AN EMPIRICAL ANALYSIS OF DIFFERENT FACTORS FOR THE IMPLEMENTATION OF THIRD PARTY LOGISTICS INDUSTRY IN UAE

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Abstract- Throughout the world 3PL organization has been rising tremendously. It is a major growing business in Abu Dhabi, United Arab Emirates. The primary goal of this investigation is to distinguish the factors influencing the success of the 3PL industry, IT system performance in logistics and the impact over the logistics operation in their firms, challenges and growth opportunity of3PL company's utilization on 3PL client organizations. Information has been gathered from the 3PL firms and the exact module was collected through questionnaire and field visit. Actually, twenty-four 3PL firms were participated in the survey. The collected data was analyzed by the Friedman's positioning examination. It enhances the understanding to evaluate different achievement factors and their effects in the 3PL business in Abu Dhabi. Results demonstrate that the IT application impacts in the 3PL supplier's organization with the null hypothesis accepted at 5 percent level with no significance and factors influencing the successful3PL industry, IT system usage in the firms, challenges faced by 3PL firms and growth opportunity factors from the 3PL providers having the "P" value which is under 0.01 with the null hypothesis rejected at1 percent level of significance.

Keywords- Friedman's Ranking Analysis, IT System Performance And Impact, Challenges, Growth Factors

I. INTRODUCTION

In the recent decades, the logistics industry has been developed around the world, and competition among the firms in the third-party logistics market has also grown vigorously. The 3PL market is boom in Dubai but it is still emerging trend and growing fast in Abu Dhabi due to fast globalization, expanding trade volume, recovery of the worldwide economy, extra ordinary development of construction and large-scale projects, development of transportation infrastructure and geographical location between the trading pathways. Logistics plays an important role in economy and every business improvement in the UAE. The organizations utilizing 3PL providers, ranging between 84% to 90% believe that the 3PLs should give an extensive area of contributions [Donlon, 2006]. Likewise, the 3PLs could profit the organizations in different angles namely reduction in cost, reduction in capital investment, and enhanced operational flexibility[1].The utilization of information technology (IT) in the logistics area is developing everywhere throughout the world[6].Outsourcing, an administration practice highly integrated within the zone of Information Systems, is right now experiencing a phase of relentless development and it is giving more effect in areas like such as Fast delivery, Order accuracy, Quick response to customer enquiries and so on. The logistics execution of the 3PLs is urgent in the present aggressive business world [Wang, Jie, and Abareshi, 2015].Particularly 3PLs and transport specialist organizations assume an essential job in a supply chain system to deliver goods and transfer the information's to link the different business partners in a supply chain. In this way, the impact of 3PLs' performance is significant. Previously various studies were undertaken to find the third-party logistics status in different countries. To the author's understanding, there was no survey conducted before in the United Arab Emirates from provider perspective and based on the capital city of Abu Dhabi. This article presents an empirically validated measurement study for a specific case of factors influencing the success of 3PL industry, interrelation between the uses of IT system usage and how the impact created, challenges faced, opportunity and growth of the 3PLsproviders in Abu Dhabi,UAE.

II. LITERATURE REVIEW

2.1 Factors required for the success of 3PL industry

In India, the delivery performance, flexibility and customer relationship are therequirements expected by the 3PL users from the 3PL providers (*Rajesh et al; 2013).*According to *Habibullah Khan;2017*,service quality is the important factor influencing 3PL service provider selection in Pakistan.Lianguang,2009 found that the customer satisfaction is the most significant criteria in Sweden manufacturing industry.Price, reliability and service quality (Aguezzoul, 2007) and cost, reliabilityservice, quality and financial stability (Bagchi and Virum ,1996)are the important criteria for choosing 3PLs suppliers. Moreover, the cost act as an important criterion (van Laarhoven and Sharman, 1994); service performance and quality (Selviaridis and Spring, 2007). Aktas and Ulengin, 2005 identified that

theease of collaboration, financial opportunities, honesty and quality of operation management and accurate order receipt and follow-upare the significant variables for fulfillment of 3PL operation. Some organizations have perceived that money relatedopportunities are the most significant variables for their fulfillment and other variables are less significant. Additionally, geological inclusion of 3PL specialist organizations and their experience arethe significant elements that upgrade the use of Third-Party Logistics administrations (Sahay et al., 2006).Cost and quality are the significant predecessors of choosing the 3rd party logistics specialist (Hwang et al,2016).

2.2 Information system usage and impacts

Rajesh et al (2013) discovered that the ITES have turned out to be necessary in supporting the day by day tasks of numerous logistics activities. It is seen that the Web-enabled communication management system is the most prominent ITES serviced by 3PL provider.The desire for the client is to receivethe goods at right time with good condition by the application of ITES.Likewise, he analyzed, the impacts of using ITES on the quality of services as follows: efficient communication with customers, reliable delivery, order accuracy,fast deliveries and complaints follow-up.Mitra (2005) found that in his examination, mobile communication ismostly utilized by 3PL specialist and its pursued by EDI, bar coding, satellite-based following, GPS and GIS.An examination made at Hong Kong (Nagi;2008) shows that EDI, web, intranet and email were utilized to help the organization of logistics to exercise in the production network. Most of the logistics organization utilized data communication technology to stay in contact with their provider and clients, as this is the most gainful and fruitful technique for doing all services considered.As per 2007 third party logistics results and findings of thetwelfth-year investigation shows that perceivability tools (tracking-tracing, event management), web enabled communication system, transportation management system, warehouse management systemwere the most utilized IT technologies given by 3PLs.

2.3Normal issues and difficulties faced by 3PL firms

In India,there are some basic issues and difficulties faced by 3PL firms amid their activities. Capacity is the most well-known challenge and poor infrastructure is the primaryissue to face by 3PL specialist and it's followed by lack of staff with logistics knowledge and increased technology demand of client(Rajesh et al; 2013).

2.4Opportunities and growth of 3PL industry

To increase the awareness towards logistics outsourcing is the primenotion to expand the chances and development of the 3PL business in India and it is followed by expanding the GDP development, infrastructure development, VAT and possibility of investments by worldwide 3PL suppliers and government support are the other factors need to be concentrated in the 3PL industry for its development in India (Mitra; 2005).

Identification of different factors from different study

Item	*Reference*
Factors influencing the success of 3PL industry	
Service Quality, Geographical Coverage, Length of Experience, Accurate order receipt and follow-up, Reliability, Good Communication, Honesty and Quality of operation management, Up-to-date freight rates, Financial stability, Documents' Accuracy.	Sahay & Mohan, 2006; Banomyong & Supatn, 2005; Aktas & Ulengin, 2005; Selviaridis & Spring, 2007; Hwang et al., 2016;Habibullah Khan,2017; Rajesh,2013
IT systems application and impacts	
Fast delivery, Order accuracy, Fastly responding customer enquiries, Attending customer complaints promptly, Effective communication with customers, Good inventory management, Reliable delivery.	Rajesh,2013; Mitra,2005
Normal issues and difficulties faced by 3PL firms	
Reduced labor cost, improved customer services, cutting transportation cost and profitability, supply chain visibility and finding the customers,VATsystem,high transportation cost, rising economic pressure,global coverage,technology strategy and implementaion,staffing,training and other HR issues,expanding/selling to new market and finding good alliance partner.	Rajesh,2013
Opportunities and growth of 3PL industry	
Increased government support / conductive policy, infrastructure development, increasing awareness towards 3PL, more collaboration between shippers&3PLs, globalization of the economy, smarter, dedicated 3PL technology, environmental sustainability and automation technology	Rajesh,2013; Mitra,2005

III. PROBLEM STATEMENT

Despite the fact that thethird-party logistics market is a rising pattern in the UAE and extending its wing as new business people are contributing new innovation-based arrangement and administration. But the 3PL operationsin the capital city of Abu Dhabi is developing and it is not in the verge of highly technology side when contrasted with Dubai where 3PL firms are utilizing automation and the business is growing massively. Attempting to discover how the components affecting the progress of 3PL business and the utilization of IT systems in the 3PL activitiesin Abu Dhabi and furthermore talking about the impact of IT system execution in the3PL supplier organization. This investigation supports the 3PL suppliers and 3PL client's authorities, for example, proprietors, managers and senior officialsto comprehend and progressively proactive about 3PL status in Abu Dhabi.

IV. OBJECTIVES OF THIS STUDY

The objectives of this investigation are as following:

- To identify and analyze the measures for implementation of various factors required for a successful3PL logistics provider industries.
- To identify and analyze the measures of the performance of IT application and its impactsin the 3PL logistics provider industries.
- To identify the factors attracted towards the challenges, growth and opportunity in Abu Dhabi.

V. RESEARCH METHODOLOGY

5.1 Survey Design

For this study, the survey was designed and utilized to collect data. This examination utilized both primary and secondary data. The primary data is collected to find out the critical success factors affecting the business performance measures from the third-party logistics providers.Auxiliary information was gathered from websites, proposals, different diaries and books.A five-point scale is adopted (1-indicating "not at all important" and 5- "Extremely important") to find the factors influencing the success of 3PL industry,Opportunities and growth of 3PL market,IT systems to perform 3PL operations. 1-indicating "strongly disagree" and 5- "Strongly agree" for challenges faced by 3PL firms in UAE and impact of ITsystemin preference to increase the sensitivity of the measure.Different Success factors were recognized by the researcher in his pilot study. The ranking isgiven by the third-party logistics service provider according to their answers with the help of assistance of the Friedman positioning method and the mean score is displayed in the Table.

5.2 Data Collection method

Information was gathered fromtwenty-four 3PL service providers who are all having excellent knowledge in third party logistics industry individuals like Managers, Senior individuals and who have over 5 years' experience are used in the study.

5.3 *Data Analysis and Hypothesis Testing*

Gathered information wasinvestigated with the assistance of programming bundle SPSS and Analysis of Moment Structure (AMOS) Version 20.0. Statistical techniques like descriptive analysis Friedman Test was utilized for information investigation.

VI. DISCUSSION

Critical Success Factors for the factors influencing the success of 3PL industry, Implementation of IT system and impacts, Challenges, Opportunity and growth of the Third-party logistics industry

To analyse the different factors influencing the *Third-party logistics industry* in Abu Dhabi. Friedman's positioning examination was applied.

Effective factors for the success of 3PL Industry.	Mean position	Rank	Chi-Square value	P value
Delivery time	8.67	III	45.261	.000**
Flexibility	6.65	X		
Attitude towards customerrelationship	8.81	II		
Strategic commitment to customers	7.83	VI		
Reliability of the 3PL provider	7.75	VIII		
Reputation	7.83	VI		
Ability to meet customer needs	8.33	IV		
Storage facilities	5.10	XIII		
Quality of service	8.88	I		
Cost	7.69	IX		
Good communication	7.81	VII		
Financial stability	6.60	XI		
Document accuracy	7.88	V		
Technical competence	5.17	XII		

Table 1: - Friedman test for significant difference among mean positions towards the success factors in 3PL Industry.
Note: 1. ** Indicates significant at 1% level

From the table 1, we find that as the P value is under 0.01,the null hypothesis is rejected at1 percent level of significance.With regard to the factors we identify thatQuality of service (8.88) is most effective factor for success, which is followed by Attitude towards customerrelationship (8.81), Delivery time (8.67), Ability to meet customer needs (8.33), Document accuracy (7.88), Strategic commitment to customers (7.83), Reputation (7.83), Good communication (7.81), Reliability of the 3PL provider(7.75), Cost(7.69), Flexibility (6.65),Financial stability(6.60), Technical competence(5.17) and Storage facilities (5.10).

Performance of IT application in 3PL operation	Mean Position	Rank	Chi-Square value	P value
Barcoding/RFID	7.31	XVII	117.253	.000**
Supplier management system	9.88	XIII		
Web enabled communication	10.21	X		
Shipment tracking	15.19	I		
Export/Import management system	14.96	II		
Transportation management (Planning & Scheduling) system	11.79	VII		
Warehouse distribution system	10.98	VIII		
Customer order management system	11.92	VI		
Mobile communication	13.96	III		
Satellite-based tracking system	6.9	XIX		
Geographic information system (GIS)	6.42	XX		
Global positioning system (GPS)	8.73	XVI		
Electronic data interchange (EDI)	10.92	IX		
E-Commerce application	12.04	V		
Yard management	9.29	XV		
Supply chain planning	10	XII		
Distributed order management	9.56	XIV		
Cloud-Based System	7.29	XVIII		
CRM (Customer relationship management)	12.63	IV		
Network modeling and optimization	10.04	XI		

Table 2: - Friedman test for significant difference among mean position towards the performance of IT application in 3PL Industry.
Note: 1. ** Indicates significant at 1% level

From Table 2, as the P value is under 0.01, the null hypothesis is rejected at 1 percent level of significance. With regard to the factors of Shipment tracking (15.19)ranked first followed by Export/Import management system (14.96). Mobile communicationoccupies the third rank with a mean value of 13.96.

CRM (Customer relationship management)got the fourth rank with a mean value 12.63. E-Commerce application falls on fifth rank with a mean value 12.04, Customer order management system in sixth rank with a mean value 11.92, Transportation management (Planning & Scheduling) system in seventh rank with a mean value 11.79, Warehouse distribution system in eighth rank with a mean value 10.98, Electronic data interchange (EDI) in ninth rank with a mean value 10.92, Web enabled communication is the tenth rank with a mean value 10.21 , Network modeling and optimization in eleventh rank with a mean value 10.04 , Supply chain planning in twelfth rank with a mean value 10.00, Supplier management system in thirteenth rank with a mean value 9.88, Distributed order management in fourteenth rank with a mean value 9.56,Yard management in fifteenth rank with a mean value 9.29, Global positioning system (GPS) in sixteenth rank with a mean value 8.73, Barcoding/RFID in seventeenth rank with a mean value 7.31, Cloud-Based System in eighteenth rank with a mean value 7.29, Satellite-based tracking system in nineteenth rank with a mean value 6.9 and Geographic information system (GIS) is found to be the least Success factors of IT system usage in 3PL operations in Abu Dhabi 3PL user firms. It has the lowest mean value of 6.42.

Impact of IT application in 3PL operation	Mean Position	Rank	Chi-Square value	P value
Fast delivery	4.27	II	10.417	0.108
Order accuracy	4.4	I		
Quick response to customer enquiries	4.06	IV		
Prompt follow-up of customer complaints	3.4	VII		
Effective communication with customers	4.08	III		
Good inventory management	3.92	V		
Reliable delivery	3.88	VI		

Table 3: - Friedman test for significant difference among mean positiontowards the impact of IT application in 3PL Industry.
Note: 1. No star indicate significant at 5% level

From Table 3, we infer that the P value is greater than 0.051. Hence the null hypothesis is accepted at5 percent level with no significance. With regard to the factors, Order accuracy (4.4) ranked first followed by Fast delivery (4.27). Effective communication with customers in third position with a mean value of 4.08. Quick response to customer enquiries in fourth rank with a mean value 4.06. Good inventory management in fifth rank with a mean value 3.92, Reliable delivery in sixth rank with a mean value 3.88.Prompt follow-up of customer complaints is found to be the least success factors of IT impacts in third party logistics provider firms in Abu Dhabi. It has the lowest mean valueof3.4.

Common Challenges faced by 3PL firms	Mean Position	Rank	Chi-Square value	P value
Cutting transportation cost	8.88	II	51.356	.000**
Supply chain visibility	7.73	VII		
Improved customer service	8.85	III		
Reduced labor cost due to competition in the market	9.79	I		
Finding the customers	8.6	V		
Rising economic pressure	6.65	X		
Staffing, training and HR issues	5	XIV		
VAT system	7.44	VIII		
High transportation cost	7.06	IX		
Technology strategy and implementation	5.92	XIII		
Profitability	8.83	IV		
Expanding/Selling to new market	7.96	VI		
Global coverage	6.27	XI		
Finding good alliance partners	6.02	XII		

Table 4: - Friedman test for significant difference among mean positiontowards the common challenges faced by 3PL firms.
Note: 1. ** Indicates significant at 1% level

Table 4since shows as the P value is under 0.01, the null hypothesis is rejected at1 percent level of significance. With regard to Reduced labor cost due to competition market (9.79) ranked first followed by Cutting transportation cost(8.8).

Improve customer servicesoccupies third rank with a mean value of 8.85.Profitabilityin fourth rank with a mean value8.83.Finding the customers in fifth rank with a mean value8.6,Expanding/Selling to new marketin sixth rank with a mean value7.96,Supply chain visibilityin seventh rank with a mean value7.73,VAT systemineighth rank with a mean value7.44,High transportation costin ninth rank with a mean value7.06,Rising economic pressure in tenth rank with a mean value 6.65,Global coverage in eleventh rank with a mean value 6.27,Finding good alliance partnersintwelfth rank with a mean value 6.02, Technology strategy and implementationis found to be the least factors of common challenges faced by 3PL firms in Abu Dhabi. It has the lowest mean value of 5.92.

Opportunities and growth of 3PL industry	Mean Position	Rank	Chi-Square value	P value
More collaboration between shippers& 3PLs	4.83	III	22.683	0.002**
Globalization of the economy	4.08	IV		
Environmental sustainability	3.33	VII		
Automation technology	4.06	V		
Smarter, dedicated 3PL technology	4.1	VI		
Increased government support/conducive policy	5.52	I		
Increasing awareness towards 3PL	4.81	III		
Infrastructure development	5.25	II		

Table 5: - Friedman test for significant difference among mean position towards the opportunities and growth of 3PL industry
Note: 1. ** Indicates significant at 1% level

From the Table 5, we find that as the P value is under 0.01, the null hypothesis is rejected at1 percent level of significance. With regard to Increased government support/conducive policy (5.52) ranked first followed by Infrastructure development (5.25). Increasing awareness towards 3PLoccupies third rank with a mean value of 4.81. Globalization of the economy fourth rank with a mean value4.08. Automation technologyin fifth rank with a mean value4.06.Smarter, dedicated 3PL technology in sixth rank with a mean value 4.01. Environmental sustainabilityis found to be the least Success factors of opportunity and growth of 3PL market. It has the lowest mean value of 3.33.

VII. CONCLUSION

From the Friedman's positioning examination,we conclude the Quality of service is the best factor for the accomplishment of 3PL industry in Abu Dhabi. Shipment tracking and Export/Import management system are the most favorite IT service offered by 3PL suppliers. Reduced labor cost because of rivalry market and Cutting transportation cost are the most widely recognized difficulties faced by the 3PL firms.Increased government support/conducive policy and Infrastructure are the exceptionally real prerequisites for the further chance and development of the 3PL business in Abu Dhabi.These zones have"P" value which is under 0.01 with the null hypothesis is rejected at1 percent level of significance and must be centered around more improvements by applying certain criteria likeawareness,IT system usage, experienced staffs, using automation technology, increasing relationship with clients, reducing operation cost and so forth.Order accuracy and Fast delivery are the most impacted field amid the use of IT application in the logistics service operation and the null hypothesis is accepted at 5 percent level with no significance**.**

REFERENCES

[1] Buket and Arzum, "An Analysis of Third-Party Logistics Performance and Customer Loyalty",International Journal Marketing Studies;Vol.9,No.6,2017

[2] Mary,Oloko,Senaji,Orwa;" Critical Success Factors and Organizational Performance of Indigenous Third-Party Logistics Business in Transport Sector in Kenya", www.strategicjournals.com, strategic Journals,Vol. 3, Iss 1, (3), pp 55 - 84, Feb 15, 2016,

[3] Habibullah Khan, Syed Karamatullah Hussainy, Abdullah Khan, Kamran Khan, Umer Farooq, Mohammad Masood Mir,"Drivers of Outsourcing and selection criteria of 3rd Party Logistics Service Providers", Operations and supply chain management; Vol.10, No.4, pp 240-249,2017,

[4] K.Dhayanidhi,A.Azad,K.Narashiman,"The use of third party logistics services- A literature review", International journal of operations system and human resources management,Vol.1,Nos.1-2,PP.29-43,2011

[5] Lianguang Cui," The use of third party logistics services by Swedish manufacturing firms: Current situation and future prospects", Int.J.shipping and transport Logistics,Vol.1,No.4,2009.

[6] R.Rajesh,"A study on third party logistics in India", Int.J.Indian culture and Business management,Vol.7,No.1,2013.

[7] M.S. Sohail, S.A. Anwar, J. Chowdhury, and N.R. Farhat, "Logistics Outsourcing in the UnitedArab Emirates", Journal of Marketing Channels, 13(1), pp. 21-36,2006,

[8] Srinivasan Lakshmanan, S. Edmund Christopher, D. Kinslin,"An Empirical Analysis on Critical Success Factors for Enterprise Resource Planning (ERP) Implementation in Automobile Auxiliary Industries", International Journal of Engineering & Technology, Vol.7 (3.27), pp 447-452,2018.

[9] MichaelWang, "BusinessLogistics Performance Measurement in Third-Party Logistics: An Empirical Analysis of Australian Courier Firms",International Journal of Business and Information Volume 10, Number 3, September 2015.

[10] Mohmed Al-Sabaawi," Critical Success Factors for Enterprise Resource Planning ImplementationSuccess",International Journal of Advances in Engineering & Technology, Vol. 8, Issue 4, pp. 496-506 Aug., 2015.

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