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REVIEW ARTICLE

Lean Logistics, Lean Supply Chain, And Lean Supply Chain Management For Sustainability: WOS (1987-2024)

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ABSTRACT

To achieve global sustainable development goals, solutions should be developed in environmental, economic, and social areas. Lean logistics is one of them. This study was planned to bibliometrically examine the publications on lean logistics, reveal current trends, and guide future researchers. On 20.07.2024, 267 publications on lean logistics were accessed from the Web of Science database. The collected data were analyzed using a social sciences statistical program. Publications cover the years 1987-2024. Most publications were written in 2022 (219) and received 7000 citations. The subject is lean logistics management (205), and Six Sigma has been examined (117). The majority of publications (114) were WOS. SSCIs were screened. The language of publication is English (260). The country with the most broadcasts is England. This data was scanned in the (114) index. 260 publications were published in English. England ranks first with 38 publications. 161 publications meet sustainable development goals. (92) of these are Responsible Consumption, (47) industry, innovation, and infrastructure, (12) sustainable cities and communities (5) healthy and quality life, (2) healthy and quality life, and (1) zero hunger, quality education and decent It includes work and economic growth. Lean logistics are necessary to achieve sustainability goals.

Keywords: Lean management, lean logistics, bibliometrics, Web of Science

1. Introduction

Logistics have the power to affect both national and international trade. While logistics were only related to the economy until the 2000s, it began to be effective in environmental and social aspects as well. In particular, global sustainability development targets have affected the logistics sector, as in every field, and increased research and applications by states, institutions and researchers have conducted various studies on sustainable logistics activities. Lean logistics plays a key role in ensuring sustainability.

Logistics businesses aim to deliver their products and services to their target locations as quickly and as quickly as possible. They deliver at a low cost. They can achieve this by reducing waste (Mücevver, 2021). Reducing waste provides a competitive advantage to logistics companies (Kılıç, 2022). The concept of leaning emerged in Japanese companies in the 1950s. Lean thinking was first created by Toyota Motor. Lean philosophy is a philosophy that increases business processes efficiency, eliminate waste, and focus on customer value. This philosophy aims to continuously realize value from raw materials to finished products. Essentially, it shows how to identify waste and eliminate it. The indicator of this is the idea of producing the best quality with less cost, less waste, and faster production at affordable prices (Yangınlar and Bal, 2019). Although steps that do not add value are defined as waste, the literature was defined by Ohno in 1988 under the title “Seven Deadly Wastes’ as "unnecessary production, excessive waiting, error in production, excess stock, unnecessary transportation, unnecessary work, and unnecessary movements" (Topuz, 2021). Lean logistics is a working philosophy aimed at identifying and removing waste in the supply chain (Alejandro-Chable, 2022). Lean logistics focus on zero error and continuous improvement in processes (Bowersox et al., 2002). Lean logistics aims to improve processes by eliminating unnecessary costs in logistics processes in lean supply chain management and by abandoning activities that do not create added value (Baudin, 2004).

Lean philosophy around the world; Important production policies such as providing global advantages in competition, ensuring sustainability, adapting to rapid market changes, and expanding the customer base have benefited many businesses. Today, simplification and lean techniques are used along with manufacturing and service systems. These can be cited as examples of business partnerships, such as education, supply, logistics, informatics, and technology (Uçar and Şirin, 2024). Every sector has started to adapt lean management to its business. Logistics activities were also simplified, and lean logistics emerged. If logistics

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businesses want to take their products and services to their target locations in the shortest time and at the lowest cost, they should adopt a simple logistics application approach. For this purpose, businesses should eliminate all unnecessary actions that do not add value to their logistics practices. Avoiding wasteful practices and adopting a lean logistics approach are some primary actions. Only in this way will businesses be able to gain a competitive structure (Mücevher, 2021). Spending less on costs and time is possible by working efficiently in logistics applications and avoiding waste. To avoid waste, unnecessary costs and stocks should be avoided. The essence of lean logistics is controlling raw materials and stocks in storage and transportation steps to achieve the desired service quality (Jordan, 2002).

Lean management is applied in many sectors. With an understanding of its importance in the field of logistics, it has attracted the attention of managers and researchers, and research on this subject has intensified. As in every field, it is extremely important to thoroughly understand the literature to determine the conceptual framework of lean logistics as a research field, as well as its sectoral applications (Raghuram et al., 2010). Bibliometric research is carried out to facilitate, guide, and evaluate opportunities for researchers, students, academicians, and practitioners. Lean logistics applications are quite new; thus, the number of studies is low. In this context, it creates a disadvantageous situation for researchers who want to work in a more specific field of lean logistics, apart from lean production or supply chain.

Sustainable development goals must be implemented for future generations to live in prosperous environments. The main purpose of this study is to emphasize the importance of lean supply chain management and logistics management to achieve sustainable development goals and to bibliometrically examine publications related to the subject. It is anticipated that examining publications that include global sustainable development goals can help achieve these goals. This study includes studies in the Web of Science (WoS) database, which scans academic resources with international field indexes from 1987 to 2024. Publication years, study numbers, and keywords are included. Meso and micro citations, indexes, publication language, links, countries, most influential researchers in the field, most cited studies, most relevant journals, resources, and institutions are shown. This study aims to prepare a roadmap for researchers who want to publish in the field in the future. The study consists of three main sections, apart from the introduction and conclusion sections. In the first section, the literature on lean supply chain, lean supply chain management, and logistics, which are thought to form the basis of this study, is examined. Studies on the subject are also included. In the second section, the method is explained. The findings and results are discussed in the third section.

2. Research Framework

2.1. Sustainability, Sustainable Logistics, Lean Supply Chain Management, and

The danger started when people started using the world's resources, and technological developments accelerated these. In particular, after the Industrial Revolution, a danger began to emerge that threatened scarce resources and therefore the ecosystem. The misuse of resources, rapid consumption, and unconscious activities of people have made "sustainability" mandatory because they threaten nature and future generations (Renner, 2015). Issues such as poverty, migration, inequality, and climate crisis, which continue on a global scale, have moved sustainable development goals from the national level to the international level. Sustainable Development Goals eliminate these negative variables and achieve prosperity for all generations (Örerel and Kağnıcı, (2024).

Sustainable logistics, on the one hand, includes the goal of developing logistics infrastructure and thus creating added value for the country's economy, and on the other hand, it includes the goal of sustainability in growth, development, and development, which concerns all countries in the world. The increasing activities that create added value to the country's economy also lead to the destruction of the natural environment and natural resources. Since the destruction of natural resources and the environment will not allow long-term growth-enhancing activities, it is necessary to create a growth and development model that is sensitive to the environment and natural resources. This model is expressed as sustainable development and guarantees the life and development of today and the future by establishing a balance between economic activities and nature, that is, using resources at a minimum level (Mete, 2020). Sustainable Logistics is an approach that strives to meet the social and economic requirements, along with environmentally friendly logistics activities in material flows between suppliers, manufacturers, and customers, by focusing on creating value for all stakeholders. Figure 1 presents sustainable logistics (Çamlıca and Akar, 2014).

As shown in Figure 1, sustainable logistics includes economic, social, and environmental dimensions, which are also sustainability dimensions. It ensures economic sustainability by limiting costs and eliminating business risks. Social sustainability includes occupational health and safety, corporate image and brand, and occupational health and safety. It covers environmental sustainability and combating air emissions, wastewater, hazardous waste, and toxic substances. (Çamlıca ve Akar, 2014).

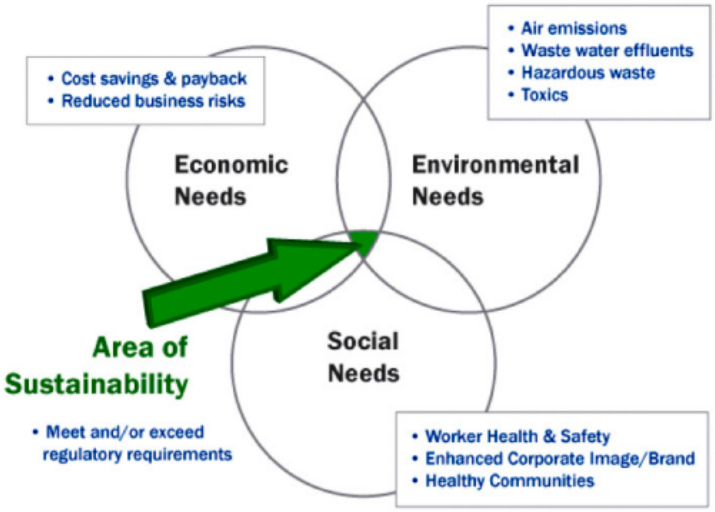

Figure 1. Sustainable Logistics

Çamlıca, Z. & Akar, G. S. (2014). Lojistik sektöründe sürdürülebilirlik uygulamaları*

2.2. Lean Logistics, Lean Supply Chain, and Lean Supply Chain Management

Fuming (2011) noted that the lean logistics approach, which emerged as many new ideas and theories of lean thinking gradually gained ground in the logistics industry, is an innovative and effective method for designing and managing a logistics system, from physical distribution to production control, to information management and supplier support. Socconini (2019) also mentioned that lean logistics is a working philosophy that is used to eliminate waste caused by poor process management or the culture of an organization. The integration of sustainability and lean logistics is important to increase competitive business performance by reducing waste (Sopadang et al.,2014). The basic logic of lean logistics is to plan, organize, execute, and control logistics applications in an effective, efficient, and coordinated manner (Yangınlar and Bal, 2019). In this context, lean logistics is an approach that prevents waste, creates added value for the target audience to which products and services are offered, and spends less time and money on products and services (Kocabaş, 2014).

5S steps, which are a product of the Japanese continuous improvement philosophy, can also be applied to lean logistics. In logistics activities according to 5S (Gapp et al., 2008).
(1) Simplicity
(2) Classification (Seiri),
(3) Placing things in order (section)
(4) Hygiene (season)
(5) Formalization (seiketsu) and control-discipline (shitsuke) steps must be applied

To better understand lean logistics, it is necessary to identify its differences from traditional logistics (Özkan et al., 2015). It is possible to see these differences in Table 1.

Table 1. Differences between Lean Logistics And Traditional Logistics Concepts

Logistics variables	Traditional logistics	Lean logistics
Management	Market-oriented	Self manage
Building	Vertical	Aggregation
Contact	Narrow	Wide
Information transfer	Single-sided	Double-sided
Technology use	Very limited	Extensive
Interactions	Competitive	Collaborative
Relationship focus	Transaction focus	mutual win boiler
Delivery-distribution	Large quantities	Small quantities
Storage	Maximum Level	Minimal level
Production flexibility	Low	High
Quality	Experience/Intensively	Designed
Price applications	Competitive	Based on target cost
Price changes	Increasing	Decreasing
From an external source	benefit Cost-based	Strategic
Selection criteria	Minimum price	Performance
Contract period	Short	Long

Özkan, O., Bayın, G. ve Yeşilaydın, G. (2015). Sağlık Sektöründe Yalın Tedarik Zinciri Yönetimi*

As shown in Table 1, traditional and lean logistics processes are distinguished from each other. While logistics are market-oriented in traditional management, it appears as self-management in lean management. While the structure of traditional logistics is vertical, lean logistics involves agglomeration. While communication is narrow in traditional logistics, it is wide in lean logistics. While information transfer is unilateral in traditional logistics, it is bilateral in lean management. The use of technology in lean logistics is wider than in traditional logistics. While interaction is based on competition in traditional logistics, collaboration in lean logistics. Although traditional logistics interaction is based on competition, lean logistics is based on cooperation. Although the relationship focus in traditional logistics is transaction-oriented, in lean logistics, it is a win-win. While delivery and distribution are performed at the maximum level in traditional logistics, they are performed at the minimum level in lean logistics. Although production flexibility is low in traditional logistics, it is high in lean logistics. In traditional logistics, quality depends on experience. In lean logistics, quality is as designed. Price applications vary. In traditional logistics, prices are based on competition, and price changes are increasing. In lean logistics, price applications are based on target costs, and price changes are decreasing. In traditional logistics, outsourcing depends on cost. Lean logistics have a strategic structure. Although the selection criteria are minimum prices in traditional logistics, they depend on the performance of lean logistics. While contract periods are short in traditional logistics, they are long in lean logistics.

2.3. Studies on Lean Logistics, Lean Supply Chain, and Lean Supply Chain Management

Sustainability is an important factor in this context. Speed and flexibility are considered competitive elements. One lean management application area for businesses is logistics activities (Mücevher, 2021). Due to the ongoing positive value creation of lean logistics, many sectors have taken part in production support activities and are preferred. In the literature, automobile businesses (Liang and Wang, 2013; Silva, 2015; Zhang, 2015), transportation businesses (Vasiliauskas et al., 2014), hospital logistics and healthcare services (Aguilar-Escobar and Garrido-Vega, 2012; Serrou et al., 2016; Khlie et al.,2016; Teng et al.,2019), logistics company (De Haan et al.,2012; Buzdik et al., 2019; Rodrigues and Kumar, 2019), forest industry (Fallas-Valverde et al., 2018), manufacturing and production companies (Dolak and Suchanek,2015); Nowicka-Skowron and Ulewicz, 2017), agricultural product companies (Zhang and Yang, 2010; Szabo et al.,2021), mining sector (Arango Serna et al.,2009), e-businesses (Cao, 2007), urban logistics (Escuder et al., 2020), maritime and port sector (Lyonnet, 2016; Frontoni et al., 2020; Praharsi et al., 2021), vehicle industry (Wang et al., 2006), lean and Six sigma logistics (Carvalho, 2017). Internallogistics (Korytkowski and, Karkoszka, 2016; Grzegorz et al., 2021; Facchini et al., 2024). Management (Gu et al., 2021) and process improvement (Lu et al., 2021).

In Turkey, sustainability means lean logistics (Mücevvher, 2021). Lean management and lean logistics (Yangınlar and Bal, 2019). Lean logistics and value flow (Kocabaş, 2014). Mapping method (Savaş and Kılıç, (2015). Supply chain structure and comparative cost analysis, Uçar and Şirin, use of lean techniques in internal logistics activities, Sönmez and Yağmur (2021), internal logistics optimization, Yalçıner, 2020; Gecü, 2008; Kılıç et al. 2012; Koçan, 2014, Kuvvetli ve Erol, 2017; Küçükoğlu et al., 2018, Patır,2019; Usak ve Selvi, 2019, Topuz, 2021), quality assurance system (Derdiyok, 2019), and process improvement (Kuğu and Köse,2021; Sevgi and Antmen,2019; Turan, 2019).

2.4. Bibliometric Analysis

Unlike systematic literature review, biometric analysis is an analytical method used to obtain formal and quantitative data about the current state of a field and makes it easier to follow academic trends using visualization software. The ultimate goal of the bibliometric approach, which can be confused with concepts such as scientometric, geometric, cybernetic, altimetric, and isometric regarding the age of metrics, is to obtain quantitative data and numerical measurement indicators regarding research performance (Dirik et al., 2023). The term "bibliometrics" was first introduced by Alan Pritchard in 1969. Pritchard defines bibliometrics as the application of mathematical and statistical methods to analyze written communication and provide guidance on the processes of this communication and the reality and development of a branch of science (Lawani, 1981). First, a bibliometric study provides information in a conceptual and intellectual form about the existing literature on specific topics and constructs (Singhania et al., 2022).

Bibliometric indicators are also used as tools to evaluate research performance (Wallin, 2005). These analyses reveal the most productive research and collaborations in the field (Subramanyam,1983). In addition to classical research flows in certain fields, bibliometric analyses are also suitable for determining journal performance, coauthors, and cocitation trends (Baker et al. 2019). Bibliometric mapping is an analysis technique that analyzes and visualizes scientific studies (Arslan, 2022). Bibliometric studies are a quantitative method that evaluates the productivity, growth, and impact of academic literature and can be applied to all disciplines (Yang and Xiu, 2023) and enable the structure of a discipline to be revealed (Arslan et al., 2023). Bibliometric research enables the statistical examination of data such as author, subject, cited author, and cited sources and reveals the general structure of a particular discipline in light of the statistical results obtained (Bozkurt and Çetin, 2016).

The studies examined in the bibliometric analyses were accessed from directories and databases such as Web of Science, Scopus, Dimensions, Google Scholar, Lens, and PubMed (Moral Munoz et al., 2020). At this point, an important data source in the context of the relevant literature is the Web of Science database (Chadegani et al., 2013). VOSviewer is a freely available tool for analyzing and visualizing bibliometric data from the Web of Science database (van Eck and Waltman, 2010). VOSviewer allows data to be quickly examined and visually mapped (Yılmaz and Şahin Yılmaz, 2023). One of the most important critical goals in bibliometric analysis is to obtain a consistent and standardized set of indicators (Van Raan, 2004). Donthu et al. (2021) noted that bibliometric analyses are gaining popularity for interdisciplinary methodologies and processing large volumes of data (Donthu et al. (2021).

3. Methodology

3.1. Purpose of the Research

Logistics, which forms a worldwide network, consists of complex processes that depend on supply transactions and the production and marketing chain. All foodstuffs, clothes, white goods, health products and medicines, furniture, vehicles and construction equipment, raw materials, and semi-finished products, etc. in our environment reach customers as a result of operations related to logistics processes. In the global digital economy, complex transactions, such as supply, purchasing, tendering, and negotiation methods, and management of competitive processes, which constitute a series of transactions interconnected with logistics processes, are carried out through the supply chain network. Therefore, these processes must be managed in the best possible way. Lean logistics is an approach that provides the opportunity to produce the products and services desired by the customer with fewer resources in terms of time and cost, creates value for the customer, and eliminates waste. This study reveals the publication years, country, author, university, and journal productivity, weak and strong research areas, literature gaps, collaboration networks, potential opportunities, and widespread effects of the outputs produced in a field to obtain information about the field through bibliometric analysis in the field of lean logistics. Planned to be removed.

3.2. Method

On 20.07.2024, a search was made from the Web of Science database using the keyword lean logistics, and 2291 publications were found. A search was conducted using the keywords “lean logistics,” “lean supply chain,” and “lean supply chain management,” and 2207 publications were found. The publications were published between 1987 and 2024. Figure 1 shows the research model in detail.

3.3. Research Model

Because of a detailed literature review, the research model shown in Figure 2 was created.

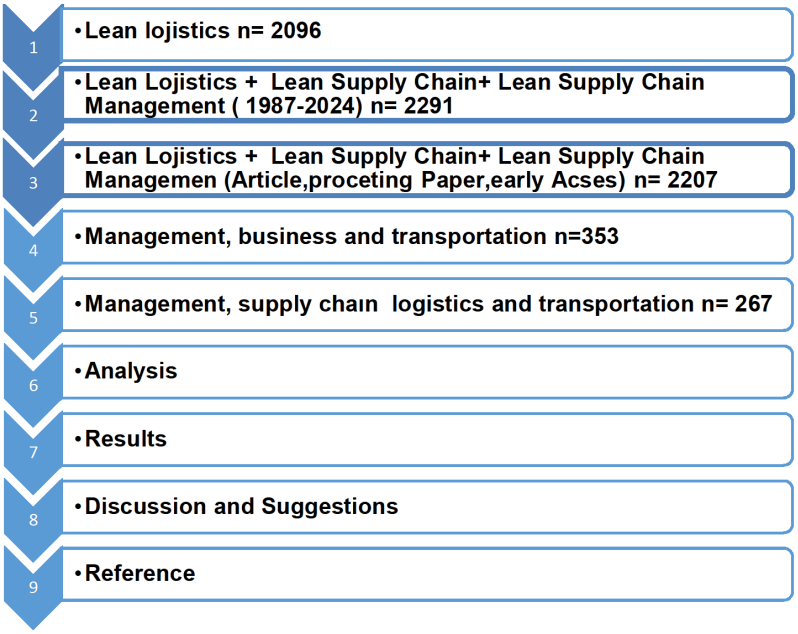

Figure 2. Because of a detailed literature review, the research model shown in Figure 2 was created.

3.4. Research Questions

Question 1. In which years were publications on lean logistics, lean supply chain, and lean supply chain management for sustainability published in the Web of Science database?
Question 2. Which citation topic are related to lean logistics, lean supply chain, and lean supply and chain management for sustainability in the Web of Science database?
Question 3. Which micro-citation topics are related to lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 4. What is the writing language for publications on lean logistics, supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 5. What is the index of publications related to lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 6. What countries have publications on lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 7. Publishing of publications related to lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database.
Question 8. Refine by SDG publications on lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database.
Question 9. What are the affiliations of publications related to lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 10. What is the affiliation with the department of publications on lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 11. What is the country/region count of publications on lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database?
Question 12. Are the publications on lean logistics, lean supply chain, and lean supply chain management for sustainability in the Web of Science database cited in the last few years?

4. Results

4.1. Number of Publications by Year

Publications and years related to lean logistics are detailed in Figure 3.

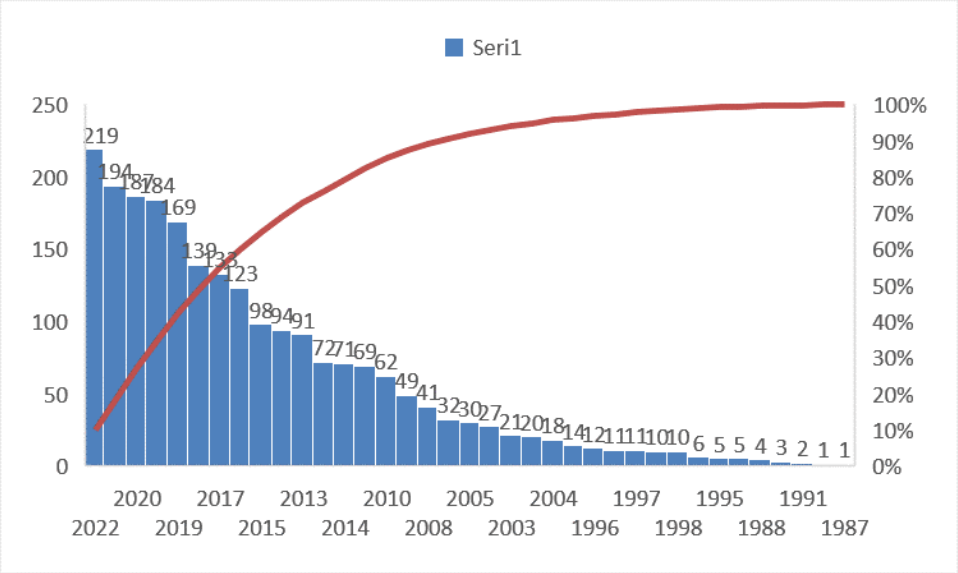

Figure 3. Number of Lean Logistics Publications by Year (Web of Science, 2024)

Figure 1 shows the number of publications with lean logistics by years. The first publication was published in 1987. Although the number of publications was 1 in 1987 and 1988, it increased to 10 in 1997. The number of publications increased to 20 after 2000. After 2010, it rapidly increased and reached 100. With an increase in logistics activities and an understanding of the importance of lean logistics, the number has reached 200 after 2020

4.2. Citation Topics in Lean Logistics Publications

Publications in the fields of lean logistics, management, supply chain and logistics, and transportation have been written. The results are detailed in Table 2.

Table 2. Citation Topics Meso (Web of Science, 2024)

Department	Frekans	%
Management 205	205	76,7
Supply Chain and Logistics	59	22,0
Transportation	3	1,3

As shown in Table 2, the majority of publications related to lean management were published in 205 (76.7%) management, 59 (22%) supply chain and logistics, and 3 (1.3%) transportation.

4.3. Critation Topics Micro

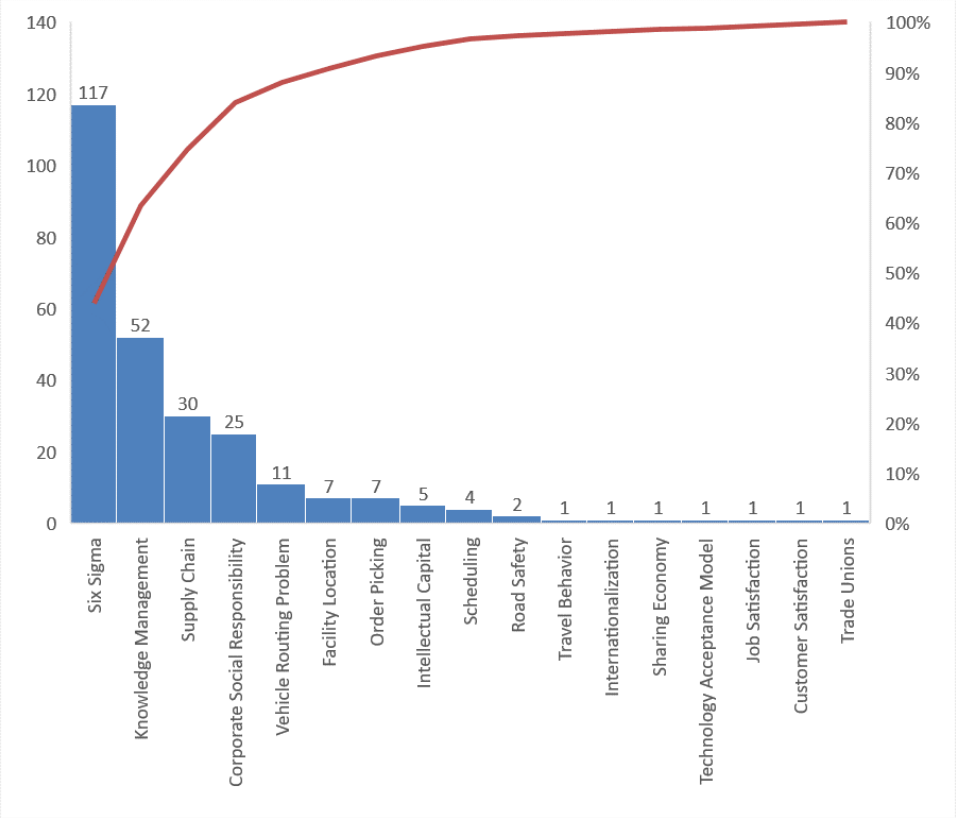

Figure 4. Citation Topics in Micro (Web of Science, 2024)

Figure 2 shows the citation topics of lean management. The number of publications on topics related to at least lean logistics: Trade unions, customer satisfaction, job satisfaction, technology acceptance model, sharing economy, internationalization, and travel behavior, is 1 (% 0, 4). Road safety followed this with 2 (% 0,7), and scheduling was of 4(% 1,4) types. Intellectual capital is 5 (% 2) in order picking, and facility location is 7 (% 2,7). The vehicle routing problem was 11(%4,1), corporate social responsibility is 25 (%9,3) supply chain is 30 (%11,2), maximum Six Sigma score is 117 (% 43,8) This was followed by knowledge management with 52 (% 19,4).

4.4. Grafik Web of Science Index

Web of Science publications are published by various indexes.

Table 3 shows the indices in which lean management publications are published. Publications (at most 114) have been published in the WOS. SSCI index. This was followed by 109 WOS. ESCI. The others were 35 WOS. SCI, 33 WOS. ISSHP, 21 WOS ISTP, 8 WOS. BHCI, 6 WOS BSCI index.

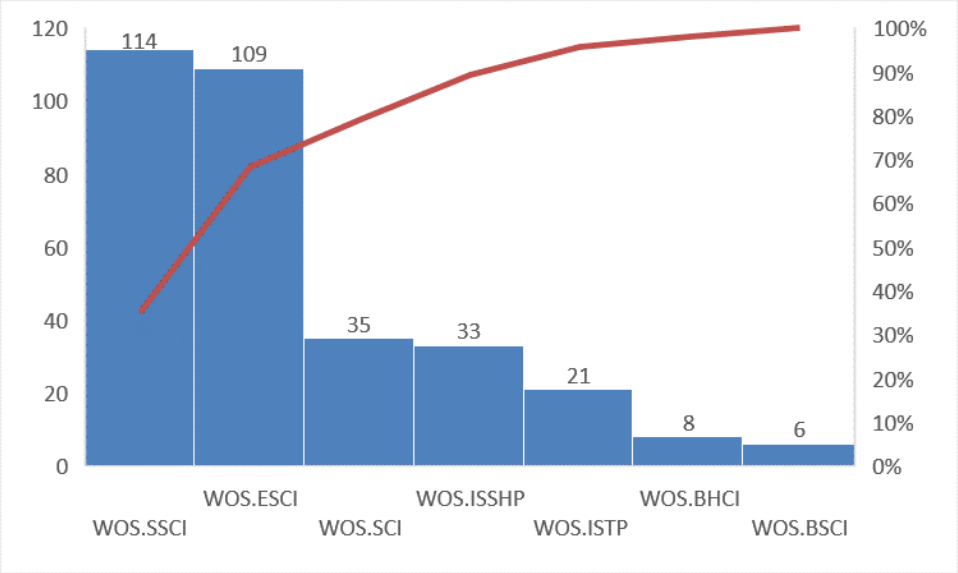

Figure 5. Web of Science Index (Web of Science, 2024)

4.5. Writing Language for Publications

Table 3. Writing language for publications (Web of Science, 2024)

Language	**Frekans**	**%**
English	260	97,3
Spanish	4	1,5
Portuguese	3	1,2

As seen in Table 3, the majority of publications in the field of lean logistics, 260 of them, were written in 97.3% English, 4 of them were written in 1.5% Spanish, and 3 of them were written in 1.2% Portuguese.

4.6. Countries with Publications Written in Lean Logistics Stream

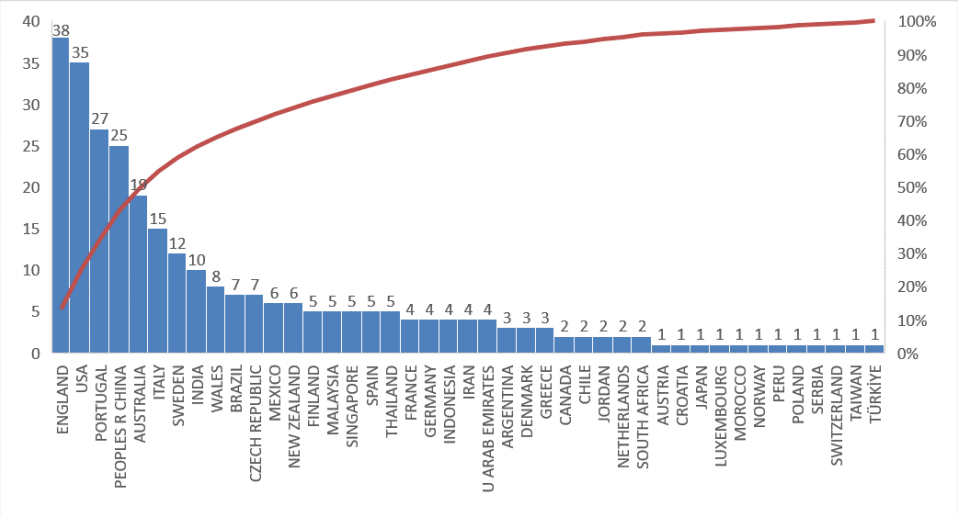

Figure 6. Countries in which publications were written in the lean logistics stream (Web of Science, 2024)

Figure 7 shows the countries where publications were written in the lean logistics stream. England ranks first with the most publications, 38. This is followed by the United States with 34 publications and Portugal with 27 publications. There is 1 publication in Türkiye.

4.7. Publishing

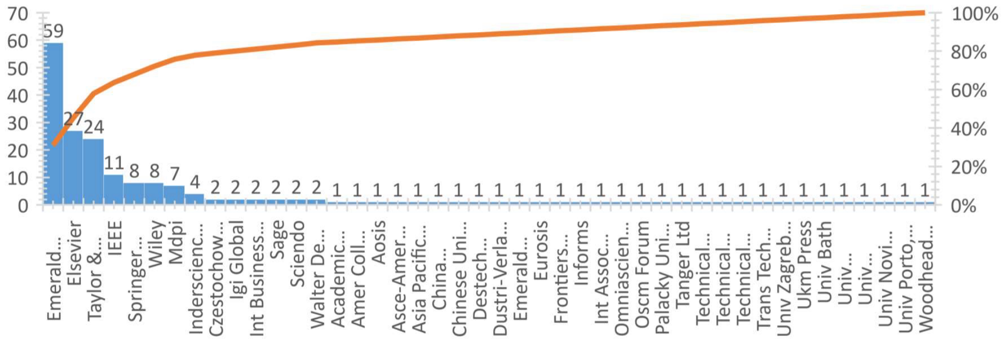

Figure 7. Journals in which lean logistics publications are published (Web of Science, 2024) Figure 5 shows the indexes in which publications on lean supply chain management and logistics were published. The Emerald Group had the most publications, with 59 publications. Elsevier followed with 27 publications, Taylor & Francis with 24 publications, IEEE with 11 publications, Springer Nature and Wiley with 8 publications, Mdpİ with 7 publications, and Inderscience with 4 publications. In the other cases, the number of publications was determined as 1 and 2.)

4.8. Sustainable Development Goals

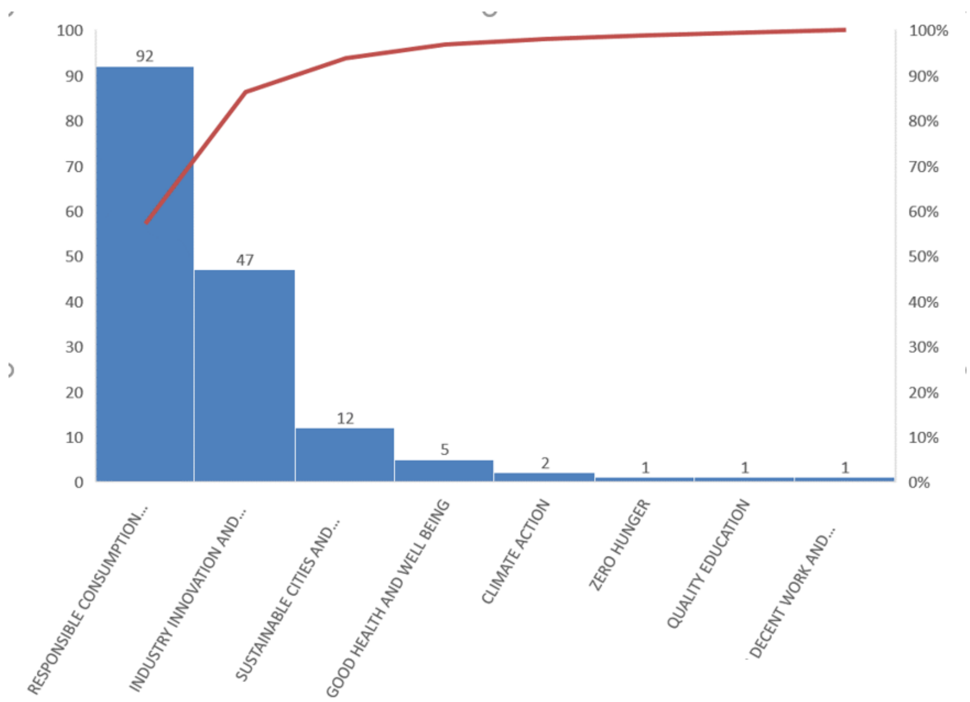

Figure 8. Publications based on sustainable development goals (Web of Science, 2024)

As shown in Graph 6, most of the publications on lean management cover sustainable development goals. In fact, 161 of the 267 articles describe sustainable development goals. Responsible Consumption was one of the sustainable development goals with 92 publications. This was followed by industry, innovation, and infrastructure with 47 publications, sustainable cities and communities with 12 publications, healthy and quality life with 5 publications, climate action with 2 publications, zero hunger, quality education and decent work, and economic growth with 1 publication.

4.9. Affiliation with the Department

Table 4 lists the links to lean logistics publications. Nova University Lisbon School of Science and Technology ranks first with 3 (20%) connections. This was followed by the Massey University College of Sciences, Massey University School of Food

Table 4. Writing language for publications (Web of Science, 2024)

Affiliation with the Department	Frekans	%
Nova University Lisbon School of Science and Technology,	3	20
Massey University College of Sciences,	2	13,3
Massey University School of Food and Advanced Technology,	2	13,3
Department of Mechanical and Industrial Engineering, New University of Lisbon	2	13,3
New University of Lisbon Research And Development Unit for Mechanical and Industrial Engineering	2	13,3
Cranfield University Cranfield School of Management,	1	5,36
Free University of Bozen, Bolzano, Faculty of Science and Technology	1	5,36
Mid Sweden University, Department of Information Systems and Technology,	1	5,36
Mid-Sweden Universıty Faculty of Science Technology and Media	1	5,36
Tianjin Unıversity School of Management	1	5,36
Toplam	15	100

and Advanced Technology, the New University of Lisbon Department of Mechanical and Industrial Engineering, and the New University of Lisbon Research And Development Unit for Mechanical and Industrial Engineering, with 2 (13.3%) connections.

4.10. Times Cited and Publications Over Time

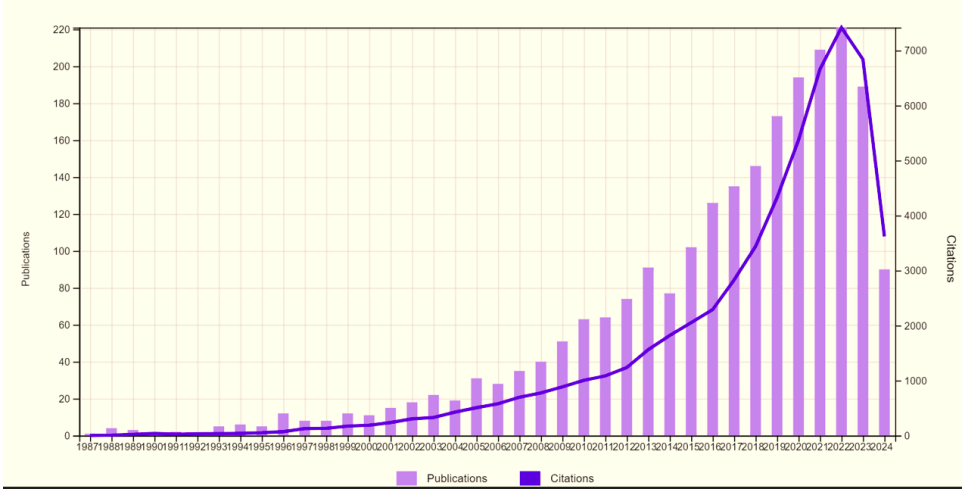

Figure 9. Times cited and publications over time (Web of Science, 2024)

Figure 9 shows the number of citations and publications over time. Although the number of publications was 1 and the citations were at most 1 between 1987 and 1993, the number of publications and citations started to increase after 1996. The number of publications and citations began to increase after the 2000s. 2022 reached its peak with 219 publications and 7000 citations. The study contains 2,291 publications from 1987 to 2024. Citing articles total 48,657 47,993 without self-citations, 57,221 times cited, 54,928 without self-citation, 24.99 average peri tem. H-index = 108.

5. Conclusion and Discussion

Sustainability is the struggle of countries to provide their current economic, social, and environmental good conditions to future generations. Lean logistics, lean supply chain, and lean supply chain management can achieve sustainability goals in economic, social, and strategic terms. Globalization, technological developments, widespread use of the internet, data from international trade, growth of e-commerce, and necessary promotions on websites are changing people's demands, needs, and services. Logistics involves meeting human demands and requirements. International trade, e-commerce, and the logistics sector, which is a great supporter, implement various strategies to continue their activities in an intensely competitive environment. It has registered individuals to prevent resource waste in processes and store logistics data. Lean logistics covers the management of the supply chain with less cost while protecting resource waste. It also highlights the sustainability-oriented effects of lean logistics. In the literature, it is seen that lean logistics, lean supply chain, and lean supply chain management provide sustainability. This study examined the publications related to the keywords "lean logistics, lean supply chain, and lean supply chain management" between 1987 and 2024 in WoS data containing internationally indexed journals and found 267 publications. It can be seen that the number of studies published in this field increased from 1 to 5 between 1987 and 1995 and increased to 100 in 2010. In 2022, 219 publications were reached. 76.7% of the lean logistics publications are in the field of management, and the highest is in the field of

Six Sigma, with 43.8%. The vast majority of the publications are in the 114 WOS. SSCI calendar. This was followed by 109 WOS. ESCI. The vast majority (97.3%) of the publications were written in English. Most of the publications were published by Emerald Group, followed by Elsevier. There are 161 articles on lean logistics, lean supply chain, and the sustainable development goal of lean supply chain management. 92 publications are responsible for consumption, 47 are industry, innovation, and infrastructure, and 12 publications will form the dominance of sustainable cities and communities. 5 of them are healthy individuals, 2 are climate action and 1 explains zero hunger, quality education, decent work, and economic growth. Various bibliometric studies have been conducted on lean logistics, lean supply chain, and supply chain management. Some of these studies are; Öztemiz (2024) conducted bibliometric research on Web of Science (WoS) data logistics. Alp and Akalın (2023) conducted a bibliometric analysis of postgraduate theses in the field of lean management. Toprak et al. (2024) used bibliometric analysis to examine sustainable supply chain management in the automotive sector. Garcia-Buendia et al. (2021), Garcia-Buendia et al., (2022), and Taddeo et al., (2019), "Only supply chain management," and "Only cleaner production, Endler et al., (2018). Lean supply chain, Oliveira-Dias et al., (2021). With the use of information technologies in the supply chain, Wang et al. (2023) conducted bibliometric research on changes in logistics.

The theory of lean thinking, which emerged in the 1940s, changed its dimension in the 21st century and became a sector with added economic value. It is where the increase in globalization, international trade, and e-commerce, on the other hand, the relationships between logistics and technology (Blockchain, Internet of Things, automation systems, etc.) are effective. It is associated with sustainability, which has gained importance, especially in protecting against the negative effects of globalization. It can meet global sustainability goals.

This study shows how working relationships in the field of "lean logistics, lean supply chain, and lean supply chain management" have changed over the years, the degree of global sustainability access, the general programs of current literature, the most relevant journals, institutions, countries, preferred keywords, and the most studied themes in the field. The difference between this study and other publications is that it emphasizes the importance of lean logistics, lean supply chain, and lean supply chain management for sustainable development goals, reveals general trends, determines topics that need to be studied in the future, and is planned to guide researchers, practitioners, and stakeholders. In addition, bibliometric information and summary statistics are presented to new researchers who wish to work in this field.

The findings of this study, which are similar to the results of bibliometric analysis in the literature, especially in terms of researchers and relevant resources in the field, reveal strong research areas, literature gaps, collaboration networks, potential opportunities, and widespread effects of outputs produced in a field. At the same time, it can guide researchers as it can be used as a preliminary step in any research area.

The contribution of this study can then be summarized as follows: This study emphasizes the importance of lean supply chain management and logistics management, which are important factors in achieving sustainable development goals not only nationally but also globally and affecting society economically, socially, and environmentally. 161 of the 267 articles examined cover sustainable development goals. However, this is not sufficient.

The findings of this study, although they show similarities with the results of bibliometric analyses in the literature, especially in terms of researchers and related resources in the field, reveal strong research areas, literature gaps, collaboration networks, potential opportunities, and widespread effects of outputs produced in a field. At the same time, it can guide researchers as it can be used as a preliminary step in any research area.

In this study, 60.3% of the articles explained sustainable development goals. Most publications were responsible for production and consumption 92. This was followed by industry, innovation and infrastructure 47, sustainable cities and communities 12, healthy and quality of life 5, climate action, zero hunger, quality education, decent work, and economic growth 1. No publications were found on poverty, gender inequality, clean water and sanitation, accessible clean energy, reducing inequalities, life below water, peace justice, or strong institutions, goals, or partnerships. It is recommended that future researchers research this subject.

The limitation of this research is that Web of Science database articles books and other documents were not examined. The fact that others (Scobus, TR Index, etc.) were not used is a limitation of the research. Researchers can conduct bibliometric analyses using different keywords from different databases. In addition to the VOSviewer program, programs such as Bibexcel, Pajek, Bibliometrics, and SciMAT can be used.

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