

Warehouse Infrastructure in Eurasia: Opportunity of the Decade

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The warehousing, storage, and sorting sector in the Eurasian region is undergoing a phase of transformation and active growth. Amid changes in the geography of world trade and the rapid development of e-commerce, the approach to logistics is changing. Increased trade with countries in the Asia-Pacific region and the Middle East is driving demand for logistics infrastructure in Central Asia, the South Caucasus, and the Russian regions of the Urals, Siberia, and the Far East. At the same time, industrialization is accelerating in the region, containerization of freight flows is expanding, and demands for the quality of logistics services and technical equipment of warehouses are growing. All this is creating unprecedented demand for modern warehouses. By 2040, the demand for warehouse infrastructure in the region could increase from the current 58 million m² to a potential 101–123 million m². This report reveals promising areas for investment in warehouse infrastructure in the Eurasia, with details on warehouse types and their potential locations. The report provides practical recommendations, including the creation of an industry warehouse association and regional closed-end mutual investment funds, as well as other initiatives that will contribute to the development of infrastructure.

Keywords: Eurasian region, warehouses, logistics, storage, trade, transport, e-commerce, investments.

JEL: C10, E17, L81, L91, R33, R42.

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WAREHOUSE INFRASTRUCTURE IN EURASIA: OPPORTUNITY OF THE DECADE

KEY FINDINGS

ANALYTICAL REPORT 25/12

EURASIAN REGION IS EXPERIENCING A "WAREHOUSE BOOM"

Growth in warehouse space

 **+15 million m²**
from 2021 to Q1 2025

Warehouse space per capita

 **0.23 m²**

Declared construction

 **20 million m²**

GROWTH FACTORS



Shortage of high-quality warehouses



Reorientation of trade flows



Industrialization of the region's economy



Expansion of retail trade



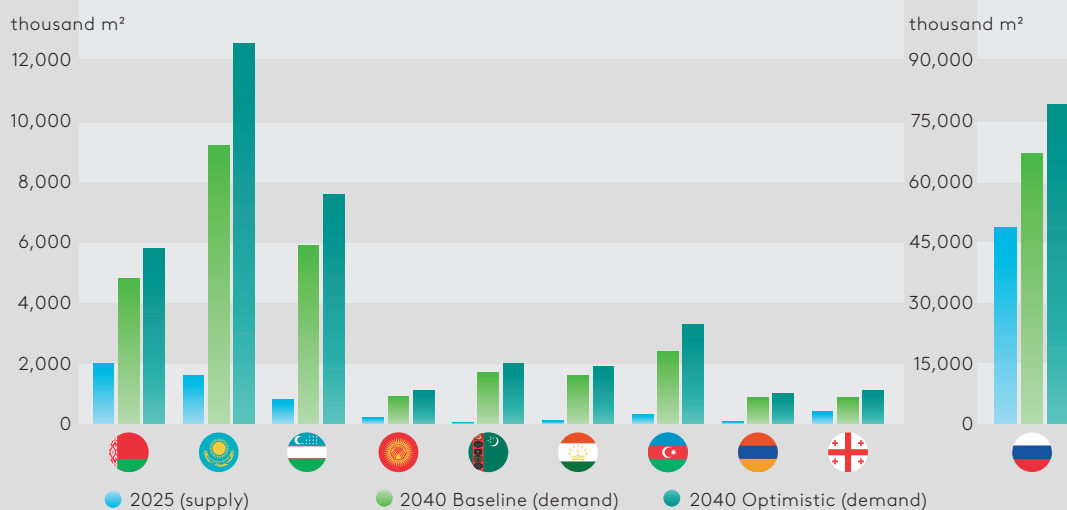
Rapid growth of e-commerce



Growth in containerization of cargo

WAREHOUSING SECTOR IS BECOMING ONE OF THE RELIABLE DRIVERS OF ECONOMIC GROWTH IN THE REGION

from **58** to
101–123
million m²
4–5%
CAGR



WAREHOUSE INFRASTRUCTURE — A SOLID FOUNDATION FOR COMPETITIVENESS AND INTERNATIONAL INTEGRATION OF THE REGION

Modernization and expansion of infrastructure

- ▶ Modern high-class A and B+ warehouses
- ▶ Agricultural and pharmaceutical logistics
- ▶ Multimodal logistics hubs and dry ports

Standardization and coordination

- ▶ Unification of regulations, technical standards, information services, and border procedures
- ▶ Industry coordination bodies (associations)
- ▶ Unified digital environment and data exchange, IoT, automation, and AI

Financial instruments and incentives for investors

- ▶ Public-private partnerships and guarantees, tax and credit incentives
- ▶ Pre-lease mechanisms and anchor tenants
- ▶ Collective financing and bond instruments, industry financial councils



Eurasian Development Bank

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SUMMARY

Diagnostics

Warehouse logistics is becoming strategically important for the economies of countries in the Eurasia¹. Warehouses provide storage, sorting, and distribution of goods from production sites to consumers, ensuring the smooth functioning of supply chains. **Eight out of ten countries in the region are landlocked and located far from seaports,** which historically has led to higher transportation costs and longer delivery times. A developed network of internal logistics hubs, **dry ports,** distribution centres, and **container terminals at transport hubs** can improve the efficiency of land logistics, reduce transit costs for exports and imports, and promote sustainable socio-economic development and the region's integration into global trade.

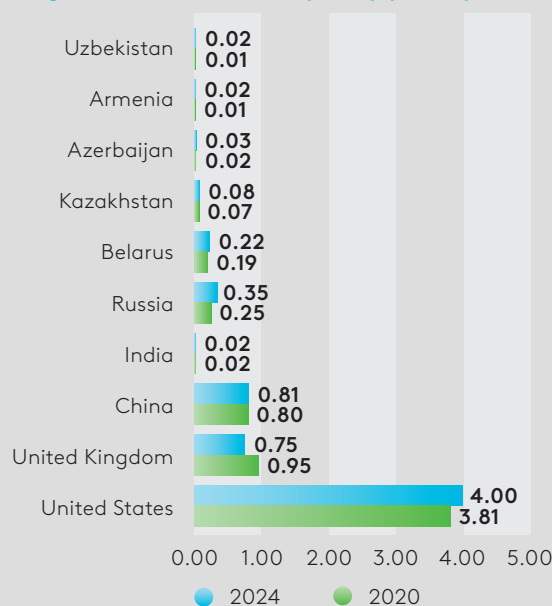
In addition to remoteness from the sea, **global changes in the geography and structure of international trade** make the development of warehouse infrastructure in the Eurasian region particularly important. The reorientation of trade flows is strengthening the transit role of the Eurasia in the Asia-Europe-Middle East triangle. High-quality logistics contributes to the capacity of transport links in the countries of the region with additional cargo flows, allowing them to benefit from increased trade with China, Southeast Asia, and the Persian Gulf countries. The growth of e-commerce, the increasing complexity of supply chains, and digitalization are all new challenges, each of which raises the bar for warehouse infrastructure quality, but at the same time provides opportunities for countries in the region to develop small and medium-sized businesses, open up relevant service sectors, and utilize their transit potential.

An analysis of the current state of warehouse logistics in the Eurasia shows that despite growing demand and active construction, the development of high-quality warehouse infrastructure still faces serious constraints. **The availability of warehouse space remains low** by global standards, and demand in virtually all segments (retail, pharmaceuticals, agrologistics, marketplaces, freight transport, etc.) remains unmet. In Q1 2025, the total warehouse stock in Central Asia, the South Caucasus, and Belarus is estimated at only 5.5 million m². At the same time, Russia alone (*the largest market in the region*) has **52.9 million m² of warehouses** (or 91% of the total). Per capita availability in Russia is around **0.35 m²**, which is several times lower than in developed countries (*USA — 4 m², UK — 0.75 m²*).

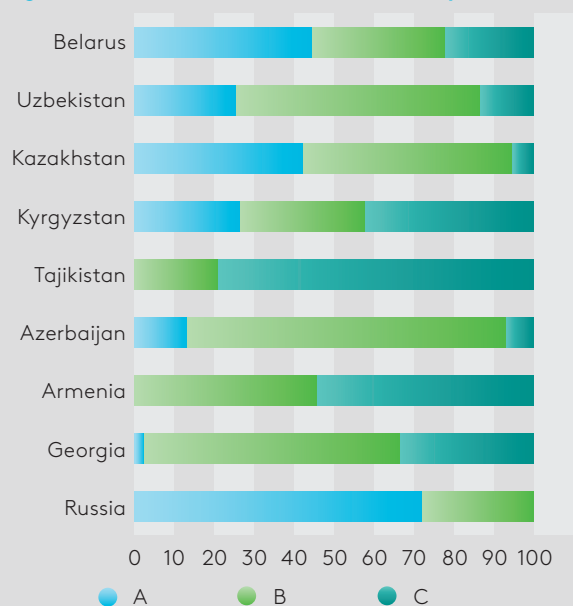
¹ Eurasia or Eurasian region shall be understood to mean the following countries: Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, and Uzbekistan.

The shortage of modern warehouse capacity is structural in nature. A significant portion of goods is stored in outdated or unsuitable premises, and logistics operations are often difficult, which reduces the efficiency of both domestic and foreign trade. In 2022–2025, **the supply of high-quality warehouses** declined even further, with all existing facilities almost fully occupied. The vacancy rate approached zero in many countries: there was virtually no vacant space in Tajikistan and Belarus (*around 0%*), while low vacancy rates were recorded in Uzbekistan (*around 2%*) and Kazakhstan (*3–4%*). This indicates that the supply of **new warehouse space was absorbed by the market almost as soon as it came on stream**, with unused space remaining minimal. As a result, **rental rates** rose across the board, starting in 2022: for example, in Russia, the average rate reached \$12–13 per m² per month, in Georgia — around \$10–11, and in Kazakhstan — around \$10. However, in the third quarter of 2025, against the backdrop of record new capacity coming online in the Russian and Kazakh markets, there were signs of market saturation. Vacancy rates began to rise and rental rates began to fall.

↓ **Figure A. Warehouse capacity per capita, m²**



↓ **Figure B. Distribution of warehouses by class, %**



Sources: calculations by EDB and CMWP experts.

Sources: calculations by EDB and CMWP experts.

The **quality of services and technological capabilities of warehouse facilities** is another weak point. In most countries of the Eurasian region, Class B and C warehouses (*old hangars, converted workshops, small warehouses with minimal automation*) continue to dominate. The share of high-class facilities (A and B+) outside major cities is extremely small. **There is a shortage of modern Class A warehouses**, especially in Central Asia and the Caucasus. As a result, businesses are forced to operate in inconvenient storage conditions, the introduction of new technologies (*automation, WMS systems*) is hampered, and logistics costs are rising. The fragmentation of infrastructure is also noticeable: warehouse capacity is unevenly distributed, concentrated in capitals and major cities, while

high-quality infrastructure is often lacking in the regions. Other bottlenecks — overloaded border terminals, a shortage of temporary storage warehouses at the borders, and a mismatch between railway and warehouse infrastructure — lead to delays in the movement of goods and a decline in service quality.

Financial and institutional constraints further hamper the sector's development. There are not enough private developers and investors in the region willing to build warehouses, and projects are only implemented with the support of the state or international financial institutions. The high cost of debt financing and the lack of long-term investment make it difficult to implement large logistics projects. In addition, there is no coordinated regional strategy for the development of warehouse infrastructure: the countries of the Eurasian region are still acting in isolation, without uniform standards and coordinated plans, which exacerbates fragmentation. **The digitalization of logistics is in its infancy** — there is no unified platform for data exchange, and countries in the region use different technologies, which makes it difficult to track shipments along the entire route across borders. Taken together, these factors — lack of space, low vacancy rates, rising prices, technological backwardness and institutional barriers — represent the main challenges for the development of the region's warehouse sector.

Development factors

The warehouse infrastructure of the Eurasian region is undergoing **a phase of rapid change** under the influence of new trends in trade and logistics. After 2022, **the region began a systemic transformation associated with changes in the geography of world trade**. The total trade volume of the Eurasian region countries is showing significant growth, reaching 1,278 million tonnes in 2023 in terms of weight, and is expected to increase to 1,420–1,809 million tonnes by 2040, depending on the scenario. This substantial increase, driven mainly by exports (*more than 75% of the volume*), is accompanied by a profound structural transformation. A key aspect of this transformation is **the shift to a non-commodity-based trade model**. Excluding basic commodities (*oil, gas, coal, ores*), trade volume will grow from 388 million tonnes in 2023 to 514–700 million tonnes by 2040, with intra-regional trade doubling.

Changes in the geography of trade are contributing to the growth of transit via land routes through Central Asia and the South Caucasus. With the shift of some cargo from sea routes to land routes, demand for logistics infrastructure within the continent is growing rapidly. New **multimodal terminals, distribution centres, and temporary storage areas** are needed along these corridors to handle the increasing volumes of transit cargo. The reorientation of trade flows to the east and south is creating **new growth points for demand**

for warehouses: inland dry ports, border logistics hubs, and large distribution warehouses at the intersections of international highways.

The rapid growth of e-commerce is the second powerful driver of change in the logistics industry. In the region's major economies, primarily Russia, Kazakhstan, and Uzbekistan, online trade volumes have increased significantly in recent years. It is predicted that e-commerce will account for 20–25% of retail in the region by 2040. These warehouses are often located near consumption centres at the end points of transport corridors or at junctions with internal logistics routes. **E-commerce is setting new standards for delivery speed**, which is impossible without effective logistics solutions. Companies are actively investing in **fulfilment centres** (*specialized warehouses for processing online orders*) and expanding their fleets of **last-mile warehouses** in large cities to ensure fast delivery to customers.

At the same time, there is a trend towards reducing retailers' own warehouse space in favour of outsourcing: demand for **3PL providers'** services is growing, especially in the segments of online commerce and sales of fast-moving consumer goods (FMCG). This stimulates the development of professional logistics companies that build multifunctional complexes to serve several customers at once. In response to e-commerce demand, warehouses **are rapidly becoming automated**, with the introduction of warehouse management systems (WMS), sorting conveyors, and robotics for order picking. New formats are emerging, such as **micro-warehouses within city limits** (*mini-distribution and storage centres built into residential neighbourhoods*), designed to reduce the "last mile" delivery time.

Government strategies and regional initiatives also influence the sector. Many countries in the region have recognized the role of logistics and have set infrastructure development goals in their national and regional programmes. **The state actively supports the creation of logistics clusters** by investing in industrial and logistics parks, subsidizing the construction of modern warehouses, and improving regulation. As a result, **new logistics ecosystems** have begun to form in a number of countries, where transport, warehouses, IT platforms, and distribution services are developing simultaneously. At the same time, within the framework of the Eurasian Economic Union and other regional associations, work is underway **to simplify transit**, with the introduction of e-TIR electronic waybills, systems for the mutual recognition of authorised economic operators and a "single window" at borders, which contributes to the efficiency of logistics operations in cross-border trade.

ESG factors are becoming an integral part of the investment agenda in the warehouse sector in the Eurasian region, but their implementation faces a number of external barriers. Investors and tenants from global supply chains are

increasingly imposing additional requirements for environmental performance, certification (*BREEAM*, *LEED*, *EDGE*), working conditions, and management transparency. This increases the value of “green” warehouses, while obsolete facilities lose their competitiveness. Initiatives to adopt and develop regional standards and create incentives for developers will reduce the gap in the development of the warehouse sector with developed markets and create additional **external demand focused on sustainable logistics**.

Taken together, all these shifts — **the new architecture of trade, the explosive growth of e-commerce, government support for infrastructure, and the green agenda** — have led to the warehouse sector in the Eurasian region entering a phase of accelerated development. The region, which previously lagged behind in logistics, is now forming **a new logistics map**. Central Asia and the South Caucasus are increasingly integrating into global supply chains, becoming a transit bridge between Asia, Europe, and the Middle East. This means a steady influx of investment and technology into the warehouse industry. **A construction boom** is already underway: according to the EDB, more than **20 million m² of new warehouse space** is planned for the region in 2025–2026 alone, of which about 1.6 million m² will be in Central Asia. The intensification of trade and the redistribution of trade flows are creating a historic window of opportunity for the modernization of Eurasia’s warehouse infrastructure.

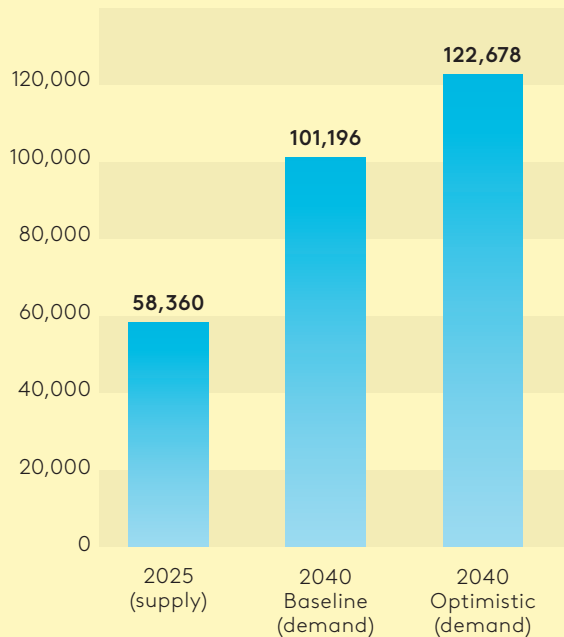
Moreover, in logistics, **demand is not simply “served” by supply — it is largely shaped by it**: developed warehouses, transport, and terminal infrastructure are not a consequence but a trigger of economic activity, inducing endogenous demand and redirecting trade flows. Therefore, identical needs in different regions do not lead to identical capacity additions: the market logic of development, land availability, transport hub density, institutional barriers, and market player activity determine where and to what extent demand will emerge. Thus, it is necessary to move from reactive assessments of current and forecast flows to models that take into account the two-way relationship between supply and demand, in which infrastructure not only allows existing demand to be met, but also generates new demand. This is a fundamental condition for sound investment and spatial planning.

Forecasts

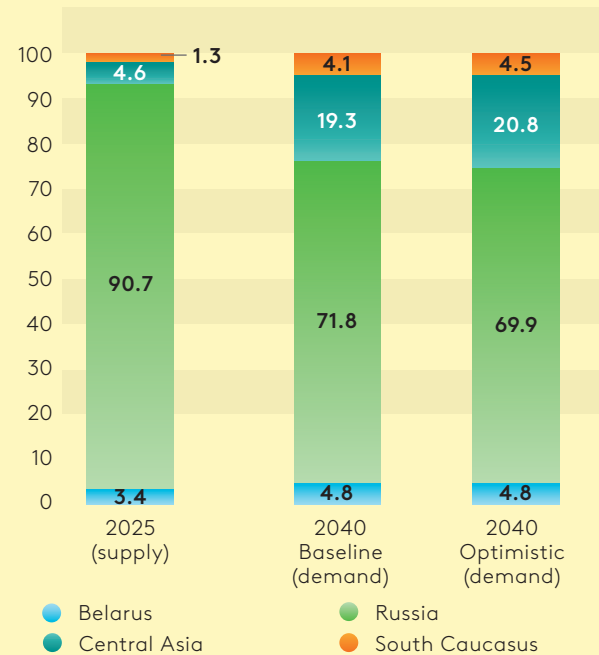
Long-term forecasts indicate significant growth in demand for warehouses in the Eurasian region. According to scenario modelling, **the region’s total warehouse stock could almost double by 2040**. In the baseline scenario, demand for warehouse space increases from approximately 58 million m² in Q1 2025 to **101 million m² by 2040**, representing a 74% increase. In an optimistic

scenario, with faster growth in trade and transit, demand could reach around **123 million m²**. This corresponds to an average annual growth rate of around **4–5%** over a decade and a half, which is significantly higher than the expected growth rates of the region's economies. This potential dynamic reflects the effect of structural shifts and the catch-up development of logistics.

↓ Figure C. Forecast demand for warehouse infrastructure in the Eurasian region, thousand m²



↓ Figure D. Forecast of warehouse stock structure from the demand side, %



Sources: calculations by EDB and CMWP experts.

Sources: calculations by EDB and CMWP experts.

Growth will be uneven. **Russia will still have the largest absolute area of warehouse space**, but its share will decline as infrastructure expands rapidly in other countries in the region. The Russian market is already close to saturation in large agglomerations; by 2024, it will have experienced a period of frenzied demand and record warehouse space commissioning. The baseline forecast for Russia assumes a slowdown in growth rates: an increase of about 37% is expected by 2040 (to 73 million m² compared to 53 million m² in Q1 2025). In other words, after the surge in 2021–2023, demand will stabilise and grow moderately, mainly due to the modernization of existing warehouse infrastructure and its development in regions outside Moscow and St. Petersburg.

The countries of Central Asia and the South Caucasus will become leaders in warehouse infrastructure growth rates, compensating for the current gap. Kazakhstan, Uzbekistan, and other economies in the region are expected to increase their warehouse stock significantly by 2040. Under the baseline scenario, in line with growing demand, the warehouse stock of all five countries in the Central Asian region could potentially increase from 2.7 million m² in 2025 to 19.6 million m² in 2040, i.e. more than sevenfold. In an optimistic scenario, the figure rises to 25.5 million m².

However, even if the projected demand is fully met by 2040, the availability of modern warehouse space in the Eurasian region will average 0.38–0.46 m² per capita. Although this is twice the current level (0.23 m²), **the sector's investment potential will remain** in the longer term, as international experience shows.

Forecasts for the development of demand for warehouse infrastructure in the Eurasian region are accompanied by a number of **risks that could cause actual figures to deviate from expectations**. Geopolitical uncertainty, slowing economic growth, trade protectionism, and institutional constraints could limit construction volumes and slow down the commissioning of new facilities. It is also important to understand that the market is cyclical: periods of expansion are inevitably followed by phases of correction, when some projects are put on hold and speculative construction is reduced. Fluctuations in key indicators — rental rates and vacancy rates — are indicators of the transition between phases of the cycle and signals for developers and investors. Build-to-suit projects remain the most stable in such conditions, as the presence of long-term anchor tenants reduces sensitivity to short-term market fluctuations. In rapidly developing economies, it is typical that after a downturn phase, a new shortage of high-quality space forms fairly quickly — within 18 to 24 months — triggering another cycle of construction and growth.

In addition, technological barriers and labour shortages in a number of countries are holding back the introduction of modern logistics solutions, which could lead to underutilization of new capacity. Climate and environmental factors, including natural disasters, increased operational requirements, and green standards in foreign markets, also pose significant threats.

Recommendations

Coordinated measures taken by government agencies, developers, and financial institutions will help realize the identified growth potential of the warehouse sector. The main goal is to create an effective institutional environment that ensures the investment attractiveness of logistics infrastructure and simplifies trade and border crossing procedures.

1. A priority area is **harmonization of regulations and technical standards**. It is advisable to develop and implement common classification and operational requirements for warehouses in the Eurasian region, including classification by class (A-B-C), standards for engineering systems, temperature regimes, and sanitary and veterinary control procedures.
2. **The digitalization of the logistics ecosystem** is a strategic priority. The key task is to create a single digital framework that integrates national warehouse

management systems (WMS), cargo tracking, and electronic document management. To ensure compatibility, it is important to standardize technical regulations, electronic forms of waybills, certificates, and accompanying documents. At the same time, the introduction of smart warehouse technologies, analytical platforms, and artificial intelligence elements can be encouraged. State support for pilot projects for the digital re-equipment of warehouses, primarily in the agricultural and pharmaceutical segments, will accelerate the technological modernization of the industry.

3. Measures to **accelerate the expansion of warehouse capacity**, especially outside major cities, are of particular importance. The focus can be placed on the proactive construction of distribution centres and fulfilment complexes geared toward the growing e-commerce and online retail segments. In agricultural logistics, the priority may be to form a network of refrigeration and processing centres, and in pharmaceutical logistics, to create distribution hubs that meet international industry standards.
4. An important condition for realizing this potential is the development of **multimodal logistics hubs** at the intersection of rail, road, and water transport. The creation of integrated terminals with dry port functions (*temporary storage warehouses, container yards, customs posts*) will increase the throughput capacity of international corridors. It is advisable to develop similar facilities at key points — on the border between Kazakhstan and China, in the Fergana Valley, near the ports of the Caspian Sea, and in other hubs.
5. **The development of warehouse infrastructure** can be financed through public-private partnership instruments and the attraction of long-term investments. For example, the allocation of priority areas for development and their connection to utilities, tax incentives, interest rate subsidies on loans, and state guarantees. An effective mechanism could be the introduction of pre-lease models and *build-to-suit* schemes, which reduce developers' risks and increase the predictability of cash flows. To attract private capital, it is advisable to develop collective investment instruments — regional closed-end real estate investment funds (similar to REITs) and infrastructure bonds.
6. Another promising direction is **the creation of a coordination mechanism** in the form of an industry council or association bringing together developers, banks, investment funds, equipment suppliers, and government regulators.
7. It is important to pay special attention to **the development of human resources**. Educational programmes can be developed in collaboration with businesses, and small countries in the region can attract international grants and technical assistance.

8. **The introduction of environmental standards** for the construction and modernization of warehouse complexes. Designing new facilities in accordance with green energy efficiency standards (LEED, BREEAM), using renewable energy sources, energy-efficient lighting systems, and automated climate control is also important for the industry.

Taken together, these measures will enable the Eurasian region to eliminate bottlenecks in warehouse infrastructure and create conditions for its long-term growth. The implementation of these practical recommendations will ensure the formation of a modern Eurasian Transport Network capable of connecting the region's economic centres and supporting the growth of trade flows in the new geo-economic realities.

INTRODUCTION

Warehouse logistics is a key link in the material flow management system. Warehouses provide storage, consolidation, distribution, and processing of goods at various links in the logistics chain, from production to the end consumer. Their role has grown significantly with the expansion of the scale and structure of international trade, e-commerce, multi-level supply chains, and the digitalization of logistics processes.

The functionality of modern warehouses goes beyond simple product storage. They are being transformed into high-tech logistics hubs equipped with automated control systems, robotic complexes, and analytical modules for demand forecasting and inventory optimization. This significantly increases order-processing speed, reduces costs, and improves the service component of deliveries.

Historically, warehouses appeared when it became necessary to store surplus products and ensure the availability of goods regardless of the time of production. With the development of trade and industry, they became the basis of distribution systems. In the 20th century, especially in the post-industrial period, warehouse logistics underwent qualitative changes: distribution centres, intermediate storage warehouses, cross-docking terminals, and fulfilment centres appeared. Today, warehouses are an integral part of the strategic infrastructure that affects the competitiveness of logistics and trading companies.

Modern warehouse logistics is developing under the influence of many factors, including urbanization and the growth of megacities, changes in consumer behaviour, the pursuit of environmental responsibility and sustainable development, and the introduction of digital technologies and automation. These trends are changing the requirements not only for warehouses, but also for companies' logistics strategies.

Current geo-economic processes, including the growth of e-commerce, changes in international trade routes, and increasing regional economic integration, are creating an objective need to transform the logistics infrastructure of countries in the Eurasian region. The warehousing, storage, and sorting sector has become a key element of this infrastructure, especially in the context of the rapid increase in the volume of export-import operations and transit traffic. The countries of Central Asia and the South Caucasus are experiencing increased demand for warehouse capacity due to a shortage of modern logistics facilities and the need to connect them to international transport corridors. Given these circumstances, the importance of a comprehensive study of the region's infrastructure and scenarios for its development is growing.

The logistics sector in the Eurasian region is characterized by a high level of infrastructure fragmentation, limited warehouse capacity, and significant differences in the level of technological equipment at logistics facilities. There is a high load on existing

transport logistics centres (TLCs), a lack of temporary storage infrastructure at borders, and slow progress in the digitalization of transit and logistics procedures. A number of countries, including Kazakhstan, Uzbekistan, and Georgia, are actively developing logistics hubs but do not have coordinated models for the development of warehouse infrastructure in a regional context.

At the same time, the implementation of national strategies (Kazakhstan–2030, Uzbekistan–2030) is intensifying, providing for the attraction of investments in logistics, the introduction of “single window” platforms, and the development of multimodal logistics centres with international specialization.

The purpose of this study is to provide a comprehensive picture of the warehouse infrastructure in the Eurasian region: the current state, key challenges, drivers, and development prospects by country and warehouse type, taking into account the evolution of transport corridors and the expected dynamics of trade flows; to analyze current trends and structural changes, identify factors affecting the development of warehouse infrastructure, and form recommendations for its optimization in geographical, institutional, and sectoral terms, showing the importance of the Eurasian Development Bank’s initiative to create the Eurasian Transport Network (ETN) (Vinokurov et al., 2024). The study is based on both theoretical sources and practical examples and data on the development of warehouse infrastructure in countries within and outside the region.

[Chapter 1](#) analyzes the current state of the warehouse sector, assessing the growth dynamics of the warehouse stock, rental rates, and vacancy rates in the Eurasian region.

[Chapter 2](#) describes the main factors influencing the development of the warehousing sector, as well as the main segments of demand for warehousing services with a focus on trade, industry, agriculture, pharmaceuticals, and transport, as well as the main challenges and opportunities that could influence changes in this demand in the future.

[Chapter 3](#) presents a scenario forecast for the development of warehouse infrastructure until 2040, taking into account the transformation of freight flows across all key Eurasian transport corridors, as well as the potential for the formation of new logistics centres in Central Asia, the South Caucasus, and Russia.

[Chapter 4](#) reveals the importance of ESG factors for the warehouse sector, including environmental certification, sustainable financing, and the impact of green standards on asset value.

[Chapter 5](#) contains practical recommendations on spatial planning, optimising the institutional environment, stimulating development activity and attracting investment in the formation of a Eurasian Transport Network capable of linking the region’s economic centres into a single system for sustainable growth and integration.

1. DIAGNOSIS OF THE CURRENT STATE OF THE WAREHOUSE LOGISTICS SECTOR IN THE EURASIAN REGION

1.1. Improving warehouse infrastructure is an integral part of historical development

In the context of large-scale changes in the global economy following a long-term focus on globalization, logistics is becoming increasingly important. Logistics is not simply the movement of goods, but a comprehensive system for managing material, financial, and information flows, ensuring business stability and adaptation to market changes ([Rushton et al., 2022](#)). Effective logistics reduces costs, speeds up deliveries, and improves service quality. At all stages of the supply chain, there is a need to build up inventories, which makes warehouses an important part of the infrastructure.

Historically, warehouses appeared as early as Ancient Egypt, where they were used to store surplus crops ([Bowersox et al., 2002](#)). Later, warehouses were used by merchants and craftsmen, especially in port cities. In the Middle Ages, warehouses were used to store grain, wine, and other goods ([Ackerman, 1990](#)) and also played an important role in military logistics.

The Industrial Revolution radically changed the approach to warehouse infrastructure ([Rodrigue, 2020](#)). With the growth of mass production, large warehouses appeared at transport hubs. Mechanized cargo-handling systems using steam winches and cranes appeared. Building materials also evolved: wooden and stone supports were replaced first by cast iron and then by steel beams, which increased the capacity and safety of warehouses.

Urbanization and the growth of megacities created new demand for warehouses. At the beginning of the 20th century, wholesale trade became the main consumer. From the 1930s to the 1940s, retail chains developed rapidly in the United States, which dramatically increased the need for warehouse space. By the 1970s, demand had shifted towards retail. In the 1990s, industry provided additional impetus due to a wave of mergers and restructuring of logistics ([Orenstein, 2019](#)). In Europe, the active development of warehouse infrastructure took place in the 1990s and 2000s, against the backdrop of the growth of chain retailers and logistics operators ([Raimbault, 2022](#)).

In the 2010s, demand began to emerge in Europe and the US from developing online retailers for warehouses with an area of over 50,000 m². However, their influence remained limited until the 2020s. The situation changed after the COVID-19 pandemic,

when the mass shift to online shopping dramatically increased order volumes and the burden on logistics. Since 2020, demand from e-commerce has consistently exceeded the needs of traditional retail. Online commerce continues to grow both globally and in the Eurasian region, with orders becoming smaller, which increases the load on existing warehouse infrastructure ([Kirby-Hawkins et al., 2019](#)).

Currently, Europe (about 250 facilities) and the US (about 1,300) have the most developed TLC networks ([EEC, 2021](#)). In Europe, they have been developing systematically since the 1990s, while in the US, they have been developing in a less organized manner since the 1970s.

The modern understanding of logistics began to take shape in the US only in the 1960s. Peter Drucker called it “the dark continent of the economy,” emphasizing that logistics costs can reach 50% of the cost of goods ([Drucker, 1962](#)). He identified logistics as a key area for cost optimization, and in the 1990s, this definition formed the basis of an integrated approach to supply chain management. Nevertheless, logistics remains an underestimated domain, especially in the countries of the Eurasian region.

In the USSR, warehouses developed differently. The most modern ones — mechanized ones — were built for the defence industry and large civilian enterprises ([Dybskaya, 2021](#)). At the same time, the warehouses of the Ministry of Trade and of the retail trade, especially in the republican capitals, were multi-story and had a low level of mechanization, partly due to a lack of equipment. It was only in the late 1980s that projects for single-story automated warehouses with an area of up to 25,000 m² appeared, but only in selected cities ([Dybskaya, 2021](#)). After the deindustrialization of the 1990s, the market partially recovered due to the release of production space, which became the basis for the development of warehousing.

Demand for warehouse infrastructure in the Eurasian region began to grow in the 2000s with the arrival on the market of international logistics operators (FM Logistic, DPD, DHL) and retailers (Inditex, IKEA, Auchan, etc.). These companies contributed to the introduction of international standards for warehouse development and the emergence of high-quality logistics infrastructure.

The development of FMCG distributor warehouse networks had a significant impact on the market, especially in Russia, Kazakhstan, and Belarus. In the 2010s, Russian distributors and retailers intensified their regional expansion, which required the construction of international-level warehouses. In other countries in the region, the transition from distribution to chain retail is only just beginning, which is creating a delayed but steady demand for modern warehouse infrastructure ([Vinokurov et al., 2024](#)).

1.2. The role of warehouse infrastructure in the economy

Warehouses are an “invisible” but crucial part of the economic infrastructure on which trade, industrial development, and prosperity depend. In the context of globalization and increasingly complex supply chains, as well as the rapid growth of e-commerce, warehouse infrastructure is becoming one of the key factors in national competitiveness. The lack of modern storage and distribution facilities increases transaction costs, reduces the predictability of deliveries, and hinders integration into international production networks. Without an effective storage and distribution system, it is impossible to ensure the stable functioning of the economy. From an economic point of view, warehouses serve a dual function: they simultaneously reduce logistics costs and increase added value by accelerating capital turnover and goods flows. Studies show that a developed warehouse infrastructure directly affects GDP growth rates by reducing delivery times and transportation costs. Shorter and more predictable supply chains promote foreign trade, increase the economy’s resilience to shocks, and increase the Economic Complexity Index by integrating the country into global production chains.

Warehouse infrastructure is a key factor in economic growth. According to the World Bank, most of the goods consumed on a daily basis are made available through logistics — a system of transportation, storage, and distribution. Manufacturing enterprises depend on stable logistics for the supply of raw materials and components. Warehouse infrastructure allows for the accumulation of strategic reserves and smooths out seasonal fluctuations in demand. This is especially important in times of economic uncertainty, geopolitical risks, and disruptions in global supply chains. Countries with a developed network of distribution centres and specialized warehouses recover faster after external shocks and are better able to maintain the stability of the domestic market.

From a macroeconomic perspective, warehouses contribute not only to the growth of trade, but also to the creation of new points of economic growth. Logistics hubs, distribution centres, and industrial parks attract investment, create jobs, and stimulate the development of related industries, from transportation and IT services to construction and finance. Thus, warehouse infrastructure acts as a multiplier of economic activity, providing long-term effects for industry, trade, and services. The efficiency of the logistics industry directly affects a country’s export potential and the stability of domestic supply. The World Bank notes that the development of logistics allows developing countries to become more actively involved in world trade, which is a key factor in growth and poverty reduction ([Gonzalez, et al., 2008](#)).

Studies show that improvements in logistics infrastructure (including warehouses, transport hubs, and inventory management systems) are associated with GDP growth: according to empirical estimates, a 10% increase in investment in logistics infrastructure can lead to GDP growth of approximately 1% in developing countries ([Musso et al., 2019](#)).

The activities of logistics centres have become an independent sector of the economy with high added value. In The Netherlands, they account for about 40% of the transport sector's revenue, and in Central and Eastern Europe, about 30% ([RZD-Invest, 2021](#)). The development of transit potential, including through the creation of TLCs at borders, further enhances the economic effect, reducing the time required for interstate transportation from 5–7 days to 48 hours ([Hesse, 2016](#)).

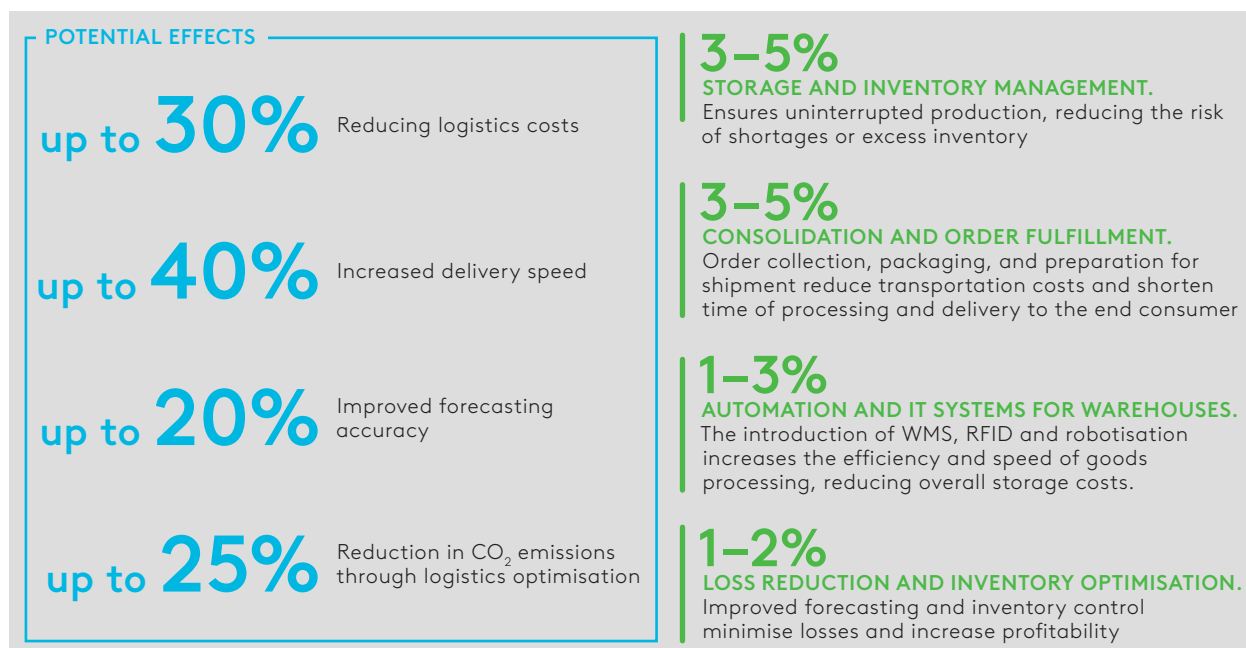
The quality of logistics is directly related to the level of economic development. The LPI 2023 Logistics Performance Index is led by countries with high levels of income, such as Singapore and Finland (scores of 4.2–4.3 out of 5), while Central Asian countries only achieve 3.5 points. This confirms the pattern: developed economies have modern transport and warehousing infrastructure and well-established procedures that ensure timely delivery. Weak logistics reduce competitiveness: even with high-tech manufacturing, the lack of reliable distribution channels limits access to global markets. The pandemic and geopolitical instability have clearly demonstrated the vulnerability of supply chains and the need to invest in their resilience.

Warehouse infrastructure is directly linked to the structural complexity of the economy — the diversity and technological level of the products manufactured. Developed logistics and storage infrastructure make it possible to form complex value chains and produce a wider range of products. In countries with economies focused on raw materials or agriculture, the demand for modern warehouses is lower, but investment in logistics is a prerequisite for successful diversification. International experience shows that the development of infrastructure, including warehouses, reduces costs, accelerates trade, and increases the reliability of supplies, creating a basis for the growth of non-resource industries. In other words, a complex economy requires developed logistics, while effective logistics, in turn, makes it possible to increase the complexity of the economic structure through participation in global production networks and the expansion of manufacturing.

Effective logistics is key to business success. The Just-in-Time (JIT) model minimizes inventory and requires regular deliveries and strategically located warehouses; however, the pandemic exposed its weaknesses: supply disruptions led to shortages of goods. In response, companies are increasingly moving to a hybrid model, combining JIT with a policy of building up reserve stocks to insure against disruptions, known as Just-in-Case (JIC). This has increased demand for warehouses, with companies placing more goods in regional distribution centres to improve logistics resilience. About 64% of companies have revised their logistics since the pandemic, moving from rigid JIT models to more flexible schemes with increased inventories and route diversification. At the same time, the requirements for warehouses are growing: modern inventory management technologies (WMS systems), automation, and robotization are being introduced, which increases the efficiency of storage and processing of goods.

The development of logistics significantly increases competitiveness. Between 1990 and 2015, the share of logistics costs in the GDP of EU countries decreased by 3–5% (EEC, 2021). The use of TLCs can reduce warehousing and loading/unloading costs by 15–30%, transport costs by 7–20%, and overall costs by 12–35% (Rushton et al., 2022). International experience shows that a 1% reduction in logistics costs is equivalent to a 10% increase in a company's sales (Figure 1). The example of the United States also shows that the concentration of logistics infrastructure and warehouse complexes leads to a 4% increase in industrial productivity (Sun et al., 2018).

↓ Figure 1. Potential effects of warehouse infrastructure development



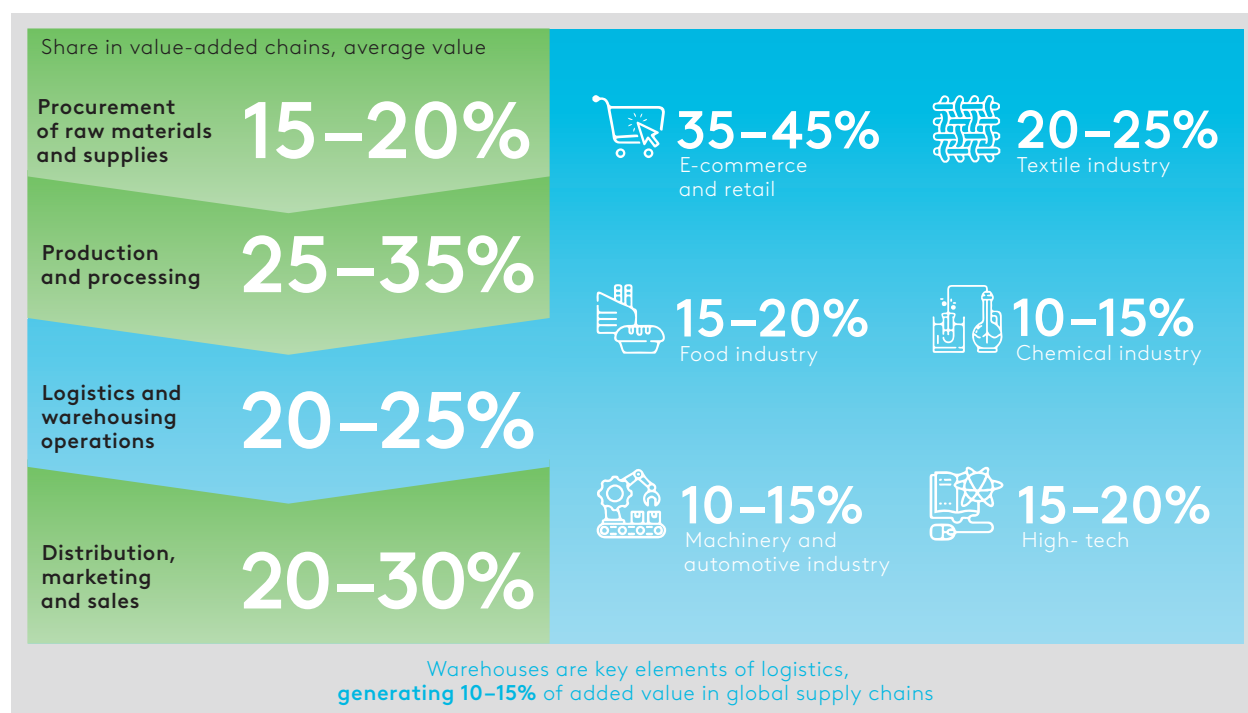
Sources: EDB experts' assessments based on data by McKinsey & Company, Deloitte, PwC, CSCMP.

Socio-economic effects of warehouse development. Modern warehouses are not just storage facilities, but multifunctional hubs that affect business efficiency, logistics sustainability, and social development.

- **Lower prices for consumers.** Locating distribution centres closer to sales markets reduces transportation costs and delivery times, lowering production costs and final prices. The World Bank notes that optimizing warehouse logistics can reduce costs by 10–30% by reducing downtime, improving inventory management, and speeding up deliveries. According to McKinsey, automation can reduce operating costs by 25% and processing time by 30–40%. In countries with developed infrastructure, logistics accounts for only 8–10% of the cost of goods, while in developing countries it accounts for up to 25%. Reducing logistics costs makes goods more affordable and curbs inflation. Conversely, rising logistics costs lead to higher prices, as was the case in Europe in 2022–2025 (CEPR, 2025).

- **Increased supply chain resilience.** Warehouses are a key link in logistics, affecting the speed and reliability of service. According to the US Supply Chain Management Council, up to 60% of the cost of the entire chain is generated at the logistics and storage stages, half of which is due to warehouse operations (Figure 2). According to Deloitte, companies with a developed warehouse network recover from disruptions 20–25% faster, which is critical in conditions of geopolitical instability, natural disasters, and climate risks. A developed warehouse infrastructure affects not only the efficiency of trade, but also the sustainability of agricultural systems, the involvement of small businesses, and product quality.
- **Improving food security and reducing losses.** In agrarian economies, the development of vegetable storage facilities, elevators, and cold storage warehouses is critically important. High-quality warehouses allow crops to be stored without loss, smoothing out seasonal fluctuations and stabilizing prices. In countries with hot climates, the lack of warehouses leads to significant losses, while investment in temperature-controlled storage facilities can drastically reduce them. For countries in the Eurasian region with harsh climates, the development of such facilities is key to food security and sustainable agricultural exports.

↓ Figure 2. Impact of warehouse infrastructure on key production chains



Sources: EDB experts' assessments based on data by McKinsey & Company, Deloitte, PwC, CSCMP.

- **Integration of small businesses into markets.** Modern logistics hubs allow small producers and farmers to consolidate their products, form large batches, and enter new sales channels. This provides access to economies of scale and integration into value chains. For example, farmers can join forces to export jointly through a single logistics centre. Small logistics companies gain the opportunity to work within a common system without having to build their own warehouses (Rodrigue, 2020). The development of a Trade and Logistics Centre (TLC) network also reduces delivery losses: from 2.5% in the 1990s to 0.1% in 2019 (Rushton et al., 2022), which strengthens trust in local operators and stimulates industry cooperation.
- **Ensuring quality and compliance with standards.** Warehouses perform not only storage functions, but also quality control, labelling, and packaging. Modern facilities — especially in the pharmaceutical industry and for perishable goods — ensure compliance with all storage standards. For example, climate-controlled warehouses guarantee the safety of vaccines and medicines, directly affecting public health. Equipping facilities with batch tracking and labelling technologies increases supply transparency, facilitates customs procedures, and boosts trust among external partners.
- **Reducing the burden on the environment.** Optimizing warehouse logistics and implementing environmentally responsible solutions in supply chains significantly reduce the burden on the environment. According to UNCTAD, improving logistics can reduce CO₂ emissions from transport by 20–30% by reducing mileage, increasing load capacity, and reducing the frequency of trips. Green warehouses reduce energy consumption by 40% and carbon emissions by 30%. Smart routing, reduced empty runs, and an increase in the share of piggyback transport provide additional benefits. Environmental standards for transport are becoming stricter in Europe: Euro VI standards have reduced CO₂ emissions by a factor of three, hydrocarbons by a factor of 10, nitrogen oxides by a factor of 20, and particulate matter by a factor of 36 compared to Euro I (McKinnon et al., 2015). Rail transport remains the most environmentally responsible, especially when using multimodal schemes. Many logistics centres are switching to solar panels, electric forklifts, energy-efficient technologies, and biofuel vehicles, all of which contributes to the “greening” of the entire logistics chain.

1.3. Current state of the warehousing market

The Eurasian region is highly heterogeneous in the development of logistics and warehouse infrastructure. The lack of access to the sea in most countries, remoteness from global markets, historical trade routes, and economic specialization shape differences in needs and opportunities. The most developed warehouse facilities are concentrated in Russia and Belarus, while the countries of Central Asia and the South Caucasus have only begun to actively expand them in recent years.

Since 2022, the warehousing market in Eurasia has been undergoing and will undergo accelerated systemic transformation under the influence of several interrelated factors. One of the key drivers has been the redistribution of trade flows: geopolitical changes have significantly accelerated the emerging process of increasing the role of Central Asia and the South Caucasus as transit hubs. Kazakhstan and Uzbekistan are becoming key points on the Trans-Caspian International Transport Route (TITR, Middle Corridor), which connects China with Türkiye and Europe, bypassing traditional routes. This is creating sustained demand for modern logistics facilities, including multimodal terminals and distribution centres.

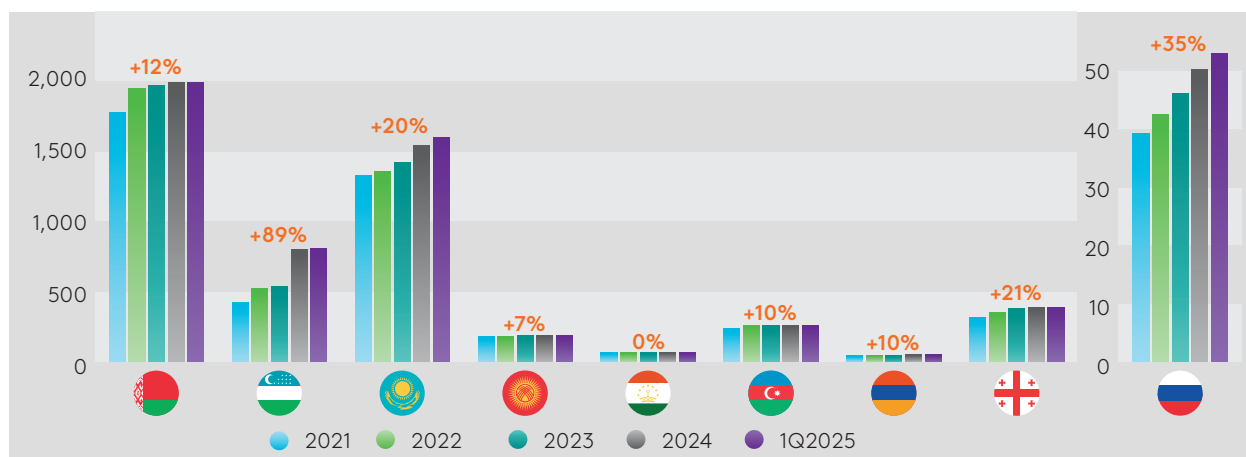
The second powerful stimulus has been the growth of e-commerce, especially in Kazakhstan, Uzbekistan, and Russia. The increase in online sales requires not only fast delivery but also highly efficient warehouse infrastructure, from fulfilment centres to last-mile warehouses. In response to this demand, automation is developing, and hybrid storage models and micro-warehouses built into residential areas are emerging. Interest in contract logistics and 3PL solutions is also growing, especially in the FMCG and online retail segments, indicating a shift from the model of proprietary warehouses to more flexible outsourcing.

Meanwhile, new logistics ecosystems are forming in a number of countries, in which warehouses, transport, and distribution are coordinated on the basis of a digital platform. This is particularly noticeable in Kazakhstan and Uzbekistan, where the state is creating conditions for logistics clusters. State support in the form of incentives, construction programmes, and modernization of warehouse infrastructure reduces institutional risks and attracts private capital. There are already projects for wholesale distribution centres (WDCs) and logistics centres with multimodal capabilities, combining road, rail and maritime transport, which increases the sustainability of supplies and reduces dependence on a single mode of transport.

From 2021 to Q1 2025, the total warehouse space in the region grew from 44 to 58 million m² (Figure 3). In Central Asia, the South Caucasus, and Belarus, the total stock reached 5.5 million m². Kazakhstan (~1.6 million m²), Belarus (~2.0 million m²), and Uzbekistan (~0.8 million m²) are the leaders. These countries are experiencing a construction boom. Starting from a low base, Uzbekistan will reach third place in terms of volume by 2025, excluding Russia.

Russia remains the largest market: the country has about 53 million m² of warehouse space, more than half of which is concentrated in the Moscow and St. Petersburg regions. However, the growth rate here is lower than in other countries. Also, a significant part of the warehouses are outdated facilities or small premises, while there is still a shortage of modern Class A and B warehouses. The overall market structure is gradually shifting from Class B to Class A warehouses. Class B warehouses (often converted hangars with low ceilings and minimal automation) still dominate, but most new projects meet Class A standards.

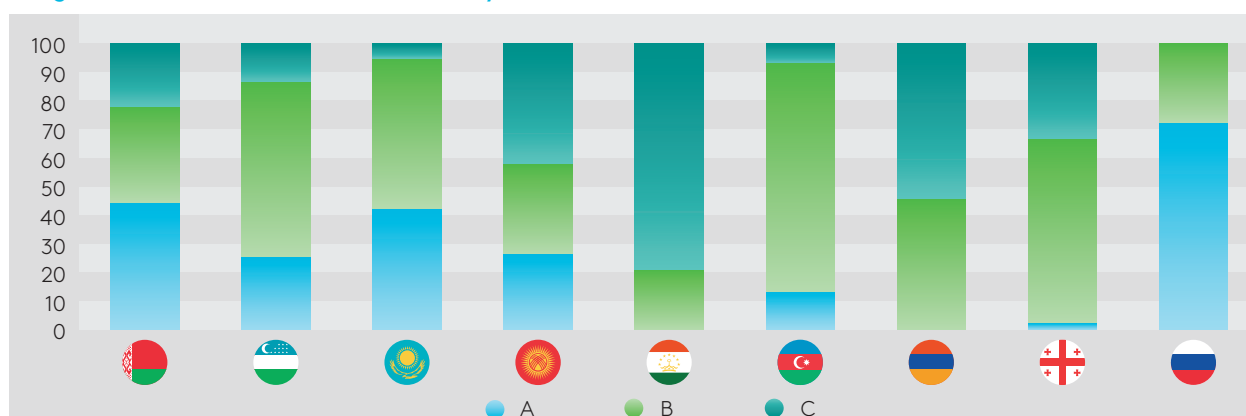
↓ Figure 3. Dynamics of changes in warehouse space in the Eurasian region, thousand m² (million m² for Russia)



Sources: calculations by EDB and CMWP experts.

In most countries, however, the share of Class A warehouses remains low. In Central Asia and the South Caucasus, it rarely exceeds 30% (Figure 4). The exception is Russia, where the market is supported by the activities of federal developers and large tenants. In other countries, Class B and C warehouses predominate. In Armenia and Tajikistan, Class A warehouses are virtually non-existent: the market consists mainly of outdated or converted facilities.

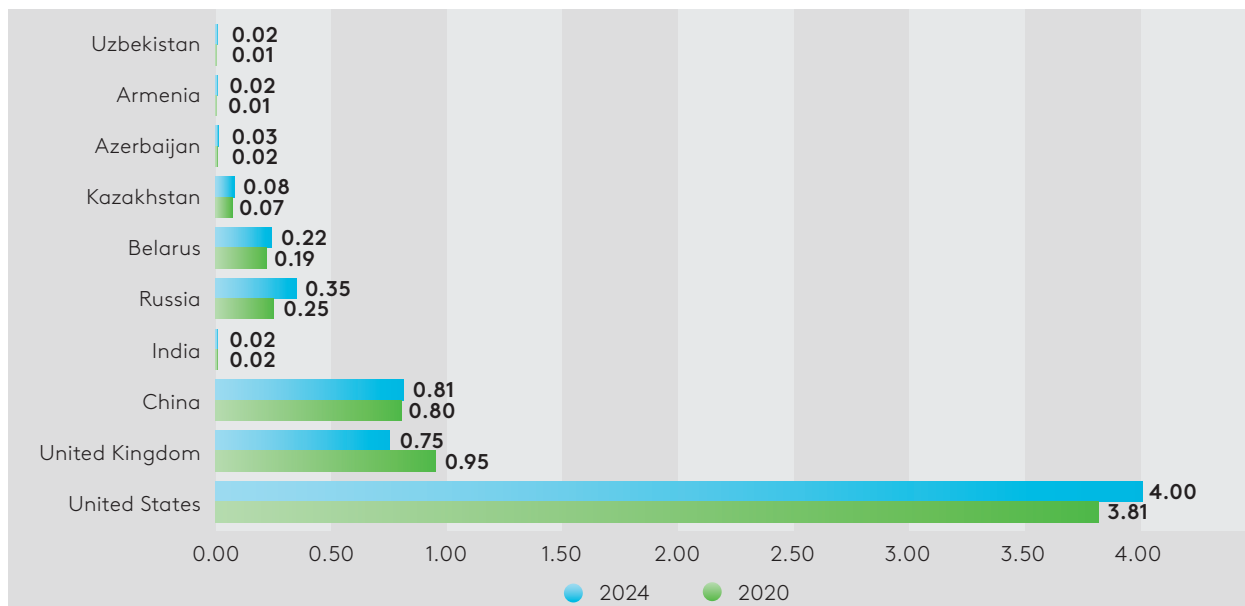
↓ Figure 4. Distribution of warehouses by class, %



Sources: calculations by EDB and CMWP experts.

Per capita warehouse capacity in the Eurasian region remains low and is growing slowly (Figure 5). In Russia, it increased from 0.25 m² per person in 2020 to 0.35 m² in 2024. Despite this growth, the indicator remains below the level required for a balanced logistics system. In Kazakhstan, availability increased from 0.07 to 0.08 m² per person, and in Belarus from 0.19 to 0.22 m². In Uzbekistan and Armenia, the indicator remains virtually unchanged, ranging from 0.01 to 0.03 m², which indicates a serious shortage of modern warehouse infrastructure and weak development activity.

↓ Figure 5. Warehouse capacity per capita, m²

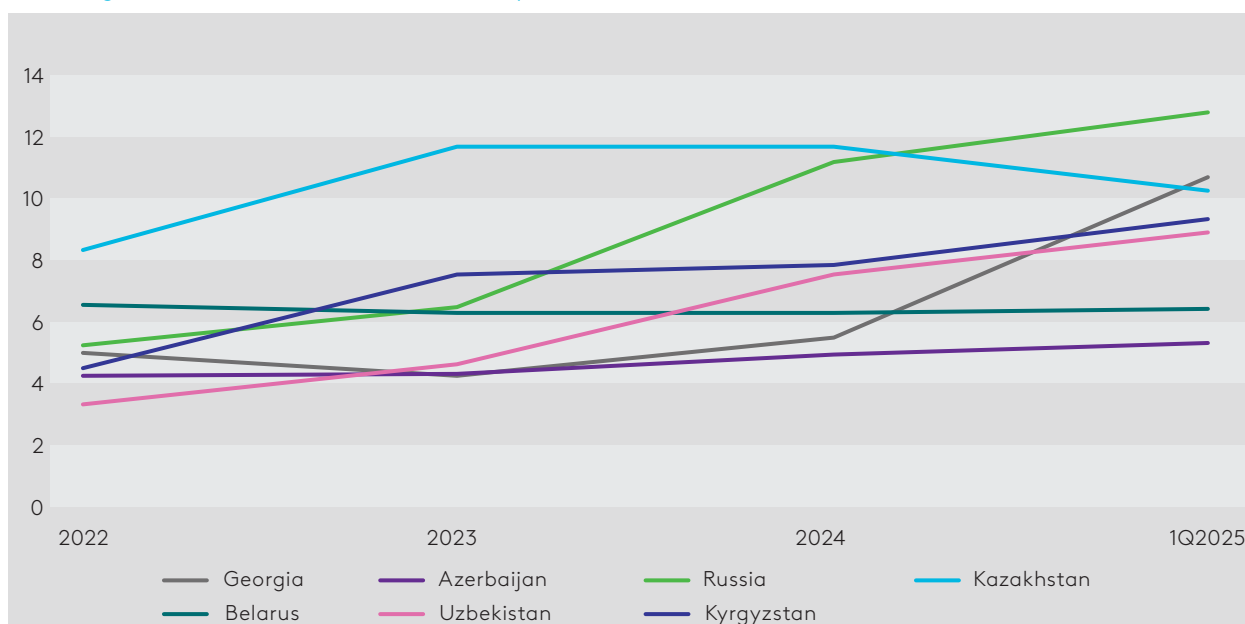


Sources: NF Group Research, CMWP.

For comparison: in the US, coverage reached 4.00 m² per capita (3.81 in 2020), in China — 0.81 m², and in the UK — 0.95 m². The gap with developed logistics markets remains significant. Local hubs in the Moscow region, Minsk, and Baku partially compensate for the deficit, but in most countries, centralized logistics hubs are either absent or still in the process of being formed.

Warehouse rental rates have been growing across the region over the past five years, but the pace varies greatly (Figure 6). In Russia, the average rate rose from \$7.43 to \$12.56 per m² per month for 2023–2024, the highest level among the countries of the Eurasian region. It is followed by Georgia (\$10.7) and Kazakhstan (\$10.25).

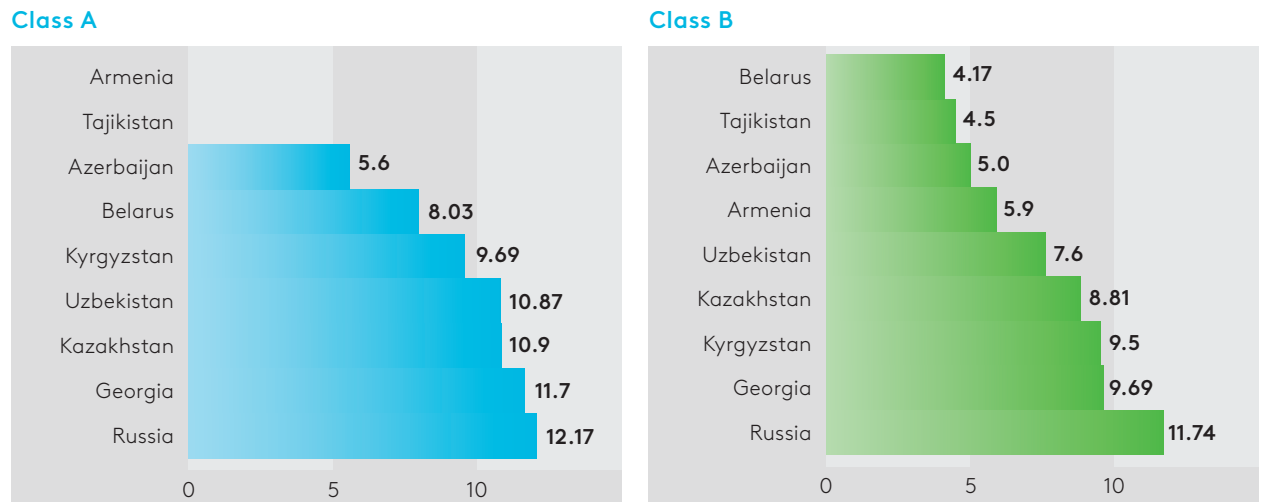
↓ Figure 6. Average rental rates in the Eurasian region (average market value excluding OpEx, management fees, and VAT, \$/m²/month)



Sources: calculations by EDB and CMWP experts.

Rental rates for Class A warehouses at the beginning of 2025 range from \$5 to \$12.2 per m² per month, while for Classes B and C they range from \$4 to \$11.7. The highest rates are in Russia, Georgia, and Kazakhstan (Figure 7). The gap between classes is particularly noticeable in countries with limited supply of high-quality warehouse space, particularly in Belarus and Uzbekistan.

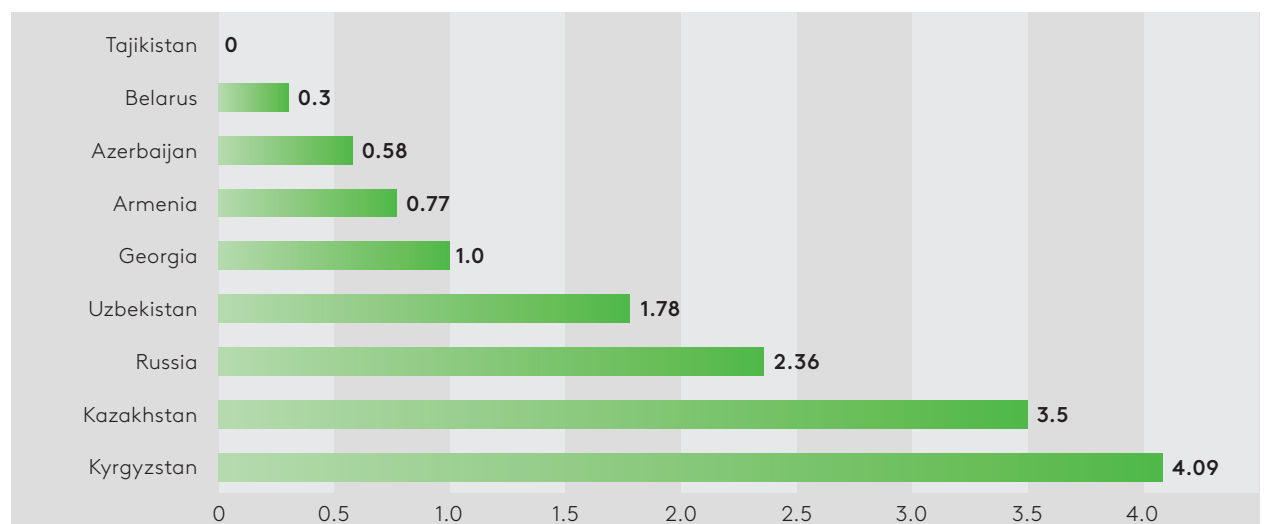
↓ Figure 7. Rental rates (average market value excluding OpeX, management fees, and VAT, USD/m²/month)



Sources: calculations by EDB and CMWP experts.

Vacancy rates remain low. In Tajikistan and Belarus, there is virtually no vacant space (0% and 0.3%, respectively). In Uzbekistan, the figure is 1.8%, in Kazakhstan — 3.5%, and in Kyrgyzstan — 4.1%. However, the actual level may be lower: a significant part of the demand has already been generated, and available properties are often not published in open sources.

↓ Figure 8. Vacancy rate in Q2 2025, %



Sources: calculations by EDB and CMWP experts.

In Q3 2025, the region's warehousing market began to show signs of correction after a prolonged period of growth. According to the NF Group, in Q3 2025, the total

volume of high-quality warehouse property in Russia reached 53.7 million m². The Moscow region accounts for about 50% — 26.7 million m²; St. Petersburg and the Leningrad region — 6 million m² (11%), and the remaining regions together account for 21 million m² (39%). It is expected that in 2025 the volume of new warehouse space coming on stream will reach a record 7.6 million m² and in 2026 another 6.2 million m² may enter the market. The growth in supply is already having an impact on key market indicators. In particular, the weighted average asking rent for Class A dry warehouses in the Moscow region fell to 11,630 rubles (\$138) per square metre per year (excluding operating costs and VAT). This was the first decline after a long period of steady growth. In addition, the vacancy rate in the region rose to 2.8% (including subleases), an increase of 2.1 p.p. compared to the end of 2024.

In Kazakhstan, the market also showed growth in supply in Q3 2025. The total volume of high-quality warehouse space reached 1.78 million m², which is 15% higher than in the same period of 2024. However, the growth in supply was accompanied by an increase in the vacancy rate: while in 2024 this figure was only 1.2%, by the end of Q3 2025 it had risen to 5.4%. The market remains concentrated in the largest cities, with about 80% of all high-quality space located in Almaty and Astana. In these cities, rates for Class A warehouses range from 5,100 to 5,200 tenge (\$9.4–9.6) per square metre per month. The average rent across the country was 4,830 tenge (\$8.9) per square metre per month, which is lower than in 2024, when it was 5,600 tenge (\$11.9).

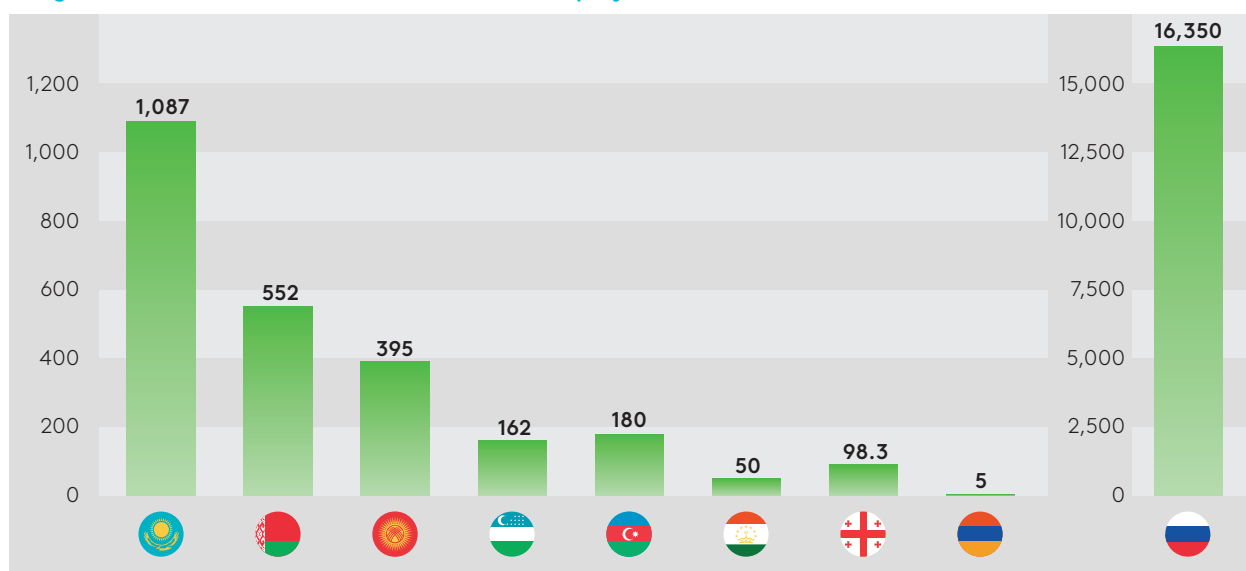
1.4. Trends in the commissioning of new warehouse space

According to the most recent data, more than 20 million m² of new warehouses are planned for construction in the region, of which about 1.6 million m² will be in Central Asia ([Figure 9](#)). Amid the transformation of global logistics chains after 2022, the countries of Central Asia, the South Caucasus, Russia, and Belarus are stepping up the development of warehouse infrastructure in response to new challenges and opportunities. Increased trade, the growing role of transit routes, and structural changes in e-commerce are stimulating demand for modern logistics facilities in all countries of the region. In Kazakhstan and Uzbekistan, large-scale construction of warehouses is underway, with a focus on future tenants. In countries with limited developer resources, such as Kyrgyzstan, Tajikistan, Georgia, and Armenia, warehouse projects are being implemented with the support of the state or external investors.

Large-scale construction of warehouses is underway in **Kazakhstan**, mainly near Almaty, with a focus on future tenants. Between 2024 and 2026, up to 700,000 m² of warehouse space is planned to be commissioned ([NF Group, 2024](#)). Among the largest projects is the Wildberries logistics centre in Almaty, which is designed for several hundred thousand m² and is focused on online commerce and regional distribution. Continental Logistics Almaty is being built as a multimodal hub with rail and road delivery capabilities, including temperature-controlled zones for FMCG.

The Focus Aksengir project is a logistics park at the junction of the Almaty-Kapchagai highway, involving the phased construction of Class A warehouses with a total area of over 200,000 m². Two more projects are under construction in the Almaty region: the Eurasian Logistics Park with a total area of 50,000 m² with the prospect of increasing to 250,000 m² and the Griffin logistics park with a total area of 27,000 m², with the prospect of increasing to 110,000 m². In addition, a network of container terminals is being developed within the China-Europe corridor.

↓ Figure 9. Announced warehouse construction projects, thousand m²



Sources: calculations by EDB and CMWP experts.

In **Kyrgyzstan**, the main projects are being implemented in Bishkek. These include Asia Park, a modern complex with multi-temperature warehouses and a logistics zone, and Batyr Logistic Centre, focused on transit and FMCG distribution. Another project is the construction of the Global Hub agricultural logistics centre and Class A warehouses near Bishkek with an area of 57,000 m² and the possibility of expansion to 132,000 m². The country's importance as a transit hub is being strengthened by the construction of the China-Kyrgyzstan-Uzbekistan railway, which is accompanied by the modernization of warehouse facilities along the route.

Belarus has focused on industrial and logistics parks, such as Veliki Kamen, where modern warehouse space and hubs for international trade are being developed. At the same time, old warehouses are being renovated. Direct construction of new warehouses is limited, but there is potential for growth within the transit economy. One of the significant projects is the expansion of the Prilesye logistics complex in Minsk (the total area of the first phase of the project is 111,000 m² with the prospect of increasing it to 200,000 m²). The reorientation of freight flows from European destinations to routes through China and other Asian countries is increasing demand for long-term storage and automation, especially in the Minsk region.

Despite rising rental rates, **Russia** is facing constraints in new construction due to the rising cost of financing. Approximately 18.9 million m² of warehouses are in the design stage on the market. The largest projects are related to the build-to-suit (BTS) format: Ozon and Wildberries are expanding their logistics park networks near Moscow and in the regions. Redevelopment is actively underway: old industrial zones and shopping centres (e.g., Savelovsky) are being converted into urban warehouses (NF Group, 2025). The role of regional hubs such as Yekaterinburg, Kazan, Novosibirsk, and Krasnodar is growing. However, there is still an acute shortage of Class A warehouses in the east of the country. Multimodal routes are actively developing but are hampered by infrastructure wear and tear and a shortage of rolling stock.

Georgia is experiencing an acute shortage of warehouse space, especially in Tbilisi. High rents and expensive 3PL services are stimulating the development of proprietary infrastructure. Large companies are setting up their own distribution centres near railways and highways. Night logistics schemes and multimodal routes through Poti and Batumi are being used. However, poor coordination between operators and a shortage of railcars are holding back growth.

Azerbaijan is developing logistics based on a centralized model. Baku has a large warehouse hub with cross-docking facilities that handles container flows across the Caspian Sea. Customs simplifications speed up operations, but the market for independent logistics providers remains limited.

Uzbekistan continues to experience an acute shortage of Class A warehouses — the entire volume of new space delivered in 2024 (around 200,000 m²) was almost entirely absorbed by tenants. In 2025, the Samarkand multimodal logistics park is scheduled to open, combining cross-docking, multi-temperature warehouses, and e-commerce zones. The project is supported by government investment and is focused on integration with the Tashkent-Bukhara railway. In addition, development continues on the Uzun Market complex, the largest e-commerce platform in the country, which is forming its own warehouse and sorting network in Tashkent and the regions.

In **Tajikistan** key facilities are concentrated in Dushanbe and are implemented on a build-to-suit basis for retail chains and logistics operators. However, the market remains narrow, with limited diversification and high dependence on international aid. International donors play a key role: the Asian Development Bank and investors from the Persian Gulf countries are financing the construction of multi-temperature and agrologic facilities.

Thus, as trade routes change and e-commerce grows, the Eurasian region is forming a new logistics map. Amid growing demand and logistical reorientation, Central Asia and the South Caucasus are increasingly integrating into global supply chains through the modernization of warehouse infrastructure and the development of new logistics hubs.

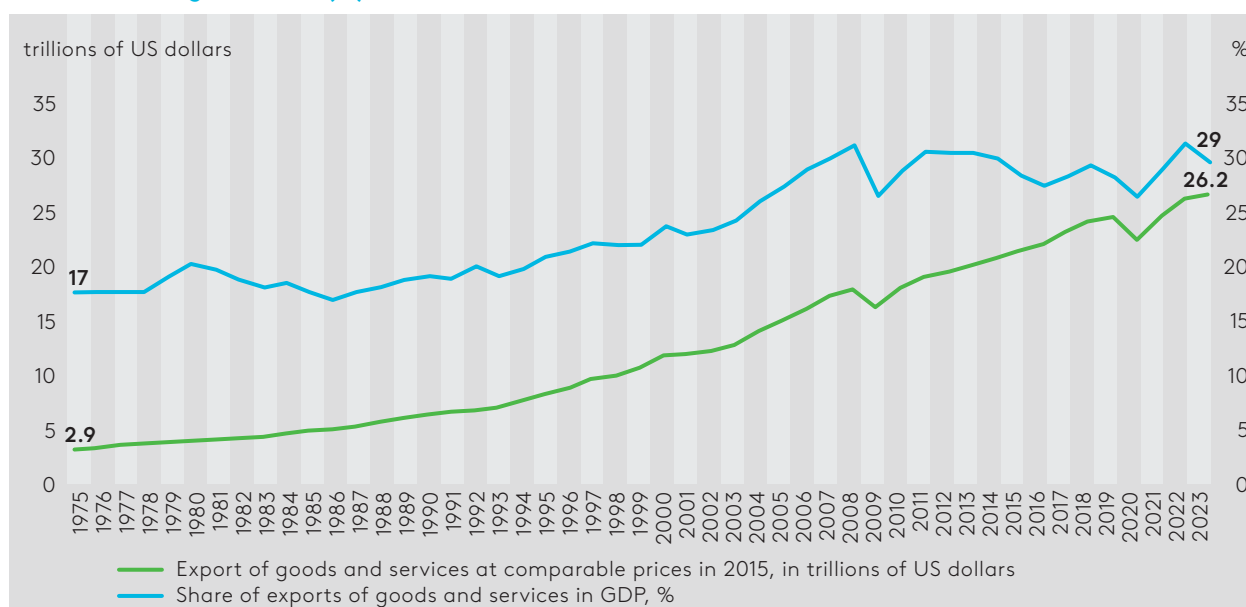
2. FACTORS IN THE DEVELOPMENT OF WAREHOUSE INFRASTRUCTURE IN THE EURASIAN REGION

The dynamics of warehouse infrastructure development in the Eurasian region are driven by a wide range of factors, from structural shifts in trade and government policy to technological trends and the evolution of demand from major consumers of logistics services. Below we examine the key external and internal factors determining the development of the warehouse logistics sector today and in the future, and analyze the characteristics and drivers of demand in key segments such as retail chains, e-commerce, industry, agriculture, transport and logistics operators, and pharmaceuticals.

2.1. Reorientation of international trade flows

Recent decades have seen significant shifts in the geography of world trade. While global exports grew steadily from 1975 to 2008 (*sixfold in real terms*) and reached ~31% of global GDP, this figure plateaued in the 2010s (Figure 10). A series of shocks — the 2008 financial crisis, the COVID-19 pandemic (2020), the periodic blockage of the Suez Canal (2021–2024), and the escalation of geopolitical tensions after 2022 — pushed the world from an era of globalization to a new phase of regionalization and trade protectionism.

↓ **Figure 10. Global exports of goods and services: volumes in 2015 comparable prices (\$ trillions) and share of global GDP (%)**



Source: World Bank.

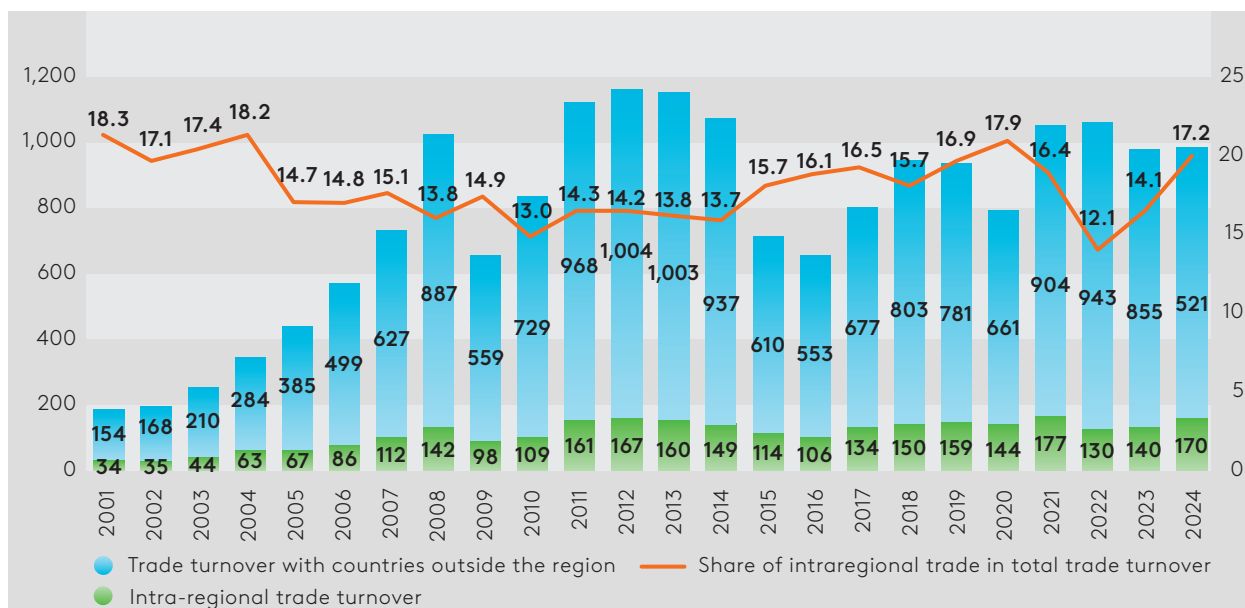
The main trend is restructuring, with a shift of emphasis in trade routes towards regional connections. Global trade is characterized not so much by a decline as by a change in its spatial configuration. For example, among the countries that have trade relations with China, the share of developing countries exceeded half for the first time: by 2024, more than 50% of China's imports and exports were accounted for by countries in Asia, Latin America, and elsewhere, while the role of the US, Japan, and Europe declined. For example, ASEAN countries overtook the EU and became China's largest trading partner in 2024 (McKinsey, 2025). Europe has reoriented its energy imports from Russia to the US, while China has increased its imports of raw materials from Russia and expanded trade with Southeast Asia. These facts point to a shift in the centre of world trade towards Asia and America, as well as to the growing complexity of supply chains (*growth in intermediate supplies in electronics, mechanical engineering, textiles, etc.*).

After 2022, Russia radically changed the direction of its exports and imports: the EU's share of Russian exports fell from 38.3% to 15% in 2021–2024, while Asia's share rose to 76%. Russian imports also "turned" to the east (*68% from Asia in 2024 and a reduction in the EU's share to 26%*). China became the main trading partner, especially for supplies of auto components and electronics, while the importance of Türkiye, India, and the EAEU countries increased (Glazatova et al., 2023).

Other countries in the region are also reorienting themselves: for example, the countries of Central Asia and the Caucasus are increasing trade with China, Türkiye, and the Persian Gulf countries. As a result, the total foreign trade turnover of the ten post-Soviet countries grew more than fivefold, from \$188 billion to \$992 billion, between 2001 and 2024 (Figure 11). The region is becoming not only a transit corridor, but also an active participant in the new logistics architecture. The long-term prerequisites for this are significant population growth (*+25% from 2000 to 2023, to 3.6 billion people, including China, India, Iran, Pakistan, Türkiye, and the post-Soviet space*) and growth in per capita income (*by 1.5–2 times in a number of countries*), which strengthens the domestic consumer market and requires the development of warehouse and distribution infrastructure to serve it.

Disruptions in traditional deep-sea shipping routes have increased interest in overland latitudinal and meridional alternatives passing through countries in the Eurasian region. The Suez Canal handled up to 12–15% of global trade and about 30% of container traffic. Its share in trade between China and Europe prior to the events of 2023–2024 exceeded 60%. The temporary closure of the canal in 2021 and a 50% drop in traffic through Suez in early 2024 highlighted the vulnerability of sea routes. Although the Northern Sea Route is developing, its capacity is still limited by seasonality and weak infrastructure. Therefore, transcontinental routes across Eurasia, such as the International North-South Transport Corridor (INSTC), the Middle Corridor, and other corridors of the Eurasian Transport Network, are becoming more attractive. For logistics, this means demand for new hubs and terminals along land corridors.

↓ Figure 11. Trade turnover in the countries of the Eurasian region, \$ billions at current prices



Source: TradeMap.

Warehouses are becoming strategic assets on these routes: distribution centres, container yards, and cross-docking warehouses are needed for cargo consolidation and transshipment. New-generation warehouses in Eurasia are beginning to combine storage with routing and cargo-processing functions. For example, the practice of “warehouse hubs” is being introduced instead of a single concentration in one port: regional distribution nodes are being created throughout the corridor network, which increases the stability of supplies and reduces delivery times.

The geo-economic reorientation of trade is accompanied by a profound restructuring of logistics infrastructure. Eurasian countries are being transformed from peripheral “transit territories” into active participants in new supply chains. For a number of countries with a low base effect (*Uzbekistan, Tajikistan, Kyrgyzstan, Armenia, Georgia*), this opens up opportunities for investment in warehouses and logistics centres. In the context of unstable global routes, the availability of modern warehouses ensures the flexibility and sustainability of regional logistics, including adaptation to peak loads, stockpiling of goods, and rapid switching of flows when routes change. Major companies are revising their storage strategies, planning to increase warehouse capacity closer to consumption points in order to mitigate the risks of delays at external borders. All this stimulates demand for modern warehouse infrastructure along the new trade axes of Eurasia.

2.2. State strategy and logistics regulation

The development of warehouse infrastructure in the Eurasian region largely depends on national strategies, investment programmes, and regulatory measures aimed at modernizing the transport and logistics system. In recent years, governments have been actively launching initiatives designed to increase transit capacity, integrate

countries into international corridors, and transform key nodes into full-fledged logistics hubs. Virtually all countries in the region have adopted long-term transport and logistics development programmes, including the construction of warehouse terminals, distribution centres, and the introduction of digital platforms.

- **Russia.** The key document is *Transport Strategy of the Russian Federation to 2030 with a forecast for the period until 2035*, approved in 2021 ([Government of the Russian Federation, 2021](#)), which provides for the modernization of railways, the growth of port capacities, the development of inland waterways, and the creation of a network of multimodal logistics centres. In September 2025, the Government of the Russian Federation approved the Comprehensive Infrastructure Development Plan (CIDP), which sets out tasks for the formation of hub multimodal logistics centres designed to handle the increasing cargo flows along the East-West and North-South transport corridors. There are plans to build 65 TLCs by 2030 ([Ministry of Transport of the Russian Federation, 2025](#)). The development of Far Eastern ports (*Vladivostok, Vostochny*) and an increase in cargo turnover on the Northern Sea Route are also planned. New hubs for the storage and transshipment of LNG cargoes are being developed in Sabetta and Lysyansk. Particular attention is being paid to the INSTC: financing has been secured for the construction of the Resht-Astara railway section in Iran, the last unfinished link on the western route of this corridor. These measures directly stimulate demand for warehouses along new routes and in regions of the Russian Federation: more than half of logistics real estate transactions in Russia are already taking place in regions outside Moscow, and decentralization continues.
- **Kazakhstan.** In 2022, *Concept for the Development of the Transport and Logistics Potential of the Republic of Kazakhstan until 2030* ([Government of the Republic of Kazakhstan, 2022](#)) was approved, with the aim of transforming Kazakhstan into a leading Eurasian transit hub. In addition to measures aimed at developing key transport corridors, the Concept also provides for the creation of a network of cross-border trade hubs at Kazakhstan's key borders with China, Kyrgyzstan, Uzbekistan, Russia, and the countries of the Caspian region. These hubs will be integrated into border cooperation sites and will include industrial zones for production, processing, and storage of products, as well as bonded warehouses and trade and tourism zones. The system will serve as a foundation for the formation of a unified EAEU commodity distribution network and links to the markets of Central and East Asia, the Middle East, and the Caucasus. To ensure efficiency, a multimodal transport infrastructure will be developed, integrated with major airports, railway and road logistics centres, which will ensure ease of access, handling and distribution of goods.
- **Uzbekistan.** Related policy documents are being implemented — the Uzbekistan-2030 strategy and *Concept for the Development of the Transport and Logistics System of the Republic of Uzbekistan until 2030* ([LexUZ, 2025](#)) were

approved in 2025. The concept provides for the formation of a modern network of logistics centres integrated into large regional centres for the export of goods, transit flows, and an international logistics network, as well as enabling the use of modern information and communication technologies and containerization of transport to take advantage of all modes of transport and provide door-to-door freight delivery services. The goal is to increase the cargo-handling capacity of the logistics centre network at least three-fold by 2030. The number of operators providing logistics services at the 3PL level and above will increase thanks to the introduction of modern logistics methods and technical modes of operation into the practice of organizing and managing cargo transportation. An electronic declaration system is being rapidly introduced, reducing transit time and costs. These initiatives will make it possible to form a network of warehouse hubs at the junction of Central and South Asia, integrating Uzbekistan into Eurasian flows.

- **Other countries.** **Belarus** is modernising its logistics as part of its National Sustainable Development Strategy until 2035 and the Transport Complex 2021–2025 state programme. In 2024, the large logistics centres Orsha-BTS and Benyakoni-BTS will be commissioned, and there are plans to expand the terminals near Minsk. In its Strategy–2040, **Kyrgyzstan** pays special attention to hubs in Bishkek and Osh (*a total of >150,000 m² of warehouses; the strategy also includes the Global Hub project*) and the construction of a railway to China. **Tajikistan** and **Turkmenistan** are implementing programmes until 2025–2030, giving priority to the creation of logistics centres (*Dushanbe, Khujand, Turkmenbashi*), the expansion of ports, and the electronic integration of customs. **Azerbaijan** is developing the port of Alat (*up to 500,000 TEU*) and a railway connection with Türkiye, and is building logistics centres in Ganja and Sumgait. **Armenia**, with the support of the World Bank, the EBRD, and other international development banks, is building the North-South Highway and logistics centres in Yerevan and Gyumri. **Georgia** has completed the modernization of the Baku-Tbilisi-Kars railway (*with a capacity of 5 million tonnes*) and is developing ports, expecting to join the TEN-T network by 2030.

Government programmes stimulate demand for warehouses in several ways. First, *infrastructure projects (new railways, ports, roads)* open up previously inaccessible areas for the construction of distribution centres. For example, the launch of the Baku-Tbilisi-Kars railway and the Middle Corridor lines has created demand for logistics parks in Western Kazakhstan, Azerbaijan, and Georgia, where there were previously no Class A facilities. Second, *financial incentives and SEZs* are significant incentives. Many countries are creating special economic zones and logistics clusters with tax and rental preferences for investors in warehouse property. This attracts international developers and 3PL operators. Third, *regulatory simplifications* play a role. The introduction of single window systems, electronic document management (e.g., *the Russian NCTLP platform*), and the unification of EAEU standards simplify cross-border transportation, which increases the efficiency of border warehouses (*bonded warehouses, consolidation warehouses*) and stimulates their construction. According

to experts, *full digitalization of processes* can reduce logistics operators' costs by 20–30% and accelerate cargo turnover, freeing up resources for investment in new warehouses. Finally, *government contracts and PPPs* have an impact: governments themselves are becoming major customers of logistics services (*for state reserves, food security, postal networks*) or are entering into PPP projects for the construction of logistics centres. For example, in Kazakhstan, the state is co-financing the construction of a hub in Khorgos, guaranteeing basic capacity utilization.

Active government policy, combined with integration processes, creates favourable conditions for the rapid development of warehouse infrastructure. However, challenges remain: in a number of countries, legislation on real estate, land, and customs is outdated, which creates additional barriers and delays the implementation of projects. To unlock the full potential of state strategies, it is important not only to build facilities, but also to ensure their *effective management*, transparent rules of access for business, and long-term coordination between countries in the region (*e.g., coordination of investment plans for hubs, exchange of data on cargo flows*). Then, foreign investors and domestic businesses will be more willing to invest in warehouse projects, knowing that they can count on support and predictability from the government.

2.3. Technological trends in logistics and warehousing

Digitalization and innovation are radically changing the face of logistics, and the Eurasian region is no exception. Adaptation to new technologies will largely determine the long-term competitiveness of the warehousing industry. Below are the key technological factors influencing the development of logistics and warehouse infrastructure in Eurasia.

- **Automation and artificial intelligence (AI).** Modern IT solutions are permeating all stages of supply chains, from warehouse inventory management to transportation planning. *Automation* involves both the introduction of robotic mechanisms and the automation of business processes (*automatic route calculation, automatic replenishment ordering, etc.*). *Artificial intelligence* provides the latest tools for forecasting demand, optimizing transport flows, and managing inventory. According to [McKinsey \(2025\)](#), AI in logistics reduces costs by 15%, cuts excess inventory in warehouses by 35%, and increases service levels by 65%. By 2030, AI systems are expected to be widely used: for example, demand forecasting in retail will reduce stockouts on shelves, and smart routers will reduce transport mileage and fuel consumption. *Smart warehouses* are already appearing, where AI daily recalculates the required stock for each item and automatically generates orders to suppliers based on forecasts; this can reduce average stock from ~60 to 30–40 days, freeing up working capital for the business. For Eurasian countries, AI is a chance to make a breakthrough in logistics efficiency amid staff shortages and infrastructure constraints. Governments are encouraging the adoption of AI: Russia has adopted a national strategy for the development of artificial intelligence,

which includes logistics for the pilot industries. Although full automation is impossible (*humans will still be needed for non-standard operations*), staffing requirements will change: data analysts and smart system operators will be needed instead of ordinary loaders. According to expert estimates, AI could deliver double-digit productivity growth in the logistics sector by 2030. There are already examples: **DHL** is testing automated order-picking algorithms, and **JD.com** is using AI to manage its giant fulfillment centres. In the Eurasian region, companies are still taking their first steps in this direction, but by the end of the decade, AI tools will become standard among leading players (*primarily in Russia and Kazakhstan*).

- **Blockchain and smart contracts.** Blockchain technology provides decentralized and secure data storage, which is used in cargo tracking, document authentication, and transaction automation using smart contracts. For logistics, this means transparency in the supply chain and trust between multiple participants (*manufacturers, carriers, warehouses, customers*). The COVID-19 pandemic has accelerated the transition from paper-based procedures to digital ones, demonstrating the advantages of blockchain: for example, the GSBN platform has reduced the time it takes to clear cargo at the port of Shanghai from several days to a couple of hours by eliminating paper documents. Research confirms its effectiveness: the introduction of blockchain in the food supply chain reduces the delivery cycle by ~20% and, in the long term, reduces operating costs by 15–25% ([Vu et al., 2024](#)). Smart contracts can automatically make payments and verify compliance with terms and conditions, virtually eliminating delays and errors. In warehouse accounting, blockchain makes it possible to know the exact location of goods at any given moment and track demand in real time, allowing a shift from reactive to proactive inventory management. However, barriers such as the lack of uniform standards and legal issues are still holding back widespread adoption. **In the Eurasian region**, blockchain projects are in the pilot stage: Russia is experimenting with labelling and tracking goods through distributed ledgers and is implementing data exchange between customs authorities. The upcoming launch of the National Digital Transport and Logistics Platform (NDTLP) may use elements of blockchain for secure information exchange. By 2030, blockchain is expected to occupy a niche in Eurasian B2B logistics for verifying certificates, guaranteeing the origin of goods, and integrating national digital systems ([Grand View Research, 2023](#)). Globally, the market for blockchain solutions for supply chains is growing by 90% annually and exceeded \$2.2 billion in 2023. In order to keep up, it is important for countries in the region to participate in the development of standards and legislative support for these technologies.
- **The concept of the Internet of Things (IoT) and warehouse robotization.** *The Internet of Things* in logistics is a network of connected sensors and devices that collect data about goods and equipment in real time (*RFID tags, temperature and humidity sensors, surveillance cameras, wearable gadgets for staff, etc.*). *Robotization* is the introduction of autonomous mechanisms for moving, storing,

and sorting goods without human involvement. Together, these two trends form the concept of a “smart warehouse,” where a significant part of operations is automated, and people control processes and solve non-standard tasks. Experts note that robotization has become the new standard for global logistics players. The goal is not to replace staff entirely, but to increase productivity and safety: 77% of logistics managers believe that equipping employees with technology (*scanners, wearable computers, assistant robots*) is the best way to improve efficiency ([Zebra Technologies, 2023](#)). DHL research has shown that the use of augmented reality glasses in warehouses has accelerated order picking by 15–25%. “Smart warehouses” use RFID tags and sensors to track inventory and storage conditions in real time, warning of deviations (*such as temperature changes in pharmaceutical warehouses*). Automated storage and retrieval systems (AS/RS) allow for denser storage and faster cargo processing. Global examples: Amazon operates over 350,000 robots in its warehouses (*autonomous Kiva carts, manipulators, sorters*), which has reduced the average order processing time by a quarter. In the UK, the retailer Ocado uses hundreds of coordinated robots that can pick an order in minutes. In China, about 70% of operations at Alibaba’s warehouses are automated — the ZhuQue robot fleet moves loads of up to 600 kg at a speed of 5 m/s, recharging itself as needed. Robotization is still a novelty in the Eurasian region: a few large warehouses in Russia (*mainly within large retailers and marketplaces such as Wildberries, Ozon, and X5*) and Kazakhstan are introducing automated sorting lines and robotic loaders. Nevertheless, even selective implementations are having an effect, increasing warehouse throughput and reducing errors and costs. By 2030, we can expect that **in all new Class A complexes** in the region, a basic level of automation (*WMS, scanners, partial mechanization*) will become mandatory, and market leaders will move to the widespread use of robotics.

- **Drones and unmanned transport.** Unmanned aerial vehicles (drones) and autonomous trucks are opening up new horizons for delivery. Commercial drone deliveries are not yet widespread, but pilot projects are underway around the world. JD.com (China) already uses drones to deliver goods to rural areas, and the American company Zipline uses drones to transport medical supplies to hard-to-reach locations. Driverless trucks are being tested in the US (*Waymo, TuSimple, etc.*), while in Europe, automated “platoon” convoys of trucks are being tested. In Eurasia, such solutions are only being tested: test sites for autonomous KamAZ trucks have been created in Russia; X5 Group’s driverless trucks have travelled the Moscow-St. Petersburg route, and postal drones have been launched in certain regions. The main barrier is legislation (*the movement of unmanned vehicles on public roads and the use of airspace are not regulated*). For warehouses, the spread of drones and autonomous transport means that infrastructure will need to be adapted: *drone ports* will appear on the roofs and grounds of warehouses, and warehouse staff will need to be able to interact with robotic trucks arriving at night for unloading. Some companies are already using drones for inventory purposes: the drone flies around the shelves and reads RFID tags, keeping track of inventory much faster

than a human. By 2030, we can expect selective implementation in the region: for example, drones could be used to monitor large warehouse complexes or deliver urgent small shipments within a city, while autonomous trucks could be used for long-distance overnight runs between hubs. They will not yet have a mass effect, but they will lay the foundation for the future development of logistics with minimal human involvement.

- **Big Data and analytics.** Logistics generates enormous amounts of data: transport movements (*GPS tracks*), equipment performance parameters, warehouse operations, order transactions, customer reviews, etc. The availability of cloud technologies and inexpensive storage allows this Big Data to be collected and analyzed to gain competitive advantages. *Big Data analytics* helps identify bottlenecks in supply chains, optimize delivery routes, forecast demand, and manage inventory down to individual SKUs. In Eurasia, Big Data competencies are still developing — investments in data centres and staff training in data analysis are needed. Nevertheless, the trend is clear: by 2030, virtually every logistics operation will be accompanied by performance metrics (*processing time, cost, service level, carbon footprint, etc.*), and decisions will be made based on *data-driven* approaches. In Russia, there is talk of end-to-end analytics that combines production, warehouse, and delivery data, while in Kazakhstan, large retailers are creating data science departments. Big Data goes hand in hand with AI: deep machine learning on large logistics data sets can find hidden patterns — for example, predict congestion at terminals or automatically select the optimal warehouse for placing new goods based on sales geography. When used effectively, big data can increase transport and warehouse utilization by 10–20% through better planning and coordination of participants.

All of these technologies work best in combination, complementing each other. The ideal picture of the warehouse of the future is an automated, high-level complex where AI-controlled robots do the heavy lifting, IoT sensors monitor the condition of equipment and inventory, and blockchain ensures trust and transparency of operations. Digital platforms bring these elements together, enabling end-to-end optimization of the entire chain, from the factory to the end customer. The Eurasian region is striving to integrate into these global trends: by 2030, document flow and operational processes in logistics are expected to be almost completely digitized, which will lay the foundation for the introduction of advanced technologies. In practice, however, the scale and pace of implementation will vary. Individual large corporations and hubs (*Moscow, Almaty, Minsk*) demonstrating pilot innovative projects are likely to become leaders, while the mass SME sector will remain less automated until the cost of the technology decreases. In expert interviews, the overall level of digitalization of logistics in Central Asia is described as low — only the largest retailers, distributors, and e-commerce players are implementing WMS and mechanization, while most warehouses in the region still operate in the traditional format. This means there is enormous potential for productivity growth through technology. At the same

time, there is a risk of widening the gap between leaders and laggards: high capital costs and a shortage of skilled personnel may slow down the widespread adoption of these innovations. The most effective path to development is government support, from incentives for purchasing innovative equipment to improving the regulatory framework (*adopting legislation for the commercial use of drones, recognizing electronic invoices, developing standards for e-commerce, etc.*). With a competent strategy, the technological modernization of the warehouse industry in Eurasia will become a powerful driver of its competitiveness in the global market.

2.4. Evolution of demand in the main segments of warehouse logistics

The structure of warehouse demand in the Eurasian region is shaped by the intersection of industry transformations and logistical constraints. The most active sectors are e-commerce, retail, pharmaceuticals, and agribusiness. In recent years, these sectors have been driving steady demand for warehouses with high technological capabilities, fast turnover, and temperature control. These segments have different requirements for logistics infrastructure: while high-speed order processing, cross-docking and order fulfillment, as well as sorting and last-mile delivery, are important for e-commerce, for the agricultural sector, seasonal storage, calibration, cooling, and preparation of products for shipment near production sites are important.

Despite its lower logistical flexibility, the industrial sector also remains a driver of regional demand, especially in countries with growing export ambitions, such as Kazakhstan and Uzbekistan. However, the high share of logistics embedded in vertically integrated structures reduces the involvement of independent operators, limiting the development of market logistics infrastructure. In a number of countries (such as Armenia and Tajikistan), the key barrier is limited economic diversification, which means that warehouses are used primarily as buffer capacity rather than as elements of complex logistics chains.

Segmentation by end user type shows that universal warehouses no longer meet the requirements of most industries, and in the coming years, the market will shift toward specialized facilities — pharmaceutical warehouses, grain storage facilities, and fulfillment centres. The analysis should be based not only on macroeconomic scenarios, but also on the specifics of the industry's demand structure, its seasonality, regulations, and degree of technological maturity.

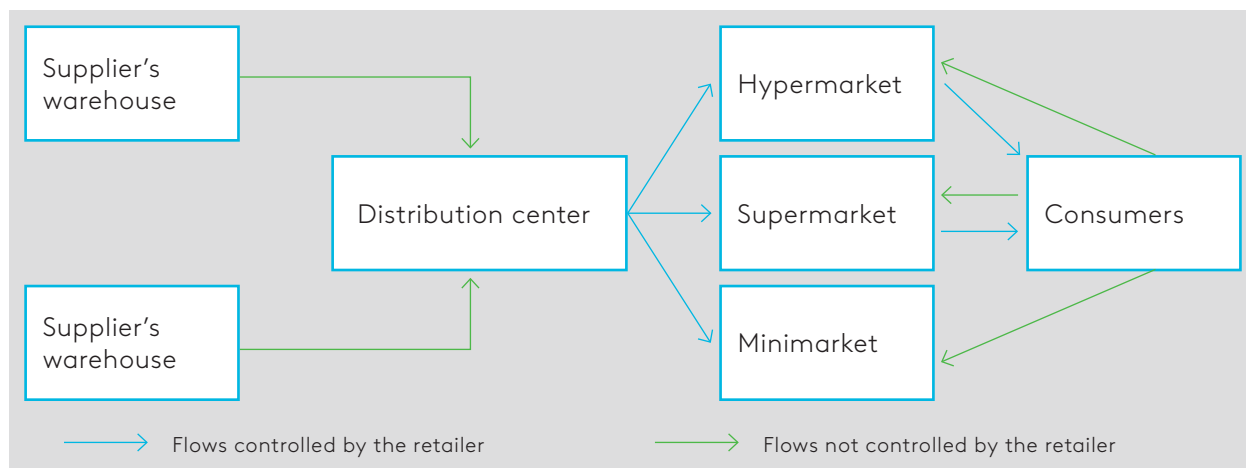
Warehouse infrastructure serves different industries and types of customers, and each consumer group has its own requirements and demand trends. Let's look at how demand for warehouses is developing and what drives it in key segments: retail chains and retail trade, local and cross-border e-commerce, industry, agribusiness, transport logistics, and the pharmaceutical sector.

Retail chains and retail trade

Retail remains the main use of warehouse space in most countries in the Eurasian region. In Russia, 49.66 million m² are occupied by retail facilities, which accounts for 94% of the country's total warehouse stock. The share of retail in the demand for warehouse infrastructure in Russia in 2019–2024 was 25–30%. Comparable proportions were recorded in Belarus (97% of the total stock, or 1.94 million m²) and Kazakhstan (90%, 1.45 million m²). In the South Caucasus countries — Armenia (91% of the total volume, or 55,800 m²) and Georgia (86%, 334,500 m²), as well as in a number of Central Asian states — Tajikistan (89%, 74,600 m²) and Turkmenistan (100%, 13,900 m²) — the volume of retail warehouses is limited. Azerbaijan has a more balanced structure, with the retail sector accounting for 94% of the warehouse stock (279,700 m²). In Uzbekistan, the sector accounts for 79% of the warehouse stock (637,900 m²).

Large retail chains (*food and non-food*) were among the first to start building modern warehouse operations in the region. Behind the facades of supermarkets and hypermarkets are extensive supply chains covering different countries and regions. Logistics is developing particularly rapidly in the FMCG², DIY³, electronics, and clothing segments. To ensure uninterrupted deliveries, trading companies are creating their own distribution centres (DCs) — large warehouses that receive goods from dozens and hundreds of suppliers (Figure 12). At DCs, products are consolidated and sorted by store or destination, often without being unpacked into individual items (*cross-docking of pallets and boxes*). Food DCs are equipped with refrigerated chambers and cold storage for fresh and frozen goods.

↓ Figure 12. Logistics diagram of multi-channel retailers



Source: Dybskaya, 2021.

² FMCG, or Fast Moving Consumer Goods, are everyday goods that sell quickly due to their low cost and frequent necessity, and also have a relatively short shelf life. These include food, beverages, hygiene products, household chemicals, and cosmetics. This dynamic and highly competitive market requires companies to constantly fight for consumer attention and respond quickly to changing trends.

³ DIY (Do It Yourself) as a retail segment is the retail sale of goods for independent repair, construction, home and garden improvement, hobbies, and creativity, which allow buyers to perform various tasks themselves without involving professionals. The range of such stores includes building materials, tools, goods for the home, garden, decor, and much more.

In the Eurasian region, the degree of development of such infrastructure varies: in Russia, most large distribution centres are Class A (*especially for federal retail chains, with the exception of certain formats such as Svetofor*), while in Kyrgyzstan and Tajikistan, for example, Class B and C warehouses still predominate. Kazakhstan and Belarus are in the middle: modern warehouses are being built, but a significant part of retail still relies on mid-class facilities. In Uzbekistan, the situation is transitional: the first Class A logistics complexes have been put into operation (*Korzinka chain*), but there are still too few of them to cover the entire country.

As a rule, retailers' key distribution centres are located in capitals and major cities; for example, Almaty, Astana, and Tashkent are home to the main warehouses of national retail chains. They receive wholesale shipments (*mainly in containers by rail*) and then distribute goods to stores by road. Food imports to Central Asia mainly come from Russia, while non-food imports come from China and South East Asia. The main transit route is through Kazakhstan. Up to 80–90% of intra-state transport in the region is carried out by trucks, so convenient access and the location of warehouses near highways are critical characteristics. In second-tier cities (*Shymkent, Andijan, etc.*), chains often have smaller sorting centres (*1,500–5,000 m²*), where a limited range of goods is stored for nearby stores. Within the retail chains themselves, warehouses can play different roles: large hypermarkets often serve as distribution hubs for smaller outlets (*such as Auchan or Lenta in Russia*). This arrangement reduces dependence on a central warehouse, but requires sufficient space in the hypermarket itself.

In the 2020s, traditional retail businesses are being forced to adapt to competition from online commerce. The COVID-19 pandemic spurred the development of the omnichannel model: virtually all major chains have launched online sales with delivery or pickup from stores. This has led to the emergence of “dark stores” (*micro-warehouses within city limits that are closed to shoppers*) and increased the burden on the “last mile.” In the Eurasian region, especially in Russia and Kazakhstan, chains are investing in urban distribution points and the automation of online order fulfillment. For example, in Kazakhstan, the Magnum Cash&Carry chain (*233 stores in 14 cities with a total retail space of 280,000 m²*) operates distribution centres of 20,000–30,000 m² in Almaty, Astana, and Shymkent, as well as sorting centres of 3,000–5,000 m² in Karaganda and Petropavlovsk. According to the company's own estimates, its logistics costs are 30–50% higher than international standards. The reasons for this are relatively slow turnover of goods (*1.5–2 times lower than leading retail chains in the Eurasian region, which forces the company to reduce its product range*), low automation (*30–70% compared to 95–100% for market leaders*), and a shortage of refrigeration capacity. To solve these problems, a separate logistics division, Solve Logistics, has been launched.

As a series of interviews shows, large retailers are interested in further development in Central Asia, the South Caucasus, and Belarus, although their projects are rather modest. The market in most countries of the Eurasian region is in the formation

stage, with international retailers actively entering the region and Russian businesses becoming more engaged. There are very few large local retailers with large commodity flows; they are only just emerging. The countries are expecting further gradual consolidation of goods flows, which will contribute to growth in demand for warehouse infrastructure. In recent years, the presence of international and Russian retail companies in the Eurasian region has expanded significantly, leading to the transfer of best practices in warehouse logistics.

- Fix Price has been operating in Kazakhstan since 2019, opening more than 260 stores in 40 cities. Supplies are provided through a distribution centre in Yekaterinburg (68,000 m²). In 2024, the company transferred its registration from Cyprus to Kazakhstan, planning to localize part of its logistics and investments. In total, the retailer's warehouse capacity throughout Russia exceeded 400,000 m².
- In Western Kazakhstan, the Anvar chain is developing, with about 50 stores in six cities, a central warehouse with an area of 20,000 m² in Aktobe, and regional sorting centres with an area of 2,000–5,000 m² in Atyrau, Uralsk, Astana, and Kyzylorda.
- In Uzbekistan, the largest FMCG retailer Korzinka (150 stores in 12 regions) launched the country's first Class A distribution centre (45,000 m²) with green certification, supported by the EBRD, ADB, IFC, and DEG. In 2025, the company raised another \$110 million to expand its network to 1,000 stores.
- MAKRO (*part of the Orient holding company*) is implementing a similar strategy — the chain includes more than 100 stores served by Orient Logistics' Class A warehouses, with plans to expand to 500 outlets by 2029. Among discounters, the Baraka Market chain (PepsiCo brands) is growing rapidly, expanding both in Uzbekistan and beyond.

The retail chain segment will continue to be one of the largest sources of new demand for warehouse space in most countries in the Eurasian region. Retail trade is developing rapidly overall. Over the past 15 years, retail trade turnover in comparable prices in Central Asia has grown 2–4 times depending on the country and by 2024 reached a total of \$98 billion: \$47 billion in Kazakhstan, \$31 billion in Uzbekistan, \$10 billion in Kyrgyzstan, \$6.5 billion in Tajikistan, and \$3 billion in Turkmenistan. In the South Caucasus, retail is developing most dynamically in Azerbaijan. Over the past 15 years, retail trade turnover has grown 2.5 times, reaching \$36 billion in 2024. In Georgia, retail trade turnover amounted to \$7 billion. In Armenia, due to the decline in population, development is proceeding at a more moderate pace. Trade turnover grew 1.5 times over the same period and amounted to \$5.2 billion. All countries of the South Caucasus are characterized by a high concentration of retail in the capital regions (60–70%).

Russia and Belarus have achieved a fairly high level of retail development. These countries have managed to build their retail trade on the principles adopted in the EU.

Other countries in the region do not have retailers in the FMCG segment that could compete on equal terms with Russia's Magnit or X5 Group. However, due to the high level of saturation of the retail trade in Russia, its dynamics are more smoothed out compared to other countries. Over the past 15 years, retail trade turnover in the Russian Federation has grown by 26% and amounted to about \$600 billion in 2024. In Belarus, retail trade volume grew 2.5 times over the same period, reaching \$28 billion. Retailers in Russia and Belarus are actively expanding their online presence, developing online stores, and establishing delivery services. In addition, key national retailers in Russia are beginning to expand into the regions of Siberia and the Far East. The growth of online sales, the spread of discounters, and expansion into undeveloped regions are key drivers of increased demand for warehouse infrastructure from retailers in Russia and Belarus.

As metropolitan areas become saturated, retail in the Eurasian region is moving to the periphery, which means that distribution centres will need to be created in new locations (*such as Beltamozhservice in Grodno and Brest in Belarus or chain warehouses in regional centres in Kazakhstan and Uzbekistan*). Requirements for technology will increase: large chains are implementing inventory management systems (*SAP, Oracle*) and requiring warehouses to comply with international standards (*HACCP for food, GDP for pharmaceuticals, etc.*). Competition from e-commerce is pushing traditional players to optimize the "last mile" through partnerships with courier services or their own delivery points, as well as to implement analytics for demand forecasting and redistribution of stocks between stores.

The development of retail warehouse infrastructure in the Eurasian region is hampered by systemic factors. These include: a shortage of high-quality space, which forces retailers to construct *build-to-suit* facilities and postpone expansion (*finding a reliable large developer is also a problem*); a shortage of low-temperature facilities, including warehouses in Moscow, a significant portion of which are outdated; tightening sanctions that complicate imports and logistics; and the slow pace of digitalization of customs procedures. In Central Asia and the South Caucasus, the situation is exacerbated by the low share of modern retail (15–45%), the high cost and poor locations of warehouses, as well as logistical risks and service losses. In Russia and Belarus, additional constraints include subdued consumption growth amid high key rates and an acute shortage of logistics personnel. Taken together, these challenges are hampering the development of a modern warehouse network, limiting the potential for retail and cross-border integration of goods flows in Eurasia.

Local and cross-border online trade

Online trade in the Eurasian region is developing rapidly and represents a powerful structural trend (Vinokurov et al., 2023). This is facilitated by a combination of factors: high Internet penetration (*especially mobile Internet*), a growing young population, and, most importantly, the emergence of large marketplaces that have made online

shopping mainstream. Platforms such as Wildberries, Ozon, and Kaspi have been transformed from online storefronts into vertically integrated players that control the entire sales cycle, from attracting sellers and financial services to order logistics and returns processing. As a result, the share of e-commerce in retail turnover is growing rapidly.

Russia is the leader in the e-commerce market volume in the Eurasian region, with high growth dynamics. The volume of e-commerce in the country increased 7.5 times to 11.2 trillion rubles (*about \$136 billion*) in 2019–2024, accounting for 20% of retail trade turnover (AKIT, 2025). Russian marketplaces provide high-quality IT products and build effective logistics networks even by the standards of the world's largest players. Online retail accounts for about 10% of retail trade turnover. In Kazakhstan, online sales grew by 79% in 2024 (from 2023), reaching 3.2 trillion tenge (\$6.3 billion). The share of e-commerce in the retail trade is growing rapidly and has increased many times over the past 10 years — from 0.8% in 2015 to 14.1% in 2024. Belarus is also one of the most developed markets in the region, although the dynamics here are more restrained. From 2018 to 2024, the Belarusian e-commerce market grew 1.7 times and amounted to \$2.8 billion.

In other countries of Central Asia and the South Caucasus (*Kyrgyzstan, Tajikistan, Armenia*), e-commerce infrastructure is still developing, but the potential for scaling up is high. According to the Central Bank of Armenia, e-commerce turnover in Armenia in 2024 grew by almost 75% compared to 2023. In absolute terms, this volume amounted to \$2.5 billion in 2024. In Uzbekistan, online sales account for a modest 3% of retail trade turnover, amounting to more than \$900 million at the end of 2024. The total volume of online sales in Georgia at the end of 2024 is about \$800 million. According to Statista estimates, the volume of e-commerce in Turkmenistan reached \$370 million in 2024. In Kyrgyzstan, the domestic e-commerce market reached \$359.2 million by the end of 2024, with online sales accounting for only 7% of retail trade turnover. Tajikistan has the least developed e-commerce market in the Eurasian region, with online sales amounting to approximately \$17 million at the end of 2024.

The online trade sector has seen uneven development of fulfillment centre infrastructure, the prevalence of which reflects the maturity of e-commerce and logistics services. Russia is the leader in warehouse capacity with 2.7 million m² (5%) of the country's total logistics fund allocated to fulfillment. Marketplaces are actively developing in Kazakhstan, with 54,200 m² (3%). In Uzbekistan, the area of fulfillment facilities is 40,400 m² (5%) with plans already announced to expand by an additional 220,000 m² for Wildberries, and in Armenia, it is 5,800 m² (9%). There are no fulfillment facilities in Kyrgyzstan and Belarus, but there are plans to commission 130,000 m² of warehouses for Wildberries.

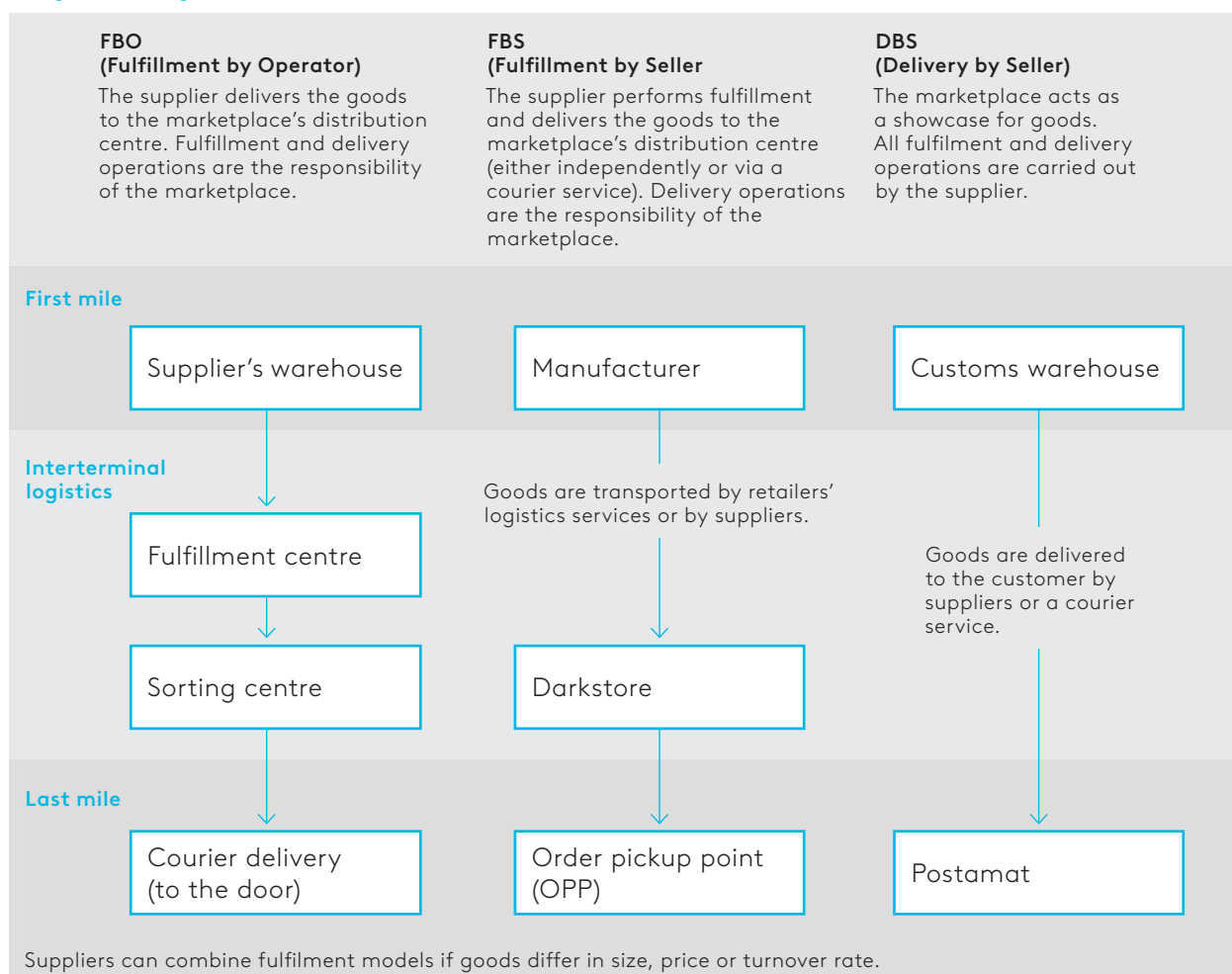
The rapid growth in online demand has been met with insufficient development of the logistics base to support it. Outside Russia, the construction of full-fledged fulfillment centres (*specialized warehouses for receiving, storing, assembling, and shipping*

online orders) is only just beginning. In Central Asia today, there are only a few Class A warehouses with an area of 20,000–30,000 m² adapted for e-commerce, while in Russia there are complexes >100,000 m². The current logistics of marketplaces are based on small sorting centres (1,000–10,000 m²), which are often low-grade and leased. At the same time, the structure of orders is changing: the number of purchases is growing, while the value of the average purchase is decreasing. This sharply increases the load on logistics — more parcels need to be processed, returns need to be managed, and a network of pickup points and parcel lockers needs to be developed, through which buyers pick up about half of all orders.

Online retail in the region uses three main logistics models: (1) *FBO (Fulfillment by Operator)* — when the marketplace takes full responsibility for storing and delivering goods to the customer; (2) *FBS (Fulfillment by Seller)* — a compromise scheme in which warehouse processing is performed by the platform, and delivery is performed by the seller or partner; (3) *DBS (Delivery by Seller)* — the marketplace only provides a showcase, and the entire logistics cycle (*from storage to delivery*) is the responsibility of the seller (Figure 13). FBO is considered the most advanced model, in which the marketplace creates its own fulfillment centres and sorting hubs for fast order picking. In the Eurasian region, the FBO model has been fully implemented only in Russia and partially in Kazakhstan; FBS and DBS dominate in other countries due to the lack of a developed warehouse network at the sites. However, the largest players are actively investing in infrastructure expansion. Fulfillment centres are being built in the agglomeration zones of large cities at the intersection of busy highways to increase the warehouse service area.

The market leader in the Eurasian region is *Russia's Wildberries*, which accounts for up to half of the Russian Federation's marketplace turnover and a significant share of sales in neighbouring countries. Wildberries operates in nine countries and manages a network of 130 logistics facilities with a total area of more than 3 million m² of warehouse space as of the end of 2024 (*an additional 2.2–2.5 million m² is expected to be commissioned by the end of 2025*). In Russia the company plans to build 11 new logistics complexes with a total area of over 2.2 million m². Each warehouse will have an area of 100,000 to 270,000 m². The new logistics centres will appear in the Moscow region, Orenburg, Perm, Krasnoyarsk, Chelyabinsk, Smolensk, Ufa, Surgut, and Ivanovo in 2026–2028. Wildberries has 800 pickup points in Belarus. It operates through two large sorting centres in Minsk (13,000 m² and 10,000 m²), as well as 10 sorting centres in Baranovichi, Volkovysk, Grodno, Lida, Mozyr, Molodechno, Pinsk, Rechitsa, Svetlogorsk, and Soligorsk. Currently, it is building its own fulfillment centre with an area of 135,000 m² in the Chinese-Belarusian "Great Stone" industrial park.

↓ Figure 13. Logistics models of online retailers



Source: Bowersox, 2002.

In 2023–2024, Wildberries began construction of its own centres in Central Asia (mainly on land plots obtained with concessions from local authorities). In Kazakhstan, the marketplace already has more than 1,500 pickup points, as well as several small sorting centres of 1,000 m² each in Shymkent, Uralsk, Atyrau, and Semey. All warehouses are leased. Currently, the company is building its own fulfillment centres in Astana (150,000 m²) and Almaty (100,000 m²) with a total investment of about \$100 million. Wildberries plans to build a fulfillment centre in the Tashkent region of Uzbekistan with an announced project cost of \$140 million. The company's logistics centres will potentially appear in Fergana and Samarkand to attract new sellers and consumers to the platform. In Kyrgyzstan, the company has two sorting centres (1,000 m² each) in Bishkek and Osh. In addition, a memorandum has been signed on the construction of a fulfillment centre in the Alamudinsky district of the Chui region. In Tajikistan, the company opened its first two pickup points in Dushanbe in March 2025. Wildberries has more than 300 pickup points in Armenia. In Armenia, a 7,200 m² sorting centre operates in Yerevan, there are plans to open four more sorting centres in Gyumri, Meghri, and Vanadzor.

Ozon is the second largest marketplace in Russia. By the end of 2024, it will manage the largest network of warehouse facilities, covering 3.5 million m². It has entered the markets of Belarus, Armenia, Kazakhstan, Kyrgyzstan, Uzbekistan, Georgia, Azerbaijan, China, and Türkiye. In Belarus, Ozon operates a fulfillment centre near Minsk (34,000 m²) and several sorting centres in other cities (Orsha, Brest, etc.). In Kazakhstan, Ozon's fulfillment centres (25,000 m² each) are located in Almaty and Astana. In Almaty, the warehouse is located 40 km from the city centre on the BAKAD road and near the railway station for the convenience of delivering various groups of goods. In Astana, it is located 20 km from the city centre, also on the ring road (Southwest Astana Bypass). The facilities were built by the Kazakh company Focus Logistics on a build-to-suit basis specifically for Ozon. Ozon does not purchase the constructed warehouse facilities, but is their long-term tenant. The company plans to complete the construction of the second phase of the fulfillment centre in Almaty (20,000 m²) and Astana (70,000 m²). The total investment is \$100 million. Ozon has six more sorting centres (1,000–2,000 m² each) in Atyrau, Aktobe, Shymkent, Ust-Kamenogorsk, and Kostanay. Most of them operate through partner logistics companies. Further expansion of the sorting centre network is planned. In Kyrgyzstan, Ozon has one sorting centre in Bishkek (5,000 m²). There were plans to open a fulfillment centre based at the Dordoi market, but these plans have not yet been implemented.

The company is also present in the South Caucasus. In Georgia, Ozon's logistics are built through partner companies GBS Export, INEX Group, Trackings.GE, and their delivery points. In Armenia the marketplace operates a single sorting centre in Yerevan covering 2,000 m². In Azerbaijan Ozon currently operates through its partner delivery points AZERPOST and Peqasus throughout the country, with deliveries carried out by the logistics company GBS Export.

A number of other regional players should be highlighted separately. In Kazakhstan, this is *Kaspi.kz*, a unique ecosystem player. Thanks to the synergy of fintech and the marketplace, it has been able to provide ultra-fast delivery: thanks to a network of thousands of parcel terminals, up to 50% of Kaspi's orders are delivered the next day. Kaspi uses the FBS/DBS model, relying on sellers who independently bring goods to sorting hubs. This decentralization reduces the need for large warehouses, but requires a dense network of small sorting stations. The role of Kazpost is also growing, as it plans to build multimodal warehouse complexes in Almaty, Aktobe, Almaty, and Turkestan regions with a total area of more than 85,000 m² with an investment volume of about \$100 million, including fulfillment services and sorting of marketplace shipments. The company leases part of its warehouse. Additional services can generate new added value.

Uzbekistan's own marketplace, *Uzum*, is growing rapidly (*it achieved unicorn status in 2024*). Uzum has chosen a hybrid model: it has built its own 20,000 m² fulfillment centre in Tashkent and has developed a wide network of regional sorting

bases. Packaged goods are transported from Tashkent across the country through a network of 14 regional sorting centres. These are located in the administrative centres of the regions. Uzum plans to increase its warehouse space to 600,000 m² by 2030 and radically speed up delivery (*currently focusing on 24-hour delivery in cities*). In addition to building its own fulfillment centres, Uzum has implemented a fulfillment by seller system, which increases delivery times from these warehouses to five calendar days, but opens up opportunities for scaling the business, limited only by the market for warehouse facilities in the city.

In Belarus, there is also a local player, 21vek.by (Trioivist LLC), a universal marketplace operating on the principle of a hypermarket. The company has its own fleet of vehicles, but also cooperates with the Global 24 express delivery service. The fulfillment centre in Tabory near Minsk, with an area of 32,000 m², serves the entire country.

Infrastructure constraints are currently holding back e-commerce in Central Asia.

- The lack of developed services for responsible storage, packaging, and sorting forces small sellers to work inefficiently or limits their geography. On the other hand, this creates opportunities for logistics startups: companies offering outsourcing of warehouse operations for online stores are appearing in the region. State postal services are also trying to fill the niche: for example, Kazpost announced a \$100 million investment in the construction of four regional sorting and distribution centres to improve the processing of growing parcel volumes.
- Cross-border trade is a separate challenge: a sharp increase in orders from abroad (*from China, Türkiye, Russia*) is overloading customs and border terminals. There is a shortage of *bonded warehouses (temporary storage warehouses under customs control)*, which is why small parcels are delayed at the border. Import costs are high: some countries (such as *Uzbekistan*) do not have special regimes for express shipments, which makes delivery more expensive and slower. The digitalization of customs procedures is uneven — some places have introduced electronic declaration systems, while others still use paper documentation. As a result, online retailers face unpredictable customs clearance times, additional payments, and restrictions (*e.g., limits on duty-free imports or labelling requirements*). In Kazakhstan, restrictions on parallel imports of popular categories of goods were discussed in 2023, which also affects marketplaces, forcing them to restructure their supply logistics.
- A significant problem is the shortage of high-quality warehouse infrastructure for e-commerce. Large cities in the region (*Almaty, Astana, Tashkent, Bishkek*) are experiencing an acute shortage of suitable space: the total demand from marketplaces and 3PLs for Class A space is estimated at hundreds of thousands of square metres, and it is not being met by the current supply. Although more than 1 million m² of new fulfillment centres are currently under construction

(primarily in Kazakhstan and Uzbekistan), experts estimate that their capacity will be immediately absorbed by the growing market by the time they are commissioned. Demand is lower in smaller cities at the moment, but it will grow rapidly as the capitals become saturated with e-commerce and the Internet continues to penetrate the regions.

- In addition, seasonality (*sales peaks, autumn harvest for agromarketplaces*) requires flexible solutions: mobile modular sorting stations, renting additional premises for 2–3 months, and developing a network of border distribution hubs to speed up the transit of goods.

For e-commerce to become a full-fledged driver of the warehouse market, a large-scale transformation of infrastructure is necessary. The most important direction is *digital integration between countries*: unification of electronic invoices, integration of customs databases, and common parcel tracking systems. This will reduce the time and costs of cross-border delivery. Equally important is *the development of IT infrastructure*: regional data centres and cloud services where large amounts of order data will be processed. In Uzbekistan and Kazakhstan, there are plans to create large data centres, which will increase the resilience of marketplace services to load spikes.

From a warehouse perspective, e-commerce increases the demand for 3PL-equipped facilities: high ceilings for multi-tier storage of small parcels, areas for processing returns, and automatic sorting lines. However, limited financing and construction risks in the region mean that many players choose to rent rather than build their own facilities. The arrival of international logistics developers (*GLP, Prologis, etc.*) could help here, provided that the investment climate improves. Such projects can be stimulated by creating SEZs, state support in the form of benefits and incentives, and providing electricity and road infrastructure for new logistics parks.

By 2030, the area of fulfillment centres in Eurasia is expected to increase several times over. Hybrid facilities will appear, serving both online and offline channels (*omnichannel distribution centres*). Specialization will develop: warehouses for fashion retail (*with areas for returns and clothing processing*), for food products (*e-grocery, with temperature control*), for large-sized goods (*furniture, appliances — with the possibility of cross-docking and assembly before delivery to the customer*). An important trend will be the consolidation of 3PL operators working with marketplaces: international companies such as *FM Logistic* and *DHL Supply Chain* are already showing interest in Central Asia, studying joint fulfillment centre projects. Overall, the evolution of e-commerce in the region directly dictates the modernization of warehousing, and the countries that are the first to create the conditions for this modernization will benefit (*as confirmed by Kazakhstan's success in attracting investment from Wildberries/Ozon and the development of Kaspi*).

Industrial logistics

In the Eurasian region, industrial enterprises are showing modest interest in warehouse infrastructure. In Russia, they account for 10–15% of demand for warehouses. There is virtually no data for other countries. These enterprises typically build their own small warehouses (*with an average area of 2,000–5,000 m²*) or allocate warehouse space in production areas. As a rule, these are Class B warehouses. Industry also actively uses Soviet-era warehouse facilities (*especially open areas, metal warehouses, etc.*).

Manufacturers of finished products (light and food industries) show the greatest interest in high-quality warehouse infrastructure due to the need to comply with special storage conditions. Demand for warehouses also comes partly from high-tech industries (*chemical, electrical engineering*). The most promising segment for these industries is flexible small light industrial premises. In the light industrial sector, the largest volume of warehouse space is in Russia — 923,300 m², which is 2% of the country's total warehouse stock. In Belarus, this figure is 130,000 m² (6%), and in Uzbekistan — 28,600 m² (4%). In Georgia, a 16,000 m² light industrial iHub warehouse facility was built in Tbilisi in 2024. The light industrial segment is not yet represented in other countries of Central Asia and the South Caucasus.

Industrial logistics in the Eurasian region is undergoing a phase of rethinking and technological transformation. Despite its fundamental role in the economy, warehouse infrastructure for industry remains underdeveloped and fragmented, especially in Central Asia. Large and medium-sized factories have traditionally provided for their own warehousing needs, but they face an acute shortage of modern Class A and B premises, low levels of automation, and a lack of high-quality universal warehouses for rent. Companies are forced to use outdated post-Soviet facilities or build low-grade warehouses on their own premises. This does not always allow for high efficiency, especially in industries with specific storage requirements (*food, pharmaceuticals, chemicals*).

Highly specialized warehouses play an important role in industrial logistics: oil depots and storage facilities for fuel and lubricants, chemical reagents, metal blanks and scrap, pharmaceutical warehouses, etc. Such facilities require large capital investments, licensing, and strict compliance with environmental and technical standards. In Soviet times, they were built by the state, but now a significant part of them has fallen into disrepair. There is a particularly acute shortage of low-temperature warehouses (*refrigerators*) for industrial needs, such as for storing food industry ingredients or finished frozen products. This hinders the development of the FMCG and pharmaceutical segments, forcing companies to either import in limited volumes (*increasing the frequency of deliveries*) or put up with losses from non-compliance with temperature conditions. Against the backdrop of growing cross-border flows, the demands on container terminals and temporary storage warehouses (TSWs) are increasing. A telling example is the consignment auto warehouse near

Minsk (2025), which combines a temporary storage warehouse and a distribution centre for the automotive industry. Such a hybrid facility with deferred customs clearance sets a new standard for the region.

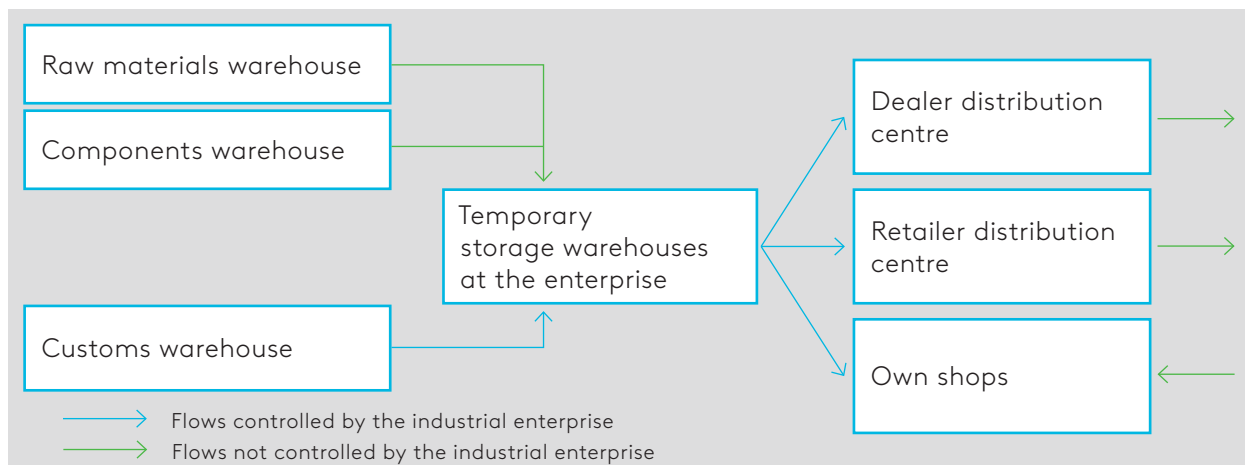
Modern industrial logistics is gradually moving away from the use of Class C warehouses, which appeared en masse in the 1990s and 2000s and still dominate many enterprises. These premises (*usually old hangars and semi-abandoned workshops*) are unsuitable for automation and digital accounting. In the era of widespread WMS and barcoding, it is no longer possible to work efficiently in a warehouse without racking systems, level floors, and a stable Internet connection. Therefore, large companies in the region are launching programmes to modernize their logistics assets: either building new warehouses from scratch (*often in a build-to-suit format with the involvement of Western contractors*) or renovating existing ones (*replacing roofs, gates, installing floors for equipment, installing modern security and accounting systems*). Nevertheless, the share of old warehouses is still very large — according to estimates, more than half of the total warehouse stock in Central Asia consists of facilities that are over 30 years old and have not undergone major reconstruction.

In the countries of the Eurasian region, the structure of industrial logistics is organized by industry and the size of the business. The largest enterprises (*e.g., metallurgical plants, petrochemical complexes*) have *their own networks of warehouses* for various purposes: warehouses for raw materials (*ore, oil, polymers*), warehouses for components and packaging, and warehouses for finished products ([Figure 14](#)). As a rule, such internal warehouses are located on the territory of the plant or nearby. Imported materials are often delivered directly from suppliers (*e.g., imported raw materials are delivered by rail or container directly to the factory station*), and finished products are transported by the manufacturer's own transport or on Free Carrier (FCA) terms (*the buyer picks up the goods themselves*). Medium-sized manufacturers (*e.g., furniture and textile factories, etc.*) usually also have at least one temporary storage warehouse, but limited resources force them to seek *outsourcing* when there is a shortage of space. Recently, a scheme has become popular whereby part of the logistics is transferred to external operators: for example, the Uzbek chemical plant *NavoiAzot* works with distributors on a self-delivery basis (*DAF at the border*), minimizing its warehousing tasks. Another example is light industry enterprises increasingly renting warehouses in industrial zones or SEZs, sharing infrastructure with other companies.

The main customers of the warehouse market in the industrial segment are the food industry and light industry (*textiles, consumer goods production*). For example, the textile cluster of Uzbekistan, Kyrgyzstan, and Tajikistan is growing rapidly: investments in Uzbek textiles exceeded \$1.1 billion in 2024, and exports reached \$2.8 billion (*three times more than ten years ago*). At the same time, the share of high-value-added products (*ready-made clothing*) has grown to 39% — that is, the textile industry is shifting from raw materials (*cotton*) to finished goods that require storage, sorting, and packaging. Companies such as *Samo Textile* are building small warehouses

(2,000–2,500 m²) directly at their factories for their own needs. In Kyrgyzstan, the share of finished products in textile exports has reached 80%, which is driving demand for local distribution centres and marketplaces for sales. This is stimulating the development of warehouse logistics (*including cross-docking sites for consolidating shipments abroad*).

↓ **Figure 14. Logistics of industrial enterprises**



Source: Bowersox, 2002.

In Kazakhstan, light industry doubled its production volume to \$4.3 billion in 2020–2024, with the state providing preferential loans and tax breaks, making the creation of logistics facilities more affordable for entrepreneurs. The food industry is also increasing warehouse demand: for example, imports of non-alcoholic beverages in Kazakhstan have doubled since 2019, and in Uzbekistan they have grown ninefold. Large investors such as *Coca-Cola* and ice cream manufacturer *Shin-Line*, while investing hundreds of millions of dollars in new factories, immediately plan to build warehouses (5,000–20,000 m²) next to them to store raw materials and finished products. Moreover, the expansion of FMCG retail chains means that manufacturers must create regional warehouses to quickly supply new stores. For example, the CU supermarket chain (*South Korea*) has announced plans to open 1,700 retail outlets in Kazakhstan, Uzbekistan, and Kyrgyzstan by 2030. This is only possible with a developed network of partner warehouses that will ensure the storage and delivery of goods from local manufacturers to these stores.

Industrial companies are gradually switching to digital solutions in logistics. More and more enterprises are implementing WMS integrated with ERP and online ordering platforms. This allows them to respond instantly to distributor orders and automate shipments. Local developments are popular — for example, the Russian AXELOT WMS system, adapted to the requirements of the Eurasian region, is widely used in manufacturers' warehouses in the region. The 3PL sector is also developing: businesses are ready to outsource logistics to external operators, especially if they offer a range of services within industrial parks or SEZs. One example is the logistics centre in Angren (*Uzbekistan*), which serves as a multimodal hub for enterprises in the

Angren FEZ, providing them with warehousing services, a customs terminal, and a railway container yard in one place. This approach reduces companies' costs for their own infrastructure and increases the flexibility of the chain.

Industrial logistics faces a number of challenges that hinder rapid progress. First, there is geographical unevenness: for example, in the densely populated Fergana Valley (*a junction of three countries*), an acute shortage of container terminals and warehouse complexes limits the growth of exports of textiles and fruit and vegetable products. Second, slow automation: production needs are growing faster than the introduction of robots and digital systems in warehouses. Third, border crossing procedures during international transport (*e.g., periodic delays at the border with China*) create instability in the supply of raw materials — companies are forced to keep large stocks, but again, there is not enough space for this. Fourth, high land prices and a shortage of specialized logistics providers complicate rapid business scaling. In addition, manufacturers are beginning to lack the infrastructure for automobile logistics: the growth in imports of equipment and cars requires the development of service station networks and spare parts warehouses.

In response to these challenges, it is strategically important to build standard *light industrial warehouses* adapted to local needs. This format (*usually 3,000–6,000 m², modular blocks with the possibility of placing production and storage under one roof*) is optimal in terms of the price/functionality ratio. Demand for this will grow in areas around large cities, as this is where demand for high-quality production infrastructure is most prevalent. For example, international developer Astron has implemented a project for a 5,368 m² prefabricated production and warehouse building in Shymkent (*Kazakhstan*) for a local factory. Such solutions attract businesses with their flexibility and relatively low cost. *Build-to-suit* construction — i.e., construction for a specific tenant — is also gaining popularity: many foreign companies are willing to enter the region on the condition that the necessary warehouse is built for them (*taking into account all technical requirements*). This opens up a field of activity for professional developers and investment funds.

Modernization of logistics in industry is impossible without state support. The creation of special economic zones (SEZs) and industrial parks, where new infrastructure is concentrated, is already yielding results — it is there that new warehouse projects and growth points are emerging. It is recommended to continue this policy by providing residents with benefits for logistics services, subsidizing interest on loans for warehouse construction, and simplifying customs procedures for components and equipment. Deepening regional integration (*through the EAEU and SCO*) also opens up opportunities: for example, the Eurasian Agroexpress initiative improves connectivity between the agricultural hubs of Belarus, Russia, and Kazakhstan with China via express trains. A similar approach could be extended to other industries by creating a network of industrial and logistics corridors. Centralizing the supply chain at the state level (*as Miratorg did in Russia, building a chain of 14 logistics*

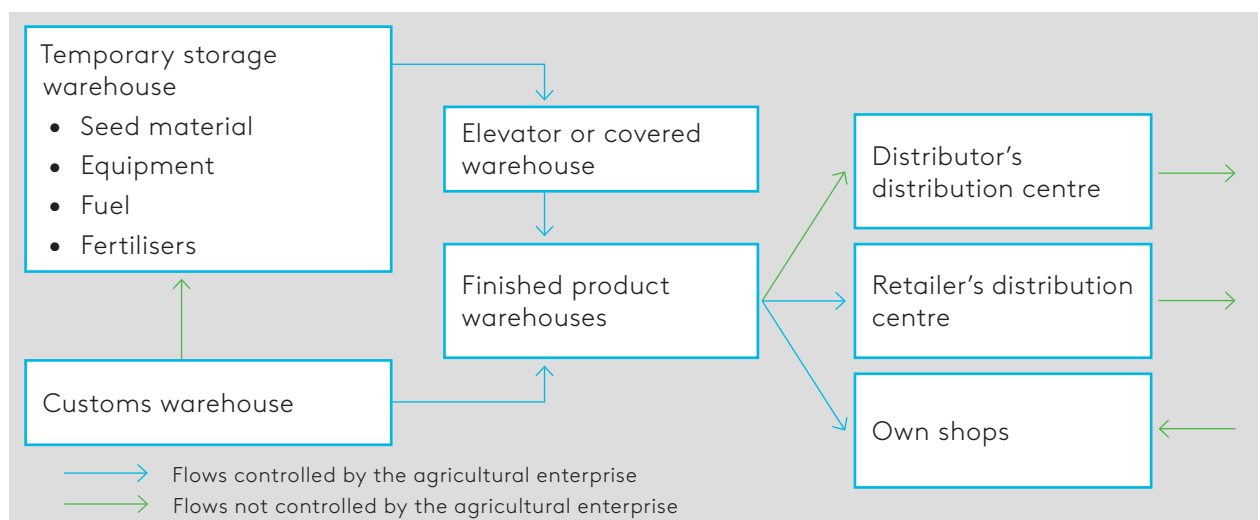
centres and 200,000 m² of warehouses for complete control over meat supplies) has proven effective in critical sectors. It is important for the Eurasian region to create similar logistics operators or public-private consortia to support exporters and import-substituting industries by providing them with warehouse capacity.

Agrologistics (logistics for the agro-industrial sector)

The total volume of agro-industrial warehouses in the Eurasian region in 2025 is estimated at 511,800 m². The market is highly concentrated: the top three countries account for 85.6% of the volume. Russia, with its 365,400 m², accounts for 71.4%, followed by Georgia with 42,000 m² (8.2%), Kazakhstan with 30,500 m² (6.0%), Belarus with 26,900 m² (5.3%), Uzbekistan with 21,400 m² (4.2%), Azerbaijan with 16,700 m² (3.3%), and Tajikistan with 8,900 m² (1.7%). In subregional terms, Russia and Belarus account for 76.7%, Central Asia for 11.9%, and the South Caucasus for 11.5%.

In Central Asia and the South Caucasus, the agricultural sector remains a major employer and source of exports, which is why logistics in the agro-industrial complex is becoming strategically important for sustainable development. Agriculture is highly dependent on the seasons for sowing and harvesting, and if logistical disruptions occur during these periods (e.g., lack of railcars or full warehouses), losses can be significant. Any deviation from the schedule, whether it is a delivery delay or a lack of storage capacity, can lead to product spoilage or disruption of the technological cycle. Therefore, a modern agricultural enterprise needs a comprehensive logistics system: grain elevators, fuel and fertilizer warehouses, vegetable storage facilities for fresh fruit and vegetables, freezers for meat, etc. (Figure 15). Unfortunately, such facilities with the ability to maintain stable temperature and humidity conditions remain rare outside the capitals and major cities of the region.

↓ Figure 15. Logistics of agricultural enterprises



Source: Bowersox, 2002.

In general, agricultural logistics in Central Asia is developing slowly: dry warehouses predominate, and some products are stored in unprepared conditions, often in households or garage cooperatives. As a result, a significant part of the harvest is lost due to improper storage conditions. In recent years, the situation has begun to change. For example, in Kazakhstan, between 2016 and 2021, the area of vegetable storage facilities increased by 27%, and fruit storage facilities increased sevenfold. However, the quality of many facilities often does not meet standards: only 65% of storage facilities are equipped with modern climate control systems, warehouses for chemicals and feed are often old and unsafe, and many dilapidated premises are being decommissioned without replacement. This indicates the need not only to increase capacity, but also to upgrade technology: ripening chambers, pre-cooling units, gas modules for long-term storage — all of these are moving from the category of innovation to that of urgent necessity for the competitiveness of agribusiness.

In Russia, the availability of such facilities is high (*more than 80% of demand*), but in Central Asian countries it is much lower. For example, in Uzbekistan, Kyrgyzstan, and Tajikistan, the available cold storage capacity is estimated at only 30–70% of the required volume. In Central Asia, about 14 million tonnes of agricultural products are lost or stored in improper conditions every year. Losses are particularly acute during the peak season — in autumn (*fruit and vegetable harvest*) and spring (*sale of remaining stocks*). At these times of year, it is necessary to create *buffer storage areas* and organise express delivery, otherwise farmers are forced to sell their surplus at bargain prices or throw it away.

Other countries in the region also continue to experience infrastructure deficits: for example, Uzbekistan experiences a shortage of refrigeration capacity for fruits and vegetables during peak seasons, while Kyrgyzstan and Tajikistan have limited opportunities for long-term storage of their agricultural products. In Russia and Belarus, despite the general availability of logistics infrastructure for primary processing and distribution of products, there is still an acute shortage of agricultural hubs capable of consolidating agricultural product flows from small and medium-sized producers for export operations. In the countries of the South Caucasus, agrologistics remain limited in volume and quality. Despite the announced initiatives to create agroparks and distribution centres, the actual implementation of modern logistics solutions is slow, and large-scale facilities that meet the needs of the agricultural sector have only been partially implemented.

The total food storage capacity requirement for the countries in the region is estimated at 33 million tonnes, while only ~17 million tonnes are currently available. In Kyrgyzstan, only 4% of the demand is covered, in Armenia ~8%, in Tajikistan 12%, in Kazakhstan 17%, and in Belarus 7%. The gap is huge. The forecast for 2030 is that demand will grow to 34.1 million tonnes, with the largest increases in Uzbekistan, Kazakhstan, and Belarus. This means that it is critically important for these countries to increase the pace of construction of storage facilities and warehouses now, otherwise the

problem will worsen. In addition, new trends, such as *e-grocery (online food sales)*, will require the creation of fundamentally new warehouse formats: “dark stores” and micro-fulfillment centres for food delivery in cities. These are also almost non-existent, but demand for them will grow exponentially, given the penetration of food and grocery delivery services.

Some companies in the region illustrate possible paths for the evolution of agrologistics. The Uzbek company Balton (*a food distributor*) has gone from being a simple trading company to a full-fledged 3PL provider for the agricultural sector. It has built a network of its own and leased warehouses not only in Tashkent, but also in the regions (*Urgench, Fergana, etc.*), providing storage, sorting, and customs clearance services for imports from Russia, China, and Türkiye. Ninety percent of cargo is transported by rail, which requires container terminals and cross-docking sites. Balton has such sites, including the possibility of “customs clearance from the wheels” — that is, immediately upon arrival of the car, without overloading the warehouse, which speeds up processing.

A number of large agrologistics facilities appeared in Uzbekistan in 2022–2023. For example, the Food City Tashkent wholesale distribution centre is a new-generation complex covering 60 hectares, including cold storage warehouses, dry warehouses, cross-docking, and related infrastructure (*a hotel and shopping arcades*). It is modelled on Moscow’s Food City and aspires to become the country’s logistics hub. However, excessive centralization is leading to logistical bottlenecks: for example, a significant part of the peach harvest from the Jizzakh region is transported exclusively to Food City in Tashkent for sale, bypassing local markets. This points to the underdevelopment of local distribution and the lack of small agrologistics networks that could collect and distribute products within the region. To remedy the situation, smaller wholesale markets and hubs are needed in each region to relieve the main centre and reduce the delivery distance.

Developed logistics contribute to the effective management of surplus or deficient agricultural products. For example, Jizzax Organic in Uzbekistan has created a vertically integrated chain for the production of premium beef breeds. They raise their own cattle, slaughter and process the meat, vacuum pack it, and deliver it directly to restaurants and stores, bypassing intermediaries and maintaining a cold chain from farm to customer. In Russia, the Miratorg agricultural holding operates in a similar way, having built its own powerful logistics network (*14 distribution centres, 200,000 m² of warehouses, 1,500 refrigerated trucks*). Such examples show that the development of agricultural logistics is not only about warehouses, but also about transport, IT systems, and a new business mindset (*focusing on comprehensive services instead of separate crop sales*).

The population of Central Asia and the Caucasus is growing rapidly and is expected to reach a total of ~100 million people by 2030. This will increase the burden on food chains: more grain, vegetables, fruit, and meat will need to be stored for domestic

consumption and to ensure food security. This cannot be achieved without rapid infrastructure development. We recommend to invest now in *agrohub* networks — wholesale distribution centres for agricultural products in major agricultural areas. Hundreds of new vegetable storage facilities are needed near growing areas so that products are not sent directly to the capitals. The fleet of refrigerated railcars and trucks needs to be expanded, including the seasonal involvement of carriers from Russia and China (*which could cover the transport capacity deficit during the peak season*). An example of a successful project is the BMB-NRC complex in the Jizzakh region of Uzbekistan, built as part of the Eurasian Agroexpress initiative to consolidate supplies from EAEU countries to China, the Middle East, and Southeast Asia. However, there are very few such facilities at present: in fact, there are only two fully-fledged agricultural hubs operating in the CIS — in Orsha (*Belarus*) and Selatino (*near Moscow*). These are insufficient to unlock the region's export potential in the food sector.

The region's agricultural sector faces a choice: either modernize logistics (*digitize document flow, harmonize rules, launch cross-border routes*), or remain trapped by seasonality, losses, and export barriers. The future competitiveness of the agro-industrial complex directly depends on the ability of countries to create a modern agricultural logistics infrastructure.

Pan-Eurasian challenges are linked to a lack of infrastructure for handling agricultural cargo and poor coordination of transport and regulation between countries. Growing network requirements for packaging and pre-sale preparation are increasing demand for warehouses with fulfillment services and wholesale distribution centres, especially from small producers. Large consignments are cheaper to transport by rail, while small and expensive ones are cheaper by road, but the shortage of refrigerated rolling stock and seasonal peaks create capacity gaps, requiring the involvement of additional carriers. Low integration and differences in customs regulations hamper cross-border trade, although specific initiatives to simplify exports and standardize quality show potential for removing barriers.

Regional challenges are most acute in Central Asia and the South Caucasus: the pronounced seasonality of fruit and vegetable supplies generates surges in demand for transport services and queues at borders; outside Russia and Kazakhstan, there is a shortage of modern storage facilities and technologies (*pre-cooling, controlled atmosphere storage, continuous cold chain*). A high proportion of SMEs face limited access to finance and technology, leading to product losses during sorting; at the same time, domestic demand is growing, increasing pressure on logistics and food security. The congestion of corridors in the Russian direction is driving the search for quick solutions such as agro-express trains, while water shortages and environmental risks require water-saving technologies, reuse of treated wastewater, and increased storage efficiency to reduce the burden on resources and soil.

Transport logistics

Transport and logistics companies are among the key players in the warehouse infrastructure market in the Eurasian region. They traditionally generate a significant share of demand for modern warehouse space and invest in logistics infrastructure themselves. Transport logistics in the Eurasian region is primarily represented by dry ports and container yards. The largest areas are in Russia (6.5 million m²), Belarus (258,000 m²), and Kazakhstan (851,000 m²) thanks to the presence of developed multimodal hubs and participation in international transport corridors. In Uzbekistan, the transport segment occupies 213,000 m² (10% of warehouse space), and in Georgia, 390,000 m². Significant areas are recorded in Turkmenistan — 484,000 m², with most of the facilities concentrated in the area of the Turkmenbashi seaport. These data indicate uneven development: Russia and Kazakhstan have relatively large capacities, while Uzbekistan, Kyrgyzstan, and Georgia have a chronic shortage of warehouses for transport logistics. This leads to the formation of bottlenecks at key transit points, where the lack of modern container terminals is already causing delays and increasing transportation costs.

Transport and logistics companies — freight forwarders, 3PL operators, transport companies — have traditionally been the main tenants and operators of warehouse facilities. In developing economies, they are often the first to create demand for modern warehouses, acting as anchor clients for developers. In Central Asia and the Caucasus, where the market is still developing, logistics operators remain key players and drivers of new standards. They bring expertise, train staff, implement WMS, and thereby raise the bar for the entire industry.

After 2022, most countries in the Eurasian region significantly increased their presence in the global logistics services market. This was facilitated by the redistribution of cargo flows and growing demand for alternative routes. Total exports of logistics services from the countries of the Eurasian region have increased by more than \$4 billion in just two years. Regional transport companies and freight forwarders have managed to fill the niche created by the restructuring of global chains. For example, Kazakh and Georgian carriers began to actively transport cargo along the Middle Corridor, Russian companies increased transit volumes to China and Southeast Asia, and Uzbek firms began to offer cargo consolidation services to their neighbours. All this increases domestic demand: logistics providers need transshipment and consolidation warehouses at key points in order to provide turnkey services (*storage, sorting, customs clearance, delivery*).

Historically, the warehouse services market in the region has been highly consolidated. The largest operators (*in Russia, for example, FM Logistic, PNK, Russian Post; in Kazakhstan, KTZ Express; in Belarus, Beltamozhservice*) control a significant share of professional warehouse space. It is estimated that more than 70% of capacity and more than 90% of Class A warehouses belong to top operators. On the one hand,

this concentration makes it difficult for new players to enter the market (*SMEs find it difficult to compete, capital intensity is high, and customers are drawn to the giants*). On the other hand, it is large companies that are quicker to innovate and maintain a high level of service. For example, market leaders already use RFID and automated warehouses in all their complexes and offer e-commerce fulfillment services, while small firms cannot afford to do so. As a result, mid-tier customers (*small online stores, local manufacturers*) are faced with a 3PL market that is not sufficiently fragmented, with high rates for warehouse services and a level of quality that, while high among the leaders, is inaccessible to small operators. It is expected that as demand in the region grows, consolidation will ease slightly, with the emergence of new local 3PLs, niche players (*e.g., specializing only in pharmaceuticals or only in frozen goods*), and international providers.

Logistics companies are feeling the full force of the problems with transit routes. Alternative corridors that emerged after 2022 were not quite ready for the sharp increase in cargo traffic. This leads to longer delivery times: delivery from Europe via Central Asia can take up to 25 days instead of the previous 15, due to bottlenecks at borders and port congestion. Delays at Chinese ports reach 10–15 days (*in particular due to queues at railway crossings and seaports caused by the redirection of some cargo from sea to land*). Under these conditions, logistics providers are forced to change their operating patterns — maintaining buffer warehouses in case of delays and adjusting rates in advance to account for potential disruptions. For example, freight rates and warehouse tariffs are now negotiated with the possibility of revision on the fly if the situation changes en route. This increases costs and risks, but is unavoidable for now. The solution lies in the accelerated development of infrastructure: *multimodal hubs and dry ports* are needed at borders, where cargo could be transshipped from one mode of transport to another without unnecessary bureaucratic procedures. Kazakhstan, Uzbekistan, and Kyrgyzstan have already begun construction of such facilities (*for example, the Khorgos dry port, terminals on the Kazakhstan-Uzbekistan border, and a logistics hub in Osh*), but trade growth is outpacing the introduction of capacity. Therefore, in the coming years, the task for transport and logistics companies will be to use limited resources efficiently, increasing the throughput capacity of existing corridors through optimization (*switching to night flights, sharing containers, integrating schedules, etc.*).

Despite higher salaries and an influx of young professionals, the level of service in the region's logistics sector remains low by global standards. Many companies complain about a shortage of qualified personnel: forklift operators, logisticians, warehouse managers. They have to invest in internal training systems — creating training centres within companies, sending employees abroad for internships, and developing mentoring programmes. At the same time, automation partially solves the staffing shortage: companies are more actively implementing WMS, installing sorting conveyors, and testing unmanned reach trucks. All this makes it possible to get by with fewer people or to employ less qualified personnel, thereby increasing productivity.

For example, the use of a voice control system at one of the warehouses in Almaty made it possible to increase the speed of order picking by 20% with the same number of pickers. In the long term, the logistics providers that adapt to technology faster will be the ones that compete, as human resources become more expensive and scarce.

Customer needs are becoming increasingly complex, and logistics companies are expanding their range of services beyond basic storage and transportation. Currently, 3PL operators in the region offer fulfillment for online stores, temperature-controlled warehouses for pharmaceuticals, cross-docking services for retail, secure storage in accordance with international standards for FMCG, etc.; 4PL operators are also emerging — companies that take on the role of integrator of the entire customer supply chain, managing contractors. In the Eurasian region, examples of 4PL are still rare, but in Russia, some large corporations have outsourced their logistics to 4PL providers. This poses new challenges for warehouses: they must be flexible, able to quickly switch between different product groups, support various IT protocols, and generate reports according to the requirements of different customers. Modern warehouse complexes are increasingly operating as *multi-client facilities*, serving several customers at once (*for example, part of the space is leased by a retailer, part by a manufacturer, and part by an e-commerce company*) with separate zones and staff. This approach allows operators to better utilize warehouse capacity and reduce the cost of services.

Transport and logistics companies will continue to influence the configuration of warehouse infrastructure in the region in the future. Their needs in the coming years are: (1) *more warehouses near borders*, with terminals at border crossings (*Dostyk, Torugart, Saryagash, etc.*) are needed to develop transit potential; (2) *multimodal logistics parks*, where railways, motorways and, if necessary, airport cargo terminals converge; (3) *high-standard warehouses* certified for various industries (*especially pharmaceuticals and food*); (4) *a digital ecosystem* — connection to a single information space (*such as the NCTLP in the EAEU*) so that cargo can pass through warehouses with electronic document processing. If these conditions are met, logistics operators will be able to significantly increase efficiency and fill new warehouses with work. Otherwise, the market may face a situation where the facilities built are idle due to inefficient processes (*as happened in some SEZs, where warehouse hangars were built, but the flow of goods across the border was not established for bureaucratic reasons*).

Pharmaceutical logistics

The pharmaceutical logistics infrastructure in Central Asia consists of a limited number of facilities that meet international storage standards. The total volume of pharmaceutical warehouses in the Eurasian region in 2025 is estimated at 341,900 m². In Uzbekistan, such facilities cover 111,000 m² (which is equivalent to 14% of the country's total warehouse stock; 92% of them are dry storage facilities and 8% are cold storage facilities). In Kazakhstan, the total area is 73,000 m² (5% of the total),

with 91% being dry storage and 9% refrigerated. In Belarus, the area is 29,515 m² (1% of the total warehouse stock), consisting entirely of dry warehouses. In Georgia, the pharmaceutical segment accounts for 12,400 m² (3%), all of which are dry. In Russia, the volume of relevant space is 111,400 m², which is less than 1% of the total stock, and the warehouses are also completely dry.

The market is highly concentrated: Russia and Uzbekistan account for almost equal shares. The top three countries (*Russia, Uzbekistan, Kazakhstan*) account for 86.4% of the volume, while Central Asia accounts for 55.2%. Pharmaceutical logistics in the South Caucasus is extremely underdeveloped: special warehouses are only found in Georgia (12,400 m²), which serves as a re-export hub for the region. The gradual formation of this type of warehouse infrastructure is expected in Armenia and Azerbaijan.

In Central Asia, the key players are Kazakhstan and Uzbekistan. In Kazakhstan, in addition to the leaders FLS and ILG, there are Atamiras.S and Pharmsklad.kz (*GDP Class A warehouses in Almaty*), while large production and logistics chains are formed by Santo (AO Khimfarm, Polpharma), Kelun-Kazpharm (*exports to the EAEU, a wide range of injection products*), and the distributor INKAR Pharmaceuticals (distribution centre ~12,000 m², a network of branches in Kazakhstan and LLCs in Kyrgyzstan). In Uzbekistan, the market is consolidated by Grand Pharm (*two warehouses with a total area of about 90,000 m² and a new hub near Tashkent*) and Asklepiy Group (*a modern GDP warehouse of about 15,900 m², including a significant “cold” zone*); Meros Pharm is expanding (*EBRD loan for a network of warehouses*). In Kyrgyzstan, Aidan Pharma, Darmex Pharma, and Lekar are present with relatively small facilities; Tajikistan is dominated by imports and chain players Sifat Pharma, Tib Baroi Shumo, Maxx Pharm, and Ismoil Pharm; there is little open data on Turkmenistan, as the market is closed.

In the South Caucasus, Georgia serves as a logistics hub (*re-export to Central Asia and the region*); BioChimPharm, PSP Pharmaceuticals, Aversi Pharma, GM Pharmaceuticals, AbiPharm, and distributor Ambiance (ISO-certified customs warehouse in Tbilisi) are active here. In Armenia, Liqvor (warehouse ~1,500 m² in Yerevan), Arpimed, and PharmaTech are notable; in Azerbaijan, AvroMed (about 25% of the market, warehouse ~6,000 m² in Baku), AzeriMed (a large retail chain), and Certus Pharma are the leaders; Additionally, the R-Pharm complex in Baku operates with a full-fledged production and logistics unit. The markets in Russia and Belarus are mature: in Russia, distribution is concentrated by Puls, Protek, and Katren (strong e-component through Apteka.ru), while in Belarus, the Belfarmprom holding company (BZMP/BORIMED, Belmedpreparaty, etc.) with the participation of distributors Medvaks, Interfarmaks, KOMFARM, and Lekfarm.

The pharmaceutical sector in the Eurasian region is one of the most dynamically developing markets in the world. Between 2018 and 2023, the market for medicines grew 1.5-fold. In 2024, the sales volume of the pharmaceutical sector in the Eurasian

region amounted to \$30.9 billion at retail prices. The volume of pharmaceutical production in the EAEU in 2024 grew by 18% and amounted to \$10.2 billion. Of this, 89% was accounted for by Russia, 7% by Belarus, and 4% by Kazakhstan. The pharmaceutical market in Russia and Belarus is one of the most mature in the Eurasian region, with a high share of localised production and developed distribution. Despite overall moderate growth, the drivers are import substitution, e-pharma, and expansion into regions outside the capitals.

Mutual trade in pharmaceuticals within the Eurasian region is growing vigorously, having developed during the COVID-19 pandemic and vaccine trade. This dynamic is also driven by increased domestic demand (*income growth, demographic trends*), the localization of drug production in some countries, and the increase in imports of modern drugs. Market expansion is accompanied by growing demands on logistics infrastructure: medicines are demanding in terms of storage and transportation conditions.

Firstly, *temperature control*: a cold chain (*refrigerated chambers*) is required for vaccines, insulin, and other thermolabile drugs, as well as cool areas for conventional medicines. Secondly, *sanitary conditions*: the interior finish must allow for regular disinfection, and pest control systems, access control, and pharmaceutical licenses are required. Thirdly, *security and accounting*: integrated monitoring systems (*online temperature and humidity, alarms*), clear accounting of batches and series (*especially with the introduction of mandatory labelling of medicines in the EAEU*), readiness for rapid product recalls. All this makes pharmaceutical warehouses expensive to build and operate. They must have GDP (*Good Distribution Practice*) certificates — without them, leading manufacturers will not trust them to store their drugs. There are isolated examples in the region: large distributors in Kazakhstan and Belarus have built modern distribution centres with state-of-the-art refrigerated storage facilities. However, these are not enough to cover the entire geography. In remote areas of many countries, pharmacies experience interruptions in their product range precisely because of logistics. The key problem in such regions is the lack of full-fledged Class A pharmaceutical warehouses, with many distributors forced to store goods in converted Soviet-era pharmacy warehouses or small storage sections that are not properly certified. In the long term, without a solution to the infrastructure problem, logistics could become a bottleneck for further growth of the pharmaceutical market.

Drug logistics involves not only warehouses, but also temperature-controlled transportation. Drugs must be transported in refrigerated trucks or insulated containers, and the cold chain must not be broken during unloading (*prolonged exposure to incorrect temperatures*). In countries with large territories and hot climates (*Kazakhstan, Uzbekistan*), this is a particular challenge: dozens of refrigerated trucks and thermoboxes are needed for regional deliveries. For now, the fleet of refrigerated vehicles is limited, especially among small distributors and government agencies. An effective solution is to create *hubs* in major cities with rapid delivery to points of sale

(*hospitals, pharmacies*) in the regions. For example, pharmacy hubs with warehouse stocks at the regional centre level, from where small batches are delivered to nearby settlements on a daily basis. This approach compensates for the lack of full cold chain coverage in the “last mile” — if the distance is short, the goods can be delivered in a thermal container in a regular vehicle.

Pharmaceutical logistics is one of the most regulated areas, which is logical given the importance of drug quality. However, a balance is needed here: excessive regulation can slow down and increase the cost of deliveries. For example, uniform certification requirements under the EAEU increase transparency and reduce the risks of illegal imports (*a single confirmation of compliance is valid in all countries of the Union*). At the same time, national differences in labelling and bans on distance selling slow down the development of the industry. Automating procedures (*customs, certification*) will speed up the passage of goods across borders without reducing control. The introduction of digital track & trace systems (*tracking the movement of medicines*) is also important, and is already underway: the labelling of medicines has become mandatory in Russia and is being introduced in Kazakhstan. This places new demands on warehouses: scanning codes, integrating with national monitoring systems. Logistics operators working with the pharmaceutical industry are investing in such IT solutions.

Online drug sales could become an interesting driver in the future. Currently, in most countries in the region, the sale of medicines via the Internet is either prohibited or severely restricted (*prescription drugs cannot be delivered by courier, etc.*). Nevertheless, the pandemic demonstrated the demand for remote drug sales. If regulatory barriers are eased (*while ensuring that safety requirements are met*), e-pharma could grow rapidly. This, in turn, would create demand for fulfillment warehouses specifically for pharmaceuticals: specialized pharmaceutical dark stores may appear to pick and ship orders to the public’s medicine cabinets. Their distinctive feature is that they must comply with pharmaceutical requirements, but at the same time be geared towards a huge number of small shipments by mail/courier. For logistics companies, this is a new niche where they can leverage the experience of traditional marketplaces.

A recommended example is Eapteka (Russia), a model of a central distribution centre (~25,000 m²) with distribution to urban pharmacy hubs with an area of 350–400 m², combining retail and warehousing. The format expands the range of products within walking distance, speeds up the last kilometre, includes partial delivery to homes (within the regulatory framework), and can be scaled in the Eurasian region subject to GDP compliance and adaptation to local rules.

The development of modern pharmaceutical logistics is not only an infrastructure issue, but also a strategic one. By 2030, the pharmacy market in Central Asia is projected to grow by 4–5% annually. The expansion of the network will also affect remote cities in the regions, which means that warehouses will need to be built in key hubs. Therefore, it would be more effective for the EAEU states and neighbouring countries

to jointly invest in high-tech solutions in this area. It is desirable to encourage the standardization of the industry according to international models so that warehouses and transport comply with GDP/GSP best practices. For example, a single register of certified pharmaceutical warehouses in the region could be created, available for rent to manufacturers and distributors. Businesses, for their part, must also invest: large pharmacy chains, for example, could build their own distribution centres, bypassing intermediaries and increasing efficiency. If the state and private sector can join forces, the pharmaceutical sector will be able to realize its potential as one of the drivers of growth in the Eurasian economy, and provide the population with the necessary medicines in a timely and high-quality manner.

On the pan-Eurasian agenda, the pharmaceutical sector is facing stricter certification and quality control rules to minimize grey imports: GMP/GDP requirements increase costs and reduce the profitability of SMEs. To prevent product spoilage due to delays, regulation must be accompanied by maximum digitalization and automation of customs operations. At the same time, e-pharma is developing rapidly, increasing the availability of medicines to the population, but legislative restrictions on delivery are holding back the growth of the industry and limiting the effect of digital channels.

At the regional level, especially in Central Asia and Azerbaijan, population growth is bringing the quality of distribution and storage to the forefront: the industry will not become the main driver of warehouse demand, but its social significance requires reliable logistics, including regular air and rail deliveries. Increased transport volumes will require an expansion of the fleet of heavy-duty refrigerated trucks and, over time, the connection of refrigerated rail cars to reduce costs. There is a growing need for GDP-certified Class A warehouses with low-temperature zones; their shortage in Central Asia and the South Caucasus is felt even in the capitals and is exacerbated by the hot climate. The expected expansion of pharmacy chains (*4–5% annual growth in the Central Asian market until 2030*) will create additional demand for warehouses in key hubs and stimulate the development of urban pharmacy hubs with small storage areas.

2.5. Window of opportunity

An analysis of external and internal factors shows that the warehouse logistics market in the Eurasian region is on the verge of a qualitative leap forward. On the one hand, external macro factors — the reorientation of trade, major government transport projects, and the technological revolution — are creating new opportunities and conditions for the development of storage infrastructure. On the other, intra-sectoral drivers — the explosive growth of e-commerce, retail expansion, industrialization, and the strengthening of 3PL — are forming stable and diversified demand for modern warehouses. Many countries in the region still have a “low base effect,” with a shortage of high-quality warehouses, which in itself is an incentive for rapid growth: any investments yield tangible results, and experience can be learned from neighbours and other developing markets.

International examples confirm this: for example, after 2004 (*EU accession*), Poland became one of the largest warehouse markets in Europe — the total area of modern warehouse space increased by 1,600% (*less than 2 million m² increased to ~30 million m² by 2022*), making Poland the fifth-largest logistics market in the EU and the largest builder of new warehouses (*30% of all new space in Europe is being built in Poland*). This success is due to the influx of investment, the development of the road network, and the growth of e-commerce — factors similar to those that are currently shaping the sector in the Eurasian region. Another example is China, which has created a colossal logistics base over the past two decades: as of 2025, the total stock of modern logistics warehouses in China exceeded 127 million m², and it is planned to add another ~30 million m² by 2028. This scale has been made possible by strategic government planning (*Digital Silk Road, development of domestic logistics parks*) and the participation of large private developers.

It is important for the Eurasian region to take advantage of this window of opportunity: the redistribution of global flows, investor interest in new markets, and growth in domestic consumption. By eliminating infrastructure bottlenecks, raising the technological level of warehousing, and supporting key segments of demand, warehouse logistics will be transformed from a bottleneck into a driver of integration and growth. A developed network of warehouses and logistics centres means more stable economies, more flexible and reliable supply chains, lower costs for businesses and prices for consumers, as well as deeper and more diversified regional trade. This is the key to Eurasia's competitiveness in the new post-globalization reality.

The development of warehouse infrastructure in the Eurasian region should be based on more targeted, sector-oriented policies, on the part of both developers and regulators. Only in this case is it possible to achieve a balance between the scalability of logistics and adaptation to industry specifics, which is critical in an unstable external environment and with the rapid growth of intraregional goods flows. To justify future directions for the development of logistics infrastructure and develop solutions, it is necessary to move from qualitative analysis to quantitative modelling of trade flows, which will allow us to identify geographical growth points, assess capacity shortages, and forecast the need for warehouse facilities in countries across the region.

3. DEVELOPMENT OF EURASIA'S WAREHOUSE INFRASTRUCTURE UNTIL 2040: MODELING METHODOLOGY AND SCENARIO FORECASTS

Diagnostics and analysis of warehouse infrastructure development factors in the Eurasian region reveal a significant gap between supply and demand. At the same time, the architecture and geography of foreign and domestic trade are changing rapidly, and with them, the structure and volume of cargo transportation. Technological shifts and the growth of key industries (*e-commerce, retail, manufacturing, agribusiness, pharmaceuticals, etc.*) are shaping a new profile of demand for warehouse capacity. In such an environment, it is important not just to note the shortage, but to understand how the demand for space is formed. It is influenced by a chain of three links: what and how countries trade (*with external trading partners and internally*) → what routes and modes of transport these goods actually take → where and in what volume they need to be stored, sorted, and distributed. If even one link is missing from the analysis, errors in calculations are inevitable: excess capacity in some nodes and chronic shortages in others.

Hence the methodological basis: an integrated model of “trade flows → logistics flows → warehouse space.” The logic is simple and transparent. However, classical logistics models assume that the supply of services — warehouse space, transport, terminal infrastructure — is adjusted to existing demand. In practice, the volume of new capacity is influenced not only by demand, but also by market conditions: a developed infrastructure is itself capable of creating or strengthening the demand for services. This is known as endogenous demand: the availability of infrastructure becomes a hidden magnet for trade flows and a catalyst for their growth (Rodrigue & Notteboom, 2013). Logistics ceases to be exclusively a service function and becomes an instrument of economic development.

This requires a rethinking of modelling approaches: reactive forecasts of commodity flows are no longer sufficient. It is necessary to take into account that the supply of capacity directly influences investment decisions and shapes future demand. Modern models should include not only quantitative trade parameters, but also structural factors: land availability, density of logistics hubs, institutional barriers, developer activity, and others. Assessing the potential of regional logistics systems must take into account **the two-way relationship: infrastructure both serves growth and drives it**. This is a key condition for sound investment and spatial planning.

Our calculations are performed in two scenarios — baseline and optimistic — to outline the range of future demand. The output is scenario maps until 2040 and guidelines for capacity commissioning, allowing the state and business to plan ahead rather than “catching up” with demand and filling the gap. The horizon until 2040 was chosen deliberately. Warehouses are capital-intensive assets with a long implementation cycle: it takes years from decision to commissioning, and operation lasts for decades. During this period, trade routes, speed, and service standards change, e-commerce growth accelerates, categories of goods with special requirements (*cold chain, pharmaceuticals*) appear, and external shocks are possible — from sanctions to border disruptions. Long-term modelling allows us to identify potential bottlenecks in advance, determine the amount of reserves needed for stability, and balance risks and investments, forming a reliable outline for the development of warehouse infrastructure in the Eurasian region until 2040.

3.1. Methodology for forecasting demand and supply for warehouse infrastructure

Modelling trade flows (gravity approach)

A gravity model, one of the most well-established methods for analyzing and forecasting bilateral trade, is used to forecast trade volumes in the Eurasian region until 2040. The gravity model is based on the law of universal gravitation: the volume of trade between two countries is proportional to the “mass” of their economies (e.g., *GDP*) and inversely proportional to the distance between them (Anderson & Wincoop, 2003). In its multidimensional form, the equation includes various factors that influence trade: the size and growth of the GDP of trading partner countries, population size, distance and transport costs, the existence of common borders, trade agreements, and barriers (*tariff and non-tariff*).

As part of this study, groups of gravity models were constructed for 23 main commodity categories reflecting the key export and import goods of the Eurasian region (*in accordance with the consolidated groups of the EAEU’s Foreign Economic Activity Commodity Classification*). The gravity model is calculated separately for each type of cargo. Model (1) is used to estimate elasticity coefficients

$$\ln E_{ijt} = a + a \ln S_{it} + \beta \ln D_{jt} - \gamma \ln TTC_{ij(t-1)} + \varepsilon_{ijt} \quad (1)$$

where a is the free coefficient; E_{ijt} is the volume of trade flow (in tonnes) between territory i and territory j in year t ; S_{it} is the supply factor in territory i in year t ; D_{jt} is the demand factor in territory j in year t ; $TTC_{ij(t-1)}$ is the total transport cost for delivery from territory i to territory j in year $(t-1)$; a , β , γ are the elasticity of trade from the supply factor, demand factor, and total transport costs; ε_{ijt} is the residuals.

Instead of the factors most commonly used in gravity models (*GDP and population*), the proposed methodology selects specific industry-specific supply and demand factors for each group of goods, where possible. This approach allows for the different sensitivity of industry goods to distance and other factors: for example, finished products with high added value usually travel long distances, while bulky, low-margin goods (*construction materials, raw materials*) are traded mainly in nearby markets.

The models are calibrated using historical trade data for countries in the Eurasian region (*including intraregional trade and exports/imports with major external partners such as the EU, China, South Asia, and the Middle East*). To increase the reliability of forecasts, fixed effects of country pairs and individual annual periods are taken into account, which minimizes the impact of temporary shocks (*sanctions, crises*) and immeasurable pair factors. This approach takes into account established trends and structural shifts in trade, integration processes in the Eurasian region, geopolitical risks, macroeconomic, demographic, and sectoral factors, national strategic documents, and major investment and infrastructure projects. The output of the gravity model is a forecast of trade flows (*in value and weight terms*) for each pair of countries in the region and key commodity groups for the period up to 2040, based on various scenario assumptions.

These trade forecasts are then aggregated for the region as a whole and for individual subregions. A separate decomposition is performed for trade in raw materials and non-raw materials: the latter are the main driver of warehouse logistics and the subject of analysis. It is non-commodity trade that is closely linked to the need for warehouse operations, while commodity cargoes are more often transported directly from the producer to the processor (*by pipeline, in bulk or in liquid form*) and stored in special containers outside warehouse facilities.

The demand for warehouse space associated with domestic goods flows is calculated based on the share of domestic distribution in the total volume of goods flows. This share is determined using data from the inter-industry balance of the relevant country, in particular, based on the structure of intermediate consumption by industry. The resulting internal demand coefficient is applied to the total volume of freight traffic to estimate the portion of goods that requires warehousing and logistics services within the national territory, excluding foreign economic supplies — exports, imports, and transit. For countries for which inter-industry balance data are not available, domestic demand is calculated as the volume of goods (*by group*) produced during the year, minus exports of the corresponding group of goods for the specified year.

The relationship between trade flows and demand for warehouse capacity

Forecasting trade flows is the first step in assessing future demand for warehouses. The next step is to translate the forecasted volumes of goods movement into logistics flows by product category, destination, and further into warehouse space requirements. The logic behind the model is based on the principle of sequential transition: trade flows record the total annual turnover of products; logistics flows reflect the distribution of this turnover by routes, modes of transport, and concentration points; and the final stage of modelling determines which part of these flows requires temporary storage and, consequently, how much warehouse space is needed. Warehouses are not considered as static storage for the entire volume of goods turnover, but as a buffer in the logistics system, where only part of the cargo is accumulated. This part is determined by the average storage period of products, turnover frequency, and specific density of placement.

To take into account the specifics of cargo, the model uses a differentiated approach based on broad product categories. For example, perishable goods and pharmaceutical products are characterized by short storage cycles and low stacking height, which requires significant space per unit of weight. Grain and agricultural products, on the other hand, require long-term storage but can be placed in specialized warehouses and silos. Industrial goods (*building materials, metals, chemical products*) have a high stacking density, which reduces the need for space. Finally, large-sized cargoes, such as machinery and vehicles, are calculated according to separate standards, as they cannot be included in standard pallet models. Thus, the model takes into account the characteristics of each product group through a system of coefficients that reflect the average storage duration, inventory turnover, and space utilization rates.

To standardize calculations in the study, the pallet method is used, which allows for the unification of demand assessment. It is based on converting the annual cargo flow into the number of pallet spaces, each of which has a specific annual load. Next, the usable storage area is calculated, adjusted for area utilization coefficients and seasonal fluctuations in load. This approach is widely used in international practice and is supported by leading research centres in the field of logistics, in particular, the Association for Supply Chain Management and the Massachusetts Institute of Technology, where this method is considered part of a comprehensive warehouse network planning strategy ([Johnson, 2008](#)).

The methodology is applied to product groups that require warehousing and logistics services at intermediate stages of delivery. It is important to emphasize that the pallet method is conditional. This storage method is not applicable to all product categories. Palletization serves more as a means of methodological unification, with the specifics of individual categories reflected through adjustment coefficients. The analysis covers products of the agro-industrial complex (A/C) — agricultural products, grain, finished food products, fats and oils, as well as a wide range of industrial goods: chemical

products, ferrous and non-ferrous metals, fertilizers, machinery and equipment, metal products, pulp and paper products, rubber and plastic products, textiles and leather, vehicles, wood and wood products. Certain categories of raw materials, such as coal, oil, petroleum products, and ore, as well as cargo that cannot be transported on pallets (*liquid, bulk, large-sized*), are excluded from the calculations. The calculation model allows commodity flows to be converted into warehouse space requirements, taking into account the logistical and technical parameters of storage.

The formalized expression of warehouse space requirements is constructed as follows:

$$S_{ij} = (V_{ij}/T_i)D_i \quad (2)$$

Where V_{ij} is the annual trade volume of goods in group i in country (or *transport corridor*) j in tonnes; T_i is the average number of turnovers (*storage cycles*) of this group of goods per year (i.e., *365 days/average storage time in days*); D_i is the specific storage density, i.e., the required area (m²) per ton of goods in group i stored at one time. By summing S_{ij} for all relevant groups i and directions j , we obtain a general forecast of demand for warehouse space.

This formalization allows us to move from trade volumes to calculating the actual warehouse space required to ensure the smooth functioning of supply chains. The final calculation is formed by summing up the requirements by product category and region.

Special attention is paid to distinguishing between domestic and transit demand. Domestic demand covers retail distribution centres, warehouses at manufacturing enterprises, and wholesale logistics bases that supply domestic consumption. Transit demand is associated with the need for temporary storage of goods at borders, dry ports, and container terminals. Here, some of the cargo passes through transit without storage, but a certain proportion is delayed for several days for transshipment and consolidation. The application of this methodology allows these differences to be taken into account and the prospective needs for warehouse capacity to be assessed with a horizon up to 2040.

It is also essential to distinguish between different types of warehouses, as they have different roles and different load factors. The forecast highlights the following categories of warehouse infrastructure.

- Dry general-purpose warehouses are heated or unheated storage facilities for non-food goods, containers, equipment, building materials, and other items. This is the largest segment, where goods are usually stored on pallets or shelves. Demand for such space is calculated based on forecasts for the turnover of industrial and consumer goods. Warehouses are classified by quality and equipment classes — A, B, C, as well as Class D warehouses, other storage facilities, and retail space,

mainly used in retail. This classification allows for differences in the technical condition of facilities, temperature control, and compliance with modern logistics requirements. This category also includes e-commerce hubs — large fulfillment centres for marketplaces. They can be distinguished due to their high automation and geographical requirements (*proximity to large cities*). Their emergence is linked to the growth of e-commerce, and they are distributed across countries in proportion to the projected volume of online retail.

- Temperature-controlled warehouses, with refrigerators and freezers for food, pharmaceuticals, flowers, etc. Perishable goods require a cold chain to be maintained, and their storage is often short-term (*days or weeks*). However, with the growth of food and drug production and trade, the demand for refrigeration capacity is increasing. The model takes into account separate forecasts for food and medicines, converted into requirements for cold storage space (*adjusted for an average storage height of ~6–8 m and a loading density that is lower than that of dry warehouses due to the need for cold air circulation*).
- Hazardous materials warehouses are specialized facilities for chemicals, flammable and other dangerous goods (in accordance with the UN Agreement on the International Carriage of Dangerous Goods by Road, ADR). Their share in total turnover is small, but they require special conditions (*sparse arrangement, reinforced floors, special security systems*). In our forecast, we take them into account in proportion to those industries (*petrochemicals, chemical industry*) where an increase in the production of goods requiring storage is expected.

For transit flows, a separate assessment is carried out by type of transit and transshipment infrastructure, including:

- Open storage areas — open-type terminals, sites for storing containers, timber, metal, large-sized equipment, bulk materials under a canopy, etc. Such open-air warehouses are usually measured in hectares. They are particularly relevant for transit and port hubs (*e.g., container yards in dry ports, terminals for bulk cargo at railway stations*).
- Transit distribution centre warehouses (container terminals, transshipment terminals) — although functionally these are also dry or refrigerated warehouses, they are distinguished by the special nature of their use. Transit distribution centres on international corridors serve as transshipment points between modes of transport and as short-term buffers at borders. The forecast for transit warehouses takes into account the share of transit cargo flow passing through the region and requiring temporary storage (*for example, a container being transshipped from train to train can be stored for several days in a dry port*).

Within the model, each product group is also distributed across key sectoral consumption areas, including:

- retail (*traditional retail trade*);
- e-commerce (*calculated as a projected share of total turnover and serves as an indicator of the segment's level of development*);
- agribusiness;
- pharmaceutical sector.

Distribution by warehouse type is based on the composition of product groups defined by Harmonized System (HS) codes, as well as storage requirements such as temperature conditions, security levels, packaging features, and shelf life. Temperature-controlled warehouses are mainly used for storing agricultural products and foodstuffs; pharmaceutical warehouses are used for products with special microclimate requirements; and tanks are used for storing liquid chemicals. Dangerous goods are stored exclusively in specialized warehouses equipped with security systems and having the appropriate permits.

Current structures are used to forecast demand distribution by type: for example, the share of perishable goods requiring refrigeration in total cargo turnover; the percentage of dangerous goods, etc. However, it is also assumed that these proportions will gradually shift towards an increase in the share of cold and specialized logistics as the economy diversifies (*for example, the growth of agricultural exports will require the construction of new elevators and refrigerated warehouses*). It is expected that the most dynamic growth will be in the segment of classic Class A dry warehouses serving retail and industrial chains, as well as container terminals in key transport hubs. The latter play a special role for landlocked countries: the creation of inland container hubs (*so-called dry ports*) reduces transit costs and delays caused by the geographical location of many countries in the Eurasian region. Eight of the ten countries that make up the region in this study are landlocked.

The lack of access to the ocean leads to higher logistics costs and longer delivery times: according to World Bank estimates, companies in continental countries pay significantly more for freight delivery and have to allow twice as much transit time as coastal economies ([World Bank, 2020](#)). The lack of access to the sea forces, for example, the states of Central Asia and the Caucasus to develop full-fledged distribution centres to compensate for their remoteness from seaports and ensure the reliability of supply chains.

Supply assessment

The forecast for warehouse space supply is based on a comparison of future demand with existing and planned capacity, vacancy rates, and rental rate dynamics. The key reference point is the calculation of the shortage of high-quality facilities, which shows the gap between market demand and available supply by 2025. For a more accurate assessment, a saturation coefficient system is used, which takes into account the size of the economy, the country's role in regional freight flows, and its attractiveness for investment. The higher the economic activity and transit significance, the higher the coefficient (0.85; 0.75; 0.65). In some cases, such as in Turkmenistan, the calculations are refined by experts. Within countries, the supply of warehouse capacity is distributed differentially: priority is given to key logistics hubs and hubs with higher coefficients, while peripheral regions are assessed with a downward adjustment. This approach allows for a realistic forecast of warehouse space distribution that reflects the real centres of economic growth and transport activity in the region.

The proposed methodological approach combines standardized elements that ensure the comparability of calculations with the flexibility necessary to take into account the specifics of individual categories of cargo. The model allows us to move from forecasts of trade and logistics flows to clear quantitative benchmarks for warehouses: how many m², what class and functionality will be required in different countries and agglomerations of the region in two model scenarios. The methodology combines economic and mathematical modelling of trade (*gravity models*) with the logistical transformation of these flows into warehouse infrastructure indicators. This allows us to scientifically link macroeconomic scenarios and specific industry needs — the space requirements of different types of warehouses. The results of forecasting for development scenarios up to 2040 are presented below.

3.2. Scenario assumptions: baseline vs. optimistic scenario for cargo flows

In the baseline scenario for trade turnover in the Eurasian region, the key prerequisite is a combination of moderate global growth and structural shifts in global trade. After a period of slowdown, the global economy will stabilize at less than 3% growth per year, which will limit demand for raw materials but create opportunities for expanding supplies of products with higher added value. The energy transition is leading to relatively low oil and gas prices, which is holding back exporters' foreign exchange earnings but increasing the competitiveness of energy-intensive industries and processing sectors. Global trends toward protectionism and regionalization are stimulating a reorientation of some commodity flows to land routes through Central Asia and the South Caucasus, which is increasing the importance of intra-continental logistics hubs. Within the region, the growth of the Central Asian domestic market, the doubling of the middle class in Kazakhstan and Uzbekistan by 2040, and the expansion of transport and warehouse infrastructure along key transport corridors are becoming prerequisites.

↓ Table 1. Forecast of the trade structure of the Eurasian region countries, million tonnes

Indicator	Scenario	2023	2030	2040
Turnover	Base	1,278	1,335	1,420
	Optimistic	1,278	1,522	1,809
Export	Base	1,012	1,053	1,103
	Optimistic	1,012	1,187	1,371
Imports	Base	86	92	106
	Optimistic	86	109	145
Domestic trade	Basic	179	190	210
	Optimistic	179	226	293

Source: calculations by EDB and CMWP experts.

↓ Table 2. Forecast of the trade structure of Eurasian countries, excluding certain commodities (energy resources, ores), million tonnes

Indicator	Scenario	2023	2030	2040
Turnover	Base	388	432	514
	Optimistic	388	510	700
Export	Basic	211	238	284
	Optimistic	211	273	368
Import	Base	79	85	100
	Optimistic	79	102	136
Domestic trade turnover	Basic	98	109	130
	Optimistic	98	135	196

Source: calculations by EDB and CMWP experts.

Total foreign trade turnover will increase from 1.28 billion tonnes in 2023 to 1.42 billion tonnes by 2040, i.e. by 142 million tonnes, or 11% (Table 1). The average annual growth rate will be about 0.6%. However, the increase will be uneven: exports will add about 91 million tonnes (*from 1,012 to 1,103 million tonnes, +9%*), intraregional trade — 31 million tonnes (*from 179 to 210 million tonnes, +17%*), and imports — 20 million tonnes (*from 86 to 106 million tonnes, +23%*). Their contributions to the total increase are 64%, 22%, and 14%, respectively. The accelerated growth of the non-commodity segment is structurally important — from 388 million tonnes in 2023 to 514 million tonnes in 2040, i.e., by 126 million tonnes, or 33%. The average annual growth rate for non-commodity goods is estimated at 1.7%, which is almost three times higher than that of commodity export flows. The share of non-commodity trade in total trade is increasing from 30% to 36%, indicating a gradual transition from a commodity-based model to a more diversified trade structure.

The growth in non-commodity trade (+126 million tonnes) is driven by several groups of goods. Ferrous metallurgy will see an increase of 32 million tonnes, construction materials will see an increase of more than 18 million tonnes (*mainly within the Eurasian region*), the chemical industry and fertilizers will see an increase of about 25 million tonnes, and agricultural products (*grains*) will see an increase of about 17 million tonnes. Wood processing also makes a significant contribution (*about 14 million tonnes*) amid steady demand in China and South Asian countries. The increase in the turnover of rubber and plastic products is encouraging — about 9 million tonnes.

In terms of country distribution, Russia retains the largest absolute volumes (*an increase in non-commodity trade of 87 million tonnes*), remaining the largest exporter and also the key net importer in the region. Kazakhstan is strengthening its position by diversifying exports in non-commodity segments: non-commodity trade turnover will increase by about 16 million tonnes by 2040 compared to 2023. Other Central Asian countries — Kyrgyzstan, Tajikistan, and Uzbekistan — are showing accelerated growth against a low base. In total, the increase in non-commodity trade for these countries will amount to 13 million tonnes (+68%). Turkmenistan will see virtually no increase in its non-commodity trade. Belarus is showing moderate growth (+5 million tonnes, or +16%), maintaining stable supplies in the industrial and consumer segments. Growth in the South Caucasus countries — Armenia, Azerbaijan, and Georgia — will total 5 million tonnes (+32%).

Geographically, there has been a shift in flows to the east and south ([Figure 16](#)). For Russia, the main export destinations remain China, Türkiye, Iran, the Middle East, and North Africa, which account for most of the additional demand. At the same time, intra-group ties in Central Asia are strengthening. The regional trade architecture is being transformed. Central Asia is gradually increasing its importance in the non-commodity trade of the Eurasian region.

In the optimistic scenario for the development of trade turnover in the Eurasian region, higher growth rates in the world economy and global trade become the key backdrop. Geopolitical tensions do not escalate into direct conflicts, and accumulated financial imbalances are smoothed out by coordinated actions of leading global central banks and international institutions. This allows the global economy to grow at a rate of over 3% per year, while international trade and investment flows show signs of recovery. China maintains growth rates above 4%, coping with demographic and structural challenges, and expands imports through domestic consumption and investment. The European economy recovers to 1.5–2% per year, supporting demand for industrial goods and energy resources from the region. At the same time, the INSTC development (which primarily has a positive impact on the countries of Central Asia and the South Caucasus), as well as the Middle Corridor and other East-West routes, is accelerating, stimulating transit flows and deepening regional economic integration.

In this context, trade dynamics in the Eurasian region accelerate significantly. While total trade turnover amounted to approximately 1.28 billion tonnes in 2023, it may exceed 1.8 billion tonnes by 2040 (*+531 million tonnes, or +42%*). The average annual growth rate will be around 2.2%. The non-commodity segment shows particularly rapid growth: from 388 million tonnes in 2023, it will increase to 700 million tonnes in 2040, i.e., by 80% compared to 33% in the baseline scenario (Table 2). The average annual growth rate will be about 3.5%. The share of non-commodity trade in the overall structure may reach almost 40%. Exports of non-commodity goods will increase from 211 to 368 million tonnes (*+157 million tonnes*), imports from 79 to 136 million tonnes (*+57 million tonnes*), and intraregional trade will double from 98 to 196 million tonnes (*+98 million tonnes*).

The growth in non-commodity trade is primarily driven by an expansion in the number of manufacturing product categories involved in foreign trade flows, and the growth rate is significantly higher than in the baseline scenario. Ferrous metallurgy trade has the potential to increase by 70 million tonnes. Trade in machinery and equipment will more than double, from 11.1 to 23 million tonnes (*an increase of 12 million tonnes*). Chemical and rubber and plastic products make a significant contribution (*an increase of 23 million tonnes and 13 million tonnes, respectively*). The contribution of construction materials (*an increase of 24 million tonnes*) and food products (*an increase of 23 million tonnes*) is critical. Among the fastest growing sectors in terms of turnover are non-ferrous metallurgy and the pulp and paper industry. Thus, the structure of trade shifts more significantly than in the baseline scenario towards more technologically complex products, reflecting a profound structural transformation of the regional economy.

Both traditional and new centres are driving the growth of non-commodity trade in the optimistic scenario. Russia retains the largest absolute trade volumes (*an increase of 202 million tonnes out of a total increase of 314 million tonnes from 2023 to 2040*), but Central Asian countries are becoming the leaders in growth rates. Kazakhstan is increasing its exports and strengthening its position as a key hub for regional flows thanks to its metallurgy, agro-industry, and chemical sectors. Its contribution to the 60 million ton increase is the second most significant. Uzbekistan (*+15 million tonnes*) is doubling its trade volumes, relying on growth in industrial processing and agro-industrial production. Other Central Asian countries — Kyrgyzstan, Tajikistan, and Turkmenistan — may more than double their trade turnover. Overall, Belarus ensures stability in trade relations, while the South Caucasus (*Georgia and Azerbaijan*) strengthens its transit and processing role along the Trans-Caspian route.

Geographically, trade flows are shifting further east and south compared to the baseline scenario. China is becoming the main source of imports and the main market for non-commodity goods in the region, while ties with India, Türkiye, Iran, and the Persian Gulf countries are strengthening. The European Union is gradually regaining its lost positions by restoring industrial and agricultural cooperation. Intra-regional

trade is strengthening in Central Asia. Regional trade is growing significantly faster than in the baseline scenario, and its structure is shifting towards non-commodity, technology-intensive and processing goods. Central Asia and the South Caucasus are becoming new growth points, while Russia, despite losing market share, still retains a significant role in the trade architecture.

The optimistic scenario assumes a qualitative transition from a model based primarily on commodity flows to industrial and agricultural cooperation. The structure of cargo flows is shifting towards finished goods and containerization. The share of cargo transported in containers in the total volume of non-commodity imports in the region will increase. This is due, among other things, to the development of e-commerce, the distribution of high-tech production, and the growing role of small-tonnage shipments. In terms of tonnage, this is not so significant, but in terms of storage requirements, it is critical, as container cargo requires modern terminals and warehouses for unloading, sorting, and storing goods after deconsolidation. The increase in container flows through the Eurasian region will require a large number of container yards and associated warehouses.

↓ Figure 16. Trade along the transport corridors, 2023



In terms of commodity flows, in both scenarios, the main load on the transit infrastructure of the Eurasian region will be formed by two key directions: China–Europe and the countries of the Eurasian region–China (Figure 17). The role of southern routes is becoming increasingly prominent, with trade flows between the Eurasian region and North Africa, Türkiye, Iran, and the Middle East growing rapidly. These markets are becoming key to diversifying export and import routes and reducing dependence on East-West axes. It is here that the INSTC is developing, connecting the Eurasian region, Iran, India, and the Persian Gulf countries. Its potential lies in creating an alternative supply route that optimizes logistics between Europe, the Eurasian region, and South Asia, as well as redistributing part of the cargo flows from the congested China–Europe route.

For Central Asia and the South Caucasus, this opens up new prospects — the opportunity to participate not only in transit, but also in the processing, consolidation, and distribution of cargo as new centres of economic activity are formed. These countries have the chance to become the core of the intersection of two mega-routes — East-West and North-South. Taken together, the Eurasian region’s growing ties with China, the Middle East, and Africa are strengthening the Eurasian Transport Network — a multi-vector system of interconnected routes that ensures the stability, flexibility, and strategic autonomy of trade across the continent (Vinokurov et al., 2024).

↓ Figure 17. Trade along the transport corridors (baseline scenario), 2040



Source: calculations by EDB and CMWP experts.

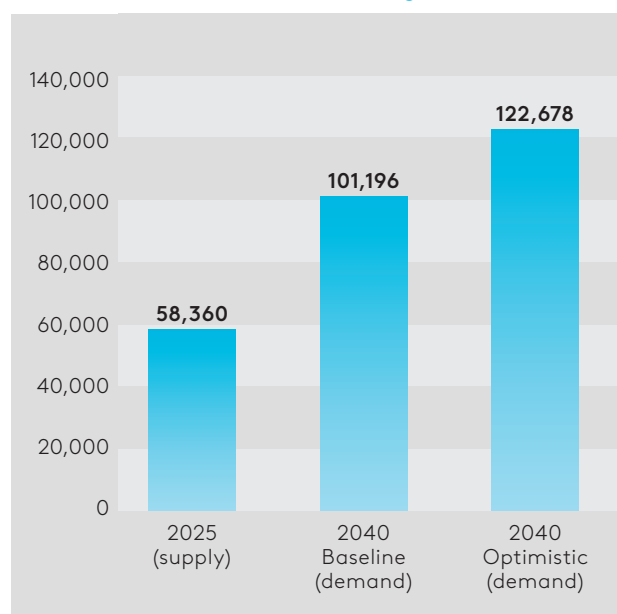
3.3. Scenarios for the development of warehouse infrastructure until 2040

Regional scenario forecasts for demand for warehouse infrastructure

The development of warehouse infrastructure in the Eurasian region in the coming decades will be determined by structural changes in the economy, a new architecture of trade flows (a shift to the east and south), increased regionalization with the emergence of new significant growth centres in the central regions of Russia, Central Asia, and the South Caucasus, the introduction of new warehousing technologies, digitalization, etc. To assess the prospects for the development of warehouse infrastructure based on two scenarios for the development of foreign trade and domestic trade in the Eurasian region, two forecasts have been developed in accordance with the methodology.

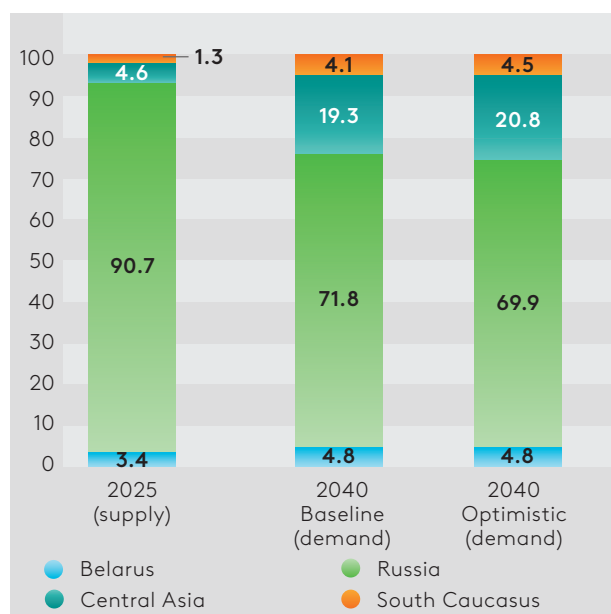
The total warehouse stock in the Eurasian region could increase from 58 million m² in 2025 to 101 million m² in 2040 in the baseline scenario (+74% growth) and to 123 million m² in the optimistic scenario (+111%) (Figure 18). The average annual growth rate could range from 3.8% to 5.1%, respectively. Russia and Belarus currently account for the largest share (over 94% of the total), but their potential growth dynamics are significantly more modest than in other countries in the region (*despite good dynamics for Belarus*). In the baseline scenario, the Russian market could grow by 37% — from 52.9 million m² to 72.7 million m² by 2040 (CAGR — 2.1%), while the Belarusian market could grow by 144% (from 2.0 to 4.9 million m² with a CAGR of 6.1%). In the optimistic scenario, the rates are higher: Russia will grow by 62% to 85.8 million m² (CAGR — 3.3%), Belarus — by 195% to 5.9 million m² (CAGR — 7.5%). The relative stability of the indicators is explained by the relative maturity and saturation of the market.

↓ Figure 18. Forecast demand for warehouse infrastructure in the Eurasian region, thousand m²



Source: calculations by EDB and CMWP experts.

↓ Figure 19. Forecast of warehouse stock structure from the demand side, %

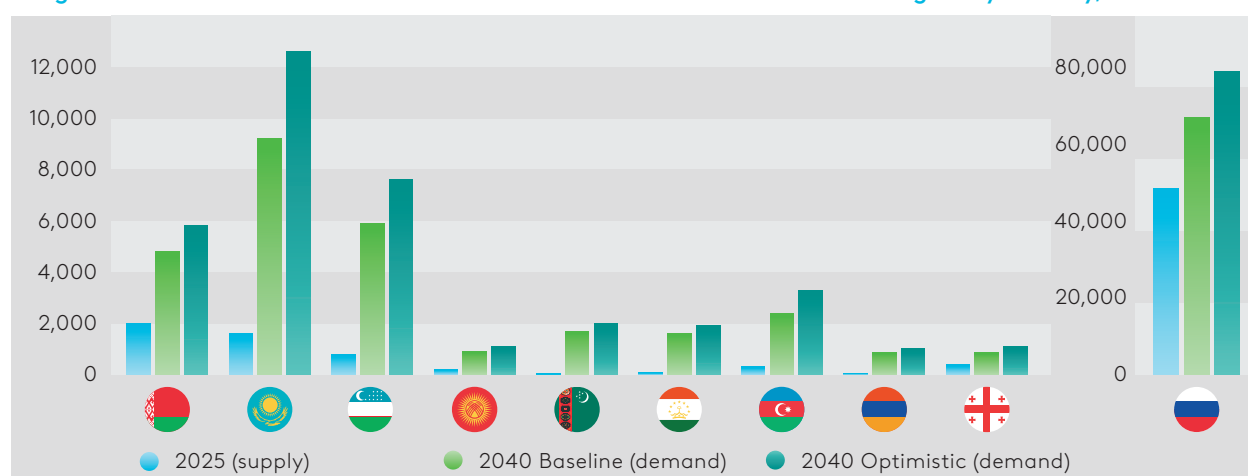


Source: calculations by EDB and CMWP experts.

The warehouse infrastructure segment in Russia and Belarus will reach a relatively high degree of saturation by 2025, especially in large cities. In 2019–2023, the Russian market experienced frenzied demand and a shortage of available space. The response was a construction boom: in 2024, approximately 4.9 million m² of new warehouses were commissioned, a historic high. The largest online retailers (*Wildberries, Ozon, etc.*), which had previously been actively leasing warehouses, completed their programmes to build their own distribution centres and began to decommission excess leased space. As a result, the balance between supply and demand began to recover. The baseline forecast reflects this stabilization. It is assumed that in 2025–2030, demand for warehouses in Russia will decline slightly from its peak in 2022–2023 and then grow very moderately. Having reached a high level of saturation, the market will balance demand by redistributing existing warehouses and replacing outdated facilities with new ones. The slight decline until 2030 is due to the fact that part of the current demand is one-off in nature (*creation of safety stocks, import substitution*), and these factors will gradually exhaust themselves. The entry of new space into the market will also play a role. After 2030, demand will begin to increase again in line with economic growth, but at a fairly gradual pace.

For Belarus, on the contrary, the baseline scenario assumes steady growth in warehouse demand, although not as explosive as in Central Asian countries (Figure 19). Belarus has logistics that are closely integrated with Russia. The increase in demand will be linked to the development of transit functions (*the country remains a land corridor to the EU and the Baltic ports*), as well as the gradual modernization of the warehouse sector. In the 2020s, modern retail and 3PL complexes were built in Belarus, although some projects were suspended due to sanctions. The baseline scenario assumes the commissioning of a number of large facilities by 2030 (*e.g., new regional distribution centres, warehouses near the Polish and Russian borders*). After 2030, demand will continue to grow, but at a slower pace, given the proximity of saturation. Thus, the forecast paints a more positive picture for Belarus than for Russia: in Russia, the retail and distribution segment is already oversaturated, while Belarus has room to grow.

↓ **Figure 20. Forecast demand for warehouse infrastructure in the Eurasian region by country, thousand m²**



Source: EDB calculations.

The optimistic scenario for Russia suggests a slightly different trajectory: after a short-term decline in demand in 2025–2027, the market may return to growth if the economy adapts to the new conditions and a new wave of investment begins. For example, more active import substitution and the development of domestic production may once again increase the need for warehouses to store raw materials and product stocks. In addition, Russia's pivot to the East is stimulating the formation of new logistics hubs in the south and east of the country. However, this will require significant efforts to create a favourable investment climate, as developers are currently experiencing difficulties (*expensive financing, sanctions on equipment, etc.*).

The growth in demand for warehouse infrastructure in Russia is concentrated in certain macro-regions, including the Far East (*centred on Khabarovsk*), the Volga region (*centred on Kazan*), Siberia (*centred on Novosibirsk*), and the Urals (*centred on Yekaterinburg*). Khabarovsk is a centre of attraction for export and import flows from the Asia-Pacific region, including timber (*dry warehouses*), agricultural and livestock products, and finished food products (*temperature-controlled warehouses*). In Kazan, the main demand is generated by exports of fertilizers, ferrous metals, rubber, plastics, and chemicals, with dry warehouses being the most in demand here. For Novosibirsk, the key commodity groups are timber, ferrous metals, and chemical products, which also mainly require dry storage. Yekaterinburg focuses on the storage of fertilizers, construction materials, and ferrous metals.

For Belarus, an optimistic scenario means realizing its potential as a logistics hub for the EAEU. There are already examples of innovative facilities, such as a consignment warehouse near Minsk (*opened in 2025*), which combines a temporary storage warehouse and a distribution centre for the automotive industry, with the possibility of deferred customs clearance. A significant factor will be the implementation of the "Great Stone" Chinese-Belarusian industrial park, where residents will need modern warehouses and logistics services.

The projected changes in **Central Asia** are significant. Under the baseline scenario, in line with growing demand, the warehouse stock of all five countries in the region could potentially increase from 2.7 million m² (2025) to 19.6 million m² (2040) — i.e. more than sevenfold (growth of +622%) with an average annual growth rate of 14%. In the optimistic scenario, the figure jumps to 25.5 million m² (+840%), and then the average annual growth rate could be 16%. Key warehouse demand is emerging in Kazakhstan and Uzbekistan: in the baseline scenario, the warehouse stock in these countries could increase from 1.6 to 9.3 million m² (*Kazakhstan*) and from 0.8 to 5.9 million m² (*Uzbekistan*) — more than 4–6 times. In the optimistic scenario, the forecast is even more ambitious: Kazakhstan — up to 12.6 million (+685%), Uzbekistan — up to 7.6 million (+841%). Other Central Asian countries show very high potential growth (*e.g., Tajikistan: from 0.1 to 1.6 million m², 19-fold in the baseline scenario*), but the absolute figures remain insignificant. The initially modest base in Tajikistan, Turkmenistan, and Kyrgyzstan allows them to demonstrate a leap as the

market enters a phase of modernization. The optimistic scenario takes into account additional investments and accelerated infrastructure development, so all indicators for Central Asia point to even higher growth rates. The potential high growth rates primarily reflect the emerging significant demand for warehouse infrastructure, which will be driven by structural economic processes. If such scenarios materialize, the share of Central Asia's warehouse stock in the Eurasian region could grow from the current 4.6% to 19.3–20.8% by 2040.

The potential explosive growth in demand in Central Asia is driven by the catch-up development of the economy, trade, and logistics. Several factors are driving demand. First, economic growth and industrialization: Central Asian countries are actively increasing production and mutual trade, which requires more space for storing raw materials, finished products, and stocks. Second, e-commerce and retail are booming. There is a growing demand for modern distribution centres and fulfilment warehouses, of which there are currently only a few outside Kazakhstan. Third, transit potential and integration into global chains also play a role. Kazakhstan, Uzbekistan, and neighbouring countries are becoming a transit corridor between China and Europe, especially against the backdrop of geopolitical shifts. Cargo flows through Central Asia are growing in all scenarios, but the development of the relevant infrastructure is lagging behind, creating many bottlenecks.

Kazakhstan has begun implementing its state *Concept for the Development of Transport and Logistics Potential until 2030*, which provides for the creation of five large cross-border logistics hubs on the borders with China, Uzbekistan, Kyrgyzstan, and at the ports of the Caspian Sea. Similarly, there are projects for wholesale distribution centres in Uzbekistan and other countries. The implementation of the announced infrastructure projects will compensate for the growing shortage of warehouse infrastructure in the region. To meet rapidly growing demand, it is also necessary to actively attract investment and technology. The arrival of international logistics developers, combined with government incentives (*special economic zones, tax breaks, connection of land to utility infrastructure*), could accelerate the commissioning of warehouse space.

A sharp increase in demand for warehouse infrastructure is also expected in **the South Caucasus**. According to the baseline scenario, the total stock in the countries could increase from 0.8 million m² in 2025 to 4.1 million m² by 2040, and according to the optimistic scenario, to 5.5 million m². The average annual growth could be 12% and 14%, respectively, which is lower than the corresponding figures for Central Asia.

In Armenia, demand is projected to exceed the current stock by 13–16 times, depending on the scenario (*61,600 m² in 2025 compared to demand of 0.9–1.1 million m² by 2040*). The growth of the distribution and 3PL services sectors is the driving force here. Another important factor is that Armenia has begun to intensify trade with Russia and Iran, which creates an additional burden on existing warehouses. In Azerbaijan, the economy's demand for warehouse infrastructure will exceed the current stock

by 7–10 times (296,300 m² now, and 2.4–3.3 million m² will be needed by 2040). This dynamic is linked to Baku's position as a key logistics hub in the Caucasus. The new demand will be met mainly by the construction of modern complexes, including in the Alat free economic zone near Baku, where a logistics hub is planned with the participation of companies from China, Uzbekistan, Israel, and other countries. In Georgia, according to the baseline scenario, the difference between the existing and potentially required warehouse space is lower (388,900 m² in 2025, 0.9–1.1 million m² by 2040). The limiting factors for Georgia are its small domestic market and lack of large industrial cargo, but transit traffic and e-commerce are keeping demand up. These numbers reflect the opening of new international routes (*Black Sea ports, the INSTC, and the Middle Corridor*) and active international interest.

In recent years, the countries of the South Caucasus have intensified the development of warehouse infrastructure and logistics. Azerbaijan is creating a large logistics centre in Alyat, while Georgia is building a dry port and renovating its warehouse park. The proposed scenarios take into account economic growth, the region's growing transit role (*the Middle Corridor, as well as the INSTC*), and the implementation of individual projects (*industrial parks, Special Economic Zones*). The region has the potential to become a new regional logistics hub capable of competing with Eastern Europe. This requires accelerated investment in infrastructure: the development of ports (*Baku, Anaklia*), cargo terminals, and customs zones, as well as the expansion of warehouse facilities. More active growth in e-commerce and 3PL is possible. For example, the arrival of marketplaces (Ozon, Wildberries) in the Caucasus region is already underway, stimulating demand for distribution facilities. The region is becoming a promising growth point for logistics. Market signals will lead to an influx of developers and capital, contributing to the development of warehouse infrastructure.

Segment forecasts and structural factors

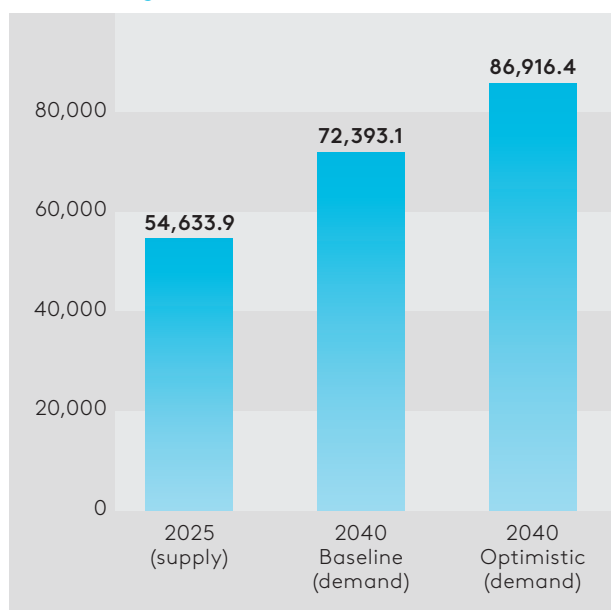
Warehouse infrastructure serves a variety of economic sectors, and demand for it is driven by several key segments. In the context of the Eurasian region, there are five main groups that generate demand for warehouses: (1) retail chains and retail trade, (2) local and cross-border e-commerce, (3) the agro-industrial complex (agrologistics), (4) the pharmaceutical sector, and (5) transport logistics.

Retail chains and retail trade

The retail chain segment will remain the largest source of warehouse demand in both scenarios until 2040 ([Figure 22](#)), but the growth of demand varies significantly from country to country. Accelerated development of trade logistics is expected in Central Asia and the Caucasus. A number of important agglomerations still lack modern distribution centres: for example, there is a shortage of distribution centres and sorting warehouses in the Fergana Valley, Samarkand, Aktobe, Aktau, Bishkek, Osh, and Dushanbe. The absence of such facilities slows down the expansion of retail chains to the periphery. As the

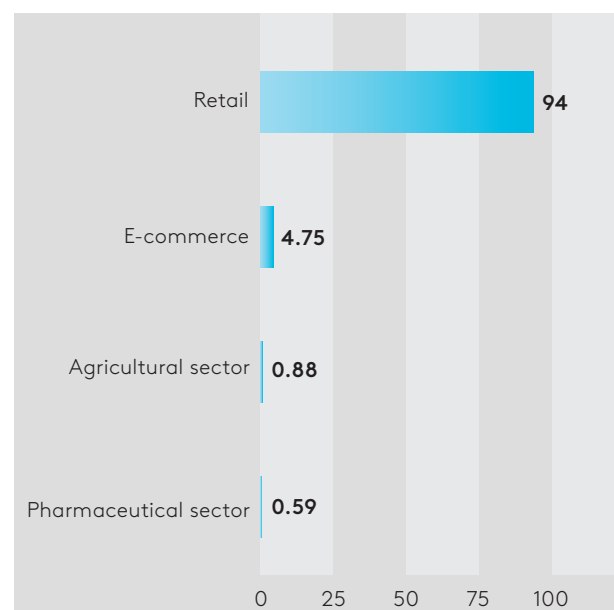
capitals become saturated, the chains will penetrate the regions, requiring the creation of distribution centres in new locations (e.g., *chain warehouses in regional centres*).

↓ **Figure 21. Forecast demand for warehouse infrastructure in the “Retail chains and retail trade” segment, thousand m²**



Source: EDB calculations.

↓ **Figure 22. Structure of warehouse stock by key segments in 2025, %**



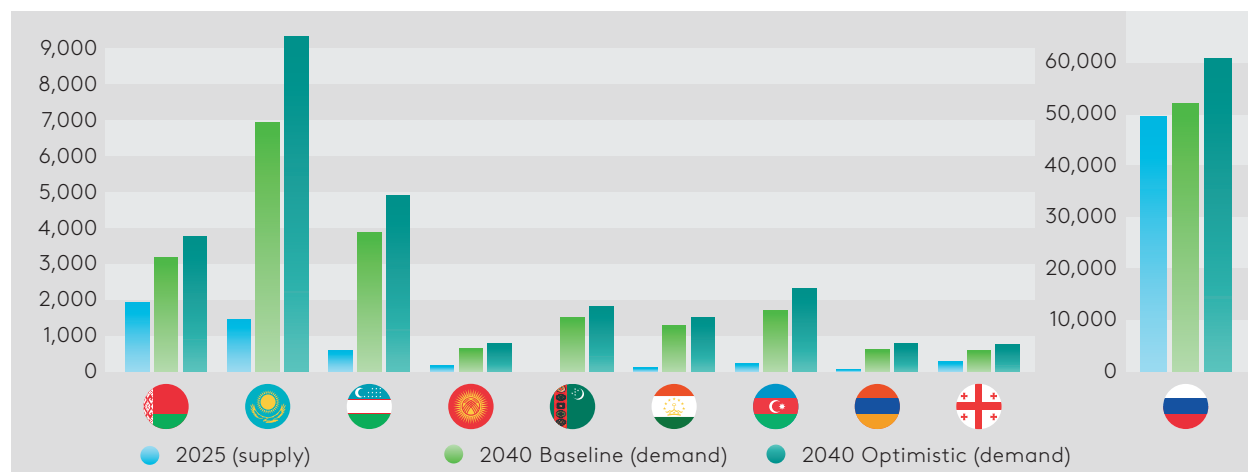
Source: EDB calculations.

Demand for retail warehouses in Central Asia will increase significantly (Figure 23). Kazakhstan (*1.5 million m² in 2025*) and Uzbekistan (*0.64 million m² in 2025*) lead in terms of absolute (forecast) demand growth. By 2040, these countries will need an additional 5–8 million m² and 3–4 million m² of retail warehouse space, respectively (depending on the scenario). In relative terms, the CAGR for 2025–2040 will be 11–13% in Kazakhstan and 13–14% in Uzbekistan. A significant increase in demand will also affect Turkmenistan (*0.14 million m² in 2025*) and Tajikistan (*0.75 million m² in 2025*): by 1.5–1.8 million m² and 1.2–1.4 million m², respectively. In Kyrgyzstan (*0.19 million m² in 2025*), demand is expected to increase by 0.5–0.6 million m² compared to the current supply. These three countries have an extremely low base.

The countries of the South Caucasus are also showing strong growth: for example, the demand for total retail warehouse space in Azerbaijan (*0.28 million m² in 2025*) will increase by 1.4–2.0 million m² by 2040 (*7–8 times the 2025 level*). For Georgia (*0.33 million m² in 2025*), the growth in demand is more modest (*by 0.2–0.44 million m²*). In Armenia (*0.56 million m² in 2025*), demand will increase by 0.6–0.7 thousand m².

In Russia, demand for commercial warehouses will increase less significantly. The retail segment already has enormous warehouse capacity (almost 49.7 million m² in 2025). Saturation and even a local oversupply of warehouse space suggest that by 2040, demand from retail chains will stabilise at a level 4.6% above the base level. In Belarus, the increase in demand relative to the current level of warehouse stock (*1.94 million m² in 2025*) will be 1.3–1.8 million m² by 2040, depending on the scenario.

↓ Figure 23. Forecast demand for warehouse infrastructure in the “Retail chains and retail trade” segment by country, thousand m²



Source: EDB calculations.

In this key segment of the Eurasian region's warehouse infrastructure significant growth in demand in some regions is offset by less substantial increases in others. A significant imbalance in demand across different markets is one of the characteristics of this segment. Other challenges for retail logistics include geographical unevenness and infrastructure constraints. To meet growing demand, bottlenecks have to be overcome: the construction of regional distribution centres with state support, preferential financing, the modernization of old wholesale warehouses from the Soviet period, etc.

Another future trend is the synergy between offline, 3PL, and e-commerce. Large retailers are increasingly outsourcing part of their warehouse operations to external logistics operators (3PL) to optimize costs. For example, the storage and processing of non-food goods or imported categories can be outsourced to 3PL providers instead of maintaining excess warehouses. This increases the efficiency of supply chains and links the retail segment with transport and logistics (*integration with courier services and fulfillment operators*). Competition with online commerce also encourages traditional retailers to implement new "last-mile" solutions: creating their own order pickup points, entering into partnerships with courier networks, and using Big Data analytics to forecast demand and redistribute inventory between stores.

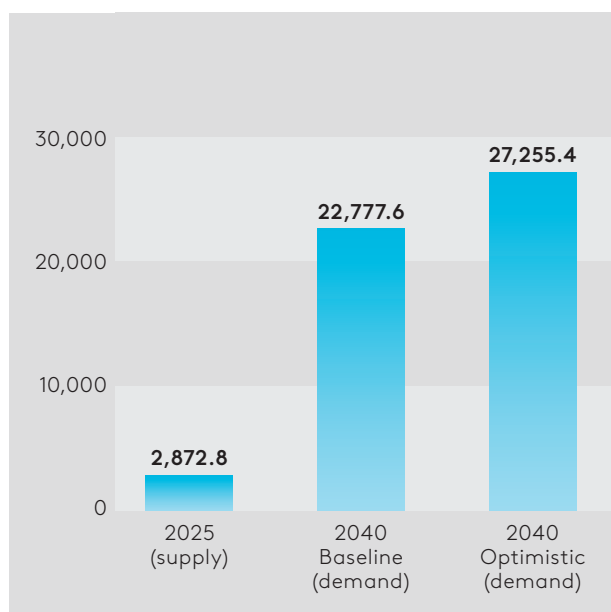
International storage standards are being introduced in the Eurasian region. If the necessary measures are taken to meet demand, it can be expected that by 2040, a network of high-tech distribution centres will be formed, covering not only capitals, but also regional centres. This will allow the retail segment to develop more steadily, even when central markets are saturated.

Local and cross-border online commerce (e-commerce)

The warehouse infrastructure segment serving online commerce in the Eurasian region will maintain the highest growth rates compared to other segments (Figure 24). It will

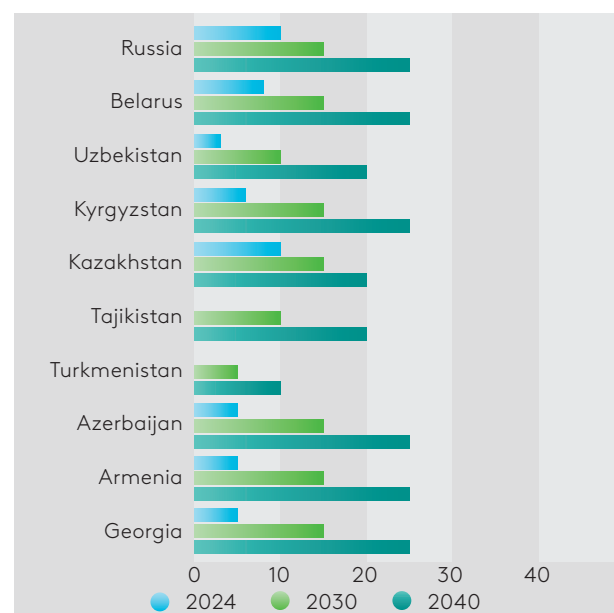
account for 60–70% of the potential cumulative increase in warehouse infrastructure demand by 2040. By 2030, demand for fulfillment centre space is expected to increase by 20–24 million m² depending on the scenario. By 2040, the share of online commerce in total retail sales will increase in all countries (Figure 25).

↓ Figure 24. Forecast demand for warehouse infrastructure in the “Local and cross-border e-commerce” segment, thousand m²



Source: EDB calculations.

↓ Figure 25. Forecast of the share of e-commerce in the retail sector in the Eurasian region, %



Source: EDB calculations.

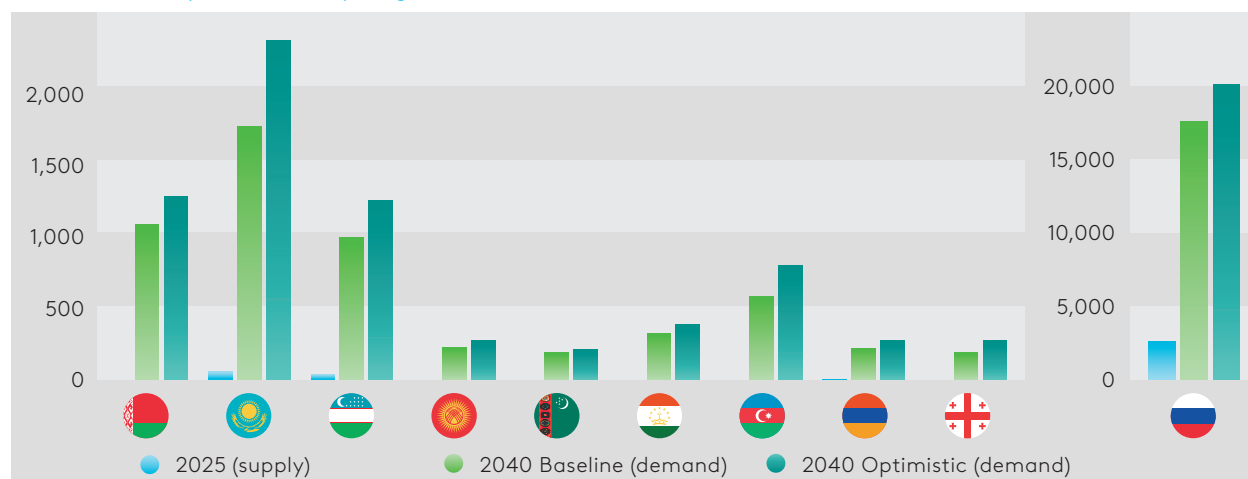
By 2040, the largest increase in demand for e-commerce warehouses is forecast in Russia (+15–18 million m² to the current stock), Kazakhstan (+1.7–2.3 million m² to the current stock of 0.05 million m²), and Uzbekistan (+1.2–1.5 million m² to the current stock of 0.04 million m²). For Russia, this segment is a key driver of the development of the entire warehouse sector. Average annual growth could reach 13–14%. For comparison, in 2025, approximately 2.8 million m² was occupied by online retail in Russia. This means that in 15 years, there will be an increase of approximately 6–7-fold. Kazakhstan and Uzbekistan are forecast to have particularly high growth rates — around 26–28% and 24–25% CAGR, respectively (Figure 26). This is due to their lower starting base and the explosive growth of the e-commerce market itself. By 2040, demand for e-commerce warehouses will reach 1.7–2.3 million m² in Kazakhstan and 1.0–1.2 million m² in Uzbekistan, i.e., it will increase by orders of magnitude.

Armenia will also show sharp growth: the need for warehouse space for online commerce may increase 36–46 times (from the current 5,800 m² to 0.2–0.26 million m²).

All other countries in the Eurasian region currently lack operational warehouse facilities for online commerce. Some projects are underway, but they have not yet been completed. In these countries, the segment will grow from scratch. The e-commerce infrastructure is in its infancy. The forecast shows a demand of 1.0–1.3 million m² by 2040 in Belarus,

0.6–0.8 million m² in Azerbaijan, 0.32–0.38 million m² in Tajikistan, in Kyrgyzstan — 0.22–0.27 million m², 0.2–0.26 million m² in Georgia, and 0.17–0.2 million m² in Turkmenistan.

↓ Figure 26. Country structure of demand for warehouse infrastructure in the “Local and cross-border online trade (e-commerce)” segment, thousand m²



Source: EDB calculations.

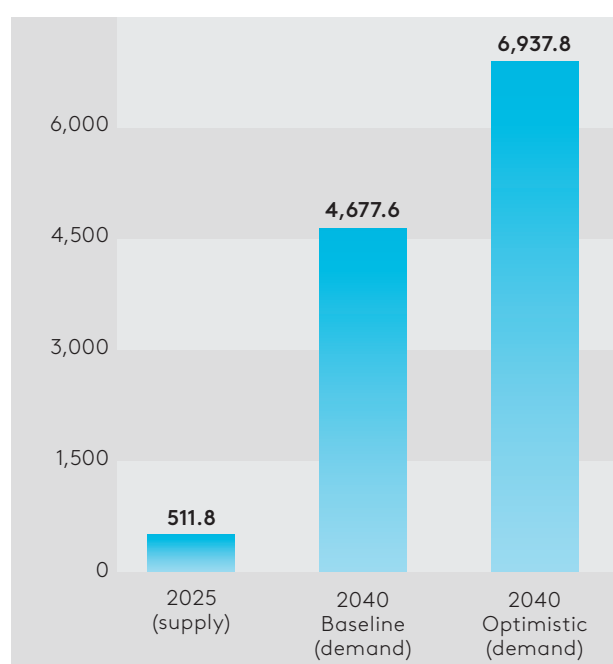
In order to turn online trade into a full-fledged driver of the warehouse market, the countries of the Eurasian region need to implement comprehensive measures. These include large-scale digital integration between countries: unification of electronic invoices, integration of customs databases, and a common parcel-tracking space. This will reduce the time and cost of cross-border delivery, stimulating the growth of online commerce. The development of IT infrastructure (*data centres, cloud services*) for processing e-commerce data arrays is also important, and Kazakhstan and Uzbekistan are already working on this. In addition, e-commerce warehouses will be needed: high-quality, equipped for 3PL, with high-rise racks, return acceptance and shipment areas, and automated conveyors. The arrival of international operators and developers will be beneficial, as they will accelerate the construction of facilities. If these conditions are met, the countries that are the first to modernize their warehousing facilities for the needs of e-commerce will benefit. Overall, e-commerce will remain the fastest-growing segment of the warehouse market in the Eurasian region: its evolution directly dictates the modernization of the entire warehousing industry.

Agrologistics

In the long term, agrologistics will become a dynamic segment of the warehouse market in the Eurasian region. By 2040, demand for agrologistics infrastructure could grow by 4.7–6.9 million m² compared to the current stock of 512,000 m² (Figure 27). The main contribution will come from Russia (+2.2–3.3 million m²) (Figure 28). Significant growth is forecast in Uzbekistan, where demand for agricultural warehouses will grow by more than 0.95–1.4 million m² by 2040 (at a CAGR of 29–32%). Uzbekistan is

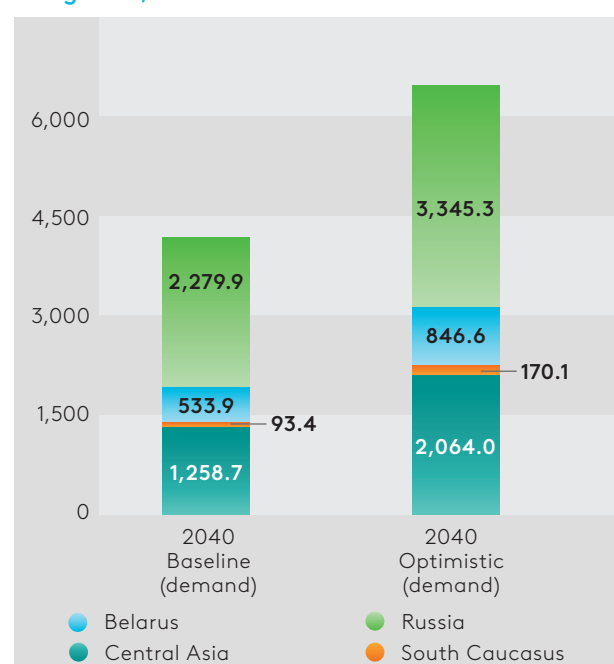
investing in wholesale distribution centres for fruits and vegetables — for example, the aforementioned Food City Tashkent (*the country's first new-generation agrologistics complex*). By 2030, it is planned to create a network of similar WDCs across the regions. A significant increase in demand for warehouse capacity for the agro-industrial complex is also expected in Belarus (+0.5–0.8 million m²) and Kazakhstan (+0.2–0.5 million m²) — i.e. 20–32 and 8–17 times higher by 2040 than in 2025, with average annual growth rates of around 22–26% and 15–21% respectively. This is due to the priority development of food storage facilities: Belarus is building new vegetable storage facilities and dairy logistics centres, while Kazakhstan is implementing a program to build vegetable storage facilities with a capacity of 200,000 tonnes by 2025 and to create agricultural logistics hubs near large cities.

↓ **Figure 27. Forecast demand for warehouse infrastructure in the agrologistics segment, thousand m²**



Source: EDB calculations.

↓ **Figure 28. Contribution to growth in demand for warehouse infrastructure in the agrologistics segment, thousand m²**



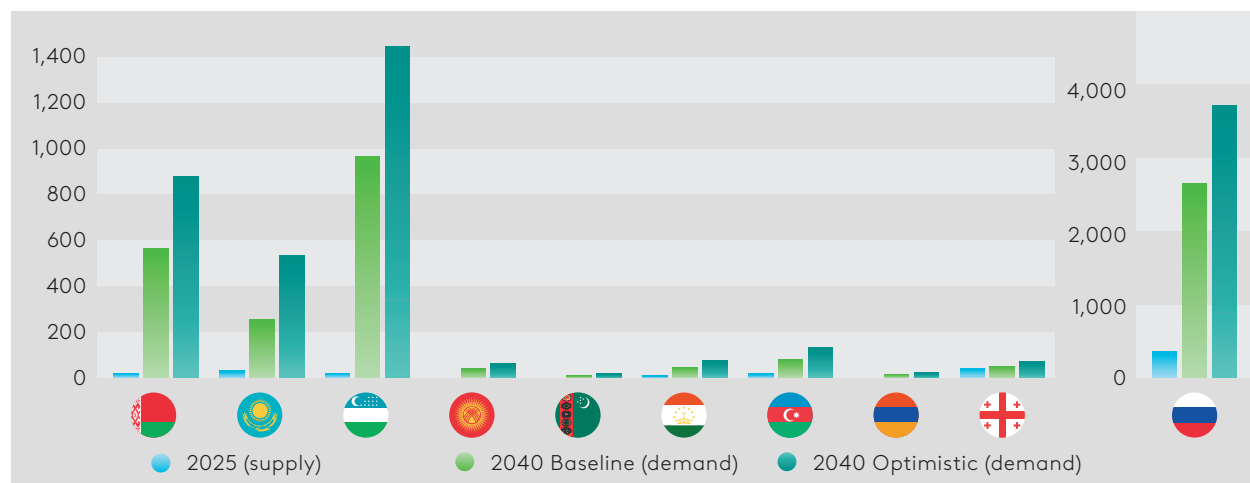
Source: EDB calculations.

Other countries in the Eurasian region are expected to see rapid growth, but from an extremely low base (Figure 29). In absolute terms, the increase will be limited, but for such small economies, these are significant changes. For example, in Azerbaijan, the demand for agricultural warehouses will increase by 65,000–114,000 m² by 2040 compared to the current level. In Tajikistan, it will increase by 37,000–65,000 m², in Kyrgyzstan by 40,000–60,000 m², in Georgia by 13,000–35,000 m², in Armenia by 15,000–22,000 m², and in Turkmenistan by 9,000–18,000 m².

In agrologistics, government programmes and private initiatives to create storage facilities are crucial. If Central Asian countries receive funding to create a regional agricultural hub capable of accumulating agricultural products and distributing them to markets, logistics efficiency will increase and demand for warehouses may grow further. This also applies to the development of cold chains. It is extremely important

to build storage facilities equipped with full climate control. By 2040, controlled-atmosphere storage, fruit-ripening chambers, pre-cooling, and similar technologies will be introduced, all of which are moving from the category of innovation to that of necessary conditions for agribusiness competitiveness. Within the framework of the EAEU, the creation of a single food market will require the development of a network of logistics distribution centres for food trade. For example, new distribution centres for farm products are being built in Russia's regions, and wholesale food markets are being built in Belarus. In Uzbekistan and Kazakhstan, partners from the UAE and China are investing in agrologistics complexes (*linked to the Belt and Road Initiative*), which will accelerate capacity expansion.

↓ **Figure 29. Country structure of demand for warehouse infrastructure in the agrologistics segment, thousand m²**



Source: EDB calculations.

Agrologistics is a segment with significant deferred demand. Investments in agricultural warehouses are expected to pay off through reduced crop losses and increased exports of long-term storage agricultural products (*vegetables, fruits, meat*). They will also contribute to the realization of the region's significant agricultural production and export potential (Vinokurov et al., 2023).

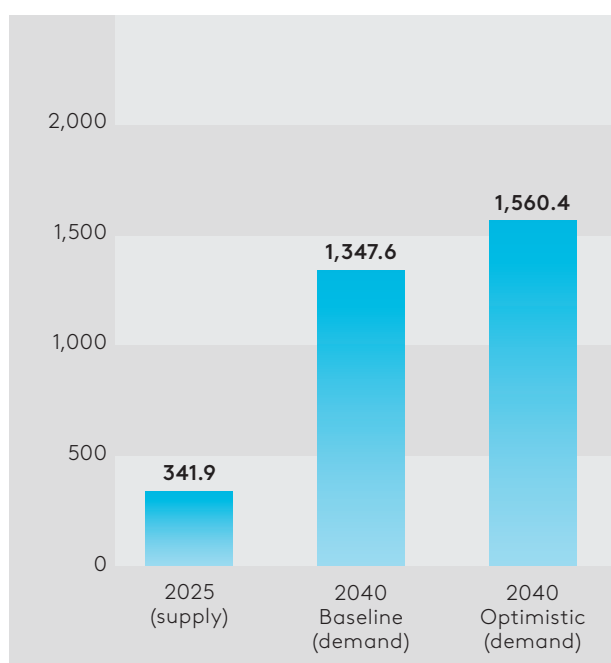
Pharmaceuticals

By 2040, demand for pharmaceutical warehouses in the Eurasian region is expected to increase significantly. The increase in demand relative to existing capacity will be ~1.2 million m² — from 341,900 m² in 2025 to 1.5 million m² in 2040 (Figure 30). At the country level, however, the dynamics are mixed. In recent years, two opposing processes have been taking place in the pharmaceutical markets of the Eurasian region: on the one hand, the expansion of distribution networks and growth in the volume of medicines, and on the other, the optimization of warehouse capacity and the closure of redundant, inefficient warehouses.

The greatest growth in demand for pharmaceutical warehouses until 2040 is expected in Russia and Kyrgyzstan (Figure 31). The Russian pharmaceutical sector has experienced a surge in localization, with new drug production facilities opening and the role of national distributors strengthening. This has led to increased demand for warehouses: by 2040, demand is expected to exceed current supply by an estimated ~0.7 million m² (from ~111,000 m² in 2025 to ~839,000 m²), with an average annual growth rate of ~14%. In Russia, following the localization of production of many drugs, demand for warehouses for raw materials for the pharmaceutical industry has increased; for example, there is a shortage of cold storage facilities for pharmaceutical ingredients, which is forcing a reduction in production or imports. The cold chain in the pharmaceutical industry needs to be developed. More than significant average annual growth is expected only in Kyrgyzstan (~17%), but from a significantly lower base (less than 5,000 m²).

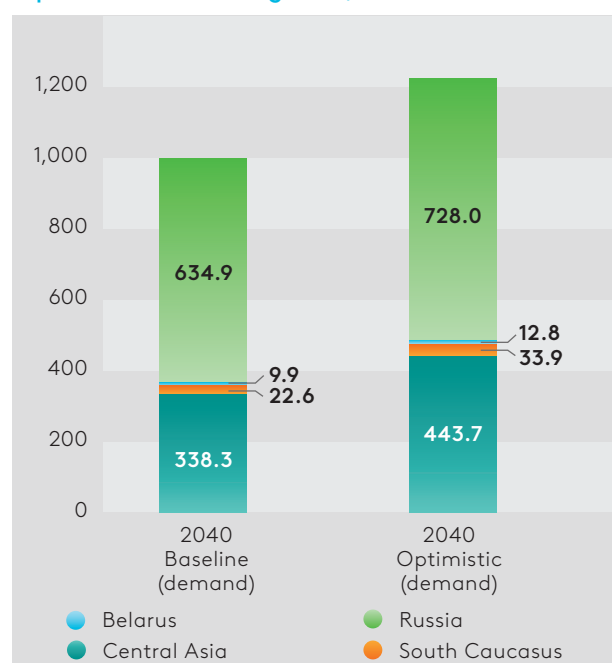
In Kazakhstan, the demand for pharmaceutical storage facilities will grow more than sixfold to ~472,000 m² by 2040, compared to the current level of 73,000 m² (Figure 32). This reflects the active development of pharmaceutical distribution: the national operator SK-Pharmacy is expanding its network of warehouses, and private distributors are building new logistics centres in Almaty and Astana. Belarus and Georgia will only be able to demonstrate modest average annual growth of ~2%. In Armenia, Tajikistan, Azerbaijan, and Turkmenistan, pharmaceutical warehouses will be in the early stages of development in 2025, and their volumes will remain modest by 2040.

↓ Figure 30. Forecast demand for warehouse infrastructure in the pharmaceuticals segment, thousand m²



Source: EDB calculations.

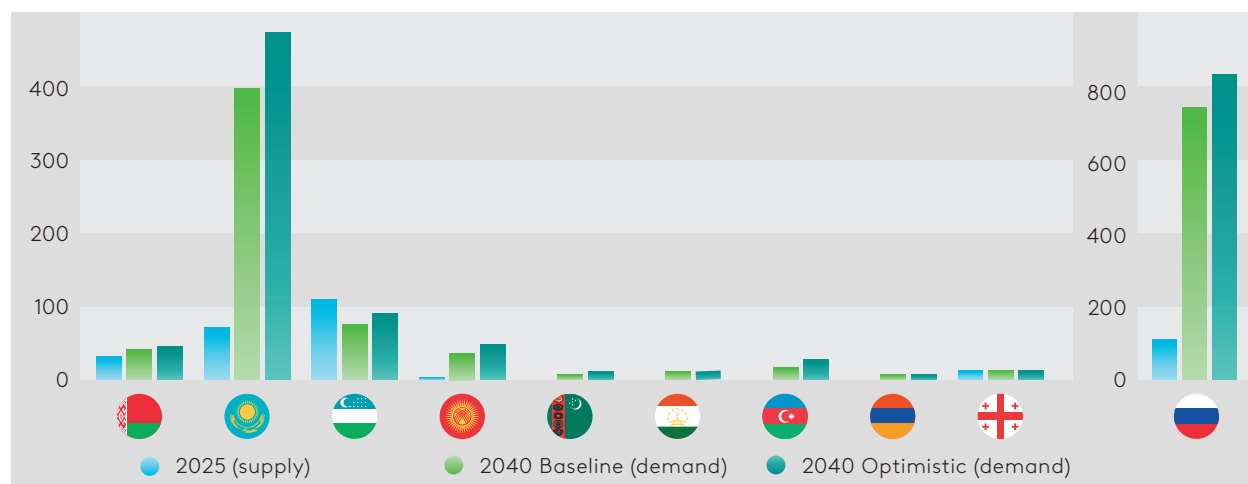
↓ Figure 31. Contribution to growth in demand for warehouse infrastructure in the pharmaceuticals segment, thousand m²



Source: EDB calculations.

An interesting feature of the forecast: demand for pharmaceutical warehouses in Uzbekistan is expected to decline by 2040. This is due to an oversupply of warehouse space in the state sector, and because the ongoing reform of the drug distribution system involves optimization: some of the old pharmaceutical warehouses will be decommissioned without replacement. In 2019–2022, Uzbekistan built several large wholesale pharmaceutical warehouses as part of a state program, but they are not operating at full capacity; in the future, the excess space may be repurposed. However, oversaturation is only occurring in capitals and large cities and mainly affects dry warehouses. There is still a need for cold storage warehouses. In some cities, such as Fergana, Karshi, Samarkand, and Urgench, the demand for pharmaceutical warehouses remains largely unmet.

↓ **Figure 32. Country structure of demand for warehouse infrastructure in the pharmaceutical segment, thousand m²**



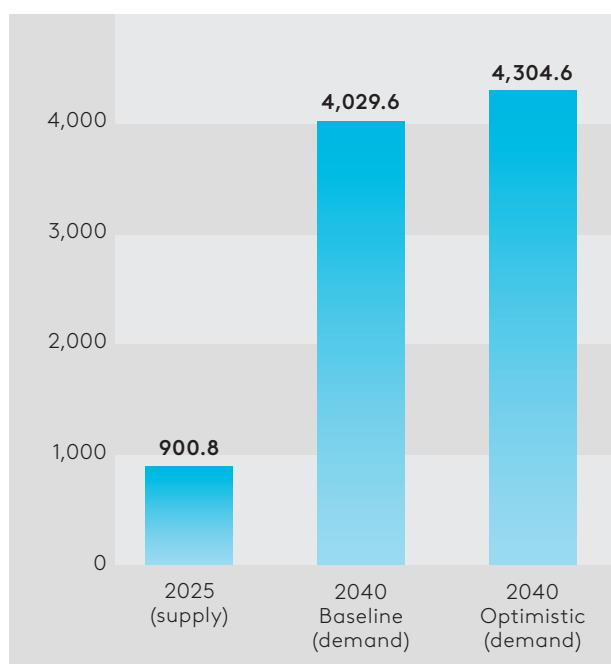
Sources: calculations by EDB and CMWP experts.

The pharmaceutical sector is very sensitive to regulation. If uniform GDP standards are introduced throughout the Eurasian Union, this will require the construction of new warehouses and the modernization of old ones to meet these standards. Accordingly, demand for high-quality pharmaceutical warehouses will increase sharply. It will also be necessary to build pharmaceutical hubs in locations that are most efficient from a logistics perspective (e.g., at the intersection of transit routes). Kazakhstan has proposed initiatives to make Almaty the regional pharmaceutical hub of Central Asia, which would involve the construction of a large distribution centre from which medicines would be distributed to neighbouring countries. If such projects are implemented, the total demand for pharmaceutical warehouses could increase significantly. Integration with transport logistics is also important: it is critical for the pharmaceutical industry to have temporary warehouses at borders and airports (*cargo terminals*) where temperature control is ensured. Their creation increases the stability of drug supply chains. The human factor is no less important: qualified pharmacists and logisticians are needed. It is also important to understand that although the pharmaceutical segment is small in absolute terms, it is critically important in terms of the availability of medicines for the population. Therefore, investments in pharmaceutical warehouses often go beyond market logic (*they are supported by governments or international funds*).

Transport logistics

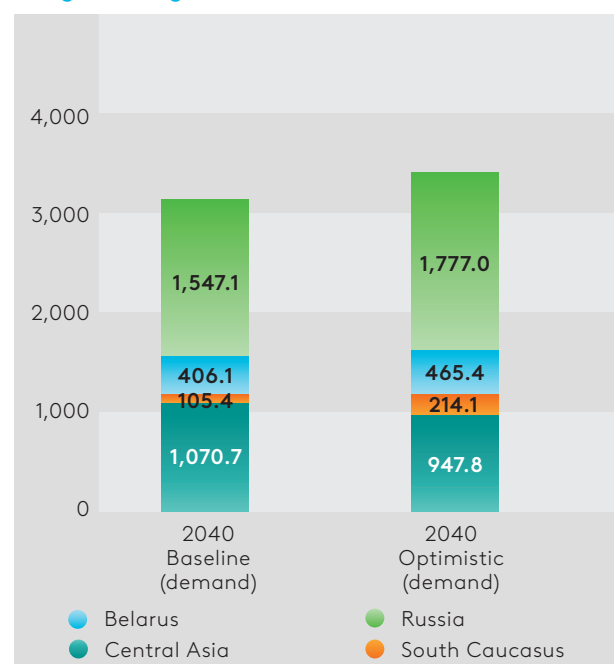
The transport logistics segment in the Eurasian region is becoming one of the most dynamic and strategically important components of the warehouse market (Figure 33). Its specificity lies in the fact that it is directly linked to the transformation of global trade routes and the redistribution of cargo flows. Unlike warehouses focused on retail or agrologistics, transport logistics warehouses are mainly open storage areas (open-air warehouses) and transit and distribution centres, including container terminals, transshipment hubs, and dry ports. These facilities provide temporary storage, consolidation, and transshipment of cargo and act as a buffer at the junction of transport routes and modes of transport. Their development is driven by deepening economic integration in the Eurasian region and the shift of trade flows to the east and south. The shift towards the China-Central Asia-Europe route and the INSTC through Russia, Iran, and India, as well as the growing importance of the Middle Corridor through the South Caucasus and Central Asia, are increasing the need for temporary storage terminals and dry ports (Figure 34).

↓ **Figure 33. Forecast demand for warehouse infrastructure in the transport logistics segment, hectares**



Source: calculations by EDB and CMWP experts.

↓ **Figure 34. Contribution to growth in demand for warehouse infrastructure in the transport logistics segment, hectares**

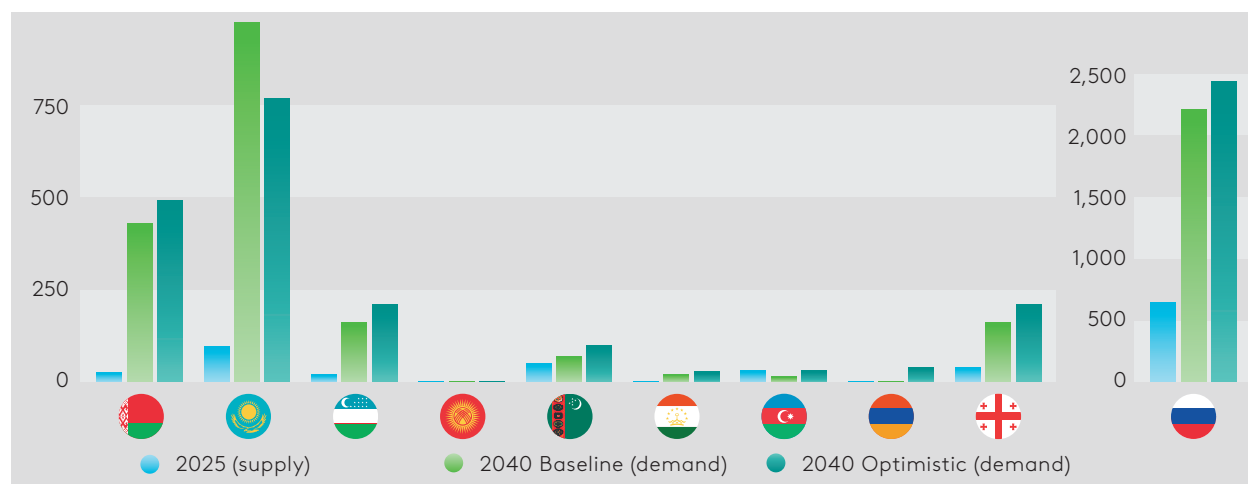


Source: calculations by EDB and CMWP experts.

The forecast up to 2040 shows uneven but explosive growth in many countries (Figure 35). In Kazakhstan, transport logistics capacity requirements will increase almost 9–10 times relative to the current level — from 85 hectares in 2025 to 758–972 ha in 2040, which corresponds to an average annual growth rate of 16–18%. At the same time, the baseline forecast shows higher growth than the optimistic forecast, which may be due to the reorientation of trade flows towards other regions in the optimistic scenario. Uzbekistan will demonstrate an 8–10-fold increase in demand, from 21.3 ha to around 165–219 ha,

with a CAGR of 15–17%, reflecting its strengthening role as a transit hub and the rapid growth of its domestic market. Russia, which has the largest base, will increase its capacity requirements from the current 647 ha to around 2,194–2,424 ha, which in absolute terms means an increase of 1,547–1,777 ha. However, the main factor here will be a qualitative shift: the development of new hubs in the Urals, Siberia, and the Far East, serving Asia-Europe routes along the Northern Eurasian corridor. In Belarus, demand will increase 16–19 times, from the current level of 26 hectares to 432–491 ha by 2040, with an average annual growth rate of about 20–22%. In the South Caucasus region, Azerbaijan will show the lowest growth, while in Georgia, growth will exceed 450% — from 39 ha to about 161–215 ha, due to the country's involvement in the Middle Corridor and increased investment in dry ports and sea terminals.

↓ **Figure 35. Country structure of demand for warehouse infrastructure in the transport logistics segment in the Eurasian region, hectares**



Source: calculations by EDB and CMWP experts.

The long-term prospects for the development of this segment are determined not so much by the growth of domestic demand as by changes in the architecture of global trade. To realize the identified potential, a set of coordinated measures is needed at both the national and intergovernmental levels. Priorities should include the construction of new temporary storage warehouses and container terminals at border crossings, the creation of multimodal logistics parks capable of integrating rail, road, and sea transport, the improvement of warehouse infrastructure quality standards taking into account the specifics of the goods being transported (*GDP for pharmaceuticals, HACCP for food products*), and the formation of a digital ecosystem for transit within the EAEU. Digitalization is also becoming a prerequisite: connecting warehouse facilities to national and regional transport logistics platforms will speed up cargo clearance processes and increase the transparency of transit operations. Government support measures are also important: providing land and utilities for logistics projects, subsidizing interest rates, and encouraging public-private partnerships. Only with active policies in these areas will the transport logistics segment be able to not only meet growing demand, but also become the foundation for the integration of the Eurasian region into the global trading system.

3.4. Significant potential for the development of warehouse infrastructure

Forecast calculations for both scenarios allow us to confidently predict a profound transformation of the warehouse infrastructure and logistics market in the Eurasian region by 2040. Regardless of the scenario, the region is experiencing a surge in the development of warehouse infrastructure, taking into account the development of existing and creation of new trade routes and strengthening domestic demand. Russia and, to some extent, Belarus are gradually transitioning to a mature market model, with growth slowing, the focus shifting to upgrading existing facilities, introducing advanced technologies, and expanding logistics in regions far from the capitals. At the same time, the investment focus is shifting to the developing economies of Central Asia and the Caucasus. The expansion of warehouse infrastructure will occur at high average annual growth rates, filling the previous vacuum and providing a basis for the integration of these countries into global supply chains.

To realize the existing potential, it will be necessary to increase investment in the construction of tens of millions of square metres of warehouses, as well as related infrastructure (*roads, access roads, communications*). Such a scale is beyond the means of the countries in the region, so an active role is expected from private business, international development institutions, and public-private partnerships. Global players are already showing interest in the region: logistics and investment companies are looking for new markets, and the Eurasian region is attractive due to its low base and growth potential.

Warehouse infrastructure is not just a reflection of existing commodity flows, but also an indicator of structural changes in the economy. Its rapid growth points to processes of urbanization (*the growth of cities means the growth of consumption centres*), the digitalization of trade (*new requirements for speed and flexibility of deliveries*), and the diversification of foreign trade (*the emergence of new types of export products and partners*). For example, the explosive growth of warehouses in Uzbekistan and Tajikistan signifies these countries' transition to a more complex economy focused on the production and trade of a wide range of goods, not just raw materials. The expansion of cold storage capacity indicates an increase in food safety standards and quality of life for the population.

Of course, the realization of these forecasts will depend on a variety of conditions. Economic crises, trade protectionism, or volatility in commodity prices could alter investment plans. Nevertheless, the overall direction of the transformation appears to be stable: the Eurasian region, located between Europe and Asia, will inevitably increase its logistical role. A significant part of cargo flows is switching to land routes through its territory, which means that new logistics depots, transshipment bases, and customs and logistics terminals need to be created along these routes.

From a practical point of view, the assessment of warehouse infrastructure needs provides a benchmark for national and regional strategies, as well as for determining investment policy priorities. Even if the projected demand is fully met by 2040, the total volume of warehouse capacity in the Eurasian region will remain lower than in European and Asian countries with comparable populations and economic potential, indicating that there is still significant investment potential. According to estimates, the region's supply of modern warehouse space by 2040 will average 0.38–0.46 m² per capita, which is approximately twice the current level (0.23 m²), but significantly lower than in developed economies.

Realizing the identified potential for warehouse infrastructure development in the Eurasian region requires the removal of institutional and infrastructure constraints, including the simplification of customs procedures, the harmonization of technical standards, and the improvement of government support mechanisms and the provision of incentives for private investment. The development of warehouse infrastructure should be viewed not as an isolated segment of the transport and logistics complex, but as part of a comprehensive strategy for sustainable economic growth, diversification of production, and integration of the Eurasian region into global economic ties.

3.5. Priority types of warehouses and strategic locations for investment

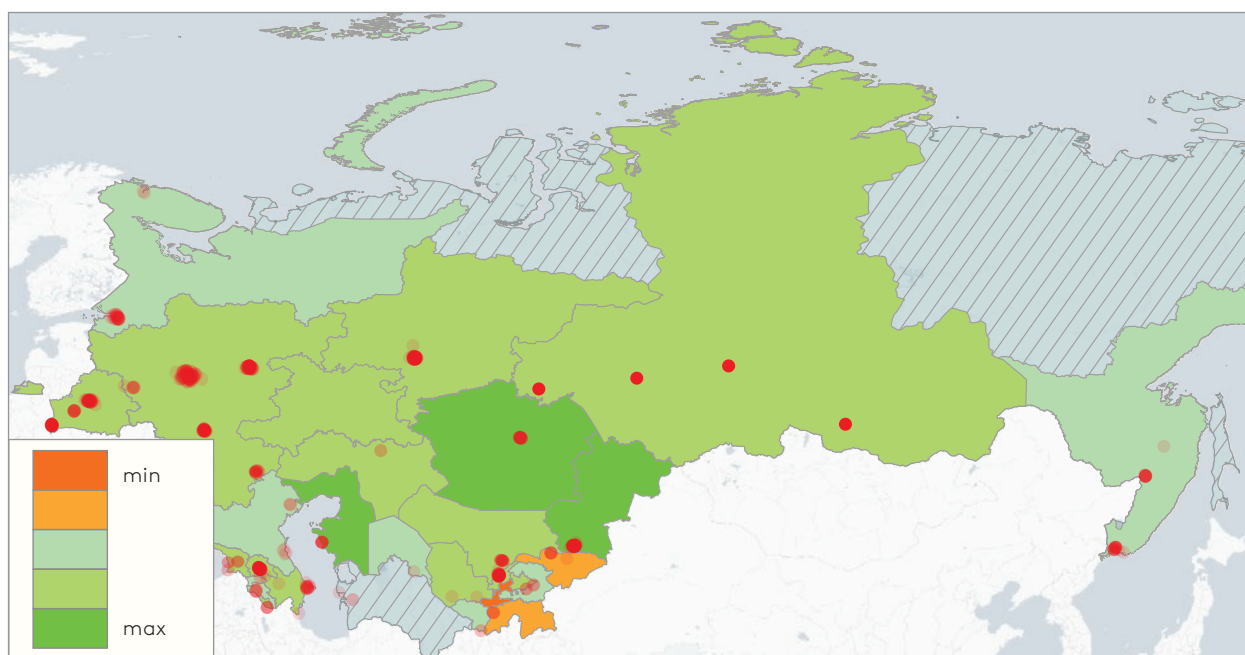
In the Eurasian region, based on expert analysis of investment attractiveness, four key types of warehouse infrastructure have been identified for priority investment, as well as geographical locations with significant potential. These are fulfillment centres (*high-tech distribution warehouses for e-commerce and retail*), cold storage warehouses (*including climate-controlled storage for agricultural and pharmaceutical products*), urban “last mile” warehouses, and border transit logistics complexes. Below, for each type, are strategically important subtypes of warehouses with high-priority locations in Central Asia, the Caucasus, and Russia — where demand for such facilities will be most acute and their development will have the greatest effect.

A scoring system based on a combination of quantitative indicators and expert analysis is used to select countries that are priorities for investment in the warehousing sector. The aim of this approach is to identify markets with the best risk/return ratio in the medium and long term. The assessment is based on 17 criteria, including macroeconomic and institutional parameters as well as market indicators reflecting the state and development potential of warehouse infrastructure. The criteria cover market growth dynamics, rental rates, capitalization rates, land market transparency, investment risks, tariff barriers, and a number of other indicators.

The analysis shows that cities in Kazakhstan such as Aktau, Almaty, and Astana demonstrate the highest level of investment attractiveness in the warehouse infrastructure ([Figure 36](#)): in Astana, an increase of more than 3.5 million m²

is forecast by 2040, and in Almaty and Aktau — from 1.8 to 3.1 million m²; high indicators are ensured by sustainable growth rates, rental rates, Kazakhstan's participation in international trade unions, and low country risks. Uzbekistan, Georgia, Azerbaijan, and certain regions of Russia are showing positive dynamics in demand for warehouses; Samarkand, Fergana, and Urgench have significant growth potential; in Georgia and Azerbaijan, attractiveness is driven by growth in demand, investment indicators, and capitalization levels.

↓ **Figure 36. Countries with the most promising investment prospects according to attractiveness ratings**



Source: calculations by EDB and CMWP experts.

Tajikistan and Turkmenistan are the least attractive due to factors such as the opacity of the land market, lack of participation in trade alliances, and the limitations of the financial system, which make investments in warehouse infrastructure risky. However, this does not mean that there will be no warehouse infrastructure projects in these countries. There is a need for warehouses in the cities, and in the context of high economic feasibility, investment projects will also be implemented here.

Fulfillment centres for e-commerce and retail

Fulfillment centres are modern distribution complexes for processing online orders (*sorting, packing, and shipping goods*). Rapid growth in e-commerce is expected: by 2040, its share in Eurasian retail trade could reach 20–30%, which will require a sharp increase in the number and size of such warehouses. Priority regions for the creation of fulfillment centres:

- **Almaty (Kazakhstan)** — the largest consumer market in Central Asia (~3 million inhabitants). The city is located at the intersection of transit routes (*China–Europe via Khorgos, Russia–Kyrgyzstan*), which enhances its logistical role. Almaty is the

No. 1 priority for fulfillment investments: from here, it is possible to quickly serve southern Kazakhstan, Kyrgyzstan, and parts of Uzbekistan.

- **Astana (Kazakhstan)** is the capital and the second-largest market in Kazakhstan with high Internet penetration. The state is forming a large logistics hub around Astana. A fulfillment centre here will cover the northern and central regions of the country, as well as transit flows to Russia (*for example, goods from Chinese marketplaces arriving via Astana*).
- **Tashkent (Uzbekistan)** is the capital (>3 million inhabitants) and economic centre of the country. Online commerce in Uzbekistan is still small, but the potential is huge. By 2040, hundreds of thousands of square metres of fulfillment warehouses are expected to be built. Investing in a large hub in Tashkent will reduce delivery times throughout Uzbekistan and to the neighbouring regions of Kazakhstan and Tajikistan.
- **Shymkent (Kazakhstan)** is the third largest city in Kazakhstan (*population ~1 million*), located near the border with Uzbekistan. It could become the country's "southern gateway": a local fulfillment centre would serve southern Kazakhstan and northern Uzbekistan, relieving pressure on Almaty and Tashkent. The proximity of transit routes to Kyrgyzstan and Western China (*via Kashgar-Irkeshtam*) increases the importance of Shymkent. A number of retailers are already planning warehouses there, and it would be advisable to speed up these projects.
- **Baku (Azerbaijan)** is the largest city in the Caucasus (*~2.3 million inhabitants*), a port metropolis with a growing middle class. The share of e-commerce is still low but growing rapidly: a significant portion of online orders come in transit from Türkiye, Russia, and China. Baku needs modern fulfillment centres: local marketplaces and international operators will be able to store goods for the whole of Azerbaijan here and redistribute transit cargo to the Caspian Sea. Plans to turn Baku into a transit hub require the creation of large distribution centres focused on both the domestic market and exports.
- **Tbilisi (Georgia)** is the capital (*~1.2 million inhabitants*) and main economic centre of Georgia. Despite its smaller market size, Tbilisi is an important hub between the Black Sea ports and the rest of the Caucasus. Russian and Turkish online retailers have established delivery to Georgia, which requires local sorting and fulfillment warehouses. The creation of such a centre in Tbilisi will make it possible to serve local demand and obtain a transshipment base between Azerbaijan and the EU (*via Georgian ports*). Georgia's upcoming connection to the TEN-T transport network will increase freight traffic and improve the return on investment in this hub.
- **Yerevan (Armenia)** — although the local market is small (*~1 million city residents*), Armenia is actively developing online commerce due to limited offline retail.

A fulfillment centre in Yerevan could serve the entire country and, with improved political conditions, neighbouring Iran and Georgia. In addition, given Armenia's focus on high-tech goods, it would be advisable to create a specialized centre for electronics and spare parts as a niche project (to support exports and the domestic market).

- **Moscow and the Moscow Region (Russia)** are the main logistics hub of the Russian Federation. The largest online retailers (*Ozon, Wildberries, Yandex. Market*) are based here and continue to build new fulfillment centres near Moscow. The Moscow Region will remain a priority: in addition to the largest local demand, the capital's distribution centres distribute goods throughout the country. Investments in modern automated complexes in the Moscow Region will pay off with high turnover — about 30% of all e-commerce in the Russian Federation is concentrated here.
- **St. Petersburg and the Leningrad Region (Russia)** are the second most important consumer cluster in Russia (~6 million inhabitants) and a large port and industrial region. The creation of new fulfillment hubs in St. Petersburg will speed up the delivery of goods to the northwestern regions and partially relieve Moscow's warehouses. The largest marketplaces already operate warehouses in St. Petersburg, confirming the high demand for such facilities.
- **Regions with over a million inhabitants (Russia)** — these large cities (*Yekaterinburg, Novosibirsk, Kazan, Krasnodar, etc.*) are becoming local distribution hubs. Currently, more than 50% of logistics real estate transactions in Russia take place in cities outside Moscow, reflecting the decentralization of the market. Investment opportunities include, for example, Yekaterinburg (*the Urals, the "gateway" to Siberia on the China-Europe transit route*), Novosibirsk (*the centre of Siberia, a hub between the Far East and the European part of Russia, with rapidly growing demand for e-commerce*), Kazan (*the Volga region, serving the Volga and the Urals*), and Krasnodar (*southern Russia, supplying the Black Sea coast and Crimea, plus exporting agricultural products*). Major retailers are constructing build-to-suit distribution centres in these cities, but there is still a niche for independent 3PL operators serving local small and medium-sized online businesses.
- **Far East (Primorye, Russia)** — Vladivostok and Primorsky Krai are Russia's gateway to the Asia-Pacific region. Cargo flows from China, Korea, and Japan are growing here, and a total of ~4 million people live in Primorye and Khabarovsk Krai. Fulfillment warehouses in Vladivostok can perform a dual function: quickly ship imported goods from Chinese online platforms deep into Russia (*Asia-to-Russia model*) and meet local market demand. The free port status of Vladivostok and its proximity to Chinese manufacturing centres make it strategically advantageous to locate e-commerce warehouses there, as this will speed up delivery throughout eastern Russia.

Fulfillment centres ensure fast and reliable deliveries to end consumers, which is critical in the digital age. The region where e-commerce is supported by a developed warehouse infrastructure will gain a competitive advantage: lower logistics costs, higher customer satisfaction, and more small businesses will be able to trade online (*through 3PL fulfillment services*). In the Eurasian region, the development of a network of fulfillment centres in the listed hubs will reduce digital inequality: residents of remote cities will have access to goods with delivery in 1–2 days, rather than a week. In addition, fulfillment warehouses are high-tech workplaces (*IT specialists, logistics managers, robot technicians*), which contributes to economic diversification. By investing in them now, countries in the region are laying the foundation for the digital commerce and service economy of the future.

Refrigerated and climate-controlled warehouses (agricultural and pharmaceutical logistics)

Cold storage warehouses are designed to store perishable goods at a controlled temperature: from deep freezing ($\leq -18^{\circ}\text{C}$) to refrigeration ($+2...+8^{\circ}\text{C}$) and maintaining a specific climate (*e.g., $+15^{\circ}\text{C}$ and a certain humidity*). These factors are necessary for food (*meat, fish, dairy products, fruits, vegetables*), pharmaceuticals (*vaccines, medicines*), and other sensitive cargo. Without the development of a reliable cold chain, sustainable growth in the region is impossible, especially given the increase in population and food exports. Currently, there is an acute shortage of refrigeration capacity in Central Asia and the Caucasus: a significant portion of the harvest in Uzbekistan is lost due to a lack of storage facilities, Kazakhstan does not have enough refrigerated warehouses for meat and fish in transit, and Armenia and Kyrgyzstan are experiencing a shortage of vegetable and pharmaceutical warehouses. Below is a list of priority regions for investment in cold storage infrastructure.

- **Fergana Valley (Uzbekistan/Kyrgyzstan/Tajikistan)** is a region at the junction of three countries with high population density and intensive horticulture/vegetable growing. Most of the fruit and vegetable produce of Uzbekistan (*Andijan and Fergana regions*) and southern Kyrgyzstan (*Osh region*) is grown here. Large agrologistic hubs with vegetable and fruit storage facilities are vital for preserving the harvest and exporting it in the off-season. Large storage facilities are expected to appear in Andijan and Fergana by 2040, and investments in refrigerators and sorting lines will reduce product losses and increase foreign exchange earnings from fruit exports (*to Russia, China, and the EU*). In addition, the Osh region (*Kyrgyzstan*) is promising for a joint logistics park with Uzbekistan, whose refrigeration facilities could serve both countries.
- **Samarkand (Uzbekistan)** is the historical centre of the country, located at a key intersection of domestic and international trade routes. The city is located in the centre of Uzbekistan and serves as a link between the Fergana Valley, Tashkent, Bukhara, and Southern Kazakhstan. The Samarkand region is a hub for fruit,

vegetable, and grape production. It makes sense to develop climate-controlled and refrigerated warehouses here to store and sort products, as well as to connect to digital trade in the future. The creation of refrigeration complexes will allow for increased exports of agricultural products to Russia, China, and the Middle East.

- **Southern Uzbekistan (Surkhandarya region)** is a warm border region on the border with Afghanistan and a major producer of citrus and subtropical fruits. The planned corridor to Pakistan via Afghanistan will increase demand for border cold storage facilities in the city of Termez and its surroundings for cooling and phytosanitary control of fruit before shipment to the south. Uzbek exports to Afghanistan (*dried fruits, grapes*) are already hampered by a lack of certified cold storage facilities; expanding capacity in Surkhandarya will allow this trade flow to grow.
- **Western Uzbekistan (Khorezm, Karakalpakstan)** is a region where vegetables, melons, and fish (*Aral*) are grown, and is a hub for the export of agricultural products to Kazakhstan and Russia. The creation of cold storage facilities in Khorezm (*Urgench and surrounding areas*) will make the supply chain for Uzbek fruits and vegetables to the north more profitable and productive. In addition, the proximity of Turkmenistan opens up opportunities for transit via new bridges on the Amu Darya River (*linking up with Turkmen storage infrastructure*).
- **Southern Kazakhstan (Turkestan and Zhetysu regions)** are the main fruit- and vegetable-growing areas of the country. Shymkent and the Turkestan region are logical locations for the construction of large vegetable storage facilities and cold stores, as products are transported from there to northern Kazakhstan and Siberia. This region is also a transit point for Uzbek fruit to the Russian Federation, so joint projects with Uzbekistan (e.g., *a transshipment refrigeration centre on the border*) would benefit both countries.
- **Northern Kazakhstan (Akmola and Kostanay Regions)** is the country's grain belt. Elevators and grain storage facilities (*climate-controlled warehouses*) are important here to ensure grain exports. There are forecasts for growth in the need for simultaneous storage of several million tonnes of grain; the optimal locations for new high-tech elevators are Astana (Akmola Region) and Kostanay, with a view to accessing the markets of Afghanistan and South Asia.
- **Almaty (Kazakhstan)** is the largest centre for the consumption of fresh produce and medicines in Kazakhstan. In addition to existing wholesale distribution centres for retailers, the city needs additional cold storage facilities to supply the metropolis and re-export products to Kyrgyzstan and Western China. The state plans to create a network of WDCs with vegetable storage facilities around Almaty. Investors should consider projects for warehouse complexes for food reserves and pharmaceuticals for southern Kazakhstan.

- **Absheron and Caspian regions (Azerbaijan)** — The Baku region already has refrigerated terminals for fish and meat (*for shipping and trade*), but plans to make Azerbaijan a transit point for agricultural products between Russia and Iran will require new capacity. The port of Alat and the border with Iran (*Astara*) need new cold storage facilities for goods going in both directions (*for example, Russian fish for export to Iran or Iranian vegetables in transit to Russia can be stored in Alat's port warehouses*). The industrial city of Sumgait near Baku is being considered as a site for a logistics cluster with multi-temperature complexes (*for the petrochemical and food industries*). Azerbaijan exports tomatoes, fruits, and wine, so increasing the capacity of refrigerators in agricultural areas (*Ganja, Lankaran, Guba, etc.*) will allow these products to be delivered out of season and to new markets.
- **Eastern Georgia (Tbilisi and surrounding regions)** is known for its wine and mineral water, but also grows nuts and citrus fruits (*in the west*) and produces meat and milk. Cold storage facilities near Tbilisi are needed to consolidate and export Georgian agricultural products (*nuts, berries, citrus fruits, vegetables*) to Middle Eastern markets and the EU. In addition, Tbilisi is a transit hub for Türkiye: cold storage facilities with temperature control are in demand here for storing imported fruit from Türkiye/Iran before redistribution throughout the Caucasus.
- **The Ararat Valley (Armenia)** is Armenia's main agricultural region around Yerevan (*apricots, grapes, vegetables*). The lack of modern vegetable storage facilities here means that the harvest has to be sold or processed quickly, resulting in a loss of revenue. The construction of fruit storage facilities in the Armavir and Ararat regions will reduce seasonal price fluctuations and increase exports of the famous Armenian fruits. With the possible opening of borders with neighbours, it will be important to create a logistics centre with refrigerators in Meghri (*on the border with Iran*) for cargo traveling in both directions between Iran and Armenia.
- **Baku (Azerbaijan) and Yerevan (Armenia)**, the main centres for the import of medicines in the Caucasus, need GDP-certified pharmaceutical cold storage facilities. International storage requirements (*temperature +2...+8 °C, backup power supply, etc.*) are not yet fully met. The creation of modern pharmaceutical distribution centres (*possibly on the basis of a public-private partnership with state participation*) is not only an economic investment, but also a socially significant one.
- **Southern Russia (Krasnodar Krai, Stavropol Krai)** is the breadbasket of the Russian Federation (*grain, meat, milk, fruit*). Krasnodar already has large vegetable storage facilities and fruit distribution centres, but the growth of exports to the Middle East and Asia requires infrastructure expansion. In particular, the main port hub of Novorossiysk needs additional storage capacity, including refrigerated terminals for meat (*beef exports to China*). The priority is to build new grain

terminals and refrigeration complexes in the Black Sea ports (*Taman, Novorossiysk*) to increase their throughput capacity and boost agricultural exports.

- **Primorye and the Far East (Russia)** is a region with vast fish resources. Currently, a significant portion of Far Eastern fish is sent to China for processing due to a lack of local cold storage facilities and factories. Large cold storage facilities for fish need to be built in Vladivostok, Nakhodka, and Khabarovsk (*Trans-Siberian Railway junction*) to store the catch and ship it directly to the central regions of the Russian Federation and for export. In addition, Primorye is becoming a transit channel for Australian and New Zealand meat to China (*via the Vladivostok cold storage warehouse*), and additional cold storage facilities are needed for these flows. Refrigerated terminals in ports are already planned as part of the Far East development programmes; it is important to complete these projects and attract private operators for effective management.
- **Metropolitan areas (Russia)** — Moscow and St. Petersburg will always be the largest hubs for the storage of perishable goods (*hundreds of retail chains and distributors are concentrated here*). Although the market is close to saturation, there are few high-quality projects, and demand for food retail is growing. Investments in new refrigeration complexes around Moscow (*typical distribution centres of 50,000–100,000 m²*) remain relevant — the largest chains (*X5 Retail Group, Magnit, etc.*) continue to expand and require new hubs. In St. Petersburg, in addition to domestic demand, the port component is important: there are refrigerated terminals for bananas and fish, but the redirection of fruit imports from the Baltic states to St. Petersburg creates a demand for additional storage capacity.
- **The Urals and Siberia (Russia)** — cities with millions of inhabitants in these macro-regions (*Yekaterinburg, Novosibirsk, Omsk, Krasnoyarsk*) need to develop a network of refrigerated distribution centres to provide fresh produce to local residents and the population of remote northern areas. Currently, many products are delivered from southern regions thousands of kilometres away, losing quality in the process. The creation of regional vegetable storage facilities (*for example, in Kemerovo for Siberia and in Orenburg for the Urals*) with well-established logistics will help to curb price increases and improve food security in these areas.
- **Border crossings with China** — on the Kazakh-Chinese (*Dostyk, Khorgos*) and Russian-Chinese (*Zabaikalsk, Blagoveshchensk*) borders — require equipped refrigerated terminals. China is a huge market for Russian agricultural products, but it has strict quality requirements. The development of cold storage logistics centres at these border crossings will allow cargo to be accumulated for phytosanitary control and packaged according to Chinese requirements (*for example, portioning frozen meat*). Similarly, the growing import of Chinese frozen vegetables and seafood into Russia requires the availability of facilities at the border for their acceptance and rapid distribution throughout Siberia and the central regions.

Refrigeration infrastructure is the foundation of food security and high-value-added exports. Without it, countries in the region remain suppliers of only low-cost raw materials. By building a network of modern refrigerators and climate-controlled warehouses, Eurasia will be able to: increase exports of agricultural products (*grain, meat, fruit*) by ensuring quality and stability of supply; reduce seasonal price volatility in the domestic market (*harvests can be stored in warehouses*); guarantee the population's access to medicines and vaccines (*especially relevant after the pandemic — strategic reserves of medicines need to be stored in the right conditions*). The availability of cold storage facilities will also attract processing industries: investors are more willing to build a fruit-processing plant if there are storage facilities for raw materials nearby. As a result, related industries will develop. Finally, it is a question of quality of life — the “cold chain” from farm to table reduces losses, meaning that a wider range of quality products will reach consumers.

Urban warehouses (“last mile”)

Urban “last mile” warehouses are small (*usually 1,000–5,000 m²*) distribution centres within or on the outskirts of a city, serving the final stage of delivery of goods to the end customer or store. In the era of express delivery (*within a day or even a few hours*), the importance of such infrastructure has increased dramatically. Buyers expect to receive goods as quickly as possible, so the availability of an urban mini-warehouse with stocks close to the consumer is becoming critical. Below is a list of megacities and large cities where the formation of a network of last mile warehouses is most relevant:

- **Moscow (Russia)** — the largest agglomeration in the region (*more than 12 million inhabitants officially; in fact, more*). The city already needs dozens of micro-distribution centres within residential areas. There is a trend toward converting old industrial zones and vacant shopping centres into urban warehouses, but this is not enough. Distribution points need to be created in each district to reduce delivery distances. The city authorities could develop a network of municipal logistics hubs on the outskirts, while private investors could buy or rent basements and ground floors for “dark stores” (*the first grocery dark stores in central Moscow were launched in 2023*).
- **St. Petersburg (Russia)** is the second most populous agglomeration (*more than 5 million inhabitants*). It too needs a network of urban mini-warehouses. Given the isolated location of some areas of St. Petersburg, local distribution centres (*for example, on Vasilyevsky Island, in Kupchino, on Parnas*) would relieve congestion on central highways and speed up delivery to remote parts of the city.
- **Almaty (Kazakhstan)** is the largest city in Central Asia (*~3 million inhabitants*), suffering from traffic jams and sprawling development. Due to a shortage of last-mile warehouses, delivery of goods now takes 3–5 days even within the city limits.

The solution is to convert empty markets or workshops into micro-distribution centres. Investors should look at densely built-up areas (*Almalinsky, Bostandyk*) where a compact warehouse (1,000–2,000 m²) would enable same-day delivery to nearby neighbourhoods.

- **Astana (Nur-Sultan, Kazakhstan)** is the capital of Kazakhstan, spread out along the banks of the river (*old and new city*). Urban mini-warehouses will shorten the distance from the main distribution centres (*often outside the city limits*) to the end customers. It is possible to combine this format with postal sorting hubs (*for example, the national postal operator **Kazpost** could open express delivery divisions in the city*).
- **Tashkent (Uzbekistan)** is a rapidly growing metropolis. Many deliveries are made directly from the seller's warehouse, which increases order fulfillment times. The creation of three to five urban distribution centres with cross-docking zones around the perimeter of Tashkent will speed up the processing of local online orders and the development of national e-commerce services. In addition, such hubs will allow international parcels (*from China, Russia*) to be grouped on an urban basis and delivered to different districts, which will be faster than delivering them separately.
- **Baku (Azerbaijan)** is a capital city with a radial transport layout. Courier services note that the main warehouses are located on the outskirts (*for example, in the village of Bina*), which is why delivery to the centre takes too long. Small distribution hubs need to be opened within the city limits (*for example, in the Yasamal and Surakhany districts*) to reduce the "last mile" for hundreds of online stores.
- **Tbilisi (Georgia)** is a city with hilly terrain and dense historical development in the centre. A couple of mini-warehouses on the left bank of the Kura River (*in the Saburtalo and Gldani districts*) would significantly facilitate the work of delivery services by eliminating the need to travel across the entire city from a single distribution centre.
- **Yerevan (Armenia)** is a relatively compact capital (~1 million inhabitants), but with growing suburbs. E-commerce volumes are still small, but even now, one or two micro-warehouses in the city would speed up the delivery of imported parcels. A significant part of the goods comes to Armenia from Russia and the US; by consolidating them in a city warehouse and sorting them, orders could be delivered much faster to districts of Yerevan and other communities.

Without a developed "last mile," the effect of large regional warehouses will be incomplete. This link directly affects the population's satisfaction with the level of service. 24-hour delivery stimulates e-commerce, reduces traffic (*fewer trips to stores, as courier delivery is optimal in speed and cost*), and saves citizens time

and petrol. For businesses, urban warehouses also mean lower logistics costs for the last leg, which is usually the most expensive (*up to 50% of the cost of delivery is accounted for by the “last mile” in the city*). By optimizing this stage through local hubs, companies would increase their margins. In addition, a network of urban warehouses increases sustainability: in the event of an emergency or delivery disruptions (*snowfall, road closures*), having stocks in the city itself prevents shortages of goods. By 2040, when the region’s urban population will have grown even further, this a “capillary” level of logistics will be absolutely essential for the normal functioning of cities.

Border and transit logistics complexes

Border warehouses and intermodal transit centres are large facilities located at key points along international transport corridors (*at national borders, in ports, and at the junctions of different modes of transport*). They perform the functions of consolidating transit cargo, transshipping from one mode of transport to another, customs clearance, temporary storage, forming container trains, and distributing goods between countries. For Eurasia, with its extensive land communications, such hubs are critically important. Without developed border logistics terminals, routes such as the Middle Corridor or the INSTC will not be able to provide reliability and speed of delivery comparable to sea routes. Priority locations for investment in border logistics:

- **Khorgos and Dostyk (Kazakhstan-China border)** — the Khorgos dry port, which has become a symbol of the New Silk Road, is already operating on the Kazakh-Chinese border. The volume of cargo passing through it is growing, requiring infrastructure expansion. Investments in additional temporary storage warehouses, container yards, and logistics parks will pay off due to the growth of China-Europe transit (*approximately 20,000 container trains passed through Kazakhstan in 2022*). In addition to Khorgos, the Dostyk/Alashankou railway crossing further north is set for development: the Kazakhstan government is planning a Nur Zholy logistics park there, and private operators can join this project through a PPP.
- **Aktau (Kazakhstan)** is Kazakhstan’s maritime gateway to the Caspian Sea. It is a junction point for international routes (*China–Europe, Central Asia–Middle East, Russia–Iran via the Caspian Sea*). Without specialized port warehouses, the region’s transit potential is only partially realized. The city handles exports of oil, grain, metals, and container shipments. It needs to be developed as a port hub with logistics and customs warehouses for transshipment of cargo between sea, rail, and road transport.
- **The China-Kyrgyzstan-Uzbekistan railway corridor** — after the construction of this line (*expected in the early 2030s*), a new transit route will appear from Western China through Kyrgyzstan (*Torugart border crossing*) to the Fergana Valley (*Kokand/Andijan*) and further to Tashkent. To service it, a logistics park will be

needed in Kyrgyzstan. The government is already planning a centre near Bishkek, where roads to Kazakhstan, China, and Uzbekistan converge. Investments in such a hub with a temporary storage facility and a container station will position it as a key link in the new route. Andijan (*Uzbekistan*), where the railway will enter Uzbek territory, also needs to expand its station and warehouses; this is an excellent opportunity for a public-private partnership involving, for example, Chinese logistics companies.

- **The port of Turkmenbashi (Turkmenistan, Caspian Sea)** is the starting point of the maritime part of the **TRACECA corridor** (*ferry line to Baku*). The new international port of Turkmenbashi has been built but is currently underutilized. To attract transit traffic, it is recommended to create port warehouses and container terminals. Cargo turnover is expected to grow, especially if the India/Pakistan — Central Asia — Russia flow intensifies. Investors (*e.g., from Türkiye or the UAE*) should consider a logistics centre project in the port area of Turkmenbashi, which will provide cargo transshipment between ships and rail and road transport. Given Turkmenistan's isolation, a concession or PPP format with state-owned enterprises is realistic. This hub is strategically important as it provides an alternative transit route bypassing Iran.
- **The INSTC (Turkmenistan-Iran border)** — Uzbekistan, Kazakhstan, and Turkmenistan are actively developing routes to the ports of the Persian Gulf via Iran. In this regard, there is already an increase in cargo traffic at the Turkmen-Iranian border (*Serakhs station*). It would be advisable to create a logistics centre on the border (*on the Turkmenistan side, where foreign investment is allowed*) to serve the flows between Uzbekistan/Kazakhstan and Iranian ports (*Bandar Abbas, Chabahar*). For example, Uzbek cotton or Kazakh flour shipped to India could be consolidated and cleared at a warehouse in the Serakhs area before being shipped to Iran.
- **Port Alat (Baku, Azerbaijan)** — Baku's port in the village of Alat is developing as an international logistics hub, and further investment could turn it into the "Dubai of the Caspian Sea." The priority is to expand the container terminal and port warehouses. Azerbaijan plans to increase the port's turnover to 0.5 million TEUs per year, which will require new container yards, transshipment equipment, and cross-docking infrastructure. Alyat also needs a dry port with all services (*bonded warehouse, warehouses for consolidating cargo from Central Asia before shipment to Georgia and Türkiye*). The project is of interest to foreign investors (*e.g., DP World*), and the Azerbaijani government is looking for partners.
- **The Azerbaijan-Georgia border (Red Bridge/Gardabani)** is a junction for flows from Asia to the Black Sea ports. It would be advisable to have a logistics centre at this border to redirect transit cargo: some will go to Armenia, some further to Türkiye, and some to the ports of Georgia. Already, a significant part of Georgia's warehouse infrastructure is concentrated near the borders and seaports. In Gardabani (*the*

junction of the Azerbaijani and Georgian railways), the container terminal should be expanded and a distribution centre built nearby to more efficiently handle the growing transit from Kazakhstan and China via the Trans-Caspian route.

- **The ports of Poti and Batumi (Georgia)** are the region's main outlets to the Black Sea. Poti is the main container port, but it has limited depth; the deep-water port of **Anaklia** is planned nearby (*with US/EU support*). If the Anaklia project is implemented, a large logistics park will appear around it. Investors should prepare in advance, to reserve participation in the Anaklia port SEZ and to plan the construction of warehouse terminals with a view to container flows from Asia, which will be transshipped there and await feeder vessels to Europe. Batumi is primarily an oil port, but there are free territories nearby where a complex could be created for handling cargo between Türkiye and the Caucasus (*for example, Turkish goods transiting through Georgia to Azerbaijan*). Currently, the volume of such transit is small, but there is potential for growth.
- **Orenburg and Chelyabinsk regions (Russia)** — these Ural regions border Kazakhstan and traditionally serve as a gateway between Russia and Central Asia. With the reorientation of trade flows through the EAEU, their role has increased. The cities of Orenburg and Chelyabinsk are promising locations for large distribution centres for flows between Russia and Central Asia. For example, the Orenburg Region could take on the distribution of Turkmen and Uzbek imports (*passing through Kazakhstan*), while the Chelyabinsk Region could handle China-Russia transit through Kazakhstan (*the railway line through Dostyk goes to Kurgan/Chelyabinsk*). Investments in rear warehouses near Orenburg/Orsk, as well as in the expansion of the Yuzhnouralsky logistics centre (*dry port in the Chelyabinsk region*) would accelerate the exchange of goods between Russia and Central Asia.
- **Primorsky Krai (Russia-China border)** — The Russian Far East is actively integrating into transit between China and Europe (*the Primorye-1 and Primorye-2 corridors*). To increase volumes, logistics hubs are needed near the border, for example, in the Primorsky Krai border area (*checkpoint with China*) or in Ussuriysk (*road junction*). Such a hub could consolidate cargo from northern China before shipment via the Trans-Siberian Railway. In addition, the port of Vladivostok needs to develop its logistics facilities: there is little space within the city limits, so the creation of a dry port 50–100 km away (*for example, in Ugolnoye or Artem*) with a direct rail connection would relieve the port sites and speed up container handling.
- **Astrakhan and Makhachkala (Russia, the INSTC)** — Russia is promoting a route to India via the Caspian Sea. **Astrakhan** is a key hub on the Volga River, through which cargo is transported to Iran by sea and rail; a port is being created there, and terminals are being built. It makes sense for investors to invest in cold storage warehouses and distribution complexes in the Astrakhan region (*for example, in the area of the port of Olya or on the territory of the SEZ*) to serve India-Russia

transit (*tea, spices from India; in the opposite direction — equipment, grain*). **Makhachkala** is another Russian port on the Caspian Sea, closer to Baku and the Iranian border. Routes to Iran and Azerbaijan pass through Dagestan. The creation of a logistics park in Makhachkala (*with a container terminal and a railway ferry complex*) would strengthen the Russian Federation's ability to compete for transit. For example, cargo from India can be transported by sea to Bandar Abbas, then by rail through Iran and Azerbaijan to Makhachkala and on to Russia — and all these transshipments are more efficient when carried out in specialized hubs.

It is border logistics hubs that allow the countries of the region to benefit from their geography. Many countries in the Eurasian region previously considered their geographical location to be a disadvantage (*great distance from the sea*), but thanks to the competent development of transit hubs, it is becoming an advantage: it is possible to earn money by transporting other countries' goods. Large terminals near borders provide new opportunities: faster transportation (*reducing downtime at junctions*), cargo security, and the ability to take some operations away from expensive seaports and perform them within the country (*the added value remains in the region*). In addition, the presence of developed hubs attracts related businesses: insurance companies, customs brokers, and service companies set up nearby, creating new jobs and generating tax revenues. Diversification of routes through internal corridors increases the strategic stability of supply, which is important for all countries in the region. Therefore, investments in the listed border centres are not only about transit revenues, but also about strengthening integration in the Eurasian region: when goods easily cross several borders, it brings economies together.

Investing in these types of warehouses and hub locations in the Eurasian region will have the greatest strategic effect. Fulfillment centres will support the rapid growth of digital commerce, speed up and reduce the cost of delivery, and bring even remote regions into the online market. Refrigeration infrastructure will strengthen food security, reduce crop losses, and increase exports of high-value-added agricultural products. Urban warehouses will improve the efficiency of last-mile logistics, reduce delivery times, and improve service for millions of city dwellers. Border hubs will generate revenue from the transit of external cargo, developing related industries. In addition to direct income, such projects bring related benefits: they attract related businesses (*insurance, customs services, repairs*), create new jobs and ensure tax payments, and increase the sustainability of supply chains. Overall, the development of these warehouse hubs will not only bring commercial returns, but also strengthen the economic integration of the Eurasian region: the more freely goods move across multiple borders, the stronger the ties between national economies become.

3.6. Risks to the realization of forecasts for demand for warehouse infrastructure

Since the forecast of future demand dynamics for warehouse infrastructure is based on a large number of assumptions and hypotheses, below is an analysis of the main risks that may affect the successful implementation of the forecasts. Recommendations are also given on possible measures to reduce risks.

Geopolitical and foreign trade risks

Geopolitical instability — sanctions regimes, trade wars, etc. — can significantly alter forecasts for warehouse demand. They can disrupt global supply chains through disruptions in the functioning of transport routes, the introduction of trade barriers, and a decline in international cooperation. For example, the escalation of conflicts on key routes leads to the redirection or reduction of cargo flows. In early 2024, reduced shipping security in the Red Sea led to a **50%** reduction in transit through the Suez Canal, forcing ships to bypass Africa, lengthening delivery times and destabilizing supplies (IMF, 2024). The escalation of conflicts could reduce cargo transit through the affected regions, thereby reducing the need for distribution centres in these areas.

Increased protectionism and the fragmentation of economic blocs also threaten to reduce global trade and investment volumes. According to WTO estimates, the further division of the global economy into blocs could reduce global GDP in the long term, with losses of **up to 7%** (WTO, 2025). In addition, high volatility in global commodity markets (*oil, metals, etc.*) due to geopolitics is changing the investment opportunities of states and businesses in the region. Taken together, these factors could result in actual warehouse capacity growth being at **the lower end of the forecast range** and project implementation times being longer than expected. Nevertheless, some geopolitical shifts may stimulate local demand for warehouses. For example, the redistribution of trade flows to bypass maritime bottlenecks increases the load on Eurasian land corridors, requiring the creation of new logistics hubs.

Risk management measures. It is impossible to completely eliminate geopolitical risks, but it is possible to increase the stability of forecasts through diversification and proactive policies. The development of alternative routes and multimodal corridors reduces dependence on unstable routes (IMF, 2024). For example, strengthening the Middle Corridor through the Caucasus and Central Asia partially offsets the risks of other routes. Countries in the region are interested in coordinating infrastructure projects to form a flexible network of routes. In addition, **expanding trade partnerships** (including with the Middle East and South Asia) and concluding multilateral transit agreements will help mitigate the impact of trade barriers. At the company level, scenario planning and the creation of safety stocks in different locations will be an effective strategy. **Diversification of supply chains** — locating warehouses and goods in several countries — increases the chances of meeting forecasts even in the event of local shocks.

Macroeconomic and financial risks

Global and regional recessions, financial crises, and sharp fluctuations in commodity prices are all factors that can negatively affect trade and consumption, reducing the need for new warehouse space. Forecasts are usually based on assumptions of sustained growth in GDP, trade, and consumption. However, macroeconomic risks can cause actual figures to deviate from projections. If key trading partners (China, EU) experience a downturn, transit volumes through Eurasia will be lower than expected. In addition, **volatility in commodity markets** is particularly important for Eurasia: a sharp drop in oil and metal prices will reduce the export revenues of countries in the region, reducing domestic freight traffic and investment in logistics. Financial risks — rising interest rates, currency crises — worsen access to credit and increase requirements for project profitability. As a result, many private developers may temporarily abandon the construction of new warehouses or choose a rental model instead of ownership ([Asian Development Bank, 2024](#)). Macroeconomic uncertainty also affects business sentiment: during periods of crisis, companies seek to optimize costs and postpone plans to expand warehouse capacity, which will make actual demand lower than forecast. The WTO warns that continuing **uncertainty and volatility in politics** could slow global growth ([WTO, 2025](#)), and this is particularly noticeable in the export-oriented economies of Eurasia.

Risk management measures. To reduce macroeconomic risks, both private sector flexibility and competent government policy are important. On the business side, **adaptive planning** is key: using modular projects and phased warehouse expansion to slow down or speed up capacity commissioning as needed. It is useful to conclude preliminary lease agreements with anchor clients (pre-lease) at the construction stage, as this guarantees basic demand and facilitates project financing even in difficult economic conditions. On the part of government institutions, countercyclical measures should be taken: during a downturn, it is advisable to support the industry through preferential lending, loan guarantees, and tax breaks for logistics companies. International financial organizations can play the role of stabilizing investors by providing **“long money”** for infrastructure projects ([Asian Development Bank, 2024](#)). In addition, it is important for countries in the region to maintain **macroeconomic stability** — to control inflation and avoid sharp devaluations so that the investment climate remains attractive. The development of domestic demand and economic diversification (e.g., growth of e-commerce, production of high-value-added goods) also mitigate the warehouse sector’s vulnerability to external shocks. Ultimately, a combination of well-thought-out policies and cautious investment will bring actual growth closer to the forecast, even in an unfavourable global environment.

Institutional and regulatory risks

Forecasts usually assume a gradual improvement in the business environment and a reduction in barriers, but in practice, without targeted reforms, institutional risks

remain. In Central Asia and the Caucasus, high trade costs are associated with slow cargo processing at borders: the average border crossing time for freight transport is **13.6 hours**, and export documents cost hundreds of dollars, which is several times higher than in developed economies ([Asian Development Bank, 2024](#)). Many countries in the region still rank low on logistics efficiency and ease of doing business indices. If the states of the Eurasian region are unable to simplify and unify **cross-border procedures**, transit and trade growth will not reach their potential — part of the cargo flow will simply not be able to be realized due to bottlenecks at the borders. According to OECD estimates, speeding up border crossings and introducing modern customs control methods in Central Asia could increase road freight transport by **11%** by 2050 ([OECD, 2019](#)). Maintaining the status quo, on the other hand, would mean lost profits from freight turnover and, consequently, millions of square metres of warehouses that were planned in the optimistic scenario remaining unbuilt. The need to take into account high **regulatory risks** increases the required return on projects, which may cause some of them to be deemed economically unfeasible. For example, the opacity of the land market and the difficulties of connecting to infrastructure are already limiting warehouse construction in certain cities ([EBRD, 2023](#)). If these problems are not addressed, private capital will concentrate only in the most favourable jurisdictions in terms of institutions (e.g., Kazakhstan) and avoid riskier ones (including certain Central Asian countries), leading to uneven implementation of the regional forecast. Internal **logistics reforms** — the creation of a “single window”, the digitization of documents, and the harmonization of EAEU standards — are included in the forecast as a condition for growth; their delay automatically postpones the implementation of the forecast indicators to a later date.

Risk management measures. Institutional risks can be minimized through deeper regional cooperation and supervisory reforms. **Harmonizing rules and standards** in logistics and warehousing is a key step. This can be accelerated by adopting uniform technical regulations for warehouses (on classification, sanitation, and safety), as well as mutual recognition of certificates and permits ([OECD, 2019](#)). This will eliminate duplication of requirements and reduce costs for operators, making investments more attractive. Another area is **the simplification of customs and border procedures**: the introduction of electronic declarations, advance data exchange, and customs risk management systems. Experience shows that digitalization reduces processing times and queues at borders ([Asian Development Bank, 2024](#)). It is important for the region to implement initiatives such as a single information space (“single window”) for transit carriers, which will dramatically increase the throughput capacity of corridors. It is important **to improve the business climate** at the national level: protecting investor rights, ensuring the stability of the legislative framework, and making the process of issuing permits more transparent. The creation of specialized industrial and logistics zones with ready-made infrastructure and a simplified regime (tax and administrative) will reduce the risks for warehouse developers. In addition, it has become common practice to attract international logistics operators and developers (GLP, Prologis, etc.), whose participation leads to the introduction of best standards

and requires the host country to improve **the institutional environment**. Finally, intergovernmental coordination is important: regular dialogue between relevant ministries and business associations within the EDB, EEC, or SCO will help monitor the progress of reforms and jointly resolve emerging issues. Thus, through the consistent removal of administrative barriers and the development of uniform rules of the game, the region will be able to significantly reduce institutional risks and move closer to realizing its stated forecasts (IMF, 2024).

Technological risks and human resources

The warehouse logistics sector is undergoing a technological transformation: automation, robotization, Big Data, and IoT systems are becoming the new standard. If technological upgrades proceed more slowly than expected, **the effective volume of warehouse services** will be lower than forecast, even with the introduction of new space. This will also affect demand: customers (retailers, manufacturers) will prefer to work with logistics operators that provide modern services (online tracking, automated processing, fast order fulfillment). The technological backwardness of some warehouses may lead to underutilization of these facilities, i.e., the poorly constructed square metres will not be fully utilized. In addition, limited human resources may **slow down the commissioning** of new facilities: the time spent on searching for and training personnel prolongs the time it takes for warehouses to reach their design capacity. Without special measures in a number of countries (such as Kyrgyzstan and Tajikistan), the shortage of skilled workers threatens to become a bottleneck, preventing the realization of optimistic forecasts for the development of logistics centres. Technological risks also increase costs: companies are forced to spend more on training, equipment imports, and data protection, which is reflected in tariffs and, ultimately, in demand. On the other hand, **the rapid introduction of new technologies** can in itself correct the market; for example, the spread of artificial intelligence can reduce the need for space by optimizing inventories. Forecasts generally take automation trends into account, but the exact effect of innovation is uncertain: it can be either positive (increased efficiency stimulates additional demand) or negative (improved inventory turnover reduces the need for additional warehouses).

Risk management measures. Managing technological risks requires investment in people and innovation. First and foremost, systematic work to develop **human resources** is important. This includes the creation of training and practical centres at large logistics hubs and the development of advanced training programmes in warehouse logistics. Governments can encourage companies to invest in staff training through co-financing programmes, grants, and tax incentives. For small countries, it is useful to attract international support (grants, exchange of experience) and train specialists for specific projects in collaboration with investors (Asian Development Bank, 2024). It is also important to make warehouse work more attractive: automate heavy operations, introduce motivation and career growth systems, and improve working conditions to mitigate the problem of workers leaving

for other sectors. On the technology side, barriers to entry need to be lowered. An example would be **subsidizing the costs of implementing IoT and automation** for key warehouse projects, especially those focused on export chains (IMF, 2024). Creating special funds and programmes (similar to Industry 4.0) for the logistics sector will help small and medium-sized businesses master advanced solutions. It is also important to develop **partnerships with global technology companies**: joint pilot projects on warehouse robotization and the localization of warehouse equipment production in the region will accelerate technological renewal. To ensure the cyber resilience of the industry, uniform cybersecurity standards, the exchange of information on cyber threats between companies, and backup IT systems in case of failures are needed. This set of measures will significantly narrow the technological gap: more even distribution of innovations and the availability of qualified employees will ensure that the warehouse logistics efficiency indicators set in the forecasts are achieved.

Environmental and climate risks

Climate risks can cause actual indicators to temporarily deviate from the forecast trajectory. For example, a major natural disaster (flood, earthquake) in a single country can destroy part of the existing warehouse capacity and slow down new construction, which will locally reduce the total volume of warehouses relative to the forecast. Moreover, frequent **natural disasters** force companies to maintain large reserves or change routes, which, on the one hand, increases the need for warehouses (for safety stocks) and, on the other, can reduce the efficiency of logistics and the growth rate of trade. Forecasts usually take into account average trends, but extreme events (so-called “black swans” such as pandemics or the Suez blockade) can cause **sharp temporary deviations** — surges in demand for warehouses (for buffer stocks) or, conversely, slumps due to trade stoppages. In the long term, climate change may slightly alter the geography of demand: northern routes or southern ports may become more important if conditions deteriorate in some areas and new opportunities open up in others (e.g., with the melting of ice on the Northern Sea Route). However, these effects are still only hypothetical and go beyond the scope of the scenarios. What is more certain is that **strict environmental standards** may increase the cost of warehouse operation (the cost of upgrading to energy-saving standards) and, therefore, tariffs for customers. If companies in the region do not implement green practices in line with global trends, their competitiveness will decline, which will indirectly affect the volume of the warehouse sector (for example, agricultural exporters may lose part of their markets due to non-compliance with carbon requirements, and then part of the projected vegetable storage facilities will not be needed). Thus, environmental and climate factors are hidden risks that can adjust the forecast in either direction (from accelerated demand for new, more sustainable warehouses to the failure to implement projects in vulnerable areas).

Risk management measures. To counter these risks, it is important **to pursue sustainable and adaptive infrastructure development**. First, when planning new facilities, climate scenarios should be taken into account: choose locations with minimal flood and seismic risks, and establish standards for seismic resistance and drainage systems. Investments in **the sustainability of structures** will pay off by avoiding catastrophic losses in the future. Second, early warning systems and business continuity plans are needed: large logistics operators can develop contingency plans in advance in case of natural disasters. This includes distributing warehouse stocks across several hubs, backup capacity, and insurance. Third, the transition to **“green” warehouses**: energy-saving measures (thermal insulation, LED lighting, renewable energy sources at facilities) are already recommended. The use of solar panels and energy-efficient cooling and heating systems can reduce warehouse energy consumption by **30–40%**, while also reducing the carbon footprint. It makes sense for countries to encourage such investments through **green bonds**, subsidies, or tax incentives for logistics parks that meet high environmental standards. This not only reduces environmental risks but also makes facilities more attractive to customers from Europe and other demanding markets. Fourth, governments in the region could integrate logistics infrastructure into their climate adaptation plans — for example, by creating protective structures in flood zones and taking weather forecasts into account when managing transport flows. **International cooperation** under the Paris Agreement and sustainable supply chain initiatives will also help attract resources for modernizing the warehousing industry. Ultimately, a proactive strategy on environmental and climate sustainability will minimize losses from extreme events and ensure that the projected growth in warehouse capacity is achieved on a more sustainable basis.

4. ESG FACTORS IN WAREHOUSE INFRASTRUCTURE IN THE EURASIAN REGION

4.1. Investor requirements for ESG parameters and their impact on asset value

In recent years, environmental, social, and corporate governance (ESG) principles have become another part of investor requirements in the real estate market. Warehouse logistics is no exception: large investment funds and corporate users are looking to invest in properties that meet high environmental and social standards. Environmentally inefficient warehouses are considered more risky due to the possibility of tighter regulations, rising energy prices, and declining tenant demand. Conversely, properties with high ESG ratings are perceived as more resilient to future market changes.

Investors expect warehouse properties to be highly energy efficient and have a low carbon footprint. This means using modern insulation materials, energy-saving LED lighting with sensors, renewable energy sources (*roof-mounted solar panels, etc.*), and efficient heating and ventilation systems. Such technologies **reduce resource consumption and operating costs**, while also reducing the facility's dependence on energy price fluctuations and future environmental taxes or restrictions. Attention is also paid to **the quality of the working environment** in warehouses. Safe and comfortable working conditions are becoming an important advantage. Such investments reduce staff turnover and increase productivity, which indirectly increases the value of the asset ([CRE, 2015](#)). With regard to parameter **G (governance)**, investors pay attention to whether the warehouse owner has transparent ESG policies and reporting, effective resource management, and compliance with ethical standards. All of the above indicates reduced operational risks, which increases the investment quality of the asset.

4.2. International standards for environmental certification of warehouses

The warehousing market uses the same international green certification systems as other real estate segments. The most common are the British **BREEAM** (Building Research Establishment Environmental Assessment Method) and the American **LEED** (Leadership in Energy and Environmental Design) standards. BREEAM is one of the first (since 1990) and most well-known standards, evaluating projects across a range of categories: management, health and well-being, energy efficiency, transport connectivity, water consumption, materials, waste, land use and ecology, and pollution. LEED, the US Green Building Council system, also covers a wide range

of criteria (e.g., location, sustainable site, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation). Both standards assign a certification level (*Certified/Pass, Silver/Good, Gold/Very Good, Platinum/Excellent, etc.*) depending on the number of points scored. BREEAM and LEED are largely similar in content, covering all key aspects of building sustainability. The differences lie in the calculation methods and regional adaptations: for example, BREEAM has versions for different countries (*including the former BREEAM RUS version for Russia*), while LEED applies uniform international criteria, making it popular among companies seeking **globally recognized** certification.

In addition to these two, other standards are also gaining popularity. **EDGE** (*Excellence in Design for Greater Efficiencies*) is a certification system from the IFC focused on emerging markets. It is simpler and focuses on key resource indicators: energy consumption, water consumption, and energy intensity of materials. To obtain EDGE certification, a facility must demonstrate at least a 20% reduction in electricity, water, and energy consumption compared to a standard building (IFC, 2025).

Historically, the first BREEAM/LEED-certified projects in the Eurasian warehouse sector appeared about ten years ago, mainly on the initiative of international tenants. According to JLL, by 2015, more than **700,000 m² of warehouse space** in Russia had been certified under BREEAM or LEED, representing about 23% of the total certified real estate in the country (CRE, 2015).

Kazakhstan has also seen an increase in the number of certified buildings in recent years. While only a few projects attempted to obtain LEED certification in 2012–2015, dozens of properties in Astana and Almaty have been certified at the Silver and Gold levels since 2016. By 2021, there were **more than 50 buildings** with LEED or BREEAM certification in the country. In other countries in the region (*Belarus, Uzbekistan, the Caucasus*), penetration is still limited — warehouses are usually certified with the participation of international companies or financial development institutions that require compliance with environmental standards.

Faced with limited availability of foreign certificates, some Eurasian countries have begun to develop their own certification systems. In Russia, several attempts have been made to create a national “green” standard, but these have been hampered by technical difficulties, insufficient independence of assessments, and weak recognition by the domestic market. It was only in 2021, with the participation of the state corporation VEB.RF, that the **IRIIS** system was launched — a tool for assessing the sustainability of infrastructure projects, developed on the basis of best international practices. IRIIS has been recognized at the G20 level and is consistent with the policies of the World Bank and the OECD. The importance of this system grew particularly after 2022, when international certification bodies (BRE Global, USGBC, etc.) suspended work with Russian clients due to sanctions. In these conditions, a national standard became a necessity: work is now underway on **a Russian ESG standard** for green buildings.

Kazakhstan is also developing its own system. The Kazakhstan Green Building Council (KazGBC), which has been operating for ten years under the auspices of WorldGBC, introduced the national **OMIR** (building environmental assessment) standard in the 2020s. Its advantages include consideration of local specifics and a more affordable certification cost. The emergence of such national systems indicates market maturity: local professionals are able to independently assess and certify green warehouses according to transparent criteria. In the long term, this will expand the coverage of the regional market with ESG standardization, especially for medium and small facilities.

4.3. Costs and revenues from green warehouse certification

Constructing a green warehouse usually requires a large initial investment. Additional capital costs are associated with installing energy-efficient equipment, implementing building management systems (BMS), and using environmentally responsible materials. According to developers' estimates, the transition from a basic project to **one certified by international standards** can increase the budget by several percent, which is significant given the already rising cost of construction (in 2021, the cost of warehouses in Russia increased by 40–50% due to the rise in materials prices) (MLP, 2022). In addition, **the reconstruction** of existing warehouses to meet new environmental standards also requires significant investment. For example, installing a new heating system, insulating fences, and LED lighting in a typical warehouse can cost hundreds of dollars per square metre. Such costs deter some owners, especially if there is no guarantee of a quick return on investment. The question arises: who should bear these costs — the developer, the tenant, or the investor? Without a distribution of benefits, market participants tend to postpone the implementation of ESG innovations (MLP, 2022).

Despite the increase in capital expenditures, **green certification** brings tangible returns over the life cycle of a warehouse. First and foremost, there is a reduction in operating costs. Sustainable warehouses consume significantly less electricity and heat. Practice shows that the use of a set of measures (*energy-saving lighting, improved thermal insulation, water reuse systems, intelligent equipment management*) can reduce operating costs by tens of percent. For example, the Oriflame distribution centre (LEED Silver) has reduced its operating costs by **50%** compared to a conventional warehouse of similar size (CRE, 2015), thanks to smart lighting with sensors, optimal climate control (maintaining +20–22°C), and a water recirculation system. Even individual measures have an effect: according to simulations, installing solar panels on the roof is one of the most effective investments, as it reduces the warehouse's dependence on external networks and immediately lowers electricity bills. In addition to energy, **other costs are also reduced**: economical plumbing fixtures and water recycling systems reduce water consumption; a well-designed waste management system reduces waste disposal fees, etc. Thus, certification leads to **operational efficiency**, which increases the profitability of the facility year after year.

The benefits are not only in cost savings, but also in increased **revenue**. Green warehouses attract tenants with their quality and responsible image, which allows for higher rental rates and occupancy. A number of researchers have noted a rental premium for sustainable logistics facilities, which averages 10–30% in Europe. Growing investor demands are also beginning to be reflected in the market valuation of warehouses. Investors are increasingly factoring in differentiation in returns: **“brown” (unsustainable) buildings** are discounted in their valuation, while “green” properties receive a capitalization premium due to their lower required rate of return. Studies show that certified logistics facilities trade at a significant premium: +19% to the average price in Europe. ([Cushman & Wakefield, 2024](#)).

The social and reputational benefits are also worth mentioning. Owning a green warehouse property improves the ESG profile of the investor company, which is important for attracting international capital and complying with sustainable development strategies. For tenants, locating their business in a green logistics centre also has reputational benefits: it demonstrates a commitment to sustainability to customers and partners. Although these effects are more difficult to measure in monetary terms, they increase **the overall competitiveness** of the facility in the market.

ESG status in the Eurasian region

In the countries of the region, ESG practices in the warehousing sector are still lagging behind global trends. A significant proportion of facilities were built several decades ago to old standards and do not meet modern “green” requirements. The proportion of obsolete warehouses is high, due to the long-term lack of incentives to improve energy efficiency and upgrade infrastructure. For a long time, there were no strict environmental standards for the construction and operation of warehouses in the region. Current building standards and energy efficiency requirements often fall short of international counterparts. Governments have begun to take steps: for example, Russia has had an energy conservation law in place since 2009, and by 2020, more than 200 new standards had been adopted to bring the country closer to EU norms. Nevertheless, overall, **the ESG agenda** in warehouse development in the region is still taking shape ([MLP, 2022](#)).

In many locations in the Eurasian region, engineering support is underdeveloped: large amounts of electricity are not available for modern energy-intensive warehouses, and there is no possibility of connecting renewable sources (*solar panels, wind turbines*). Logistics operators cite **the shortage of electricity** for new facilities as one of the main problems ([MLP, 2022](#)). Institutionally, the development of ESG is hampered by a lack of local expertise and certification centres. International certification systems have long been unadapted to local realities, and national standards are only just beginning to emerge. Given the high cost of eco-technologies, the most important issue for the region is the sources of funding ([MLP, 2022](#)). Additional capital investments in insulation, alternative energy, treatment systems, and other

components of ESG architecture can significantly increase the cost of a warehouse; without external support, these additional costs increase rental rates and reduce the competitiveness of the facility. As a result, developers often choose the minimum level of environmental responsibility necessary to comply with basic standards, postponing full-fledged **“green” modernization** for the future.

All these factors contribute to the gap between Eurasia and more developed markets.

4.4. Mechanisms for sustainable financing of the warehouse sector

To accelerate ESG transformation in logistics infrastructure, **sustainable financing** instruments are important — targeted financial products and initiatives aimed at supporting green and social projects. In the Eurasian region, such mechanisms have begun to develop over the past five to seven years, largely under the influence of the international agenda and the institutional investors.

Green bonds and loans. The issuance of bonds linked to environmental projects has become one of the key instruments for raising capital for sustainable warehouses and infrastructure. In Russia, the first green bond issues took place in the late 2010s, and by 2021, the volume of new ESG issues had reached **RUB 212 billion**. However, the momentum subsequently slowed: in 2024, only seven ESG bond issues were placed for a total of 52.8 billion rubles, which is 75% below the record level of 2021. At the beginning of 2025, there were a total of 47 sustainable bond issues from 20 issuers in circulation with a total outstanding nominal value of ~635 billion rubles (*about \$7–8 billion*). This is still a fraction of a percent of the total debt market. The reasons for such a modest scale are the lack of foreign investors and incentives: there has been no significant reduction in borrowing rates. In essence, ESG bonds are currently placed at the same rates as conventional bonds, and the additional requirements for issuers (*targeted use of funds, verification, reporting*) are perceived as **an unpaid burden**. Nevertheless, the state recognizes the importance of this instrument: tax incentives for issuers and investors are being discussed in Russia, and the Bank of Russia is working on incentive regulations (*e.g., reducing capital requirements for banks on such investments*) ([Vedomosti, 2025](#)). The regions are also getting involved: in 2021, Moscow placed municipal green bonds worth 70 billion rubles to finance eco-transport and infrastructure. Special bonds have not yet been issued for the warehouse sector, but developers can use general market issues: for example, one of the major logistics operators raised funds through “climate transition” bonds on the Russian market, committing to reduce the carbon footprint of production by a certain percentage.

In addition to bonds, the **ESG lending** market is growing. Banks offer either targeted “green” loans for specific projects (*reducing warehouse energy consumption, installing solar panels, etc.*) or sustainability-linked loans, where the interest rate is tied to the borrower’s achievement of certain ESG indicators. In Russia, the volume of sustainable

development loans issued by the end of 2024 reached ~6 trillion rubles. A significant portion of these funds is directed to the energy, transport, and construction industries, which indirectly finances storage infrastructure. In Kazakhstan and other countries in the region, **green credit lines** are being launched through local banks with the support of international financial institutions ([Vedomosti, 2025](#)).

Many sustainable logistics projects are financed with the participation of international organizations. These institutions act as catalysts for ESG practices, setting appropriate conditions when issuing funds. The EBRD, which has invested more than €10 billion in Kazakhstan's economy, finances the development of logistics hubs with commitments to improve social standards ([EBRD, 2023](#)). The IFC (part of the World Bank Group) also actively finances green buildings: 30% of all its commitments are for climate projects, including energy-efficient construction ([IFC, 2025](#)). The IFC promotes the **EDGE** program in developing countries, encouraging developers to achieve at least basic resource savings. The participation of IFIs often provides not only money, but also **technical assistance**: expertise on energy efficiency, grants for preliminary research, and coverage of certification costs. In Kazakhstan, with the support of the UNDP and WorldGBC, the OMIR standard was developed — this is an example of institutional assistance.

Countries in the region are beginning to introduce measures to support ESG projects. In Russia, tax breaks for buyers of green bonds (exemption of coupon income from tax) and reduced lending standards for sustainable projects for banks are being discussed ([Vedomosti, 2025](#)). A mechanism for **subsidizing interest rates** is also being considered: for example, Dom.RF is allocating funds to reduce the cost of sustainable development mortgage bonds, and in the future, a similar scheme may be extended to commercial real estate. Kazakhstan has a state-run Concept for the Transition to a Green Economy, which provides for financial incentives for resource conservation (preferential financing through institutions such as the Development Bank of Kazakhstan). In Uzbekistan and other Central Asian countries, **national funds** are being developed to support renewable energy and energy efficiency projects, which could also finance warehouse facilities (e.g., installing solar panels on the roofs of logistics centres with partial cost compensation).

In addition, **innovative instruments** are beginning to reach the warehouse sector: these include agreements to improve energy efficiency based on the *Energy Performance Contracting* model (where an investor finances the modernization of lighting or heating in exchange for a share of the savings), **carbon financing** mechanisms (the sale of carbon credits through CO₂ emissions reductions at a facility), and ESG insurance (lower insurance rates for certified buildings). Although these approaches are still in their infancy, together they create a more favourable financial environment for ESG initiatives.

5. PRACTICAL RECOMMENDATIONS

The development of warehouse infrastructure in the Eurasian region should be aimed at eliminating bottlenecks and forming systemic solutions that ensure the growth of trade, transit, and economic integration. Particular attention should be paid to specific practical measures: the unification of standards and regulatory norms, the creation of a digital logistics environment, the development of key types of warehouse facilities, the adaptation of infrastructure to the needs of online commerce, the agro-industrial complex, and pharmaceuticals, the introduction of sustainable financing models, and personnel training. This approach not only improves the efficiency of current supply chains, but also lays the foundation for scalable and long-term development of warehouse logistics in the region.

Standardization and coordination

1. **Harmonization of technical and operational standards.** To eliminate fragmentation in logistics in the Eurasian region, it is important to establish uniform requirements for warehouse classes, equipment, sanitary and veterinary standards, and storage procedures throughout the region. The introduction of **common warehouse logistics standards** (*A-B-C classification, fulfillment rules, temperature regimes, etc.*) and mutual recognition of certificates will ensure comparable service quality and facilitate the work of international operators (OECD, 2019).
2. **Simplification and harmonization of border procedures.** Synchronization of customs requirements and harmonization of border procedures (*sanitary, veterinary, phytosanitary control, customs rules*) will ensure uninterrupted transit of goods. International experience shows that eliminating regulatory gaps and harmonizing rules significantly improve the efficiency of regional logistics (OECD, 2019).

Digital transformation and technological modernization

3. **A unified digital environment and data exchange.** The development of technical regulations for IT compatibility for warehouse and customs systems will enable national WMS, cargo-tracking systems, and e-document management systems to work synchronously. The unification of standards for electronic exchange of logistics data, digital invoices, certificates, etc. will enable countries to form a common supply chain information system, as is being implemented in the EU and ASEAN (ASEAN, 2016).
4. **Introduction of IoT, automation, and AI.** It is advisable to initiate incentive programmes (*subsidies, pilot projects*) for the mass equipping of warehouses

with modern technologies: Internet of Things sensors, RFID tags, and real-time analytics systems. The creation of “**smart warehouses**” for agricultural products and pharmaceuticals, which require continuous monitoring of storage conditions, is particularly relevant. At the same time, it is necessary to create conditions for the application of artificial intelligence and robotics, from automated order picking to unmanned loading equipment. It is advisable to include digitalization and automation requirements in the conditions for supporting new logistics projects.

5. **Development of integrated information services.** It makes sense to create supranational platforms for tracking transit cargo and exchanging information between carriers, warehouse operators, and regulatory authorities. Such systems, following the example of European platforms such as **eFTI** (*Electronic Freight Transport Information*), will ensure transparency at all stages of the journey and proactive risk management. Coordination of the development of **e-commerce** and marketplaces in the Eurasian space could play an important role, for example through agreements on data exchange, parcel tracking, and joint efforts on cybersecurity and data protection (ASEAN, 2016). Together, these measures will strengthen the digital foundation of warehouse logistics and enable the scaling of new technologies across the region.

Priority areas for warehouse infrastructure development

6. **Construction of modern high-class warehouses.** It is important to increase the stock of **Class A and B+ warehouses** in regions with the greatest shortage. Outside the major cities of Central Asia, the South Caucasus, and in remote regions of the Russian Federation, there is a lack of high-tech complexes, which hinders the development of trade. The priority is to build large **distribution centres** with high ceilings, reinforced floors, a sufficient number of docks, and climate control to meet the demands of modern retailers and manufacturers. Given the explosive growth of online commerce, investments should also focus on the creation of specialized **fulfillment centres** and **sorting stations** in large cities. Without the rapid development of these facilities, order delivery slows down, especially in the “last mile.” China’s experience shows that large-scale investments in e-commerce logistics (*robotic warehouses, sorting systems*) can support the rapid growth of the industry and integrate small businesses into digital supply chains (Lim, 2022). In the countries of the Eurasian region, the creation of modern warehouses for e-commerce will increase delivery speeds, create thousands of jobs, and reduce the cost of services for the population.
7. **Agrologistics and storage of agricultural products.** This industry, which is key for many countries in Central Asia and the South Caucasus, suffers from a lack of high-quality storage facilities. It is advisable to develop a network of wholesale distribution centres for agricultural products equipped with refrigeration units,

long-term storage chambers, and sorting/packaging lines. This will enable farmers to minimize crop losses, sell products out of season at stable prices, and increase export revenues. The experience of OECD countries shows that investments in cold chains pay off by reducing the share of spoiled products and increasing food security (OECD, 2019). The development of agrologistics is particularly relevant for the Eurasian region, as agriculture accounts for a significant share of GDP and exports (e.g., *fruits, vegetables, and nuts in the South Caucasus countries*).

8. **Pharmaceutical logistics.** To provide all regions with high-quality medicines, it is necessary to strengthen the pharmaceutical sector's warehouse base. Key areas of development include the construction of several **Class A distribution centres** in each country **specifically for pharmaceuticals** (with an area of 5,000–10,000 m² or more) with different temperature zones, refrigerated chambers, and a strict storage condition monitoring system, with international GDP certification and staff training in the rules for handling medicines. It is also important to monitor the storage conditions of medicines in existing warehouses through regular inspections by supervisory authorities. Foreign examples (UAE, Singapore) show that the creation of specialized pharmaceutical hubs attracts large distributors and even manufacturers to the country, increasing the sustainability of the healthcare system (Lim, 2022). Prioritizing the development of pharmaceutical logistics in Eurasia will not only bring commercial benefits to investors, but also have a direct impact on public health.
9. **Multimodal logistics hubs and dry ports.** It is important to develop **integrated terminals** at railway junctions, ports, and border crossings, combining temporary storage warehouses, container yards, and customs posts. Such multimodal complexes will facilitate the transshipment of containers between different modes of transport and speed up movement along international corridors (*the INSTC, the Middle Corridor, etc.*). There is already a successful example in Central Asia: **the dry port of Khorgos** on the border between Kazakhstan and China, which has dramatically increased container transit. Countries in the Eurasian region could replicate similar solutions at key hubs, forming an end-to-end network of logistics centres. This would not only increase delivery speeds, but also allow individual regions (*such as the Fergana Valley and the South Caucasus*) to become transit hubs between Asia and Europe.
10. **Taking local specifics into account when planning facilities.** When diversifying warehouse types, it is important to focus on **the needs of specific regions and industries**. For example, agriculture-oriented regions primarily require cold storage facilities and agrologistics centres; countries with maritime shipping require port terminals; and densely populated cities require last-mile warehouses. The location of new facilities should be based on demand analysis and freight flow forecasts. This is the path to balanced infrastructure development across the Eurasian space and a way to avoid both capacity shortages and surpluses.

Financial instruments and incentives for investors

11. **Public-private partnerships and guarantees.** To implement large-scale warehouse projects, it is advisable to use **PPP** mechanisms and reduce the initial burden on investors. One solution could be to provide land for warehouses on preferential terms (*long-term lease with the right to purchase after the facility becomes profitable*); this will reduce the amount of initial investment and increase the attractiveness of construction in new locations. In addition, governments can issue **loan guarantees** or attract international institutions and multilateral development banks to co-finance projects: state guarantees reduce risks for lenders and allow loans to be obtained at lower interest rates ([OECD, 2019](#)). Such measures have been successfully applied in the EU and Asian countries to develop logistics.
12. **Pre-order mechanisms and anchor tenants.** Countries in the region could themselves become the first customers of new logistics facilities. Preliminary lease agreements for warehouses for state reserves, postal sorting centres, humanitarian hubs, etc. guarantee basic utilization and reduce risks for developers. It is also recommended to promote trilateral agreements **between tenants, developers, and banks**: in this model, a large cargo owner commits in advance to occupy a warehouse for a long term, the developer builds “for them,” and the bank finances the construction based on a guaranteed rental stream. Such schemes (*build-to-suit with a preliminary contract*) are widely used by logistics companies in Europe and the US, allowing them to accelerate the commissioning of space and provide investors with long-term income ([World Bank, 2020](#)).
13. **Collective financing and bond instruments.** To attract long-term capital, **collective real estate investment funds (similar to REITs)** or infrastructure bonds can be used. The creation of a regional logistics investment fund with the participation of several countries in the Eurasian region and IFIs would make it possible to accumulate funds for strategic projects in the warehousing industry. In addition, it would be advisable to expand the issue of development bonds for the preparation of industrial zones and logistics parks (for example, bonds for connecting infrastructure to warehouses, with repayment from future land leases). Such instruments are successfully used in China and OECD countries to finance warehouse and industrial real estate ([OECD, 2019](#)). Their use in Eurasia will reduce the burden on budgets and ensure a steady inflow of private capital into the industry.
14. **Establishment of a financial council** — an independent platform for coordinating the financing of warehouse projects (*association/NGO with elements of self-regulation*), bringing together developers, banks, MFIs, suppliers, investors, and regulators. The platform’s objectives could include: attracting capital and suppliers (*a single showcase of structures (zPIF/MCCF fund, bonds/sukuk, project loans, leasing, export credit, a register of verified equipment/IT/engineering*

suppliers); regulation and standards (*standard pre-leases, disclosure regulations, ESG metrics, technical and legal due diligence templates*); development of risk policies (*standardized covenants/limits, stop-loss and re-underwriting procedures for portfolio players*); pipeline and expertise (*preparation of financial models for projects, methodologies for selecting sources of financing by asset class and stage*); communications and market development (*working groups, industry events, LP roadshows, training for developers and banks*).

15. **Tax and credit incentives.** Consideration could be given to introducing temporary **tax incentives** for investors building warehouses in priority regions or developing new formats for the market (e.g., farm hubs, agricultural centres). Property benefits, accelerated depreciation, and exemption from land tax for the first five to seven years would reduce costs during the project's development phase. Similarly, subsidizing interest rates on loans for the creation of logistics infrastructure (through development banks or state programmes) would help reduce the cost of debt financing. Together, fiscal incentives and cheap loans could significantly increase the profitability of warehouse projects, which would attract more investors to the sector.

Staffing and education

16. **Advanced training and competence centres.** To address the shortage of qualified specialists, it would be advisable to create a network of **training and practical centres** based at large logistics hubs. Such centres (*for example, at new logistics centres in Uzbekistan, Kazakhstan, etc.*) could train WMS system operators, warehouse automation management specialists, refrigeration equipment maintenance technicians, etc. Training programmes should be developed in partnership with businesses so that graduates acquire the skills to work with modern equipment. For some countries (*Kyrgyzstan, Tajikistan, Armenia*), international grants and expertise can be attracted — for example, by cooperating with educational institutions in Türkiye, China, or the EU, where successful courses in logistics are available. Such a proactive approach to training will provide a basis for sustainable growth in the industry.
17. **Increasing the attractiveness of warehouse work.** Even in more developed logistics markets (Russia, Belarus), warehouses experience **staff turnover** due to competition from courier services and retail. To retain staff, it is important to improve working conditions: automate heavy operations, introduce internal growth and motivation systems, and raise salaries to competitive levels. The government can encourage these efforts with tax breaks or subsidies for employee training. The goal is to make working in modern warehouses attractive and prestigious, with a clear career path. This will help build a stable core of skilled workers needed to manage the new infrastructure.

18. **Development of an innovative ecosystem.** It is advisable for countries in the region to support **logistics startups and R&D** to ensure a constant flow of new ideas and technologies into the warehousing sector. Organizing industry accelerators, innovation competitions, test sites for testing drones, new WMS platforms, tracking technologies, and more will help attract talented young people. For example, supporting developers of cloud-based inventory management systems or automated order fulfillment services can accelerate the market launch of local solutions, reducing dependence on imported software. Governments in the Eurasian region should encourage cooperation between large logistics operators and startups (through joint pilots, venture funds), forming **digital logistics clusters** (OECD, 2019). In the long term, this will ensure not only human resource potential but also technological self-sufficiency in the region.

Environmental sustainability of logistics

19. **Green warehouses, energy efficiency, and emission reduction.** It is important to integrate the principles of sustainable development into the development of warehouse infrastructure. It is advisable to build new complexes according to **“green” standards** (LEED, BREEAM) — with energy-saving technologies, thermal insulation, LED lighting, the use of solar panels and renewable energy sources. Existing large warehouses should be gradually modernized: switching to electric loading equipment, heat recovery systems, and installing solar panels on roofs. Such measures will reduce both the carbon footprint of logistics and operating costs. Logistics companies should be encouraged to upgrade their equipment fleets and, at the same time, develop **green infrastructure**: planting trees around logistics parks, creating rainwater harvesting systems, and introducing separate waste collection and recycling in warehouses. These steps will help reduce air and water pollution associated with logistics.

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ABBREVIATIONS

3PL	Third Party Logistics
ADB	Asian Development Bank
AI	Artificial Intelligence
BREEAM	Building Research Establishment Environmental Assessment Method
BTS	Build-to-Suit
CAGR	Compound Annual Growth Rate
CIS	Commonwealth of Independent States
CMR	Convention on the Contract for the International Carriage of Goods by Road
CMWP	Commonwealth Partnership ("CWP ADISORS" LLC)
CO₂	Carbon Dioxide
EAEU	Eurasian Economic Union
EBRD	European Bank for Reconstruction and Development
EDGE	Excellence in Design for Greater Efficiencies (certification of energy-efficient buildings)
EEC	Eurasian Economic Commission
EDB	Eurasian Development Bank
e-CMR	Electronic CMR consignment note
e-commerce	Electronic Commerce
e-TIR	Electronic Transports Internationaux Routiers (electronic system for international road transport)
ESG	Environmental, Social, and Governance Principles
ETC	Eurasian Transport Corridor
EU	European Union
FBO	Fulfillment by Operator (order fulfillment by operator)
FBS	Fulfillment by Seller
FMCG	Fast-Moving Consumer Goods
GDP	Good Distribution Practice (pharmaceuticals)
GMP	Good Manufacturing Practice (pharmaceuticals)
GSP	Good Storage Practice (pharmaceuticals)
HACCP	Hazard Analysis and Critical Control Points
IFC	International Finance Corporation
INSTC	International North-South Transport Corridor
IoT	Internet of Things
IT	Information Technology
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design (certification system for environmentally responsible buildings)
NCTLP	National Centre for Transport Logistics and Transportation
OECD	Organization for Economic Cooperation and Development
OpEx	Operating Expenditures

PPP	Public-Private Partnership
REIT	Real Estate Investment Trust
RFID	Radio Frequency Identification
SCO	Shanghai Cooperation Organization
SEZ	Special Economic Zone
SKU	Stock Keeping Unit (stock item identifier)
SME	Small and Medium-sized Enterprises
TEN-T	Trans-European Transport Network
TEU	Twenty-Foot Equivalent Unit
TLC	Transport and Logistics Centre
TRACECA	Transport Corridor Europe–Caucasus–Asia
UAE	United Arab Emirates
VAT	Value Added Tax
WDC	Wholesale Distribution Centre
WMS	Warehouse Management System
WTO	World Trade Organization
\$	US dollar
m²	square metre



Research at the EDB website



Macroeconomic Outlook (RU/EN)

Macroeconomic Outlook 2025–2027

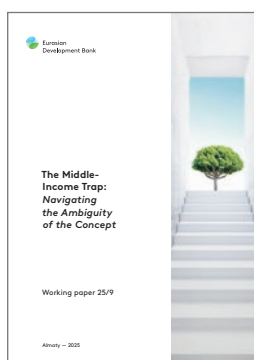
The analysis examines economic developments in early 2025 and outlines key macroeconomic projections for late 2025, as well as forecasts for 2026 and 2027.



Report 25/11 (RU/EN)

Advanced Manufacturing Potential in Eurasia: Sectoral Niches for Growth

The transition to high value-added production could become a powerful driver of economic growth in the region. The study identifies priority industries and niche markets for each country, and provides estimates of export potential and import substitution potential.



Working Paper 25/9 (RU/EN)

The Middle-Income Trap: Navigating the Ambiguity of the Concept

The study shows that diversity of interpretations of the "middle-income trap" makes it difficult to understand whether an economy is in it. The paper also identifies the factors of transition to a higher income: stable macroeconomics, ability to innovate, strong institutions and demographics.



Report 25/8 (RU/EN)

Investing in the future: projects of international financial organizations in Eurasia

The report analyzes 10 fundamental trends in non-sovereign financing by international financial institutions in the Eurasian region and formulates a number of proposals for more active and diversified IFI investments in development projects.



Report (RU/EN)

Exploring Trade and Investment Relations between India and Central Asia: Unlocking Economic Benefits

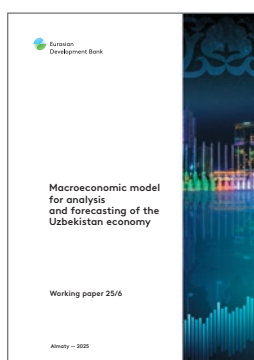
This joint report focuses on a comprehensive analysis of the current state and potential for improving bilateral trade and investment relations between India and Central Asia, and provides policy recommendations for closer cooperation.



Report (RU/EN)

The Future of Islamic Finance in Central Asia

Joint report of the Eurasian Development Bank (EDB), the Islamic Development Bank Institute (IsDBI) and the London Stock Exchange Group (LSEG).



Working Paper 25/6 (RU/EN)

Macroeconomic model for analysis and forecasting of the Uzbekistan economy

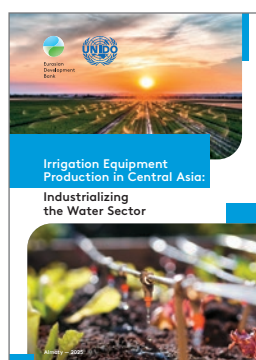
The working paper presents the developed model of macroeconomic analysis and forecasting of the Uzbekistan economy. The integration of the new model into the EDB's model complex makes it possible to more accurately and comprehensively forecast the economic development of the Bank's region of operations, while taking into account close cross-country relationships.



Working Paper 25/5 (RU/EN)

Eurasian Transport Network: Projects Observatory and Interactive Map

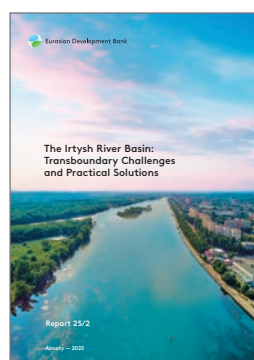
This working paper aims to facilitate the monitoring and coordination of infrastructure development along the corridors and routes of the Eurasian Transport Network



Report (RU/EN)

Irrigation Equipment Production in Central Asia: Industrializing the Water Sector

Irrigation equipment production in Central Asia is becoming a strategic area for ensuring food security and efficient water resource management. A new report by EDB and UNIDO provides a detailed analysis of the current state of the market, a forecast of its development and recommendations for creating conditions for local production.



Report 25/2 (RU/EN)

The Irtysh River Basin: Transboundary Challenges and Practical Solutions

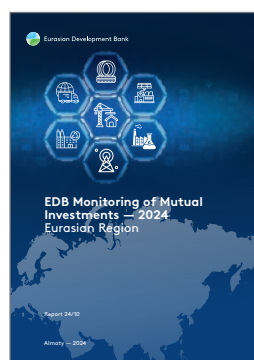
A recent study by the Eurasian Development Bank, titled "The Irtysh River Basin: Transboundary Challenges and Practical Solutions", presents the findings of a diagnostic analysis and a forecasting model of the basin's water resources. The study identifies the positions of the three countries involved and puts forward a series of practical solutions, including investment recommendations.



Report 25/1 (RU/EN)

Mutual Investments on the Eurasian Continent: New and Traditional Partners

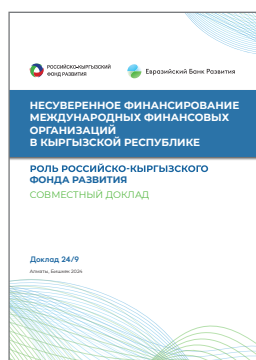
The report contains detailed information on the scale, dynamics, geographical and sectoral structure of mutual direct investment stock between the countries of the Eurasian region, on the one hand, and China, Türkiye, Iran, and the Gulf states, on the other hand, for the period from 2016 to the first half of 2024.



Report 24/10 (RU/EN)

EDB Monitoring of Mutual Investments — 2024. Eurasian Region

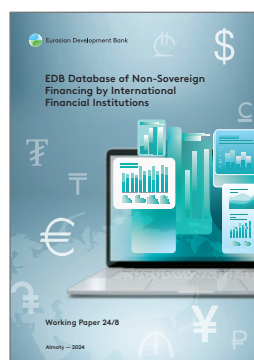
The report contains detailed information on the scale, dynamics, geographical and sectoral structure of mutual direct investments of the Eurasian region from 2016 to 1H of 2024.



Report 24/9 (RU)

Non-sovereign financing of international financial organizations in the Kyrgyz Republic

The report contains a comprehensive analysis of non-sovereign financing operations by international financial institutions in the Kyrgyz Republic over the last decade.



Working Paper 24/8 (RU/EN)

EDB Database of Non-Sovereign Financing by International Financial Institutions

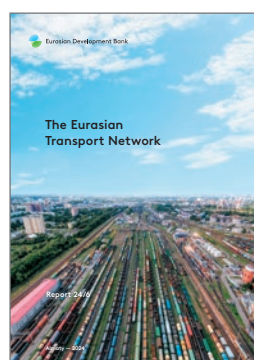
Non-Sovereign Financing (NSF) Database is EDB's new analytical project. The EDB Database is a dynamic tool for timely monitoring and analysis of non-sovereign operations of IFIs in the Eurasian region.



Report 24/7 (RU/EN)

Capital in Multilateral Development Banks

This paper covers the whole 'MDB family' of institutions but highlights regional and sub-regional MDBs because of their specifics of raising shareholders' capital. The study discusses seven standard and novel options for increasing capital.



Report 24/6 (RU/EN)

The Eurasian Transport Network

The report examines ten system elements of the Eurasian transport framework concept. Among them are the formation of a transport crossroads in Central Asia, priorities for intraregional transport connectivity, an impetus for realizing the agro-industrial potential of the countries of the region, and improvement of soft infrastructure.



Eurasian Development Bank

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EURASIAN DEVELOPMENT BANK**

Your comments and suggestions concerning
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