



Logistics: Analysis of Procurement, Distribution, Warehousing, and Transportation (Mini Review)

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ABSTRACT

This scientific article directly with the review literature will describe and prove the results article so that it gets answers with the perspective of researchers and is corroborated from scientific articles from existing literature. The research method in this scientific article uses qualitative by searching for review literature derived from scientific articles in international reputable journals. The findings of scientific articles in literature are made a set with elaboration and this scientific article provides a treasure and additional material for other researchers to use and as a reference. Recommendation to further research that variables other than the findings or used in this research or scientific article can be jointly used in future research, with objects, research methods or produce a new model

INTRODUCTION

Analytics are critical for distribution because they help with resource allocation, route optimization, and delivery time estimation, companies can find strategic distribution points, cut supply costs, and improve delivery times by using analytical techniques such as supply chain modeling and distribution network mapping. In addition, analysis helps in assessing the effectiveness of distribution and finding areas for improvement, such as improving monitoring tools or increasing transportation dependence, in addition to logistics regarding facilities according to opinion (Sakai et al., 2016);(Saribanon et al., 2019) according to (Rajeev et al., 2017) At the same time, logistics can also affect an organization's environmental, social, and financial sustainability in the form of increased carbon emissions, increased food safety, and waste, at every stage of sourcing, distribution, storage and transportation, companies must be able to identify potential risks such as supply instability, distribution system disruption, loss or damage to goods or delivery delays. With a comprehensive risk analysis, companies can develop effective risk mitigation strategies, such as supplier diversification, cargo insurance or careful monitoring of shipping conditions.

Logistics is also related to storage, which includes analysis related to storage management, storage planning, and choosing the right storage system. When analyzing inventory, companies must consider factors such as inventory turnover, optimal use of space, and operational efficiency, (Hübner et al., 2016); (De Koster et al., 2007);(Puspitasari et al., 2017) The effectiveness and efficiency of distribution networks are largely determined by the operation of nodes in such networks. Due to the high capital and operational costs, previously considered a burden, the importance of knowing transportation involves evaluating and managing all aspects related to the movement of goods, including the selection of the right mode of transportation, efficient routes, and planning delivery schedules. In this analysis, companies can use tools such as transportation cost analysis, transportation network modeling or the use of the latest logistics technologies such as technology to monitor optimize transportation performance.

Era of digitalization and digital transformation, logistics analysis is supported by ever-evolving technology. By using technologies such as big data analytics, machine learning, or cloud-based supply chain systems, companies can collect and analyze larger amounts of data more quickly and accurately. This allows companies to identify patterns, trends, or anomalies in their logistics operations and make smarter and timely decisions, according to (Benjaafar et al., 2012) if purchases are made in, also be considered together from a sustainable development point of view. It was also found are the main causes of carbon emissions through out, leading to environmental disasters, supply is the first and most demanding activity in any supply chain, procurement is about from the right supplier (Kaur & Singh, 2019) therefore, purchasing and logistics models must be able to manage these fluctuations

effectively so that the supply chain of the business organization becomes flexible (Kaur & Singh, 2019);(Achir et al., 2022)

With the phenomena in the introduction, this scientific article in the review literature will describe and prove the results related to the variables used in this scientific article so that it gets answers with the perspective of researchers and is corroborated from scientific articles from existing literature.

THEORETICAL REVIEW

Logistic

According to (Aguezzoul, 2014) Logistics distribution, warehousing and inventory management, as well as return or repatriation logistics, according to (Barreto et al., 2017) Logistics 4.0 means the optimization of logistics operations with intelligent systems embedded in databases or software, where all important processes can communicate with each other and with people to improve capabilities analytical and operational.

Procurement

According to (Baily, 2013) procurement is make plan, acquiring and controlling the acquisition of organizational resources necessary for the production of goods and services. These include, for example, needs assessment, supplier selection, contract negotiation, delivery processing, and quality control, while according to (CIPS, 2018) Procurement is the business process of providing goods, services or labor from external sources. This includes identifying needs, planning acquisitions, selecting suppliers, negotiating contracts, managing contracts, and evaluating supplier performance.

Warehouse

According to (Fadhilah et al., 2022);(Staudt et al., 2015) warehouse is a warehousing operation usually includes receiving, storing, retrieving, and shipping.

Distribution

According to (Stanton et al., 2004) an activity that aims to provide goods and services to customers in a timely manner, quantity, and location, further according to (Kotler et al., 2013).

Transportation

According to (Juan et al., 2016) Logistics and Transport (Land Transport) is a key industry in the global economy and makes an important contribution to the social and economic development of modern society. The proliferation of Land Transport industries due to its continued growth and impact on regional Gross Domestic Product (GDP). With research (Susanto et al., 2021) The presence of the sea highway has a good impact on the community and logistics actors. the sea highway also has many other benefits, both for the community in general, and especially for the world of logistics. Some of these are the benefits of the presence of the sea highway which can now be felt by the community and logistics personnel.

METHODOLOGY

The research method in this scientific article uses qualitative by searching for review literature derived from scientific articles in international reputable journals.

RESULTS

The results of this scientific article provide a finding of scientific articles from various international reputable journals by looking for research results related to the variables in this scientific article as follows:

Logistic Variables with Procurement Variables

Scientific articles derived from proprietary studies (Bened et al., 2020);(Kaur & Singh, 2019) aim in their scientific articles to know raw materials and logistics, which are considered key stages in any supply chain, are used to model the sustainability-sustainability supply chain design, with the results of research the model name suggested in this article, illustrated with a figure, from five different deterministic data sets, significant profit management and useful information extracted, and By maximizing logistics and procurement while adhering to CO₂ emission limits, the proposed SPL_DRSCM model for MINLP showed significant savings, a comparative analysis was performed, and certain numerical findings were presented, subsequent studies from (Piotrowicz, 2018) with research objectives to examine humanitarian supply chains in the context of the Ukraine crisis as an example of a complex crisis. This paper focuses on a number of in-kind forms of support, cash transfers and local sources, the result of research that in urban middle-income countries such as Ukraine, non-standard methods such as cash transfer programs and local sources can be used because the necessary infrastructure and markets are already in place. However, each form has limitations, so it must respond to local contexts and the needs of different social groups.

Subsequent studies from (Gholizadeh et al., 2020) aim of research propose a versatile and environmentally friendly model for supply chains, with the results of mixed nonlinear integer program research that combines big data for optimal sustainable supply and transportation decisions. To overcome the big data problem, a heuristic method is used, which uses a robust fuzzy stochastic programming approach. The proposed model can prevent failure using a scenario-based stochastic programming approach. Efficient fuzzy hybrid-robust stochastic methods are also used to manage parameter uncertainty and risk-taking in departure decisions. The extended ϵ -bound method is used to solve multi objective models. Model performance was examined in extensive computer studies, subsequent studies from ((Liang et al., 2020) with the aim of research to fill this research gap, we adopted the Vickrey - Clark-Groves volume discount (P-VCG) and the actual double auction procurement mechanism and applied it to the logistics services market, according to the research results proving that both auction mechanisms ensure incentive matching, individual rationality, budget balance, and asymptotic

efficiency. In addition, compared to traditional true double auctions, the TR-QD mechanism supports joint procurement – allowing more customers to enjoy discounts for comprehensive logistics services – and bidding time prioritization – which achieves the goals of responding to inquiries early and Quality for improved auctions.

In terms of the findings of scientific articles with the objectives and research results of the articles described above related to this scientific article that logistic and procurement variables are found various kinds of research and results so that researchers see these variables in accordance with evidence and strengthen.

Logistic Variables with Distribution Variables

Where the scientific article of the study belongs (Torabi & Montazeri, 2014) The purpose of this work is to present a new family of one-dimensional distributions generated by logistic random variables. A special case in this family is the distribution of logistic forms. Uniform distribution logistics offer great flexibility in modelling symmetric, negatively and positively skewed, trough, J-shaped, and inverted “J-shaped” distributions, while new distributions studies show that it can be used effectively for survival. analysis. . Data according to the risk of uneven distribution problem. The usefulness of the new distribution is illustrated by two real data showing that this distribution is more flexible in data analysis than beta generalized exponential, beta exponential, beta normal, beta Laplacian, and beta-generated semi-normal distributions. It has been. and β -Birnbbaum-Saunders, uniform gamma, common beta couplet, beta modified Weibull, beta couplet, generalized modified Weibull, beta Weibull and modified Weibull distributions, further study (Mangla et al., 2019) The research objective analyzes the interaction between sales challenges focusing on operational excellence and higher green business growth and sustainability in the food supply chain by examining business case studies of four dairy companies in India using graph theory and matrix approach, with research results Provide useful information for managers and decision makers who manage interactions between people and processes as well as the management of corporate sustainability in logistics and supply chains of dairy farming companies.

The next study from (Melkonyan et al., 2020) research objectives analyzed the interaction between sales challenges focusing on operational excellence and higher green business growth and sustainability in the food supply chain by examining business case studies of four dairy companies in India using graph theory and matrix approach, with research results The most practical and long-term solution involves merging the two players into a distributed network strategy built on the idea of crowd logistics, emphasizing the critical role played by the logistics industry in proactively innovating to make sustainable choice decisions for customers easier. From the description of the scientific articles above with the objectives and results of research that the variables in these scientific articles are in accordance with existing expectations and findings, namely logistic variables with distribution.

Logistics variables with Transport variables

Starting the study from ((Juan et al., 2016) research challenges related to the introduction of EVs in L&T activities, including: (a) environment-related issues; and (b) strategic, planning, and operational issues related to "standard" EVs and hydrogen-based EVs, the results of the study generate new variations of the well-known Vehicle Routing Problem, one of the most researched optimization problems in the L&T field, and show that sim heuristics and metaheuristics are the most effective tools to solve this challenging optimization problem, a subsequent study from (Ansari et al., 2018) with research objectives This study focuses on the findings of critical CA models and significant principles, Research results of broader applications, especially those involving facility location and integrated supply chain management, using the CA model, in large part the study of replacing and improving discrete solution approaches with CA however, CA can also be used in conjunction with discrete approaches, closing with some exciting prospects for the future.

Subsequent studies from (Herold & Lee, 2017) with the aim of its scientific articles offering insights into the main themes and challenges of carbon management in the logistics and transport sector, the results of carbon management research in logistics and transport are increasing, only carbon reduction initiatives have received significant attention in the literature, subsequent studies from (chung, 20 21) Conduct a thorough review of the important contributions made in the application of Smart technology, with the results of the study concluding the study by making recommendations for additional studies talking about the technical challenges faced by researchers in the creation of optimization methodologies brought about by the use of Smart technology.

Variable Logistics with Warehousing

Studies from (Kembro et al., 2018) aim of research to improve understanding of how the shift towards integrated omni-channel affect warehouse operations and design, with the results of multi-channel and omni-channel warehouse operations and design research not given enough attention, instead, most articles in scientific journals discuss shifts in consumer demand and their implications at the network level, focusing on issues such as Organization and management of material and information flows, inventory management, resources, actors, and relationships, there are ten themes in omni-channel logistics found, and divided into two categories: value proposition and channel management, and physical distribution network design, related themes and aspects have implications for warehousing, and the author develops an overarching and structured agenda to direct future research on omni-channel warehousing with combining it with general warehousing knowledge, a subsequent study from (Burganova et al., 2021) with the aim of research on how to use available resources to improve warehousing and logistics, the results of research on faster delivery of finished products are the result of improved processes and faster material transport times in the workplace, p Process improvement, faster material transport times at work, and ultimately

faster delivery of finished products, product introduction to the market and customer satisfaction, are scientific and, more importantly professional.

Subsequent studies from (Nantee & Sureeyatanapas, 2021) with research objectives With an emphasis on automated warehousing systems, the effect of the Logistics 4.0 initiative on economic, environmental, and social aspects of business sustainability performance being the focus of this study, a new framework was created for the evaluation of sustainable warehousing in the 4.0 era to achieve this goal Results Most sustainability performance metrics for both businesses have improved significantly (e.g. Productivity, accuracy, air emissions, worker safety, and supply chain visibility); However, outcomes for some criteria can be worse or better depending on each company's solutions and strategies (e.g. increased maintenance costs, increased utility bills, and job losses).

Subsequent studies from (Perotti et al., 2022) has developed rapidly in logistics over the past ten years, however, Logistics 4.0 is still in the early stages of adoption; some industries, such as warehousing, are still investigating their application, and the application of this paradigm technology can be blurred, this paper fills this gap by analyzing the relationship between factors, obstacles, and the advantages affecting Logistics 4.0 technology in the context of warehousing, with the results of the study having been thoroughly examined and compiled into a coherent picture to include the drivers of adoption, realizable benefits, and potential barriers or criticisms, while the barriers and criticalities are primarily technological, safety and security, and economic, the level of digital awareness and readiness of companies has a significant impact , the main advantage noted is the optimization of the warehousing process.

DISCUSSION

After there are results, the variables in this study are represented by scientific articles with findings that are described qualitatively the results of the study, then support this scientific article with all variables that provide reinforcement to this scientific article qualitatively from the existing literature. Articles with phenomena and gaps make a difference in the findings of the researchers in this scientific article

So this scientific article by researchers from the perspective of providing additional results and strengthening the results of existing research in scientific articles that have produced research with existing variables.

CONCLUSIONS AND RECOMMENDATIONS

From the purpose of this scientific article , the findings of scientific articles in literature are made a set with elaboration and this scientific article provides a treasure and additional material for other researchers to use and as a reference.

Recommendations to further research that variables other than the findings or used in this research or scientific article can be jointly used in future research, with objects, research methods or produce a new model.

FURTHER STUDY

This scientific article adds treasures to future research, especially for researchers who want to develop, use, or as a reference in their research.

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