	**Order Process Management (OPM)**		
OPM1	Clear Goals and Objectives	-0.494	-0.313
OPM2	Business process reengineering	-0.555	-0.245
OPM3	Package Selection	-0.687	0.253
OPM4	Dedicated Resources	-0.352	-0.225
OPM5	Architecture choices	-0.627	0.253
OPM6	Minimal customization	-0.854	-0.289
OPM7	Top Management support	-0.748	0.516
OPM8	Interdepartmental cooperation	-0.494	0.253
Group 5	**Information Flow Management (IFM)**		
IFM1	The rate at which information is transferred	-0.666	-0.022
IFM2	Quantify the level of detail of information packages	-0.545	-0.215
IFM3	The number of available but unused information packages	-0.414	-0.313
IFM4	The batch volume of information transferred	-0.687	0.253
IFM5	The speed of information development from accumulation of detail	-0.409	-0.631

IFM6	Identifies possible bottleneck in the process at anytime	-0.734	-0.178
IFM7	Quantify the rework included in information packages.	-0.654	-0.085
Group 6	**Agility of logistics service (ALS)**		
ALS1	Improve the level of service customization of supply chain	-0.687	0.253
ALS2	Increase the speed of supply chain to improve customer service	-0.352	-0.265
ALS3	Compress the cycle of service of supply chain	-0.687	0.253
ALS4	Our return on investment is higher than that of our competitors	-0.409	-0.631
ALS5	Our profit growth rate is higher than that of our competitors	-0.636	-0.022
ALS6	Lower the asset–liability ratio than that of our competitors	-0.555	-0.245
ALS7	Our market share is growing faster than that of our competitors	-0.494	-0.313
Group 7	**Integration capabilities of logistics (ICL)**		
ICL1	Creates Legal and Sustainable Supply Chains (LSSC) partnerships.	-0.555	-0.245
ICL2	Apply cross-functional teams for service process optimization	-0.494	-0.313
ICL3	Integrators helps to improve the service to meet customer needs	-0.687	0.253
ICL4	Able to interact customers via information network for feedback	-0.409	-0.631
ICL5	Sharing information regarding service with LSSC member	-0.636	-0.022
ICL6	Sharing planning information amongst LSSC member	-0.555	-0.245

Table 2 shows that the skewness and kurtosis values of all the factors are within the allowable range, indicating that the data is reliable with a decent normal data distribution.

2. Ranking of Factors

The data was analysed with mean and standard deviation calculation to rank the factors for explaining the significant level in affecting logistics company performance. The factor having high mean value is ranked at higher level. If two or more factors have same mean values, then the rank is discriminately decided with the standard deviation of the factor. The results for mean value, standard deviation and rank for the factors related to logistic information system groups are presented in Figure 4.

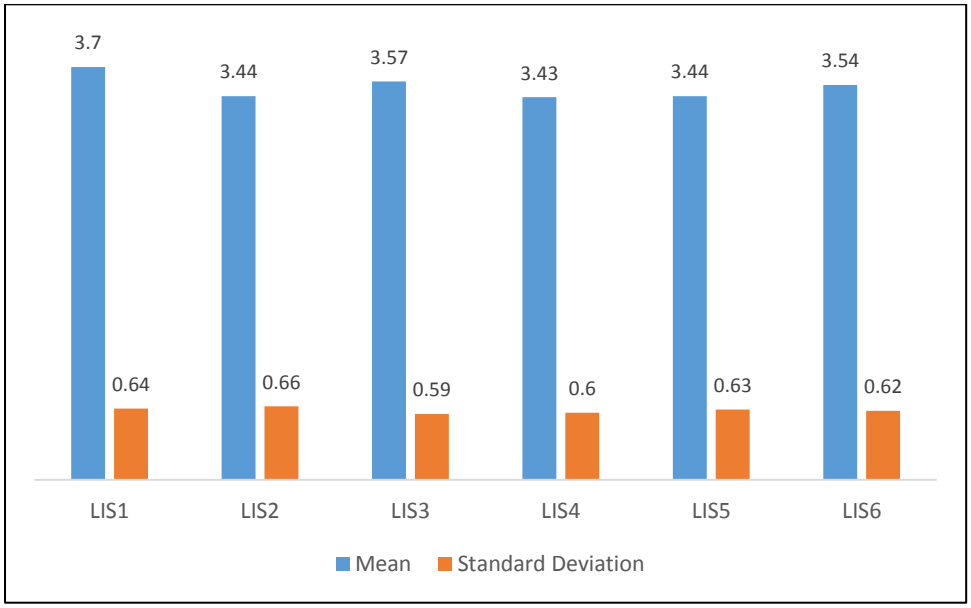

Fig. 4 - Logistic Information System group

Figure 4 indicates that factor LIS1 i.e., Accuracy of Logistics Information System, is ranked as first with a mean score of 3.70 and standard deviation of 0.64 by the respondents. Mean rank, standard deviation and ranking of the factors related to the transport management category are presented in Figure 5.

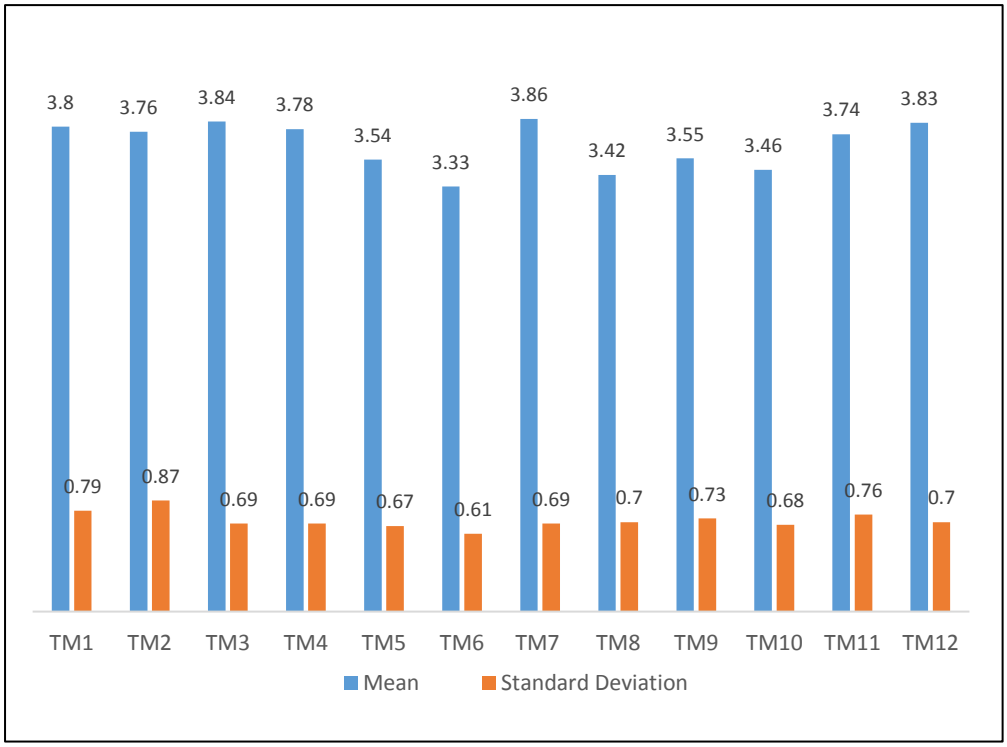

Fig. 5 - Transport Management group

Figure 5 shows that factor TM7 i.e., Routing and Scheduling is ranked first with a mean score of 3.86 and standard deviation of 0.69 by the respondents. Ranking of the factors representing Inventory management category was also computed based on mean value and standard deviation as presented in Figure 6.

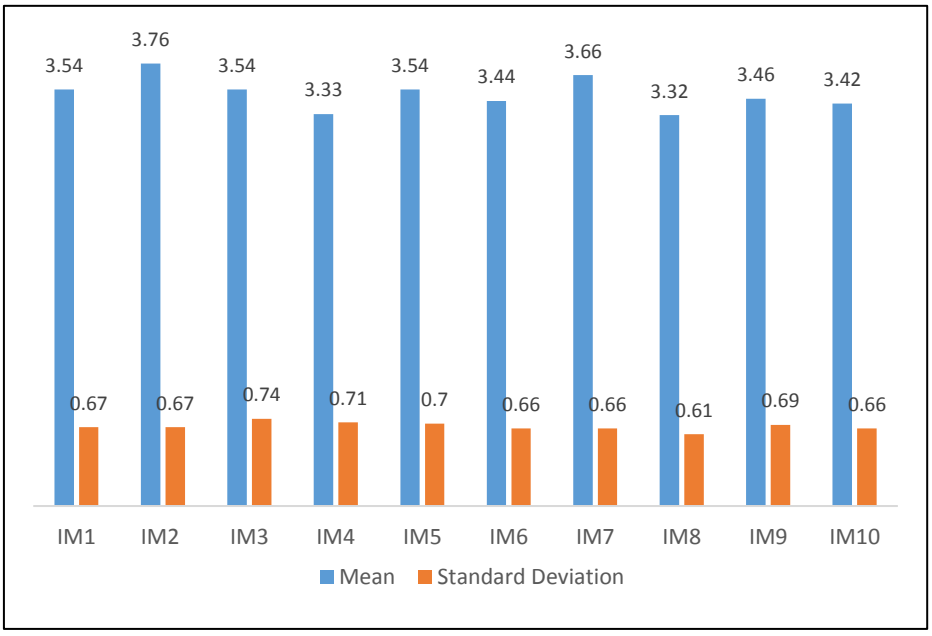

Fig. 6 - Inventory management group

Figure 6 shows that factor IM2 i.e., size requirements during the period is ranked first with a mean score of 3.76 and standard deviation of 0.67 by the respondents. Similarly, the factors describing order process management were prioritized by indicating their rank evaluated with the help of mean value and standard deviation as shown in Figure 7.

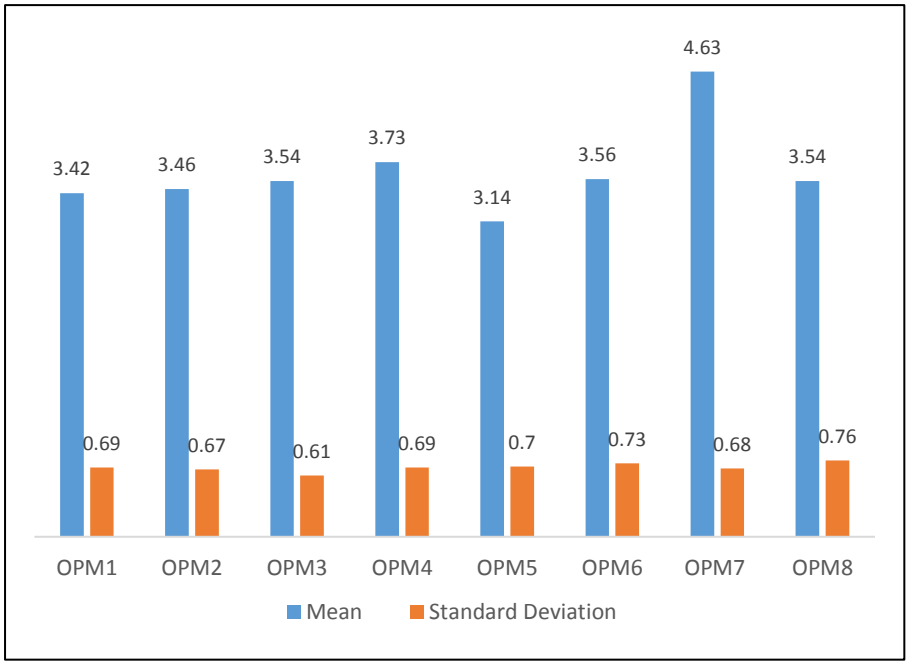

Fig. 7 - Order Process Management (OPM) group

Figure 7 shows that factor OPM7 ranked first with mean score of 4.63 and standard deviation of 0.68 by the respondents. OMP7 describes the factor Top Management Support. This means the effective supply chain is not possible if the top management does not provide the support to the staff. This is true in real sense also. In the same manner, the factors defining information flow management were analysed and the results are presented in Figure 8.

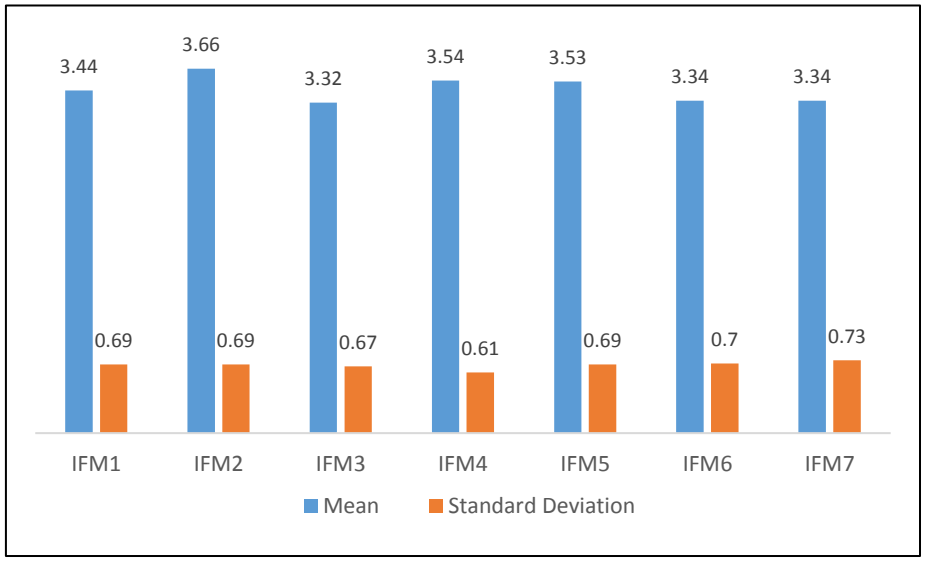

Fig. 8 - Information flow management group

Figure 8 depicts that the factor Quantify the level of detail of information packages represented by ID IFM2 with highest mean score amongst the factors in the category information flow management is ranked first. The responses given by the participants involved in the survey for the factors in the category agility of logistic service were also evaluated with mean score and standard deviation to rank as summarized in Figure 9.

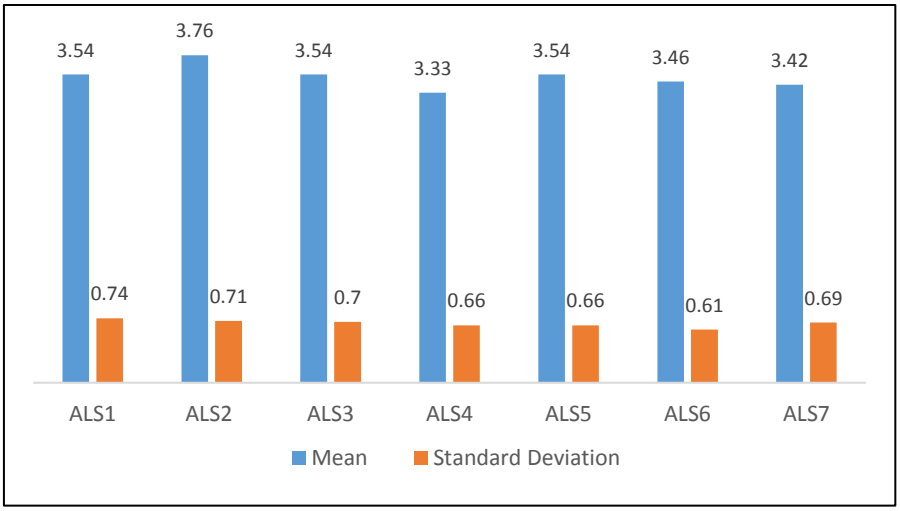

Fig. 9 - Agility of logistics service group

Figure 9 shows that factor ALS2, which is Increase the speed of supply chain to improve customer service, is ranked first with mean score of 3.76 and standard deviation of 0.71 by the respondents. The survey participants' responses for the factors in the category Integration Capabilities of Logistics were also evaluated with a mean score and standard deviation to rank, as shown in Figure 10.

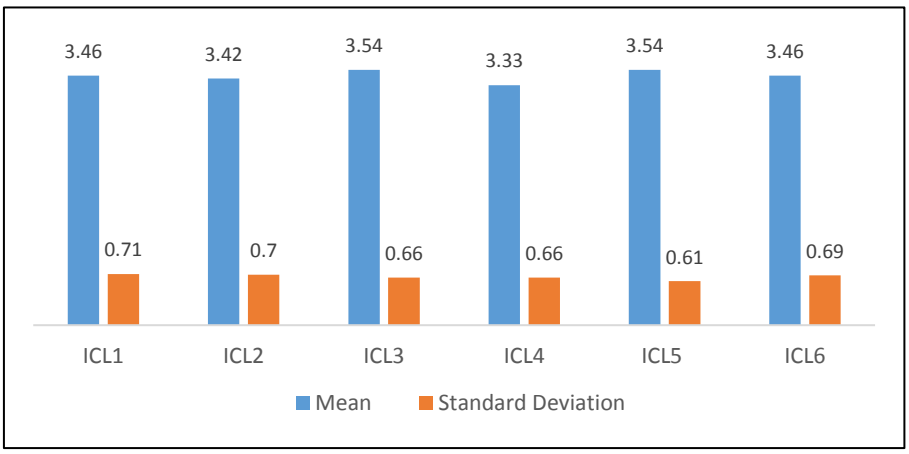

Fig. 10 - Integration capabilities of logistics group

From Figure 10, the ICL5 which is sharing information regarding service with LSSC member is ranked first with mean score of 3.54 and standard deviation of 0.61 by the respondents.

3. Conclusion

This paper has presented a study to assess logistics factors affecting the ADNOC Oil and gas industry performance in UAE. The study has found 56 logistic factors categorized into seven groups: Logistics Information System; Transport Management; Inventory Management; Order Process Management; Information Flow Management; Agility of logistics service and Integration capabilities of logistics. The collected data from the questionnaire survey was analysed descriptively. Results from the analysis found that for Logistics Information System (LIS) group, the most significant logistic factor is the accuracy of logistics information system. For the Transport Management (TM) group, the most significant logistic factor is routing and scheduling; for the Inventory Management (IM) group, the most significant logistic factor is size requirements. For Order Process Management (OPM) group, the most significant logistic factor is top management support and Information Flow Management (IFM) group, the most significant logistic factor is quantifying the level of detail of information packages. For Agility of Logistics Service (ALS) group, the factor is increasing the speed of supply chain to improve customer service. Finally, for the Integration Capabilities of Logistics (ICL) group, sharing information regarding service with LSSC members. These findings could enhance assist the logistic parties in enhancing their services for the company performance.

Acknowledgement

The authors would like to thank the Institute of Technology Management and Entrepreneurship, Universiti Teknikal Malaysia Melaka, for supporting this research works.

References

Aboul-Dahab, K. M. (2020). *Logistics Performance Index (LPI) and insights on the Logistics Performance Improvement in the Arabian Region*. The International Journal of Business Management and Technology, 4(2)

Ahmed, N., Memon, A. H., & Memon, N. A. (2021). *Communication Modes Used for Information Sharing in Construction Projects of Pakistan*. International Journal of Emerging Trends in Engineering Research, 9(10), pp. 1305-1311

Alameri, A., Alhammadi, A. S. M., Memon, A. H., Rahman, I. A., & Nasaruddin, N. A. N. (2021). *Assessing the Risk Level of the Challenges Faced in Construction Projects*. Engineering, Technology & Applied Science Research, 11(3), pp. 7152-7157

Alfalla-Luque, R., Medina-Lopez, C., & Dey, P. K. (2013). *Supply chain integration framework using literature review*. *Production Planning & Control*, *24*(8-9), 800-817

Almarashda, H. A. H. A., Baba, I. B., Ramli, A. A., Memon, A. H., & Rahman, I. A. (2021). *Human Resource Management and Technology Development in Artificial Intelligence Adoption in the UAE Energy Sector*. Journal of Applied Engineering Sciences, 11(2), pp. 69-76

Almansoori, M. T. S., Rahman, I. A., & Memon, A. H. (2021). *Correlation between the Management Factors Affecting PMO Implementation in UAE Construction*. International Journal of Sustainable Construction Engineering and Technology, 12(3), pp. 155-165

Almazrouei, A., Yassin, A. M., & Memon, A. H. (2021). *Strategic Management Indicators for Sustainable Road Traffic Management*. International Journal of Sustainable Construction Engineering and Technology, 12(3), pp. 88-95.
Alqudah, S., Shrouf, H., Suifan, T., & Alhyari, S. (2020). A moderated mediation model of lean, agile, resilient, and green paradigms in the supply chain. Int. J Sup. Chain. Mgt, 9(4), pp. 1-16

Awang, Z., Afthanorhan, A., & Asri, M. A. M. (2015). *Parametric and non-parametric approach in structural equation modeling (SEM): The application of bootstrapping*. Modern Applied Science, 9(9), pp. 58

Bagchi, P. K., Ha, B. C., Skjoett- Larsen, T., & Soerensen, L. B. (2005). *Supply chain integration: a European survey*. The international journal of logistics management

Benzidia, S., & Makaoui, N. (2020). *Improving SMEs performance through supply chain flexibility and market agility: IT orchestration perspective*. Supply Chain Forum: An International Journal, 21(3), pp. 173-184

Bhatnagar, R., Kim, J., & Many, J. E. (2014). *Candidate surveys on program evaluation: Examining Instrument reliability, validity and program effectiveness*. American Journal of Educational Research, 2(8), pp. 683-690

Borowski, P. F. (2021). *Innovative processes in managing an enterprise from the energy and food sector in the era of industry 4.0*. Processes, 9(2), pp. 381

Bowersox, D. J., Closs, D. J., & Stank, T. P. (2000). *Ten mega-trends that will revolutionize supply chain logistics*. Journal of business logistics, 21(2), pp. 1

Clinton, S. R., & Closs, D. J. (1997). *Logistics strategy: does it exist?* Journal of Business logistics, 18(1), pp. 19
CSCMP (2021). Accessed from https://cscmp.org/

Duclos, L. K., Vokurka, R. J., & Lummus, R. R. (2003). *A conceptual model of supply chain flexibility*. Industrial Management & Data Systems

Fernie, J., & Sparks, L. (1998). *Retail logistics: changes and challenges. Logistics and Retail Management: Emerging issues and new challenges in the retail supply chain*, 1

Frohlich, M. T., & Westbrook, R. (2001). *Arcs of integration: an international study of supply chain strategies*. Journal of operations management, 19(2), pp. 185-200

Ghoumrassi, A., & Țigu, G. (2019). *The impact of the logistics management in customer satisfaction*. LAP LAMBERT Academic Publishing

Hassan, F., & Annabi, C. A. (2019). *Come fly with ME: The Impact of 3PLs within the aircraft Manufacturing, Repair and Overhaul Industry in the United Arab Emirates*. The Journal of Industrial Distribution & Business, 10(4), pp. 13-24

Hine, D., & Carson, D. (Eds.). (2007). *Innovative methodologies in enterprise research*. Edward Elgar Publishing

Holweg, M., Disney, S., Holmström, J., & Småros, J. (2005). *Supply chain collaboration: Making sense of the strategy continuum*. European management journal, 23(2), pp. 170-181

Kersten, W., & Koch, J. (2010). *The effect of quality management on the service quality and business success of logistics service providers*. International Journal of Quality & Reliability Management

Khan, S. A., Alkhatib, S., Ammar, Z., Moktadir, M. A., & Kumar, A. (2021). *Benchmarking the outsourcing factors of third-party logistics services selection: analysing influential strength and building a sustainable decision model*. Benchmarking: An International Journal

Kline, R. B. (2011). *Convergence of structural equation modeling and multilevel modeling*

Leuschner, R., Rogers, D. S., & Charvet, F. F. (2013). *A meta-analysis of supply chain integration and firm performance*. Journal of Supply Chain Management, 49(2), pp. 34-57

Lu, X., Li, K., Xu, H., Wang, F., Zhou, Z., & Zhang, Y. (2020). *Fundamentals and business model for resource aggregator of demand response in electricity markets*. Energy, 204, 117885

Mangan, J., Lalwani, C., Butcher, T., & Javadpour, R., (2012). *Global Logistics and Supply Chain Management* (2nd Ed.). West Sussex, United Kingdom: John Wiley & Sons

Negoro, K., & Matsubayashi, N. (2021). *Game-theoretic analysis of partner selection strategies for market entry in global supply chains*. Transportation Research Part E: Logistics and Transportation Review, 151, 102362

Pallant, J. (2011). Survival manual. *A step by step guide to data analysis using SPSS*, *4*

Prajogo, D., & Olhager, J. (2012). *Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration*. International Journal of Production Economics, 135(1), 514-522

Stank, T. P., Keller, S. B., & Closs, D. J. (2001). *Performance benefits of supply chain logistical integration*. Transportation journal, 32-46

Sundarakani, B., & Onyia, O. P. (2021). *Fast, furious and focused approach to Covid-19 response: an examination of the financial and business resilience of the UAE logistics industry*. Journal of Financial Services Marketing, pp. 1-22

Tilanus, B. (1997). *Information Systems in Logistics and Transportation*. Elsevier Science Ltd., UK

Tseng, Y. Y., Yue, W. L., & Taylor, M. A. (2005). The role of transportation in logistics chain. Eastern Asia Society for Transportation Studies

Womack, J. P., & Jones, D. T. (1996). *Beyond Toyota: How to root out waste and pursue perfection*. Harvard business review, 74(5), pp. 140-151