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A Strategic Base in the Global Supply Chain: Türkiye

Abstract

Türkiye is becoming a new base in the global supply chain due to its geopolitical position and the cost advantages it provides. Due to the COVID-19 outbreak, logistics problems, especially production and transportation costs, have further strengthened Türkiye's position in this context. Türkiye's strategic location, strong logistics infrastructure, cost-effective and qualified workforce, along with a liberal investment climate, offer a suitable environment for international companies. Türkiye ranks well in the World Bank's Logistics Performance Index, which evaluates countries' logistics performance in customs, transportation, and infrastructure.

Türkiye has served as a bridge between the east and west since historical times. During the Seljuk period, caravanserais and other infrastructure and service areas were established in Anatolia to support commercial activities. The Silk Road, which had an important place until a certain period of the Ottoman Empire, lost its importance due to other developments.

The "One Belt One Road Project" initiated by China, still in progress and planned to be completed in 2049, will make Türkiye even more important in terms of the global supply chain in the next 10 years. İpekyolu follows the northern and southern routes in Anatolia. With China's "One Belt One Road Project", the Silk Road will regain its former importance as the "Modern Silk Road".

Chinese President Xi Jinping first mentioned the Land and Sea Silk Road project in one of his speeches in 2013. It has been decided to name these two projects as the "Belt and Road Initiative-BRI" or the "One Belt One Road-OBOR" project. The word belt constitutes the land route of the project, which includes highways, railways, oil and natural gas pipelines, and infrastructure investments. The word road includes the sea routes

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covered by the project. The routes of these corridors are provided by multi-dimensional corridors in the direction of Asia-Europe instead of a single route. Within the scope of this project, many infrastructure investments are made in Türkiye as well. In this study, the cost advantages that Türkiye will provide to the global supply chain will be evaluated due to both its cost and geographical location and the infrastructure investments made.

Keywords: Silk Road, One Belt One Road Project, Logistics, Logistics Centres, Logistics Base, Türkiye, Turkey

Introduction

"The world is truly getting smaller and the marketplace is getting bigger. Global logistics can help bridge the gap between service and efficiency, but it is not easy" (PWC, 2022).

According to mercantilists, economies should encourage exports and restrict imports as much as possible. For this, it is foreseen to encourage imperialism and colonialism. On the one hand, they argue that it would be appropriate to achieve this goal with customs duties and subsidies. Adam Smith, on the other hand, opposes this in his work "The Wealth of Nations", written in 1776, and advocates mutual trade between economies. Thus, he believes that all countries that trade with each other will win. To do this, he argues that each country produces the products which it is absolutely superior at producing, at a lower cost than another country, and buys other products at a relatively lower cost from other countries that produce them.

When Henry Ford founded his Michigan automobile factory in 1919, he had a goal of producing 100% American cars under one roof. By the 1960s, he had achieved that goal. However, by issuing a memorandum which stated, "we do not have to produce everything ourselves to be competitive from now on. Wherever we can find at cheaper cost, we should buy from there", he showed that producing 100% American cars was no longer his philosophy (Catero et al., 1987). In this context, logistics becomes more important.

Today, this understanding has dominated the globalising world economy. For this reason, western companies have directed their production to China. In this way, China has become a critical economy. Due to its surplus production and production capacity, China has adopted the policy of turning to foreign markets. The One Belt One Road Project (OBOR), which is widely covered in this study, and the "Middle Corridor" which includes Türkiye, should also be evaluated in this context. Because along

with the production of products, keeping them at the desired place and time is one of the parameters that will provide a competitive advantage.

MIT professor Paul Krugman also emphasises that trade deepens between regions and cities rather than between nations. In this context, Türkiye is located in a highly geographically important region. Türkiye can reach a population of 1.6 billion and half of the global market within a 4-hour flight. 70% of the energy resources are located in the surrounding regions. Türkiye's location gives it the potential to be a logistics base that will provide it with a strategic advantage, considering the other advantages described in detail below. Being aware of this geographical location advantage, Türkiye has also made intense efforts to become a logistics base. In this context, on the one hand, the country focuses on infrastructure works in the field of transportation, and on the other, it has started attempts to establish logistics bases.

The Focus of Trade Throughout History: Anatolia

Türkiye, which connects three continents and has a very important geostrategic location, is located in the west of the east and the east of the west and is simultaneously a European, Asian, Balkan, Caucasian, Middle Eastern, Mediterranean, and Black Sea country. With this position, Türkiye will assume the role of a natural bridge for the Caspian and Central Asian resources to reach the west in the future.

Emphasis is placed on the words 'location, location, location' as the three basic elements of success in retail trade. Throughout history, the geographical location of all countries have been influential in the strength or weakness of the states established on them. In this context, the states established in Anatolian geography have always been important and powerful.

Anatolia has been both a strategic bridge and a focal point throughout history. What is meant by the focal point is that it is a production and consumption centre. We find evidence that dark-coloured Camkaya, which was extracted from the volcanic mountains of Anatolia in the Stone Age and whose composition is similar to granite, was exported to the Balkans and Mesopotamia to be used in the making of arrows and knives. With the invention of rafts made of inflated animal skins, the transports that had previously been made only by road were transported to lower Mesopotamia more safely, quickly, and economically on the Euphrates and Tigris rivers. With the development of settled agriculture in that region six or seven thousand years ago, so began grain shipments to Anatolia. The copper obtained from the Ergani mines and

the mining products extracted and refined in Anatolia were transported to Uruk and other large cities in southern Iraq via the Euphrates River. As the bronze obtained by mixing the copper extracted in Anatolia with tin, which is thought to be imported from northern Europe, was much more durable, it began to be used in weapons, agricultural tools, ceremonial tools, and kitchen materials and increased the dimensions of interregional trade (Kozlu, 2008).

The main factor for the Sumerians, Akats, Assyrians, and Babylonians living in Mesopotamia to establish great civilizations was that they sold the agricultural surplus they produced thanks to artificial intensive irrigation systems to other regions and imported stone and marble products to be used in strategic mines and forest products and constructions in return. Trade between regions became easier as the Lydian Emperor Croesus (595–547 BC) in Western Anatolia minted gold coins in standard sizes for the first time. In the continuation of this process, we know that live animals, wool, dried fish, and timber were shipped to Greece from the ports in the Black Sea. Grain was also imported from Ukraine and Russia. The straits of the Bosporus and the Dardanelles, through which this type of transportation passed, were also the most important points of world trade (Kozlu, 2008). Later, spices and silk gained importance in trade, and the historical Silk Road gained importance for this trade.

The Historical Silk Road and Its Importance

Silk extracted from silkworm cocoons was first produced in China. Scholars date the first silkworm production to the third century BC. Some believe that this corresponds to the Shang Dynasty (145–1050 BC), while others assume up to a thousand years BC (Bozkurt, 2022).

The German geographer and researcher Ferdinand Freiherr von Richthofen used the term "Silk Road" for the first time in 1877, based on the historical heritage of the region (Kafkassam, 2018).

The Silk Road is neither a single road nor even a real road. The term instead refers to a network of routes used by traders for over 1,500 years, and it is a term which also serves as a metaphor for the exchange of goods and ideas between different cultures (National Geographic, 2022).

The Silk Road, as the name suggests, emerged in relation to the production and trading of silk. In China, silk could only be taken out of the country in the forms of yarn and fabric. It was forbidden to take silkworms out of the country, and the penalty for those who violated that ban was death. The Silk Road reached Egypt, Turkistan, and India during the conquests of Alexander towards the east in the first half of the 4th century BC, and created a common market spreading over a wide geography. The

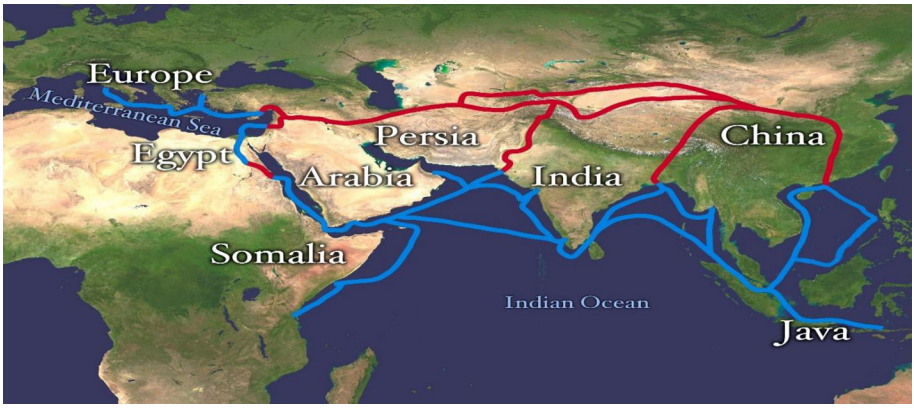

Figure 1. The Ancient Silk Road, Roman Period
Source: Khan Academy, 2022.

Silk Road, which has been used since ancient times, included Arabia, India, Anatolia, and the Mediterranean regions (Günay et al., 2022; Atar et al., 2018).

The main route of the Silk Road was the land road that started from China, continued through Iran to Mesopotamia, and then connected it to the ports of Antakya and Sur on the Mediterranean coast. However, this road has been reshaped depending on the developing political and economic conditions over time and has become an international trade network. The Silk Road is divided into two branches in the forms the North Road and the South Road. The North Road stretched from the Caucasus to the Black Sea, and from there to coastal points such as Azov and Crimea, and then from southern Russia, the Ural region, Southern Siberia, and Altai steppes to China. The Southern Silk Road, on the other hand, started from the capital of China and continued to the Eastern Mediterranean via Central Asia and the Iranian plateau and from there to the interior of Europe via ships (Işıktaş et al., 2017).

If we look at the history of societies from the first societies in noted history to the present time, we find that roads built for commercial or military purposes influence economic, political, and social change. One of the traces left by the civilised societies of the time, such as the Romans and the Ottomans, are the roads they opened or protected (Gunay et al., 2022).

The Sovereign (King) road, which was the main trade route used by ancient societies, was used by the Seljuks and Ottomans in the middle ages. The preservation of the historical silk road became one of the aims

of Ottoman economic policy, and these trade routes were supported by infrastructure (Günay et al., 2022).

Since the Seljuk period, an extensive postal system with inns and caravanserais was established in Anatolia along the historic Silk Road route. The Ottoman Turkish state was also established in the areas through which the historical trade route (Silk Road) between East and West passed. This geographical location and wide commercial investments have made Anatolia a transportation and trader country. Controlling the Persian Gulf, the Red Sea, the ports of Syria, and the caravan routes passing through Anatolia, the Ottoman Empire benefited extensively from the international transit trade provided by the historical spice and silk routes. In this context, all kinds of taxes, duties, and charges collected from transit products were an important source of state revenues. On the other hand, people in these commercial centres became rich by participating in the active commercial life and offering many services, such as innkeepers offering shelter, and others offering brokerage services, saddlery, and kitchen utensil sales (Avcıoğlu, 1971).

Recognising the importance of trade, the Turkic states have built an excellent trade organisation. The Derbent organisation is a good example of this. The Derbent Organisation not only kept the roads and bridges in good condition, but also ensured the safety of the lives and property of the merchants.

The Derbentists promised that no one would come to any harm in their places and that if they did, the organisation would pay for the damage/injuries caused (Orhonlu, 1967; Avcıoğlu, 1971).

During the period when the historic Silk Road was actively used, the state, on the one hand, and the trade centres along this route on the other hand, provided significant revenues and profits for the people.

The most important piece of evidence that reveals the importance of the historical Silk Road is that along with the geographical discoveries and the discovery of new trade routes, there was a great transformation that started in favour of the west, which was noticed with the decline of the east and the west's rise. 15th century Western Europe, which remained out of the world trade system in a passive state due to the fact that the world trade routes were under the control of the east until today, embarked on a journey through these new trade routes, which would have the opportunity to establish hegemonic power over the world economy by joining the world trade system after the Geographical Discoveries and even coming to control it (Günay et al., 2022).

The Modern Silk Road, "One Belt One Road Project"

Chinese President Xi Jinping mentioned the Land and Sea Silk Road projects in his speeches in 2013, first in Kazakhstan and then in Indonesia. It was decided to name both projects the "Belt and Road Initiative or One Belt One Road" project. (Belt and Road Initiative-BRI or One Belt One Road-OBOR) The word generation forms the land route of the project, which includes highways, railways, oil, and natural gas pipelines, and infrastructure investments. The word route includes the sea routes of the project (Yılmaz, 2019).

The Modern or New Silk Road is shown in Figure 2 below (Başıbüyük, 2020).

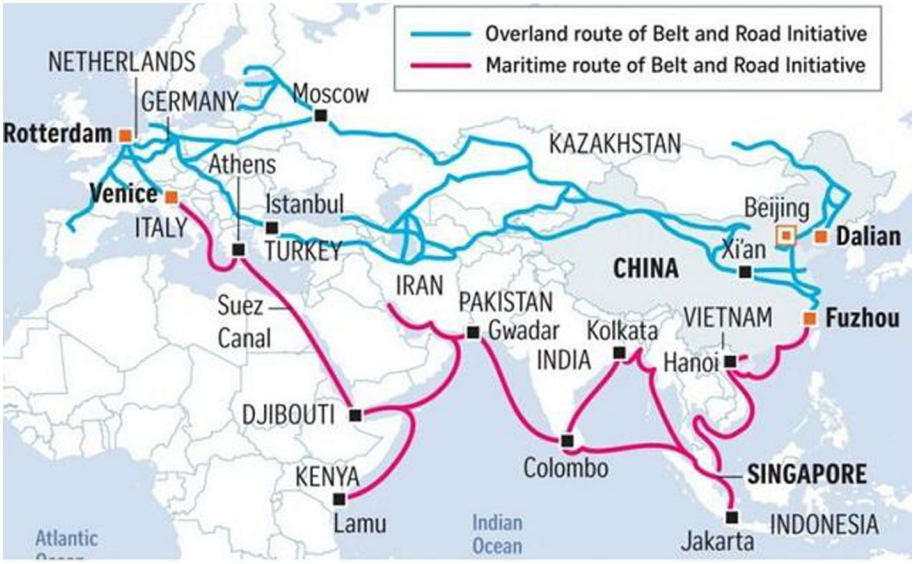

Figure 2. The New Silk Road

The transit routes of these corridors are provided by multi-dimensional corridors in the direction of Asia-Europe instead of a single route. There are six corridors on the land route. These are: the China-Mongolia-Russia Economic Corridor, the China-Central Asia-West Asia Economic Corridor (Türkiye is located in this corridor), the China-Indochina Peninsula Economic Corridor, the New Eurasian Land Bridge Economic Corridor, the Bangladesh-China-India-Myanmar Economic Corridor, and, finally, the China-Pakistan Economic Corridor. The project is intended to be a maritime economic corridor linking not only the Association of Southeast Asian Nations (ASEAN) but also the economies of South Asia, West Asia,

North Africa, and Europe. In this context, the Belt-Road Initiative is an economic belt that includes the South China Sea, the Pacific Ocean, and the Indian Ocean (Yılmaz, 2019).

The project emerged when China adopted a new strategy. In the early 1980s, China decided to change its strategy, and this decision predicted a change and transformation. This new strategy was based on "combining the universal truth of Marxism with the original reality of China". The strategy envisioned China's opening up by adopting a market economy. In this context, investment incentives and the cheap, local labour prompted Western industrialists to direct their investments there. The industrialised countries used these approaches and went on to make China one of the largest economies in the world (Tanrıdağlı, 2020).

With the effect of rapid growth in the 2000s, China had a large production capacity and surplus. By 2010, serious overproduction began to appear in China. It was faced with the problem of transporting this production capability abroad. It started to make serious infrastructure investments to solve this problem. This is one of the main reasons that helped to create the One Belt One Road Project (OBOR) (Tanrıdağlı, 2020).

The OBOR project is one that connects three-quarters of the world's population and 40 percent of the world's gross domestic product, directly or indirectly affecting 130 countries. The main objectives of the project are: to ensure political coordination by developing common development strategies between countries; to remove barriers to trade by improving transportation, infrastructure, and communication opportunities; to develop financial opportunities to remove these barriers; to establish a large trade network from Asia to Europe; and to ensure communication between the peoples of the countries involved in the project, facilitating travel and sharing information (Yılmaz, 2019).

China announced that it envisaged a budget of 8 trillion dollars in 2016 to develop the middle corridor, which it plans to integrate with Europe. In this context, the Chinese government, Kazakhstan, Uzbekistan, Turkmenistan, Iran, Türkiye, Bulgaria, Romania, Hungary, Austria, Germany, Belgium, and France are planning high-speed train connections to the UK. The project, which is estimated to cost 150 billion dollars, is expected to be completed between 2020 and 2025. Again, with regard to the Turkish leg of this project, a total budget of 40 billion dollars and an average annual expenditure of 750 million dollars were envisaged. In this context, a memorandum of understanding was signed between Türkiye and China during the G20 Summit held in Antalya on 14th November 2015 (Başıbüyük, 2022).

Online sales are increasing rapidly in the world. China is one of the largest investing countries in this field. Today, a product you buy online in China can be delivered to your home within 1 week at the latest. The Chinese company Alibaba has made serious investments so as to reduce this period to 3 days. In the future, China plans to reduce this time to 1 day worldwide. When the One Belt One Road Project is completed with various logistics centres, a product you order online will be at your door the next day in Europe, the Balkans, the Middle East, Central Asia, and Africa (Başıbüyük, 2022).

The China-Central Asia-West Asia Corridor and the Importance of Türkiye

As mentioned above, the Silk Road has been a trade route that served as a bridge between China and the Roman Empire for years. The OBOR project emerges as the fruit of an idea based on the idea of reviving the ancient Silk Road trade route. In this context, the new project covers not only the trade route but also the works related to infrastructure strengthening. The China-Central and West Asian Corridor represents an ambitious route in terms of size and scope. The Middle Corridor is mostly the scene of projects aimed at strengthening international transportation infrastructure. Once the Middle Corridor is fully activated, it will reduce the transportation transfer time between Türkiye and China from 30 days to 10 days (Yılmaz, 2019).

Within the scope of the OBOR project, there have been many studies carried out and more planned to be carried out in partnership with Türkiye. After Türkiye became involved in the OBOR project, it also included some of the existing studies in OBOR. It also plans to integrate new projects in order to make better use of the Middle Corridor route. The main ones are (Yılmaz, 2019):

- The Ankara-Istanbul high-speed train line, which started in 2005 and was completed in 2014,
- The Baku-Tbilisi-Kars Railway (BTK),
- Marmaray,
- The Yavuz Sultan Selim Bridge,
- The Eurasia Tunnel,
- Istanbul Airport,
- Osmangazi Bridge,
- The 1915 Çanakkale Bridge.

Türkiye's Geopolitical, Geostrategic, and Ecostrategic Importance

TASAM-Turkish Center for Asian Strategic Studies states that Türkiye is an important country in terms of geopolitical, geostrategic, and ecostrategic aspects (Tasam, 2022). According to this:

- Türkiye is a world state that ranks 16th among 185 world countries in terms of population, 32nd in terms of land size, and among the top 20 in terms of economic power.
- Türkiye is located in the Middle East and the Caspian Basin, which has the most important oil reserves in the world,
- Türkiye is also located in the Mediterranean, where important sea routes cross,
- Türkiye is located in the centre of the Black Sea Basin and the Turkish Straits, which have always maintained their importance throughout history.
- Türkiye is in an effective position in the Balkans, which underwent structural changes due to the disintegration of USSR and Yugoslavia,
- Türkiye is also located in the centre of the Caucasus, which is rich in mineral resources, and furthermore in Central Asia, where there are, unfortunately, ethnic conflicts,
- Ethnic conflicts aside, it is in an effective position in the middle of the geography formed by the Caucasus, which has rich natural resources, and beyond that in Central Asia.

Türkiye, which connects three continents and has a very important geostrategic location, is simultaneously a European, Balkan, Caucasian, Middle Eastern, Mediterranean, and Black Sea country. In this context, Türkiye is a Eurasian country. Other features that reinforce Türkiye's geostrategic importance are:

- As a country that is democratic, secular, has a social state of law, and has accepted a market economy, it implements western systems and has adopted integration with all western institutions,
- Its historical-cultural unity and the fact that it has developed positive relations with the Balkans, Middle East, Caucasus, and Central Asian countries, which have witnessed great changes since the 1990s,
- It includes one of the most important routes destined for the transportation of oil and natural gas from the Caucasus and Central Asia to the West,
- Türkiye plays the role of a natural bridge for Caspian and Central Asian natural resources to reach the west. 70% of the world's natural

energy resources are clustered around Türkiye. The Baku-Ceyhan project, which envisages the transport of Caspian oil to the west and has received great support from the international community, offers the most stable and safe environment in terms of oil transportation routes and carries the least risk in terms of environmental protection,

- Considering the exploitation of the rich natural resources in the region and their transportation to the west as a golden opportunity to increase regional cooperation and prosperity, Türkiye supports the use of multiple lines to transfer these resources to world markets and demonstrates its political will in this direction.

Globalisation and Logistics

Globalisation is a process that transcends the borders of capital, goods, services, cultural assets, scientific and technological possibilities, as well as being a process that can never predict today what kind of results it will have in the areas it affects and how it will be affected by the results that will arise or suggest a collection of processes (Aydın, 2002).

There is no universally accepted nor widely used definition of globalisation. Globalisation has economic, social, political, legal, cultural, and environmental dimensions. Scientists make a series of definitions and descriptions of the concept of globalisation by prioritising the elements that fall within their field of expertise regarding these fields.

The phenomenon of globalisation, which has emerged as a result of developments in the field of communication and transportation, foresees the free movement of goods and services all over the world. Today, many business transactions can be done electronically. However, an alternative solution has not yet been found for the physical transportation of products from one place to another. In other words, transportation maintains its importance to an increasing degree. Countries continue their search for sustainable and efficient logistics. In this context, the concept of a logistics base and its applications have become important in recent years.

Logistics is a tool for providing resources such as products, services, and people when and where they are needed. It is very difficult for any marketing or production organisation to succeed without logistical support (Ahi, 2015).

The economic growth in Russia and Asian countries, especially China and India's development, creates new opportunities for the transportation and logistics sector. The sustainable transportation system, which aims to reduce the economic, social, and environmental costs created by the said growth, supports the development of logistics systems and the

development of intermodal transportation by creating new opportunities in logistics (Zeynep, 2007).

With the effect of globalisation, the intensity of competition between companies and countries is getting tougher day by day. Organisations can have the power to compete; it depends on the extent to which they adapt to the rapid development experienced economically, socially, and technologically. Today, competitive conditions force providers of goods and services to achieve the fastest delivery and highest quality. Therefore, customers and companies position themselves according to the quality of the products they buy and how quickly they can receive them. As a matter of fact, logistics is one of the elements that enable customers to have products quickly and safely. This situation causes logistics to be seen among the activities that will create a competitive advantage in terms of businesses and is considered a process that needs to be constantly improved (Pınar et al., 2020).

The globalisation of the economy, together with a consumer-oriented economy, internet-based information systems, the substantial reductions in trade barriers, tariffs, and transportation costs, and the European Traffic Policy have all increased the amount of goods flow to be moved around the globe. This has generated growing demand for transport and logistics activities, which, since the 1950s, have changed greatly in order to respond to customers' needs (Mariotti, 2015).

The Concept of a Logistics Base/Centre and Logistics Bases in the World

According to the definition made by the European Association of Freight Villages (Europlatforms), a "Logistics Center"; is an area where operations related to transportation, logistics, and distribution of cargo are carried out by different companies/operators for both national and international transit (Ahi, 2015).

The effects of transformation and new formations in world trade with globalisation are also seen in the logistics sector. In this context, the importance of the logistics industry and logistics activities are increasing day by day. Today, the concept of logistics has become known with concepts such as resource planning, globalisation, supply chain management, and optimisation. With the globalising world trade and the new economic understanding, logistics activities have attained a different structure. The aforementioned differences encountered in the sector and practices have been reflected in the types and operations of logistics, and the necessity of performing these operations at the lowest possible cost, quickly, with

high quality, in a manner that benefits from the economies of scale and integrated with each other, has led to the formation of logistics villages in a sense. Since customs operations are different in each country, different names such as "Logistics Base", "Transport Center", "Logistical Park", and "Logistics Center" are used for logistics villages in different countries (Örs et al., 2016).

The term "logistics centre" was first used in the development of industry in the United States. In Japan, this concept is also known to be used for activities such as avoiding traffic congestion, reducing energy and labour costs, and the reduction of environmental costs. The first examples of this practise, subsequently seen in Western Europe, emerged in France (Paris region; Garanor and Sogoris-Rungis). In the United States, the concept of a logistics centre/logistics base is called an inland port. Here, logistics-centre structuring has been implemented for two purposes: revitalising old industrial areas that have not grown much and establishing formations called "unit development", planned for freight purposes. Specially planned and established areas for carrying out logistics activities are called logistics centres. A logistics centre is a region where all logistics activities related to commercial national and international transportation are carried out by different service providers. In Türkiye, this concept is expressed with terms such as "logistics village", "freight village", and "logistics base" (Şahin et al., 2015).

Table 1. Major Logistics Bases in Europe

Country	Number of Logistics Bases	Country	Number of Logistics Bases
Germany	35	Austria	5
Spain	33	Finland	5
France	26	Croatia	4
Italy	21	Luxembourg	4
Holland	15	Ireland	4
Czech Republic	11	Lithuania	3
Sweden	10	Estonia	3
United Kingdom	9	South Cyprus	3
Denmark	7	Greece	2
Belgium	7	Slovenia	2
Hungary	7	Latvia	2
Portugal	6	Malta	2
Poland	6	Romania	1
Slovakia	6	Bulgaria	1

Source: Europlatform, 2015.

On the one hand, the United States of America, which hosts the majority of logistics service providers, is one of the leading countries in this field. On the European continent, it is known that countries such as Germany and France are preferred globally for logistics activities. On the other hand, in addition to China, which has great power on a global scale, countries such as Japan and Singapore stand out as the countries of the Asian continent that have helped themselves to large slices of the logistics cake. It is also thought that Asian, Eastern Europe, and Middle Eastern countries will gain significant momentum in terms of logistics activities in the future, compared to the increasing costs of the Americas and Western European regions (Süzer, 2005).

On the other hand, the fact that 7 of the 10 busiest ports in the world are in China is a sign of China's important position both in global trade and the global supply chain (Utikad, 2020).

An Overview of Türkiye's Logistics Sector

Türkiye went through a reorganisation within the Ministry of Transport and Infrastructure at the beginning of 2020 in order to increase efficiency and productivity in the logistics sector. With this reorganisation, the general directorates regulating road, rail, and combined transport activities were combined, and the two general directorates regulating maritime transport activities were merged.

All types of sea, rail, road, and air transportation and combined transportation can be used in transportation activities carried to all parts of the world, including those European, Middle Eastern, and Asian countries that are geographically close to Türkiye. Located on historically important trade and transportation corridors, where three continents converge, Türkiye's convenient location for transportation activities allows the use of different transportation modes and diverse transportation routes in the country's imports and exports. Recent investments in the improvement of logistics infrastructure include Istanbul Airport, Yavuz Sultan Selim Bridge, Marmaray, ports, logistics centres, the Baku-Tbilisi-Kars Railway Line, etc., stand out. When the public investments made in the last 5 years are examined, it is clear that the Transportation and Communications sector had the largest share of the total investment plan in 2020. According to the 2020 Investment Program, approximately one-third of the total investments were allocated for use in projects in the Transport and Communications sector (Utikad, 2020).

Considering the value of the goods transported to the types of transportation in Türkiye in terms of the last 10-year period, we can see that

maritime transport has had the largest share in terms of both imports and exports. In this context, road transport ranks second, air transport ranks third, and rail transport ranks fourth.

Rail Freight

Railway transportation, which is one of the two types of transportation carried out over land, is a more environmentally friendly, safe, and economical type of transportation compared to road transportation. Türkiye has placed more importance on road transport in the last 70 years. For this reason, the share of railways in freight transport is quite low. The total rail network in the USA is 250,000 kilometres long and 80% of those lines are used for freight; China follows the USA with a 100,000-kilometre-long rail line, and by 2050, China's rail network is planned to exceed 270,000 kilometres; Russia's 85,000-kilometre-long railway network comes in third place. The current railway network in Türkiye is 12,803 kilometres (Utikad, 2020). The share of railways in freight transport in Türkiye is quite low.

However, in recent times, investments in this field have been focused on taking railway transportation to the forefront. There is an aim to increase the total railway line length to 17,527 kilometres in 2023, and to 23,627 kilometres between 2023 and 2035 (T.C. Ulaştırma ve Altyapı Bakanlığı, 2020). As can be seen, the aim is to double the railway networks over the next 10 years.

Türkiye's railway connections to the outside world include Kapıkule (Bulgaria), Uzunköprü (Greece), Canbaz (Georgia), Doğukapı (Armenia), Kapıköy (Iran), Islahiye, Nusaybin and Çobanbey (Syria) gates, whereas the Doğukapı, Islahiye, Nusaybin and Çobanbey gates are not currently in service (TCDD, 2022).

Türkiye's 13 ports in total have railway connections and these ports are: Haydarpaşa, Derince, İzmir, Bandırma, Mersin, Samsun, İskenderun, Tekirdağ, Zonguldak, Yılport, Evyap, DP World and Nemport (T.C. Ulaştırma ve Altyapı Bakanlığı, 2020).

With investments and projects such as the Baku-Tbilisi-Kars railway line, Marmaray Tube Pass, and the Yavuz Sultan Selim Bridge railway crossing being carried out in recent years, Türkiye's load share on international rail corridors could increase, and ports are being expanded with the development of intermodal transport as well as rail transport on the east-west axis, and highway connections could strengthen Türkiye's position in international rail freight.

Highway Transports

Located at a crossroads where Europe, Asia, and Africa approach each other, Türkiye is located on important corridors in terms of east-west axis transportation activities and therefore on international road routes. In addition to the east-west axis road movements, these corridors pass through Türkiye with the ports located in the Black Sea, the Mediterranean, and the Aegean Sea, as well as the integration of highways and maritime transport (Utikad, 2020).

Table 2. International Road Corridors

Name of Corridor	Length (km)
Trans-European North-South Motorway (TEM)	6,940
European Agreement for E-Roads Main Traffic Routes (UN/ECE/AGR)	9,353
Black Sea Economic Cooperation – BSEC (BSEC)	4,472
Economic Cooperation Organization – ECO (ECO)	9,914
Economic and Social Commission for Asia and the Pacific (UN/ESCAP)	5,268
Europe, Caucasus and Asia Transport Corridor (TRACECA)	11,582
Eurasian Road Links (EATL)	5,663
Trans Europe (TEN-T) Comprehensive Road Network	16,779
Trans Europe (TEN-T) Core Road Network	9,212

Source: T.C. Ministry of Transport and Infrastructure, Ulaşan ve Erişen Türkiye 2020, p. 197.

In international land transportation, Türkiye has land borders with Bulgaria (Kapikule, Hamzabeyli and Dereköy), Georgia (Sarp, Türkgözü and Aktaş), Iraq (Habur and Üzümlü), Iran (Gürbulak, Kapıköy and Esendere), Nahçıvan (Dilucu), Syria (border gates of Karkamış, Cilvegözü, Yayladağı, Nusaybin, Öncüpınar and Akçakale are located there), and Greece (Pazarkule and İpsala). Due to political and security reasons, Armenia and some Syrian road border crossings are not actually used (Utikad, 2020).

Air Freight

Air freight is generally used for the transportation of products with high unit prices. Air transport is also preferred for cargoes with high time sensitivity, especially technological products. Air transport has a significant impact on increasing the pace of global trade, as it enables long distances to be covered in a short time. Due to its geographical location,

Türkiye is only 4 hours' flying time from countries where a combined 1.59 billion people live, with a GDP of 39.3 trillion US dollars and a trading volume of 7.6 trillion US dollars. Although air transport has a relatively small share in Türkiye's foreign trade in terms of weight compared to the other three modes of transport, it ranks third after sea and road transport due to the value of the cargoes transported (DHMİ, 2019).

Turkish Airlines is the airline that flies to the most countries and destinations in the world; 116 cities in 43 countries in Europe; 60 cities in 39 countries in Africa; 35 and cities in 13 countries in the Middle East. It also flies to 19 cities in 9 countries in the USA, 39 cities in 22 countries in the Far East, and 50 cities domestically (Utikad, 2020).

Maritime Transportation

Maritime transport, which plays a leading and important role in the globalisation of trade, is generally preferred for the transportation of cargoes with large volumes, low unit price, and time sensitivity. Along with containerisation, maritime transport also contributes to the development of combined transport. Although Türkiye, which is a peninsula in terms of geography, is located at the crossroads of Europe, Asia, and Africa, there are areas of development, especially in terms of transit transportation activities, in front of maritime transportation, which has an important share in Türkiye's foreign trade. The fact that 84% of the cargoes transported all over the world were transported by sea in 2019 and that the volume of sea transport has increased by 20 times in the last half-century demonstrates the importance of global maritime transport (Utikad, 2020).

When compared with other types of transportation, this mode of transportation has the advantage of being 14 times less expensive compared to air transportation, 3.5 times less compared to rail transportation, and 7 times less than the rate of road transportation (Tübitak, 2021). In Türkiye, maritime freight transportation ranks first among other transportation types.

Logistics Bases in Türkiye

Transportation and communication investments directly or indirectly affect every aspect of life. The level of development and the development of countries is directly proportional to the robustness and sustainability of their transportation and communication infrastructures. With the performance put forward in recent years, human, load, and data mobility has increased significantly. This increasing mobility has led to an increase

in logistic needs. As the logistic needs increase, it creates the need for more digitalisation. For this reason, it is imperative to implement more environmentally friendly, technological, and innovative projects. The motto determined for Türkiye's 2035 and 2053 vision is "Maximum digitalization in every field, healthy and comfortable mobility, logistics base Türkiye" (Tübitak, 2021).

In many sectors, from production to consumption, energy is the most important input. If we include the Russian Federation, 70% of the world's energy resources are located around Türkiye. Türkiye's proximity to energy sources is a great advantage for the logistics industry. Indeed, it is clear that Türkiye plays an important role in transporting energy supplies to other countries and will take on an even bigger role in the future.

The disruption of the supply chain has allowed global corporations to turn to Türkiye. Factors such as its strategic location, investment climate, manufacturing infrastructure, and skilled workforce offer attractive opportunities to companies. Supply chain disruptions that recently sent inflation in Europe to its highest level in 13 years and led to production disruptions in the U.S. and China, prompted global companies to look to Türkiye. Türkiye, which has attracted significant interest from European investors due to recent global increases in shipping prices, stands out for its geographic location, transportation network, demographic structure, and the amenities it offers investors. The exponential increase in long-distance transportation costs along with the epidemic turns Türkiye, which offers location and cost advantages for many foreign international companies, into an attractive investment and production centre (Sabah, 2021).

With globalisation, the products transported are increasing in volume. Existing transportation and logistics services, on the other hand, are in intense need of non-renewable energy. Therefore, the development of logistics systems becomes important. The development of intermodal transportation is a necessity in terms of the efficiency of logistics systems. The basis of the European Union's common transportation policy is the intermodal transportation system. This model is based on using various modes of transportation together. Logistics bases are needed in intermodal transportation. In this model, logistics bases are almost a necessity. Products are collected at these logistics bases and transferred to transportation types such as road, rail, sea, and air. Logistics bases have a very important function in the world in terms of transportation. In recent years, the importance of logistics bases in Türkiye has been realised and intensive efforts have been made in this regard.

TCDD (Turkish Republic State Railways) has undertaken the planning and implementation mission of the logistics base project in Türkiye. TCDD initiated the project of establishing logistics centres in order to develop transportation routes in combined transportation and to establish an effective connection between transportation modes, in order to carry out activities such as storage, maintenance/repair, loading/unloading, and handling in a more economical way. In order to increase Türkiye's competitiveness and to make Türkiye the logistics base of its region, the construction of logistics centres in 25 different locations has been planned. When all of the logistics centres that will turn Türkiye into the logistics base of the region are put into service, the Turkish logistics industry will gain an additional transportation facility of 75.2 million tons, with an approximately 19.9 million m2 open area, stock area, container stock, and handling area.

The locations where the logistics centres that are established, are being established and are in the planning stage in Türkiye are shown on the map below. According to this, it is envisaged that a total of 23 logistics base centres will be put into service, 12 of which are currently in operation, 3 of which are under construction, 3 of whose projects have been completed, and 5 of which are in the survey and planning phase (TCDD, 2022).

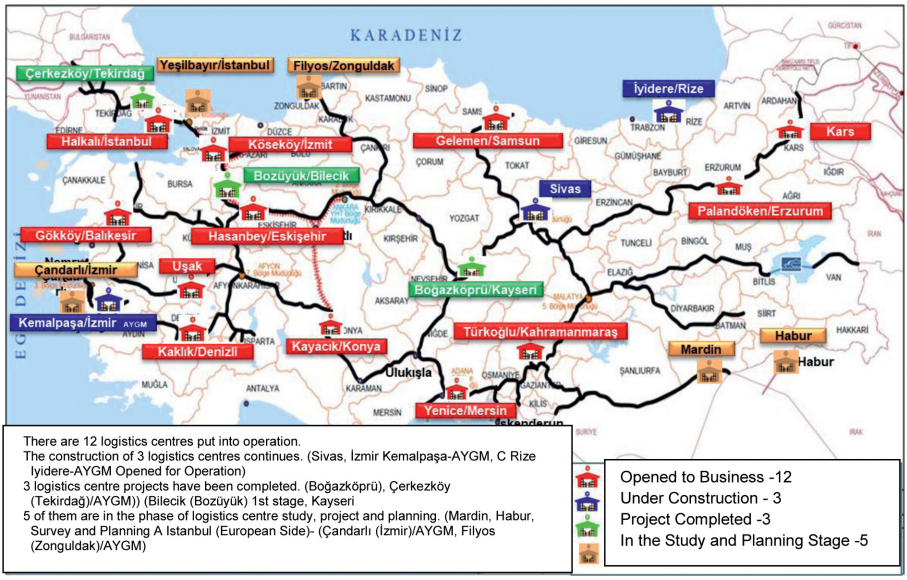

Figure 3. Logistics Centres Envisioned to be Built in Türkiye
Source: TCDD, https://www.tcdd.gov.tr/kurumsal/lojistik-merkezler.

The Logistics Capabilities of Countries by Level of Development

Logistics is a discipline that involves mental and behavioural change perfectly adaptable and applicable to all activities of daily living. The concept of logistics provides rules that allow management to follow, assess, prioritise, and control all the elements of supply and distribution that affect customer satisfaction, costs, and benefits (Song, Cheung, 2013).

Countries are evaluated in three categories in terms of logistics activities and standards. These are: developed countries, emerging countries, and third-world countries. Each of these countries has its own unique practices. It is possible to measure different levels of logistics achievement, despite differences in national accounting standards and practices. The Global Logistics Research Team at Michigan State University developed a model for firm-level logistical excellence and a set of standards by which to benchmark any firm's logistics performance. They measured strategies, organisational development, logistics performance, the use of information technology, and strategic alliances (Cateora et al., 1987).

However, it is much more difficult to measure a nation's logistics performance. Any firm's logistical performance will necessarily be limited by the political, social, and economic aspects of its national environment (Wood et al., 2002).

Countries have different standards of infrastructure and roads depending on their level of development. While developed countries have high standards of road and infrastructure, other countries have relatively lower road and infrastructure standards. This situation affects the logistics performance of both enterprises and the countries.

Business managers in developed countries want to benefit from the best logistics and transportation professionals, systems, and infrastructure in the world. In this context, they prefer advanced internet-based technologies, high capacity and standard road systems, broadband fibre-optic communication capabilities, uninterrupted multimodal transportation, modern port facilities, high-density air traffic control, and qualified staff. It may be possible to find such things in developed countries, but it is not possible to find many of these in underdeveloped countries.

A more informed perspective examines the differences among countries and evaluates each based on strengths and weaknesses, and the appropriateness of the logistical system to the business and cultural environment. Understanding different expectations for logistics performance may turn initial perceptions of inferiority into an appreciation for other ways of accomplishing logistics objectives (Wood et al., 2002).

A lack of transport infrastructures and regulatory barriers cause higher transport costs, negatively affecting economic development. This also brings with it delays that make supply chain management unreliable. A poor level of transport service can adversely affect the competitiveness and economic activity of regions and thus have a negative impact on regional added value, economic opportunities, and employment. Tools and measures are being developed to evaluate and compare the performance of national transport systems. The World Bank publishes the Logistics Performance Index, which ranks countries according to their logistics performance in certain periods (Notteboom et al., 2005).

The parameters used in the Logistics Performance Index are; timely delivery with customs, infrastructure, international shipments, the quality of services, tracking, and tracing.

Evaluation and Conclusions

Globalisation brings with it intense competition. In this intense competition, cost and time appear as important parameters for success. In other words, it is important that the products are produced at low cost and delivered to their target audiences in a short time. In order to achieve this, a conscientiously-planned logistics infrastructure is needed. The importance of this issue is now better understood thanks to COVID-19. In order to provide logistics services at the desired level and to provide an advantage, the geography, infrastructure, and technology investments made in that geography are important, as are other parameters.

MIT professor of economics Paul Krugman also emphasises the decisive role of geography, especially the distances between countries, on the efficiency and wealth of countries. From a geographical point of view, Türkiye is in a very important position connecting three continents. Türkiye, located in the westernmost part of the east and the easternmost of the west, is simultaneously a European, Asian, Balkan, Caucasian, Middle Eastern, Mediterranean and Black Sea country. In this respect, Türkiye is able to play the role of a natural bridge. Throughout history, Anatolia has been both a strategic bridge and a centre of production and consumption.

Today, it will be able to fulfil this function with the modern Silk Road project. During the Seljuks and Ottomans, while inns and caravanserais were built on the historical Silk Road route, other services such as a postal system and security were also established. Due to this feature of the Anatolian geography, all the states established in this geography became powerful.

Considering its position on the world map, Türkiye is a natural logistics base for transportation activities in the region. Commercial activities between Asia and Europe or between the east and west are mostly carried out through Türkiye. Türkiye can reach a population of 1.6 billion and half of the global market within a 4-hour flight.

From a strategic point of view; Türkiye is a world state that ranks 16th among 185 countries in terms of population, 32nd in terms of land size, and among the top 20 in terms of economic power. The Middle East and Caspian Basin, which has the world's most important oil reserves, the Mediterranean Basin, which is at the junction of important maritime transport routes, the Black Sea Basin and the Turkish Straits, which have always maintained their importance in history, play the role of a natural bridge for the natural resources of Türkiye, Caspian and Central Asia to reach the west. 70% of the world's natural energy resources are clustered around Türkiye. The Baku-Ceyhan project, which envisages the transport of Caspian oil to the west and has received great support from the international community, offers the most stable and safe environment in terms of oil transportation routes and carries the least risk in terms of environmental protection.

On the other hand, the "One Belt One Road Project", which we can call the Modern Silk Road, strengthens Türkiye's position in this context. Within the scope of this project, the 'Middle Corridor', which includes Türkiye, will have special importance. If the Middle Corridor is fully activated, the transportation transfer time between Türkiye and China will be reduced from 30 days to 10 days. In order to take advantage of this natural location, there is a need to develop transportation and communication infrastructure. Being aware of this need, Türkiye has made significant investments in all modes in the fields of transportation and communication infrastructure in the last 10 years.

Türkiye, which wants to take advantage of the OBOR project along with its geographical location on the one hand, and wants to become a big logistics base on the other, has made many investments in this context. Some of these are; the Ankara-Istanbul high-speed train line, which was started in 2005 and completed in 2014, the Baku-Tbilisi-Kars Railway (BTK), the Northern Marmara Highway and the Third Bosphorus Bridge, the Marmaray and Gebze-Halkalı Suburban Line, the Yavuz Sultan Selim Bridge, the Istanbul-İzmir Highway, the Eurasia Tunnel, Istanbul Airport, Osmangazi Bridge, and the 1915 Çanakkale Bridge, along with highway, tunnel and other infrastructure investments made throughout the country with the aim of developing transportation lines in the East-West and South-North directions.

In the last 10 years, Türkiye has focused on establishing logistics bases that started decades ago in countries such as the USA, Europe, and Japan, and has commissioned TCDD (Turkish Republic State Railways) so as to realise this mission. TCDD is an effective intermediary between the development of transportation routes and transportation modes in combined transportation and has initiated the project of establishing logistics centres in order to establish a connection, storage, maintenance/repair, loading/unloading, handling, etc. In this context, efforts to establish logistics centres in 25 different locations have been initiated in order to make Türkiye's region a logistics base. As can be seen from the map above, there are 23 logistics centres in Türkiye, of which 12 are in operation, 3 are under construction, 3 projects have just been completed and 5 are in the study and planning phase.

Considering the geography where Türkiye is located and the ancient history of this geography, the OBOR, which has come to the fore in recent years, and the 'Middle Corridor' in which Türkiye is included in this project, together with the infrastructure investments realised so far and the logistics centre construction works, is an important logistics base in Türkiye's region. It is clear that it has potential.

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