



# On the Relationship between ISO Standards and the Logistic Performance Index

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**Abstract:** *Using regression analysis, the paper aims to clarify the relationship between trade logistics issues, expressed with the logistic performance index, and quality management, expressed with the ISO standards index. The paper opted for an exploratory study using regression analysis to find relations between the logistics performance index and the ISO standards index, using data complemented Logistic Performance Index, and ISO Standards certificates issued worldwide, providing statistical insights into the relations between the LPI and QM, and the ISO Standards Index. It suggests that successful business organizations should invest in QM, especially in ISO standards improving their logistics, and competitive advantage. This research addresses a previously stated requirement by doing a regression analysis to investigate how quality management (ISO certifications) and logistics are significantly connected. The study's findings emphasize the importance of investing in quality management to gain a competitive advantage in logistics, recognizing the importance of the ISO certification process and quality management procedures and processes.*

## 1. INTRODUCTION

In this critical analysis/research paper the relations between the logistic performance index and ISO standards index are investigated, as they are important factors in healthy supply chain management procedures and processes. The key subject examined in this study was the relationship between the Logistics Performance Index and the ISO Standards Index utilizing quantitative approaches combined with regression analysis, because of the supposed strong relationship between transportation issues and quality management system principles, especially with ISO standards. Scientific management, including quality management, creates opportunities for long-term sustainable transport sector development. Strong and sustained relations exist between quality management/ISO standards, doing business climate, innovation, creativity, business sophistication, market sophistication, etc. All of those subjects, combined with quality management principles help better the management and functioning of logistics and supply chain management. Worldwide countries are recently facing logistics problems affecting businesses' development and performance, development and economic growth, life quality, and sustainable development relations while improving the quality of institutions and the institutions of quality (accreditation, standards, meteorology and calibration, and certification bodies), the structure and infrastructure of quality, and worldwide climate of business doing, ISO standards usage, aiming to have a positive impact on improving logistics performance index and transportation processes and procedures worldwide.

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## 2. MATERIAL AND METHODS

### 2.1. ISO International Standards Benefits of Use

Governments, industry, consumers, the economy, society, and the environment may all benefit from implementing ISO standards, according to ISO (ISO, 2018).

**Table 1.** ISO standards usage benefits

No	Subject	Benefits
1	Government	Regulators can rely on ISO standards as a solid base on which to create public policy that helps further SDG goals such as human rights, water, and energy efficiency, public health, and more. International Standards also help governments achieve their national and international commitments.
2	Industry	Industry plays a key role in achieving all the SDGs and ISO standards help it do that by providing guidelines and frameworks on everything, from employee health and well-being to energy consumption, to resilient and eco-friendly infrastructures.
3	Consumers	Many of the benefits are felt at the local community level. Reduced poverty, improved health, cleaner and more abundant water, and safe and secure infrastructures are just some of the benefits to be gained from implementing ISO standards.
4	Economic	ISO International Standards promote economic sustainability by facilitating international trade, improving a country's national quality infrastructure, and supporting sustainable business practices (A quality infrastructure is a system contributing to governmental policy objectives in areas including industrial development, trade competitiveness in global markets, efficient use of natural and human resources, food safety, health, the environment, and climate change). They cover everything from efficient farming methods to anti-bribery management systems.
5	Social	ISO International Standards promote social sustainability by helping countries and communities improve the health and well-being of their citizens. They cover all aspects of social welfare, from healthcare systems and related products to social inclusion and accessibility.
6	Environmental	ISO International Standards promote environmental sustainability by helping businesses and countries manage their environmental impact. They cover such aspects as implementing an environmental management system, measuring and reducing greenhouse gas emissions and energy consumption, and encouraging responsible consumption.

Source: Own research

## 3. BENEFITS OF USING ISO FOR TRANSPORT AND LOGISTICS

ISO standards address all areas of transportation, including road vehicles, ships, airplanes, and aerospace systems, from submarines to spacecraft. Transporting products and people securely and efficiently is critical to a healthy economy and personal mobility. And, as the number of routes undertaken increases year after year, so does the importance of ISO standards. ISO standards establish a consistent foundation for improving safety and reducing impact across the board, from design, building, and usage to how autonomous vehicles are led. ISO standards help the shipping business work smoothly, and you can find them at every point of the supply chain.

Consider ISO Technical Committee ISO/TC 104, Freight Containers, which specifies practically every element of containers, from size to handling and nomenclature. ISO also has a committee dedicated to ships and maritime technologies. ISO/TC 8's work addresses a wide range of industrial issues, from environmental management to supply chain security to smart shipping. In this sense, ISO standards are at the forefront of logistics innovation. The committee collaborates closely with the International Maritime Organization (IMO) to guarantee that its standards

are followed and that IMO laws are met. ISO standards are also useful in connecting ports with rail hubs, air freights, and land-based distribution, improving the efficiency with which commodities are carried. Because ISO standards are a great instrument for ensuring collaboration and efficiency across the supply chain, they contribute significantly to integrating ships, ports, and people. The transportation and logistics business is, without a doubt, the backbone of every economy. It is also one of the most notorious industries for creating irreversible environmental damage. As a result of ISO Certification for Transport and Logistics, these businesses may strike a balance between development and environmental sustainability by standardizing their systems and processes in accordance with internationally recognized and approved criteria. The transportation and logistics sectors are high-risk enterprises. As a result, there is widespread worry about the safety of transportation and logistical services. The ultimate necessity for ISO certification may be felt at every level of the supply chain. Some issues to consider in this respect are as follows:

**Table 2.** Issues to consider related to ISO standards and the Transport and Logistics sector

No	Issues
1	Most likely, the ISO standards add to the adequacy of the functions carried out in the transportation and logistics business.
2	ISO standards help to connect custom ports with railroads.
3	The ISO Certification helps you to build a bridge to get hold of international attention.
4	Helps you to show your commitment to customer satisfaction.
5	The ISO certification helps with offering significantly more capability in how the consignments are systematized.

Source: Own research

#### 4. THE MOST REQUIRED ISO STANDARDS APPROPRIATE FOR TRANSPORT AND LOGISTICS INDUSTRIES

The most required ISO standards for the transport and logistics sector are:

**Table 3.** The most required ISO standards in the Transport and Logistics sector

No	ISO standard	Description/Explanation
1	ISO 9001	Is a scheme for establishing Quality Management Systems (QMS) in your organization. ISO 9001 Certification ensures that the quality of your products is at par with international standards and is less prone to accidents and damages.
2	ISO 14001	Implementation of an Environmental Management System (EMS) in organizations help in reducing the adverse impact of your activities on the environment as well and ISO 14001 Certification ensures that your products are environment-friendly.
3	ISO 22301	Sets out the code for implementing Business Continuity Management Systems (BCMS) in your organization. ISO 22301 Certification guards you against any incidence of disruption to your business and reduces your downtime by ensuring rapid recovery.
4	ISO 39001	Helps in the implementation of Road Traffic Safety Management System in your organization. ISO 39001 Certification helps in managing the risks associated with road safety and reduces the incidents of accidents and deaths.
5	ISO 45001	Provides a foundation for establishing Occupational Health and Safety Management Systems (OHSMS) in organizations and ensures the safety and well-being of manpower.

Source: Own research

## 5. ADVANTAGES OF ISO CERTIFICATION FOR THE LOGISTICS AND TRANSPORTATION SECTOR

The transportation and logistics sector indeed forms the foundation of any economy. It is also one of the industries most notorious for wreaking havoc on the environment. Therefore, by standardizing their systems and processes following globally recognized and approved norms, these businesses may maintain the balance between development and environmental sustainability with the aid of ISO Certification:

**Table 4.** Advantages of certification for the Transport and Logistics sector

No	Advantage
1	It elevates your reputation by demonstrating your commitment to meeting international standards of excellence.
2	More systematized delivery of goods, improving your reputation and helping you win new customers and retain your current customers.
3	It improves environmental performance and reduces security risks due to improved management.
4	Make your company capable of trading internationally.
5	Recognizing and managing current and future risks to your business.
6	Take a necessary approach to diminish the impact of incidents.
7	Manifest resilience to customers, suppliers, and tender requests.

**Source:** Own research

Summarizing Ghiani et al. (2004), the effective forward and reverse movement of products, services, and related information from the point of origin to the site of consumption following customer demands is the focus of logistics, a subset of supply chain management. Paraphrasing Kozlenkova et al. (2015), one element that keeps the supply chain together is logistics management. In logistics, resources can be managed in the form of consumables like food and other commodities as well as physical assets like supplies, equipment, and materials.

Logistics is the process of organizing, putting into practice, and overseeing protocols for the safe and efficient movement, storage, and conveyance of goods, services, and related data from the point of origin to the point of consumption, according to the Council of Supply Chain Management Professionals, encompasses inward, outbound, internal, and external movements in order to comply with customer needs (CSCMP, 2016).

In technical terms, global logistics is the process of controlling the "flow" of commodities from their point of production to various locations across the world via a supply chain.

An intermodal transportation system—which includes truck, rail, air, and maritime transportation—is frequently needed for this.

The Logistics Performance Index, an interactive benchmarking tool designed to assist nations in identifying opportunities and challenges in their trade logistics performance and how to improve it, measures the effectiveness of global logistics.

It is based on a global survey of operators on the ground, such as global freight forwarders and express carriers, who provide feedback on the logistics "friendliness" of the nations in which they operate and those countries' respective performance (the countries in which they operate and those with which they trade).

They blend an in-depth understanding of the nations in which they do business with knowledgeable qualitative evaluations of other nations with which they do business and familiarity with the international logistics landscape.

**Table 5.** The categories of the weighted average of a nation's scores.

No	Categories
1	The efficiency of the clearance process (i.e.; speed, simplicity, and predictability of formalities) by border control agencies, including customs.
2	Quality of trade and transport-related infrastructure (e.g., ports, railroads, roads, information technology).
3	Ease of arranging competitively priced shipments.
4	Competence and quality of logistics services (e.g., transport operators, customs brokers).
5	Ability to track and trace consignments.
6	Timeliness of shipments in reaching the destination within the scheduled or expected delivery time.

**Source:** Own research

Quantitative information on the effectiveness of important logistics chain components in the nation of work is added to operator feedback (WB, 2018a).

The results of the LPI are a global general standard for the logistics sector and its consumers, and they have been incorporated into several policy studies and papers created by multilateral organizations (WB, 2018b).

The academic community has also welcomed the LPI results. The weighted average of a nation's scores on six important categories is called the LPI.

## 6. THE OBJECTIVE OF THE CASE STUDY AND THE RESEARCH FRAMEWORK

The level of the ISO Standards Index and Logistics Performance Index, as well as their relationships within a worldwide ecosystem of entrepreneurship, served as the research's framework. Because there aren't many algebraic, statistical, or numerical arguments about the relationships between the LPI and the ISO standards index, this study takes a theory-building approach and looks at the following research questions:

**RQ1:** There is any relation between LPI and the ISO standards index?

Based on this, two hypotheses have been built:

**H<sub>0</sub>:** There is no connection between LPI and the ISO standards index.

**H<sub>1</sub>:** There is a connection between LPI and the ISO standards index.

... taking into account the fact that the literature review of this paper research indicates that there is a dearth of research on the relationship between LPI and ISO standards index, as well as the fact that theoretical approaches to the relationship between LPI and ISO standards index do exist, but there are no quantitative, statistical, or algebraic arguments supporting the relationship.

## 7. METHODOLOGY

In particular, although previous empirical research has acknowledged the significance of quality management and LPI in the business and entrepreneurship ecosystem, it has not explained how these two factors influence and are connected to quality management. This is in addition to the fact that only a small number of rigorous theoretical studies have demonstrated the strong relationship between LPI and ISO standards index; these studies do not include numerical, statistical, or algebraic studies. As a result, a hypothesis that is backed by research and analysis is required. One in-depth case study technique should be used in an exploratory manner to gain a thorough grasp of phenomena and enable a deeper examination of theoretical structures.

### 7.1. Data Collection and Data Analysis

Prior to now, there have been separate data and resources available on the logistics performance index, transit volumes, quality management, and ISO standards. There have also been previously published works, research papers, books, and online libraries. Data for LPI has been gathered from the World Bank LPI Index, and Data for ISO standards has been gathered from the ISO standards website and annual report, A regression analysis was performed, using the ISO standards Index as X and LPI as Y, The ISO standards index has been formed by dividing the total number of ISO certificates issued in a country by the number of businesses in this country, resulting in an ISO standards index (Ceko, 2022), Data for the number of businesses per country have been gathered by HitHorizon (n.d.).

**Table 6.** List of countries based on the Logistics Performance Index (LPI Report) and ISO Standards Index

N <sup>o</sup>	Country	LPI Score	ISO standards Index	N <sup>o</sup>	Country	LPI Score	ISO standards Index
1	Germany	4.2	0.021	25	Poland	3.54	0.00656
2	Sweden	4.05	0.00575	26	Ireland	3.51	0.0136
3	Belgium	4.04	0.00467	27	Hungary	3.42	0.00925
4	Austria	4.03	0.0173	28	Thailand	3.41	0.00505
5	Japan	4.03	0.01123	29	S. Africa	3.38	0.00196
6	Netherlands	4.02	0.0072	30	Slovenia	3.31	0.0127
7	Singapore	4	0.0153	31	Estonia	3.31	0.0071
8	Denmark	3.99	0.0071	32	Israel	3.31	0.018
9	UK	3.99	0.00884	33	Panama	3.28	0.00536
10	Finland	3.97	0.0082	34	Vietnam	3.27	0.0131
11	UAE	3.96	0.01185	35	Iceland	3.23	0.00203
12	Switzerland	3.9	0.022	36	Malaysia	3.22	0.0115
13	New Zeland	3.88	0.00321	37	India	3.18	0.00082
14	France	3.84	0.0054	38	Cyprus	3.15	0.0053
15	Spain	3.83	0.0146	39	Turkey	3.15	0.00132
16	Australia	3.75	0.00576	40	Romania	3.12	0.0144
17	Italy	3.74	0.021	41	Croatia	3.1	0.0149
18	Canada	3.73	0.0052	42	Mexico	3.05	0.00209
19	Norway	3.7	0.00695	43	Bulgaria	3.03	0.0129
20	Czech Rep	3.68	0.0207	44	Slovak Rp	3.03	0.0166
21	Portugal	3.64	0.0114	45	Lithuania	3.02	0.0099
22	Luxembourg	3.63	0.00231	46	Saud Arab	3.01	0.00343
23	Korea. Rep.	3.61	0.0033	47	Brazil	2.99	0.00343
24	China	3.61	0.00434	48	Rwanda	2.97	0.00039

N°	Country	LPI Score	ISO standards Index	N°	Country	LPI Score	ISO standards Index
49	Colombia	2.94	0.00558	80	Malawi	2.59	0.00215
50	Bahrain	2.93	0.0093	81	Cambodia	2.58	0.00028
51	Philippines	2.9	0.00544	82	Uzbekistan	2.58	0.00075
52	Argentina	2.89	0.00951	83	Bangladesh	2.58	0.00126
53	Serbia	2.84	0.0189	84	El Salvador	2.58	0.00147
54	Ukraine	2.83	0.00121	85	Uganda	2.58	0.00014
55	Egypt	2.82	0.00094	86	Tunisia	2.57	0.00212
56	Kenya	2.81	0.00022	87	Ghana	2.57	0.00317
57	Malta	2.81	0.00596	88	Kyrgyz Rep	2.55	0.01179
58	Latvia	2.81	0.01173	89	Morocco	2.54	0.01886
59	Kazakhstan	2.81	0.002	90	Zambia	2.53	0.00004
60	B&H	2.81	0.0195	91	Jamaica	2.52	0.00406
61	Costa Rica	2.79	0.00428	92	Nepal	2.51	0.00016
62	Benin	2.75	0.01044	93	Moldova	2.46	0.0012
63	Montenegro	2.75	0.0146	94	Algeria	2.45	0.00034
64	Mauritius	2.73	0.00203	95	Togo	2.45	0.00036
65	Lebanon	2.72	0.00354	96	Georgia	2.44	0.01136
66	Brunei DRSL	2.71	0.0169	97	Sudan	2.43	0.00833
67	NR Macedonia	2.7	0.0191	98	Chad	2.42	0.0082
68	Lao PDR	2.7	0.00054	99	Imd&Tbg	2.42	0.0048
69	Peru	2.69	0.00162	100	Guatemala	2.41	0.0164
70	Jordan	2.69	0.00282	101	Tajikistan	2.34	0.008
71	Uruguay	2.69	0.0088	102	Lesotho	2.28	0.00006
72	Dominic Rep	2.66	0.00311	103	Senegal	2.25	0.00046
73	Albania	2.66	0.0043	104	Guinea	2.2	0.00595
74	Djibouti	2.63	0.00882	105	Iraq	2.18	0.00721
75	Burkina Faso	2.62	0.00044	106	Bhutan	2.17	0.00189
76	Armenia	2.61	0.00124	107	Haiti	2.11	0.00008
77	Honduras	2.6	0.00143	108	Sierra Ln	2.08	0.0004
78	Sri Lanka	2.6	0.0019	109	Niger	2.07	0.00698
79	Cameroon	2.6	0.00046	110	Angola	2.05	0.00251

Source: Logistics Performance Index taken from WB, 2018a;  
ISO Standards Index - Own calculations

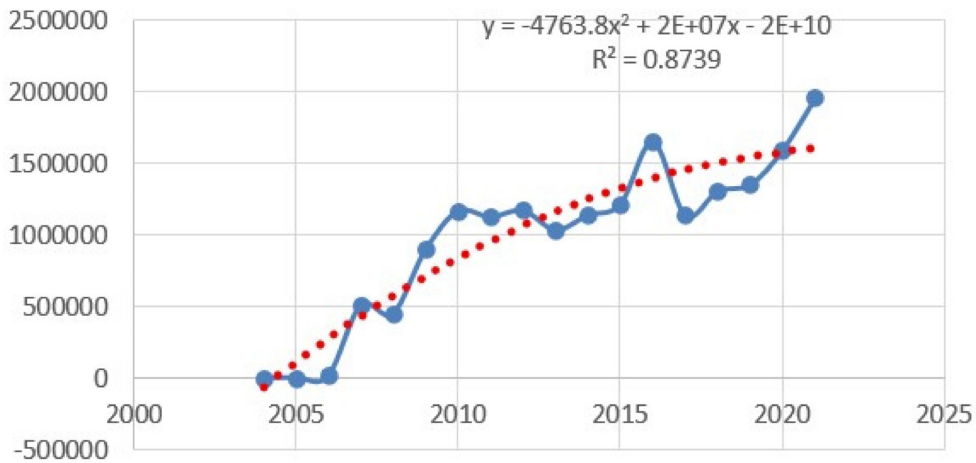
**Table 7.** ISO certificates issued worldwide between 2007 – 2021  
(ISO) (drawn from the author of this paper)

		Year					
		2007	2008	2009	2010	2011	
ISO	9001	420582	358612	694585	910041	856505	
	13485	12985	13234	16425	18834	19849	
	14001	64172	62118	161795	205209	216151	
	20000						
	20121						
	22000	4122	8185	13837	17929	17735	
	22301						
	27001	7732	9246	12935	15178	16800	
	28001						
	29001						
	37001						
	39001						
	44001						
	45001						
	50001					634	
	55001						
	<b>Total</b>		509593	451395	899577	1167191	1127674

		Year				
		2012	2013	2014	2015	2016
ISO	9001	865456	755632	818779	842093	1116227
	13485	22317	25655	26280	26255	29585
	14001	243168	206538	234964	261852	409466
	20000				2778	4537
	20121					
	22000	21158	24207	27685	32050	32130
	22301			1764	3133	3853
	27001	18920	21604	23005	27536	33290
	28001					356
	29001					
	37001					
	39001					478
	44001					
	45001					
	50001	2120	3471	6914	20562	23377
	55001					
<b>Total</b>		1173139	1037107	1139391	1216259	1653299

		Year				
		2017	2018	2019	2020	2021
ISO	9001	758344	878664	880,007	916842	1077884
	13485	31520	19472	23045	25656	27229
	14001	251315	306596	312111	348473	420433
	20000	5005	5330	6044	7846	11769
	20121					253
	22000	32722	32120	33500	33741	36124
	22301	4281	1506	1692	2205	2559
	27001	39501	31910	36337	44499	58687
	28001	494	617	1,874	520	584
	29001					157
	37001		778	1,738	4130	5792
	39001	620	547	864	972	1285
	44001					136
	45001		11952	38518	190481	294420
	50001	13827	18059	18209	19731	21907
	55001					488
<b>Total</b>		1137629	1307551	1,353,939	1595096	1959707

Source: Own research

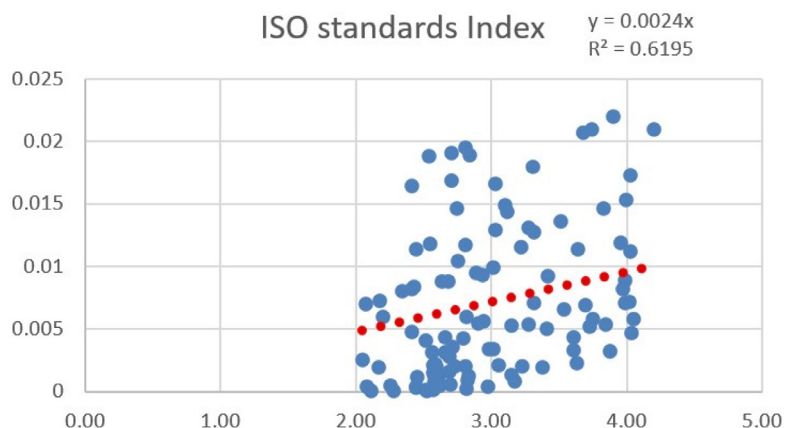


Graphic 1. Total ISO certificates issued worldwide 2004 – 2021.

Source: Own processing



In the graphic below a correlation analysis, in a graphical mode is given, where is shown there is no connection/relation between the SDG Index and the ISO Standards Index.



**Graphic 2.** Correlation between the LPI and the ISO Standards Index

Source: Own calculations

The statistical data on missing links or relationships between the ISO Standards Index and the LPI Index are shown in the three tables below. R2 = 0.280905 indicates a poor connection or relationship between these two Indexes.

**Table 8.1, 8.2 and 8.3.** Regression analysis

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0.783874
R Square	0.614458
Adjusted R Square	0.605199
Standard Error	1.892383
Observations	109

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	616.4006	616.4006	172.1254	5.13E-24
Residual	108	386.7602	3.581113		
Total	109	1003.161			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
0.021	263.2612	20.06616	13.11966	4.32E-24	223.4866	303.0358	223.4866	303.0358

Source: Own processing

With the help of these findings, the practical relationship between the ISO Standards Index and the LPI Index has been confirmed.

## 8. DISCUSSION

The Transport and Logistics industry is one of the most important sectors of any economy and also one of the sectors that cause the most irreparable damage to the environment, but this industry can maintain the balance between development and sustainability by applying the ISO standard to standardize the system. processes, procedures, record keeping, etc., according to internationally recognized and accepted norms. This was also the main reason for the realization of this study, which statistically verified, through regression analysis, the relationship that exists between the LPI Index and the ISO Standards Index. We all agree that LPI can be attained through an improved process of ISO standards certification on a global scale, but how can we better integrate LPI with QMSs and ISO standards in particular? ISO standards are highly standardized and aid in the scientific management of production

factors, as well as the creation, maintenance, and ongoing improvement of long-term sustainable development of the logistics and transport industry, which also contributes to ensuring supply chain management and operation for present and future generations. This research provides proven statistical knowledge on the relationship between transport logistics on the one hand and quality management on the other, suggesting that successful business organizations should invest in quality management, especially ISO standards to improve the continuity of their logistics to achieve competitive advantage. The use of regression analysis in this paper scientifically expresses the existence of relationships between the issues of commercial logistics, expressed by the index of logistics performance and quality management, expressed by the index of ISO standards, but this was realized for a specific period and only half of the world's countries. This is because the data on these issues do not exist, are missing, or require more time and resources to be realized, while more exploratory actions are required on the relationship between the logistics performance index and the ISO standards index worldwide and for a wide period. For the future, the main implication is the development of a powerful tool that combines quality management and logistics, achieving a competitive advantage and other parameters/indicators to better understand their implications and importance in the matter of logistics. The value of investing in soft factors of production such as innovation, creativity, quality management, etc., to achieve a competitive advantage in general and in the logistics and transport sector in particular, is very important as hard factors of production such as labor, land, and capital, have also. In this regard, the most requested ISO standards that are suitable for the transport and logistics industries are:

- ISO 9001 – Quality Management
- ISO 14001 – Environment Protection
- ISO 22301 – Business Continuity
- ISO 39001 – Road Traffic Safety Management
- ISO 45001 – Health and Safety at Work ...

... etc., explained in more detail above.

### **Consequences for Theory and Application**

According to the idea, a new avenue for investigation into the relationships between supply chain management, quality control, transportation, logistics, and, particularly, the LPI Index and ISO Standards Index, has been made possible by the research's conclusive findings.

### **Contribution**

The contribution of this critical analysis article on the field of relations between transport, logistics, supply chain management, and ISO standards shows that, investigating carefully the issue of building relations between important concepts and principles like those of LPI and Quality management principles too. The economic and social significance of ISO and LPI standards is emphasized in this critical analysis piece for both present and future generations.

### **Limitations and Further Research**

This study has been conducted using a large amount of LPI Index data and is the first to provide ISO standards Index data. To establish the validity of these relationships and turn LPI and ISO standards into effective global instruments for raising living standards, more study is required. Summarizing [Beysenbaev and Dus \(2020\)](#) and [Raimbekov et al. \(2017\)](#), several studies have observed that the LPI tends to be skewed and undervalues some countries with a statistically better logistics system due to its methodology, which consists of subjective responses from various logistics operators. Paraphrasing [Guner and Coskun \(2012\)](#), furthermore, research indicates that social variables have a greater effect on the LPI than economic ones.

## 9. CONCLUSION

This research provides proven statistical knowledge on the relationship between transport logistics on the one hand and quality management on the other, suggesting that successful business organizations should invest in quality management, especially ISO standards to improve the continuity of their logistics to achieve competitive advantage. With the help of these findings, the practical relationship between the ISO Standards Index and the LPI Index has been confirmed. The use of regression analysis in this paper scientifically expresses the existence of relationships between the issues of commercial logistics, expressed by the index of logistics performance and quality management, expressed by the index of ISO standards, for a specific period and only half of the world's countries. For the future, the main implication is the development of a powerful tool that combines quality management and logistics, achieving a competitive advantage and other parameters/indicators to better understand their implications and importance in the matter of logistics. The value of investing in soft factors of production such as innovation, creativity, quality management, etc., to achieve a competitive advantage in general and in the logistics and transport sector in particular, is very important as hard factors of production such as labor, land, and capital, have also. Scientific management of factors of production requires ISO standards application, so, a connection and relations between the transport, logistics, and supply chain management, LPI, and ISO standards Index that exist, should be promoted for a healthier transport and logistics ecosystem for all. Using quality management principles and ISO standards as effective and efficient tools will help all interested parties, including individuals, public and private institutions, decision-makers, and civil society, achieve and maintain sustainable development scenarios in the transportation and logistics sector. As a pressing need, all parties should ensure that the already-existing relationships and connections between LPI and ISO standards are strengthened and put to practical use. Improving the quality management system and adhering to ISO standards in tandem with efforts to achieve sustainable growth in the transportation and logistics sectors would really reflect improvements in the standard of living on a global scale. Regarding the idea, a new avenue for investigation into the relationships between supply chain management, quality control, transportation, logistics, and, particularly, the LPI Index and ISO Standards Index, has been made possible by the research's conclusive findings.

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