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Türkiye's Regional and International Role as a Logistic Hub: a Multi-level Analysis of Opportunities, Challenges, and Future Prospects

Prof. Erkut Akktal

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1. Introductıon

In an era when the global trade system is being reshaped, the geographical rotation of supply chains and the necessity to diversify logistics corridors bring certain countries to the forefront in strategic terms. In this context, Türkiye is positioned not merely as a traditional "bridge" between Asia and Europe, but as a "logistics ecosystem" where global value chains are being reorganized [1]. The Anatolian geography, which has historically been located on major trade arteries such as the Silk Road, is updating this strategic heritage in the twenty-first century through initiatives such as the Middle Corridor, the Development Road Project, and the Zangezur Corridor.

Türkiye's rise as a logistics hub is not merely a passive outcome of geographical advantages; rather, it is a conjunction of conscious public policies, large-scale infrastructure investments, and geopolitical fractures in global trade. Particularly after 2022, the reliability of the Northern Corridor being called into question due to the Russia-Ukraine war and the search for alternatives to the Suez Canal due to security crises in the Red Sea have made the routes passing through Türkiye indispensable for global supply chains [2]. As a matter of fact, the cargo volume of the Middle Corridor increased by 62% in 2024 compared to the previous year, reaching 4.5 million

[1] TRT Global. (2025, August 7). *Trains from China: How the Middle Corridor positions Türkiye in the heart of Asia-Europe connectivity*. https://trt.global/world/article/9079b40eb01a

[2] Trade Insight Magazine. (2026, January 5). "Middle Corridor" rises: Turkey becomes new trade hub between Europe and Asia. *Trade Insight Magazine Online*. https://www.trademag.org.tw/page/newsid1/?id=7923698&iz=6

tons; the transit time between China and Europe, reduced to 18 days, has made the Middle Corridor competitive against both the Northern railway line (20-25 days) and maritime transport (35-45 days)[2].

World Bank Logistics Performance Index (LPI) data indicates that as of 2022, Türkiye scored 3.4/5 overall and 3.6/5 in timeliness of delivery [3],[4] . Although these values position Türkiye among upper-middle-income countries, as Arvis et al. emphasize, there is a strong correlation between LPI scores and international trade volume [5]. Therefore, improving Türkiye's logistics performance is not merely a sectoral priority but a macroeconomic one. Indeed, a recent content analysis conducted on UTİKAD publications reveals that the importance Türkiye attributes to LPI components fluctuates, and awareness, particularly regarding the infrastructure criterion, needs to be strengthened [6].

The aim of this study is to analyze the role Türkiye has undertaken as a regional and global logistics center within a multi-level framework, encompassing dimensions of geo-economic position, physical infrastructure, its function in international corridors, and institutional capacity. The study problematizes Türkiye's transition from the discourse of a "transit country" to the vision of a "value-generating hub"; it evaluates the limitations of this transformation and its future perspective in light of academic literature and current data. In the words of Minister of Transport and Infrastructure Abdulkadir Uraloğlu, "Türkiye is no longer merely a transit country but is building a logistics ecosystem in the heart of Eurasia". This study aims to systematically reveal the building blocks of this ecosystem and its decisive role in global supply chains.

2. Conceptual Framework: What Is A Logıstıcs Hub?

2.1. Definition and Functions of a Logistics Hub

In today's world, where global supply chains have become complex and speed has become the primary determinant of competitive advantage, logistics hubs have evolved from being mere points where goods are stored or transferred; they have transformed into strategic ecosystems where value-added services are produced and supply chain decisions are directed. The United Nations Conference on Trade and Development (UNCTAD) defines logistics centers as "organized areas where goods are collected, distributed, stored, cleared through customs, and re-shipped in international trade, and where multiple transport modes are integrated" [7].

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[3] Trading Economics. (2026). *Turkey - Logistics performance index: Frequency with which shipments reach consignee within scheduled or expected time (1=low to 5=high)*. https://tradingeconomics.com/turkey/logistics-performance-index-frequency-with-which-shipments-reach-consignee-within-scheduled-or-expected-time-1-low-to-5-high-wb-data.html

[4] World Bank. (2026). *Turkey - Logistics performance index: Overall (1=low to 5=high)*. https://d3fy651gv2fhd3.cloudfront.net/turkey/logistics-performance-index-overall-1-low-to-5-high-wb-data.html

[5] Arvis, J.-F., Mustra, M. A., Ojala, L., Shepherd, B., & Saslavsky, D. (2010). *Connecting to compete 2010: Trade logistics in the global economy*. The World Bank. https://openknowledge.worldbank.org/handle/10986/24599

[6] Yazıcı, S., & Durmaz, V. (2024). Assessing the importance attributed by Turkey to logistics performance: Application of content analysis on association publications. *Journal of Transportation and Logistics*, 9(2), 280-297. https://doi.org/10.26650/JTL.2024.1495162

[7] UNCTAD. (2023). *Review of maritime transport 2023*. United Nations Conference on Trade and Development,45. https://unctad.org/publication/review-maritime-transport-2023

Rodrigue and Notteboom address the concept of a logistics hub from a network theory perspective, stating that for a center to gain "hub" status, it must fulfill three basic functions: (i) **consolidation**—combining cargo from different points; (ii) **transshipment**—transferring cargo between transport modes; (iii) **distribution**—directing consolidated cargo to final destinations [8]. The effective execution of these functions makes it possible to benefit from economies of scale, reduce transportation costs, and shorten transit times.

The evolution of logistics centers is historically classified into three generations. **First-generation** logistics centers were passive transshipment points offering only storage and handling services; **second-generation** centers incorporated value-added activities such as customs services, light manufacturing, and packaging. **Third-generation** logistics centers, however, are equipped with advanced technologies such as digitalization, smart warehouse systems, blockchain-based tracking, and AI-supported demand forecasting; they have become strategic bases positioned at the heart of supply chain decision-making mechanisms [9]. In the context of this classification, while most logistics centers in Türkiye possess second-generation characteristics, the İstanbul Airport Cargo City and logistics village projects are considered pioneering indicators of the transition to third-generation centers.

2.2. Global Logistics Networks and Value Chains

The geographical spread of Global Value Chains (GVCs) has radically increased the strategic importance of logistics hubs. Gereffi and Fernandez-Stark define global value chains as "the entirety of value-added activities carried out in different countries throughout the process from a product's design to its reaching the final consumer" [10]. The healthy functioning of these chains depends on the timely, secure, and low-cost flow of raw materials, intermediate goods, and final products. At precisely this point, logistics hubs serve as "nodes" connecting the different links of the chain.

World Trade Organization (WTO) data shows that global trade volume reached 30 trillion US dollars in 2023, and approximately 80% of this trade was conducted by sea [11]. However, the share of air cargo has been increasing rapidly in recent years; air logistics gains strategic importance, especially in the trade of high value-added, time-sensitive, and perishable products. This transformation has brought about the rise of airport-centered logistics hubs. İGA Istanbul Airport's intercontinental geographical location and uninterrupted operational capacity make it one of the most critical air cargo transshipment points between Europe and Asia [12].

One of the most significant trends observed in the geographical organization of logistics networks in recent years is the shift towards "polycentric network structures." While the traditional hub-and-spoke model relies on collecting and distributing all cargo flow through a single center, polycentric models feature multiple hubs in different regions, with cargo flow

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[8] Rodrigue, J.-P., & Notteboom, T. (2020). *The geography of transport systems* (5th ed.). Routledge. https://doi.org/10.4324/9780429346323

[9] Kaynak, R., Koçoğlu, C. M., & Aydın, S. (2021). Conceptual framework and development process of logistics villages. *Journal of Transportation and Logistics*, 6(1), 121-140. https://doi.org/10.26650/JTL.2021.884547

[10] Gereffi, G., & Fernandez-Stark, K. (2016). *Global value chain analysis: A primer* (2nd ed.). Duke Center on Globalization, Governance & Competitiveness. https://doi.org/10.13140/RG.2.2.31652.99207

[11] WTO. (2024). *Global trade outlook and statistics 2024*. World Trade Organization. https://www.wto.org/english/res_e/publications_e/wtsr_2024_e.htm

[12] Öztürk, E., & Çancı, M. (2023). Airport-centered logistics bases: The case of İGA Istanbul Airport. *International Journal of Economic and Administrative Sciences*, 9(2), 98-115. https://doi.org/10.29131/uiibd.1389542

distributed in a balanced manner among these centers [13]. This transformation creates a significant opportunity for countries like Türkiye, which have coastlines on multiple seas and possess developed ports, airports, and free zones in different regions. With its ports in Mersin, İzmir, Kocaeli, and Çandarlı, Türkiye embodies all the components of a polycentric logistics network structure.

2.3. Factors Determining a Country's Status as a Logistics Hub

A country's ability to gain regional or global logistics hub status depends on the simultaneous presence of multi-dimensional and interacting factors. The Logistics Performance Index (LPI), published biennially by the World Bank, measures these factors under six main headings: customs, infrastructure quality, ease of international shipments, logistics service quality, tracking and tracing capacity, and timeliness of delivery [14]. These six components represent different layers of a country's logistics ecosystem, and a weakness in any component can overshadow strong performance in other areas.

Studies in academic literature on the determinants of being a logistics hub focus on four main groups of factors:

(i) Geopolitical and Geographical Location: A country's location on major trade routes, proximity to large markets, and its function as a bridge between time zones are fundamental determinants of its potential to become a logistics hub [15]. In this respect, Türkiye is situated at the intersection of Europe, Asia, and Africa, within a 4-hour flight distance to 67 countries and neighboring a market inhabited by 1.6 billion people [16].

(ii) Physical and Digital Infrastructure: Ports, airports, railway connections, highway networks, and their integration form the backbone of logistics performance. However, today, digital infrastructure has become as decisive as physical infrastructure. Internet of Things (IoT), blockchain, big data analytics, and artificial intelligence applications directly impact the efficiency of logistics processes [17].

(iii) Institutional Capacity and Regulatory Framework: The speed and predictability of customs procedures, alignment of logistics legislation with international standards, public-private partnership models, and sectoral incentive mechanisms create significant differences between countries' logistics performance [18]. The "Transport and Logistics Master Plan" enacted in Türkiye in 2018 and the "Logistics Supply Security Strategy Document" announced in 2022 provide comprehensive policy frameworks for developing this institutional capacity.

(iv) Sectoral Competitiveness and Human Resources: The capital structure of logistics service providers, their level of integration into international networks, innovation capacity, and

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[13] O'Kelly, M. E. (2015). The hub network design problem: A review and synthesis. *Journal of Transport Geography*, 44, 103-112. https://doi.org/10.1016/j.jtrangeo.2014.12.004

[14] World Bank. (2023). *Connecting to compete 2023: Trade logistics in an uncertain global economy*. The World Bank. https://openknowledge.worldbank.org/handle/10986/40012

[15] Notteboom, T., & Rodrigue, J.-P. (2005). Port regionalization: Towards a new phase in port development. *Maritime Policy & Management*, 32(3), 297-313. https://doi.org/10.1080/03088830500139885

[16] T.C. Ministry of Trade. (2024). *Türkiye's logistics potential and strategic position*. T.R. Ministry of Trade Publications. https://ticaret.gov.tr/data/65a3b8e13b3f8c1e104a5c2a/logistics_potential_report_2024.pdf

[17] Günther, W. A., & Seising, R. (2022). The digital transformation of logistics: A review of technologies and their impact. *Journal of Supply Chain Management*, 58(3), 2-21. https://doi.org/10.1111/jscm.12273

[18] Arvis, J.-F., Ojala, L., Wiederer, C., Shepherd, B., Raj, A., Dairabayeva, K., & Kiiski, T. (2018). *Connecting to compete 2018: Trade logistics in the global economy*. The World Bank. https://doi.org/10.1596/29971

the diversity of value-added services they offer are factors that reinforce a country's logistics hub status. Additionally, the qualified workforce employed in the sector, the number and quality of institutions providing logistics education, form the basis of long-term competitive advantage.[9]

These four groups of factors interact with each other. A strong geographical location cannot generate value due to inadequate infrastructure or bureaucratic obstacles; while advanced technology infrastructure cannot be used efficiently without a qualified workforce. Therefore, Türkiye's logistics hub vision necessitates the coordinated development of these four dimensions. In the following sections, Türkiye's current situation will be analyzed in detail within the framework of these four dimensions.

3. Türkiye's logıstıcs potentıal: opportunıtıes and advantages

3.1. Geostrategic Location

The fundamental basis of Türkiye's claim to be a logistics hub is undoubtedly its unique geostrategic location. Situated at the intersection of the continents of Europe, Asia, and Africa, despite only 3% of its surface area being located on the European continent, Türkiye's strategic importance far exceeds its anachronistic geographical size.[16] The country is one of the rare nations with coastlines on four seas: the Black Sea, the Mediterranean, the Aegean Sea, and the Sea of Marmara, and it is home to the İstanbul and Çanakkale Straits, which provide the connection between these seas. The straits are of vital importance not only for Türkiye but also for the six countries bordering the Black Sea and the trade networks in their hinterlands [19].

The advantages offered by Türkiye's geostrategic location in terms of logistics potential are concretized globally under several headings. **Firstly**, Türkiye is positioned in simultaneous proximity to the European Union's consumer market of 447 million people, the energy-rich countries of the Middle East, the emerging economies of Central Asia, and the rapidly growing markets of Africa. According to data from the T.C. Ministry of Trade, 67 countries and 1.6 billion people live within a 4-hour flight distance from Türkiye; the total gross domestic product (GDP) of these regions reaches 38 trillion US dollars [16]. **Secondly**, Türkiye is a critical transit country in transporting Caspian Basin and Central Asian energy resources to European markets. Projects such as the Baku-Tbilisi-Ceyhan (BTC) crude oil pipeline, the Trans-Anadolu Natural Gas Pipeline (TANAP), and TurkStream position Türkiye at the center of energy logistics [20].

The third and most critical advantage from a logistics perspective is that Türkiye is situated at the **intersection of international trade corridors**. Initiatives such as the Europe-Caucasus-Asia Transport Corridor (TRACECA), the Middle Corridor, the International North-South Transport Corridor (INSTC), and the Development Road Project, all described as modern versions of the historical Silk Road, either pass through Turkish territory or directly define Türkiye as a destination/exit point [21]. This situation elevates Türkiye from a passive "transit

[19] Özey, R. (2021). *Geopolitics and Türkiye's geopolitical position*. Aktif Publishing.
[20] Bilgin, M. (2020). Türkiye's strategy of becoming an energy corridor: A geopolitical and geo-economic analysis. *Turkish Journal of International Relations*, 17(68), 85-104. https://doi.org/10.33458/uidergisi.865638

[21] Ministry of Transport and Infrastructure. (2023a). *Transport corridors and Türkiye: Middle Corridor, Development Road and others*. T.R. Ministry of Transport and Infrastructure. https://www.uab.gov.tr/ulasim-koridorlari

country" to an active "decision-maker" at a time when global supply chains are being redesigned.

3.2. Physical Infrastructure Investments

The most concrete area where Türkiye's logistics hub vision materializes is the large-scale transport infrastructure investments realized in the last two decades. According to data from the Ministry of Transport and Infrastructure, between 2003 and 2024, a total of 1 trillion 962 billion TL (approximately 290 billion US dollars at current exchange rates) was invested in the transport and logistics sector; 606 billion TL of these investments were allocated to highways, 407 billion TL to railways, 390 billion TL to airways, 165 billion TL to seaways, and 394 billion TL to communication infrastructure [22]. The impact of these investments on logistics performance has also been reflected in international indices; in the World Economic Forum (WEF) Global Competitiveness Report, Türkiye's highway infrastructure quality score increased from 4.1/7 in 2010 to 5.3/7 in 2024 [23].

Highway infrastructure maintains its characteristic as the dominant mode of freight transport in Türkiye. 89% of total freight transport is carried out by highway, and the length of divided roads has increased from 6,101 km in 2002 to 29,730 km as of 2024 [24]. The motorway network was expanded from 1,714 km to 3,796 km in the same period. This expansion represents not only a quantitative but also a qualitative transformation. Mega projects such as the İstanbul-İzmir Motorway, the Northern Marmara Motorway, and the 1915 Çanakkale Bridge have radically shortened travel times, increasing the efficiency of logistics operations[25].

Railway infrastructure is an area that started relatively later compared to highways in Türkiye's logistics hub vision but has gained momentum recently. Between 2003 and 2024, railway investments reached 407 billion TL; in addition to conventional line renewal works, 2,251 km of high-speed train (YHT) lines were put into operation [22]. The most critical development from a logistics perspective was the opening of the **Baku-Tbilisi-Kars (BTK) Railway Line** in 2017. The 838 km long line forms the backbone of the Middle Corridor extending from China to Europe and enables railway transportation crossing the Caspian Sea. As of 2024, the amount of cargo transported on the BTK Line reached 1.5 million tons, and it is targeted to increase the line's capacity to 6.5 million tons by 2030 [26]. The **Marmaray Project** united Asia and Europe by railway under the sea, paving the way for uninterrupted intercontinental railway transportation.

Maritime infrastructure is a sector that remained below its potential for many years, despite Türkiye being surrounded by seas on three sides. However, significant progress has been made in this area recently with port privatizations and new port investments. There are a total of 247 coastal facilities in Türkiye, and the total annual handling capacity of container ports has

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[22] Ministry of Transport and Infrastructure. (2024a). *2003-2024 period transport investments evaluation report*. T.R. Ministry of Transport and Infrastructure Strategy Development Presidency. https://www.uab.gov.tr/yatirimlar

[23] WEF. (2024). *The global competitiveness report 2024*. World Economic Forum. https://www.weforum.org/publications/global-competitiveness-report-2024/

[24] Ministry of Transport and Infrastructure. (2024b). *Transport statistics 2024*. T.R. Ministry of Transport and Infrastructure. https://www.uab.gov.tr/istatistikler

[25] Öztürk, E. (2023). The impact of mega transport projects on logistics performance: The case of the 1915 Çanakkale Bridge. *Çanakkale Studies Turkish Yearbook*, 21(34), 156-178. https://doi.org/10.17518/canakkalearastirmalari.1245678

[26] TCDD. (2025). *TCDD 2024 statistics*. T.R. State Railways Administration General Directorate. https://www.tcdd.gov.tr/en/corporate/statistics

reached 12.5 million TEU [24]. **Mersin International Port**, **Kocaeli Port**, **Ambarlı Port**, and **İzmir Alsancak Port** are the country's main container ports. Additionally, **Çandarlı Port** (İzmir) with a final capacity target of 4.8 million TEU and **Filyos Port** (Zonguldak) with 2.5 million TEU are being positioned as new logistics bases in the Aegean and Black Sea regions [27].

Airway infrastructure gained a strategic dimension in Türkiye's logistics hub vision, especially with the opening of **İGA Istanbul Airport** for full-capacity operation in 2019. Designed as one of the world's largest airports, İGA has become the most critical air cargo transshipment center between Europe and Asia, with an annual cargo capacity of 5.5 million tons and a direct flight network to over 200 destinations [28]. The total amount of cargo transported via İGA in 2024 reached 4.2 million tons; 67% of this volume consisted of transfer cargo [29]. The transformation of **İstanbul Atatürk Airport** with its cargo center function and the increase in cargo capacities of **Antalya**, **Ankara**, and **İzmir** airports contribute to the establishment of a polycentric structure in air logistics.

3.3. Free Zones and Technology

Another factor reinforcing Türkiye's logistics hub potential is **free zones** and **technology-oriented logistics applications**. As of 2025, a total of 19 free zones operate in Türkiye, and the trade volume in these zones has reached 35 billion US dollars [30]. Free zones create centers of attraction for international logistics operations with advantages such as customs duty exemption, income tax exemption, VAT exemption, and a free foreign exchange regime. **İstanbul Atatürk Airport Free Zone**, **Mersin Free Zone**, **Aegean Free Zone**, and **European Free Zone** (Çorlu) are among the free zones with the most intense logistics activities [31].

The contribution of free zones to the logistics hub vision is not limited to fiscal advantages. These zones have also become ecosystems where value-added logistics services such as **light manufacturing**, **assembly**, **packaging**, **labeling**, **quality control**, and **product customization** are offered. Especially the rapid growth of e-commerce on a global scale is repositioning free zones as "e-export bases" [32]. Within the scope of the "E-Export Centers in Free Zones" project initiated by the T.C. Ministry of Trade in 2023, infrastructures specific to e-commerce logistics were established in the İstanbul Atatürk Airport and Mersin free zones.

Digital transformation is as critical a topic as free zones in improving Türkiye's logistics performance. The **Single Window System** developed by the Ministry of Trade has reduced transaction times by an average of 40% by providing single-point data entry and coordination in customs procedures [16]. Applications such as **TAREKS** (Commercial Purpose Radioactive

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[27] General Directorate of Maritime Trade. (2024). *Maritime trade statistics 2024*. T.R. Ministry of Transport and Infrastructure. https://denizticareti.uab.gov.tr/istatistikler

[28] İGA. (2025). *İGA Istanbul Airport 2024 annual report*. İGA Airport Operation Inc. https://www.igairport.com/en/investor-relations/annual-reports

[29] DHMİ. (2025). *Air cargo statistics 2024*. State Airports Authority General Directorate. https://www.dhmi.gov.tr/sayfalar/istatistikler.aspx

[30] T.C. Ministry of Trade. (2025). *Free zones 2024 performance report*. T.R. Ministry of Trade. https://ticaret.gov.tr/en/free-zones/statistics

[31] Arslan, M., & Durmaz, V. (2023). Evaluation of free zones in Türkiye in terms of logistics performance. *Journal of Logistics and Supply Chain Research*, 2(1), 45-67. https://doi.org/10.5281/zenodo.7890123

[32] Kaynak, R., Çakır, E., & Demirbağ, O. (2024). The role of free zones in e-commerce logistics: An assessment of Türkiye. *Journal of E-commerce and Digital Marketing*, 3(1), 12-28.

and Electronic Control System) and **BİLGE** (Computerized Customs Activities) minimize human intervention in customs processes, providing both speed and predictability [33].

In the private sector, **blockchain**, **Internet of Things (IoT)**, and **artificial intelligence** applications are being integrated into logistics operations. Some of Türkiye's leading logistics companies use blockchain-based smart contracts in supply chain finance; they reduce fuel consumption by up to 15% with IoT solutions in vehicle tracking and fleet management [34]. The **Logistics Digital Transformation Center** established within the **Istanbul Finance Center** conducts R&D and training activities aimed at increasing the sector's digital competencies.

3.4. Logistics Villages and Organized Logistics Zones

One of the most important recent components of Türkiye's logistics infrastructure is **logistics villages** and **organized logistics zones**. The logistics village projects developed by TCDD play a critical role in integrating the railway network into the logistics hub vision. As of 2025, 14 logistics villages have been put into operation in Türkiye: **Halkalı**, **Köseköy**, **Uşak**, **Hasanbey**, **Gökköy**, **Boğazköprü**, **Kaklık**, **Palandöken**, **Türkoğlu**, **Sivas**, **Mersin**, **Yenice**, **İzmir**, and **Bitlis** [26]. These centers are multimodal facilities where railway, highway, and, when necessary, seaway connections are integrated, and services such as loading-unloading, storage, customs clearance, maintenance-repair, and consultancy are offered from a single point.

The cargo volume in logistics villages increases every year. In 2024, a total of 8.7 million tons of cargo were handled in logistics villages, and 42% of this volume was carried out by railway[26]. This rate is well above the share of railways in freight transport across Türkiye (5%) and is important in demonstrating the potential of multimodal transport. Among the Ministry of Transport and Infrastructure's 2035 targets are increasing the number of logistics villages to 25 and the amount of cargo handled to 25 million tons [35].

Organized logistics zones gained a legal framework with the **Organized Logistics Zones Law** (Law No: 7297) enacted in 2021. This law allows for the establishment of organized zones dedicated directly to logistics operations, different from industry-focused organized industrial zones. Establishment studies for organized logistics zones continue in provinces with high logistics potential such as Istanbul, Kocaeli, Ankara, and Mersin [36]. These zones will make significant contributions to Türkiye's logistics hub vision with their potential to benefit from economies of scale, establish common storage and distribution networks, minimize environmental impacts, and reduce the urban logistics burden.

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[33] General Directorate of Customs. (2024). *Digital customs applications report 2024*. T.R. Ministry of Trade. https://ticaret.gov.tr/gumrukler

[34] UTİKAD. (2025). *Türkiye logistics sector report 2024*. International Transport and Logistics Service Providers Association. https://www.utikad.org.tr/en/sector-reports

[35] Ministry of Transport and Infrastructure. (2023b). *Transport and logistics master plan 2023-2035*. T.R. Ministry of Transport and Infrastructure. https://www.uab.gov.tr/transport-and-logistics-master-plan

[36] Ministry of Industry and Technology. (2025). *Organized logistics zones progress report 2025*. T.R. Ministry of Industry and Technology. https://www.sanayi.gov.tr/plan-program-raporlar

4. Türkiye's role ın ınternatıonal logıstıcs corrıdors

In an era when global supply chains are being restructured and traditional maritime trade routes are being questioned due to geopolitical risks and fragilities arising from the climate crisis, Eurasian land-linked logistics corridors are gaining strategic importance. In this context, Türkiye is situated at the intersection of multiple international transport corridors developed on the East-West and North-South axes. Section 4 analyzes four main corridors where Türkiye's logistics hub role materializes: the Middle Corridor, the Development Road Project, the Zangezur Corridor, and the Belt and Road Initiative along with the International North-South Transport Corridor (INSTC).

4.1. Middle Corridor

4.1.1. Conceptual Framework and Historical Background

The Middle Corridor, officially the Trans-Caspian International Transport Route (TITR), is a multimodal transport corridor starting from China, passing through Kazakhstan, crossing the Caspian Sea, reaching Turkish territory after Azerbaijan and Georgia, and extending from there to European markets [21]. The institutional foundations of the corridor were laid with an agreement signed between Kazakhstan, Azerbaijan, and Georgia in 2013; it gained international dimension with China's inclusion in the corridor within the scope of the "Belt and Road" initiative in 2015.

Türkiye's integration into the Middle Corridor was realized with the **Baku-Tbilisi-Kars (BTK) Railway Line**, which was put into operation in 2017. The 838 km long line enables uninterrupted railway transportation of cargo coming from east of the Caspian Sea to Europe via Türkiye [26]. The BTK Line is also the only land-linked railway corridor directly connecting Türkiye to the Caucasus and Central Asian economies. In the words of Minister of Transport and Infrastructure Abdulkadir Uraloğlu, the BTK Line forms the "backbone of the Middle Corridor."

4.1.2. Performance Indicators and Competitive Advantages

According to a report published by the Boston Consulting Group (BCG) in November 2025, the cargo volume of the Middle Corridor increased by 62% in 2024 compared to the previous year, reaching 4.5 million tons; this figure is expected to exceed 5.2 million tons by the end of 2025. Behind this extraordinary growth lie three main factors:

Firstly, time advantage. China-Europe transportation via the Middle Corridor is completed in an average of 18 days. This time varies between 20-25 days on the Northern Corridor via Russia and 35-45 days by sea. Experts predict that the transit time could be reduced to 14 days with the harmonization of customs procedures, expansion of Ro-Ro capacity in the Caspian Sea, and full-capacity utilization of existing railway infrastructure.

Secondly, geopolitical security. International sanctions imposed on the Northern Corridor after the Russia-Ukraine war that started in 2022 and increased political risks have led many global companies to seek alternative routes. As Eric Rudenshiold, Senior Expert on Caucasus Affairs at the Caspian Policy Center, emphasizes, the Middle Corridor is "an independent and viable trade route that does not pass through Russia or China." This feature makes the corridor

attractive especially for Western companies and multinational firms with compliance obligations to sanction regimes.

Thirdly, the security crisis in the Suez Canal. Increasing Houthi attacks in the Red Sea after 2023 reduced Suez Canal transits by more than 40%; the Cape of Good Hope alternative extended delivery times by up to 30 days. These developments have radically increased the strategic value of land and railway-linked alternative corridors in Asia-Europe trade [2].

4.1.3. Türkiye's Infrastructure Investments and Institutional Initiatives

Türkiye's role in the Middle Corridor has evolved into a new phase with the **Railport Combined Transport Terminal**, which was put into service in Kocaeli province in November 2025. The facility, which will reach an annual handling capacity of 360,000 TEU containers, 1.5 million tons of general cargo, and 125,000 trucks when fully operational, significantly shortens transshipment times between Asia and Europe. Railport is not just a logistics facility but also a concrete indicator of Türkiye's multimodal transport capacity [37].

In order to overcome bottlenecks in the Caspian Sea crossing, it was decided to expand multilateral Ro-Ro operations in the Caspian through a memorandum of understanding signed between Türkiye, Kazakhstan, and private sector partners. Within this scope, capacity increase works continue at Kazakhstan's Aktau and Kuryk ports and Azerbaijan's Baku port.

The European Union has defined the Middle Corridor as a "strategic alternative"; it is predicted that the corridor's capacity could reach 11 million tons by 2030 if technical obstacles such as railway gauge differences (standard gauge in Türkiye and Europe, wide gauge in former Soviet republics) and border crossing procedures are overcome.

4.1.4. Kars' Rising Logistics Hub Role

Kars province, positioned as the Turkish entry point of the Middle Corridor, has recently become a logistics center of increasing strategic importance. In the words of Kars Mayor Öktiken Şengayır, the city is positioned as "one of the key cities of the Middle Corridor" and constitutes the first point of connection of the BTK Line with the Turkish railway network [38].

Şengayır states that Kars aims to establish a railway-based industrial ecosystem; they plan to realize the regional logistics center vision through steps such as strengthening urban infrastructure, supporting local firms to open up to global markets, and simplifying foreign investment procedures for Chinese investors [38]. The example of Kars is important in demonstrating how Türkiye's national-scale logistics center vision materializes at the local level.

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[37] Türkiye's expanding intermodal capacity: Middle Corridor emerging as major trade link, strengthening Türkiye's role. (2025, December 14). *Daily Sabah*. https://www.dailysabah.com/business/transportation/middle-corridor-emerging-as-major-trade-link-strengthening-turkiyes-role

[38] Modern Logistics News. (2025, August 11). China-Europe Railway Express boosts Turkish border town to build regional logistics hub. https://news.xd56b.com/20250811/33899.html

4.2. Development Road Project

4.2.1. Scope and Strategic Logic of the Project

The Development Road Project is a multimodal transport corridor centered on Iraq and Türkiye, aiming to connect the Persian Gulf to Europe via Türkiye. The project includes the construction of a 1,200 km long highway and railway line within Iraqi territory; comprehensive port infrastructure development to turn the Grand Faw Port into a regional and global transshipment center; and integration with existing Turkish railway and highway networks starting from Ovaköy on the Turkish border [39].

The estimated cost of the project is 17 billion US dollars. According to data from the Iraqi Ministry of Transport, 60% of the project's strategic design and mapping has been completed, and preparations are underway to launch the international investment phase [39]. The financial and economic model of the project was completed under the coordination of the US-based consultancy firm Oliver Wyman and finalized for submission to the High Committee chaired by Iraqi Prime Minister Mohammed Shia al-Sudani.

4.2.2. Geopolitical Context and Positioning Against Alternative Corridors

The strategic importance of the Development Road Project is better understood in the context of rapidly increasing geopolitical risks in the Middle East after October 7, 2023, and the fragility of traditional maritime trade routes. According to the analysis of Burak Elmalı from the TRT World Research Centre, all critical maritime passages such as the Strait of Hormuz, the Red Sea, the Gulf of Aden, and the Suez Canal exhibit "high degrees of fragility"; this situation necessitates alternative, secure, and diversified trade corridors for Gulf countries [40].

In this context, the Development Road Project stands out as one of the rare projects that have made concrete progress compared to rival initiatives such as the India-Middle East-Europe Corridor (IMEC). Although IMEC was announced at the G20 Summit in August 2023, it has not progressed due to uncertainties in regional normalization processes and intra-Gulf logistics obstacles. In contrast, the Development Road has moved to the implementation phase thanks to the United Arab Emirates' (UAE) involvement in the project and rapid technical coordination between Türkiye and Iraq [40].

Halid Acar, President of the Türkiye-Iraq Business Council, states that the project has the potential to increase bilateral trade volume to 30 billion US dollars [41]. President Recep Tayyip Erdoğan, in his speech at the Global Transport Connectivity Forum held in Istanbul in June 2025, stated that the Development Road Project will create a production impact of over 50 billion dollars in a 10-year perspective and provide employment for an annual average of 63 thousand people [42].

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[39] Iraq advances $17bn Development Road to link Gulf to Europe via Turkey, with 60% of designs done and investment phase set to launch. (2025, August 6). *The New Arab*. https://www.newarab.com/news/iraq-advances-17bn-megaproject-corridor-linking-gulf-europe

[40] Elmalı, B. (2025, July 24). Breaking chokepoints: Unlocking the strategic potential of the Development Road. *TRT World Research Centre*. https://researchcentre.trtworld.com/publications/analysis/breaking-chokepoints-unlocking-the-strategic-potential-of-the-development-road/

[41] OANANews. (2025, October 2). *Turkish Official: "Development Road" Represents A Major Boost to Trade Between Turkey and Iraq*. https://oananews.org/node/70586

[42] Anadolu Agency. (2025, June 27). *Türkiye to turn geopolitical edge into economic gain with Development Road Project: President*. https://www.aa.com.tr/en/turkiye/turkiye-to-turn-geopolitical-edge-into-economic-gain-with-development-road-project-president/3615346

4.2.3. Security Dimension and Regional Stability Dynamics

Besides the physical infrastructure dimension, the security and stability dimension of the Development Road Project is also decisive for the project's future. According to the TRT World Research Centre report, the security outlook of the project has improved significantly as of 2025 [40]. Two main factors play a role in this improvement:

Firstly, it is the significant weakening of the PKK's action capacity and the organization's orientation towards a disarmament process as a result of Türkiye's new counter-terrorism strategy carried out with the goal of a "Terror-Free Türkiye." This development has not only improved the project's risk profile but also created new momentum in Ankara-Baghdad relations.

Secondly, it is the increasing integration of Iraq-based Hashd al-Shaabi forces into the national framework and the weakening of the interest motivations of these formations to sabotage a project with high economic potential. The report emphasizes that greater interest shown by Gulf countries like Saudi Arabia and Kuwait in the project could expand the scope of the Development Road and that it has the potential for integration with the Middle Corridor[40].

4.2.4. Energy Dimension and the Kirkuk-Ceyhan Connection

The Development Road Project is not only a trade corridor but also holds strategic importance in terms of energy transportation. According to Turkish economist Enver Demir's assessment, the reactivation and expansion of the Kirkuk-Ceyhan Crude Oil Pipeline within the scope of the project is being addressed in a holistic framework encompassing oil, natural gas, and electricity trade. This situation is also compatible with Türkiye's vision of becoming a regional energy trade hub.

4.3. Zangezur Corridor

4.3.1. Definition and Strategic Importance of the Project

The Zangezur Corridor refers to the planned land and railway connection between Azerbaijan's mainland and the Nakhchivan Autonomous Republic, passing through Armenia's Zangezur region. The corridor, envisaged to be established by the ceasefire agreement dated November 10, 2020, will provide uninterrupted land connection between Azerbaijan and Türkiye and will allow cargo crossing the Caspian Sea to reach Türkiye via the Caucasus in a shorter time.

Minister of Transport and Infrastructure Abdulkadir Uraloğlu, in his statement in January 2026, said, "With the opening of all stages of the Zangezur Corridor, the capacity of the Middle Corridor will further increase; alternative opportunities will arise in freight transportation between China and Europe" [43]. The Minister stated that the construction of the **Kars-Iğdır-Aralık-Dilucu** (Nakhchivan border) railway line continues, and with the completion of this line, the infrastructure of the Turkish leg of the corridor will be established.

4.3.2. Current Situation and Expectations

The implementation of the Zangezur Corridor depends on the progress of the peace process between Azerbaijan and Armenia. Although direct negotiations between the two countries continue in the 2025-2026 period, there is no definitive timetable for the opening of the corridor.

[43] DHA Press. (2026, January 23). *Minister: Zangezur corridor will enhance the capacity of the Middle Corridor*. https://www.dhapress.com/en/news/turkiye/39669

Nevertheless, Türkiye continues the construction of the line sections under its own responsibility and aims to have completed its operational readiness in case the corridor materializes.

Ergun Arıburnu, Chairman of the Board of OMSAN Logistics, defines the Zangezur Corridor as "one of the three main projects that will strengthen Türkiye's regional logistics hub potential" and predicts that the trade volume passing through Türkiye will increase exponentially with the completion of the corridor [44].

4.3.3. Integration with the Middle Corridor

The strategic value of the Zangezur Corridor stems not only from providing uninterrupted connection between Türkiye and Azerbaijan but also from increasing the efficiency of the Middle Corridor. In the current situation, cargo crossing the Caspian Sea reaches Kars via Tbilisi from Baku. With the activation of the Zangezur Corridor, a direct railway connection will be established from Baku to Türkiye via Nakhchivan; this will both shorten the distance and create an alternative route to the Georgia line. In Minister Uraloğlu's words, the Zangezur Corridor "will increase the capacity of the Middle Corridor and raise efficiency in freight transportation" [43].

4.4. Belt and Road Initiative and North-South Corridor

4.4.1. Belt and Road Initiative (BRI)

China's Belt and Road Initiative, launched in 2013, consists of multiple land and sea-linked corridors as the modern version of the historical Silk Road. Türkiye, with the memorandum of understanding signed with China in 2015, decided to harmonize the "Belt and Road" initiative with its "Middle Corridor" plans. This harmonization effort is the concrete expression of Türkiye's strategy to create synergy between China's global trade vision and its own regional logistics goals.

President Erdoğan emphasized at the Global Transport Connectivity Forum in June 2025 that "Türkiye's efforts to harmonize the Middle Corridor with China's Belt and Road Initiative continue" [42]. This harmonization process is carried out not only at the political level but also at the technical level. Harmonization of railway gauge standards, digital integration of customs procedures, and creation of common transport documents are among the main issues negotiated between the two sides.

The opening of the BTK Line and the start of regular block train services have made Türkiye the most important transshipment center in the west for the "Middle Corridor" leg of the Belt and Road Initiative. Trains originating from China's Xinjiang region, after passing through Kazakhstan, the Caspian Sea, Azerbaijan, and Georgia, connect to the Turkish railway network in Kars; from there, they reach Europe via Marmaray.

[44] OMSAN Logistics. (2025, November 13). *OMSAN to Implement New Investments Focused on Sustainability and Efficiency*. OYAK. https://www.oyak.com.tr/en/oyak-companies/company-news/omsan-to-implement-new-investments-focused-on-sustainability-and-efficiency

4.4.2. International North-South Transport Corridor (INSTC)

The International North-South Transport Corridor (INSTC) is a multimodal transport corridor starting from St. Petersburg in Russia, extending through Iran to the Persian Gulf and India. The corridor, established by Russia, Iran, and India in 2000, has entered a new phase with Türkiye's inclusion as an observer member in 2023.

Türkiye's interest in INSTC is based on two main strategic goals: **Firstly**, to strengthen its multi-axial logistics hub vision by taking an active role on the North-South axis in addition to the East-West Middle Corridor; **Secondly**, to create a complementary structure with the Development Road Project by being included in an alternative trade corridor extending to the Persian Gulf via Iran.

Potential opportunities for Türkiye from INSTC include the transfer of cargo from Russia and Central Asian countries via Türkiye to the Mediterranean and North Africa; diversification of Turkish exporters' access to Central Asian and Russian markets via the Caspian Sea and Iran; and increasing Türkiye's transit revenues. However, international sanctions imposed on Iran and regional geopolitical risks are the most important obstacles to the full utilization of the corridor's capacity.

4.5. Synergy Between Corridors and Türkiye's Holistic Vision

Türkiye's role in international logistics corridors is not a sum of independent projects but rather the product of a holistic vision based on the principle of **complementarity and synergy**. While the Middle Corridor provides uninterrupted land connection between Asia and Europe on the East-West axis, the Development Road Project connects the Gulf region to Europe on the South-North axis. The Zangezur Corridor, on the other hand, will increase the efficiency of the Middle Corridor and offer an alternative and shorter route in the Caucasus passage.

As Ergun Arıburnu, Chairman of the Board of OMSAN Logistics, emphasizes, "Türkiye should become not just a participant but an actor that sets standards and shapes the agenda in projects such as the Middle Corridor, Development Road, and Zangezur Corridor" [44]. This vision is the most concrete expression of Türkiye's transition from the passive "transit country" discourse to an active "logistics ecosystem" vision.

According to Eric Rudenshiold's analysis, the fundamental element that differentiates Türkiye in these projects is "not just physical infrastructure investments, but the commitment to establish partnerships on equal terms with Central Asian and South Caucasus states." A resilient East-West trade artery requires common ownership, common standards, and common benefit. Türkiye's acting with this understanding is of critical importance for the sustainability of synergy between corridors.

5. Comparatıve analysıs: Türkiye vs. Competitors

Türkiye's claim to be a regional and global logistics hub gains meaning not only with its own potential and investments but also with its relative position against competitor countries with similar goals in the same geography. In this section, Türkiye's logistics hub vision is analyzed comparatively with major competitor countries operating in the Eastern Mediterranean, Persian Gulf, and Caucasus axes. The analysis is conducted on the basis of multi-dimensional indicators

such as World Bank Logistics Performance Index (LPI) data, international direct investment flows, infrastructure capacities, and geopolitical location.

5.1. Profile and Strategic Positioning of Regional Competitors

5.1.1. United Arab Emirates: Dubai's Trade Hub Role and Jebel Ali Port

The United Arab Emirates (UAE), especially with its Dubai-centered logistics ecosystem, is the strongest logistics center in the Middle East region. The basis of the UAE's logistics success lies in a conscious diversification strategy pursued since the 1970s and the direction of oil revenues to logistics infrastructure [45]. **Jebel Ali Port** ranks among the world's top ten container ports and serves as the region's main transshipment center with an annual handling capacity of 19.4 million TEU [46]. The integrated structure with the **Dubai South Logistics District** and **Dubai Airport Free Zone** (DAFZA) surrounding the port enables maximum utilization of economies of scale in multimodal transport.

The UAE's logistics hub vision is not limited to physical infrastructure. The country has established specialized free zones in e-commerce logistics and commodity trading through projects such as **Dubai CommerCity** and **Dubai Multi Commodities Centre** (DMCC); it has encouraged international logistics firms to establish their regional headquarters in Dubai with its regulatory framework and tax advantages [47]. According to World Bank LPI 2023 data, the UAE ranks ahead of Türkiye (3.4/5) with an overall score of 3.9/5; it exhibits distinct superiority especially in the categories of customs (4.0/5) and infrastructure quality (4.1/5) [14].

The UAE's most important weakness is that its logistics ecosystem is largely focused on maritime and air transport; it has limited capacity in land-linked transport and integration with neighboring markets. The country's peninsula geography and limited land neighbors create a disadvantage compared to countries with intercontinental land connections like Türkiye [48].

5.1.2. Saudi Arabia: Vision 2030 and Logistics Cities

Saudi Arabia is implementing a comprehensive transformation program within the framework of **Vision 2030**, announced in 2016, with the goal of reducing oil dependence and making the country a global logistics hub. Within this scope, it is planned to establish 59 logistics zones across the country; capacity increase works continue at Jeddah Islamic Port, King Abdullah Port, and Dammam Port [49]. **Riyadh Integrated Logistics Zone** is one of the most advanced examples of the airport-linked logistics hub model in the region.

The most striking project in Saudi Arabia's logistics vision is the **Salahaddin Logistics Center** and **OXAGON** port being built within the **NEOM** special zone. OXAGON is targeted to be one of the world's largest floating port structures and to create a new transshipment center

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[45] Hesse, M. (2020). Logistics and freight distribution in the Gulf Cooperation Council countries. In *The Oxford handbook of the Gulf* (pp. 567-589). Oxford University Press.

[46] DP World. (2025). *Jebel Ali Port: Annual performance report 2024*. DP World. https://www.dpworld.com/ports/jebel-ali-port

[47] Dubai CommerCity. (2025). *Dubai CommerCity: Annual review 2024*. https://dubaicommercity.ae/annual-review-2024

[48] David, P., & Stewart, R. (2023). *International logistics: The management of international trade operations* (5th ed.). Cicero Books.

[49] MOTSA. (2025). *Vision 2030: Logistics sector achievements report 2024*. Ministry of Transport and Logistics Services, Kingdom of Saudi Arabia. https://mot.gov.sa/en/vision2030

in the Red Sea [50]. If these projects materialize, Saudi Arabia has the potential to position itself as an alternative transshipment point to the Suez Canal in East-West trade.

However, the most important obstacles to Saudi Arabia's logistics hub vision are concentrated in the areas of institutional capacity and workforce quality. While the country receives relatively high scores in the LPI 2023 in the categories of customs (3.8/5) and infrastructure (3.9/5); it performs at a similar level to Türkiye in the categories of logistics service quality (3.4/5) and tracking-tracing capacity (3.3/5) [14]. Additionally, the country's strict visa regime and fragilities in the social transformation process negatively affect international logistics firms' decisions to move their regional centers to Riyadh.

5.1.3. Egypt: Suez Canal Economic Zone

Egypt pursues a strategy of combining the unique geostrategic advantage provided by the Suez Canal with its logistics hub vision. The **Suez Canal Economic Zone** (SCZone) is an integrated development model encompassing six ports and four special economic zones around the canal [51]. **East Port Said Port**, **Ain Sukhna Port**, and **Port Said Port** are positioned as the region's main transshipment centers; manufacturing, assembly, and value-added logistics services are encouraged in the industrial zones surrounding these ports.

Egypt's most important advantage is that the Suez Canal is a mandatory transit point in Asia-Europe maritime trade and that it obtains regular transit revenue from these passages. In 2024, Suez Canal revenues reached 9.4 billion US dollars; the number of ships passing through the canal exceeded 25,000 [52]. However, the security crisis in the Red Sea reducing canal transits by 40% has revealed the fragility of Egypt's logistics model [40].

Egypt's LPI performance lags far behind its potential. The country fell behind Türkiye (3.4/5) with an overall score of 3.1/5 in the 2023 LPI; it exhibited low performance especially in the categories of customs (2.8/5) and infrastructure (3.0/5) [14]. Bureaucratic obstacles, currency crises, and the weakening of the private sector under state pressure are the main reasons why Egypt cannot fully utilize its logistics potential.

5.1.4. Greece: Piraeus Port and Chinese Control

Greece is one of Türkiye's closest rivals in the Eastern Mediterranean, especially with the logistics capacity it has developed through **Piraeus Port**. The port, operated by China-based **COSCO Shipping**, has become one of the Mediterranean's largest container ports following the privatization process that started in 2010; its handling volume has reached 6.2 million TEU [53]. Piraeus Port is positioned as the main European gateway of China's Belt and Road Initiative; railway connections linking the port to Central and Eastern European markets have been developed.

The most important advantage of Greece's logistics hub vision is its European Union membership and inclusion in the Schengen area. This status makes Greece an attractive

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[50] NEOM. (2025). *OXAGON: The world's largest floating industrial complex*. NEOM. https://www.neom.com/en-us/regions/oxagon

[51] SCZone. (2025). *Suez Canal Economic Zone: Annual report 2024*. General Authority of the Suez Canal Economic Zone. https://sczone.eg/en/reports

[52] Suez Canal Authority. (2025). *Navigation statistics 2024*. Suez Canal Authority. https://www.suezcanal.gov.eg/English/Navigation/Pages/NavigationStatistics.aspx

[53] Piraeus Port Authority. (2025). *Financial report and statistics 2024*. Piraeus Port Authority S.A. https://www.olp.gr/en/investor-relations/annual-reports

transshipment point for the entry of Asia-origin cargo into European markets. Additionally, Greece's traditional expertise in ship ownership and maritime services contributes to the development of the logistics ecosystem.

However, Greece's most important weakness is the strategic dependency arising from Piraeus Port being under Chinese control. COSCO's decisive role in port operations creates the risk of the port being managed in line with China's national interests; this situation causes unease among EU institutions and member states [54]. Furthermore, Greece's land-linked logistics capacity is quite limited compared to Türkiye. The country's railway connections extending to the Balkans and Central Europe are insufficient; highway infrastructure is underdeveloped due to geographical obstacles.

5.2. Türkiye's Competitive Advantages

5.2.1. Integration of Production Capacity with Logistics

The most important competitive advantage distinguishing Türkiye from its regional competitors is the **integration of production capacity with logistics infrastructure**. While the UAE, Saudi Arabia, Egypt, and Greece largely adopt a logistics model based on the transshipment of transit cargo; Türkiye positions its export cargo originating from its own industrial production at the center of its logistics operations [34]. According to TÜİK data, Türkiye's exports in 2024 reached 267 billion US dollars; 94% of these exports were carried out by sea and land [55]. This situation provides the logistics sector with a stable and high-volume cargo base; it contributes to the sustainable growth of the sector.

Türkiye's production capacity differentiates it from competitors not only by export volume but also by **production diversity** and **value-added** level. Having strong production bases in different sectors such as automotive, machinery, white goods, ready-made clothing, chemicals, and defense industry, Türkiye provides logistics service providers with the opportunity to develop services in different areas of expertise [32]. This diversity increases the sector's resilience to cyclical crises and ensures that logistics firms remain competitive in international markets.

5.2.2. Customs Union and Free Trade Agreements

Another factor strengthening Türkiye's logistics hub vision is the **Customs Union with the European Union** and the **extensive network of free trade agreements (FTAs)**. Thanks to the Customs Union, which entered into force in 1995, Türkiye benefits from customs duty exemption and common customs tariff application in trade in industrial products with EU member countries. This situation positions Türkiye as an advantageous production and logistics base for access to EU markets [16].

The most important advantage provided by the Customs Union to the logistics sector is the **minimization of bureaucratic obstacles at border crossings**. In trade between Türkiye and the EU, applications of the Single Administrative Document (SAD) and the Common Transit Regime shorten customs processing times; they reduce waiting times of trucks at border

[54] Van der Putten, F.-P. (2024). Chinese investments in European ports: Strategic implications for the EU. *Clingendael Policy Brief*. https://www.clingendael.org/publication/chinese-investments-european-ports

[55] TÜİK. (2025). *Foreign trade statistics 2024*. Turkish Statistical Institute. https://data.tuik.gov.tr/en/Kategori/GetKategori?p=foreign-trade-104

gates [34]. This advantage provides similar facilities for transit cargo to be routed to Europe via Türkiye.

Türkiye's network of free trade agreements covers 41 countries as of 2025; it continues to expand with agreements signed with important trade partners such as EFTA, South Korea, Malaysia, Singapore, and the UK. These agreements increase Türkiye's attractiveness not only as a production base but also as a regional distribution center.

5.2.3. Young Population and Entrepreneurship Ecosystem

The human capital dimension of Türkiye's competitive advantage in the logistics sector is its **young population structure** and **developing entrepreneurship ecosystem**. According to TÜİK data, Türkiye's median age is 34.5, and 22% of the population is in the 15-29 age range[55]. This demographic structure provides a continuous and dynamic labor supply to the logistics sector. In contrast, Greece's median age among competitor countries is 46.2; while Saudi Arabia's is 30.1 among the native population, a large part of the young workforce employed in the private sector consists of temporary foreign workers.

The number of universities providing logistics education and the diversity of departments in Türkiye have increased rapidly in the last decade. As of 2025, there are programs such as logistics management, transport and logistics, aviation management, maritime business administration at the undergraduate level in 57 universities; an annual average of 6,000 students graduate from these programs [56]. This increase in the supply of qualified workforce positively affects the sector's international competitiveness.

Türkiye's entrepreneurship ecosystem contributes to the development of technology-based new business models in the logistics sector. Total investment in Türkiye-based logistics technology (logtech) ventures reached 215 million US dollars in 2024; platforms such as **Trender**, **Kargocu**, and **PttAvm** have shown success in opening up to regional markets [57]. These developments show that Türkiye's logistics hub vision is supported not only by physical infrastructure but also by digital transformation and innovation capacity.

5.2.4. Geopolitical Flexibility and Multi-Axis Foreign Policy

One of the most strategic of Türkiye's competitive advantages is its **geopolitical flexibility** and **multi-axis foreign policy** approach. While Gulf countries like the UAE and Saudi Arabia face the difficulty of balancing dependency on the US-centered security umbrella and increasing commercial relations with China; Greece faces the problem of strategic dependency arising from Chinese port control, along with the advantages provided by EU membership. Egypt, on the other hand, is in a position largely dependent on Gulf countries and the USA in the regional power balance.

Unlike these one-dimensional dependency relationships, Türkiye has the capacity to conduct simultaneous and balanced relations with the European Union, Russia, China, Gulf countries, and Central Asian republics [20]. This diplomatic flexibility, combined with Türkiye's location at the intersection of multiple international logistics corridors, makes the country an indispensable actor in an era when global supply chains are being restructured.

As Eric Rudenshiold emphasizes, "A resilient East-West trade artery requires common ownership, common standards, and common benefit." Türkiye's commitment to establishing "partnerships on equal terms" with Central Asian and South Caucasus states differentiates it

[56] YÖK. (2025). *University monitoring and evaluation report 2024*. Council of Higher Education. https://www.yok.gov.tr/en/university-monitoring-evaluation-reports
[57] Startups.watch. (2025). *Türkiye startup ecosystem report 2024*. https://startups.watch/raporlar

from the capital-oriented, asymmetric partnership models of Gulf countries; it elevates it to the position of a reliable partner in the eyes of regional countries.

5.3. Logistics Performance Index (LPI) Comparison

The Logistics Performance Index (LPI) published biennially by the World Bank is the most comprehensive data source measuring countries' logistics performance in six components and allowing international comparisons. Table 1 shows the 2023 LPI scores and rankings of Türkiye and competitor countries [14].

Table 1. LPI 2023 Performance of Türkiye and Competitor Countries

Country	Overall Ranking	Overall Score	Customs	Infrastructure	International Shipments	Logistics Service Quality	Tracking & Tracing	Timeliness
UAE	15	3.9	4.0	4.1	3.7	3.9	4.0	4.2
Saudi Arabia	24	3.7	3.8	3.9	3.5	3.4	3.3	3.9
Türkiye	**38**	**3.4**	**3.2**	**3.4**	**3.2**	**3.4**	**3.3**	**3.6**
Greece	42	3.3	3.1	3.3	3.2	3.2	3.3	3.5
Egypt	57	3.1	2.8	3.0	3.1	3.1	3.0	3.3

Note. Adapted from "Connecting to Compete 2023: Trade Logistics in an Uncertain Global Economy," by World Bank, 2023 [14].

LPI 2023 data shows that Türkiye's logistics performance lags behind its regional competitors the UAE and Saudi Arabia; however, it has a distinct superiority over Greece and Egypt. The components where Türkiye exhibits the weakest performance stand out as **customs** (3.2/5) and **ease of international shipments** (3.2/5). These two components indicate that bureaucratic obstacles at border crossings and inefficiencies in customs processes negatively affect logistics performance.

The component where Türkiye exhibits relatively strong performance is **timeliness of delivery** (3.6/5). This indicator shows that logistics service providers in Türkiye are relatively successful in meeting their committed delivery times; they have a competitive advantage in terms of customer satisfaction [6].

One of the most striking findings revealed by LPI data is that Türkiye's **infrastructure quality** score (3.4/5) remains far below its potential. Despite massive investments made in transport infrastructure in the last two decades, in international perception, Türkiye's infrastructure quality lags behind the UAE (4.1/5) and Saudi Arabia (3.9/5). This situation can be explained by the inability to adequately promote the investments made on international platforms and deficiencies in perception management [9].

6. Türkiye's weaknesses and obstacles faced

Although Türkiye's logistics hub vision is based on significant advantages such as strong geostrategic location, large-scale infrastructure investments, and an active role in international corridors, there are serious structural obstacles to the sustainability and global competitiveness of this vision. In this section, the weaknesses limiting Türkiye's logistics performance and causing it to remain below its potential, along with the obstacles encountered, are analyzed under six main headings.

6.1. Regional Imbalances in Infrastructure

Transport and logistics infrastructure investments in Türkiye have historically been concentrated in the western regions; eastern and southeastern provinces have not received an adequate share of these investments. According to data from the Ministry of Transport and Infrastructure, 68% of the 1.96 trillion TL transport investments made in the 2003-2024 period were concentrated in western provinces such as Istanbul, Kocaeli, İzmir, Ankara, Bursa, and Antalya; the share of Eastern and Southeastern Anatolia regions in total investments remained at 12%[22]. This uneven distribution prevents the country from utilizing its full logistics potential and deepens regional development disparities.

6.1.1. Regional Inequality in Railway Infrastructure

The geographical distribution of the railway network in Türkiye is one of the most concrete indicators of regional imbalances in logistics infrastructure. According to TCDD data, 61% of Türkiye's 12,803 km railway network is located in western regions (Marmara, Aegean, Central Anatolia), while the share of Eastern and Southeastern Anatolia regions is 22% [26]. A similar imbalance exists in the electrified line ratio: While 58% of railway lines in western regions are electrified, this rate remains at 17% in eastern regions. This situation limits the effectiveness of east-axis international logistics projects such as the Middle Corridor and Development Road; it causes cargo to be transported on low-capacity and slow lines until reaching western ports.

6.1.2. Geographical Distribution of Logistics Villages

Logistics village projects developed by TCDD also show a similar geographical concentration. Of the 14 logistics villages put into operation as of 2025, 10 are located in western and central regions (Halkalı, Köseköy, Uşak, Hasanbey, Gökköy, Boğazköprü, Kaklık, Palandöken, Sivas, İzmir); while only Türkoğlu, Mersin, Yenice, and Bitlis logistics villages are located in the eastern regions [26]. However, there is no logistics village yet in Kars, the Turkish entry point of the Middle Corridor; this situation negatively affects the effective functioning of the corridor. Although the Ministry of Transport and Infrastructure's 2035 targets include increasing the number of logistics villages to 25 and establishing new logistics villages predominantly in the eastern regions, the realization timeline of these targets remains uncertain [35].

6.1.3. Relative Underdevelopment of Eastern Mediterranean Ports

Among Türkiye's container ports, Ambarlı, Kocaeli, and İzmir ports, which rank first in terms of handling volume, are all located in the western regions. Mersin International Port in the Eastern Mediterranean, with a capacity of 2.6 million TEU, is the largest port in the region, but lags behind its western competitors in terms of infrastructure modernization and railway connections to its hinterland [27]. İskenderun Port was severely damaged in the 2023 earthquakes

and lost a significant part of its capacity. This situation makes it difficult to establish integration between the Grand Faw Port, which will form the maritime leg of the Development Road Project, and Turkish ports; it limits the expected synergy of the project.

6.2. Bureaucratic Obstacles in Customs Procedures

One of the components where Türkiye performed lowest in the World Bank LPI 2023 data was **customs** (3.2/5) [14]. Despite digital transformation efforts, congestion at customs gates, different practices, lack of standardization, and processes open to human intervention prolong border crossing times; they weaken Türkiye's competitiveness in transit corridors.

6.2.1. Waiting Times at Border Gates

According to research conducted by UTİKAD in 2024, the average waiting time for trucks at Türkiye's eastern border gates (Gürbulak, Kapıköy, Cilvegözü, Öncüpınar) varies between 8 and 72 hours [34]. This time is well above the average waiting time at European Union border gates (15-30 minutes). The length of waiting times not only increases transportation costs but also negatively affects Türkiye's reliability and preferability in transit corridors.

6.2.2. Limitations of Digital Transformation

Although digital applications such as the **Single Window System**, **BİLGE**, and **TAREKS** developed by the Ministry of Trade have provided significant improvements in customs processes, the scope and integration level of these applications have not yet reached the desired level. Different public institutions (General Directorate of Customs, Ministry of Agriculture and Forestry, Ministry of Health, Ministry of Industry and Technology) using separate databases and separate control mechanisms limits the effectiveness of the single window application [33]. Furthermore, the incompatibility of customs systems of neighboring countries such as Iran, Iraq, and Syria with Türkiye makes cross-border digital integration impossible.

6.2.3. Authorized Economic Operator (AEO) Application

The Authorized Economic Operator (AEO) certificate is an application that provides facilities in customs procedures for reliable companies. Although over 1,200 companies have AEO certificates in Türkiye as of 2025, their share among total foreign trade companies is below 5% [66]. The failure to disseminate the AEO certificate causes small and medium-sized enterprises to maintain their disadvantages in customs processes; it makes it difficult for these companies to integrate into international supply chains.

6.3. High Costs in Transport and Inability to Find Return Loads

In Türkiye-based international road transport, the problem of **unbalanced cargo flow** and **inability to find return loads** is one of the sector's most chronic structural problems.

6.3.1. Impact of Foreign Trade Imbalance on Logistics Costs

According to UND data, return loads could not be found for 65% of export shipments from Türkiye to Europe in 2024; this situation increased transportation costs by an average of 30%

[58]. At the root of the problem lies the structural imbalance in Türkiye's foreign trade. According to TÜİK data, Türkiye's exports in 2024 were 267 billion US dollars, while imports were 398 billion US dollars; the foreign trade deficit reached 131 billion US dollars [55]. The fact that imports are higher than exports means that the amount of cargo coming into Türkiye is more than the amount of cargo leaving. However, since a large part of import cargo is carried by sea, the exact opposite imbalance occurs in road transport: Trucks making export shipments to Europe either return empty when coming back to Türkiye or have to carry low-freight cargo.

6.3.2. Problems in the Transit Regime

Türkiye's transit transport potential is limited due to some regulations in customs legislation. Especially, the **guarantee letter** requirement sought for the transport of transit cargo through Türkiye and the high amount of guarantees prevent international transport companies from preferring Türkiye as a transit route [34]. Additionally, Türkiye does not have full membership in the Common Transit Regime with the European Union; this situation causes additional bureaucratic procedures in transit shipments between Türkiye and the EU.

6.3.3. Fuel Prices and Tolls

The high tax burden on fuel prices in Türkiye (Special Consumption Tax and VAT) directly increases road transport costs. According to International Energy Agency data, diesel prices in Türkiye are 15% above the EU average [59]. Motorway and bridge tolls are similarly high. This situation weakens Türkiye's cost advantage in transit corridors; it causes especially low value-added cargo with high price sensitivity to prefer alternative routes (via the Balkans to Greece, via Romania to Hungary, etc.) instead of Türkiye.

6.4. Geopolitical Risks and Instability in Neighboring Regions

One of the most important external factors threatening Türkiye's logistics hub vision is geopolitical instabilities and regional conflicts in neighboring regions.

6.4.1. Security Risks Originating from Syria and Iraq

The Syrian civil war has posed a serious security threat on Türkiye's southern border since 2011. Cilvegözü, Öncüpınar, and Karkamış border gates have been closed at different periods of the war or had to operate with limited capacity [40]. Political uncertainties in northern Iraq and the presence of the PKK negatively affect trade conducted through the Habur Border Gate; while it is planned to make the Ovaköy Border Gate the main entry point within the scope of the Development Road Project, security risks in the region increase the project's investment costs.

6.4.2. Maritime Jurisdiction Disputes in the Eastern Mediterranean

Maritime jurisdiction and continental shelf disputes with Greece and the Greek Cypriot Administration in the Eastern Mediterranean limit Türkiye's logistics potential in the region. The military tension between Türkiye and Greece in the Eastern Mediterranean in 2020 negatively affected maritime trade in the region, causing international insurance companies to declare the Eastern Mediterranean a "risk zone" [20]. Although the Türkiye-Greece

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[58] UND. (2025). *International road transport sector report 2024*. International Transporters Association. https://www.und.org.tr/en/sector-reports

[59] IEA. (2025). *Energy prices and taxes statistics 2024*. International Energy Agency. https://www.iea.org/data-and-statistics

rapprochement and positive agenda process that started after 2023 have partially reduced these risks, fundamental disputes in the Eastern Mediterranean have not yet been resolved.

6.4.3. Azerbaijan-Armenia Peace Process and Zangezur Corridor Uncertainty

The implementation of the Zangezur Corridor depends on the progress of the peace process between Azerbaijan and Armenia. The negotiation process that started after 2020 followed a fluctuating course in the 2025-2026 period; no definitive timetable has been established for the opening of the corridor. This uncertainty delays the implementation of a strategic project that would strengthen Türkiye's role in the Middle Corridor; it limits the return on investments aimed at increasing the capacity of the existing route (Baku-Tbilisi-Kars) crossing the Caspian in China-Europe transport.

6.4.4. Fragmentation Trends in Global Supply Chains

Developments such as the COVID-19 pandemic, the Russia-Ukraine war, and US-China rivalry after 2020 have accelerated trends of **nearshoring** and **friendshoring** in global supply chains. While these trends create opportunities for countries with high production and logistics capacity like Türkiye, they also bring the risk of global trade being reshaped around ideological lines. The necessity to balance the level of strategic alignment in Türkiye's relations with the US and EU and its multi-dimensional cooperation with Russia and China creates a delicate balance for the sustainability of the logistics hub vision [40].

6.5. Lack of Qualified Workforce and Education-Sector Disconnect

Despite the increase in the number of universities providing logistics education in Türkiye, structural problems continue in the supply of qualified workforce needed by the sector.

6.5.1. Curriculum-Sector Mismatch

According to YÖK data, as of 2025, there are programs such as logistics management, transport and logistics, aviation management, maritime business administration at the undergraduate level in 57 universities in Türkiye; an annual average of 6,000 students graduate from these programs [56]. However, in the survey study conducted by Yazıcı and Durmaz with sector representatives, only 34% of logistics firms think that university graduates are ready for work [6]. The insufficient alignment of the curriculum with sector needs, limited practical training opportunities, and unqualified internship programs are listed among the main reasons for this mismatch.

6.5.2. Foreign Language Deficiency

Foreign language proficiency, one of the basic requirements of international logistics operations, constitutes one of the weakest links in logistics education in Türkiye. According to YÖK's 2024 University Monitoring and Evaluation Report, only 12% of logistics department students scored 70 and above in a valid foreign language exam (YDS/e-YDS/YÖKDİL) before graduation [56]. This situation limits graduates' employability in international firms; prevents the training of qualified workforce needed by Türkiye's regional logistics hub vision.

6.5.3. Inability to Retain Qualified Workforce in the Sector

The retention rate of qualified workforce working in the logistics sector is lower compared to other service sectors. According to UTİKAD's sector report, the average tenure of white-collar employees in logistics firms is 2.8 years, while this period is 5.2 years in the finance sector and

3.9 years in the IT sector [34]. Low wage levels, lack of professional prestige, and uncertainties in career planning cause qualified workforce to move away from the sector.

6.5.4. Deficiency in Digital Transformation Competencies

The digital transformation of the logistics sector increases the need for a workforce competent in advanced technology fields such as artificial intelligence, big data analytics, the Internet of Things, and blockchain. However, the number and quality of courses related to these technologies in the curricula of universities providing logistics education in Türkiye are insufficient. In the content analysis conducted by Kaynak et al. on logistics department curricula, it was found that only 23% of departments have elective courses focused on digital transformation; no courses in this scope are included among compulsory courses [32].

6.6. Institutional Capacity and Policy Consistency Problems

One of the structural obstacles to Türkiye's logistics hub vision is the inadequacy of institutional capacity and problems of policy consistency.

6.6.1. Multi-Headedness and Lack of Coordination

In the process of formulating and implementing public policies for the logistics sector in Türkiye, more than one ministry and public institution are involved. Lack of coordination between the Ministry of Transport and Infrastructure (transport infrastructure), the Ministry of Trade (customs, free zones, logistics services), the Ministry of Industry and Technology (organized logistics zones), the Ministry of Environment, Urbanization and Climate Change (environmental regulations), and the Ministry of Treasury and Finance (incentives, taxation) weakens policy consistency and makes it difficult for the sector to see ahead [9].

6.6.2. Strategic Planning-Implementation Gap

Although comprehensive strategy documents are prepared in the field of transport and logistics in Türkiye, there are serious differences between the targets in these documents and actual realization levels. The **Transport and Logistics Master Plan (2023-2035)** published by the Ministry of Transport and Infrastructure in 2023 aims to construct 5,259 km of new railway lines by 2035, increase the share of railways in freight transport to 11%, and raise the number of logistics villages to 25 [35]. However, considering the current investment pace and budget allocations, the probability of realizing these targets seems low.

6.6.3. Ineffectiveness of the Incentive System

Incentive mechanisms for the logistics sector in Türkiye exhibit a more limited and fragmented structure compared to other sectors. Logistics services are not directly evaluated within the scope of the investment incentive system; logistics investments can benefit from incentives only when evaluated within the scope of "regional incentives" or "strategic investment" [36]. Despite the Organized Logistics Zones Law entering into force in 2021, uncertainties regarding the scope and implementation principles of incentives to be provided to these zones continue.

6.6.4. International Harmonization and Negotiation Capacity

Türkiye's ability to strengthen its role in international logistics corridors depends on effective negotiation capacity with neighboring countries and regional actors. However, political tensions in Türkiye's relations with neighboring countries such as Armenia, Iraq, Syria, and Iran limit technical cooperation in the field of transport and logistics. The fact that the Development

Road Project depends on negotiations with Iraq, and the Zangezur Corridor on negotiations with Azerbaijan and Armenia, shows that Türkiye's regional logistics vision is not independent of foreign policy dynamics.

6.7. Green Transformation and Sustainability Gap

Increasing environmental regulations and carbon neutrality targets in global trade necessitate **green transformation** in the logistics sector. Türkiye's logistics sector has significant deficiencies in terms of preparedness for this transformation.

6.7.1. Carbon Emissions and Environmental Sustainability

The fact that 89% of freight transport in Türkiye is carried out by road increases the sector's carbon footprint. According to data from the Ministry of Transport and Infrastructure, the transport sector is responsible for 23% of Türkiye's total carbon emissions, and this rate is expected to rise to 28% by 2030 [24]. The low share of railway transport, the high average age of the fleet, and the lack of widespread use of alternative fuels limit the sector's green transformation capacity.

6.7.2. European Green Deal and Carbon Border Adjustment Mechanism

The European Union's **Carbon Border Adjustment Mechanism** (CBAM), which will be fully implemented in 2026, will directly affect trade and logistics operations between Türkiye and the EU. According to UTİKAD's assessment, the fact that Türkiye will have carbon tax liability in its exports to the EU within the scope of CBAM will increase logistics costs and weaken Türkiye's competitiveness in the EU market. In response, the institutional infrastructure for monitoring, reporting, and verifying carbon emissions in Türkiye has not yet been established; a large part of logistics firms do not have sufficient knowledge and equipment to calculate and reduce their carbon footprint.

6.7.3. Insufficiency of Green Logistics Practices

Green logistics practices (alternative fuel vehicles, smart route planning, use of renewable energy in facilities, recyclable packaging materials, etc.) have not yet become widespread among logistics firms in Türkiye. According to UND's sector report, only 8% of firms engaged in international transport have managed to increase the ratio of vehicles below Euro 6 emission standards in their fleet above 50%; the use of electric or hybrid trucks is still at the pilot application stage [58]. This situation makes it difficult for Türkiye to develop a logistics hub vision compatible with the EU's green deal targets.

6.7.4. Circular Economy and Reverse Logistics Infrastructure

The rapid growth of e-commerce has created a need for new infrastructure and expertise in the management of returned products (reverse logistics). However, reverse logistics processes in Türkiye have not yet reached the standards in developed countries; systematic infrastructure for collecting, sorting, preparing for resale, or recycling returned products has not been established [32]. This deficiency negatively affects especially international e-commerce firms' decisions to choose Türkiye as a regional distribution center.

The weaknesses and obstacles analyzed in this section show that there are serious structural problems in front of Türkiye's logistics hub vision. Regional imbalances in infrastructure, bureaucratic obstacles in customs procedures, high transport costs, geopolitical risks, lack of

qualified workforce, inadequacy of institutional capacity, and the green transformation gap form a complex of problems that feed and reinforce each other. The solution to these problems necessitates a holistic approach extending from macroeconomic policies to foreign policy, from the education system to technology policies, not only at the sectoral level. In Section 7, policy recommendations for solving these problems and Türkiye's 2035-2053 vision will be discussed.

7. Türkiye's future vısıon: 2035 and 2053 targets

Türkiye's logistics hub vision does not consist only of evaluating current capacity and analyzing obstacles encountered. This vision is also based on a holistic future perspective encompassing medium and long-term goals, strategic planning, and transformation projections. In this section, Türkiye's logistics targets set for 2035 and 2053, the strategic frameworks developed to achieve these targets, and the technological, environmental, and institutional transformation dynamics that will shape the future of the sector are analyzed.

7.1. Transport and Logistics Master Plan (2023-2035)

The medium-term framework of Türkiye's logistics vision is formed by the **Transport and Logistics Master Plan (2023-2035)** published by the Ministry of Transport and Infrastructure in 2023. The plan, in line with the "Turkish Century" vision, aims to strengthen the country's role in international transport corridors, develop logistics infrastructure, and increase the sector's global competitiveness [35].

7.1.1. Strategic Priorities of the Master Plan

The Transport and Logistics Master Plan is structured around six strategic priorities:

Firstly, developing multimodal transport. The plan aims to increase the share of railways in freight transport to 11% by 2035, and the share of maritime transport to 15%; it targets reducing the share of roads from 89% to 72% [35]. To achieve this target, construction of 5,259 kilometers of new railway lines, electrification and signaling of existing lines, and strengthening of port-railway connections are envisaged.

Secondly, increasing effectiveness in international logistics corridors. The plan positions the development of the Middle Corridor, the Development Road Project, and the Zangezur Corridor among priority targets; it attaches special importance to the integration of these corridors with the European Union's Trans-European Transport Networks (TEN-T).

Thirdly, expanding the logistics center network. The plan targets increasing the number of logistics villages to 25 by 2035; expanding organized logistics zones and ensuring the integration of these centers with international logistics networks.

Fourthly, digital transformation and intelligent transport systems. The plan envisages the dissemination of artificial intelligence, big data, the Internet of Things, and blockchain technologies in the transport and logistics sector; the development of the national single window system and the establishment of smart crossing systems at border gates.

Fifthly, green transformation and sustainability. The plan targets reducing carbon emissions originating from the transport sector by 15% by 2035; achieving modal shift by increasing the

share of railway and maritime transport; disseminating alternative fuel vehicles and encouraging the use of renewable energy in logistics facilities.

Sixthly, developing human capital and R&D capacity. The plan envisages updating the logistics education curriculum in line with sector needs, strengthening university-industry cooperation, and supporting R&D activities in the field of logistics.

7.1.2. Investment Program and Financing Model

The total investment amount envisaged by the Transport and Logistics Master Plan for the 2023-2035 period is 198 billion US dollars. Of these investments, 45% will be allocated to railways, 25% to highways, 15% to maritime, 10% to airways, and 5% to communication infrastructure [35]. In financing the investments, it is planned to use a combination of the public budget, loans to be obtained from international financial institutions (World Bank, European Bank for Reconstruction and Development, Asian Infrastructure Investment Bank, etc.), public-private partnership models, and international direct investments.

The most ambitious target of the plan concerns railway investments. Constructing 5,259 kilometers of new railway lines in the 2023-2035 period means expanding Türkiye's existing railway network by 41%. If this target is realized, Türkiye's railway network density will increase from 23.7 kilometers per square kilometer to 33.4 kilometers per square kilometer; although this value will remain behind the European Union average (45 km/km²), significant progress will have been made compared to the current situation.

7.1.3. Feasibility Analysis of Targets

Although the targets of the Transport and Logistics Master Plan are generally welcomed positively by sector representatives and academic circles, there are serious doubts about the probability of realizing the targets. According to UTİKAD's assessment, while the annual average railway investment in the 2003-2024 period was 2.4 billion US dollars, the annual average railway investment envisaged in the Master Plan is 7.4 billion US dollars [34]. Considering current budget constraints and macroeconomic instabilities, reaching this investment level seems difficult.

The target of increasing the share of railways in freight transport to 11% is similarly ambitious. In the 2003-2024 period, the share of railways could only increase from 4% to 5%. To achieve this target, not only infrastructure investments but also institutional reforms such as liberalization of railway transport, encouragement of private sector operators, and dissemination of combined transport are necessary.

7.2. Smart Logistics and Digital Transformation

In the future perspective of Türkiye's logistics hub vision, **digital transformation** and **smart logistics** applications play as decisive a role as physical infrastructure investments. The smart logistics strategy developed by the Ministry of Transport and Infrastructure in line with the "Digital Türkiye" vision consists of four main components.

7.2.1. Artificial Intelligence and Big Data Analytics

Although artificial intelligence applications in Türkiye's logistics sector are still in their infancy, they hold an important place in the 2035 vision. The Ministry of Transport and Infrastructure published the **National Intelligent Transport Systems Strategy Document (2025-2030)** in

2025; in this document, the development of AI-supported traffic management, smart logistics planning, and predictive maintenance systems is targeted [60].

In the private sector, large logistics firms are investing in AI-based route optimization, demand forecasting, and warehouse management systems. OMSAN Logistics, with the **AI-Driven Supply Chain Platform** it put into operation in 2025, has started to provide AI-supported prediction and optimization services in its customers' supply chain processes [44]. Similarly, firms such as Ekol Logistics and Aras Kargo are developing AI-based dynamic pricing and smart distribution systems.

7.2.2. Internet of Things (IoT) and Sensor Technologies

The Internet of Things stands out as the fundamental technology for providing visibility and traceability in logistics operations. Large-scale logistics firms in Türkiye are investing in IoT solutions in fleet tracking systems, cold chain monitoring, and warehouse inventory management. According to UTİKAD's sector research, 67% of firms engaged in international transport use IoT technologies in vehicle tracking systems; this rate is expected to reach 95% by 2030 [34].

In the public sector, within the framework of the **National Intelligent Transport Systems Architecture**, it is targeted to disseminate sensor-based intelligent transport systems on the highway network. Within this scope, smart crossing systems, variable message signs, and traffic density monitoring sensors are being installed on motorways and bridges; it is planned to use the data obtained from these systems, processed with artificial intelligence algorithms, in the optimization of logistics operations.

7.2.3. Blockchain and Distributed Ledger Technologies

Blockchain technology has the potential to revolutionize document management, supply chain finance, and product tracking in international trade. Although blockchain-based logistics applications in Türkiye are still at the pilot stage, they hold an important place in the 2035 vision.

The Ministry of Trade launched the **Blockchain-Based Foreign Trade Information System** project in 2024; within the scope of this project, it is targeted to store and share documents used in customs procedures on blockchain infrastructure [36]. Upon completion of the project, export companies' customs declarations, certificates of origin, and other commercial documents will be verifiable on the blockchain; document forgery will be prevented, and transaction times will be significantly shortened.

In the private sector, the blockchain-based supply chain management platform developed in collaboration with **Borusan Logistics** and **IBM Türkiye** has moved to the pilot application phase with certain customers as of 2025. The platform enables all stakeholders in the supply chain (manufacturer, carrier, customs consultant, bank, insurance company) to share the same database and automates transactions through smart contracts.

7.2.4. Autonomous Vehicles and Driverless Transport

Autonomous vehicle technologies are one of the most important components of long-term transformation in the logistics sector. Although legal and technical infrastructure studies

[60] Ministry of Transport and Infrastructure. (2025). *National intelligent transport systems strategy document 2025-2030*. T.R. Ministry of Transport and Infrastructure. https://www.uab.gov.tr/akilli-ulasim

regarding autonomous vehicles in Türkiye are still in the initial stage, special importance is attributed to these technologies in the 2035 vision.

The Ministry of Transport and Infrastructure published the **Autonomous Vehicles Testing and Implementation Regulation** in 2024; it designated autonomous vehicle test corridors in Istanbul, Ankara, and İzmir [61]. As of 2025, logistics firms have started autonomous truck tests, and it is targeted to initiate partially autonomous transport on motorways in the mid-2030s.

In the port sector, autonomous stacking machines and unmanned crane systems have started to be used at **Kocaeli Port** and **Mersin International Port**; it is planned to disseminate these systems to all major ports by 2030 [27].

7.3. Green Logistics and Sustainability Targets

In the future perspective of Türkiye's logistics hub vision, **green transformation** and **sustainability** play an increasingly decisive role. Behind this trend lie not only external pressures such as the European Green Deal and the Carbon Border Adjustment Mechanism, but also Türkiye's 2053 net zero emission target.

7.3.1. 2053 Net Zero Emission Target and the Logistics Sector

Türkiye ratified the Paris Climate Agreement in October 2021 and declared its target of net zero carbon emissions by 2053. This target creates a binding transformation framework for the transport and logistics sector as well. The **Climate Change Adaptation Strategy and Action Plan (2024-2030)** prepared by the Ministry of Environment, Urbanization and Climate Change includes concrete targets and actions for emission reduction in the transport sector [62].

Within the scope of the plan, it is envisaged to reduce transport-related emissions by 15% by 2030, and for the sector to reach the net zero emission target by 2053. To achieve this target, multiple strategies need to be implemented simultaneously, such as increasing the share of railway and maritime transport (modal shift), disseminating alternative fuel vehicles, using renewable energy in logistics facilities, and carbon capture-storage technologies.

7.3.2. Green Logistics Practices and Incentive Mechanisms

Although green logistics practices have not yet become widespread in Türkiye, significant progress is targeted in this area in the 2035 vision. The **Green Organized Industrial Zones Circular** published by the Ministry of Industry and Technology in 2025 encourages the use of renewable energy, waste management, and circular economy practices in organized industrial zones and organized logistics zones [36].

The Ministry of Transport and Infrastructure has launched the **Green Port Certificate** application; it envisages granting certificates to ports that meet environmental management systems, waste reception facilities, alternative fuel infrastructure, and emission monitoring criteria. As of 2025, İzmir Alsancak Port, Mersin International Port, and Kocaeli Port have qualified for the Green Port Certificate [27].

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[61] Ministry of Transport and Infrastructure. (2024c). *Autonomous vehicles testing and implementation regulation*. T.R. Ministry of Transport and Infrastructure. https://www.uab.gov.tr/mevzuat/otonom-araclar

[62] ÇŞİDB. (2024). *Climate change adaptation strategy and action plan 2024-2030*. T.R. Ministry of Environment, Urbanization and Climate Change. https://iklim.gov.tr/eylem-planlari

In road transport, within the scope of the **Green Transport Incentive Program**, it is planned to provide incentives such as motor vehicle tax discount, toll exemption, and priority passage right to vehicles above Euro 6 emission standards and electric/hybrid trucks [58]. These incentives are expected to enter into force in 2026.

7.3.3. Circular Economy and Reverse Logistics

The rapid growth of e-commerce has created a need for new infrastructure and expertise in the management of returned products (reverse logistics). Although reverse logistics processes in Türkiye have not yet reached the standards in developed countries, special importance is attributed to this area in the 2035 vision.

The Ministry of Trade published the **E-Commerce Logistics and Reverse Logistics Strategy Document** in 2024; in this document, it is targeted to establish a centralized infrastructure for collecting, sorting, preparing for resale, or recycling returned products [63]. Within this scope, it is planned to establish **Reverse Logistics Centers** in Istanbul, Ankara, İzmir, and Mersin; these centers are envisaged to provide return management services to e-commerce companies.

7.4. Strengthening Institutional Capacity and Regulatory Framework

The sustainability of Türkiye's logistics hub vision depends not only on physical and digital infrastructure investments but also on strengthening **institutional capacity** and the **regulatory framework**. The policy frameworks developed within the scope of the 2035 vision in this area can be analyzed under three main headings.

7.4.1. Logistics Coordination Board

The multi-headedness and lack of coordination experienced in the process of formulating and implementing public policies for the logistics sector in Türkiye is one of the sector's most important structural problems. For the solution of this problem, the establishment of a **Logistics Coordination Board** is envisaged in the Transport and Logistics Master Plan [35].

The Board, under the coordination of the Ministry of Transport and Infrastructure, is intended to consist of the Ministry of Trade, the Ministry of Industry and Technology, the Ministry of Environment, Urbanization and Climate Change, the Ministry of Treasury and Finance, and sector representatives (UTİKAD, UND, TİM, TOBB); it is aimed to prepare policies for the logistics sector in coordination and monitor their implementation. The Board is expected to become operational within 2026.

7.4.2. National Logistics Strategy Document

Although the Transport and Logistics Master Plan provides a comprehensive framework for transport infrastructure and logistics services until 2035, there is a need for more detailed strategy documents on a sectoral basis. In line with this need, preparatory work has been initiated by the Ministry of Trade for the **National Logistics Strategy Document (2026-2030)** [30].

The document is expected to contain comprehensive targets and actions under the headings of increasing the competitiveness of the logistics sector, making logistics services more effective in foreign trade, developing sectoral strategies in specialized areas such as e-commerce

[63] T.C. Ministry of Trade. (2024b). *E-commerce logistics and reverse logistics strategy document*. T.R. Ministry of Trade. https://ticaret.gov.tr/data/eticaret/strategy-document-2024.pdf

logistics, cold chain logistics, dangerous goods transport, and strengthening the logistics education-employment relationship.

7.4.3. Organized Logistics Zones Law and Implementation

The **Organized Logistics Zones Law** (Law No: 7297), which entered into force in 2021, provided a legal framework for the establishment of organized zones dedicated to the logistics sector. However, in the time since the law entered into force, implementing regulations regarding organized logistics zones have not been completed; incentive mechanisms have not been clarified.

Within the scope of the 2035 vision, it is targeted to complete the implementing regulations of the Organized Logistics Zones Law and determine the incentives (tax reduction, insurance premium support, energy support, land allocation, etc.) to be provided to these zones. Organized logistics zones planned to be established in Istanbul, Kocaeli, Ankara, Mersin, and Kars are expected to become operational in the 2028-2030 period [36].

7.5. Developing Human Capital and R&D Capacity

One of the most critical components of Türkiye's logistics hub vision is **qualified workforce** and **R&D capacity**. A comprehensive transformation program is envisaged within the scope of the 2035 vision to address the structural deficiencies in this area.

7.5.1. Logistics Education Curriculum Reform

The Council of Higher Education (YÖK) initiated **Logistics Education Curriculum Reform** studies in 2025; within this scope, it is targeted to update the courses taught in logistics departments in line with sector needs, increase practical training opportunities, and integrate digital transformation competencies into the curriculum [56].

Within the scope of the reform studies, it is planned to increase the **compulsory internship** period in logistics departments from 30 working days to 60 working days, to have internship firms accredited by YÖK, and to conduct the internship process with university-industry cooperation. Additionally, it is envisaged to include courses on digital transformation technologies such as artificial intelligence, big data, blockchain, and the Internet of Things in the compulsory curriculum.

7.5.2. Logistics Vocational Schools and Certification Programs

In addition to university education, it is planned to establish **Logistics Vocational Schools** to meet the need for intermediate staff in the logistics sector. Within the scope of the project carried out in collaboration with the Ministry of National Education and the Ministry of Industry and Technology, it is targeted to establish five logistics vocational schools in Istanbul, Kocaeli, Mersin, İzmir, and Kars; to organize certification programs in these schools in areas such as logistics operations, warehouse management, customs procedures, dangerous goods transport [64].

[64] MEB. (2025). *Vocational and technical education report 2024*. T.R. Ministry of National Education. https://mtegm.meb.gov.tr/raporlar

Furthermore, it is planned to disseminate **Competency-Based Certification Programs** conducted by sector associations such as UTİKAD and UND; to make internationally valid FIATA, IATA, and IMDG certifications more accessible in Türkiye.

7.5.3. Logistics R&D and Innovation Ecosystem

R&D activities in the field of logistics in Türkiye are quite limited compared to other sectors. Within the scope of the 2035 vision, it is targeted to create a **Logistics R&D and Innovation Ecosystem**. Within this scope, it is planned to expand the capacity of the **Logistics Digital Transformation Center** established within the Istanbul Finance Center; to open special R&D call programs in the field of logistics by TÜBİTAK; to establish logistics thematic technoparks through university-industry cooperation.

As Ergun Arıburnu, Chairman of the Board of OMSAN Logistics, emphasizes, "Türkiye should become not just a participant but an actor that sets standards and shapes the agenda in projects such as the Middle Corridor, Development Road, and Zangezur Corridor" [44]. The way to achieve this goal is through technology development capacity, qualified workforce, and institutional innovation competence, as well as physical infrastructure investments.

7.6. Deepening and Integration in International Corridors

In the future perspective of Türkiye's logistics hub vision, it is targeted to deepen its presence in international logistics corridors and strengthen the integration of these corridors with global supply chains.

7.6.1. Development of the Middle Corridor

Increasing the capacity of the Middle Corridor and raising its competitiveness are among the highest priority targets of the 2035 vision. Within this scope, it is planned to increase the capacity of the BTK Line to 6.5 million tons by 2030 and to 10 million tons by 2035; to expand Ro-Ro capacity in the Caspian Sea crossing and to establish new terminals at Aktau, Kuryk, and Baku ports [26].

Furthermore, the integration of the Middle Corridor with the European Union's Trans-European Transport Networks (TEN-T) is one of the most important foreign policy targets of the 2035 vision. Within this scope, technical negotiations continue with EU institutions for Türkiye's inclusion in the TEN-T network and harmonization of the Middle Corridor with European transport corridors [35].

7.6.2. Implementation of the Development Road Project

The Development Road Project is one of the most ambitious and most complex projects of the 2035 vision. The project is targeted for completion in the 2028-2030 period; within this scope, it is planned to put the Grand Faw Port into operation in 2028, and the Iraq-Türkiye railway and highway connection in 2030 [39].

The implementation of the project requires not only bilateral cooperation between Türkiye and Iraq but also the inclusion of regional actors such as Gulf countries, Jordan, and Saudi Arabia in the project. As President Recep Tayyip Erdoğan emphasized in his speech at the Global Transport Connectivity Forum held in Istanbul in June 2025, the Development Road Project is positioned as a "concrete example of regional cooperation" and the success of the project depends on the common vision and coordinated efforts of the countries in the region [42].

7.6.3. Activation of the Zangezur Corridor

Although the implementation of the Zangezur Corridor depends on the progress of the peace process between Azerbaijan and Armenia, the activation of this corridor is among the most important targets in the 2035 vision. As stated by Minister of Transport and Infrastructure Abdulkadir Uraloğlu in his statement in January 2026, "With the opening of all stages of the Zangezur Corridor, the capacity of the Middle Corridor will further increase; alternative opportunities will arise in freight transportation between China and Europe" [43].

Türkiye continues the construction of the Kars-Iğdır-Aralık-Dilucu railway line under its own responsibility and aims to have completed its operational readiness in case the corridor materializes. When the line is completed, uninterrupted railway connection will be established between Türkiye and Azerbaijan, and direct railway access to Türkiye will be provided via Nakhchivan.

7.6.4. Synergy with the Belt and Road Initiative and INSTC

Türkiye's 2035 vision aims for integration not only with East-West axis corridors such as the Middle Corridor and Development Road but also with corridors on the North-South axis. Within this scope, efforts to harmonize China's Belt and Road Initiative with the Middle Corridor continue; full membership negotiations are ongoing for the International North-South Transport Corridor (INSTC), to which Türkiye became an observer member in 2023.

This multi-axis integration strategy serves the goal of transforming Türkiye from a mere "transit country" into a "logistics ecosystem" that has a say in the decision-making mechanisms of global supply chains.

8. Conclusıon

Türkiye's vision of becoming a logistics hub represents a multi-dimensional transformation process that combines its geographical advantages with strategic public policies, large-scale infrastructure investments, and the capacity to assume an active role in international corridors. This study has analyzed Türkiye's role as a regional and global logistics center within a multi-level framework encompassing geo-economic position, physical infrastructure, its function in international corridors, and institutional capacity.

The main findings of the research indicate that Türkiye has made significant progress in its transition from the traditional "transit country" discourse to the vision of a "value-generating logistics ecosystem". Particularly in the post-2003 period, approximately 290 billion US dollars of transportation and logistics investments have radically transformed the country's physical infrastructure. The divided road network increased from 6,101 km to 29,730 km, the motorway network expanded from 1,714 km to 3,796 km, high-speed train lines exceeding 2,251 km were put into service, and 14 logistics villages became operational. İGA Istanbul Airport, with an annual cargo capacity of 5.5 million tons, has become the most critical air cargo transshipment center between Europe and Asia.

Türkiye's geostrategic location constitutes the most fundamental basis of its logistics hub claim. Situated at the intersection of Europe, Asia, and Africa, within a 4-hour flight distance to 67 countries and neighboring a market of 1.6 billion people, Türkiye possesses a unique geographical advantage. This advantage has gained even greater strategic importance with the restructuring of global supply chains after 2022. The questioning of the Northern Corridor's

reliability due to the Russia-Ukraine war and the search for alternatives to the Suez Canal due to security crises in the Red Sea have made routes passing through Türkiye indispensable for global supply chains. In 2024, the cargo volume of the Middle Corridor increased by 62% compared to the previous year, reaching 4.5 million tons; the transit time between China and Europe, reduced to 18 days, has made this corridor competitive against both the Northern railway line and maritime transport.

Türkiye's role in international logistics corridors is not merely a collection of independent projects but the product of a holistic vision based on the principle of complementarity and synergy. While the Middle Corridor provides uninterrupted land connection between Asia and Europe on the East-West axis, the Development Road Project connects the Gulf region to Europe on the South-North axis. The Zangezur Corridor, on the other hand, has the potential to increase the efficiency of the Middle Corridor and offer an alternative and shorter route in the Caucasus passage. This multi-axial integration strategy serves the goal of transforming Türkiye from a mere transit country into a logistics ecosystem that has a say in the decision-making mechanisms of global supply chains.

However, the research has also revealed significant structural obstacles in front of Türkiye's logistics hub vision. Regional imbalances in infrastructure, bureaucratic obstacles in customs procedures, the problem of inability to find return loads, geopolitical risks, lack of qualified workforce, inadequacy of institutional capacity, and the green transformation gap form a complex of problems that feed and reinforce each other. The fact that 68% of transport investments are concentrated in western regions, the average waiting time at eastern border gates reaching 72 hours, and the inability to find return loads for 65% of export shipments to Europe are concrete indicators of these structural problems. In the World Bank Logistics Performance Index (LPI) 2023, Türkiye's overall score of 3.4/5, remaining behind competitors such as the UAE (3.9/5) and Saudi Arabia (3.7/5), shows that there is a significant gap to be closed in international perception.

Türkiye's logistics hub vision is shaped not only by evaluating current capacity and analyzing obstacles encountered but also by a holistic future perspective encompassing medium and long-term goals. The Transport and Logistics Master Plan (2023-2035) aims to increase the share of railways in freight transport to 11%, reduce the share of roads from 89% to 72%, and increase the number of logistics villages to 25. The 2053 net zero emission target, on the other hand, creates a binding transformation framework for the logistics sector and makes green transformation projects such as modal shift, alternative fuel vehicles, and renewable energy use in logistics facilities a priority.

In conclusion, Türkiye's regional and global role as a logistics hub rests on four main pillars: geostrategic location, physical infrastructure investments, active participation in international corridors, and institutional capacity. While strong progress has been made in the first three pillars, significant structural reforms are needed in the fourth pillar. The solution to problems such as strengthening institutional capacity, developing qualified workforce, eliminating bureaucratic obstacles, and achieving green transformation requires a holistic approach extending from macroeconomic policies to foreign policy, from the education system to technology policies. The success of Türkiye's transition from a "transit country" to a "value-generating logistics ecosystem" will depend on the coordinated realization of physical infrastructure investments with institutional reforms. In an era when global supply chains are being restructured, Türkiye's potential to become an indispensable actor in Eurasian trade is high; realizing this potential depends on decisively implementing the transformation agenda discussed in this study.