Project Dissertation Report on
India's Ranking in World's Logistics

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CERTIFICATE

This is to certify that the work Project Dissertation Report on India's Ranking in World's Logistics by Jagrati Sharma, in this project report as part of 4th Semester in MBA (DSM, DTU) during January-May, 2020 was conducted under my guidance and supervision. This work is her original work to the best of my knowledge and has not been submitted anywhere else for the award of any credits / degree whatsoever. The work is satisfactory for the award of MGT-44 Term Project credits.

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This is to declare that the work titled “Project Dissertation Report on India’s Ranking in World’s Logistics” in this Project Report as part of 4th Semester in MBA (DSM, DTU) during JanuaryMay, 2020 under the guidance of Mr. Dhiraj Pal (Asst. Prof.) is my original work to the best of my knowledge and has not been submitted anywhere else.

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Jagrati Sharma

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Jagrati Sharma

EXECUTIVE SUMMARY

Advanced economies remain the global leaders in trade logistics, finds Connecting to Compete 2018, a new World Bank Group report. Across the board, most countries have pursued logisticsrelated reforms and investments to build infrastructure, facilitate transportation and trade, or develop modern services. Despite this progress, the sixth edition of Connecting to Compete reveals a mixed picture. High-income countries score, on average, 48% higher than low-income countries when it comes to logistics performance.

“Logistics services are the backbone of international trade," explains Caroline Freund, Director of the Macroeconomics, Trade & Investment (MTI) Global Practice at the World Bank Group.

“Good logistics reduce trade costs, but supply chains are only as strong as their weakest link. For developing countries, getting logistics right means improving their infrastructure, customs, skills and regulations.”

Connecting to Compete, which contains the Logistics Performance Index (LPI), is a bi-annual report that scores 168 economies on how efficiently supply chains connect firms to domestic and international opportunities. The 2018 LPI highlights emerging concerns with the resilience of supply chains, their environmental footprint, and the need for qualified workers.

1. A logistics labour shortage poses a challenge for both developed and developing countries alike. Developing countries seek more managerial-level workers, while developed countries face a shortage of blue-collar workers, such as truck drivers.
2. High-income countries are more likely than low-income countries to be increasing their preparedness for cyber threats.
3. High-income countries are more likely than low-income countries to seek logistics services that are environmentally friendly. This is important because Co2 emissions from transport are a significant contributor to pollution.

Germany has the highest aggregate score over the past four LPI editions. High-income countries that are dominant players in the supply chain have ranked highest in logistics performance. Countries that rank lowest tend to be those that are low-income, isolated, fragile, or facing conflict

or unrest. Among the lower-middle-income group countries, large economies such as India and Indonesia and emerging economies such as Vietnam and Coted'Ivoire stand out as top performers.

"With international trade becoming more dispersed through global value chains, good logistics are more important than ever. Small disruptions to a supply chain can spread rapidly to other countries and regions," says Christina Wiederer, Economist with the World Bank Group's Macroeconomics, Trade & Investment Global Practice and report co-author. "Connecting to Compete and its Logistics Performance Index help governments understand the link between logistics, trade, and growth, and what policies are necessary for success."

Logistics is therefore becoming increasingly popular as a competitive weapon for companies to gain a cost advantage and provide added-value services Logistics activities are interdependent, require the allocation of resources to achieve service goals and reduce waste in the supply chain such as idle time and the duplication of effort.

Products are manufactured to respond to specific consumers' requests and are then delivered with greater speed, accuracy and cost.

Companies have reduced their costs and improved their levels of profitability, allowing them to become more competitive by offering consumers the products they want when they want them, and often at a lower price.

Because collaboration is essential in such an increasingly demanding business environment, the successful companies of tomorrow will be those that manage their supply chains more strategically, creating new revenue opportunities, efficiency and customer loyalty

Industries, transportation, transportation services, vehicle manufacturing and infrastructure construction are the main economic activities in this regard. Indeed, transport costs are, to a greater or lesser degree, incurred by most goods and services in the economy. However, transport is an enabler of both economic activity and international trade.

Developing countries spend a much higher proportion of GDP on transport and logistics than developed countries

Connecting to Compete and its Logistics Performance Index are tools created to help governments benchmark their progress on trade logistics across key criteria, including the quality of traderelated infrastructure, the price of international shipments, logistics competence and quality, and the frequency with which shipments reach their destination on time. Published biennially since 2007, the report uses both qualitative and quantitative measures to compare logistics friendliness across more than 160 economies.

In developing country like India, logistics sector is in booming stage and grabbing opportunities to grow infinitely. Currently, Logistics sector contributes around 14% in GDP in India. Boom in e-commerce industry and initiatives like MAKE in India, will definitely bring substantial growth for Logistics Service Providers (LSPs). The LSPs need to redesign their strategies in order to grab all upcoming opportunities. Many challenges are faced by logistics service providers in order to deliver shipments on promised time and in desirable condition.

The policy focus has evolved since 2007, when the first LPI report was published. Initially, logistics policies tended to concentrate on facilitating trade and removing border bottlenecks. Today, international logistics is increasingly intertwined with domestic logistics. Policy makers and stakeholders deal with a wide range of policies. Growing concerns include spatial planning; skills and resources for training; the environmental, social, and economic sustainability of the supply chain

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CHAPTER 1 – INTRODUCTION

1.1 Background

Logistics is generally the detailed organization and implementation of a complex operation. In a general business sense, logistics is the management of the flow of things between the company and consumers to meet the requirements of customers or corporations.

The resources managed in logistics may include tangible goods such as materials, equipment, and supplies, as well as food and other consumable items.

Logistics management is the part of supply chain management and supply chain engineering that plans, implements, and controls the efficient, effective forward, and reverse flow and storage of goods, services, and related information between the company and customers.

There are two types of logistics, mainly

Inbound logistics is one of the primary processes of logistics concentrating on purchasing and arranging the inbound movement of materials, parts, or unfinished in ventory from suppliers to manufacturing or assembly plants, warehouses, or retail stores.

Outbound logistics is the process related to the storage and movement of the final product and the related information flows from the end of the production line to the enduser.

Given the services performed by logisticians, the main fields of logistics can be broken down as follows:

- Procurement logistics
- Distribution logistics
- After-sales logistics
- Disposal logistics
- Reverse logistics
- Green logistics
- Global logistics
- Domestics logistics
- Concierge service
- Reliability, availability, and maintainability

- Asset control logistics
- Point-of-sale material logistics
- Emergency logistics
- Production logistics
- Construction logistics
- Capital project logistics
- Digital logistics

Procurement logistics consists of activities such as market research, requirements planning, make-or buy decisions, supplier management, ordering, and order controlling.

Advance Logistics consists of the activities required to set up or establish a plan for logistics activities to occur. Global Logistics is technically the process of managing the 'flow' of goods through what is called a supply chain, from its place of production to other parts of the world.

Distribution logistics has, as main tasks, the delivery of the finished products to the customer. It consists of order processing, warehousing, and transportation. Distribution logistics is necessary because the time, place, and quantity of production differ with the time, place, and quantity of consumption.

Disposal logistics has as its main function to reduce logistics cost(s) and enhance service(s) related to the disposal of waste produced during the operation of a business. Reverse logistics denotes all those operations related to the reuse of products and materials. The reverse logistics process includes the management and the sale of surpluses, as well as products being returned to vendors from buyers. Reverse logistics stands for all operations related to the reuse of products and materials. It is "the process of planning, implementing, and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin to recapture value or proper disposal. The opposite of reverse logistics is forward logistics."

Green Logistics describes all attempts to measure and minimize the ecological impact of logistics activities. This includes all activities of the forward and reverses flows.
This can be achieved through intermodal freight transport, path optimization, vehicle saturation, and city logistics.

RAM Logistics (see also Logistic engineering) combines both business logistics and military logistics since it is concerned with highly complicated technological systems for which Reliability, Availability, and Maintainability are essential, ex: weapon systems and military supercomputers.

Asset Control Logistics: companies in the retail channels, both organized retailers and suppliers, often deploy assets required for the display, preservation, promotion of their products.

Emergency logistics (or Humanitarian Logistics) is a term used by the logistics supply chain, and manufacturing industries to denote specific time critical modes of transport used to move goods or objects rapidly in the event of an emergency.
Humanitarian logistics involves governments, the military, aid agencies, donors, non governmental organizations, and emergency logistics services that are typically source dfrom a specialist provider.

Production Logistics-

The term production logistics describes logistic processes within a value adding system (ex: factory or a mine). Production logistics aims to ensure that each machine and workstation receives the right product in the right quantity and quality at the right time. The concern is with production, testing, transportation, storage, and supply.

Construction Logistics has been employed by civilizations for thousands of years. As the various human civilizations tried to build the best possible works of construction for living and protection. Now construction logistics has emerged as a vital part of the construction. In the past few years, construction logistics has emerged as a different field of knowledge and study within the subject of supply chain management and logistics.

Military logistics -

In military science, maintaining one's supply lines while disrupting those of the enemy is crucial—some would say the most crucial element of military strategy, since an armed force without resources and transportation is defenseless.
Business logistics - A forklift stacking a logistics provider's warehouse of goods on pallets. one definition of business logistics speaks of "having the right item in the right quantity at the right time at the right place for the right price in the right condition to the right customer".

In business, logistics may have either an internal focus (inbound logistics) or an external focus

(outbound logistics), covering the flow and storage of materials from point of origin to point of consumption (see supply-chain management).

Main functions of Logistics -The main functions of a qualified logistician include inventory management, purchasing, transportation, warehousing, consultation, and the organizing and planning of these activities. Logisticians combine professional knowledge of each of these functions to coordinate resources in an organization.

There are two fundamentally different forms of logistics: one optimizes a steady flow of material through a network of transport links and storage nodes, while the other coordinates a sequence of resources to carry out some project (e.g., restructuring a warehouse).

Logistics Outsourcing

Logistics Outsourcing involves a relationship betwist a company and an logistic service provider, compared with basic logistics services, has more customized offerings, encompasses a broad number of service activities, is characterized by a long-term orientation, and thus has a strategic nature.

Outsourcing does not have to be complete externalization to an LSP, but can also be partial:

- A single contract for supplying a specific service on occasion
- Creation of a spin-off
- Creation of a joint venture

Third-party logistics (3PL) involves using external organizations to execute logistics activities that have traditionally been performed within an organization itself.

According to this definition, third-party logistics includes any form of outsourcing of logistics activities previously performed in house. Logistics is an emerging business area in many countries.

Fourth Party logistics - The concept of a fourth-party logistics (4PL) provider was first defined by Andersen Consulting (now Accenture) as an integrator that assembles the resources, planning capabilities, and technology of its organization and other organizations to design, build, and run comprehensive supply chain solutions. Whereas a third party logistics (3PL) service provider targets a single function, a 4PL targets management of the entire process.

Logistics automation

Automated storage and retrieval system used by the U.S. military, also used by business in conjunction with manual picking. Logistics automation is the application of computer software or automated machinery to improve the efficiency of logistics operations.

Typically this refers to operations within a warehouse or distribution centre with broader tasks undertaken by supply chain engineering systems and enterprise resource planning systems.

India's logistics

India jumps 19 places in the World Bank Logistics Index screamed the headlines carried by the mainstream media and the business publications when the last rankings were published in Jun 2016. From Rank 54, India catapulted to the 35th rank in the report published every two years. Everyone involved in administration, economics, trade saw this acknowledgment as a huge positive impact and was confident that all policies and investments being made were in the right direction.

This indicator was used all through 2017 to project the "Ease of doing business in India" showcasing the government's progressive development stand. The enthusiasm also paved the way to introduce the State-wise Logistics performance index for, the first time in the country.

However, this was short-lived Circa July 2018, when World Bank published the Logistics Performance Index 2018, India has slipped from the 35th position to the 44th position. The NDA government, nevertheless, has realized the importance of the sector.

Pirojshaw Sarkari, CEo of Mahindra Logistics, says that to make Make-In-India successful, Move-In-India has to be successful as well. Raw material has to move inefficiently to the manufacturing plant and finished goods have to move out and shipped to the end consumer in a quick time. If these two legs are not competitive, India cannot be competitive in its manufacturing.

The last Economic Survey further put the strategic importance of logistics into perspective: "The Indian logistics industry, worth around $160 billion, has grown at a compound annual growth rate of 7.8 percent during the last five years.

Improving the logistics sector has a huge implication on exports and it is estimated that a 10 percent decrease in indirect logistics cost can increase 5-8 percent of exports. With the

implementation of Goods and Services Tax (GST), the Indian logistics market is expected to reach about $215 billion in 2020, growing at a CAGR of 10.5 percent," the Survey states.

The logistics industry is considered a crucial sector to boost international trade as a consequence of digitalization and globalization

Logistics is the part of technology, buildings blocks, skilled manpower and types of service providers that defines whether this sector will be able to help its users, minimize the costs and provide quality services.

Recent Scenario

Nowadays logistics industry in India comprised of inbound and outbound sectors of the production and services supply chains. Lately, the logistics infrastructure has achieved much needed attention from business companies as well as policymakers. The way the logistics marketplace behaves these days has changed a lot.

With the implementation of advanced technology and refined processes, the planning, implementation, and control of the goods movement have become faster and efficient.

The manufacturing businesses ensure that their products reach the end customer quickly, and thus, they outsource their logistical operations to logistics service providers in Hyderabad transport. These logistics activities involved material management, sorting facilities, storage and retrieval of information on goods, warehousing, distribution, cargo handling, inland waterways and plan of processing strategies

The government made many interventions, GST being the biggest thus far. As many as 17 different central and state-level taxes got consolidated into one nationwide tax, removing octroi or entry taxes. The same taxes country-wide means warehouses need not be indifferent locations for taking advantage of tax arbitrage if any.

The faster movement of goods has resulted in cost savings for the companies.

GST is also forcing consolidation in the warehousing industry. Fast-moving consumer goods companies, consumer durable and other manufacturing firms are getting rid of godowns in favor of larger warehouses. From managing single company warehouses, logistics companies are shifting to a multi-client, multi-product model. As companies consolidate operations in large warehouses, they can cut down on costs. Larger warehouses also lend to automation, which implies a quicker turnaround.

The next big revolution for the sector ought to be multi-modal transport - transport modes in India operate freely with heavy reliance on roads, which form roughly 60 percent share of the transport mix today.

Some of The Challenges Faced by Logistic Industry in India-

- Different rules and regulations at different stages are enforced by national, regional and local authorities.
- Lack of integration in transport networks, poor warehousing and distribution facilities and information technology were the major challenges for businesses dealing in the logistics industry.
- The logistics sector needs skilled manpower and there is a lack of training institutions that are causing various issues among the employees and the logistics managers.
- Poor management and storage facilities are the reason for a major loss, damage and deterioration of the material, especially in the perishables sector. Good refrigerated storage and containers and maintenance is needed.
- Building the infrastructure, manage the requirements of the various sectoral supply chain, changing industrial policies to ease efficient production and transportation of goods and deploying effective managerial practices and technology to enhance competitiveness are the major issues.
- Despite various challenges and its peculiarities, the logistics industry in India is transforming by developing innovative business models, outsourcing their supply chain operations to 3PL services providers, and by removing the structural and policybased stringencies.

The Changing Logistics Infrastructure

Logistics management is a subject of research that has been grabbing the attention of educators, professionals, and practitioners over the past two decades. Efficient logistics management and online transport service can lead to reduced operational costs, better delivery performance, and enhanced customer satisfaction levels, henceforth, making an organization more competitive in terms of quality, cost, flexibility, and delivery. Due to globalization and digitization, the demand for logistics has increased more.

However, outsourcing their logistics and transport operations to professional logistics service providers has assisted the businesses to get tailored logistical support while enabling them to focus on their core organizational activities.

At present, many large multi-national providers that deliver complete supply chain solutions across multiple countries in terms of their political and socio-economic environments. In addition to main logistical activities such as transportation, warehousing, and supply chain, these service providers also offer value-added services such as freight forwarding, customs clearance, import/export management, inventory management, packaging and labelling, assembly/installation, distribution, reverse logistics, after-sales support, and so on.

The Efficient Logistics System Indicates Economies of Scale

Logistics Services in India is an important sector in terms of support to national and state economy, trade flows, FDI (Foreign Direct Investment) as well as employment. Considering the major contribution of transportation and logistics in economic growth 14% (nearly) of the GDP (Gross Domestic Product) is spent on the transport and logistics industry in India in comparison to 8 -10%.

With the increased investor interest across the industry, mainly in the warehousing management service, the private investments have increased over the years along with huge Foreign Direct Investments.

There is a lot of investment that the logistics and transport industry is attracting in the coming year. owing to the transformations and changes led by these investments, the industry will create huge jobs. As per the experts' prediction, by 2022, the transport and logistics industry can be the largest job creator.

At present, the industry employs over 22 million people in India. The report also indicates that the growth in the industry would result in a 10 % reduction in indirect cost which in turn resulting in a 5 to 8 % growth in exports. It is expected that by 2020, the Indian logistics sector will reach US$ 215 Billion.

In the year 2017-18, the logistics Industry profits account for US$ 160 Billion and it is expected to reach US$ 215 Billion by the year 2020. The Indian government has announced that it is working at the policy to develop the new logistics plan in India. The aim is to develop the most economical way to transport goods by 2035. If the country's economy needs to optimize its GDP, the supply chain barriers need to be controlled and thereby international

business can also be increased. Globalization and increasing expanding global trade volume have forced the nations to increase their logistics capacities.

Economic growth is increasingly associated with transport expansions, specifically infrastructures, but also with managerial expertise that is significant for logistics.

Thus, even though transportation is an infrastructure intensive process, hard assets must be supported by a range of soft assets, particularly labor, warehouse management, and information systems A better-performing logistics sector would also enable India to become an important part of the global supply chain. A smooth ride isn't a pipe dream but it’s got to wait.

Global Logistics

Global logistics connects critical components of the supply chain from a product’s point of origin to its point of consumption—to ensure timely and efficient distribution of goods from producers to consumers. In 2016, the global volume of merchandise trade was $16 trillion, according to the World Trade organization. The global logistics industry facilitates this worldwide flow of goods. Global logistics involves the movement of goods—by truck, train, ship, or plane—as well as preparation, packaging, and storage of goods in distribution centers and other logistics real estate facilities.

Growth in global logistics is fuelled by three fundamental trends: increasing consumption, rising e-commerce and ongoing reconfiguration of the supply chain to move goods more quickly and efficiently. The enduring strength of these trends across the world means is an indication that global logistics will continue to play an essential role in the world economy.

Time, cost and quality are key drivers of success in global logistics. As a consequence, location is a leading consideration. other considerations include cost and availability of suitable labor; presence and reliability of essential business partners; geopolitical and geographic risk and stability. In the context of the globalization of the world economy, logistics is the most important means of reducing the costs of all types of resources, both in the sphere of production itself and in the sphere of circulation, and, therefore, in obtaining greater profits and ensuring business competitiveness.The technological essence of global logistics lies in reducing the operating costs of working time, the duration of the production cycle and the timing of the supply of goods and, of course, material costs.

Global logistics is becoming an important strategic tool in providing competitive advantages in the global market for the sale of products. The scientific and technical essence of global logistics lies in the fact that it is implemented based on IT management technologies in the areas of production and circulation of goods through the optimization of information flows, as well as the timely provision of complete and reliable information to its customers.

Logistics performance both in international trade and domestically is central to countries' economic growth and competitiveness," said Anabel Gonzalez, Senior Director for the World Bank Group's Trade & Competitiveness Global Practice.

"Efficient logistics connects people and firms to markets and opportunities and helps achieve higher levels of productivity and welfare. Unfortunately, the logistics performance gap between rich and poor countries continues.

Global supply chains require all actors to work effectively to reduce time and cost and to improve the reliable and smooth flow of goods and services. Identifying the logistics service performance, in the countries along a supply chain, is of vital importance to a variety of different stakeholders, including transport operators, logistics service providers, users and, of course, national economies.

Applying a comparative study method, using data from the logistics performance index (LPI) of 2007 and 2018, plus other sources, the current research assesses the logistics performance of selected (BRICS) developing and developed countries. The study finds that, over the period, some countries have progressed and others have not, against different indices of logistics performance, and thus different levels of progress have been achieved in different countries. The study recommends that certain country-specific actions are needed to achieve in the less well performing areas of logistics services.

What comprises the World Bank’s Logistics Performance Index?

The logistics performance (LPI) is the weighted average of the country scores on the six key dimensions:

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.

1.2 Problem Statement

It has been observed that the world bank Logistics ranking of India does not give a correct view of logistics as it does not differentiate between developing and underdeveloped countries and to study the other factors that influence the ranking.

This is the comparison between India's Ranking in LPI in 2016 and 2018 and the first ranker, Germany index and score

FIGURE 1.1 Comparison of reports of India

INDIA	LPI Rank	LPI Score	Customs	Infrastructure	International Shipments	Logistics competence	Tracking & Tracing	Timeliness
2018	44 ↓	3.18 ↓	2.96 ↓	2.91 ↓	3.21 ↓	3.13 ↓	3.32 ↓	3.5 ↓
2016	35	3.42	3.17	3.34	3.36	3.39	3.52	3.74
Ref #1 Rank 2018								
Germany	1	4.2	4.09	4.37	3.86	4.31	4.24	4.39

Source: Own Analysis

There are several factors that affect the ranking in Logistics but the ranking should be based different for developed, developing and underdeveloped countries as developed countries have already achieved the high ranking and all the factors are also developed in developed countries.

To get the correct view of ranking and to be able to make comparison worth doing, the world bank should make 3 different criteria-based on the development

1. developed countries
2. developing countries
3. under developing countries

Even with the landmarks achieved, there are still quite a few snags that the logistics companies in India are familiar with.

There are certain issues that are being faced by India which are the major reasons for India's rank in Logistics industry when compared to other countries:

- High order Intensity Ratio
- Transportation Roadblocks
- Rail Tariffs
- Port and Shipping Problems
- Lack of Skilled and Specialist Personnel
- Slow Transition into Newer Technologies
- Warehousing and Taxation Discrepancies
- Customer's Mindset
- Ever Increasing Fuel Costs
- Government Policies and Bottlenecks
- Shortage of Drivers and Delivery Staff

The ranking of India is majorly affected by these factors. These areas need to be improvised to improve the ranking of India. The Indian Logistics sector growth depends on thegrowth of its soft infrastructure like education, training and policy framework as much as the hard infrastructure. To support India's fast paced economy growth of logistics industry is very essential. It is estimated that the Indian logistics sector will continue to show robust growth of 10-15% annually, leading the pace of growth of the economy at large.

India is also experiencing a big retail boom as the buying capacity of the middle and upper middle segment of the population have scaled new heights. Many large MNCs from the retail industry are planning to set up operation in India and large local retailers are also planning to expand their operations. But with the infrastructure largely under-developed and incapable of catering to a growing economy, logistics management in India becomes too complex. The poor condition of infrastructure directly translates to higher turnover, pushing up the operating costs and reducing efficiency. There are other problems such as complex regulatory compliances and limited adoption and utilization of technology, which has resulted in increased paper work and inability to communicate effectively with customers.

In spite of dismal infrastructural scenario, the hopes of the logistics sector are kept up by the various upcoming infrastructural projects like logistics parks and hubs and other initiatives by public and private sectors. The future of the logistics sector depends not only on the

continued development of infrastructure but also on the capability of the service providers in adopting themselves and making optimal utilization of technologies.

1.3 Objectives of work

1- To study the various reasons on which the ranking given by the World Bank is based

2- To study the various factors that are leading India to 44th rank in the Logistics Performance Index

3- To study the improvements needed to do in today's India logistics

4- To study the gaps between the countries of 1st rank and India which is on 44th rank 5- To study future logistics of India

1.4 Scope of work

1-To conduct a detailed study about the ranking given by world bank and the factors affecting the ranking

2–To conduct primary research on logistics.

3- To determine the gap between the problems mentioned by the world bank and the actual problems faced in India.

4- To do the facts checking of logistics based on public survey towards the logistics industry in India

CHAPTER 2 – LITERATURE REVIEW

In the work of Chow et al. (1994) based on the study of logistics sources, methods for evaluating and representing the efficiency of logistics are given. However, these methods were used to assess the logistics performance of the company and were not used to assess the logistics performance of the country due to the complexity of measurement and data collection. Daugherty et al. (1996) proved that the higher the level of integration in companies, the higher the efficiency of logistics and its economic performance. A positive relationship between logistics and trends has been established to increase the level of integration between companies. Inefficient logistics leads to increased costs, financial resources, extended delivery time; negatively affects the foreign trade of the country and companies, and also leads to its decrease.

As the importance of logistics is growing steadily, there is a growing need to evaluate its components and compare the achievements of different countries (David, 2006). Forslund (2007) described modern methods of logistics management and revealed the existence of the relationship between logistics performance management and the expected results of logistics for customers. Countries with low logistics efficiency indicators face high costs not only because of transportation costs but also because of unreliable supplies and incorrect measurement.

(Gogoneata, 2008; Sambracos and Ramfou, 2014). The results of the study using econometric methods and the logistics efficiency index calculated by the World Bank showed that there is a strong relationship between the service sector development and the results of logistics in the country. The more developed the service sector the higher the level of logistics development. Keebler and Plank (2009), through a survey of US companies, established a positive relationship between the company's efficiency and logistics efficiency and concluded that it was necessary to continuously measure logistics indicators to improve the company's operations.

The Global Competitiveness Index (GCI) is a general indicator of the global competitiveness rating. The rating of the World Competitiveness (IMD World Competitiveness Yearbook 2010), proposed by the International Institute of Lausanne in 2010 is also popular.

In 2010 the World Forum proposed an index of global involvement in international trade (The Global Enabling Trade Index, ETI). The ETI index measures the policies of states and the

effectiveness of their institutions in the field of international trade and the development of economic cooperation. The index is measured once every two years. However, the non-tariff measures are not included in the ETI index due to the lack of global data.

The logistics market development in the country is directly influenced by the conditions of doing business. Therefore, assessing the business environment by Doing Business, which is annually prepared by the World Bank (WB) is important. The report of 2017 (Doing Business 2017) includes 190 countries and covers 10 indicators (WB, Doing Business, 2017). To fully assess the logistics development in countries the leading macroeconomic international rating DHL Global Connectedness Index is also used.

Using the DHL index data on 10 different types of international trade and economic relations, including such categories as trade, capital, information, and population for the period from 2011 to 2016 is studied (DHL Report, 2016). Z.S. Raimbekov, B.U. Syzdykbayeva, K.P. Mussina, L.P. Moldashbayeva, B.A. Zhumataeva 263 (Gogoneata, 2008; Sambracos and Ramfou, 2014). The results of the study using econometric methods and the logistics efficiency index calculated by the World Bank showed that there is a strong relationship between the service sector development and the results of logistics in the country.

The more developed the service sector the higher the level of logistics development. Keebler and Plank (2009), through a survey of US companies, established a positive relationship between the company's efficiency and logistics efficiency and concluded that it was necessary to continuously measure logistics indicators to improve the company's operations.

FIGURE 2.1- Logistic indicator weight in the context of international rating comparison

Name of rating (report)	Subindexes / groups	Number of private indicators			Specific weight of logistic indicators,%
		Objective	Subjective	Total	
Global Competitiveness, GGI	3/12	34	76	110	14.5
IMD World Competiveness Report	4/20	131	115	246	6.5
The Global Enabling Trade Report, ETI	4/9	11	34	45	55.5
Doing business, DB	10	7	31	38	23.7
Logistics Performance Index, LPI	6	0	41	41	97.6

Source: Dolgov, 2010.

In 2010 the Emerging Market Logistics Index - EMLI proposed by Transport Intelligence Institute (Great Britain) appeared in emerging economies. The study is conducted annually

starting in 2011 (Agility, 2016). This indicator reflects the degree of the logistics market attractiveness for foreign investment. The overall indicator of the index is calculated based on three intermediate indicators: the size and dynamics of market development, market compatibility, market connectivity (connectivity) of transport communications.

The total number of indicators is 14, including 6 subjective and 8 objective indicators. The share of logistic indicators in EMLI is 50%. Thus, the above review of existing ratings represents a kind of evolutionary model of increasing interest in logistics.

Influence of the Logistics Performance Index Since its inception in 2007, the Connecting to Compete report providing LPI ratings have moved trade logistics firmly onto the policy agenda, even for countries that had not previously considered them. LPI results have also been used in many policy reports and documents prepared by multilateral organizations or the consultants they have engaged in.

The findings provide a worldwide general benchmark for the logistics industry and logistics users. LPI results have been embraced by the academic community, as evidenced by the widespread use of LPI data in research reports, journal articles, and textbooks. The results have also been used in teaching, and thousands of theses at all levels have cited the LPI. Logistics performance is based largely on reliable supply chains and predictable service delivery for traders. Global supply chains are becoming more and more complex. Evermore demanding regulatory requirements for traders and operators are motivated by safety, social, environmental, and other reasons. Efficient management and information technology solutions in both the private and public sectors are tools for high-quality logistics. National competitiveness depends on the ability to manage logistics in today's global business environment.

More than ever, comprehensive reforms and long-term commitments are needed from policy makers and private stakeholders. The current LPI data provide a unique and updated reference for better understanding the impediment so trade logistics worldwide and for informing policymaking and business decisions.

Although the LPI and its components now offer the most comprehensive and comparable data on country logistics and trade facilitation environments, they have a limited domain of validity because of the limited experience of survey respondents

and, for landlocked countries and small island states, the dependence of their logistics on the logistics of other countries.

To account for the sampling error created by the LPI's survey-based dataset, LPI scores are presented with approximate 80 percent confidence intervals. These intervals yield upper and lower bounds for a country's LPI score and rank. Upper bounds for LPI ranks are calculated by increasing a country's LPI score to its upper bound while maintaining all other country scores constant and then recalculating LPI ranks An analogous procedure is adopted for lower bounds. Confidence intervals must be carefully examined to determine whether a change in score or a difference between the two scores is statistically significant. An improvement in a country's performance should be considered statistically significant only if the lower bound of its 2018 LPI score exceeds the upper bound of its 2016 score.

To provide a bigger, better-balanced picture of country performance, this report publishes the current 2018 results alongside a composite score of the four latest surveys (2012–18).

This approach reduces the noise and random variation from one LPI survey to another and enhances the comparison of aggregate scores for the 167 countries in the 2018 edition. In the aggregate data for the four latest LPI surveys, 41 countries scored 70 percent or more of the top performer's score. For these, the average difference per rank position was 0.023 score points.

For the next 61 countries scoring 50-69 percent of the top performer's score and occupying ranks 42–102, the average difference per rank was 0.016 score points. This means that countries at similar performance levels may have substantially different ranks, especially in the middle range. It is important to check the confidence interval (CI) of a country's LPI scores before making any deeper judgment:

The narrower the CI, the more reliable the score. Large traders, such as China, Germany, the United Kingdom, and the United States, tend to have a CI at 0.05 score points or below, which is about 1 percent or less of their scores. By contrast, some smaller traders' CIs are often closer to 0.5 score points, which may be more than 15 percent of their scores. Changes can be statistically significant only if the CIs for the scores of two consecutive years do not overlap.

Second, the overall LPI score is a more telling indicator than the LPI rank, because scores are more accurate and provide a better basis for comparison over time.

Especially for countries ranked in the middle range, scores may differ little even if rank positions can be quite far apart: for example, Egypt, ranked 60th, and Bangladesh,

ranked 100th, both fall within 0.36 score points, an interval where the average difference per country is only 0.0088 score points.

Thus, the fluctuation in a country's rank from one LPI report to the next may appear much larger than the actual change in its score. For this reason, the 2018 LPI uses the weighted average LPI score as the primary indicator, taking away much of the oscillation in scores from one LPI to another. The weighted average values of the four most recent LPI surveys were provided in appendix 4 in the 2014 and
2016 LPI reports, too.

Using the aggregate values and following their development over time provides a more balanced picture of a country's logistics performance than relying solely on singleyear data. Consequently, manufactured products transported in unitized form make up the core of trade covered, where freight forwarders are typically used as intermediaries. Trade of large volumes of raw materials and energy products handled in bulk (such as ores, grain, oil, and gas) is not covered well in the LPI. Such large- volume trade uses either direct industry buyerseller channels or another type of intermediaries, such as commodity traders or shipping brokers.

Especially in poor countries, traditional operators often play a larger role in trade arrangements than international freight forwarders. Traditional and international operators may differ in their interactions with government agencies, and their service levels. In developing countries, international networks tend to serve large companies, which may have significantly different service level criteria for time, cost, and other aspects from traditional trading networks.

The most landlocked countries and small island states, the LPI might reflect access problems outside the country assessed, such as transit difficulties. The rating of a landlocked the country might not adequately assess its trade facilitation reformefforts, because of their success depends on international transit routes through its neighbours. In summary, individual country data—especially rank positions tracked from one LPI report to the next—should preferably not be used as the sole indicator, but should be considered in combination with scores, while also keeping the size of the CI in mind. Using the weighted aggregate score and rank data that rely on the four latest LPI ratings is also a good idea, as they provide a more balanced picture.

Furthermore, very few improvements in a country's operational or regulatory environment immediately affect the global freight forwarding and logistics professionals' view of that country.

Put differently: positive changes tend to take more time, while some (extreme) negative ones might have a more sudden impact. The LPI has been effective at galvanizing interest in and making the case for reform in several countries. It is best used as a snapshot of where a country stands on logistics, and it can serve as an entry point to a more comprehensive assessment of a country's logistics performance. This can entail, for instance, assessments of the different transport modes (road, rail, air, maritime, and inland shipping), internal logistics, dwell time studies, and an assessment of professional skills and training in the logistics sector.

Let's examine the top ten rankings of last reports with the ranking of 2018

FIGURE 2.2 Top ten rankings of previous years

Ranking	2007	2010	2012	2014	2016	2018
1	Singapore	Germany	Singapore	Germany	Germany	Germany
2	Netherlands	Singapore	Hong Kong	Netherlands	Luxembourg	Sweden
3	Germany	Sweden	Finland	Belgium	Sweden	Belgium
4	Sweden	Netherlands	Germany	UK	Netherlands	Austria
5	Austria	Luxembourg	Netherlands	Singapore	Singapore	Japan
6	Japan	Switzerland	Denmark	Sweden	Belgium	Netherlands
7	Switzerland	Japan	Belgium	Norway	Austria	Singapore
8	Hong Kong	UK	Japan	Luxembourg	UK	Denmark
9	UK	Belgium	USA	US	Hong Kong	UK
10	Canada	Norway	UK	Japan	USA	Finland

Source: Logistics performance index report 2018

AUSTRIA: NEW DOMINANT PLAYER

In 2010 Austria ranked #19. Good ranking, but not a member of the elite club. In 2012 Austria ranked #11 and almost made it to the top 10. The 2014 was bad news for Austria: it got #22. Since then, however, the country has performed well #7 in 2016, #3 in 2018.

Let's look at how Austria ranked in each indicator.

FIGURE 2.3 Austria indicators value

	Overall ranking	Customs ranking	Infra-structure ranking	Int'l shipments ranking	Logistics competence ranking	Track & Trace ranking	Timeliness ranking
2014	22	23	25	40	26	10	23
2016	7	15	12	9	4	2	7
2018	4	12	5	3	6	7	12

Source: Compiled from World Bank data.

The LPI is based on a worldwide survey of stakeholders on the ground providing feedback on the logistics "friendliness" of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed qualitative assessments of other countries where they trade and have experience in the global logistics environment.

CHAPTER 3 – RESEARCH METHODOGY

3.1 Research Method

Since the use of logistics in supply chain operations is an old process with new changes in processes became clear that the research methodology must be suitable for the analysis of qualitative data so we have surveyed a fact check of logistics known by people for the primary analysis.

Therefore, a combination of secondary i.e. the research paper and articles, and primary sources provided qualitative data for this study. In first step literature about logistics and logistics management systems in India provided the basis for an introduction into the history, development, and classification of logistics management systems. The need for efficient data acquisition methods is elaborated and the fundamentals of logistics are introduced based on standards, company whitepapers, and studies. Additionally, a description of global logistics with India's logistics based on world bank ranking of logistics profitability index.

The nature of the research questions demanded that they were answered through multiple case studies, and articles to be more representative than one single detailed case study of Completing to Compete. Therefore, the goal was to find, analyse, and compare current data of Logistics in several countries, and to study the changes required in India’s logistics. For this reason, a survey was conducted, and analysed by the means of descriptive statistics

The following four steps were carried out for the study:

- Select individual important reports to study
- Collect data from individual sites using of qualitative methods.
- Analyse the data using analysis, and qualitative methods of analysis—for example, thematic analysis , descriptive statistics, of qualitative data.
- Compare data analyses across sites to draw more general conclusions.

Additionally, findings from the research paper of the World Bank report were used to compare the results with another research.

3.2 Justification of choice of methodology

We have researched primary and qualitative analysis

Primary Analysis- Primary research is designed to collect the information the marketer wants to know (Step 2: Identity What is to be Learned), and report it in ways that benefit the marketer.

For example, while information reported with secondary research may not fit the marketer's needs (e.g., different age groupings) no such problem exists with primary research since the marketer controls the research design.

While not as frequently used as secondary research, primary research still represents a significant part of overall marketing research. For many organizations, especially large consumer products firms, spending on primary research far exceeds spending on secondary research.

- Greater Control-

  Not only does primary research enables the marketer to focus on specific issues, it also enables the marketer to have a higher level of control over how the information is collected. In this way, the marketer can decide on such issues as the size of the project (e.g., how many responses), location of research (e.g., geographic area), and time frame for completing the project.

- Efficient Spending for Information-

  Unlike secondary research where the marketer may spend for information that is not needed, primary data collections focuses on issues specific to the researcher. This helps improve the chances that research funds will be spent efficiently.

Proprietary Information-

Information collected by the marketer using primary research is their own and is generally not shared with others. Thus, information can be kept hidden from competitors, and potentially offer an "information advantage" to the company that undertook the primary research.

Qualitative Research-Qualitative research is a scientific method of observation to gather nonnumerical data while focusing on meaning-making. This often occurs through "case study, personal experience, introspection, life story, interview, artifacts, and cultural texts, and productions, along with observational, historical, interactional, and visual texts." This type of

research answers questions related to why or how a certain phenomenon may occur, rather than how often it occurs.

Qualitative research approaches are employed across many academic disciplines, focusing particularly on the human elements of the social, and natural sciences. outside academic contexts, areas of application include qualitative market research, business, service demonstrations by non-profits, and journalism. Advantages of qualitative research are

- Qualitative Research can capture changing attitudes within a target group such as consumers of a product or service, or attitudes in the work place.

- Qualitative approaches to research are not bound by the limitations of quantitative methods. If responses don't fit the researcher's expectation that's equally useful qualitative data to add context, and perhaps explain something which numbers alone are unable to reveal.

- Qualitative Research provides a much more flexible approach. If useful insights are not being captured researchers can quickly adapt questions, change the setting or any other variable to improve responses.

- Qualitative data capture allows researchers to be far more speculative about what areas they choose to investigate, and how to do so. It allows data capture to be prompted by a researcher's instinctive or 'gut feel' for where good information will be found.

3.3 Data Collection

As already stated, above, the data used in this study was gathered through different sources, namely a review of the world bank report 2018 "competing to compete", a survey, and different new articles on this subject.

To locate relevant literature, several internet databases were used. Among them were Global logistics: definition of main concepts, Report finds advanced economies remain leaders on trade logistics, and Connecting to Compete 2018 Trade Logistics in the Global Economy. But to a greater degree, several articles from worldwide news are used.

The questionnaire can be found in the appendix of this document.

3.4 Ethical Considerations

Before the collection of data, the researcher examined the Policies, and Procedures of the Research Ethics Committee as well as the NZ Privacy Act 1993 “which, amongst other things, requires that data can only be collected for the purpose for which it is stated, must be kept securely, must only be kept for as long as is necessary, and must be destroyed at the end of the project“(Coard, 2004).

The form ‘Is Ethical Approval Needed for my Research; Checklist, and 32 Declaration’ which is contained in the appendix was completed and approved by Unitec’s Research Ethics Committee for non-contentious student-led research.

To ensure that the participants were informed about the purpose of the study and that their participation was voluntary they received a cover letter as an email and an Informed Consent Form which was sent along with the email containing the questionnaire. The collected data has been stored securely with password protection, and encryption during the entire project. Therefore, only the researcher can identify the participants, and the gathered data is presented anonymously. As soon as this master’s dissertation is examined, the data identifying the participants will be destroyed.

3.5 Data Management, processing, and Analysis

Creswell's (2003) six-step method was used to guide data management, processing, and analysis:

Data organization, and preparation

The collected data from the questionnaire was copied directly from email answers into a Microsoft Excel spreadsheet, and answers from questionnaires were typewritten to allow for an equalized view.

Developing an overall picture

With the harmonized display of the answers to allow for the development of an overall picture, the questionnaire was read several times to code for emergent themes. Trace (2001) states: "This approach ensures that any unanticipated themes are allowed to emerge from the data and that no undue weight is given a priori to any preconceived themes.”

Data analysis

Emergent themes were then highlighted and categorized. Different phraseologies of the same themes were examined for different meanings. Nevertheless, all participants answered in completed phrases throughout the questionnaire. This provided data that was rich in content, and information.

Description, and categorization of the collected data

To classify the emerging, and identified themes, the themes were examined again, notes were taken, and similarities, as well as differences, were highlighted. The examined Logistics project took place for different countries based on the articles.

Representation of the collected data

The collected data is mainly presented in a condensed form of case studies in chapter 6 Results. This allows for a unified view of the different logistics projects yet leaves enough room to present unique features, and requirements to dwell on the richness of the collected qualitative data. The analysis of the gathered information is presented in chapter 4 and presents the different themes, and classifications discovered in the data.

Data interpretation

After the thematic analysis and presentation, the data was further examined because of the research questions. It was interpreted, and parallels, as well as variations in comparison to findings from the literature, were elaborated upon.

3.6 Bias

Even though careful preparations were taken to minimize sources for bias, some possible sources should be taken into consideration. Because the research questions look at new technology as well as at the topic of supply chain management in which terms are not ultimately defined, and interpreted in the same way the participants may have a different understanding of certain terms than the researcher has.

Another possible source for misinterpretation is simply the different understanding of terms, and definitions of the participant, and the researcher. As the research was conducted in India using questionnaires in English it was possible that the participants, even though

English is the corporate language in most companies operating in an international context , did not have the language capability needed to produce correct, and understandable answers. This was not the case but if that had happened, the researcher would have provided the questionnaire in Hindi and translated the answers back to English, which would have represented another source for bias.

As the above explanations regarding the methodology of this study have shown, the chosen qualitative research approach is suitable under the given circumstances. The researcher has utilized various sources of information for the data collection bearing in mind ethical consider ations. By following a structured,and well documented procedure, bias is likely to be reduced to the remaining factors which are mentioned. The following chapter is the first part of the t heoretical foundation for the empirical study and introduces the fundamentals of logistics an d global logistics.

CHAPTER 4 – ANALYSIS

4.1- Introduction

World Bank has recently come out with the Logistics Performance Index 2018 (released every two years). Germany again leads the table as #1 with an LPI score of 4.20. Followed by Sweden, Belgium, Austria, and Japan in that order of the top 5 Nations. The LPI scores of high income countries are 48% higher than in lower-income countries. Logistics is a $4.3 trillion industry globally. It is the backbone of the trade, and good logistics can reduce trade costs, and make countries compete globally. Getting logistics right, means improving infrastructure, skills, customs, and regulations, policies, and governance in the right proportion. India ranks fell from 35 in 2016 to 44 in 2018 ranking.

The efficiency of logistics plays an important role in economic growth, and in increasing the country's competitiveness. According to Mustra (2011), logistics is one of the most important factors for increasing national competitiveness.

Therefore, the policy of any state is aimed at developing logistics as a key sector of the economy. Inefficient logistics increases costs and reduces the likelihood of global integration. This puts a tremendous burden on developing countries trying to compete at the global level. Evaluation of the effectiveness of the logistics requires the use of various indicators that characterize its effectiveness, and productivity.

Macroeconomic criteria and indices characterizing the effectiveness of logistics or its components have different methodological approaches in measuring indicators. Among them, the logistic models of the leading countries according to the rating of the LPI index (Logistics Performance Index) deserve the greatest interest as a basis for research at the present stage. This indicator allows us to determine the main differences between the analyzed countries.

Places in the countries ranking are constantly changing based on the measures taken by the country to improve logistics performance indicators. Therefore, the studies conducted before this research, require constant refinement, and identification of their changes to improve logistics. It is important to determine the level of logistics development, and barriers in a particular country or economic region; how to improve their components; what mechanisms

or instruments are beneficial to use, and how to do so that the government and companies can participate in improving logistics activities.

Not surprisingly, an effective logistics sector is now recognized almost everywhere as one of the core enablers of development. Previous editions of Connecting to Compete have highlighted how implementing better policies leads to better logistics performance. Such policies cover, for example, regulating services; providing transportation infrastructure; implementing controls, especially for international goods, and raising the quality of public private partnerships (PPPs). The policy focus has evolved since 2007 when the first LPI report was published. Initially, logistics policies tended to concentrate on facilitating trade and removing border bottlenecks.

Today, international logistics is increasingly intertwined with domestic logistics. Policymakers and stakeholders deal with a wide range of policies. Growing concerns include spatial planning; skills, and resources for training; the environmental, social, and economic sustainability of the supply chain, and the resilience of the supply chain to disruption or disaster (physical or digital).

Five bases of LPI index are:

1-logistics performance matter

2-Gaps in logistics performance persist

3-Supply chain reliability and service quality are strongly associated with logistics performance

4-Delivering good quality services is key to successful operations, and its importance is growing

5-Supply chain resilience and sustainability are emerging concerns

Influence of the Logistics Performance Index

Since its inception in 2007, the Connecting to Compete report providing LPI ratings has moved trade logistics firmly onto the policy agenda, even for countries that had not previously considered them. LPI results have also been used in many policy reports, and documents prepared by multilateral organizations or the consultants they have engaged in.

The findings provide a worldwide general benchmark for the logistics industry and logistics users. The results have also been used in teaching and of these at all levels have cited the LPI. Efficient management, and information technology solutions in both the private and public sectors are tools for high quality logistics.

National competitiveness depends on the ability to manage logistics in today's global business environment. The current LPI data provide a unique, and updated reference for better understanding the impediments to trade logistics worldwide, and for informing policymaking, and business decisions.

The World Bank's Logistics Performance Index (LPI) analyses countries through six indicators:

1. The efficiency of customs, and border management clearance.
2. The quality of trade and transport-related infrastructure.
3. The ease of arranging competitively priced international shipments.
4. The competence, and quality of logistics services.
5. The ability to track, and trace consignments.
6. The frequency with which shipments reach consignees within the scheduled or expected delivery time.

The components were chosen based on theoretical, and empirical research, and the practical experience of logistics professionals involved in international freight forwarding.

The figure maps the six LPI indicators onto two main categories:

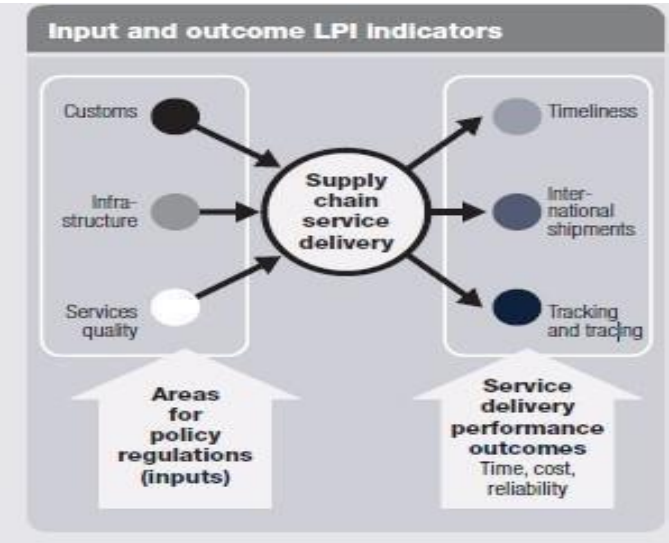
- Areas for policy regulation, indicating main inputs to the supply chain (customs, infrastructure, and services).
- Supply chain performance outcomes (corresponding to LPI indicators of time, cost, and reliability timeliness, international shipments, and tracking, and tracing).

The LPI uses statistical techniques to aggregate the data into a single indicator. This single indicator can be used to compare countries, regions, and income groups. Because operators on the ground can best assess the vital aspects of logistics performance, the LPI relies on an online survey of logistics professionals from the companies responsible for moving goods around the world: multinational freight forwarders, and the main express carriers.

Freight forwarders and express carriers are best positioned to assess how countries perform. Their views matter because they directly affect the choice of shipping routes, and

gateways, thereby influencing the decisions of firms to locate production, choose suppliers, and select target markets. Their participation is thus central to the LPI's quality, and credibility.

Figure 4.1: Income and outcome of LPI indicators



Source: Logistics performance index report 2018

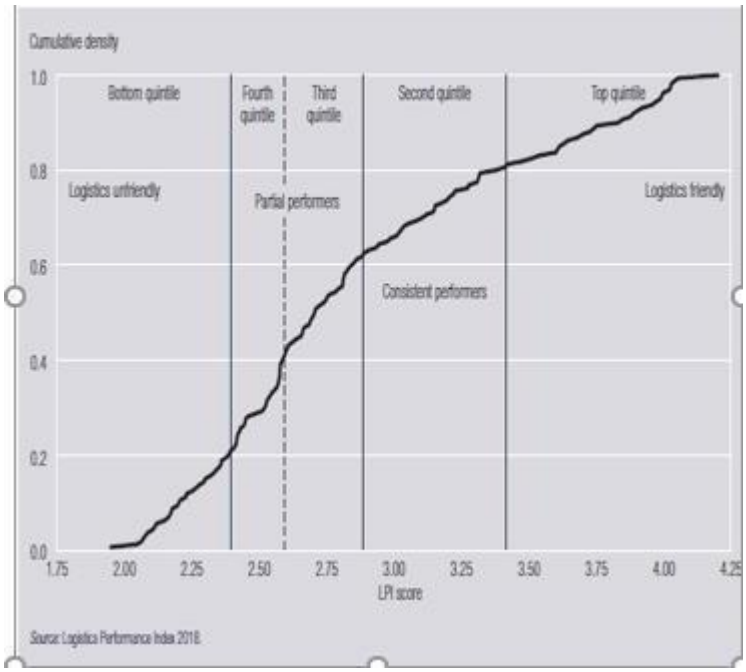
The six categories connected to supply chain service delivery are

1. customs
2. infrastructure
3. service quality
4. timeliness
5. International shipments
6. tracking, and tracking

In 2018, almost 6,000 country assessments were made by logistics professionals. The report provides new insights on cyber security threats in logistics, and the use of electronic trading platforms by shippers. Given that the LPI captures a broad range of factors affecting performance, the results show clear benefits, particularly for developing countries, in moving forward on a broad range of fronts to improve logistics.

Evidence suggests that improvements in logistics performance boost the integration of countries in global trade.

Figure 4.2: Cumulative distribution of LPI scores, 2018



Source: Logistics performance index report 2018

Having an LPI score between 2 to 2.25 is Logistics unfriendly, and having score 4, and above is logistics friendly, and the score of 3 are consistent performers.

The ranking according to the 6 factors are given in the annexure attached to this report

Annexure is also attached about the detailed ranking, LPI results, and their bounds

4.2 Data Collection

Advanced Economies - Report finds advanced economies remain leaders on trade logistics. Advanced economies remain the global leaders in trade logistics, finds Connecting to Compete, a new World Bank Group report released on 24 July 2018.

Across the board, most countries have pursued logistics-related reforms, and investments to build infrastructure, facilitate transportation, and trade, or develop modern services.

"Logistics services are the backbone of international trade," explains Caroline Freund, Director of the Macroeconomics, Trade & Investment (MTI) Global Practice at the World Bank Group. "As supply chains become more globally dispersed, the quality of a country's logistics services can determine whether or not they can participate in the global economy." “Good logistics reduce trade costs, but supply chains are only as strong as their weakest link.

For developing countries, getting logistics right means improving their infrastructure, customs, skills, and regulations."

Connecting to Compete, which contains the Logistics Performance Index (LPI), is a bi-annual report that scores 168 economies on how efficiently supply chains connect firms to domestic, and international opportunities.

The 2018 LPI highlights emerging concerns with the resilience of supply chains, their environmental footprint, and the need for qualified workers:

A logistics labor shortage poses a challenge for both developed, and developing countries alike. Developing countries seek more managerial-level workers, while developed countries face a shortage of blue-collar workers, such as truck drivers.

Based on Income – High-income countries are more likely than low-income countries to be increasing their preparedness for cyber threats.

The sixth edition of Connecting to Compete reveals a mixed picture. High-income countries score, on average, 48% higher than low-income countries when it comes to logistics performance.

High-income countries are more likely than low-income countries to seek logistics services that are environmentally friendly. This is important because Co2 emissions from transport are a significant contributor to pollution.

Germany has the highest aggregate score over the past four LPI editions. High-income countries that are dominant players in the supply chain have ranked highest in logistics performance. Countries that rank lowest tend to be those that are low-income, isolated, fragile, or facing conflict or unrest. Among the lower-middle-income group countries, large economies such as India, and Indonesia, and emerging economies such as Vietnam, and Cote d'Ivoire st, and out as top performers.

"With international trade becoming more dispersed through global value chains, good logistics are more important than ever. Small disruptions to a supply chain can spread rapidly to other countries, and regions," says Christina Wiederer, Economist with the World Bank Group's Macroeconomics, Trade & Investment Global Practice, and report co-author. "Connecting to Compete, and its Logistics Performance Index helps governments understand the link between logistics, trade, and growth and what policies are necessary for success."

Connecting to Compete, and its Logistics Performance Index are tools created to help governments benchmark their progress on trade logistics across key criteria, including the quality of trade-related infrastructure, the price of international shipments, logistics competence, and quality, and the frequency with which shipments reach their destination on time.

Why Trade Logistics Matter

A $4.3 trillion industry affecting nearly every country in the world, logistics is the network of services that supports the physical movement of goods within, and across borders.

It comprises an array of activities including transportation, warehousing, brokerage, express delivery, terminal operations, and even data, and information management. How efficiently goods can move through these systems to their final destinations is a key determinant to a country's trade opportunities

With trade and logistics touching so many areas of an economy, it can be difficult to get a complete picture of a country's performance.

This is why the Logistics Performance Index (LPI), part of the biennial report Connecting to Compete, evaluates countries across several indicators. The index, which takes into account factors such as including logistics competence, and skills, the quality of trade-related infrastructure, the price of international shipments, and the frequency with which shipments reach their destination on time, helps governments benchmark their progress over time, and in comparison, to similar countries.

4.3 Data Analysis

According to the World Bank

Utilizing surveys of logistics professionals, the LPI offers two perspectives on a country's performance:

The domestic LPI offers quantitative, and qualitative assessments of a country's services from logistics professionals working inside the country.

This component offers detailed information on a country's infrastructure, quality of service providers, border procedures, and supply chain reliability.

The international LPI provides evaluations of a country's services by logistics professionals located outside the country.

This component provides qualitative information on how a country's trading partners perceive the efficiency, and quality of its logistics services.

The World Bank Group has been scoring countries on these issues every two years since the inaugural edition of Connecting to Compete in 2007. Consistently, high-income countries, particularly those in Western Europe, emerge as world leaders on logistics. The LPI score of high-income countries is 48% higher, on average than in low-income countries. Among the 30 top-performing countries, 24 are members of the organization for Economic Co-operation, and Development (oECD).

"Across the board, we have seen most countries investing in logistics-related reforms, especially in the areas of building infrastructure, and facilitating trade," explains Jean FrancoisArvis, Economist at the World Bank Group, and report co-author. "Despite these efforts to modernize services, developing countries face many remaining challenges.

This explains a persistent gap between high and low-income countries in terms of logistics performance." But income alone is not the sole determinant of a country's LPI score.
Vietnam, Thailand, Rwanda, China, and India all outperform their income groups.

These countries tend to have access to seaports or large international transportation hubs.

For individual countries, logistics performance is key to their economic growth and competitiveness.

Inefficient logistics raise the cost of doing business and reduce the potential for integration with global value chains.

The toll can be particularly heavy for developing countries trying to compete in the global marketplace.

Governments can use the LPI to better understand the link between logistics, trade, and growth, and what policies they can enact to globally compete.

Between the 2007 report and the 2014 report, the gap between best-performing countries, and worst-performing countries shrunk. In 2016, however, "the gap seemed to widen between the top, and the bottom, with the highest average scores ever for the top 10 countries (4.13 on a scale from 1 to 5), and the lowest scores since 2007 for countries at the bottom (1.91)". The

2018 report shows however that the gaps shrink once again: "The average score for the top 10 countries dropped to 4.03, whereas the bottom 10 countries scored an all-time high of 2.08". The trading ecosystem is becoming more equal, to some extent.

Another interesting observation is the correlation between them and for sustainable supply chain management (e.g. green logistics), and logistics performance. This is especially true for environmentally sustainable services (green logistics). In top-performing countries, shippers more often ask for environmentally friendly options.

4.4 Findings

How logistics is changing with time?

- An opportunity in inefficiency

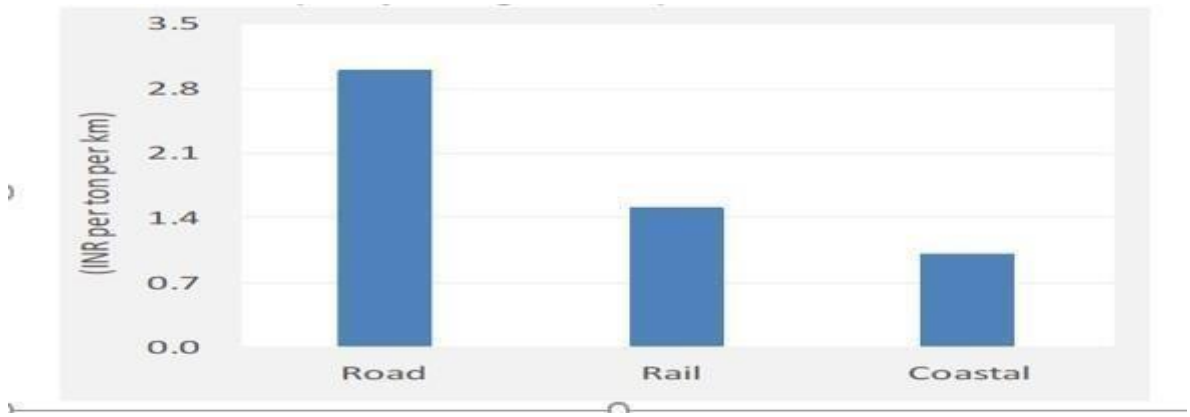
Nearly one-third of India's logistic cost (~4% of GDP) is due to inefficiencies such as lower road & rail speeds, higher inventory levels, and theft & damages. We see several factors combining to reduce these inefficiencies over the next decade. A favorable confluence of GST tailwinds, reducing transit times, warehouse consolidation, the new infrastructure status, and rapid adoption of technology solutions are estimated to drive sector growth to 12-13% p.a. The dominance of road transport, despite being the costliest mode, is likely to sustain due to expanding road infrastructure.

Figure 4.3 – Logistics inefficiency affecting the GDP of India

Source: Edelweiss research

It also includes the various reasons for inefficiency which are higher road share, lower speed, higher transitive, longer distances, and theft & damage.

Figure 4.4 – Cost of Road, Rail and Coastal



Source: Edelweiss research

This graph shows how the cost of logistics is affected by INR per ton per km by road, rail, and coastal, in which the highest is for the road as it provides low cost with speed.

Road transporters (especially small FTL operators), and general warehouse owners continue to suffer from low pricing power due to fragmented ownership in India. This strengthens our preference for 3PL, and road express players which follow an asset-light, and aggregation model.

Figure 4.5- Transportation cost summarized

	TRANSPORTATION (USD150b+)							
Broad segment	Road Transport (USD110bn+)			Container Rail (USD17b)	Domestic Air Express (USD0.8b)	Coastal / Seaways (USD10b)	3PL (USD6b) *(End to End solutions)*	WAREHOUSING / STORAGE *(USD100bn+ that includes mostly high inventory costs)*
Sub-segment	*FTL*	*LTL*	*Express*					
Growth prospects								
FY18-25E CAGR	10%	10%	17%	12%	7%	8-10%	18%	12%
Current size (USD b)	90	10	2	17	0.8	10	5.8	100
2025e size(USD b)	165	18	6.5	37.6	1.3	17	17.3	180
Nature of growth	Cyclical	Semi-cyclical	Structural	Cyclical	Semi-	Cyclical	Structural	Cyclical
Competitive landscape								
Industry structure	Fragmented	Moderate	Organised	Organised	Organised	Organised	Organised	Fragmented
Entry barriers	Low	Mod to High	High	High	High	High	High	Low to Mod
Pricing power	Low	Mod to High	High	Moderate	Moderate	Moderate	High	Low to Mod
Proposition to customer								
Cost to consumer	INR 2-3 per ton km	INR 5-8 per ton km	INR 15-20 per ton km; INR14-16/kg	INR 1-2 per ton km	INR 60-80 per ton km; INR60-70/kg	INR 1 per ton km	NA	INR 15-25 per sq ft
Delivery time (hours)	96 - 120	72-96	< 72	24-72	24-72	96 - 120+	Continuous	NA
Margin & Return profile								
EBITDA margin (%)	2-4%	8-11%	10-12%	16-18%	9-13%	25-35%	5-15%	10-25%
RoCE (%)	10-12%	15-16%	30-45%	13-15%	30-35%	20-22%	25-35%	10-20%

Source: Edelweiss research

It shows the growth prospects, cost economies, size of opportunities, and financial metrics by sub-sector of transportation network

It provides the growth prospects of the year 2025, and cost to customers, and the final margin

India's 3PL market can reach $17bn by fy25 India's 3PL market, currently pegged at $6bn , We see two key growth drivers:

(i) a mindset shift among large clients to outsource logistics to 3PL players, and focus on core business and

(ii) recent supportive regulatory reforms such as GST should boost warehousing expansion at central hubs in the country.

We believe, technology will be a critical enabler in the 3PL sector's growth, and can potentially turn out to be a differentiating factor between success, and failure. The competitive landscape in 3PL has anchor, and non-anchor based 3PL players, as well as players, fully focused on ecommerce (growing at 30% plus). Based on our proprietary model which evaluates various success factors, we believe anchor-based (captives) players such as Mahindra Logistics, Future Supply Chain, and TVS Logistics are well placed to ride the 3PL market growth over the next 5-7 years, and 16-18% sales CAGR.

Figure 4.6 –Presence in business segments by company

	TRANSPORTATION (USD150b+)							
Broad segment	Road Transport (USD110b+)			Container Rail	Domestic Air Express (USD0.8b)	Coastal / Seaways (USD10b)	3PL (USD6b) *(End to End solutions)*	Warehousing / Storage
Sub-segment	*FTL*	*LTL*	*Express*					
Mahindra Logistics							✓	
Future Supply Chain							✓	
Container Corporation				✓				
Blue Dart			✓		✓			
VRL Logistics	✓	✓						
Transport Corp of India	✓	✓				✓	✓	
TCI Express			✓		✓			
Gati			✓		✓			
Navkar								✓
Aegis Logistics								✓
All Cargo		✓				✓	✓	✓
Gateway				✓				

Source: Edelweiss research

The 12 companies which fall under different segments of logistics, and in that transportation
Figure 4.7- CAGR Segmentation

Source: Edelweiss research

It referred from the table above the 3PL, and Road Express st, and out on growth & RoCE

The full truckload is the highest, and then the rail segment from the year FY18 – 25E

Figure 4.8- Increment in Transportation and warehouse

Source: Edelweiss research

It shows the increment in transportation and warehousing from the year 2018 to 2025 in USD billion

The 3PL logistics in India is the right to win for the country, the no of success factors are given in the fig below. The 3PL enables us “Need to have “, and growth strategies tell us “Need Do”

Figure 4.9– 3PL success factors – What creates the “Right To Win”

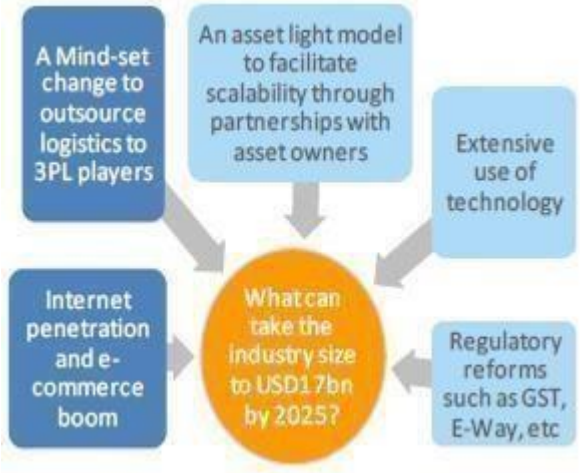
Source: Edelweiss research

Figure 4.10- 3PL Market

Source: Edelweiss research

The 3PL market categorized into 3 buckets. It’s the competitive landscape Traditional Players like Mahindra, and the E-Com focussed player like delivery.

Figure 4.11 – Key drivers for 3PL



Source: Edelweiss research

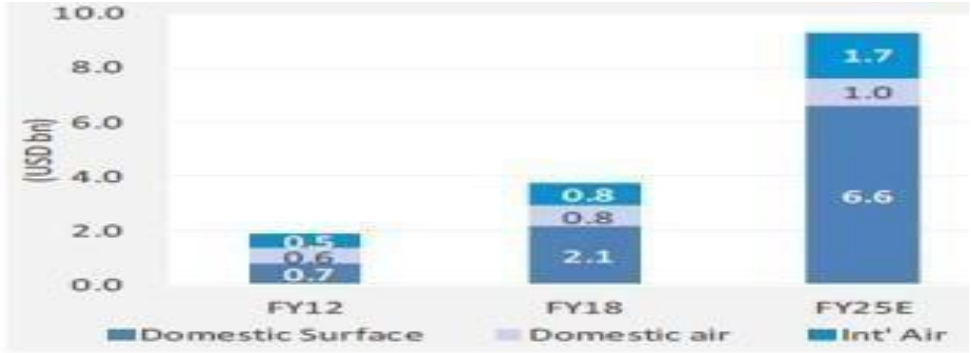
It refers to the reason which can take industry size to USD 17 bn by 2025 Five reasons are:

1. Internet penetration, and e com boom
2. A mindset change to outsourcing logistics to 3PL players
3. An asset-light Model
4. Extensive use of technology
5. Regulatory reforms GST, E way, etc

Express market:

Shift from air to road will continue India's surface express market is a niche but proven growth category

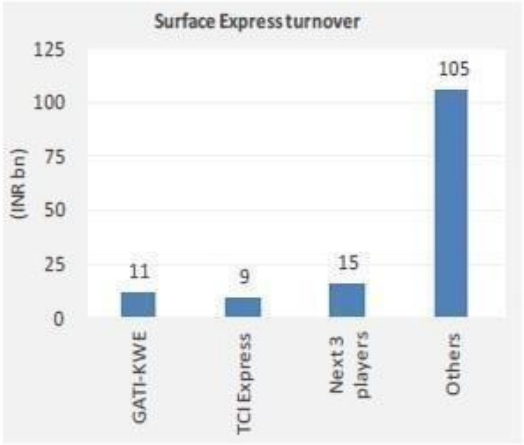
Figure 4.12- Market growth of domestic surface, domestic air, and international air market



Source: Edelweiss research

Till 2025 domestic market surface will grow the highest from 0.7to 6.6 USD bn, and domestic air the least.

Figure 4.13- The key players in surface express B2B market



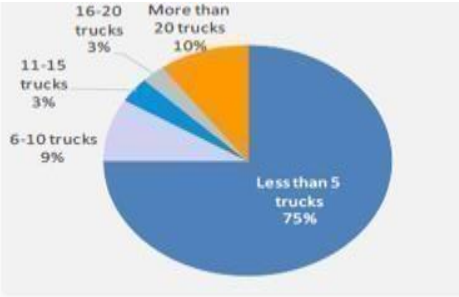
Source: Edelweiss research

Road & rail logistics: Largely a neutral stance-

India's transportation sector is dominated by the road segment (75%) which has seen huge infrastructure investments over the past decade.

On the other hand, there has been under-investment in rail, leading to it losing share within transportation.

Figure 4.14- The fragmented truck ownership limits pricing power.

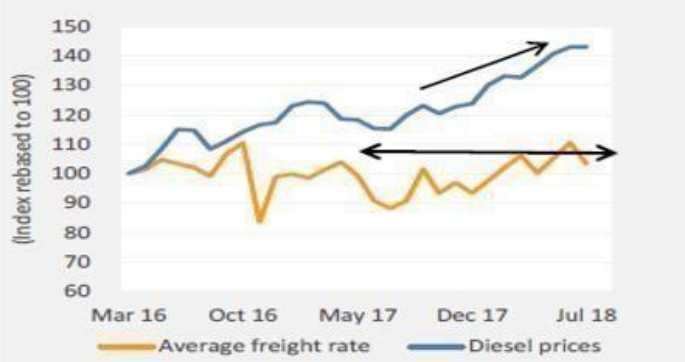


Source: Edelweiss estimates

Figure 4.15- The rail container freight volumes

Source: Ministry of Railways; Edelweiss research

Figure 4.16- Rising fuel cost



Source: Ministry of Railways; Edelweiss research

It shows the passing on rising fuel costs has been a challenge. It shows the average freight rate and diesel prices for the air surface.

Figure 4.17- Earnings and realization

Source: Edelweiss research

It shows the container earnings, and realization per tonne-km from past 8 years collected from the data given by rail ministry

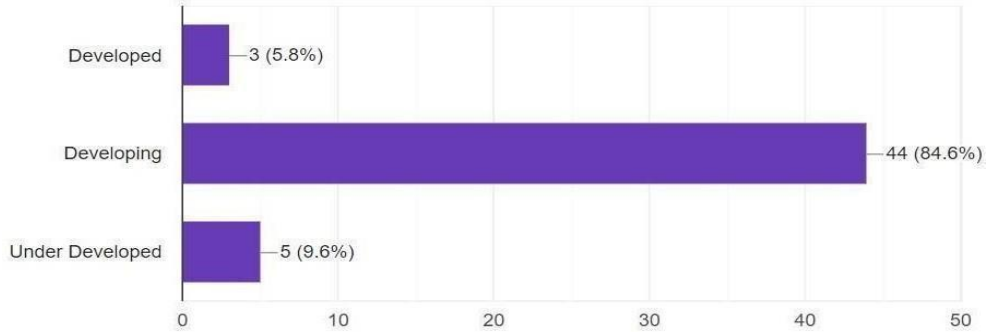
Findings from the survey – We have circulated a survey for the checking of facts, and to get the opinion what people think about India's logistics, and do they think the ranking given by World Bank to India is correct in their opinion.

There were 55 responses as not many people know about logistics, and college students mostly know about logistics ranking given by World bank

The first 2 questions were the basic detail of the people filling the survey, and then we have 10 questions for the people to answer about logistics

The 9 questions are shown in the graph for its better depiction, and the last question was about the suggestion from the people

Figure 4.18 – India stands on which category

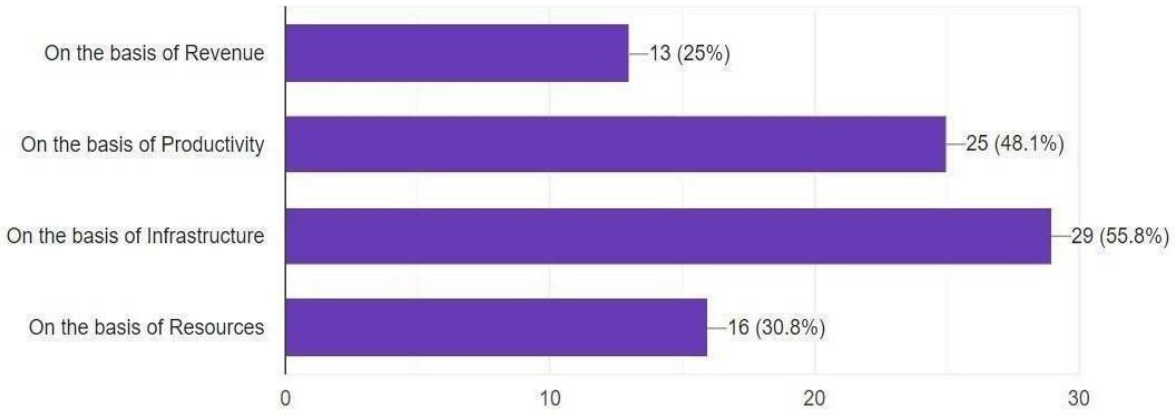


Source : Own Analysis

The graph shows the opinion that India is in developing phase as compared to other countries, therefore to compete with the developed countries we have to do a lot of growth, and then only our rank will increase in logistics performance index as they do not differentiate between developed, and developing countries

Developing countries spend a much higher proportion of transport, and logistics then the developed countries transport, and logistics than developed Developing countries spend a much higher proportion of GDP on transport, and logistics than developed countries Developing countries spend a much higher proportion of GDP on transport, and logistics than developed countries.

Figure 4.19- Measurement of logistics of India



Source: Own Analysis

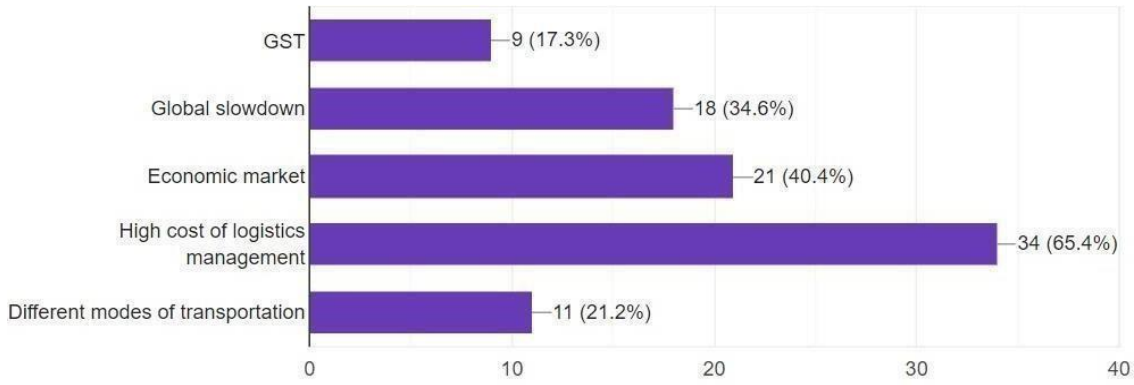
The logistics of India is mostly classified into 4 points

1. Based on revenue

2. Based on productivity
3. Based on infrastructure
4. Based on resources

The survey results show the measurement of logistics is best done by infrastructure Figure

4.20 -Reasons for Low ranking in Logistics



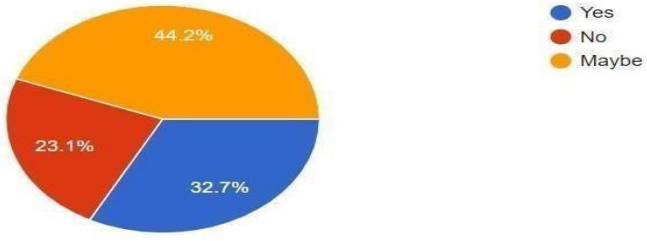
Source: Own Analysis

The challenges faced by logistics in India are some of the reason for our low ranking

The main reasons are

1. GST which in future years may be the reason for growth but in the past from shifting from other taxes to GST lead to slow growth of logistics in India
2. Global Slowdown
3. Economic Market
4. The high cost of logistics management which is by most of the people is the main reason for the growth of logistics
5. Different modes of transportation – more modes leads to more cost Figure 4.21-

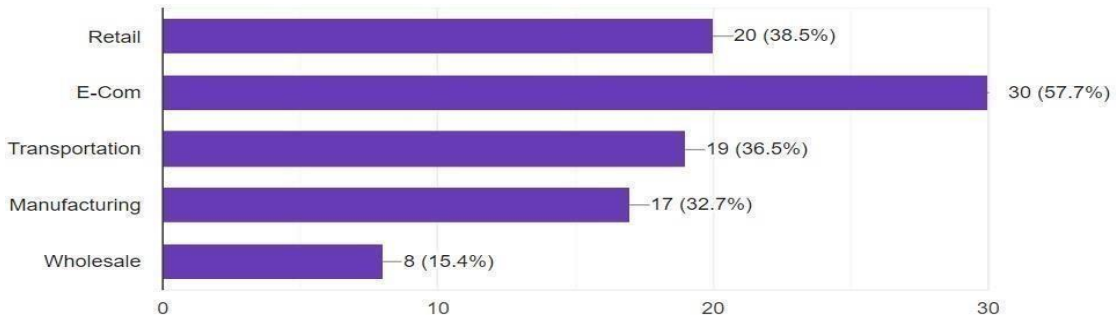
Result for resources



Source: Own Analysis

The result showing if we have sufficient resources to compete in a global ranking. The result show maybe we can compete as we have the resources but not maintained properly in India's Logistics

Figure 4.22- Results towards what the logistics are more focused too which sector

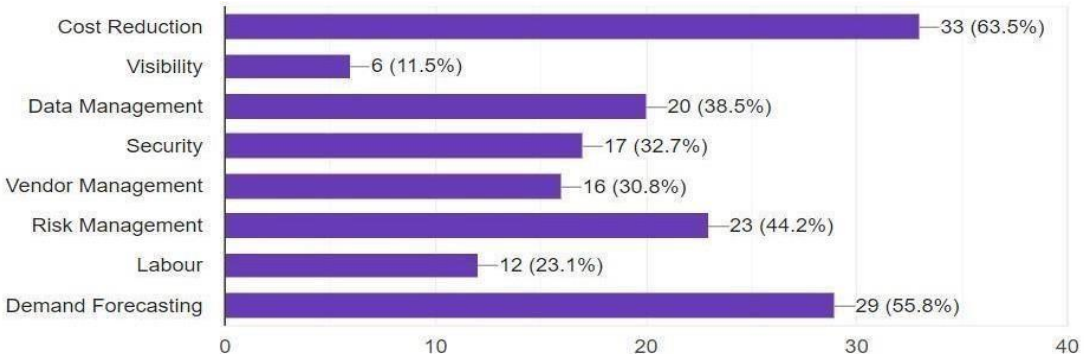


Source: Own Analysis

Many sectors combine to make logistics which are retail, E-comm, transportation, manufacturing, and wholesale mainly The result shows the logistics are more focused towards E-commerce In today's world, e-commerce is growing rapidly, in fact in CoVID'19 as well, e-commerce is growing as everyone wants the things at home without stepping out.

Then we have retail in which logistics is very important as products have to reach stores with less cost, and as fast as possible.

Figure 4.23 – Critical challenges of Logistics



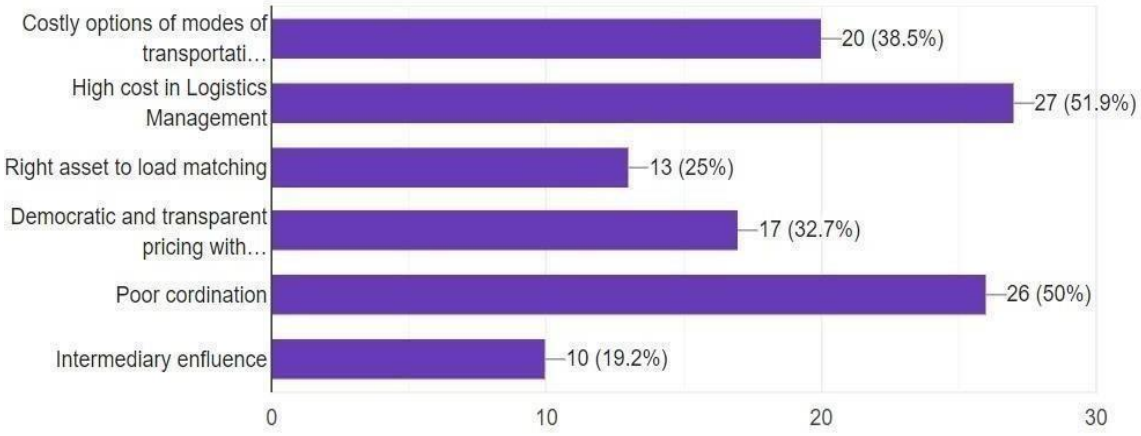
Source: Own Analysis

The survey result shows that the most important challenge is cost reduction as India's people are very much particular about the cost. So, the most important task is to reduce cost, to give more benefit with less cost.

The other challenges are visibility, data management, the security of products, and data, vendor management, risk management, dem, and of labor, and last is dem, and forecasting

The second important factor is dem, and forecasting as this will lead to order more, and accurate products at the correct point of time.

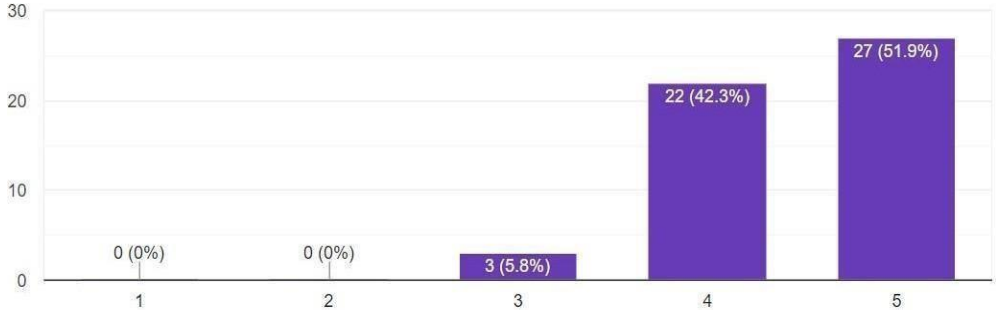
Figure 4.24 – Reasons for the increased cost of logistics



Source: Own Analysis

The survey shows the highest cost is due to management of logistics, and then the poor coordination between wholesalers, and retailers or the manufacturers, and warehouses The important factors are costly modes of transports as well, which is due to the high cost of fuel, intermediary influence, democratic pricing, a right asset to load matching which is an important result of dem, and forecasting

Figure 4.25-Rating logistics from 1 to 5 points



Source: Own Analysis

More than 50 percent of people know logistics is important for the company, and therefore given 5 points because logistics provides cost reduction, quick delivery, and better quality As better logistics makes your products more available to an increasing group of people, wise business leaders consider it a very important tool in creating value for customers. Logistics creates, and increases the value businesses offer by improving merchandise, and ensuring the availability of products. To provide more value, businesses either work on improving their logistic activities or rely on professionals.

Lastly, the survey shows logistics should be part of a company's strategies

4.5 Recommendations

1) Infrastructure Development

The Indian Government keeps reaffirming its aim to improve the logistics industry in India by making attempts to modernize the functionality starting with infrastructure development. The administration has introduced key infrastructural development projects to increase access to the untapped rural markets in the country. These projects will focus on bringing more efficiency to the supply chain and improve connectivity issues faced due to the geographical vastness of the country and the different terrains present. We'd think that infrastructural development pilot projects may bring about all the change necessary but there are also other factors. Logistics education, training, and an understanding of the framework are very important for the overall progress of the logistics industry just as hardcore infrastructural development is.

2) Boost In Policies And Regulations

Revolutionary policies and reforms rolled out by the Indian government such as the Goods and Services Tax (GST), granting of the infra status, and relaxing the FDI policies will play a major role in 2020 with the boost of the Indian logistics industry received. GST changed the face of the way Indian logistics worked. Since then, the logistics industry shifted towards creating logistics with multi-modals and large formats, Industrial centers that can act as goods distribution and aggregation hubs were also encouraged to expand due to the introduction of GST.

The point of advantage GST gave to logistics companies was saving on their organization and capital. Where they had to run several warehouses all over the country that attributed to a huge overall expense in the storage department, they can now use a few but huge cap acity warehouses that save them the costs of maintaining multiple warehouses and transportation. This system improved the model of freight and cargo movement that the logistics companies used for transportation from manufacturing units to the warehouses,

wholesale market, retail market and the points of sale. The growth of the e-commerce industry and the FMCG industry's expansive policies.

This will help logistics companies increase the amount of load they carry in single trips, the way they move goods from small manufacturing units in order to save on transportation costs while keeping a great service quality for customer satisfaction.

3) Adopting the Latest Technology

The advent of technology in the logistics industry has spelled loads of progress in the operations and various systems. Technology such as artificial intelligence, machine learning and the internet of things are meant to move the foundations of traditional and old-school logistics operations in the country.

Though it may take some time, it shows promising results to make better improvements in productivity than any other means while streamlining the operations systems of the Indian logistics sector. When such modern technology can replace a system that is prone to error, we expect great things to happen. The backbone of the economy will turn stronger and in return strengthen the other sectors of the industries. Even though many might debate that a dopting these technological advancements is expensive, it is in the best interest of the logistics industry to integrate their organization with them before the gap between their current and the future technology becomes vast. That will backfire their attempts to cost-cut and increase their expenditures at least three-fold. Integrating such technology calls for initial investments like installation, test runs and training the personneto run these programs,but once completely set up, the companies will experience a new world of streamlined processes that the older technology could never compete with. In 2020, technology will make space for logistics industries to make space to handle bigger clients because of powerful management tools.

4) Increasing Investment-Logistics start-ups in India gained a substantial foothold after the onset of eCommerce, and there are several new companies that are gaining traction in the industry. Online platforms have increased competition and lowered freight costs with real time data availability and a transparent value chain. It is imperative for logistics service providers to innovate and adapt to the transforming logistics landscape.Therefore, it is very necessary to increase the investment in logistics as it is in the developing phase

5) 4PL and warehouse integration-

The primary advantage of a 4PL relationship is that it is a strategic relationshipfocused on providing the highest level of services for the best value, as opposed to a 3PL that may be more transaction focused. A 4PL provides a single point of contact for your supply chain. With a 3PL, there may be some aspects that you still have to manage.

The 4PL should take

over those processes for you, acting as the intermediary for 3PLs, carriers, warehouse vendors and other participants in your supply chain. The increase in 4 PL logistics is necessary for India to get the good ranking in logistics in World Bank report.

6) Rise of logistics parks and social economic zone-

Logistics parks can be a game changer for the logistics and transportation industry by driving substantial reduction in freight costs and transit time, and offering seamless transport across India. There must be more social economic zone to increase the logistics industry.

Logistics parks would definitely lead to optimization of resources and reduction in wastages, which account for a major share in increasing the cost of Indian goods. There are other benefits the logistics parks also enable companies to bring down their carbon footprint by way of reduced emissions.

7) World Bank should keep a differentiation between Underdeveloped , developing and developed countries so that the correct view of logistics can be given by the ranking as developing and underdeveloped countries can not directly compete with developed countries and therefore their rating falls without taking accounts of increasing logistics and the growth of logistics of the developing countries like India and therefore do not give the correct view

of the ranking of logistics

4.5 Limitations of Study

- There is a rapid effect on the logistics industry due to the Covid-19, and the growth rate will suffer which can't be predicted at the current stage.
- The growth predicted, and the improvement in ranking will be affected by Covid 19 going on currently in the whole world, and that effect can be seen in the ranking of 2020 which will be done by World Bank
- The data has been gathered on the previous analysis being carried out before the outbreak of Covid-19, so there can be a difference between the economic growth being predicted by the report
- The analysis has been carried out based on data received from participants of the survey, and the online reports, and articles which may or may not be completely true.
- There can be a slight difference in the perception of various people writing articles, and reports.
- The analysis or research has been carried out keeping in mind that the perception of the people involved in the process is based on the past, and present trends as no one know the future which is currently affected by CoVID'19.

CHAPTER 5– CONCLUSION

- LPI has become a key tool for explaining the relationship between trade, and infrastructure. The LPI helped in identifying the problems, and priorities of the reform strengthened the dialogue between the public, and private sectors, promoted the development of trade, and transport in different countries.
- LPI's top positioned countries have large distribution platforms, and industries specializing in logistics services. These countries tend to benefit from economies of scale and are at the forefront of major technological innovation. At the other end of the LPI, there are low-income countries, often landlocked either geographically isolated or affected by conflict.
- The advent of technology in the logistics industry has spelled loads of progress in the operations and various systems. Technology such as artificial intelligence, machine learning, and the internet of things are meant to move the foundations of traditional, and old-school logistics operations in the country.
- Though it may take some time, it shows promising results to make better improvements in productivity than any other means while streamlining the operations systems of the Indian logistics sector. When such modern technology can replace a system that is prone to error, we expect great things to happen.
- The backbone of the economy will turn stronger, and in return strengthen the other sectors of the industries. Even though many might debate that adopting these technological advancements is expensive, it is in the best interest of the logistics industry to integrate their organization with them before the gap between their current, and the future technology becomes vast
- That will backfire their attempts to cost-cut and increase their expenditures at least three-fold. Integrating such technology calls for initial investments like installation, test runs, and training the personnel to run these programs, but once completely set up, the companies will experience a new world of streamlined processes that the older technology could never compete with.
- In 2020, technology will make space for logistics industries to make space to handle bigger clients because of powerful management tools. Looking at the big picture, on the global level, Indian logistics as an industry has come a long way, and is expected

to keep a significant upturn in performance on the world's platform.

- Companies and International Corporations joining hands with the various logistics companies of India will create a mutually beneficial relationship by reducing their logistics costs, increasing transportation abilities for the customers while bringing much-needed income to make the logistics industry the biggest industry of the country.
- As supply chains are so varied and complex, logistics performance depends on many factors, such as services, investment, and policies. Infrastructure construction, the development of regulatory regimes for transport services, and the design, and implementation of efficient customs clearance procedures are all areas in which governments play an important role.
- Exporters and importers in developing countries face high logistics costs, which negatively affect their competitiveness in global markets. These high logistics costs are not usually the result of poor road infrastructure; rather the low reliability and predictability of logistics services tend to result in rent-seeking behavior, and governance issues, which increases uncertainty throughout the supply chain.
- Improvements in global logistics are also being driven by innovation, and increases in global trade. However, while policies and investments that strengthen logistics services contribute to the modernization of practices, and more efficient country-level performances, logistics performance in many developing countries still lags behind that in developed nations.
- There is a bidirectional link between economic development and logistics performance. Therefore, it is essential for policymakers in the transport field, especially those in developing countries, to take account of various important logistics decisions.
- The main areas for improvement include increasing the quality of logistics services, developing, and improving logistics infrastructure, promoting cooperation, and coordination among logistics services providers, investing in IT, reducing logistics costs, and increasing training on all aspects of supply chain management.
- In the future, we can expect specialized operations for logistics, and delivery to be in high demand from clients of all walks. Be it technological spare parts, automobile equipment, or food delivery, everyone will soon bank on the efficiency of a streamlined logistics industry to fulfill all the transportation, storage, and delivery needs of all industries.

- The advancement of e-commerce will soon reach a new high, resulting in more opportunities for the logistics industry to make a mark on express deliveries, and round the clock services apart from the company's in-house logistics system.
- While the Indian logistics industry was once considered to be a service provider, now it is classified as an end to end solutions provider for multiple sectors of the industrial realm.
- In 2025, the worth of the logistics industry will expand to roughly $250 Billion due to the key areas bringing a substantial improvement to operations, and overall management. Apart from improving global rankings, it is safe to say that anticipating the Indian logistics industry to become the dominant industry in the country.

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ANNEXURE

The survey questions:

Ques 1 – Your E-mail address?

Ques 2 – Your name?

Ques 3 - According to you what is India's current position in Logistics industry?

1. Under developing
2. Developed
3. Developing Ques 4 - How would you measure India's position in

Logistics industry?

1. On the basis of Productivity
2. On the basis of Infrastructure
3. On the basis of Revenue
4. On the basis of Resources

Ques 5 - What reasons do you think are responsible for India's slip in World Bank's ranking for Logistics?

1. GST
2. Economic Market
3. Global Slowdown
4. High cost of logistics management
5. Different Modes of Transportation

Ques 6 - Do India have sufficient available resources that it can compete with other countries?

1. Yes
2. No
3. Maybe

Ques 7 - India's logistics industry is more focused towards which sector?

1. Retail
2. E-Com
3. Transportation
4. Manufacturing
5. Wholesale

Ques 8 - Which logistics challenges are most critical to organization?

1) Cost Reduction
2) Visibility
3) Data management
4) Security
5) Vendor management
6) Risk management
7) Labour
8) Demand Forecasting

Ques 10 - What reasons do u think are leading to inefficiency and increased cost in logistics?

1) High cost of logistics management
2) Right asset to Load matching
3) Costly options of modes of transportation
4) Democratic and transparent pricing with more choices
5) Poor Coordination
6) Intermediary influence

Ques 11 - On a scale of 1-5 how Logistic quality is important to company?

Ques 12 - Should Logistics be a part of company's strategy?

1. Yes
2. No
3. Maybe

Ques 13 - How do you see India as a player in Logistics Industry?

APPENDIX 1 Aggregated international LPI results across four editions: 2012, 2014, 2016, and 2018

Economy	Mean LPI rank	Mean LPI score	% of highest performer	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness		Missing values
				Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	
Germany	1	4.19	100.0	1	4.09	1	4.38	4	3.83	1	4.26	1	4.22	1	4.40	
Netherlands	2	4.07	97.2	3	3.97	2	4.23	6	3.76	2	4.12	7	4.08	6	4.30	
Sweden	3	4.07	97.2	4	3.95	3	4.22	2	3.88	5	4.04	11	4.02	4	4.32	
Belgium	4	4.05	96.9	13	3.74	10	4.03	1	3.97	3	4.10	4	4.11	2	4.40	
Singapore	5	4.05	96.6	2	4.00	5	4.14	8	3.72	4	4.08	8	4.05	3	4.34	
United Kingdom	6	4.01	95.7	8	3.85	7	4.09	10	3.69	7	4.04	5	4.10	5	4.32	
Japan	7	3.99	95.3	5	3.91	4	4.19	14	3.61	8	4.03	9	4.03	9	4.24	
Austria	8	3.99	95.2	14	3.71	8	4.07	5	3.78	6	4.04	2	4.13	11	4.22	
Hong Kong SAR, China	9	3.96	94.6	9	3.85	11	4.02	3	3.85	10	3.94	13	3.95	13	4.18	
United States	10	3.92	93.7	11	3.76	6	4.10	23	3.54	11	3.93	3	4.13	16	4.14	
Denmark	11	3.92	93.6	7	3.88	17	3.89	16	3.59	9	3.98	14	3.94	8	4.26	
Finland	12	3.92	93.5	6	3.89	14	3.95	21	3.56	14	3.88	6	4.10	15	4.17	
Switzerland	13	3.91	93.4	12	3.75	9	4.07	20	3.57	12	3.92	10	4.02	12	4.20	
United Arab Emirates	14	3.89	92.8	17	3.66	13	3.98	7	3.76	16	3.83	16	3.89	10	4.23	
France	15	3.86	92.2	18	3.63	12	4.00	15	3.60	17	3.82	12	3.99	14	4.17	
Luxembourg	16	3.84	91.8	16	3.67	18	3.84	11	3.68	15	3.83	22	3.78	7	4.27	
Canada	17	3.81	90.9	15	3.70	16	3.91	28	3.45	13	3.90	15	3.91	21	4.03	
Spain	18	3.78	90.3	21	3.57	22	3.79	9	3.72	18	3.78	21	3.78	19	4.04	
Australia	19	3.77	90.0	10	3.76	15	3.92	31	3.40	19	3.76	19	3.83	22	4.00	
Norway	20	3.74	89.3	19	3.62	19	3.84	27	3.48	20	3.75	18	3.83	25	3.96	
Italy	21	3.73	89.2	23	3.44	20	3.82	22	3.55	23	3.68	17	3.84	18	4.09	
New Zealand	22	3.68	88.0	20	3.58	21	3.79	36	3.27	21	3.69	24	3.73	17	4.10	
Korea, Rep.	23	3.65	87.3	24	3.43	23	3.75	29	3.43	26	3.63	23	3.75	24	3.96	
Taiwan, China	24	3.65	87.2	25	3.42	25	3.67	24	3.54	24	3.68	27	3.67	27	3.93	
Ireland	25	3.63	86.8	22	3.45	26	3.50	25	3.53	22	3.69	20	3.79	30	3.85	
Czech Republic	26	3.62	86.4	26	3.34	29	3.38	12	3.65	25	3.65	26	3.68	23	3.98	
China	27	3.60	86.1	30	3.28	24	3.73	18	3.57	27	3.58	28	3.63	29	3.86	
Portugal	28	3.56	85.1	32	3.24	35	3.23	17	3.59	28	3.54	25	3.69	20	4.03	
South Africa	29	3.51	83.8	29	3.29	28	3.39	26	3.53	33	3.42	30	3.56	31	3.85	
Qatar	30	3.50	83.7	35	3.18	27	3.43	13	3.62	31	3.46	31	3.53	34	3.78	
Poland	31	3.50	83.5	31	3.26	40	3.17	19	3.57	29	3.49	33	3.49	26	3.94	
Hungary	32	3.41	81.5	36	3.18	32	3.31	35	3.29	36	3.27	29	3.61	32	3.82	
Israel	33	3.39	81.0	27	3.32	31	3.33	61	2.93	32	3.44	32	3.50	28	3.89	2012
Thailand	34	3.36	80.2	37	3.13	41	3.17	32	3.40	35	3.29	35	3.38	36	3.75	
Malaysia	35	3.34	79.9	38	3.06	33	3.30	30	3.43	34	3.34	38	3.32	46	3.60	
Estonia	36	3.30	78.8	28	3.30	43	3.13	41	3.19	42	3.15	46	3.20	33	3.80	
Turkey	37	3.29	78.6	47	2.94	30	3.36	40	3.19	37	3.23	36	3.37	39	3.68	
Iceland	38	3.29	78.6	40	3.02	39	3.18	55	3.00	30	3.48	34	3.38	38	3.72	
Slovenia	39	3.29	78.5	34	3.21	34	3.25	44	3.16	41	3.17	40	3.30	41	3.65	
Chile	40	3.28	78.4	33	3.23	45	3.09	37	3.24	47	3.09	39	3.30	37	3.73	
Panama	41	3.26	77.8	44	2.95	42	3.14	33	3.35	38	3.20	43	3.25	42	3.63	

Appendix 1 Aggregated international LPI results

Economy	e P rank	Mean LP sco e	% of highest performer	Customs		Infrastructure		nternationa hipments		Logis cs quality and competence		Tracking and tracing		Timeliness		Missing values
				Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	
India	42	3.22	77.0	43	2.97	48	3.01	38	3.24	39	3.18	37	3.33	50	3.57	
Lithuania	43	3.20	76.4	41	3.02	49	3.00	54	3.03	45	3.10	42	3.25	35	3.78	
Greece	44	3.19	76.2	49	2.88	36	3.19	48	3.13	52	3.02	41	3.25	40	3.67	
Vietnam	45	3.16	75.5	51	2.86	54	2.92	45	3.15	40	3.17	44	3.23	47	3.60	
Oman	46	3.16	75.5	52	2.82	37	3.18	34	3.29	50	3.06	60	2.96	44	3.61	
Slovak Republic	47	3.14	75.0	46	2.94	44	3.09	42	3.19	43	3.13	57	3.02	54	3.45	
Croatia	48	3.12	74.4	42	3.01	47	3.02	56	2.99	44	3.10	55	3.08	51	3.51	
Cyprus	49	3.10	74.0	39	3.04	53	2.94	53	3.04	58	2.93	59	2.98	43	3.62	
Romania	50	3.10	74.0	58	2.73	58	2.86	46	3.15	53	3.01	48	3.19	45	3.61	
Indonesia	51	3.08	73.6	62	2.69	61	2.81	51	3.08	48	3.07	45	3.23	49	3.59	
Saudi Arabia	52	3.08	73.6	60	2.70	38	3.18	52	3.05	57	2.94	47	3.19	56	3.43	
Mexico	53	3.08	73.6	54	2.78	56	2.90	50	3.09	49	3.06	51	3.14	52	3.49	
Bahrain	54	3.06	73.2	50	2.88	57	2.89	49	3.09	51	3.03	50	3.16	66	3.31	
Latvia	55	3.02	72.3	48	2.93	46	3.03	57	2.97	59	2.92	56	3.06	69	3.25	
Brazil	56	3.02	72.1	85	2.52	51	2.99	65	2.89	46	3.10	49	3.17	53	3.47	
Bulgaria	57	3.00	71.7	55	2.77	64	2.71	43	3.16	54	2.96	63	2.93	57	3.43	
Botswana	58	2.96	70.7	45	2.95	59	2.85	73	2.82	75	2.71	77	2.81	48	3.60	2018
Kuwait	59	2.96	70.6	57	2.75	50	3.00	62	2.91	63	2.81	66	2.88	59	3.39	
Egypt, Arab Rep.	60	2.95	70.5	65	2.67	55	2.91	59	2.94	55	2.95	64	2.91	67	3.30	
Malta	61	2.94	70.3	56	2.77	52	2.95	64	2.91	61	2.85	61	2.95	71	3.24	
Argentina	62	2.93	70.0	90	2.49	60	2.81	63	2.91	62	2.82	52	3.13	58	3.41	
Kenya	63	2.93	69.9	67	2.66	67	2.68	70	2.86	60	2.88	53	3.11	61	3.35	
Philippines	64	2.91	69.6	70	2.62	71	2.67	39	3.20	64	2.80	58	3.0	83	3.11	
Rwanda	65	2.90	69.3	64	2.68	76	2.60	47	3.14	69	2.77	73	2.83	64	3.31	
Côte d'Ivoire	66	2.89	69.0	68	2.66	69	2.67	58	2.96	56	2.95	62	2.95	85	3.11	
Tanzania	67	2.88	68.8	69	2.66	63	2.72	66	2.89	65	2.80	69	2.85	62	3.34	2018
Serbia	68	2.83	67.7	82	2.53	78	2.59	67	2.89	68	2.78	68	2.86	63	3.32	
Ukraine	69	2.83	67.5	95	2.46	105	2.38	81	2.77	70	2.76	54	3.08	55	3.45	
Ecuador	70	2.82	67.4	63	2.69	74	2.62	72	2.82	77	2.70	67	2.87	75	3.22	
Colombia	71	2.81	67.1	89	2.50	81	2.58	60	2.93	66	2.79	70	2.84	80	3.17	
Uganda	72	2.79	66.7	53	2.78	96	2.45	74	2.82	78	2.70	86	2.69	68	3.27	2012, 2014
Brunei Darussalam	73	2.78	66.5	61	2.70	77	2.59	84	2.74	84	2.64	75	2.82	78	3.18	2012, 2014
Peru	74	2.78	66.5	74	2.59	91	2.46	68	2.88	87	2.62	85	2.72	60	3.36	
Uruguay	75	2.78	66.4	73	2.60	82	2.57	80	2.78	67	2.79	74	2.83	91	3.10	
Jordan	76	2.78	66.3	87	2.51	65	2.70	86	2.74	83	2.67	79	2.79	70	3.24	
Kazakhstan	77	2.77	66.2	78	2.57	79	2.59	87	2.73	89	2.60	78	2.81	65	3.31	
Bosnia and Herzegovina	78	2.76	65.8	71	2.62	85	2.52	89	2.70	74	2.73	82	2.75	77	3.20	
Costa Rica	79	2.74	65.4	88	2.50	97	2.45	77	2.79	81	2.67	65	2.88	92	3.09	
Namibia	80	2.73	65.1	72	2.60	62	2.74	93	2.68	86	2.64	107	2.55	81	3.14	2018
Iran, Islamic Rep.	81	2.71	64.8	96	2.46	70	2.67	94	2.68	72	2.76	95	2.63	95	3.07	2014
Lebanon	82	2.71	64.7	98	2.45	75	2.61	82	2.77	103	2.52	72	2.83	98	3.05	
Paraguay	83	2.70	64.6	80	2.53	87	2.50	101	2.66	76	2.70	105	2.56	73	3.23	
Malawi	84	2.69	64.3	76	2.58	83	2.56	103	2.61	71	2.76	92	2.65	105	2.99	2016
Russian Federation	85	2.69	64.2	131	2.25	73	2.64	105	2.59	73	2.74	88	2.67	74	3.23	

Economy	Mean LPI rank	e P score	% of highest pe former	Customs		Infrastructure		International shipment		Logistics qua i y and competence		Tracking and tracing		Timeliness		Missing values
				Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	
Dominican Republic	86	2.68	64.1	102	2.43	102	2.39	83	2.77	93	2.59	71	2.84	99	3.03	
Morocco	87	2.67	63.8	114	2.36	80	2.58	75	2.80	92	2.59	104	2.57	93	3.09	2014
El Salvador	88	2.66	63.6	105	2.40	113	2.31	76	2.79	82	2.67	94	2.63	88	3.10	
Cambodia	89	2.66	63.5	94	2.47	120	2.26	69	2.87	106	2.50	93	2.64	82	3.13	
Bahamas, The	90	2.65	63.3	59	2.72	84	2.56	100	2.66	105	2.51	102	2.58	118	2.87	
Mauritius	91	2.65	63.3	86	2.51	68	2.68	137	2.35	79	2.69	84	2.72	106	2.98	2016
Sri Lanka	92	2.65	63.2	77	2.57	104	2.39	108	2.57	85	2.64	81	2.77	113	2.93	2016
Benin	93	2.65	63.2	93	2.48	94	2.45	98	2.66	107	2.50	101	2.58	79	3.17	
Montenegro	94	2.65	63.2	91	2.49	93	2.46	92	2.68	97	2.55	108	2.55	84	3.11	
Pakistan	95	2.64	62.9	104	2.41	100	2.43	79	2.79	80	2.69	112	2.52	112	2.93	
Burkina Faso	96	2.63	62.9	101	2.44	89	2.48	78	2.79	96	2.56	126	2.42	97	3.06	
Maldives	97	2.63	62.8	97	2.46	72	2.64	104	2.59	115	2.42	103	2.57	96	3.07	
Albania	98	2.62	62.5	118	2.33	123	2.24	85	2.74	95	2.56	111	2.52	72	3.24	2014
Macedonia, FYR	99	2.62	62.5	115	2.36	86	2.51	96	2.66	90	2.60	113	2.52	100	3.01	
Bangladesh	100	2.60	62.0	120	2.33	109	2.36	99	2.66	94	2.56	89	2.67	108	2.97	2012
Ghana	101	2.60	62.0	103	2.41	92	2.46	102	2.63	104	2.51	100	2.58	109	2.95	
Mozambique	102	2.59	61.9	100	2.45	130	2.22	71	2.86	120	2.38	96	2.62	107	2.98	2012, 2018
Nigeria	103	2.59	61.8	145	2.15	88	2.50	118	2.52	100	2.54	83	2.73	86	3.10	
Tunisia	104	2.59	61.8	130	2.27	117	2.27	115	2.53	113	2.45	80	2.78	76	3.20	
São Tomé and Principe	105	2.56	61.3	83	2.52	114	2.30	130	2.44	99	2.55	90	2.66	116	2.90	
Honduras	106	2.56	61.2	123	2.30	112	2.32	97	2.66	91	2.60	97	2.61	121	2.85	
Algeria	107	2.56	61.1	127	2.28	95	2.45	113	2.54	101	2.53	91	2.65	17	2.89	
Nicaragua	108	2.56	61.0	84	2.52	99	2.44	111	2.54	98	2.55	115	2.49	129	2.77	2012, 2018
Mali	109	2.55	60.9	136	2.22	116	2.28	95	2.66	117	2.40	76	2.81	119	2.87	2012
Belarus	110	2.54	60.6	126	2.29	103	2.39	124	2.47	102	2.53	124	2.44	87	3.10	
Jamaica	111	2.52	60.3	99	2.45	106	2.36	114	2.53	110	2.48	120	2.48	123	2.81	
Solomon Islands	112	2.52	60.2	66	2.66	125	2.23	151	2.24	88	2.61	131	2.37	102	3.00	
Moldova	113	2.52	60.1	122	2.31	131	2.21	90	2.69	123	2.36	133	2.36	90	3.10	
Comoros	114	2.51	60.1	75	2.58	119	2.27	123	2.47	129	2.32	87	2.67	132	2.74	
Guatemala	115	2.51	59.9	116	2.35	118	2.27	126	2.46	125	2.35	117	2.49	89	3.10	
Armenia	116	2.51	59.9	107	2.39	101	2.39	110	2.55	112	2.45	128	2.38	122	2.84	
Uzbekistan	117	2.50	59.7	147	2.13	98	2.44	134	2.38	109	2.49	110	2.54	101	3.01	
Zambia	118	2.49	59.4	129	2.27	115	2.29	88	2.72	111	2.46	154	2.18	110	2.94	2012
Togo	119	2.48	59.4	119	2.33	127	2.23	106	2.58	130	2.29	114	2.50	111	2.93	
Lao PDR	120	2.48	59.2	111	2.37	128	2.23	116	2.52	114	2.45	119	2.48	130	2.77	
Nepal	121	2.45	58.6	140	2.19	132	2.20	131	2.40	122	2.36	106	2.56	104	2.99	
Guyana	122	2.45	58.6	92	2.48	134	2.17	138	2.35	121	2.36	109	2.55	127	2.79	
Azerbaijan	123	2.45	58.5	81	2.53	66	2.69	109	2.56	153	2.14	153	2.18	146	2.62	2016, 2018
Georgia	124	2.45	58.5	109	2.38	108	2.36	132	2.38	139	2.27	130	2.37	114	2.92	
Cameroon	125	2.43	58.1	128	2.27	111	2.36	119	2.51	108	2.50	132	2.37	152	2.56	
Djibouti	126	2.43	58.1	124	2.29	90	2.47	141	2.33	154	2.14	121	2.46	115	2.91	
Trinidad and Tobago	127	2.41	57.5	106	2.40	107	2.36	127	2.46	134	2.28	142	2.27	139	2.65	2012, 2014
Guinea-Bissau	128	2.40	57.4	138	2.21	160	1.94	117	2.52	131	2.29	98	2.60	124	2.80	
Mongolia	129	2.40	57.3	132	2.25	142	2.12	128	2.45	145	2.23	149	2.21	94	3.07	
Sudan	130	2.40	57.3	148	2.13	139	2.14	121	2.49	116	2.41	122	2.45	134	2.73	

Economy	e P rank	Mean LP sco e	% of highest performer	Customs		Infrastructure		nternationa hipments		Logis cs quality and competence		Tracking and tracing		Timeliness		Missing values
				Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	
Ethiopia	131	2.40	57.2	79	2.54	140	2.13	112	2.54	119	2.39	145	2.24	158	2.49	2018
Kyrgyz Republic	132	2.38	57.0	110	2.38	126	2.23	157	2.20	147	2.21	116	2.49	126	2.79	
Congo, Rep.	133	2.38	56.7	151	2.07	141	2.12	107	2.58	142	2.25	129	2.38	125	2.80	
Fiji	134	2.37	56.7	113	2.37	110	2.36	148	2.27	136	2.27	136	2.32	138	2.65	
Venezuela, RB	135	2.37	56.5	160	1.94	124	2.24	120	2.49	128	2.32	123	2.44	133	2.74	
Bolivia	136	2.36	56.5	134	2.24	138	2.16	122	2.48	146	2.21	140	2.29	131	2.75	
Madagascar	137	2.35	56.1	121	2.32	137	2.16	154	2.22	141	2.25	125	2.42	136	2.70	
Gambia, The	138	2.34	56.0	149	2.08	161	1.90	91	2.68	144	2.23	118	2.48	150	2.60	2016
Myanmar	139	2.34	55.9	137	2.21	145	2.11	155	2.22	133	2.28	135	2.33	120	2.86	
Chad	140	2.34	55.9	143	2.15	121	2.26	136	2.35	118	2.39	141	2.28	151	2.58	
Senegal	141	2.34	55.8	125	2.29	122	2.24	129	2.44	137	2.27	151	2.19	153	2.56	
Turkmenistan	142	2.34	55.8	133	2.25	129	2.23	135	2.36	150	2.20	137	2.32	143	2.63	2012
Congo, Dem. Rep.	143	2.33	55.6	135	2.23	152	2.04	149	2.26	126	2.34	127	2.41	141	2.65	
Papua New Guinea	144	2.31	55.2	112	2.37	144	2.11	145	2.29	159	2.11	134	2.36	147	2.61	
Guinea	145	2.30	54.9	108	2.39	166	1.80	133	2.38	138	2.27	99	2.59	166	2.30	
Liberia	146	2.29	54.7	153	2.04	150	2.06	156	2.22	143	2.24	157	2.15	103	2.99	
Tajikistan	147	2.29	54.6	154	2.02	133	2.17	143	2.32	132	2.29	143	2.26	142	2.65	
Niger	148	2.29	54.6	146	2.14	146	2.10	146	2.28	140	2.26	139	2.29	145	2.62	
Yemen, Rep.	149	2.27	54.3	150	2.08	151	2.05	142	2.33	135	2.27	144	2.24	144	2.63	2016
Central African Republic	150	2.26	54.0	117	2.35	135	2.17	150	2.25	156	2.13	150	2.21	161	2.46	2016
Bhutan	151	2.25	53.7	141	2.16	159	1.98	164	2.12	124	2.36	138	2.3	155	2.54	
Cuba	152	2.23	53.4	144	2.15	148	2.09	144	2.30	151	2.20	155	2.18	160	2.46	
Lesotho	153	2.22	53.0	139	2.20	153	2.02	162	2.14	158	2.12	148	2.22	149	2.60	
Burundi	154	2.22	53.0	163	1.90	157	2.00	147	2.28	127	2.33	147	2.23	154	2.55	
Libya	155	2.21	52.9	156	2.00	136	2.17	158	2.18	148	2.21	166	1.90	128	2.78	
Equatorial Guinea	156	2.21	52.7	158	1.99	164	1.82	125	2.46	160	2.11	158	2.14	137	2.66	2012
Mauritania	157	2.20	52.5	142	2.16	147	2.09	161	2.15	162	2.06	156	2.18	156	2.54	
Gabon	158	2.19	52.3	157	1.99	149	2.07	153	2.23	155	2.13	163	2.06	148	2.61	
Iraq	159	2.18	52.2	162	1.90	158	2.00	140	2.33	166	1.98	160	2.13	135	2.73	
Angola	160	2.18	52.1	166	1.79	156	2.01	139	2.33	157	2.13	159	2.14	140	2.65	
Zimbabwe	161	2.17	51.8	155	2.01	155	2.01	163	2.13	149	2.20	152	2.19	162	2.45	
Eritrea	162	2.11	50.4	152	2.05	162	1.89	165	2.12	152	2.19	162	2.09	165	2.31	
Syrian Arab Republic	163	2.10	50.2	167	1.70	143	2.12	166	2.09	165	2.00	146	2.23	157	2.50	
Sierra Leone	164	2.06	49.3	164	1.82	154	2.02	160	2.15	167	1.96	161	2.10	164	2.31	2014
Afghanistan	165	2.04	48.7	161	1.91	163	1.83	159	2.18	163	2.02	167	1.76	159	2.48	
Haiti	166	2.02	48.3	159	1.96	165	1.81	167	1.98	164	2.02	164	1.96	163	2.37	
Somalia	167	2.00	47.7	165	1.81	167	1.69	152	2.24	161	2.07	165	1.94	167	2.18	2012

Source: Logistics Performance Index 2012, 2014, 2016 and 2018.

Note: The LPI index is a multidimensional assessment of logistics performance, rated on a scale from 1 (worst) to 5 (best). The six core components captured by the LPI survey are rated by respondents on a scale of 1–5, where 1 is very low or very difficult and 5 is very high or very easy, except for question 15, where 1 is hardly ever and 5 is nearly always. The relative LPI score is obtained by normalizing the LPI score: Percentage of highest performer = 100 × [LPI – 1] / [LPI highest – 1]. Thus, the best performer has the maximum relative LPI score of 100 percent.

APPENDIX 2

International LPI results for 2018, with bounds

	LPI rank			LPI score			% of highest performer	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Rank	Lower bound	Upper bound	Score	Lower bound	Upper bound		Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Germany	1	1	1	4.20	4.16	4.25	100.0	1	4.09	1	4.37	4	3.86	1	4.31	2	4.24	3	4.39
Sweden	2	2	12	4.05	3.90	4.20	95.4	2	4.05	3	4.24	2	3.92	10	3.98	17	3.88	7	4.28
Belgium	3	2	12	4.04	3.92	4.16	94.9	14	3.66	14	3.98	1	3.99	2	4.13	9	4.05	1	4.41
Austria	4	2	14	4.03	3.88	4.17	94.5	12	3.71	5	4.18	3	3.88	6	4.08	7	4.09	12	4.25
Japan	5	2	10	4.03	3.96	4.09	94.5	3	3.99	2	4.25	14	3.59	4	4.09	10	4.05	10	4.25
Netherlands	6	2	11	4.02	3.95	4.09	94.3	5	3.92	4	4.21	11	3.68	5	4.09	11	4.02	11	4.25
Singapore	7	2	15	4.00	3.86	4.13	93.6	6	3.89	6	4.06	15	3.58	3	4.10	8	4.08	6	4.32
Denmark	8	2	17	3.99	3.82	4.16	93.5	4	3.92	17	3.96	19	3.53	9	4.01	3	4.18	2	4.41
United Kingdom	9	3	11	3.99	3.93	4.05	93.3	11	3.77	8	4.03	13	3.67	7	4.05	4	4.11	5	4.33
Finland	10	1	21	3.97	3.68	4.26	92.7	8	3.82	11	4.00	16	3.56	15	3.89	1	4.32	8	4.28
United Arab Emirates	11	2	15	3 96	3 86	4.05	92.3	15	3.63	10	4.02	5	3.85	13	3.92	13	3.96	4	4.38
Hong Kong SAR, China	12	7	17	3.92	3.83	4.01	91.2	9	3.81	15	3.97	8	3.77	12	3.93	15	3.92	15	4.14
Switzerland	13	7	17	3.90	3.80	4.00	90.6	16	3.63	9	4.02	20	3.51	11	3.97	5	4.10	13	4.24
United States	14	12	17	3.89	3.83	3.94	90.1	10	3.78	7	4.05	23	3.51	16	3.87	6	4.09	19	4.08
New Zealand	15	2	23	3.88	3.63	4.12	89.8	13	3.71	13	3.99	27	3.43	8	4.02	16	3.92	9	4.26
France	16	14	17	3.84	3.79	3.90	88.8	19	3.59	12	4.00	17	3.55	17	3.84	12	4.00	14	4.15
Spain	17	12	18	3.83	3.74	3.92	88.4	17	3.62	19	3.84	6	3.83	18	3.80	19	3.83	20	4.06
Australia	18	14	26	3.75	3.60	3.90	85.9	7	3.87	16	3.97	40	3.25	21	3.71	20	3.82	21	3.98
Italy	19	18	22	3.74	3.68	3.80	85.6	23	3.47	18	3.85	21	3.51	24	3.66	18	3.85	17	4.13
Canada	20	14	27	3.73	3.56	3.89	85.2	18	3.60	21	3.75	30	3.38	14	3.90	21	3.81	22	3.96
Norway	21	12	30	3.70	3.45	3.94	84.2	21	3.52	24	3.69	26	3.43	23	3.69	14	3.94	24	3.94
Czech Republic	22	17	28	3.68	3.53	3.83	83.7	30	3.29	26	3.46	10	3.75	20	3.72	24	3.70	16	4.13
Portugal	23	16	30	3.64	3.44	3.85	82.6	35	3.17	32	3.25	7	3.83	22	3.71	23	3.72	18	4.13
Luxembourg	24	18	30	3.63	3.45	3.81	82.2	20	3.53	25	3.63	31	3.37	19	3.76	29	3.61	26	3.90
Korea, Rep.	25	20	29	3.61	3.49	3.74	81.6	25	3.40	22	3.73	33	3.33	28	3.59	22	3.75	25	3.92
China	26	23	27	3.61	3.55	3.66	81.4	31	3.29	20	3.75	18	3.54	27	3.59	27	3.65	27	3.84
Taiwan, China	27	18	31	3.60	3.42	3.78	81.2	22	3.47	23	3.72	24	3.48	30	3.57	25	3.67	35	3.72
Poland	28	20	33	3.54	3.35	3.73	79.3	33	3.25	35	3.21	12	3.68	29	3.58	31	3.51	23	3.95
Ireland	29	20	37	3.51	3.28	3.74	78.4	26	3.36	29	3.29	28	3.42	26	3.60	28	3.62	33	3.76
Qatar	30	19	41	3.47	3.21	3.74	77.3	38	3.00	27	3.38	9	3.75	31	3.42	30	3.56	36	3.70
Hungary	31	28	39	3.42	3.25	3.59	75.6	27	3.35	30	3.27	43	3.22	38	3.21	26	3.67	32	3.79
Thailand	32	29	37	3.41	3.29	3.53	75.3	36	3.14	41	3.14	25	3.46	32	3.41	33	3.47	28	3.81
South Africa	33	30	39	3.38	3.25	3.51	74.2	34	3.17	36	3.19	22	3.51	39	3.19	35	3.41	34	3.74
Chile	34	31	41	3.32	3.21	3.43	72.4	32	3.27	34	3.21	38	3.27	43	3.13	44	3.20	31	3.80
Slovenia	35	28	49	3.31	3.08	3.55	72.3	24	3.42	31	3.26	47	3.19	50	3.05	40	3.27	38	3.70
Estonia	36	28	50	3.31	3.06	3.56	72.2	28	3.32	44	3.10	39	3.26	40	3.15	43	3.21	30	3.80
Israel	37	30	47	3.31	3.13	3.49	72.1	29	3.32	28	3.33	75	2.78	34	3.39	32	3.50	48	3.59
Panama	38	31	47	3.28	3.12	3.43	71.1	45	2.87	42	3.13	34	3.31	35	3.33	36	3.40	46	3.60
Vietnam	39	31	48	3.27	3.11	3.44	71.0	41	2.95	47	3.01	49	3.16	33	3.40	34	3.45	40	3.67
Iceland	40	23	72	3.23	2.80	3.65	69.5	54	2.77	37	3.19	72	2.79	25	3.61	37	3.35	37	3.70
Malaysia	41	31	55	3.22	3.00	3.44	69.4	43	2.90	40	3.15	32	3.35	36	3.30	47	3.15	53	3.46
Greece	42	34	51	3.20	3.04	3.37	68.9	47	2.84	38	3.17	35	3.30	48	3.06	45	3.18	42	3.66

Economy	LPI rank			LPI score			% of highest performer	Customs		Infrastructure		International shipments		Logistics quality and competence		Tracking and tracing		Timeliness	
	Rank	Lower bound	Upper bound	Score	Lower bound	Upper bound		Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Oman	43	31	59	3.20	93	3 47	68.6	44	2.87	39	3.16	36	3.30	49	3.05	66	2.97	29	3.80
India	44	40	49	3.18	3.10	3.26	68.0	40	2.96	52	2.91	44	3.21	42	3.13	38	3.32	52	3.50
Cyprus	45	31	64	3.15	2.85	3.45	67.2	37	3.05	55	2.89	50	3.15	53	3.00	48	3.15	45	3.62
Indonesia	46	31	64	3.15	2.85	3.45	67.2	62	2.67	54	2.89	42	3.23	44	3.10	39	3.30	41	3.67
Turkey	47	40	51	3.15	3.05	3.24	67.0	58	2.71	33	3.21	53	3.06	51	3.05	42	3.23	44	3.63
Romania	48	40	55	3.12	3.01	3.23	66.2	80	2.58	51	2.91	48	3.18	47	3.07	41	3.26	39	3.68
Croatia	49	34	65	3.10	.84	3.37	65.7	39	2.98	46	3.01	58	2.93	45	3.10	61	3.01	7	3.59
Côte d'Ivoire	50	38	63	3.08	2.86	3.30	65.0	51	2.78	56	2.89	45	3.21	37	3.23	49	3.14	71	3.23
Mexico	51	43	60	3.05	2.90	3.20	64.1	53	2.77	57	2.85	51	3.10	52	3.02	62	3.00	49	3.53
Bulgaria	52	40	64	3.03	2.84	3.23	63.5	42	2.94	64	2.76	41	3.23	55	2.88	59	3.02	65	3.31
Slovak Republic	53	34	82	3.03	.69	3.36	63.3	50	2.79	48	3.00	52	3.10	41	3.14	64	2.99	86	3.14
Lithuania	54	38	74	3.02	2.76	3.28	63.0	46	2.85	66	2.73	74	2.79	54	2.96	50	3.12	43	3.65
Saudi Arabia	55	44	66	3.01	2.83	3.19	62.8	66	2.66	43	3.11	56	2.99	57	2.86	46	3.17	67	3.30
Brazil	56	48	64	2.99	85	3 12	62.0	102	2.41	50	2.93	61	2.88	46	3.09	51	3.	51	3.51
Rwanda	57	38	86	2.97	66	3 29	61.7	64	2.67	65	2.76	29	3.39	60	2.85	86	2.75	6	3.35
Colombia	58	49	74	2.94	2 77	3 11	60.6	75	2.6	72	2.67	46	3.19	56	2.87	53	3.08	81	3.17
Bahrain	59	48	76	2.93	2 75	3 12	60.4	63	2.67	68	2.72	55	3.02	58	2.86	60	3.01	68	3.29
Philippines	60	51	77	2.90	2 73	3 07	59.5	85	2.53	67	2.73	37	3.29	69	2.78	57	3.06	100	2.98
Argentina	61	57	72	2.89	80	98	58.9	98	2.42	62	2.77	59	2.92	68	2.78	58	3.05	58	3.37
Ecuador	62	52	79	2.88	72	3 05	58.8	48	2.80	69	2.72	80	2.75	70	2.75	55	3.07	75	3.19
Kuwait	63	44	108	2.86	2.54	3.18	58.1	56	2.73	45	3.02	98	2.63	67	2.80	96	2.66	59	3.37
Iran, Islamic Rep.	64	43	114	2.85	2.50	3.20	57.9	71	2.63	63	2.77	79	2.76	62	2.84	85	2.77	60	3.36
Serbia	65	50	96	2.84	2.59	3.09	57.5	78	2.60	74	2.60	57	2.97	80	2.70	76	2.79	62	3.33
Ukraine	66	52	91	2.83	2.62	3.04	57.2	89	2.49	119	2.22	68	2.83	61	2.84	52	3.11	56	3.42
Egypt, Arab Rep.	67	45	115	2.82	2 48	3 17	57.0	77	2.60	58	2.82	73	2.79	63	2.82	89	2.72	74	3.19
Kenya	68	55	91	2.81	2 62	3 01	56.7	67	2.65	79	2.55	99	2.62	64	2.81	56	3.07	79	3.18
Malta	69	42	125	2.81	2 41	3 21	56.7	60	2.70	53	2.90	89	2.70	66	2.80	75	2.80	98	3.01
Latvia	70	56	90	2.81	2 62	3 00	56.5	49	2.80	49	2.98	81	2.74	81	2.69	77	2.79	113	2.88
Kazakhstan	71	56	90	2.81	2 63	99	56.5	65	2.66	81	2.55	84	2.73	90	2.58	83	2.78	50	3.53
Bosnia and Herzegovina	72	56	91	2.81	2.62	3.00	56.5	69	2.63	97	2.42	66	2.84	65	2.80	70	2.89	72	3.21
Costa Rica	73	58	90	2.79	2.63	2.95	56.0	70	2.63	84	2.49	76	2.78	79	2.70	67	2.96	83	3.16
Paraguay	74	56	98	2.78	2.58	2.99	55.7	68	2.64	80	2.55	91	2.69	76	2.72	101	2.61	55	3.45
Russian Federation	75	63	89	2.76	2.65	2.87	54.9	97	2.42	61	2.78	96	2.64	71	2.75	97	2.65	66	3.31
Benin	76	58	109	2.75	2.54	2.96	54.7	82	2.56	83	2.50	83	2.73	98	2.50	87	2.75	57	3.42
Montenegro	77	60	106	2.75	2.56	2.93	54.5	83	2.56	75	2.57	92	2.68	74	2.72	105	2.58	63	3.33
Mauritius	78	55	116	2.73	2.45	3.01	54.1	59	2.70	59	2.80	151	2.12	59	2.86	63	3.00	99	3.00
Lebanon	79	56	119	2.72	2.43	3.00	53.6	106	2.38	73	2.64	70	2.80	104	2.47	74	2.80	77	3.18
Brunei Darussalam	80	60	114	2.71	2.51	2.91	53.3	73	2.62	89	2.46	113	2.51	77	2.71	88	2.75	80	3.17
Macedonia, FYR	81	58	119	2.70	2.44	2.97	53.3	91	2.45	87	2.47	67	2.84	72	2.74	100	2.64	96	3.03
Lao PDR	82	60	115	2.70	2.47	2.93	53.1	74	2.61	91	2.44	85	2.72	83	2.65	69	2.91	117	2.84
Peru	83	60	115	2.69	2.48	2.91	52.9	86	2.53	111	2.28	65	2.84	110	2.42	108	2.55	54	3.45
Jordan	84	64	112	2.69	2.52	2.86	52.7	88	2.49	70	2.72	119	2.44	93	2.55	84	2.77	76	3.18
Uruguay	85	63	114	2.69	2.50	2.87	52.6	87	2.51	94	2.43	82	2.73	78	2.71	82	2.78	109	2.91

CONNECTING TO COMPETE 2018 TRADE LOGISTICS IN THE GLOBAL ECONOMY

Appendix 2 International LPI results for 2018, with bounds

	LPI rank			LPI score				Customs		Inf astructure		ternationa hipments		Logistics quality and competence		Tracking and tracing		Timeliness	
Economy	Ra k	Lower o	Upper bound	Score	Low bo	Upper ound	% of highest performer	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Maldives	86	61	119	67	2 44	2.89	52.0	105	2.40	71	2.72	94	2.66	125	2.29	104	2.60	64	3.32
Dominican Republic	87	66	115	2.66	2.49	2.84	51.9	103	2.41	105	2.36	77	2.77	108	2.44	65	2.97	101	2.98
Albania	88	64	115	2.66	2.46	2.86	51.8	114	2.35	110	2.29	69	2.82	92	2.56	95	2.67	73	3.20
São Tomé and Principe	89	66	115	2.65	2.47	2.84	51.6	57	2.71	106	2.33	121	2.42	84	2.65	81	2.78	97	3.01
Djibouti	90	61	130	2.63	2.37	2.90	51.1	113	2.35	60	2.79	118	2.45	135	2.25	72	2.85	85	3.15
Burkina Faso	91	61	133	.62	2.34	2.90	50.6	100	2.41	95	2.43	60	2.92	106	2.46	124	2. 0	95	3.04
Armenia	92	73	122	2.61	2.42	2.80	50.2	81	2.57	86	2.48	95	2.65	97	2.50	113	2.51	111	2.90
Honduras	93	76	116	2.60	2.45	2.76	50.1	125	2.24	88	2.47	93	2.66	75	2.72	93	2.68	118	2.83
Sri Lanka	94	63	135	2.60	2.32	2.87	49.9	79	2.58	85	2.49	112	2.51	109	2.42	78	2.79	122	2.79
Cameroon	95	73	129	.60	2.38	2.81	49.8	90	2.46	76	2.57	63	2.87	87	2.60	118	2.47	142	2.57
Mali	96	63	136	2.59	2.30	2.88	49.7	133	2.15	109	2.30	88	2.70	107	2.45	54	3.08	119	2.83
Malawi	97	61	138	2.59	2.28	2.89	49.5	94	2.43	126	2.18	105	2.55	82	2.68	94	2.67	102	2.97
Cambodia	98	75	129	58	2 38	2.78	49.3	109	2.37	130	2.14	71	2.79	111	2.41	1	2.52	84	3.16
Uzbekistan	99	75	129	58	2 38	2.77	49.3	140	2.10	77	2.57	120	2.42	88	2.59	90	2.7	91	3.09
Bangladesh	100	68	134	2 58	2 34	2.82	49.2	12	2.30	100	2.39	104	2.56	102	2.48	79	2.79	107	2.92
El Salvador	101	82	118	2 58	2 45	2.70	49.2	120	2.30	114	2.25	86	2.71	91	2.56	117	2.47	90	3.10
Uganda	102	73	133	2 58	2 34	2.81	49.2	76	2.61	124	2.19	78	2.76	99	2.50	123	2.41	110	2.90
Belarus	103	78	125	57	41	2.74	49.2	112	2.35	92	2.44	134	2.31	85	2.64	109	2.54	78	3.18
Solomon Islands	104	60	143	57	2 23	2.91	49.1	52	2.77	120	2.21	142	2.20	73	2.73	126	2.37	87	3.12
Tunisia	105	75	129	2.57	2.38	2.76	49.0	107	2.38	133	2.10	115	2.50	123	2.30	71	2.86	70	3.24
Ghana	106	65	138	2.57	2.29	2.85	48.9	92	2.45	90	2.44	109	2.53	95	2.51	106	2.57	115	2.87
Comoros	107	60	144	2.56	2.20	2.91	48.6	72	2.63	113	2.25	116	2.49	138	2.21	68	2.93	120	2.80
Kyrgyz Republic	108	73	138	2.55	2.29	2.80	48.3	55	2.75	103	2.38	138	2.22	114	2.36	99	2.64	106	2.94
Morocco	109	79	133	2.54	2.35	2.73	48.1	115	2.33	93	2.43	103	2.58	101	2.49	112	2.51	114	2.88
Nigeria	110	64	144	2 53	2 21	2.86	47.9	147	1.97	78	2.56	110	2.52	112	2.40	92	2.68	92	3.07
Zambia	111	84	130	2 53	2 36	2.69	47.7	129	2.18	108	2.30	54	3.05	103	2.48	158	1.98	94	3.05
Bahamas, The	112	85	130	2 53	2 37	2.69	47.6	61	2.68	98	2.41	114	2.50	130	2.27	110	2.52	125	2.75
Jamaica	113	79	135	2 52	2 32	2.72	47.4	99	2.42	107	2.32	107	2.53	94	2.54	116	2.48	121	2.79
Nepal	114	77	138	2 51	28	2.75	47.3	122	2.29	123	2.19	129	2.36	105	2.46	98	2.65	89	3.10
Congo, Rep.	115	65	151	2.49	2.12	2.85	46.4	123	2.27	138	2.07	64	2.87	127	2.28	125	2.38	103	2.95
Moldova	116	92	137	2.46	2.30	2.62	45.5	124	2.25	141	2.02	90	2.69	122	2.30	142	2.21	82	3.17
Algeria	117	85	143	2.45	2.21	2.69	45.2	138	2.13	96	2.42	122	2.39	113	2.39	103	2.60	124	2.76
Togo	118	78	150	2.45	2.16	2.74	45.2	119	2.31	116	2.23	111	2.52	134	2.25	120	2.45	112	2.88
Georgia	119	84	146	2.44	2.19	2.69	45.1	95	2.42	102	2.38	124	2.38	132	2.26	139	2.26	105	2.95
Congo, Dem. Rep.	120	104	138	2.43	2.28	2.57	44.6	108	2.37	132	2.12	127	2.37	100	2.49	114	2.51	133	2.69
Sudan	121	91	141	2.43	2.23	2.62	44.6	136	2.14	125	2.18	102	2.58	96	2.51	115	2.51	139	2.62
Pakistan	122	98	140	2.42	2.26	2.58	44.3	139	2.12	121	2.20	97	2.63	89	2.59	136	2.27	136	2.66
Chad	123	75	156	2.42	2.07	2.76	44.3	134	2.15	104	2.37	125	2.37	86	2.62	127	2.37	138	2.62
Trinidad and Tobago	124	93	143	2.42	2.22	2.61	44.2	96	2.42	101	2.38	101	2.59	129	2.27	135	2.27	144	2.53
Guatemala	125	93	143	2.41	2.22	2.61	44.2	132	2.16	122	2.20	130	2.33	136	2.25	122	2.42	88	3.11
Turkmenistan	126	97	141	2.41	2.23	2.59	44.0	111	2.35	117	2.23	136	2.29	120	2.31	107	2.56	130	2.72
Gambia, The	127	84	153	2.40	2.11	2.69	43.8	141	2.08	155	1.82	87	2.71	142	2.21	73	2.81	131	2.71
Madagascar	128	97	146	2.39	2.19	2.59	43.4	118	2.32	128	2.16	146	2.19	118	2.33	102	2.61	128	2.73

	LPI rank			LPI score			% of	Customs		Infrastructu e		Internatio al shipment		Logistics qua ity and competence		Tracking and tracing		Timeliness	
Economy	Rank	Lower bou d	Upper o	Score	Lower bound	Upp bo	highest erformer	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Guinea-Bissau	129	86	153	2.39	11	2 67	43.3	144	2.01	159	1.78	108	2.53	126	2.28	80	2.78	116	2.86
Mongolia	130	100	148	2.37	2.17	2.58	42.9	127	2.22	135	2.10	117	2.49	140	2.21	152	2.10	93	3.06
Bolivia	131	113	146	2.36	2.19	2.52	42.4	117	2.32	129	2.15	106	2.54	139	2.21	148	2.13	127	2.74
Guyana	132	114	145	2.36	2.20	2.52	42.4	84	2.55	137	2.09	148	2.17	137	2.24	121	2.44	137	2.65
Fiji	133	94	154	2.35	2.10	2.60	42.2	101	2.41	99	2.40	149	2.16	119	2.31	132	2.31	143	2.54
Tajikistan	134	108	151	2.34	2.12	2.56	41.8	150	1.92	127	2.17	133	2.31	116	2.33	131	2.33	104	2.95
Mauritania	135	108	153	2.33	.11	2.55	41.6	128	2.20	112	2.26	145	2.19	144	2.19	119	2.47	13	2.68
Equatorial Guinea	136	82	160	2.32	1.93	2.70	41.2	151	1.91	151	1.88	62	2.88	133	2.25	149	2.13	126	2.75
Myanmar	137	115	154	2.30	2.10	2.50	40.5	131	2.17	143	1.99	144	2.20	128	2.28	143	2.20	108	2.91
Syrian Arab Republic	138	115	155	2.30	.08	2.51	40.5	154	1.82	82	2.51	126	2.37	124	2.29	128	2.37	148	2.44
Lesotho	139	107	159	2.28	1.99	2.56	39.9	110	2.36	145	1.96	140	2.21	154	2.03	129	2.37	132	2.70
Yemen, Rep.	140	80	160	2.27	1.82	2.71	39.5	104	2.40	131	2.12	141	2.21	131	2.26	146	2.16	151	2.43
Senegal	141	115	159	2.25	01	2 50	39.1	130	2.17	118	2.22	128	2.36	149	2.11	150	2.	145	2.52
Venezuela, RB	142	130	156	2.23	08	2 38	38.4	156	1.79	134	2.10	123	2.38	141	2.21	133	2.29	14	2.58
Liberia	143	115	159	2.23	1 97	2 49	38.4	152	1.9	149	1.91	155	2.08	148	2.14	155	2.05	69	3.25
Somalia	144	117	159	2.21	1 97	2 45	37.8	145	2.00	157	1.81	100	2.61	121	2.30	140	2.23	157	2.20
Guinea	145	126	159	2.20	1 99	2 41	37.5	93	2.45	160	1.56	132	2.32	152	2.07	91	2.70	160	2.04
Cuba	146	128	159	2.20	00	39	37.4	143	2.03	139	2.04	137	2.27	143	2.20	147	2.15	147	2.46
Iraq	147	137	159	2.18	04	2 31	36.7	153	1.84	140	2.03	131	2.32	159	1.91	144	2.19	129	2.72
Papua New Guinea	148	128	159	2.17	1.95	2.40	36.7	116	2.32	144	1.97	150	2.15	160	1.88	138	2.26	150	2.44
Bhutan	149	129	159	2.17	1.95	2.39	36.5	135	2.14	150	1.91	160	1.80	115	2.35	130	2.35	146	2.49
Gabon	150	117	160	2.16	1.87	2.45	36.3	148	1.96	136	2.09	153	2.10	151	2.07	153	2.07	135	2.67
Central African Republic	151	116	160	2.15	1.81	2.48	35.9	126	2.24	148	1.93	135	2.30	157	1.93	151	2.10	156	2.33
Zimbabwe	152	128	160	2.12	1 84	2 40	35.0	146	2.00	154	1.83	156	2.06	147	2.16	137	2.26	152	2.39
Haiti	153	140	159	2.11	1 95	2 27	34.7	142	2.03	147	1.94	157	2.01	145	2.19	154	2.05	149	2.44
Libya	154	136	160	2.11	1 89	2 32	34.6	149	1.95	115	2.25	159	1.99	153	2.05	160	1.64	123	2.77
Eritrea	155	130	160	2.09	1 79	2 38	34.0	137	2.13	152	1.86	154	2.09	146	2.17	145	2.17	159	2.08
Sierra Leone	156	137	160	2.08	1 85	31	33.7	155	1.82	156	1.82	147	2.18	156	2.00	134	2.27	154	2.34
Niger	157	116	160	2.07	1.66	2.48	33.4	157	1.77	142	2.00	158	2.00	150	2.10	141	2.22	155	2.33
Burundi	158	139	160	2.06	1.85	2.28	33.2	159	1.69	146	1.95	139	2.21	117	2.33	156	2.01	158	2.17
Angola	159	142	160	2.05	1.85	2.25	32.7	160	1.57	153	1.86	143	2.20	155	2.00	157	2.00	140	2.59
Afghanistan	160	155	160	1.95	1.79	2.11	29.6	158	1.73	158	1.81	152	2.10	158	1.92	159	1.70	153	2.38

Note: The LPI index is a multidimensional assessment of logistics performance, rated on a scale from 1 (worst) to 5 (best). The six core components captured by the LPI survey are rated by respondents on a scale of 1–5, where 1 is very low or very difficult and 5 is very high or very easy, except for question 15, where 1 is hardly ever and 5 is nearly always. The relative LPI score is obtained by normalizing the LPI score: Percentage of highest performer = 100 × [LPI – 1] / [LPI highest – 1]. Thus, the best performer has the maximum relative LPI score of 100 percent.
Source: Logistics Performance Index 2018.