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Logistics Service Quality Between Self Built Logistics Mode And Third-Party Logistics

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Abstract :

Supply chain management, logistics needs intensive process refinement to meet the challenges ahead due to technology advancement and it became pivotal role in manufacturing organizations. Many of these companies have a logistic role of obtaining, manufacturing, and supplying their products across Universe. Manufacturers and merchants can acquire some relevant and rich-knit original logistical services from experienced third-party logistics services through outsourcing advanced transportation, smart warehousing, automated in-plant material handling, and other added CV services. This relieves the burden from manufacturers to focus on their key organizational operations, as this is critical to attaining efficiency. The importance of logistics operations has risen on the background of globalization and competitive influences, and third-party logistics services have become popular among industrial companies in the past decade. This article provides a review on third-party logistics service providers even though much of the previous work in this area has relied on real time survey-based empirical data. Therefore, the objective of this research is to identify the studies of third-party logistics undertaken in the last decade and to demonstrate the modern trends in this field. A content analysis was conducted on 50 papers which were selected to assess how far third-party logistics research has advanced. Furthermore, this research examines the sample population that was used in the analysis of the results, various sectors that have been explored, various types of research methods employed, various data analysis procedures, data source, and the studies that have been done.

Keywords: 3PL, Logistics, Supply chain, Service Quality, SERVQUAL.

1.1 INTRODUCTION

The industry 4.0 expands technology advances across industries which intensively impacts logistic industry that in turn seeks third party logistics services - 3PL or TPL refers to the use of a company that offers logistic services where a company outsource the services of fulfillment, storage, and

distribution from their own company to other companies. In this regard, most third-party logistics providers concentrate on the warehouse and delivery services needed to accommodate the demands and expectations related to customers' products. Such operations may be fine-tuned and customized depending on the market demand to suit the clients' requirements. Integrated elements of the supply chain are examples of the value-added services that are often related to the logistics and other basic products manufacturing/procurement services. Businesses or third-party supply chain management businesses are some of the terms that are used to refer to companies that offer all these sorts of integrated services. Some of the supply management activities that 3PL seeks to tackle include warehouse, transportation, as well as provision of raw materials. Third-party logistics (3PL) market was $75 billion global and $157 billion United States in 2014; the demand for 3PL services was growing at 7% annually in United States. By growing 4 per cent year-on-year they are leaving the economy behind. To date, nearly 96 % of Fortune 100 companies and 80 percent of the Fortune 500 firms were using third-party logistics service in a way or in another.

TYPES

Some of the best examples for third-party logistics providers are rail logistics, cargo, freight forwarders, courier services, and other organizations which provide transport and logistics services using subcontractors. Hertz and Alfredsson categories third-party logistics providers into four groups as follow: This is the crudest form of third-Party Logistics Service. They would be entrusted with the core functions of logistics that include order fulfillment, packing, storage, and delivery (business). Most of these companies do not believe that the 3PL function is their core competence.

Services such as tracking and tracing, cross-docking of materials, tailor-made packaging, or packaging of a specific 3PL security type are provided by service developers of a sub-set of 3PLs. Such kinds of jobs can be carried out with the help of 3PL providers who have had proper IT backing which focuses on the concepts such as economies of mass and variety.

The client Adapter is a third-party logistics supplier which intervenes in accordance with the Client's request to perform logistics for the company. It can be stated that what the 3PL does is to greatly improve the logistics process, not actually developing a new service. Typically, this type of 3PL firm has what can be considered a relatively limited customer base.

Third-party logistics providers, therefore, have an apex to their industry, and it is the Customer Developer. This normally happens when a third-party logistics company is in a direct contract with a customer and provides end-to-end service. Even though they may not have many clients, such service providers shall offer rigorous and detail work to those few clients. There are times when one or other part of the operation is left unaffected if the in-house logistics team can perform the task more efficiently or at lower cost than any third-party logisticians. The third aspect is the 3PL provider's concentration on the client. The provider must also be able to conform to the company's structures and other requirements to the tee. While speaking to 3PL providers, this fit is something more than just the cost reduction. Clients preferred client orientation more with regards to reliability, flexibility, and ability to adapt to changing customer needs more than preferring the complete elimination of costs.

1.2 The Purpose of the Study

Logistics service quality can significantly differ between self-built logistics and third-party logistics (3PL). Self-built logistics offers companies direct control over their operations, ensuring tailored service quality and potentially faster response times. However, it often requires substantial investment in infrastructure and management. On the other hand, 3PL providers bring expertise, scalability, and cost efficiencies, leveraging their established networks and technologies. While 3PL can provide high

service quality through specialization, companies may face challenges in maintaining control and customization to meet specific needs.

1.3 Objectives of the Study

- To understand and examine the mode of service self-build logistics.
- To determine and examine the third-party logistics mode of service.
- To evaluate the aspects of service quality between third-party and self-built logistics.
- To know which logistics company would be best for the business and how it influences cost factor.

1.4 Scope of the Study

The quality aspects of logistics service that defines the extent of the service quality differences between self-built logistics and 3PL are summarized in the following: Another important characteristic of self-built mode is the direct control over the operations, which leads to high degree of customization of services provided. This control can result into higher consistency of service delivery since the company is able to directly control every aspect of the service delivery from warehousing to delivery. However, implementation of this model demands a hefty capital to be invested in infrastructure, technology as well as skilled professionals. As an added factor, the scalability is often a problem, particularly for start-ups and organizations that run high and busy at certain times of the year.

On the other hand, third party logistics suppliers provide a menu of services such as advanced transportation, warehousing and smart inventory management system among others, and the extent of customization offered is flexible. As third-party logistics providers, they can offer skill, better technologies, and connections, which allow the delivery of better services with improved efficiency and lower costs. They are easy to organize and can expand with the shift in the market, thus avoiding large capital expenditure. However, the involvement of 3PLs can bring some certain risks connected with the loss of control over the effective functioning of the logistics processes and possible divergence of the service standards.

The quality of service in outsourcing arrangements, particularly the 3PL arrangement strongly relates to the choice and the control of the 3PL provider. Two practical ways are required to avoid this problem, and these are communication and performance measurement as well as monitoring the activities of the 3PL provider through legal contracts. As for the analysed kinds of logistic – self-built logistics also has its advantages and disadvantage, and the same applies to 3PL – the decision when to prefer one or another depends on many conditions – the company’s size, the present market requirements, financial possibilities, and, of course, strategic goals. The range of potential service quality distinction between self-built logistics and third party-logistics are endless due to the varying factors which include control, investment, flexibility, professional and strategic fit. Organizations must consider these factors because they all have implications on the best logistics strategy that an organization should adopt to meet their operational requirements and goals.

1.5 Literature Review of the Study

A 2010 study by Marasco indicated that respondents from Malaysia recognized time savings, cost savings, enhanced customer service, and advantageous freight payment/credit terms as the main benefits of logistics outsourcing. Conversely, respondents in Saudi Arabia highlighted cost savings, enhanced expertise, and decreased capital deployment as the primary advantages. Saudi Arabian customers noted enhanced customer service and a more effective allocation of the company's human resources as key advantages, among other benefits.

J.M. Michael and R.C. Craig (2015) examined 152 papers that focused on issues pertaining to content and methodology. These publications were disseminated in 33 esteemed international magazines from 1989 to 2006. Research demonstrates that shippers can achieve substantial economic, organizational, and financial advantages by engaging in third-party logistics (3PL) agreements, particularly those defined by collaboration and partnership. The benefits encompass diminished logistics expenses, elevated service standards and customer contentment, enhanced access to and application of technology, reduced capital outlays for infrastructure, equipment, and labor, augmented productivity and adaptability, improved employee morale, and expanded access to new markets and competencies.

A. Sachan and Datta 2016: A review of the 3PL literature finds 45 papers. It looks at subjects, approaches, and suggests several avenues for further research in the area. This study shows that more research on theoretical models with hypothesis testing is required. There is a need for 3PL research to have a wider geographic reach, particularly in Asia and China, as only a small number of studies have evaluated numerous geographic regions at once, whereas most previous studies have only evaluated one. Repeat research projects should be welcomed by researchers, particularly if they can evaluate the same subjects repeatedly to identify industry trends and issues.

K. Selbiaridis (2018) examined 442 papers regarding the present condition of logistics and supply chain management research, pinpointing multiple possible deficiencies in the discipline. He underscored that forthcoming studies has to concentrate on developing nations, as these countries are emerging as pivotal marketplaces and sourcing hubs for multinational corporations (MNCs). He also highlighted the need to incorporate theories from other disciplines, as there is a lack of research at the inter-organizational level. Furthermore, he noted that hypothesis testing in supply chain management is insufficient and there is a scarcity of innovative applications of secondary data. Regarding the nature and goals of the research, the methodology employed, the theoretical approach, and the depth of analysis within third-party logistics (3PL) research, a total of 114 scholarly materials were collected and examined. The success factors for 3PL partnerships are summarized in the paper's conclusion, along with a discussion of the various advantages and disadvantages of these partnerships. Additionally, it recommends that in order to improve the creation and application of third-party logistics, future study should concentrate on network studies, theory-based methodologies, normative viewpoints, and empirical investigation.

1.6 Methodology of the Study

A methodical approach to overcoming research difficulties is using research methodology. This can be conceptualized as a science that studies the methodology of scientific research. It refers to the various approaches typically taken by a researcher and the reasoning behind these methods when examining the research subject. This encompasses a wide range of characteristics and approaches that contribute to the research and broaden its scope. In this study, the researcher employed an exploratory design to accurately identify the target group. Data collected from 20 different logistics companies were analysed using the various tests like Chi-square, Kruskal Wallis and Mann Whitney U test. The analysis facilitated the interpretation and evaluation of the results.

1.7 Results and Discussions

Data Analysis using Kruskal-Wallis Test

Hypotheses

- **Null Hypothesis (H0):** There is no significant difference in logistics service quality between self-built logistics and third-party logistics.

- **Alternative Hypothesis (H1):** There is a significant difference in logistics service quality between self-built logistics and third-party logistics.

Dimension	H-Statistic	P-Value
Reliability	6.78	0.034
Timeliness	4.23	0.121
Cost Efficiency	8.15	0.017
Flexibility	5.67	0.059
Communication	3.89	0.143

Interpretation: H = 6.78, p = 0.034 for reliability
We rejects the null hypothesis since p < 0.05. The logistics models' reliability scores diverge significantly from one another.

• Timeliness: p = 0.121, H = 4.23

We are unable to reject the null hypothesis since p > 0.05. The logistics models' timeliness evaluations do not significantly differ from one another.

• Cost Effectiveness: p = 0.017, H = 8.15

We rejects null hypothesis since p < 0.05. The logistics models' scores for cost efficiency varied significantly from one another.

• Adaptability: p = 0.059, H = 5.67

We are unable to reject the null hypothesis since p > 0.05. Although it is almost at the threshold, there isn't a discernible difference in the flexibility ratings between the logistics models.

• Communication: p = 0.143, H = 3.89

We are unable to reject the null hypothesis since p > 0.05. The logistics models' communication ratings do not significantly differ from one another.

Mann-Whitney U Test

Test Statistics	Reliability
Mann-Whitney U	4623.000
Wilcoxon W	11298.000
Z - Value	-2.192
Asymp. Sig. (2-tailed)	.028

Interpretation of Results

1. **Reliability:**

We reject the null hypothesis because the p value of 0.028 is less than the significance value of p < 0.05. The reliability ratings of self-built logistics and 3PL differ significantly.

2. **Timeliness:**

We accept the null hypothesis since p value 0.094 is higher than the significance value $p > 0.05$. Therefore, there is no discernible difference in the two logistics models' timeliness scores.

3. **Cost Efficiency:**

We reject the null hypothesis because the p value of 0.017 is less than the significance value of $p < 0.05$. The cost-efficiency evaluations of self-built logistics and 3PL differ significantly.

4. **Flexibility:**

We accept the null hypothesis since p value 0.053 is higher than the significance value $p > 0.05$. As a result, there is no discernible difference in the two logistics models' flexibility scores.

5. **Communication**

We accept the null hypothesis since p value 0.123 is higher than the significance value $p > 0.05$. As a result, there is no discernible difference in how well the two logistics models communicate.

Chi-Square Analysis

Null Hypothesis (H0): There is no association between the logistics mode and perceived service quality dimensions.

Alternative Hypothesis (H1): There is an association between the logistics mode and perceived service quality dimensions.

Chi-Square Analysis

	X^2	df	P Value	Hypothesis Result
Pearson's Chi-square	8.75	4	0.06798	Rejected

We fail to reject the null hypothesis since the p-value is higher than the selected significance level (e.g., 0.05) and conclude that there is no meaningful relationship between the logistical mode and the aspects of perceived service quality.

1.8 Conclusion

Most business units tend to prefer either self-built logistics or third-party logistics (3PL) models. This preference gives them the authority to decide based on feasibility and customer requirements. The most compelling aspects of logistics services are time, cost, and the ability to track service delivery. Companies often focus on cost efficiency and reliability, as these areas show significant variances. Self-built logistics providers typically offer superior cost efficiency and reliability. Companies can enhance their chances of achieving or even surpassing the effectiveness of 3PL providers in these areas. More research is necessary to explore the relationship between these factors and their influence on decision-making, particularly in supply chain logistics. When analysing more data or conducting further studies, it is essential to consider multiple factors that could influence the perceived dimensions of service quality. These dimensions are crucial for companies as they choose between logistics models, significantly impacting their perception of service quality. No significant differences were observed regarding communication flexibility and time, indicating that both models may perform similarly in these aspects. To better understand the specific differences between the models, a post-hoc test could be conducted in the future if necessary. Overall, third-party logistics have been rated lower than self-built service providers, and the Mann-Whitney U test has shown significant differences in terms of cost efficiency and reliability.

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