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Challenges of Developing the International Freight Transport Sector and Infrastructure in Germany

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Abstract:

This study investigates the transportation sector in Germany, recognizing the country's prominent position as a leader in freight and logistics within the European Union. The research aims to examine the key challenges facing the sector and the strategies implemented to enhance the efficiency and competitiveness of transport and logistics services.

Findings indicate that the German government places strong strategic emphasis on the development of the freight transport and logistics sector. A comprehensive national plan has been established to guide its advancement, with targeted measures set for implementation during the 2024–2029 period.

Keywords: the transportation, logistics services. infrastructure

JEL Classification: R40 ،L90 ، R42

1. Introduction:

The transportation and logistics sector serves as a critical foundation for economic development, playing a pivotal role in enhancing the efficiency and competitiveness of virtually all economic activities. Its importance is particularly pronounced in countries where foreign trade and exports form a substantial share of the national economy. Germany is a prime example, with exports accounting for approximately **40% of its gross domestic product (GDP)**.

A well-developed and efficient logistics infrastructure significantly enhances the global competitiveness of German industry and supports the smooth functioning of international trade. In addition to its strategic economic role, the logistics sector is itself a major contributor to the national economy—both in terms of revenue generation and employment. It represents a key growth engine, supporting innovation, investment, and job creation across multiple related industries.

1.1 Research Problem

From this perspective, the central research question can be articulated as follows: **What are the main challenges hindering the development of international freight transport and infrastructure in Germany?**

1.2 Research Significance

The importance of this study stems from the central role of freight transport, which serves as the backbone of import and export flows in any economy. The development of a country's transport sector also serves as a barometer of its economic scale and vitality.

1.3 Research Objectives

This study aims to:

- Analyze the dynamics of international freight transport.
- Identify the key challenges facing the development of Germany's transport sector.

In this paper, we address the core research problem by exploring the following dimensions:

1. General Concepts of Transport and Infrastructure
2. The infrastructure of the land transport sector and seaports in Germany.
3. The freight and logistics market in Germany — Analysis of size, share, trends, and growth forecasts 2024-2029.

2. General Concepts of Transport and Infrastructure

2.1 Transport

2.1.1 Definition of Transport

Transportation is defined as the movement of goods and people from one place to another. It involves the use of all means aimed at transferring an element from one location to another. This includes moving from one area to another via airplanes, trains, cars, and other two-wheeled vehicles such as motorcycles. Transportation also refers to the process of shipping an item from point A to point B. In general, the ability to transport large quantities of goods or people over long distances at high speed is an indicator of civilization and technological progress in a given region. (Tranfal, 2024)

2.1.2 Modes of Transport

Transport modes are broadly categorized into three primary classes:

- Land Transport:

Land transport refers to the organized operations of goods and individuals movement across terrestrial routes using diverse means, including paved roads, railways, cableways, and pipeline networks. This mode serves as the logistical backbone for local and regional connectivity due to its flexibility and adaptability to short- and medium-distance transportation requirements.

- Water Transport:

Water transport includes the movement of goods and passengers across inland and oceanic water bodies, using various means such as ships and boats. This transportation takes place through networks of natural waterways like rivers and seas, or artificial ones such as navigation canals. This type of transport is characterized by its economic efficiency in moving large volumes over long distances, making it a fundamental pillar of international trade.

- Air Transport:

Air transport is classified as the fastest and most technologically advanced mode of transportation. It relies on air routes to carry passengers and goods using various types of aircraft, including commercial passenger planes, cargo planes, and helicopters. This sector plays a vital role in providing fast and efficient transport solutions to areas with geographical challenges that hinder access by land or water means. Air transport is also divided into two main levels: domestic (internal) air transport and international air transport, each with its own operational and regulatory systems**.**

2.1.3 Steps of the International Shipping Process:

The transportation of goods from the point of origin to the final destination requires a tightly regulated procedural chain consisting of seven main stages, each associated with specific costs distributed among the involved parties according to agreed-upon financing mechanisms. This process is governed by the carriage contract, which outlines the financial and legal responsibilities of stakeholders (such as shippers, carriers, and consignees). This reduces the likelihood of disputes, ensures transparency in the allocation of financial burdens, and minimizes operational risks such as unexpected delays or unbudgeted additional costs.

- Export Transportation:

The first step in the cargo transport and shipping process is export transportation. This can be summarized as the movement of the cargo from the seller or supplier to the carrier's premises. In some cases, the volume of goods being shipped may be less than that of a full shipping container. In such situations, the transport company's headquarters often serves as a consolidation center for exported goods, where staff organize this process. The goods are usually transported by trucks, rail, or a combination of both. If the prior agreement states that this task is the responsibility of the sender, a local transport company is typically used. However, if it falls under the responsibility of the recipient, the logical solution is to contract a freight forwarding company that offers export transportation as part of its

international shipping services.

- Customs Clearance for Exported Goods:

This is one of the most important steps in the international shipping process. All goods leaving the country must undergo customs clearance procedures to ensure they comply with the regulatory requirements set by the exporting country.

Customs clearance is essentially a paperwork process in which goods are declared by submitting the required documents to the country's authorities. This procedure can only be carried out by intermediary companies that hold a valid customs license, allowing them to manage this documentation process.

In some cases, the shipping company itself may handle the customs clearance if it holds the necessary license, or through an authorized agent appointed by the shipping company as an alternative option. The sender of the goods may also complete customs clearance by appointing a customs broker whose sole responsibility is to carry out this step without being involved in any other part of the shipping process.

It is absolutely essential to complete the customs clearance process for exported materials before the shipment can leave the country of origin or be stored in the shipping company's warehouses.

- Handling Goods in the Destination Country:

This process covers all procedures related to the delivery and inspection of goods from the moment they are received at the shipping company's warehouse until they are loaded into transport containers aboard the departing ship. It includes multiple steps carried out by different parties and is typically the responsibility of the shipping company or a pre-authorized agent acting on its behalf.

This step involves receiving the cargo from the sender, inspecting and registering it, planning its loading, and consolidating it with other shipments into a shipping container. The goods are then transported to the port, where they are loaded onto the cargo ship. As mentioned, this is generally managed by the shipping company, although the associated costs can be covered by either the sender or the recipient, depending on the agreement made between the involved parties.

- Sea freight:

The shipping company decides on a specific shipping route to complete the maritime transport process from the country of origin to the desired destination, ensuring the shipment is delivered on time. At this stage, a contract is signed for the transportation of containers and the completion of the task, without the involvement of either the sender or the recipient—the entire step falls under the responsibility of the shipping company.

As for the costs, they may be covered by either the sender or the recipient. It is important to note that the cost of transporting the cargo from one port to another does not represent the total cost of the process. There are many additional charges that may be incurred during the operation, such as storage fees for certain types of goods, among others.

- Customs declaration for imported goods:

Customs clearance procedures can begin before the shipment arrives in the destination country. Just like the customs declaration for exported goods. This process is essential. It involves issuing a written declaration of the goods, which is submitted along with other required documents so that the relevant authorities can register the shipment and impose the necessary customs duties.

This declaration can be carried out by the shipping company, an agent authorized by the shipping company, or a customs broker appointed by the recipient.

The customs declaration process for imported goods must be completed before the shipment leaves the customs authority located at the destination country's border—this typically means before the cargo leaves the shipping company's warehouse.

- Handling Goods in the Destination Country:

As in the country of origin, there is a set of procedures that must be carried out in the destination country before the shipment is handed over to the recipient. These procedures include transporting the container from the ship to the dock, and from the port to the warehouse of the transport company in the destination country. This also involves opening the container and preparing the cargo for the importer to receive it.

- Using trucks to transport goods that are less than a full container load:

Upon the shipment's arrival in the destination country, various expenses are incurred—typically covered initially by the transport company or an agent acting on its behalf—before the costs are forwarded for payment by either the sender or the recipient. Regardless of who will ultimately pay these charges, all costs must be fully settled before the recipient can take possession of the shipment.

- Import Transportation:

This is effectively the final step in the international shipping journey: delivering the goods to the consignee. This can be handled by the freight forwarder itself or by a local transport company engaged by the consignee. Typically, this step involves delivering the goods to a specific address but does not include unloading the truck, which is considered the responsibility of the consignee (Tranfal, 2024).

2.1.4 Regulation of International Freight Transport

The United Nations Commission on International Trade Law (UNCITRAL) has developed several conventions to harmonize regulations governing international transport, with particular emphasis on maritime shipping.

The United Nations Convention on the Carriage of Goods by Sea (Hamburg, 1978), commonly known as the Hamburg Rules, establishes a unified legal framework governing the rights and obligations of shippers, carriers, and consignees under contracts for the maritime carriage of goods. Complementing the Hamburg Rules, the United Nations Convention on the Liability of Operators of Transport Terminals in International Trade (Vienna, 1991) creates a unified legal system regulating the liability of terminal operators - commercial facilities that handle goods before, during, or after transport - for loss, damage, or delay in delivery.

The United Nations Convention on contracts for the international carriage of Goods wholly or partly by sea (New York, 2008), known as the Rotterdam Rules, builds upon several instruments including the Hamburg Rules to establish a modern, unified legal system governing the rights and obligations of shippers, carriers, and consignees under door-to-door transport contracts that include an international maritime leg.

The Rotterdam Rules provide a legal framework that incorporates numerous technological and commercial developments in maritime transport since earlier conventions were adopted, including the growth of containerization, the demand for single-contract door-to-door transport services, and the introduction of electronic transport documents. The convention provides shippers and carriers with a binding, balanced global system that facilitates the execution of maritime transport contracts that may involve other modes of transport.

The United Nations Convention on the International Effects of Judicial Sales of Ships (New York, 2022), also known as the Beijing Convention on the Judicial Sale of Ships, establishes a coordinated system to make the clean title acquired through judicial sale of ships internationally effective.

In addition to these conventions, UNCITRAL has formulated model provisions for expressing or adjusting monetary amounts in transport and liability conventions. In 1982, UNCITRAL adopted a model provision establishing a stable global unit of account for expressing monetary amounts, as well as alternative model provisions for adjusting amounts specified in conventions: a model price index clause and a model procedure for adjusting liability limits (United Nations, 2024).

2.1.5 Economic Importance of the Transport and Logistics Sector

Companies in the logistics and transport sector are active in the fields of freight, transport, warehousing, handling, and packaging. Together, they constitute Germany's third-largest economic sector after the automotive industry and retail trade, ranking ahead of the electronics industry and the machinery and equipment industry. More than 70,000 companies, most of which are medium-sized, operate in the logistics field. The sector employs over 3 million people.

In 2022, companies in the sector achieved revenues of approximately €319 billion, representing a growth of around 8.5% compared to the sector’s revenues in 2021. However, part of this growth is attributed to price increases across supply chains.

The value of the European logistics market is approximately €1,180 billion (based on 2021 figures), with Germany holding a share of about 25%. This is not only due to its geographical location at the heart of Europe, but also because of the quality of its infrastructure and logistics technology.

However, Germany's strong logistics industry also faces numerous challenges. These include, for example, a severe shortage of operational staff, such as truck drivers. Another key issue is the compatibility of road transport with environmental and climate protection goals, as it is one of the most climate-polluting modes of transport. Furthermore, the declining competitiveness of Germany's seaports compared to several neighboring ports in Europe presents a fundamental challenge to the logistics sector.

2.2 Infrastructure

2.2.1 Definition of Infrastructure

Infrastructure refers to all essential public facilities and basic services required for both population livelihood and economic production activities in a given region. It directly and indirectly influences economic and commercial life, encompassing road networks, transportation systems, ports, border crossings, airports, water and sewage networks, electricity grids, and telecommunication networks (Afaf, 2014, pp. 15-17).

2.2.2 Characteristics and importance of public expenditure on infrastructure

After presenting the concept of infrastructure, it is important to highlight its main characteristics and economic significance as follows: (Shouireb, 2021–2022)

- Characteristics of Public Expenditure on Infrastructure

Infrastructure possesses several distinctive features, most notably:

. **Stability**: It serves as a basis for assessing the productive role of public capital in comparison to private capital, which is characterized by volatility and mobility wherever profit exists — unlike public infrastructure, which aims to achieve the public interest.

. Indivisibility and Irreplaceability of Certain Projects: Many infrastructure projects are indivisible, prompting economic development experts to advocate for a "big push" approach in their establishment. Their benefits are non-excludable—accruing not to specific individuals but to society at large, either directly or indirectly. This necessitates state-led development rather than private sector involvement. Additionally, infrastructure is often irreplaceable due to the prohibitive costs of repurposing or relocating it.

. **Large-Scale Nature**: Infrastructure projects typically require massive initial investments and generate minimal revenue in their early years, with extended payback periods. This makes the financing of infrastructure projects challenging. They are also characterized by long gestation and productive lifespans.

. **Non-Recoverability**: Many infrastructure components cannot be imported through foreign trade channels, necessitating domestic construction.

. Generating External Economies: Infrastructure projects create significant external economies with multiplier effects. This feature alone can justify investments in this vital sector, alongside the prolonged utility of their services.

. **Achieving the Public Benefit**: Infrastructure projects are characterized by their public benefit nature. They are subject to the principle of non-exclusion and aim to serve the public interest.

2.2.3 The Economic Importance of Infrastructure Services:

Enhancing infrastructure services contributes to strengthening the national economy through its role in stimulating and attracting necessary investment projects, in addition to its ability to boost the competitive advantage of products in terms of quality and cost. The importance of infrastructure services increases in activities based on a time-sensitive marketing strategy (i.e., delivering goods to markets within a limited period) and in export-oriented industries. This is achieved through the following :

- Infrastructure supports the economy, facilitates its growth, and achieves economic development.

- Investment in infrastructure significantly contributes to achieving economic efficiency by reducing transportation costs and production losses, and it helps to enhance productivity, generate economic returns, and open new markets.
- Infrastructure projects provide numerous direct and indirect employment opportunities and achieve high rates of productivity and economic and social profitability.
- The existence of highly efficient and high-performing infrastructure is one of the most important elements for attracting investment in the industrial, commercial, and service sectors, which has a direct impact on the competitiveness of companies.
- The infrastructure industry is a key determinant of the competitiveness of the economy as a whole, and the quality of infrastructure is a significant determinant for foreign direct investment (FDI). Infrastructure is a primary factor for economic development and integration into the global economy.
- It works to create a favorable general climate for new investments and their distribution among various economic sectors, and it helps to increase the marginal efficiency of investments, thereby increasing their expected returns.

3. The infrastructure of the land transport sector and seaports in Germany: (Arab-German Chamber of Industry and Commerce, 2024)

The infrastructure of the transport and logistics sector consists of the length of the road network and railway lines, the number of seaports and airports, and the volume of goods transported by various means, including road, sea, river, and air. Despite the wide variety of transport modes and logistics services, road transport of goods by truck and seaports represent the most significant sectors. On the one hand, road transport by truck is the most important mode of transport in Germany, accounting for 70% of goods moved within, into, and out of the country, and it is also the primary means for transporting goods between Germany and other EU member states. On the other hand, seaports are the largest and most crucial means for exporting and importing goods between Germany and its trading partners outside the European Union, led by the United States, China, and the rest of the world.

3.1 Land transport by truck in Germany:

These routes are the most densely used and have the highest capacity for transporting goods and merchandise. The total length of the paved road network spread across Germany is approximately 244,470 kilometers. Among these paved roads, about 13,000 kilometers represent the approximate length of the highway network in Germany. The remaining approximately 232,000 kilometers are distributed between inter-state roads and regional road networks within each state.

As of January 1, 2023, nearly 48.76 million private cars were running on German roads. The number of transport trucks reached about 3.64 million on the same date. For comparison, the number of trucks in Germany in 1960 did not exceed 681,000 trucks.

According to data from the Federal Statistical Office, the volume of goods and merchandise transported by German and European trucks to, from, and within Germany in 2022 was nearly 3.1 billion tons. This represents approximately 70% of the total volume of

goods and merchandise transported in Germany that year.

The growing shortage of truck drivers is the biggest challenge to the continued effectiveness and efficiency of transport and logistics by truck. Currently, there is a shortage of about 100,000 truck drivers in Germany. The problem is expected to intensify in the near future. According to data from the Federal Statistical Office based on 2021 figures, 35% of all truck drivers in Germany are at least 55 years old, meaning a large proportion of them will retire in the coming years. This also means that the proportion of the 55-and-over age group among truck drivers is significantly higher than in the workforce as a whole, where it averages 25% in other professions. Conversely, the number of new employees under the age of 25 is very small, constituting only 3%. For comparison, people under 25 make up nearly 10% of the total workforce in other professions. The proportion of women in this professional group is also remarkably low at only 3%, compared to 47% in the overall labor market.

The severe labor shortage in the road transport sector is primarily due to demographic change in Germany and the aging of society, as well as the unattractiveness of the profession due to low initial salaries and the high costs of job qualification. Even if companies cover these costs for their employees, the profession remains unattractive to new generations due to its instability, constant travel, and weak salary structure.

Government bureaucratic procedures also hinder German transport and logistics companies from hiring drivers from non-EU countries. For example, truck drivers from countries like Georgia and Kazakhstan are required to obtain a qualification from a training institution in Germany before working for a German company, a requirement not imposed in other European countries like Poland or Lithuania. This means these drivers can drive trucks for European companies on German roads, but not if the company is German.

Furthermore, advanced technical solutions such as autonomous trucks seem unrealistic given the long time required to develop this technology to a level of perfection and reliability before it can be widely used and relied upon to maintain the efficiency and competitiveness of the German transport and logistics sector.

Possible solutions include, first, increasing the attractiveness of the truck driving profession by adjusting the wage structure and raising salaries, especially at the beginning, in addition to the State or transport companies covering the costs of qualification and training. Furthermore, working conditions must be improved and made as family-friendly as possible. Secondly, reducing the procedures and requirements for recognizing the qualifications of truck drivers from non-EU countries would enable German transport companies to hire foreign drivers quickly and without the complexities found in Lithuania and Poland. This is in addition to intensive investment in various new technologies, from fuel consumption reduction and safety standards to autonomous driving technology.

3.2. The Logistical Capacity of German Seaports

Ports are one of the most essential economic tools for ensuring and sustaining economic activity, serving as the main gateway for raw materials and goods to enter and, at the same time, the channel through which the products of the domestic economy are exported. Moreover, seaports themselves represent an important independent economic

sector that provides numerous jobs and contributes to raising the gross″domestic product (GDP). The importance of ports in Germany is amplified by the fact that Germany is one of the world's largest exporters of goods, and the German economy relies heavily on exports for its growth, which demands high logistical capacity from its ports. German ports are spread along the coasts of the two seas it borders: The North Sea and the Baltic Sea.

In 2022, 275 million tons of goods were handled in German seaports. According to the Federal Statistical Office (Destatis), the volume of goods handled in German seaports decreased by 3.2% in 2022 compared to the previous year. The quantity of incoming goods from abroad (-1.5%) fell significantly less than the quantity of goods sent abroad (-7 %). Compared to the pre-Corona crisis level in 2019, when German seaports handled 293.5 million tons of goods, the freight handling volume in 2022 was down by 4.9 %.

Germany's most important seaport for freight handling was and remains the Port of Hamburg, with a handling volume of 103.4 million tons in 2022 (-7.2% compared to the previous year). It was followed by the Port of Bremerhaven, which handled 42.8 million tons of goods, a decline of 8.7% from the previous year. The Port of Wilhelmshaven came next, handling 31.8 million tons of goods, an increase of 7.6% compared to the prior year. The Port of Rostock on the Baltic Sea ranked fourth among Germany's largest ports, handling 21.3 million tons, which represents a 3.2% decline compared to the previous year. Approximately 16.4 million tons were handled in the Port of Lübeck on the Baltic Sea in 2022, also marking a decrease of 6.9% from the volume handled in 2021.

Table 3: German Seaport Cargo Throughput (2022)

Port	Volume (Million Tons)	Change vs. 2021
Hamburg	103.4	-7.2%
Bremerhaven	42.8	-8.7%
Wilhelmshaven	31.8	+7.6%
Rostock	21.3	-3.2%
Lübeck	16.4	-6.9%

Source: Completed by the researcher based on Destatis (2022).

At the level of countries from which goods were imported and exported via seaports, Sweden is considered Germany's most important trading partner in maritime transport, with the two countries exchanging 24.4 million tons of goods through seaports. It is followed by Norway (22.7 million tons), the United States (22 million tons), and the People’s Republic of China (20.9 million tons).

3.3 Challenges Facing German Ports

The Port of Hamburg (Germany’s largest port) has been experiencing a decline in the number of containers handled. In the first half of 2023, the number of containers dropped by 11.7%, reaching 3.8 million containers compared to the same period the previous year.

Hamburg is now the third-largest port in Europe, after Rotterdam in the Netherlands and Antwerp in Belgium. Last year, approximately 14.5 million containers were handled in the Port of Rotterdam, and around 13.5 million containers in Antwerp. In contrast, the total

number of containers handled in Hamburg throughout 2022 did not exceed 8.3 million containers.

While container traffic in the ports of Antwerp and Rotterdam increased by over 40% between 2007 and 2021, the Port of Hamburg saw a decline of 12% during the same period.

This decline in the volume of containers handled at the Port of Hamburg, compared to the growth seen at the Ports of Rotterdam and Antwerp, is due to several reasons — the most significant being the geographical advantages of Rotterdam and Antwerp.

The Port of Rotterdam is located directly on the coast, with container handling terminals situated right on deep waters, allowing the largest container ships in the world to access them without restrictions. In contrast, the Port of Hamburg is located about 100 kilometers inland from open waters. Large container ships — up to 400 meters in length with a draft of over 13 meters — must rely on tidal waves to access the port via the Elbe River, and some ships cannot enter the port fully loaded.

In addition, container handling costs at the Port of Hamburg are significantly higher than at other ports. For example, the cost of handling a container at Rotterdam is up to 30% lower than at Hamburg. These high costs in Hamburg are largely due to the lower level of automation in port operations compared to major European ports.

Hamburg's lag in operational automation has negatively impacted its efficiency. According to the Container Port Performance Index (CPPI), published by the World Bank in collaboration with S&P Global Market Intelligence, Hamburg plummeted by nearly 100 positions within a single year. Among 348 ports assessed worldwide, it ranked only 328th in 2022. Meanwhile, Germany's two other major ports performed significantly better in terms of operational efficiency: Bremerhaven ranked 60th, and Wilhelmshaven ranked 118th. However, these ports have also faced declining container volumes. Between 2012 and 2022, Bremerhaven's shipping activity dropped by approximately 25%, reaching just 4.6 million containers annually. Similarly, Wilhelmshaven's throughput recently fell to slightly over 685,000 containers last year.

Many maritime transports experts and specialists are calling for greater collaboration among German ports instead of the current competitive dynamic. They argue that Hamburg, Bremerhaven, and Wilhelmshaven should work more closely to enhance their competitiveness against Rotterdam and Antwerp. Additionally, stakeholders in the maritime sector have criticized the federal government for its minimal financial support—just €38 million annually, a figure that has remained unchanged for nearly 20 years. They emphasize the need for at least €500 million per year in government funding to strengthen Germany's port infrastructure.

4. Germany Freight and Logistics Market - Size & Share Analysis, Growth Trends & Forecasts 2024-2029 (Mordor Intelligence, 2024)

4.1 Germany Freight and Logistics Agents Market Analysis

The German freight and logistics market is estimated at USD 217.11 billion in 2024, and it is projected to reach USD 262.01 billion by 2029, growing at a compound annual growth rate (CAGR) of 3.83% during the forecast period (2024–2029).

- Germany is the largest construction market in Europe, possessing the continent's

most extensive building stock. The number of companies operating in the German construction sector increased by 4.7%, rising from 37,600 in 2019 to 39,400 in 2020. In 2021, the construction sector accounted for approximately 6.1% of national GDP. Over the past several years, Germany has witnessed a surge in large-scale construction projects across both the building and infrastructure segments.

- The German government is committed to enhancing national trade corridors as a means of strengthening supply chains, supporting economic growth, ensuring post-crisis recovery, and generating employment for the middle class. As part of this commitment, the government is investing significantly in infrastructure, with a focus on expanding highways and expressways, which is expected to positively impact the road freight transport market in the coming years. For instance, the total length of German motorways increased from 12,996 kilometers in 2016 to 13,192 kilometers in 2021, reflecting a growth of 1.51%.
- In 2020, total investment in Germany's transport infrastructure reached approximately USD 35.12 billion, with 86.6% allocated to the construction and maintenance of traffic routes. Government expenditure on transport infrastructure has continued to rise, with notable increases recorded in 2021 and 2022. In 2021, USD 12.45 billion was allocated to federal railway lines, more than double the amount allocated in 2016. In 2022, the government allocated USD 13.58 billion for federal highways and USD 1.92 billion for waterways.

Figure 1: illustrates the value of shipping and logistics services by market function.



Source : (Mordor Intelligence, 2024)

4.2 Germany Freight and Logistics Market Trends

- Germany's population surpassed 84 million in 2022, driven in part by increased immigration due to the Russia-Ukraine conflict.
- German manufacturers are expected to invest over USD 10 billion in smart manufacturing technologies by 2025.
- A growing construction sector and strong retail sales are contributing to overall GDP

growth.

- Sharp increases in energy and food prices have led to record-high inflation levels.
- Germany's e-commerce sector declined by 12% year-on-year in 2022, impacted by inflation and the geopolitical crisis.
- Manufacturing accounted for approximately 20% of national GDP, with a 5% year-on-year growth in 2022.
- In March 2023, Germany recorded a 64% year-on-year increase in automotive exports, fueled by rising vehicle production.
- To reduce dependence on Russian energy, Germany plans to boost LNG imports from the U.S., Qatar, and the UAE in 2023.
- Driver shortages and high fuel prices are increasing operational costs and contributing to higher logistics expenses.
- Road freight volumes continue to rise, especially in France and Germany, leading to increased truck demand across Europe.
- Germany ranked 3rd globally in the 2023 Logistics Performance Index, with a score of 4.1, reaffirming its leadership in the European logistics market.
- Despite its dominance in the heavy commercial vehicle segment, Germany experienced a decline in vehicle sales in 2022 due to supply chain disruptions.
- Significant investments in road and rail infrastructure, as well as pipeline development, are driving growth in these transport modes.
- Germany's largest ports reported strong growth in container production with Nordic countries in 2022, attributed to the restructuring and consolidation of feeder services.
- Efforts are underway to enhance port infrastructure and improve hinterland connectivity to manage increased trade volumes from key maritime partners.
- However, German ports faced serious congestion issues in 2022 due to labor shortages, capacity constraints, and the impact of the war in Ukraine.
- Freight rates continue to climb, driven by high fuel and diesel prices, persistent inflation, and ongoing geopolitical tensions.
- Continued investment in highways, rail freight, and air cargo is providing strong momentum for logistics sector growth.
- The government has committed nearly USD 63 billion to support the green transition and stimulate the construction sector.

5. Conclusion:

Germany is the fourth-largest economy in the world and enjoys a strategic location at the heart of Europe. The availability of safe, cost-effective, and sustainable transport solutions is key to maintaining the strength of its economic engine. Germany possesses nearly 250,000 kilometers of roads and relies heavily on road freight transport. Approximately 73% of all goods transported to and from Germany are moved through road shipping solutions.

As a logistics hub in Europe, all modes of transportation are integrated — road, rail, air, and sea. Among these, road freight transport remains the most important mode of transportation in Germany today. The freight and logistics market is evolving and is expected to grow by

2% from 2020 **to** 2025.

This anticipated growth is largely driven by the expansion of the e-commerce market. Between 2018 and 2019 alone, the e-commerce sector grew by 11.6%**.** Germany's e-commerce market is the largest in Europe, with one in every three online buyers making purchases several times a week.

5.1 Key Insights:

- Germany's transport and logistics industry is the third-largest contributor to the national economy, generating approximately EUR 319 billion annually.
- Road freight transport is facing a severe driver shortage—estimated at 100,000—due to low job attractiveness and recruitment challenges.
- German ports, including Hamburg, are losing ground to competitors like Rotterdam and Antwerp, primarily due to higher costs and limited automation.
- The sector is projected to grow by 3.83% annually between 2024 and 2029, fueled by rising demand in e-commerce and manufacturing.

5.2 Recommendations:

- **Improve Workforce Appeal:** Raise wages and streamline recruitment to make truck driving a more attractive and accessible profession.
- **Enhance Port Efficiency:** Increase investments in automation and strengthen collaboration among domestic ports to boost international competitiveness.
- **Invest in Innovation:** Support the development of autonomous transport and environmentally sustainable infrastructure to modernize the sector.
- **Support E-Commerce Logistics :** Develop agile, scalable logistics solutions.

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