The Determinant Factors of Opti log Adoption on a Logistic Service Company in Indonesia: Literature Review

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Abstract

Logistic service providers in (trucking) needed to support Supply Chain activities. To provide services and improve business performance, it is necessary to investigate deeper whether the company's IT capabilities and Information Communication Technology (ICT) are the main issues. This literature search was performed as a literature review. A literature review is defined as the process of identifying, assessing, and interpreting all available research evidence with the aim of providing answers to specific research questions. The keywords are Logistic Service Provider or Service Quality or "ICT" or "IT Capability" or "Traceability" or Firm's Performance or Service Quality or Perceived Risk or Traceability or Information Communication Technology. The database used for the literature review was Google Scholar. In addition, the company's IT capability is a moderating variable between service quality, perceived risk, and traceability variables on company performance. However, ICT positively mediates the relationship between perceived risk and company performance. Therefore, enterprise I.T. and ICT capabilities are key to reducing various problems.

Keywords
Logistic Performance, Opti log Adoption, Narrative Literature Review, Logistic Service Provider

1. Introduction

Logistics Service Providers, especially trucking, have an important role in export and import activity and domestic shipping. In Indonesia, the logistic sector contributes 5.53% of export and import activity (Puspa, 2020). Meanwhile, trucking as land transportation is one of the lowest costs and most efficient transportation compared to other transport mort such as trains or vessels.

According to (Hapag-Lloyd, 2022), shipping costs on major global trade routes are about seven times what they were a year ago. At this high cost, shipping companies cannot ensure on-time delivery, contributing to schedule quality worldwide.

Global logistics conditions that are experiencing economic contraction make the importance of customer service that is more accountable, can be traced easily, and reduce risks for service customers (Lee & Wong, 2021).

Various studies highlight logistics from various points of view, such as customer satisfaction, service quality, and integrated customer satisfaction with e-services. One of the previous studies by (Ul-Hameed et al., 2019) states that they examined the effect of service quality from the company, website design, and e-traceability on logistics performance mediated by information communication technology and moderated by the I.T. capabilities of LSP companies.

This paper aims to provide a literature review of ICT's contribution to logistics and transportation with two main objectives:

1. classify research based on the main themes and methods as a guide for practitioners and academics; and
2. propose directions for future research, mainly for academic research.

The next section is about the methodology adopted in this literature review. Then the third section is followed by a review and discussions section. Section 4 illustrates the identified gaps and highlights potential directions for future research in this field. In the last section, conclusions are drawn, and research limitations are identified.

3. Literature Review

2.1 Service Quality

In LSP, service quality is the most important key, and we found much research about service quality LSP in all aspects (Hua & Jing, 2015). According to (Kilibarda et al., 2020), service can be classified into four types: contact-based services, vehicle-based services, asset-based services, and object-based services.

Lewis and Booms said in (Phuong Vu et al., 2020), that service quality is a measurement of how satisfying the level of service can meet customers' expectations. First, when the service has exceeded the customer's expectation, service quality can be accepted as satisfactory. Second, perceived service is an accepted service that exceeds a customer's expectation and can be accepted as ideal quality.

(Gabriel, 1997) mentioned that Parasuraman, Zeithaml, and Berry (1985) introduced SERQUAL Model to measure service quality. In (Kotler & Keller, 2017), there are some criteria that make differences between service and product, service is an intangible output, and service is a non-standardized variable output. LSP's customers tend to repeat the order and be loyal when they feel satisfied (Fernandes et al., 2018).

Customer service quality experience comes from employee service capability, and information quality provided by LSP has different areas and different aspects. Meanwhile (Kilibarda et al., 2020) say service quality dimensions are time, flexibility, elasticity, and empathy.

2.2 Traceability

Traceability (ISO, 2000) can be defined as the ability to trace the history, application, or even location as considered. One of the traceability functions is to avoid inconsistency in maintaining logistics performance. In the supply chain, traceability is one whole process, starting from raw material delivery until distribution (Hasnain, 2021).

Advance research discusses that the related value of traceability aligns with the supply chain process management to manage business processes and increase firm performance. Research by (Waseem-Ul-Hameed et al., 2018) states that traceability is the ability to trace products, data record location, and history tracing. In logistics prospects, an appropriate system is the main source of traceability, and better ICT is needed to trace the process of the logistic activity.

2.3 Perceived Risk

Perceived risk by (Wu et al., 2020) is a single construction with four attributes, financial, product, recommendation, and privacy security. Financial risk is potential monetary expenditure associated with losing the initial purchase price due to unintended consequences (Grewal et al., 1994).

Meanwhile, according to (Silaban et al., 2020), financial risk is the perception that a certain amount of money can be lost or needed to make a product work properly, including whether there are costs incurred when the product is damaged.

Financial risk is the risk of losing money due to credit card fraud, disclosure of bank account information, overcharged money, or the wrong product provided (Sinha & Singh, 2017), 2017). Financial risk is the perception that a certain amount of money may be lost or needed to make the product function properly (Durmus et al., 2017).

2.4 Firm's IT Capability

There are many conclusions in the literature review by (Wilson et al., 2015) that relate to the I.T. Capability effect on the firm's logistic performance. Some findings agree that I.T. Capability directly influences most firm logistics operations, and most researchers agree that they have a positive relationship with the management system. This affects the infrastructure and company's assets in the management system.

(Bag et al., 2020) has observed that technology capability, organizational capability, and environment capability show a significant relationship against Logistic 4.0 capability. However, technology capability and environmental capability have been found stronger than organizational capability. Another observation finding is that Logistic 4.0 has a significant relationship with the firm's performance.

Firm's IT capability is defined by (Bassellier, 2000) as when a company can gain, expand, connect, and reform resources from a company with an I.T. basis, to increase operational efficiency and business strategy.

2.5 ICT Adoption

Information and Communication Technologies (ICT) is at the core of the new economy-based economy. ICT is one of the most important and rapidly growing technological innovations that provide companies with various opportunities to increase efficiency and effectiveness and even gain a competitive advantage (Wilson et al., 2015).

The application of innovative Information and Communication Technology (ICT), according to (Widodo et al., 2018), is an important element in promoting logistics. Applying ICT technology innovations in urban freight transport can help logistics service companies create an effective and efficient logistics system. For example, collection of accurate data collection of pick-up–delivery truck movements on urban and inter-city road networks and digital data can be fully utilized to optimize vehicle routing and scheduling planning dynamically. ICT can make it easier for companies to standardize, monitor, and utilize data so that they can measure and evaluate internal and external performance (M. Rabe et al., 2020).

TMS or Transport Management System is a logistics platform designed to streamline the shipping process. Using cloud-based technology or SaaS, Transport Management System is the right tool to help businesses plan, execute, and optimize the physical movement of goods, both inbound and outbound, and ensure appropriate delivery and proper documentation are available (Koster et al., 2017).

TMS is the right tool to streamline the delivery process and make it easier for business actors to manage and optimize their transportation operations, whether by land, air, or sea. The Transport Management System is a tool that plays a central role in the supply chain, as it affects every part of the process, from planning and procurement to the final stages of logistics distribution (Griffis & Goldsby, 2007).

2.6 Firm's Logistics Performance

There is a close relationship between ability and performance. In other words, operating capability can affect logistics performance in transportation companies (Wang et al., 2018). Logistics capabilities reduce supply chain uncertainty and risk and improve logistics performance. Supply chain uncertainty and risk need to be managed properly to improve logistics performance by referring to resource-based theory to mitigate them (Wang et al., 2018).

(Grant, 1991) reveals that the company's resources and capabilities are important considerations in formulating a strategy. The main key to the resource-based view approach in formulating strategy is understanding the relationship between resources, capabilities, competitive advantage, and profitability.

The importance of resources and capabilities is recognized as an important part of improving organizational performance. This framework aims to show how managers can use their resources to create value for their customers. Several studies have examined the relationship between marketing ability and organizational performance. For example, market knowledge competence and market orientation planning are among the factors that researchers consider when assessing the relationship between marketing resources and performance (Ceric et al., 2016).

ICT has an important link with logistics performance. To improve logistics performance, ICT is a key element. ICT serves to increase efficiency by managing most operations over the internet and increasing effectiveness (Shahid, Nadeem; Waseem-Ul-Hameed;Abdul Khaliq, Alvi; Jawad, 2018).

3. Methods

3.1 Research Design

This literature review is collected based on 71 papers published from 1990 to 2022. These papers are collected from Google Scholar. To identify as many eligible studies as possible, search terms and strategies are expanded.

3.2 Data Sources and Search Strategies

A review strategy was developed, describing the article selection criteria, search strategy, data extraction, and data analysis. The database searched by keywords and strings as follows Logistic Service Provider or Service Quality or "ICT" or "IT Capability" or "Traceability" or Firm's Performance or Service Quality or Perceived Risk or Traceability or Information Communication Technology.

3.3 Eligibility Criteria

To review the articles, the selection process was conducted in 3 stages. The first stage of analysis was the screening of the title and abstract. The second stage was the analysis of the articles. The selection criteria were established according to the research question, and the results were organized in a table. We eliminated studies with no full text available. In the third stage, the reviewer read and integrated all results into a single document. Articles in this round were retrieved for a comprehensive examination to decide on inclusion in our study. To address our specific research questions, we excluded all papers that did not describe research examining the process and outcomes of competence development. (Figure 1)

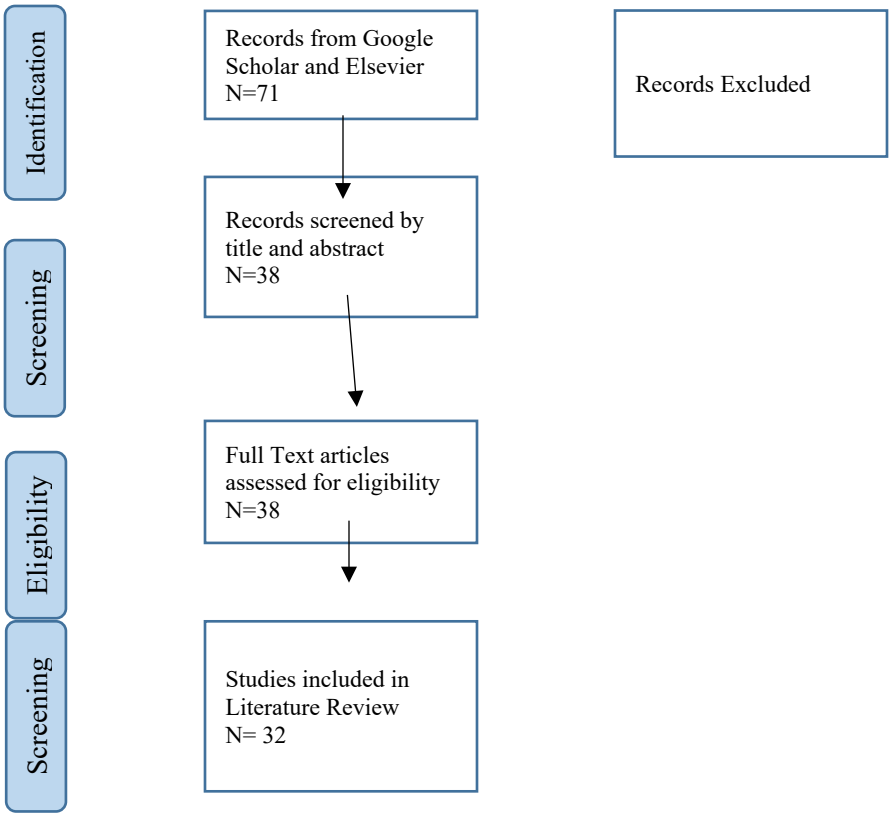

Figure 1. Literature selection stage

3.4 Research Method

Based on the literature review, (Table 1). we examine the literature relating to ICT for logistics service provider activities, and we gain perspective from practitioners and researchers. Specifically, we focus on private logistics and transportation companies where ICT adoption can provide solutions to the companies. For the review purpose, we considered the following variables such as service quality, traceability, perceived risk, web design, e-payment, an innovation affecting LSPs performance where ICT adoption possible to be a mediating role, and the possibility of I.T. capabilities as moderating role (MahbubulHye et al., 2020), (Ul-Hameed et al., 2019).

Table 1. Papers Included in Literature Review

Author	Country	Method	N	Focus	Analysis	Journal Name
(Campo et al., 2010)	Spain	Survey	744	Users	SEM	
(Bag et al., 2020)	South Africa	Survey	230	Customers	SEM	
(Griffis & Goldsby, 2007)	United States	Survey	45	Users	NA*	
(Souali et al., 2016)	Morocco	Literature Review				
(Guan et al., 2020)						
(Q. Wang et al., 2008)	China	Survey	105	Users	PA SP	Supply Chain Management: An International Journal
(Fernandes et al., 2018)	Brazil	Interview	117	Users	Path	Revista de Gestao
(M. Wang et al., 2018)	Australia	Survey	167	Users	SEM	Operations and Supply Chain Management
(DeStefano et al., 2018)	United Kingdom	Cross Section	4871	Users	OLS	Journal of Economic Behavior and Organization
(Ul-Hameed et al., 2019)	Pakistan	Survey	229	LSP	SEM	Uncertain Supply Chain Management 7
(Widodo et al., 2018)	Indonesia	Literature Review		LSP		City Logistics 3
(C. S. Lee & Watson-Manheim, 2014)	India, United States	Interview	47	LSP	Regression	Journal of Computer Information Systems
(Razak et al., 2021)	UK	SLR				Production Planning and Control
(Dwijaya Saputra & Kusnadi, 2021)	Indonesia	Survey	180	User	SEM	Journal of Economics, Management, Entrepreneurship, and Business
(Masudin, Lau, et al., 2021)	Indonesia	Survey	50	User	SEM	Cogent Business and Management
(Hasnain, 2021)	Pakistan	Survey	174	LSP	PLS	Thesis

(MahbubulHye et al., 2020)	Malaysia	Survey	338	User	SEM	Test Engineering and Management
(Waseem-Ul-Hameed et al., 2018)	Pakistan	Survey	450	User	SEM	International Journal of Supply Chain Management
(Gultekin et al., 2022)	Turkey	Interview	6	Experts	DEMATEL	Computers and Industrial Engineering
		Survey	15	LSP		
(Masudin, Ramadhani, et al., 2021)	Indonesia	Survey	140	Customer	SEM	Cleaner Engineering and Technology
(Wilson et al., 2015)	Nairobi	Survey	30	LSP	SPSS	International Journal of Scientific and Research Publications
(Devlin & McDonnell, 2009)	Ireland	Survey				International Journal of Forest Engineering
(Koster et al., 2017)	South Africa	Survey	26	User	NA	Journal of Contemporary Management
(Adebola et al., 2018)	United Kingdom	Survey	144	User	Z-test	IFAC-PapersOnLine
(Uvet, 2020)	United States	Survey	302	Student	SEM	Operations and Supply Chain Management
(Mei & Afli, 2017)	China	NA	NA	NA	NA	European Journal of Logistics, Purchasing and Supply Chain Management Vol.5
(Phuong Vu et al., 2020)	Vietnam	Interview	14	LSP	NA	Asian Journal of Shipping and Logistics
(Hua & Jing, 2015)	China	Survey	236	Student	SPSS	Empirical Study on E-commerce Logistics Service Quality and Customer Satisfaction

(Zhang et al., 2019)	China	Survey	216	User	SEM	Transportation Research Part C: Emerging Technologies
(Jayashankar et al., 2018)	United States	Survey	492	Farmers	SEM	Journal of Business and Industrial Marketing
(J. M. Lee & Wong, 2021)						
(Wu et al., 2020)	NA	Survey	30	Customers	SEM	International Journal of Information Management

4. Results and Discussions

In research (Gibbons et al., 2012), logistics transportation service companies must consider the importance of customer or user trust to effectively provide service quality. Additional efforts should be made to develop entities that support logistics knowledge and skills.

Based on (Phuong Vu et al., 2020), better quality of services from logistics service companies will make consumers feel that their needs are being met. The conditions in which logistics service companies can provide good quality services have reliability in solving consumer problems, and then improve their ability to provide up-to-date information to their customers will increase the performance of logistics companies (MahbubulHye et al., 2020). This research shows that the relationship between service quality and a firm's performance significantly affects logistics performance.

Several studies related to the results of this study explain that logistics service providers will not last long if they cannot manage information properly. This shows the importance of the quality of information and the quality of the traceability reporting system owned by every logistics service provider (Yan et al., 2019). The quality of traceability, services, information systems, and operational effectiveness has a significant effect on customer satisfaction. Customer satisfaction is used as a parameter to measure the performance of logistics transportation services (Masudin et al., 2021).

The ability of the company's system to track shipments, find out the order position, and apply the appropriate system so that it can provide information about the position of consumer goods and their status will make consumers trust the company more and want to continue to use the logistics service company so as to improve company performance (Waseem-Ul-Hameed et al., 2018).

The flexibility of perceived risk and its universal appeal to researchers interested in explaining less common consumer phenomena is demonstrated by studies on topics such as expert systems and artificial intelligence, flexible manufacturing systems, financial risk assessment, top executive travel, and diffusion theory (Mitchell, 2001). The existence of better risk perception will make the company's performance increase. Consumers who feel that logistics service companies are able to provide security and comfort for goods entrusted to logistics service companies will use the services of these companies (Ariffin et al., 2018). The company's performance also gets better when it can minimize the risk of damage and financial risks faced by consumers because there is a smoother cash flow for the company. Risk mitigation is carried out by handling more carefully, paying attention to details, and using traceable containers to improve company performance (Ul-Hameed et al., 2019).

Technology as a medium of information is important for logistics service providers. This is because of the considerable influence of correct information on customer satisfaction. The effectiveness of system quality, service quality, information quality, and operational efficiency have a significant effect on customer satisfaction (Sánchez-Franco et al., 2019) stated that a fast, systematic, accurate system in all respects could increase customer satisfaction. By meeting some of the criteria above, service providers can make customers feel satisfied with the quality of the information systems they provide.

A well-managed information technology system can solve various problems and improve overall performance. (DeStefano et al., 2018) assume that if managerial quality has a high degree of time persistence, as seems likely, and is positively correlated with sales, employment, productivity, age, or ownership, then this will appear as a correlation with the assigned instrument in the period before ICT came into use.

(Jayashankar et al., 2018) evaluated the perceived risk associated with the adoption of IoT technology. Technology adoption establishes the relationship between perceived risk and technology adoption and purchasing decisions and behavior, and the relevance of privacy risk. Information asymmetry between sellers and buyers can affect the functioning of an economically efficient neutral B2B exchange. The new combination of IoT technology and digital capabilities can enable end users to increase their productivity for both businesses and customers. Previous research has emphasized the role of IT in improving organizational performance, and the business value of IT can be calculated based on its efficiency (e.g., cost reduction and productivity), as well as its effectiveness.

5. Conclusions

The purpose of this study is to provide services and improve business performance in LSPs and to provide a literature review of ICT's contribution to logistics and transportation with two main objectives:

1. classify research based on the main themes and methods as a guide for practitioners and academics; and
2. propose directions for future research, mainly for academic research.

6. Limitation and Future Research

The literature limitations are that the researchers used the Google scholar database for searching the literature. The research quality discovery using Google scholar varies. Therefore, future research should use Scopus or Web of Science. Those databases curate high-quality research papers. Second, the literature review method uses a narrative approach. The limitation of the narrative literature review is too subjective. Therefore, future research should use a bibliometric approach using prominent software.

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