

MINISTRY OF SCIENCE AND HIGHER EDUCATION
OF THE RUSSIAN FEDERATION

Federal State Budgetary Educational Institution of Higher Education

PENZA STATE UNIVERSITY

Institute of Economics and
Administration
Field of study
Master's degree programme

Department of Sociology, Economic
Theory and International Processes
38.04.01 Economics
International Economics and Business

GRADUATION THESIS

on

Problems and prospects of development of Russian-Chinese economic relations

Master's degree student

Wu
Bo

signature, date

Academic adviser

Karimova L. F.

signature, date

Compliance supervisor

Vlazneva S. A.

signature, date

Reviewer

Associate Professor of the Department
of Finance and Business Informatization
of Federal State Budgetary Educational
Institution of Higher Education
Penza State Agricultural University

Fudina E. V.

signature, date

The thesis was approved for defence (record of the department meeting dated _____ no.____)

Head of the Department

Rozhkova L.V.

signature, date

The thesis was defended and marked _____ (record of the State Examination Board dated
_____ no.____)

Secretary of the SEB

Rasskazova N. V.

signature, date

Penza 2026

FSBEI HE Penza State University
Institute of Economics and Administration
Department of Sociology, Economic Theory and International Processes
Field of study 38.04.01 Economics,
Master's degree programme International Economics and Business

APPROVED BY:
Head of the Department
Doctor of Social Sciences,
Professor
Rozhkova L.V.

«_____» _____ 20____

ASSIGNMENT
FOR THE GRADUATION THESIS OF

Master's degree student Wu Bo, group 24ЭЭВам1, full-time mode of study

1 The topic of the graduation thesis: "Problems and prospects of development of Russian-Chinese economic relations"

was approved by the university order

dated «____» _____ 20__ no. _____

2 The deadline for the Master's degree student to complete the graduation thesis is 15.06.2026.

3 The input data for the graduation thesis is the regulatory and legal framework, scientific literature and reference books, and Internet data.

4 The list of issues to be studied includes problems and prospects for the development of Russian-Chinese economic relations.

5 The list of visuals contains tables and figures.

6 The date of setting the assignment is 8.10.2024.

Academic adviser _____ / Karimova L. F. /
(signature) (full name)

The assignment was accepted by Master's degree student _____ / Wu Bo /
(signature) (full name)

Schedule for completing the graduation thesis

№ п/п	Content of the thesis	Deadline for completion	Due date, signature of the academic adviser
First year of study			
1	Substantiating of the research topic and methodology, subject and object of research	1.09.2024 – 31.10.2024	
2	Framing the scientific concept of research	1.11.2024 – 18.12.2024	
3	Collection of scientific literature for the thesis	19.12.2024 – 15.01.2025	
4	Substantiating the relevance, concept, and novelty of the research	16.01.2025 – 19.02.2025	
5	Framing of a detailed plan and layout of the research	20.02.2025 – 12.03.2025	
6	Studying new literature sources within the topic of the thesis	13.03.2025 – 26.03.2025	
7	Conducting theoretical research within the first chapter of the thesis	27.03.2025 – 30.04.2025	
8	Preparing the first chapter of the thesis	1.05.2025 – 30.06.2025	
Second year of study			
9	Conducting analytical research within the second chapter of the thesis	1.09.2025 – 22.10.2025	
10	Preparing the second chapter of the thesis	23.10.2025 – 24.12.2025	
11	Conducting analytical research within the third chapter of the thesis	25.12.2025 – 25.02.2026	
12	Preparing the third chapter of the thesis	26.02.2026 – 21.04.2026	
13	Preparing the introduction and conclusion	22.04.2026 – 12.05.2026	
14	Completing the graduation thesis	13.05.2026 – 27.05.2026	
15	Handing in the thesis for compliance control and antiplagiat	28.05.2026 – 11.06.2026	
16	Getting acquainted with the feedback and review	13.06.2026	
17	Presenting the written thesis	15.06.2026	

Academic adviser _____ / Karimova L. F. /
(signature) (full name)

The assignment was accepted by Master's degree student _____ / Wu Bo /
(signature) (full name)

Summary

The graduation thesis comprises 99 pages, 3 chapters, 8 figures, 1 tables, 60 sources.

RUSSIAN-CHINESE ECONOMIC RELATIONS, SANCTIONS, TRADE STRUCTURE, ENERGY COOPERATION.

The target of research is Sino-Russian economic and trade relations have developed.

The goal of work is to study the current state of Sino-Russian economic and trade development.

The methodological framework of the paper is formed by the complex of theoretical and practical methods such as literature review method, comparative analysis method, case study method, statistical data analysis, economic model analysis, inductive and deductive reasoning.

The results of research include: prospects and Policy Recommendations for the Development of Sino-Russian Economic Cooperation.

The recommendations on disseminating and applying the results are as follows targeted policy recommendations to provide a reference for the high-quality development of economic and trade cooperation under the comprehensive strategic partnership of coordination for a new era between China and Russia.

The theoretical relevance of the thesis is established by challenges Facing the Development of Sino-Russian Economic Relations.

The target of research can be further explored through digital technologies, improving the cross-border logistics system, expanding educational and cultural exchanges and optimizing trade settlement and customs clearance mechanisms.

Content

Introduction	3
Chapter 1 Analysis of the Current Situation and Problems in Sino-Russian Economic Relations	6
1.1 Current Economic Development of China and Russia	6
1.2 Structure of Trade Products between China and Russia	Ошибка! Закладка не определена.
1.3 Problems Existing in Sino-Russian Economic and Trade Relations	17
Chapter 2 Challenges Facing the Development of Sino-Russian Economic Relations	23
2.1 Challenges Facing Sino-Russian Digital Economy Cooperation	23
2.2 Challenges Brought by Changes in the International Political and Economic Situation	Ошибка! Закладка не определена.
2.3 Structural and Connectivity Challenges in China-Russia Economic and Trade Cooperation	Ошибка! Закладка не определена.
Chapter 3 Prospects and Policy Recommendations for the Development of Sino-Russian Economic Cooperation	53
3.1 Policy Recommendations for Breakthroughs in Cooperation in Digital and Technological Services	53
3.2 Strategies and Suggestions for Improving the Quality and Efficiency of Cooperation in Cross-border Transportation	56
3.3 Policy Recommendations for Deepening Cooperation in Education and Cultural Services	68
Conclusion	90
References	92

Introduction

Against the backdrop of profound adjustments in the global political and economic landscape, rising anti-globalization sentiment, and escalating geopolitical conflicts, the comprehensive strategic partnership of coordination between China and Russia for a new era has been continuously deepened, with economic and trade cooperation becoming a crucial pillar for the stable development of bilateral relations. Since the collapse of the Soviet Union and Russia's independence in 1991, bilateral trade between China and Russia has progressed from initial exploration to steady expansion, experiencing three key stages: fluctuating growth, rapid increase, and stable quality improvement. Trade volume has repeatedly reached new highs, and cooperation has expanded from traditional commodity trade to diverse areas such as the digital economy, cross-border logistics, technological innovation, and education and culture. Currently, China-Russia trade has entered a critical period of quality improvement and upgrading, which is not only crucial for the economic growth and industrial transformation of both countries but also of great significance for maintaining the stability of global industrial and supply chains and promoting the development of the multilateral trading system.

At the same time, China-Russia economic and trade cooperation still faces multiple internal and external pressures and structural bottlenecks. Internally, bilateral trade accounts for a relatively low proportion of China's total foreign trade, with the trade structure highly concentrated on energy resources and light industrial products, while the proportion of high value-added and high-tech products is low. Supporting systems such as cross-border logistics, customs clearance efficiency, local currency

settlement, and mutual recognition of standards remain underdeveloped, and there is an imbalance in local and regional cooperation, with "hot at the border and cold in the inland areas." Externally, unilateral sanctions, technological blockades, financial restrictions, and the risk of secondary sanctions are intensifying, posing severe challenges to digital economy cooperation, payment system security, and cross-border investment and financing. Issues such as the international public opinion environment, talent drain, and fragmented rules also constrain the stability and sustainability of cooperation. These intertwined problems hinder Sino-Russian economic and trade cooperation from advancing to a deeper and higher level.

Against this backdrop, systematically reviewing the development history of Sino-Russian economic and trade relations, accurately identifying prominent problems and current challenges in cooperation, scientifically assessing future development prospects, and proposing feasible countermeasures have significant theoretical and practical value. This paper uses trade data between China and Russia from 1991 to 2022 as its basis, and analyzes the current status of economic and trade development, trade product structure, major issues, external challenges, and future prospects. It focuses on key areas such as digital economy cooperation, cross-border transportation, and education and cultural services, and puts forward targeted policy recommendations. The aim is to provide a reference for promoting the quality and efficiency of China-Russia economic and trade cooperation, breaking through development bottlenecks, and consolidating the foundation of cooperation, so as to help the two countries achieve a higher level of mutual benefit and win-win results in a complex international environment, and provide solid economic support for the continued healthy

development of the comprehensive strategic partnership of coordination between China and Russia in the new era.

Chapter 1 Analysis of the Current Situation and Problems in Sino-Russian Economic Relations

1.1 Current Economic Development of China and Russia

In December 1991, the Soviet Union collapsed, and in early 1992, Russia was established. Since then, trade between China and Russia entered a new period. In more than 30 years of trade exchange, the development of trade between the two sides has experienced significant fluctuations due to political changes and the influence of the international situation. Based on the trade development between China and Russia, this paper divides it into three stages: a fluctuating development stage, a rapid growth stage, and a stable growth stage [3].

In 1991, the Soviet Union collapsed. Although Sino-Soviet trade relations ceased, Russia continued to maintain good diplomatic relations with China, and China and Russia began to engage in trade cooperation. During this period, Russia was undergoing an economic transition, and trade between China and Russia was still in its initial stage. The trade level of both sides was relatively low, trade volume showed a fluctuating trend, and the growth rate of trade volume fluctuated significantly (figure 1).

From 1991 to 1993, China and Russia, based on the international situation and changes in their national conditions, adopted a series of policies to expand their trade scale. At the same time, they developed border cities and carried out trade cooperation with Russia in the cities of Heihe, Suifenhe, Manzhouli, and Hunchun, promoting the

rapid development of bilateral trade. As a result, the total trade volume between the two countries steadily increased from 3.9 billion USD to 7.68 billion USD, and China became Russia's second-largest trading partner, laying a solid foundation for future trade cooperation between the two countries [10].

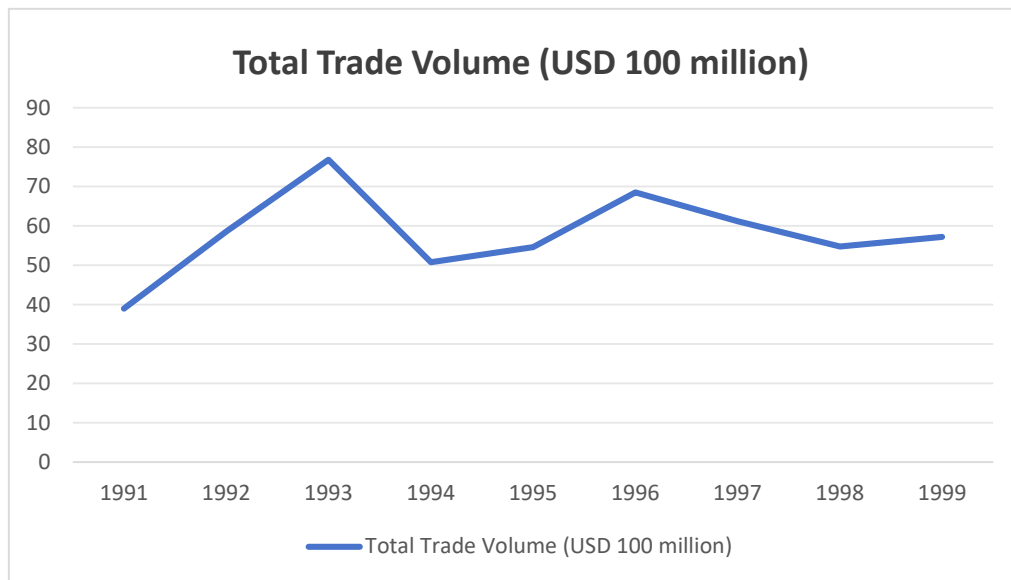


Figure 1 – Statistical Chart of Changes in China-Russia Trade Volume (1991–1999)
[44]

However, by 1994, the trade scale between China and Russia had significantly contracted due to political and economic influences, and the total trade volume had noticeably decreased by 2.59 billion USD compared to 1993. In the following two years, although the trade scale slightly recovered due to China's rapid economic development, there was no major breakthrough, and the trade volume only rose from 5.08 billion USD in 1994 to 6.85 billion USD in 1996. In 1997, the total trade volume fell to 6.12 billion USD, and this decline continued until 1999, when China and Russia began to adjust their respective trade policies. Consequently, the bilateral trade volume

increased from 5.48 billion USD in 1998 to 5.72 billion USD in 1999. Meanwhile, both sides attached more importance to economic and trade cooperation, and their trade positions were gradually improving, marking the beginning of a rapid development phase in China-Russia trade cooperation [10].

In 2001, China and Russia signed the Treaty of Good-Neighborliness and Friendly Cooperation, ushering in a period of rapid growth in bilateral trade. During this phase, the total trade volume between the two countries steadily rose. Although bilateral trade experienced a V-shaped rebound in 2009, the overall trade volume throughout this period generally maintained an upward trajectory (figure 2).

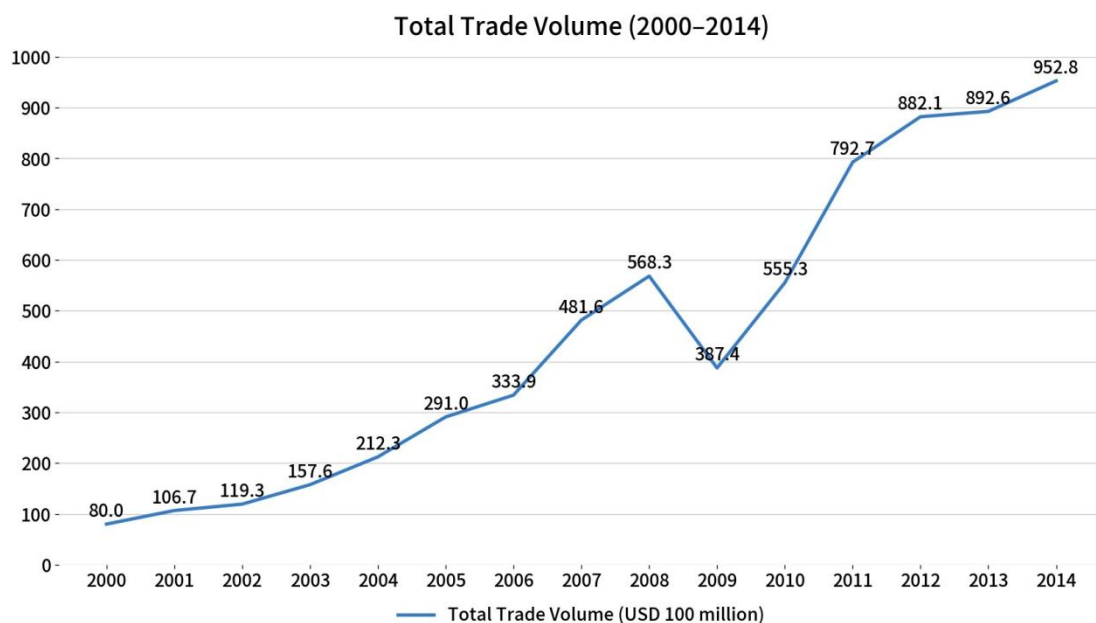


Figure 2 – Statistical Chart of Changes in China-Russia Trade Volume from 2000 to 2014[28]

During the period from 2000 to 2014, the average growth rate of China-Russia

trade had reached 22 % [10]. China-Russia bilateral trade exceeded 10 billion US dollars in 2001 and maintained a continuous growth trend. However, due to the impact of the global financial crisis in 2009, China-Russia trade cooperation was somewhat affected, and the total trade volume fell sharply, with bilateral trade dropping directly from 56.83 billion US dollars in 2008 to 38.74 billion US dollars in 2009 [38]. However, this downward trend did not continue, and by 2010, trade volume had rebounded, showing a doubling growth compared to 2009. In 2012, Russia joined the World Trade Organization, which not only quickly revived trade between China and Russia but also provided favorable conditions for Chinese enterprises to export goods to Russia [16]. Although the trade growth rate slowed down after 2012, by 2014, the total trade volume had reached 95.28 billion US dollars, approaching the 100 billion US dollar mark. Although bilateral trade continued to grow during this period, the structure of trade between the two sides did not change. China mainly imported energy products from Russia, while the main products exported to Russia from China remained labor-intensive products [3].

In 2015, the "Belt and Road" Initiative entered the stage of full implementation. As an important partner country along the route, Russia saw unprecedented opportunities in trade with China. In 2019, the two countries elevated China-Russia relations to a comprehensive strategic partnership for a new era. With deepening cooperation, bilateral trade also entered a period of steady growth (figure 3).

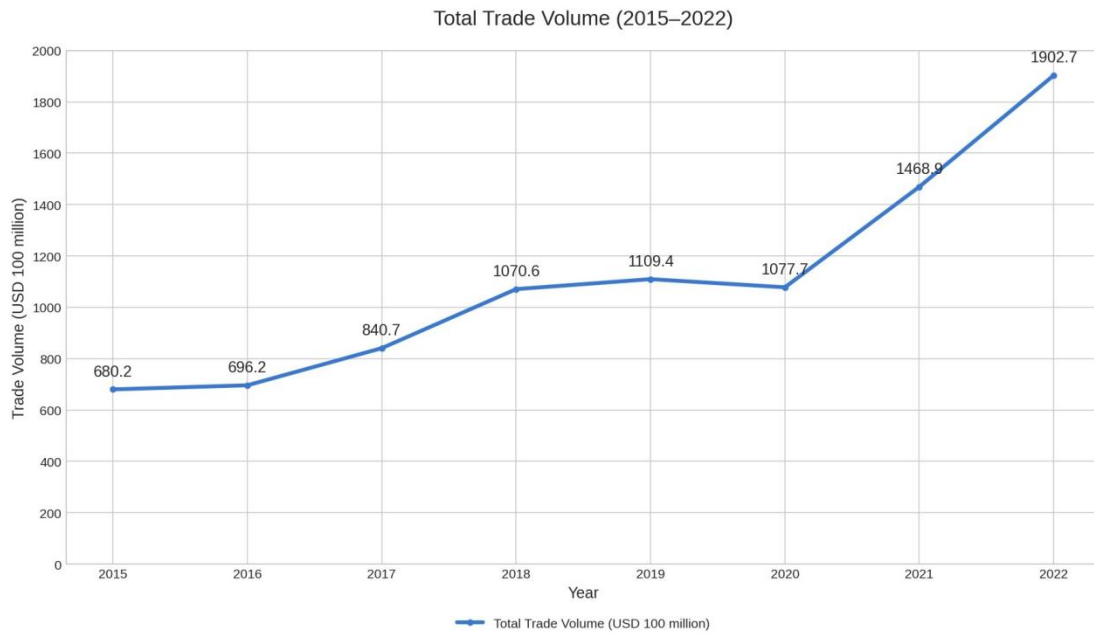


Figure 3 – Statistical Chart of Changes in China-Russia Trade Volume from 2015 to 2022 [47]

According to the bilateral trade data between China and Russia from 2015 to 2022, over these eight years, the total trade volume exhibited a continuous upward trend [19]. Due to factors such as the decline in international commodity prices and the economic structural adjustments in both China and Russia, the total China-Russia trade volume dropped significantly in 2015. However, both countries actively responded to the "Belt and Road" initiative and implemented measures to promote trade development, leading bilateral trade cooperation back into a state of sustained growth [12]. In 2016, the total bilateral trade volume began to recover. By 2018, China-Russia trade cooperation had experienced leapfrog development, with the total trade volume reaching USD 107.06 billion, thirteen times that of the trade volume in 2000 [57]. In 2020, affected by the COVID-19 pandemic, trade cooperation between China and

Russia contracted somewhat, with total trade volume slightly declining, but still maintaining a relatively high level of USD 107.77 billion [12]. In 2021, a new high was reached, with trade volume surpassing the pre-pandemic level to reach USD 146.89 billion [50]. In 2022, due to international developments such as the Russia-Ukraine conflict and interest rate hikes by the Federal Reserve, exports in many countries were impacted; nevertheless, the total bilateral trade volume between China and Russia continued to rise, heading towards USD 200 billion [12].

1.2 Structure of Trade Products between China and Russia

I. Structure of China's Imports from Russia.

In 2015, the top six categories of products that China imported from Russia and their respective shares of trade value are shown in figures 4: Among imported goods, the largest category was mineral products, accounting for 66 %, with a corresponding import trade value of 21.181 billion USD; the second largest import category was base metals and their products, which accounted for only one-sixth of the share of mineral products, with a trade value of 3.23 billion USD; the total share of the remaining categories was only 24 %, which included: imports of wood and wood products with a trade value of 3.126 billion USD, accounting for 9%; chemical industry and related industrial products with a trade value of 1.515 billion USD, accounting for 5 %; live animal products with a trade value of 1.208 billion USD, accounting for 4 %; and paper and its products with a trade value of 0.922 billion USD, accounting for only 3 % [53].

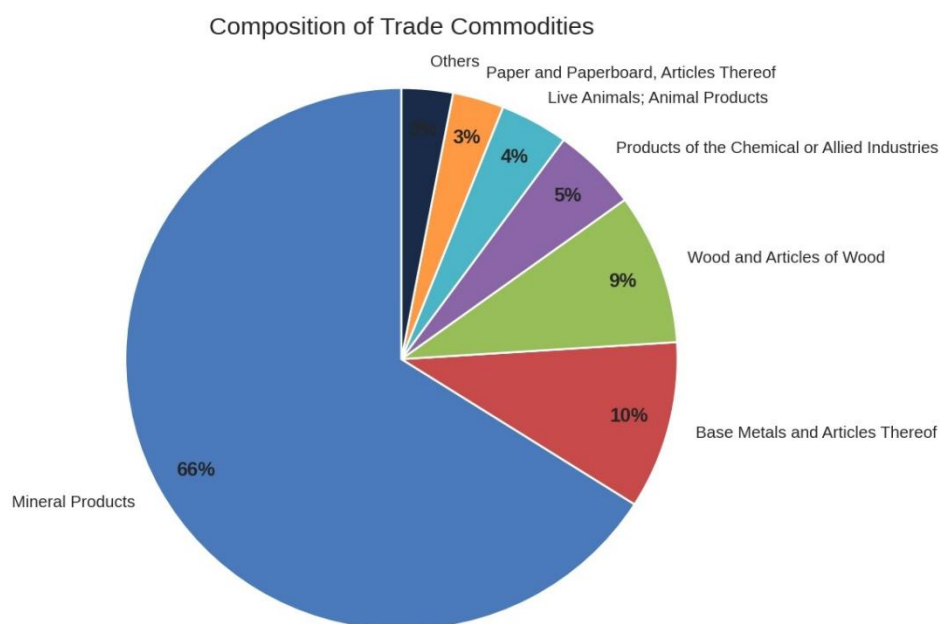


Figure 4 – Top Six Imported Products from Russia in 2015 [53]

In 2022, the top six categories of goods imported by China from Russia and their respective shares of trade value are shown in figures 5: The first category of imported products is mineral products, accounting for more than three-quarters of the total import trade value, with an import value reaching \$89.209 billion; next are base metals and their products, with an import value of \$7.559 billion, but accounting for only 7 %; live animals and wood products have the same share, ranking as the third largest category of products imported by China from Russia, with import values of \$3.346 billion and \$3.598 billion, respectively; imports of paper and paper products reached \$2.13 billion, accounting for 2 %; chemical industry products and related industrial products had a trade value of \$2.075 billion, also 2 % of the total. The combined share of these six categories reached 95 %. Mineral products, the largest category, already

accounted for more than 50 % in 2015, reaching 66 %, and by 2022, their proportion had even risen to 78 %, making them the highest proportion of products in China's imports from Russia [50].

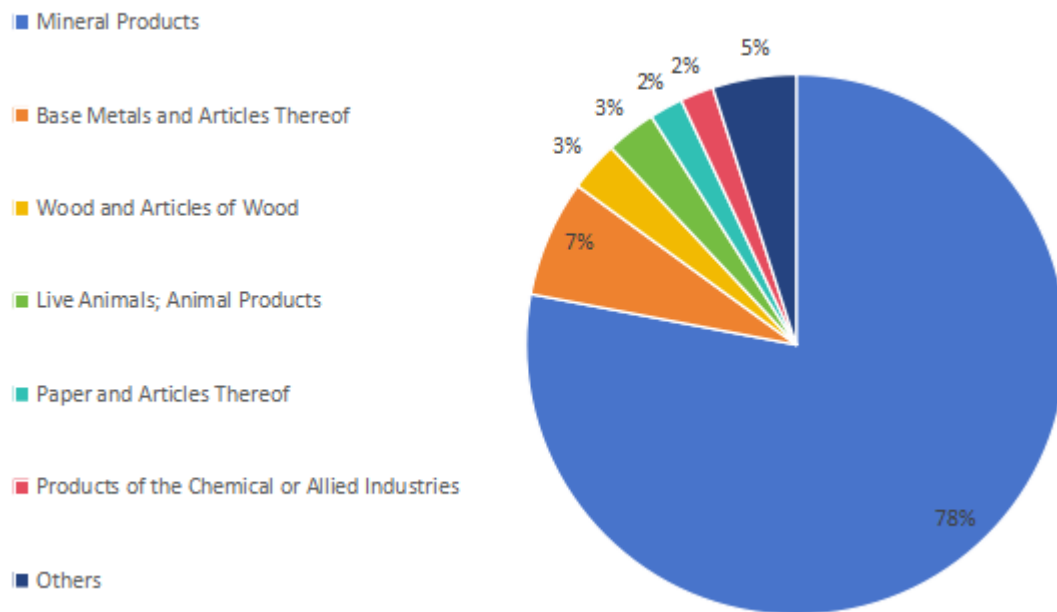


Figure 5 – Top Six Categories of Products Imported from Russia in Mid-2022 [50]

According to figures 4 and 5 showing the shares of the top six categories of China's imports from Russia in 2015 and 2022, the goods that China imports from Russia are primarily minerals and base metals. This is mainly because Russia has a vast territory and abundant resources, with unique advantages in the energy sector: Russia has abundant oil production and a dense network of oil pipelines, but it lacks strong strategic reserve capabilities; moreover, Russia is a global leader in natural gas production. In addition, Russia's other mineral resources are also extremely rich [9].

From an overall perspective, Russia's exports to China largely rely on its

resource advantages. As a resource-rich country, Russia provides mainly resource-intensive products to China. Although China possesses abundant resources, it still faces significant shortages and must import a substantial amount of natural resources every year. The main products that China imports from Russia are resource-intensive, such as mineral products and petroleum products. Manzhouli, Suifenhe, and Hunchun serve as China's primary ports for trade with Russia and are key domestic hubs for bulk raw materials like minerals, timber, and wood products. In summary, although the volume of China's imports from Russia has been increasing, the composition of Russia's exports to China has remained largely unchanged, consisting mainly of resource-intensive products such as minerals, timber, and wood products, with the import structure showing relatively homogeneous characteristics [58].

II. Structure of China's Export Products to Russia

In 2015, the top six categories of products that China exported to Russia and their respective shares of trade value are shown in Figures 6: Among the export products, electromechanical products accounted for the largest proportion, with export trade reaching USD 10.357 billion; the second largest category of export products was textile raw materials and textile products, which accounted for 19% of the total export trade value; the total trade value of base metals and their products reached USD 2.716 billion, accounting for 8 % of total export trade; furs and related products, along with shoes, umbrellas, and hats, each accounted for 7 %, representing the fourth largest category of products China imported from Russia, with import trade values of USD 2.519 billion and USD 2.15 billion respectively; miscellaneous products had a trade

value of USD 1.935 billion, accounting for only 6 % [33].

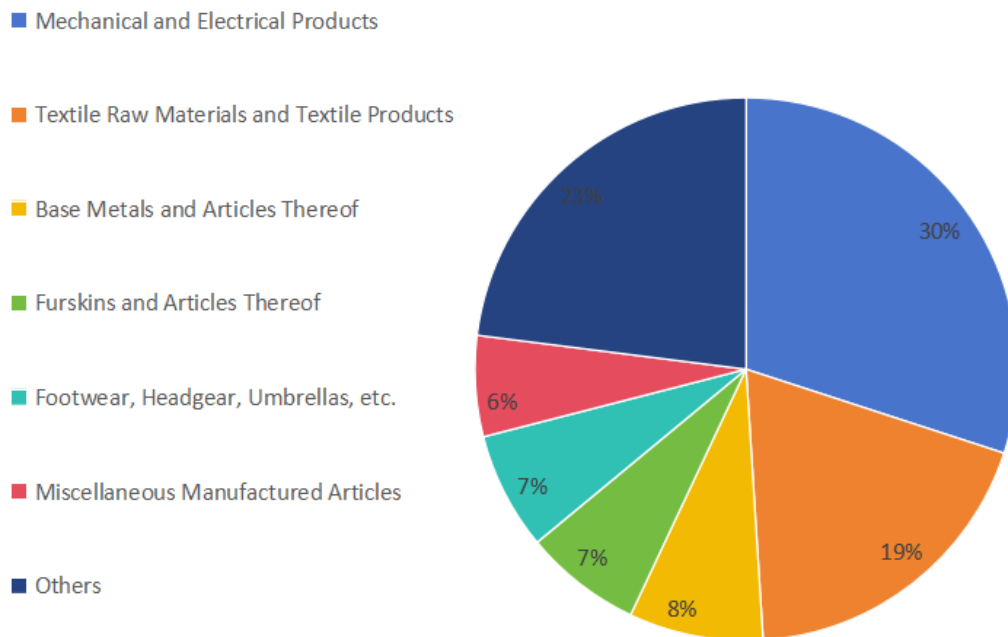


Figure 6 – Top Six Categories of Products Exported to Russia in 2015 [33]

As shown in figure 7, the top six categories of products exported from China to Russia in 2022 and their respective shares of trade volume are as follows: the export trade value of electromechanical products was USD 30.212 billion, accounting for 40 %; the total trade value of vehicles, aircraft, ships, and transportation equipment reached USD 7.419 billion, accounting for 10 % of the total export trade; next were the chemical industry and its industrial products, with a trade value of USD 3.23 billion; although the export trade values of base metals and their products, and textile raw materials and textiles were different, at USD 5.566 billion and USD 5.408 billion respectively, these three categories each accounted for 7 % of the total export trade [50].

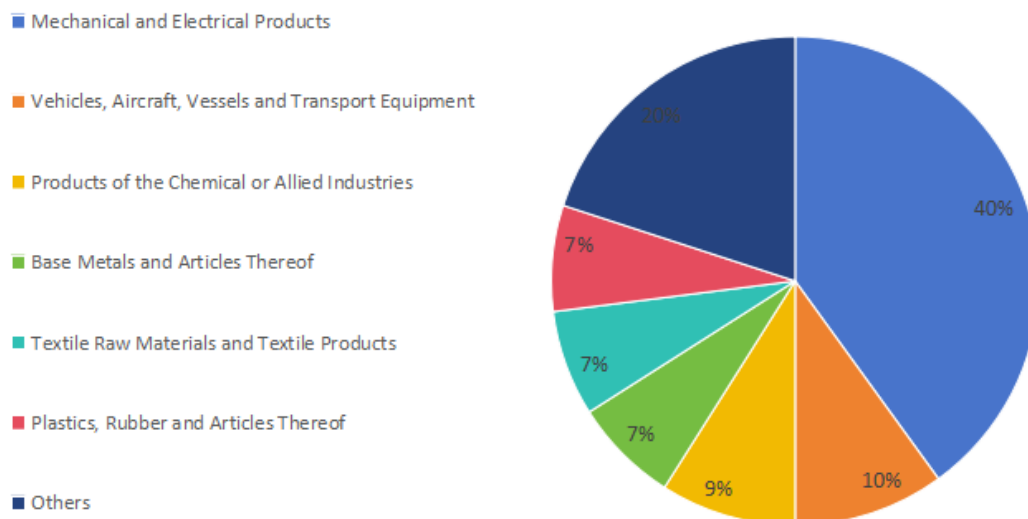


Figure 7 – Top Six Categories of Products Exported to Russia in Mid-2022 [50]

During the period from 2015 to 2022, China adjusted the structure of its export products to Russia. In 2015, the majority of China's exports to Russia were light industrial products, such as daily necessities and clothing, mainly because Russia's relatively high labor costs hindered the development of its light industry. By 2022, vehicles, aircraft, ships, and transport equipment accounted for 10 % of China's exports to Russia, while chemical and related industrial products accounted for 9 %, indicating that China was gradually optimizing the structure of its exports to Russia [49]. With the rapid development of China's economy, its production patterns have been slowly changing. In recent years, China's exports to Russia have primarily focused on technology-intensive products, while the share of labor-intensive products has been steadily decreasing. This provides a new direction for future China-Russia trade cooperation [33].

If we analyze the structure of trade products between China and Russia, their

import and export products are not identical, but they are mainly based on raw materials and light processing. Although there is considerable trade complementarity between the two countries, the above data indicate that their trade relations are not yet sufficiently close. If this situation continues, it will hinder the development of economic and trade relations between the two countries in both breadth and depth [22].

1.3 Problems Existing in Sino-Russian Economic and Trade Relations

I. Relatively Small Trade Volume.

Although China has been Russia's largest trade partner for many years, in 2022, Russia ranked only eighth among China's major trading partners, following countries such as the United States, South Korea, Japan, Vietnam, Germany, Australia, and Malaysia [19]. The total trade volume between China and Russia increased from USD 68.02 billion in 2015 to USD 190.27 billion in 2022. Although the total trade volume between the two countries has doubled, and the share of Sino-Russian bilateral trade in China's total foreign trade showed an overall upward trend from 2015 to 2022, the average proportion over these eight years was only about 2.2 %. In 2022, the bilateral trade volume accounted for only 3% of China's total foreign trade, failing even to reach 5 %, far lower than the share of other trading partners such as the United States, South Korea, and Japan in China's total foreign trade (table 1) [57].

Table 1 – Analysis of the Proportion of China-Russia Total Trade Volume in China's Total Foreign Trade Volume [57]

Year	2015	2016	2017	2018	2019	2020	2021	2022
China's Total Foreign Trade Volume (USD 100 million)	39500	39245	42020	46255	45778.9	46559.1	60514.9	63096
China-Russia Total Trade Volume (USD 100 million)	680.2	696.2	840.7	1070.6	1109.4	1077.7	1468.9	1902.7
Proportion (%)	1.7	1.8	2	2.3	2.4	2.3	2.4	3

The aforementioned situation is clearly inconsistent with the current close economic cooperation and political exchanges between China and Russia. Analyzing this in conjunction with the international status of both countries, the current trade volume has not reached the expected vision of either China or Russia, and Russia's participation in China's economic development process is relatively low. At the same time, it also indirectly reflects that there is still considerable room for growth in China-Russia trade development. The potential for cooperation needs to be further explored, presenting opportunities for deeper and further development. Both countries need to continue to strengthen trade cooperation in various fields in order to expand the scale of trade between them [31].

II. Relatively Simple Trade Structure The overly simple trade structure between China and Russia is a serious problem in their trade cooperation. As the analysis of bilateral trade products and scale above shows, Sino-Russian trade exhibits a considerable degree of complementarity. This complementarity is a key factor driving

bilateral trade growth, but it is precisely this complementarity that leads to a simple trade structure, thus limiting further expansion [58]. Observing the proportion of major categories of goods imported and exported from China to Russia reveals that the types of products accounting for a large proportion of bilateral trade remained relatively stable from 2015 to 2022. From 2015 to 2022, the top six products China imported from Russia remained largely unchanged: mineral products, chemical products, paper products, live animal products, wood products, and base metals. Because China also purchases large quantities of oil and other mineral resources from Russia, mineral products have consistently ranked first in bilateral trade, even accounting for more than half of total imports. Therefore, Russia's export structure to China is relatively simple, mainly consisting of resource-intensive products. This indicates that Russia's export product structure to China has not undergone substantial change [15].

Meanwhile, in recent years, China's exports to Russia have primarily focused on machinery and electrical products, textiles, base metals, vehicles, ships and transportation equipment, and chemical products. Compared to these categories, other product types account for a relatively small proportion of exports, even negligible. Machinery and electrical products have seen the fastest growth in China's exports to Russia, followed by labor-intensive products such as clothing. Machinery and electrical products, vehicles, and transportation equipment, as capital-intensive or technology-intensive goods, not only rank first in terms of export value among China's exports to Russia, but their share is also showing a gradual upward trend. This shows that the structure of China's exports to Russia has been significantly optimized, largely thanks

to my country's technological progress, enhanced international competitiveness, and continuous improvement in its industrial and commodity structure in recent years. However, while the structure of China's exports to Russia is gradually becoming more optimized, the categories of goods exported from China to Russia remain highly concentrated, with labor-intensive products still playing a crucial role. This trade structure between China and Russia is not conducive to the long-term development and market expansion of both countries [33]. A highly concentrated product structure leads to over-reliance on imports or exports of certain goods. If the price of these goods fluctuates drastically due to changes in international market supply and demand, it will have a significant impact on bilateral trade, thus affecting trade cooperation. For example, energy products already account for more than 70 % of China's total imports from Russia. Fluctuations in international oil prices would further impact the development of trade between China and Russia [5]. Therefore, the simple structure of import and export products makes it difficult for Sino-Russian trade to find new directions for development. In addition, most of the export trade between China and Russia consists of small and medium-sized private enterprises. These enterprises are small in scale, have simple industrial structures, and have weak risk response capabilities, making them more susceptible to external factors. This, to some extent, increases the uncertainty of trade between the two countries and hinders the development of trade between the two countries towards a more stable and higher quality direction [58].

III. Imperfect Trade System.

Through an in-depth comparison of policies, regulations, and services in Sino-Russian trade cooperation, it becomes clear that the trade systems between the two countries have flaws, such as transportation and trade barriers. This results in weaker interaction in Sino-Russian trade, mainly manifested in the following two aspects:

First, basic logistics infrastructure needs improvement. Inadequate logistics infrastructure is one of the main factors hindering the expansion of trade cooperation between China and Russia. China has opened 26 ports to Russia, and its logistics transportation involves conventional modes such as road, rail, waterway, and air transport. In terms of maritime transport, some Russian port facilities are outdated and urgently need upgrading, but the construction process is extremely slow. Furthermore, maritime transport is more time-consuming than other modes of transport, thus preventing sea-rail intermodal transport from fully leveraging its trade advantages. At the same time, the existing maritime transport fleets of both China and Russia cannot meet the trade needs of both sides. In terms of rail transport, the use of different gauge railways by China and Russia significantly reduces logistics efficiency. In terms of road transport, many of the roads connecting the two countries need to be rebuilt, and Russia only has one railway line connecting the Far East, the Trans-Siberian Railway, with limited capacity. The inconvenience of these roads severely hinders bilateral trade development. Furthermore, transport is subject to weather conditions, with some routes only operating during specific seasons. Northeast China is a major region for trade and transportation between the two countries, but its relatively underdeveloped economy leads to inadequate logistics and low efficiency. Only a few large logistics companies

can meet the trade needs of both sides. Moreover, Russia's port logistics informatization is underdeveloped, resulting in low customs clearance efficiency for Chinese goods and increased trade costs for businesses. These issues also constrain the development of Sino-Russian trade [4].

Secondly, the Sino-Russian cross-border trade settlement mechanism is imperfect. In Sino-Russian foreign trade, both countries have vigorously promoted the settlement of trade in their own currencies, increasing the demand for the RMB. Despite the support of bilateral agreements, some inconveniences remain in settlement, such as long settlement times and cumbersome procedures. Furthermore, the most frequently used system for cross-border settlement by banking institutions is the SWIFT system. However, due to its constant involvement with political factors, this system has been used multiple times by the United States and Europe to impose sanctions on countries such as Russia. However, the existing cross-border settlement systems between China and Russia cannot effectively replace SWIFT, and letters of credit cannot become the most common payment method, resulting in the inability to initiate some trade. Currently, cross-border settlement between China and Russia still relies on the United States, all of which hinder the in-depth development of Sino-Russian trade [6].

Chapter 2 Challenges Facing the Development of Sino-Russian Economic Relations

2.1 Challenges Facing Sino-Russian Digital Economy Cooperation

Since the escalation of the Russia-Ukraine conflict, Western countries, led by the United States, have implemented a series of severe digital sanctions aimed at severing cross-border cooperation channels with Russia in the field of science and technology by restricting the export of high-tech products, thereby weakening Russia's ability to acquire advanced technologies and conduct independent research and development. These sanctions have had a significant negative impact on Russia's accelerating digital transformation [2]. Specifically, the blockade of key technologies caused by sanctions, especially the disruption of chip technology supply, has directly impacted Russia's research and application in cutting-edge technologies such as artificial intelligence (AI), the Internet of Things (IoT), and 5G communications. According to statistics, these areas occupy a core position in Russia's digital transformation plan, and their hindered progress has directly led to delays in related project investments. It is estimated that in the next three years, Russia's R&D investment in AI will decrease by about 20%, and the implementation progress of IoT and 5G projects will also be delayed by about 18 months. In addition, the restrictions and interruptions on digital platform services have made it difficult for Russian companies to obtain internationally advanced software tools and development environments, further weakening their technological support and innovation capabilities for digital transformation [24]. As a result, several key

Russian industries, such as manufacturing, finance, and healthcare, are facing obstacles to their digital transformation. In manufacturing, the construction of smart factories and automated production lines has been forced to halt, leading to decreased production efficiency; in finance, the application of fintech is restricted, hindering the modernization of financial services; and in healthcare, the widespread adoption of telemedicine and smart medical devices has encountered bottlenecks. These chain reactions have exacerbated Russia's marginalization within the global digital economy, creating an increasingly prominent phenomenon of "digital silos" [27].

The underlying purpose of the digital sanctions strategy employed by the US and Western countries is to hinder Russia's 2030 digital transformation strategy through economic and technological means, thereby weakening its international competitiveness [2]. "However, this practice not only severely hinders Russia's innovative development and national security, but also indirectly suppresses the potential for deepening cooperation between China and Russia in the digital economy. As important participants and strategic partners in the global economy, China and Russia should work together to explore new opportunities for cooperation in the digital economy and jointly promote economic growth and industrial upgrading in both countries. However, the current digital sanctions environment adds uncertainty to the prospects for cooperation between the two countries, requiring joint efforts from both sides to find a solution [24].

In the current complex and volatile international political and economic landscape, economic cooperation between Chinese enterprises and Russia, especially

in the digital economy, is facing the potential threat of secondary sanctions from the United States. This threat is directly related to the currency settlement in transactions between the two countries." Several key aspects, including settlement and technology transfer, pose serious challenges to the stability and sustainability of cooperation [8]. Specifically, when Chinese companies transact with Russian companies sanctioned by the United States or other Western countries, if settlement is made in US dollars or euros, or if the transactions involve goods produced in China but containing technologies subject to US export controls, secondary sanctions may be triggered, leading to severe administrative penalties and even criminal prosecution by the United States. This uncertainty not only significantly increases the operating costs of companies, including compliance reviews and legal consultations, but also greatly restricts their flexibility and innovation in business decisions, forcing them to conduct more complex and time-consuming risk assessments before cooperating. According to data from the website of the US Treasury Department's Office of Foreign Assets Control (OFAC), as of May 1, 2024, The U.S. Treasury and State Department announced sanctions against approximately 300 entities or individuals to cripple Russia's military-industrial complex and restrict revenue from energy resource exports. Among them, 22 companies from mainland China and Hong Kong were added to OFAC's Specially Designated Nationals (SDN) list, almost all of which were marked with secondary sanctions [8]. According to a May 2024 report in the Russian magazine *Dialogue*, Alibaba, a well-known Chinese company, proactively took a series of cautious measures due to concerns about the potential ripple effects of U.S. secondary

sanctions and their potential adverse impact on European and American markets. These measures included, but were not limited to, suspending the acceptance of the ruble as a payment currency and adjusting its supply strategy to Russia. Alibaba's case profoundly illustrates the impact of secondary sanctions on the digital economies of China and Russia. The practical impact of this cooperation is such that even companies not directly sanctioned are forced to reassess the costs and risks of collaborating with Russia to mitigate potential sanctions [24].

This phenomenon further highlights the uncertainties in current international economic cooperation and the profound impact of secondary sanctions mechanisms on the business practices of multinational corporations. Faced with this challenge, some Chinese companies have opted for a more conservative and cautious cooperation strategy, comprehensively analyzing potential legal, economic, and political risks to ensure their stable operation in the global market [8]. However, while this strategic adjustment helps companies mitigate direct short-term risks to some extent, it also inevitably limits the depth and breadth of Sino-Russian cooperation in the digital economy, hindering the full realization of cooperation potential and the comprehensive release of its vitality [24].

In the digital economy era, talent, as a core resource, is increasingly crucial. However, following the Russia-Ukraine conflict, Western countries, led by the United States, have successfully attracted a large outflow of top Russian IT talent through a series of measures, such as simplifying visa procedures and offering competitive salaries and working environments [7]. According to the latest data released by the

Russian Ministry of Education and Science and third-party research institutions, at least 100,000 highly skilled IT professionals chose to leave Russia in 2022, a significant increase compared to previous years. Simultaneously, the total number of Russian scientists fell below 250,000 at the end of 2022, reaching a historical low, highlighting the severity of the talent drain. This large-scale talent loss has directly impacted Russia's high-tech R&D and innovation capabilities in the short term. The vacancy in key technical positions not only limits Russia's R&D progress in cutting-edge technologies such as artificial intelligence, blockchain, and big data, but also weakens its strength in global digital economy competition. For Sino-Russian digital economy cooperation, the erosion of the technological foundation will undoubtedly affect the depth and breadth of bilateral cooperation projects, increasing uncertainty and risks in the cooperation process [24].

In the long term, the brain drain poses a more profound threat to the innovation foundation of both China and Russia [60]. Innovation is a key driver of digital economic development, and talent is the source of innovation [7]. As a traditional technological powerhouse, Russia's brain drain not only weakens its own innovation potential but also reduces the possibility and achievements of Sino-Russian cooperation in the field of technological innovation. Furthermore, brain drain may lead to issues such as technology leakage and intellectual property loss, posing a potential threat to the digital economic security of both countries [27].

In 2024, the sanctions imposed on Russia by the United States and the European Union continued to escalate, causing an unprecedented and significant impact on the

international connectivity of the Russian financial system [45]. Several banks holding core positions in the Russian financial system were excluded from the Society for Worldwide Interbank Financial Telecommunication (SWIFT) international settlement system [13]. This move directly weakened the core participation capabilities of Russian banks in global financial transactions, limiting the efficiency and flexibility of their cross-border payments and clearing. Meanwhile, changes in the international political and economic environment prompted some Chinese banks, after weighing the risks of secondary sanctions and international public opinion pressure, to suspend accepting RMB payments from Russia. This chain reaction further exacerbated the isolation of the Russian financial system and increased obstacles to its interaction with international financial markets [8]. The core objective of this series of economic and financial sanctions implemented by the United States and Western countries is to precisely target and attack Russia's key digital financial infrastructure, thereby severing its direct links with international financial markets. This not only directly restricts the clearing and settlement functions of Russian banks in the international payment system, hindering cross-border transactions, but also severely impedes the freedom and efficiency of Russian enterprises in using international financial markets for financing, investment, and other economic activities. This "cutting-off" sanction strategy significantly reduces Russia's exposure and participation in global financial transactions, posing a long-term and profound challenge to the overall stability and sustainable development of the Russian economy [45].

Against this backdrop, cooperation between China and Russia in the digital

economy, particularly the booming digital trade, faces unprecedented risks of payment system disruption [24]. The efficient operation of digital trade highly depends on a stable, secure, and efficient payment system as its foundation. However, the current disruptions to the Russian payment system directly threaten the settlement efficiency and fund security of Sino-Russian digital trade, increasing transaction uncertainty and costs. Furthermore, the instability of the payment system may also shake market confidence, leading to a series of chain reactions such as increased trade costs and reduced transaction volume, ultimately hindering the continued healthy development of the Sino-Russian digital economy cooperation system [6].

The potential deterrent effect of a deteriorating public opinion environment on Sino-Russian digital economy cooperation has reached a strategic level. With major international social media platforms such as Twitter, Instagram, and YouTube successively restricting or shutting down services for Russia, these closures limit Russia's channels for conveying its views, positions, and policy propositions to the world, weakening its visibility and persuasiveness in the international public opinion environment. This obstruction of information flow not only affects cross-border cooperation and international exchanges between Russia and other countries, but may also build an invisible barrier between the people of China and Russia, hindering direct communication and mutual understanding between the two peoples. This not only seriously weakens Russia's discourse power and influence in the global public opinion arena, but also poses a significant challenge to its strategic deployment and capability demonstration in the information war [41].

In the long run, the formation of this negative public opinion environment may have a series of chain reactions on trade and digital economy cooperation between China and Russia. Without effective communication and mutual trust, economic cooperation between the two countries may face more uncertainty and risks, affecting the progress and effectiveness of cooperative projects. Furthermore, the negative impact of public opinion may extend to multiple areas such as investment, technological exchange, and talent cooperation, posing a potential threat to the comprehensive deepening of the China-Russia digital economy cooperation system [27].

2.2 Challenges Brought by Changes in the International Political and Economic Situation

The current global development landscape is undergoing profound reshaping. The global economic recovery is slowing, growth momentum is insufficient, and overall uncertainty and instability are rising significantly. Trade protectionism and unilateralism, led by the United States, continue to rise, constantly impacting traditional global trade rules and the multilateral cooperation system. The regionalization and localization of global industrial chains, supply chains, and value chains are accelerating, and the layout logic, cooperation direction, and development priorities of international and regional industrial division of labor are undergoing a new round of systemic adjustments. The global political, economic, and security environment continues to be under pressure, with various risk factors overlapping and

resonating. Geopolitical conflicts are becoming more protracted and complex, and great power competition is intensifying. Geoeconomic competition is replacing traditional geopolitical confrontation as the core of competition. Non-traditional confrontational means such as trade barriers, technology blockades, financial restrictions, and energy competition are being frequently used, further fragmenting global cooperation markets and compressing the space for transnational and regional collaborative development. Populist sentiment is spreading, anti-globalization sentiment is intensifying, and some countries are unilaterally pursuing their own interests, ignoring multilateral consensus, and continuously hindering the progress of economic globalization and regional integration. Coupled with complex risks such as localized public health emergencies, transnational terrorism, and cross-border security threats, the overall security environment along the Belt and Road Initiative is becoming increasingly complex and severe. Various cooperative projects face multiple real-world challenges, including geopolitical interference, policy changes, and security risks [17]. Against this macro-background, sub-regional economic cooperation between the upper and middle reaches of the Yangtze River in China and the Volga Federal District in Russia cannot develop independently of global shifts. It must seek a dynamic balance between open development and security and stability. This requires leveraging the advantages of complementary resources, compatible industries, and geographical proximity to deepen trade, industrial cooperation, and cultural exchange, steadily releasing the dividends of synergistic development. It also necessitates a comprehensive assessment, proactive identification, and precise prevention of

potential risks arising from changes in the external environment, avoiding negative impacts on cooperative projects, trade, and investment in both regions, and ensuring the long-term stability and sustainable development of sub-regional cooperation [25].

Against the backdrop of the deepening overall strategic cooperation between China and Russia, regular high-level meetings and communication between the two countries, head-of-state diplomacy, and the continuous introduction of favorable policies, the establishment of cooperation platforms, and the improvement of cooperation mechanisms at the government level have propelled the comprehensive strategic partnership of coordination for a new era between China and Russia to a deeper and more practical level [28]. Bilateral trade has increased year after year, industrial cooperation has expanded, and fruitful results have been achieved in practical cooperation in energy, agriculture, manufacturing, logistics, education, culture, and other fields. In particular, sub-regional cooperation, represented by the Yangtze-Volga University Alliance, cross-border economic and trade cooperation, and border industrial linkages, has developed rapidly, becoming an important carrier and core growth point for China-Russia local cooperation. The middle and upper reaches of the Yangtze River have a complete industrial system, with a strong foundation in manufacturing, modern agriculture, digital economy, and cultural tourism, a vast market space, and huge consumption potential. They possess strong capabilities in product export, technology supply, and capital investment. The Volga Federal District of Russia has a profound industrial foundation, with outstanding advantages in heavy industry, chemicals, energy, and scientific research resources. The two sides have

complementary resource endowments, compatible industrial structures, and aligned cooperation needs, providing a natural foundation for in-depth economic and trade cooperation and industrial synergy [25]. With the support of national-level strategies and active engagement with local governments, the two regions have seen continuous expansion in cooperation in areas such as commodity trade, project investment, technological exchange, cultural exchanges, and logistics connectivity. The cooperation models have been constantly innovated, and the level of cooperation has been continuously improved, providing important support for local economic growth, industrial upgrading, and employment security in both countries, and also laying a solid foundation for China-Russia cooperation across all regions [28].

However, at the same time, the dramatic changes in the international political and economic landscape are continuously constraining and impacting cooperation in the Yangtze-Volga subregion from multiple levels, including the external environment, rule system, market order, and cooperation expectations [43]. The global trade system has been severely damaged, with the United States continuously escalating trade protection policies. By imposing high tariffs, setting import quotas, implementing discriminatory trade policies against certain countries, and building exclusive regional trade alliances, the US is undermining the global free trade order. This not only directly affects global commodity price fluctuations, the circulation of industrial goods, and the pricing system for cross-border commodities, but also indirectly has a chain reaction on Sino-Russian cross-border trade [51]. The middle and upper reaches of the Yangtze River have long exported a large number of electromechanical products, light industrial

products, processed agricultural products, and building materials to Russia. The Volga Federal District's core export categories to China are energy raw materials, chemical products, heavy industrial equipment, and food crops. Increased global trade barriers, rising distribution costs, and restricted international logistics routes will directly drive up cross-border trade transportation, customs clearance, and transaction costs between the two regions, lengthen cargo turnover cycles, compress corporate profit margins, reduce the cost-effectiveness and market competitiveness of bilateral trade, and weaken the stability and resilience of traditional trade cooperation between the two regions [4].

The diversion effect brought about by the restructuring of global industrial and supply chains further increases external competitive pressure on economic cooperation between the two regions [51]. Currently, countries are strengthening their self-reliant and controllable industrial chain layouts, barriers in key core technology fields are constantly rising, and regionalized collaborative development has become the mainstream trend. Economies such as those in Europe and the United States are reconstructing exclusive industrial division of labor systems through industrial repatriation, alliance cooperation, and technological blockades, squeezing the space for transnational cooperation among emerging market countries. Against the backdrop of a contraction in traditional economic and trade cooperation with Europe, Russia continues to strengthen industrial alignment with China while actively expanding into diversified cooperation markets in Central Asia, West Asia, and Southeast Asia, thus diversifying its industrial layout and trade channels [15]. Meanwhile, my country's

upper and middle reaches of the Yangtze River, while consolidating cooperation with Russia, also face dual pressures from domestic industrial transformation and upgrading, competitive pressure from the eastern coastal regions, and the substitution of low-end industries in Southeast Asia. Under the adjustment of the global industrial division of labor, competition among similar regional cooperation is becoming increasingly fierce. Cooperation in the Yangtze-Volga sub-region faces more external competition in areas such as project acquisition, resource integration, market development, and talent introduction. The previously stable industrial cooperation pattern is being impacted, and some labor-intensive and resource-dependent cooperation projects are vulnerable to changes in industrial chains and market demand, resulting in insufficient stability of cooperation projects and increased difficulty in implementing long-term plans [40].

Geopolitical conflicts and escalating great power rivalry have become the core external risks restricting in-depth cooperation between the two regions [43]. Strategic competition among major powers has spread to multiple fields, including the economy, science and technology, finance, culture, and regional governance. The spillover effects of geopolitical conflicts continue to emerge, not only disrupting the stability of international energy, food, and financial markets and exacerbating global inflationary pressures and economic downturn risks, but also triggering chain reactions such as changes in regional policies, fluctuations in diplomatic relations, and upgrades in cross-border controls. Russia has long faced unilateral sanctions and technological restrictions from the outside world, with strict constraints on areas such as financial settlement, imports of high-end equipment, cooperation in cutting-edge technologies,

and international investment and financing [45]. As Russia's core industrial cluster, the Volga Federal District is deeply affected by sanctions, with its heavy industry, chemical, and high-end manufacturing enterprises suffering from slow equipment upgrades, lagging technological iterations, and limited international financing channels. This directly restricts its in-depth cooperation with the middle and upper reaches of the Yangtze River in areas such as high-end manufacturing, joint research and development, production capacity cooperation, and project investment [60]. Some cross-border cooperation projects face difficulties such as settlement problems, obstructed equipment procurement, interrupted foreign investment cooperation, and contraction of foreign-related business due to external sanctions. The compliance costs and operational risks for enterprises in both regions have increased significantly, making it difficult to quickly implement many medium- and long-term industrial cooperation projects. These projects remain at a superficial level, limited to commodity trade and basic material circulation, hindering deeper cooperation in areas such as technological synergy, joint capacity building, and industrial chain integration [29].

The volatile international financial environment and intensified monetary system competition have further amplified the financial risks of cross-border economic cooperation between the two regions [6]. The divergence and adjustment of monetary policies among major global economies, significant exchange rate fluctuations, disorderly international capital flows, and intensified competition over commodity pricing currencies have highlighted the shortcomings of the traditional dollar settlement system, leading to a continuous increase in uncertainty in cross-border

financial cooperation. Although China and Russia have continued to promote cooperation in local currency settlement, expanding the scale of direct settlement between the ruble and the yuan and reducing reliance on third-party currencies, the large number of SMEs in both sub-regions, the imperfect cross-border settlement system, and the limited coverage of local currency settlement mean that most SMEs in foreign trade still face problems such as exchange rate volatility risks, cumbersome cross-border payment procedures, high foreign exchange settlement costs, and limited cross-border investment and financing channels [6]. The Volga Federal District, affected by external sanctions, faces limited international financial cooperation channels and inadequate financial services. Investment, project loans, and cross-border capital flows from the upper and middle reaches of the Yangtze River to Russia face further restrictions. These financial constraints directly impact the development of joint investment projects, industrial park construction, and production capacity cooperation—all asset-heavy cooperation models—limiting the potential for upgrading economic cooperation between the two regions [55].

Ideological competition and differing public opinions, coupled with external smear campaigns, continue to weaken the social foundation and public consensus for cooperation between the two regions [41]. As the comprehensive strategic cooperation between China and Russia continues to intensify, some Western countries, through propaganda, ideological export, and biased interpretations, deliberately exaggerate the threat of regional cooperation, distort the original intentions of Sino-Russian local cooperation, and create cognitive barriers and public opinion bias. Within Russia,

influenced by a combination of factors, including misleading external public opinion, differing regional development aspirations, and considerations of industrial interests, some members of the public and local groups have developed cognitive biases. They are overly concerned that regional economic cooperation will exacerbate the dependence of some Russian industries on Chinese raw materials, markets, and technology. They fear the weakening of traditional domestic industries, the encroachment of foreign goods on the domestic market, and the impact on the autonomy of local economic development. This leads to resistance to deeper economic and trade cooperation, industrial integration, and market opening between the Volga Federal District and the Yangtze River Basin in China [54]. These implicit public concerns and societal differences indirectly affect the implementation of local cooperation policies, delaying the implementation of cross-border cooperation agreements, market opening, and the flow of factors of production. Some local cooperation measures are difficult to fully implement due to public concerns, hindering the free flow of talent, market interconnection, and efficient resource integration between the two regions [25].

The increasing prevalence of global public safety and complex risks is continuously raising the security costs and operational pressures of cross-border cooperation between the two regions [43]. In the post-pandemic era, global public health risks have not been completely eliminated. New variants of the virus and regional public health emergencies can occur at any time, easily triggering temporary control measures such as stricter controls on cross-border personnel movement,

upgraded cargo quarantine, and port clearance restrictions. This directly impacts business exchanges, talent exchanges, and the normal flow of goods between the two regions. Simultaneously, non-traditional security threats such as transnational terrorism, cross-border crime, border security risks, extreme weather disasters, and transnational ecological governance issues continue to emerge [37]. Given the long distances, wide scope, and numerous interconnected links involved in the Yangtze-Volga River cross-regional cooperation, various security risks are highly susceptible to cross-regional transmission and spread. Cooperation in areas such as cultural and tourism exchanges, business dealings, cross-border logistics, overseas employment, and educational exchanges requires increased investment in security and prevention, emergency response, and risk contingency planning, significantly increasing the operational burden on governments and businesses in both regions. This also limits regular personnel exchanges and offline cooperative activities to some extent, weakening the empowering role of cultural exchanges in economic and trade cooperation [59].

The weakening of multilateral cooperation mechanisms and the fragmentation of regional rules have increased the difficulty of coordinated governance and cooperation between the two regions. In recent years, the authority of global multilateral cooperation mechanisms has declined, with some countries arbitrarily reneging on multilateral commitments and undermining international cooperation rules. Regional exclusive agreements have emerged continuously, and differences in rules among different regions regarding trade standards, technical specifications, quality inspection and certification, market access, and labor laws have continued to widen,

leading to a fragmented global economic governance system. The middle and upper reaches of the Yangtze River and the Volga Federal District belong to different market systems, and differences already exist in product quality standards, inspection and quarantine rules, industry entry barriers, intellectual property protection, and labor employment systems. The fragmentation of international rules further amplifies the institutional barriers between the two sides [51]. Cross-border cooperation between enterprises in the two regions requires adapting to multiple international rules and regional standards, increasing the difficulty of compliance and highlighting issues such as redundant product testing, difficulties in mutual recognition of standards, and cumbersome qualification reviews, thereby increasing communication and compliance costs for enterprises. Meanwhile, the lack of a unified sub-regional collaborative governance mechanism makes it difficult for the two regions to quickly coordinate responses to common issues such as international market fluctuations, trade frictions, external sanctions, and cross-border risks. Their capacity for policy coordination, joint risk prevention, and interest coordination is insufficient, making it difficult to effectively withstand the impact of changes in the external environment [29].

The sharp fluctuations in core commodity markets such as energy and food bring cyclical shocks to the real economy cooperation between the two regions [39]. Multiple factors, including geopolitical conflicts, great power rivalry, climate disasters, and trade controls, lead to frequent and significant fluctuations in the prices of basic commodities such as international energy, food, and minerals, resulting in a highly unstable supply and demand pattern. The Volga Federal District of Russia is a core

production area for energy, chemicals, and food; energy raw materials and food exports are important pillars of the regional economy. The middle and upper reaches of the Yangtze River have a high concentration of manufacturing industries and a large demand for energy, industrial raw materials, and food. Commodity trade between the two sides is an important component of sub-regional cooperation. Sharp fluctuations in international commodity prices directly affect the import and export revenue of the two regions, enterprise production costs, and regional price stability, increasing the uncertainty of enterprise production and operation [53]. Meanwhile, the frequent unilateral measures implemented by some countries, such as energy export controls and restrictions on food trade, have exacerbated global supply chain tensions and could lead to instability in the supply of key production materials in both regions. Manufacturing enterprises reliant on raw material imports face pressure from limited capacity and rising costs, hindering the stable operation of the real economy and the formulation of long-term cooperation plans in both regions [25].

Science and technology competition and escalating technological barriers impede innovation cooperation and coordinated industrial upgrading between the two regions [27]. Currently, global science and technology competition is increasingly fierce, with key core technologies becoming the focus of great power rivalry. Western countries have long implemented a dual technology blockade against China and Russia, maintaining strict technological monopolies and export restrictions in areas such as high-end chips, precision instruments, industrial software, cutting-edge new materials, and intelligent manufacturing equipment. The middle and upper reaches of the Yangtze

River have rapidly developed digital economy, high-end manufacturing, and emerging industries, possessing advantages in technology application and industrial transformation. The Volga Federal District has strong basic research capabilities. Both sides could leverage their complementary advantages to conduct joint research, technological breakthroughs, and joint talent training, achieving resource sharing in innovation [60]. However, external technological blockades and barriers severely restrict cooperation in high-end science and technology fields between the two regions. Cross-border technology import, equipment procurement, scientific research collaboration, and patent sharing face numerous restrictions. The exchange of cutting-edge technologies between universities, research institutions, and science and technology enterprises in the two regions is hindered, making it difficult to deeply promote the integration of industry, academia, and research. Cooperation can only focus on low-end industries and traditional fields, which is not conducive to the industrial transformation and upgrading and high-quality collaborative development of both sides, and also compresses the long-term development space of cooperation in the Yangtze-Volga sub-region [24].

In summary, the complex and ever-changing international political and economic situation poses comprehensive, long-term, and multifaceted challenges to economic cooperation between the upper and middle reaches of the Yangtze River and the Volga Federal District of Russia, encompassing multiple dimensions such as trade, industry, finance, geopolitics, public opinion, security, rules, and technology [51]. Rising external protectionism, a reshaping global landscape, intensified great power

competition, and the convergence of various risks, coupled with internal constraints such as differences in regional development aspirations, divergent public opinion, and institutional barriers, all hinder sub-regional cooperation between the two regions from advancing to a deeper level, broader scope, and higher quality [25]. Faced with new circumstances and challenges, cooperation between the two regions cannot simply rely on traditional trade and policy support. It must proactively adapt to changes in the global landscape, coordinate the two core objectives of development and security, accurately assess various external risks, address shortcomings in cooperation, improve coordination mechanisms, optimize cooperation models, and strengthen risk prevention and control. Through policy coordination, industrial complementarity, rule alignment, cultural exchange, and diversified risk mitigation, it is essential to proactively resolve the impacts of changes in the international political and economic situation, remove obstacles to cooperation, build consensus, stabilize expectations, continuously solidify the foundation of bilateral economic and trade cooperation, promote the long-term stable and coordinated development of the Yangtze-Volga sub-region, and build a strong barrier for high-quality development of China-Russia regional cooperation [37].

2.3 Structural and Connectivity Challenges in China-Russia Economic and Trade Cooperation

While China-Russia economic and trade cooperation continues to expand in scale and scope, it is affected by multiple factors such as resource endowment,

industrial structure, channel layout, market access, and differences in institutional rules. Long-standing structural contradictions and connectivity shortcomings remain prominent, becoming significant obstacles restricting bilateral economic and trade cooperation from advancing to higher quality and deeper levels [58]. From a trade structure perspective, Sino-Russian bilateral trade has long been dominated by energy and resource products, primary raw materials, and labor-intensive light industrial products, with a relatively low proportion of high value-added, high-tech manufactured goods and services. The trade structure exhibits a clear resource-driven and complementary nature, with a low degree of integration between the industrial and supply chains. Russian exports to China are mainly concentrated in commodities such as oil, natural gas, coal, minerals, grain, and chemical raw materials. This product structure is characterized by its singular focus, low added value, and weak resilience to market fluctuations, making it highly susceptible to fluctuations in international commodity prices, changes in global demand, and adjustments in trade policies. This results in insufficient stability in the growth of bilateral trade volume and an uneven distribution of trade benefits [1]. While China's exports to Russia are gradually upgrading towards sectors such as electromechanical products, auto parts, communication equipment, home appliances, and consumer electronics, they still primarily consist of mid-range manufactured goods. The proportion of high-value-added sectors such as high-end equipment, core components, digital services, and technical services is limited, which is inconsistent with the bilateral economic scale, industrial strength, and strategic positioning. The low-end lock-in of the trade structure

has not been fundamentally changed [33].

At the level of investment and industrial cooperation, the scale of mutual investment between China and Russia is relatively small, the sectors are concentrated, and the industrial chain synergy is insufficient, which means that the driving effect of investment cooperation on economic and trade growth has not been fully realized [40]. Chinese investment in Russia is mainly concentrated in resource-based and labor-intensive sectors such as energy development, agricultural cooperation, infrastructure construction, and forestry processing, with limited investment in strategic emerging industries such as high-end manufacturing, digital economy, biomedicine, new materials, and scientific research. Similarly, Russian investment in China is mainly focused on traditional industries such as energy and chemical engineering and machinery manufacturing, with very low investment in high-tech industries and modern service industries. Enterprises from both sides are constrained by factors such as market information asymmetry, differences in legal systems, differences in business environments, limited financing channels, and insufficient risk protection, making it difficult for large-scale long-term investment projects to be implemented. The participation of small and medium-sized enterprises is low, and industrial cooperation is mostly limited to commodity trade, simple processing, and project subcontracting. There is a lack of deep integration models such as joint R&D, joint capacity building, joint brand development, and market sharing, making it difficult to form a stable and efficient cross-border industrial chain and industrial cluster. Furthermore, the alignment of industrial standards, technical specifications, certification systems, and

regulatory rules between the two countries is insufficient. Institutional barriers exist in areas such as market access, mutual recognition of qualifications, intellectual property protection, anti-monopoly review, and labor standards, increasing compliance and communication costs for enterprises operating across borders and hindering the large-scale and standardized development of industrial cooperation [29].

The cross-border connectivity and logistics service system has significant shortcomings. Insufficient efficiency of channels, port capacity, and multimodal transport connections drive up the circulation and time costs of bilateral economic and trade cooperation [36]. Although cross-border railway, highway, waterway, and air transport channels between China and Russia are continuously improving, and transport modes such as the China-Europe Railway Express, border ports, and river-sea intermodal transport are developing steadily, the distribution of transport channels remains uneven. Eastern ports are busy, while western channels are underutilized. Problems such as aging port infrastructure, limited transshipment capacity, cumbersome inspection procedures, and low levels of informatization are prominent. Major ports such as Manzhouli, Suifenhe, Tongjiang, Heihe, and Erenhot experience significant congestion during peak freight seasons. Cargo transshipment, customs clearance, and quarantine procedures are time-consuming. Multimodal transport connections are inefficient, and there is a lack of unified scheduling and information sharing among railways, highways, ports, and aviation. The capabilities for end-to-end logistics tracking, digital customs clearance, and integrated services are insufficient, resulting in low efficiency and high costs in cross-border logistics. Sino-Russian cross-

border logistics primarily focuses on bulk commodities and full truckload transportation. The supply of specialized logistics services such as cold chain logistics, dangerous goods transportation, e-commerce express delivery, and supply chain finance is insufficient, making it difficult to meet the transportation needs of high-value-added goods such as agricultural products, fresh food, electronic products, and e-commerce goods. This hinders the upgrading of bilateral trade structure and the development of emerging trade formats [23].

The development of service trade is relatively lagging behind, failing to match the rapid growth of goods trade, becoming a significant weakness in Sino-Russian economic and trade cooperation [14]. Sino-Russian service trade is mainly concentrated in traditional sectors such as tourism, transportation, and construction. Modern service trade, including financial services, insurance services, telecommunications services, computer information services, R&D and design, consulting services, cultural services, and education services, accounts for a relatively low proportion, is small in scale, and lacks competitiveness. Affected by factors such as limited payment systems, insufficient mutual recognition of qualifications, market access restrictions, and a shortage of professional talent, cooperation between the two countries in emerging fields such as digital services, fintech, cross-border e-commerce, and service outsourcing has progressed slowly. The level of service trade facilitation is low, and the process of rule alignment and standards mutual recognition is lagging behind, making it difficult to adapt to the rapid development trend of service trade in the digital economy era. Furthermore, differences exist in the two countries' service

trade statistical systems, regulatory models, and promotion policies. The lack of a unified and efficient service trade cooperation mechanism and promotion platform leads to problems such as poor information flow, insufficient channels, and inadequate protection for enterprises conducting cross-border service trade, restricting the supporting and driving role of service trade in bilateral economic and trade cooperation and hindering the optimization of the economic and trade cooperation structure and high-quality development [34].

Uneven development of local and regional cooperation, insufficient implementation of cooperation mechanisms, and failure to fully unleash the potential of sub-regional cooperation are also issues [51]. Local cooperation between China and Russia is mainly concentrated in the northeastern border provinces and the Russian Far East. Cooperation in inland and coastal areas of China, such as the upper and middle reaches of the Yangtze River, the Pearl River Delta, and the Yangtze River Delta, as well as core regions of Russia, including the Volga River basin, Siberia, and the Urals, lacks depth and coordination, exhibiting a pattern of "hot at the border, cold at the inland" and "hot in the east, cold in the central and western regions." Although sub-regional cooperation mechanisms such as the Yangtze-Volga and Northeast-Far East cooperation mechanisms have been established, their effectiveness in project implementation, industrial alignment, policy coordination, and cultural exchanges needs improvement. Some cooperation mechanisms remain at the level of forums, meetings, and agreement signings, lacking a system for regular promotion, project implementation, and performance evaluation. Poor information communication,

insufficient planning coordination, and inadequate interest coordination among local governments, coupled with low participation from market entities such as enterprises, industry associations, and research institutions, result in insufficient marketization, industrialization, and long-term sustainability of local cooperation. This hinders the formation of a nationally coordinated, vertically integrated, and multi-party collaborative local cooperation pattern, restricting the comprehensive expansion and in-depth advancement of Sino-Russian economic and trade cooperation [22].

Differences in the business environment and an imperfect risk control system increase the uncertainty and operating costs of cross-border operations for enterprises [29]. Significant differences exist between China and Russia in their legal systems, tax systems, customs supervision, administrative approvals, foreign exchange management, and labor policies. Enterprises investing and trading across borders face challenges such as difficulty in interpreting policies, cumbersome approval processes, weak protection of rights, and slow dispute resolution. In some regions of Russia, administrative efficiency is low, law enforcement is not standardized, and policy stability needs to be strengthened. Chinese enterprises investing and operating in Russia face uncertainties and risks related to land use, tax inspections, visas, employment, and security reviews. Russian enterprises entering the Chinese market also face practical challenges such as adapting to market rules, aligning with industry regulations, and localizing operations. The mechanisms for cross-border risk warning, credit evaluation, rights protection, and dispute resolution between the two countries are not sound enough. The supply of risk-sharing tools such as policy-based insurance,

cross-border guarantees, and risk compensation is insufficient. Enterprises have limited ability to cope with political, economic, legal, and exchange rate risks, and small and medium-sized enterprises (SMEs) have weak risk resistance capabilities, which to some extent inhibits the enthusiasm and initiative of market entities to deepen cooperation [6].

The marketization and diversification of bilateral economic and trade cooperation are insufficient, and the innovation of cooperation models and business formats lags behind the new situation and new demands [26]. Sino-Russian economic and trade cooperation has long been government-driven and dominated, with insufficient utilization of market mechanisms, a need to strengthen the leading role of enterprises, and inadequate bridging functions of intermediary organizations such as industry associations and chambers of commerce. There is also a lack of market-oriented services such as information sharing, supply and demand matching, industry self-regulation, and standard setting. Cooperation models are primarily based on traditional general trade, engineering contracting, and resource development, while new trade and investment models such as cross-border e-commerce, market procurement, overseas warehouses, bonded logistics, financial leasing, production capacity cooperation, and joint construction of industrial parks are developing slowly. The cultivation of new business models such as digital trade, green trade, and service trade is insufficient. Against the backdrop of profound adjustments in the global economic and trade landscape, rapid development of the digital economy, and accelerated green transformation, Sino-Russian economic and trade cooperation has

lagged behind in digital, green, and intelligent transformation. The application of digital platforms, green and low-carbon cooperation, and supply chain innovation are insufficient, making it difficult to fully adapt to the inherent requirements of improving the quality and efficiency of economic and trade cooperation and upgrading under the new circumstances [11].

Overall, the challenges facing China-Russia economic and trade cooperation in areas such as structural contradictions, connectivity, service trade, local coordination, business environment, and model innovation are characterized by long-term, complex, and systemic nature [3]. These challenges stem from objective differences in the two countries' resource endowments, industrial structures, and institutional systems, as well as subjective constraints imposed by cooperation mechanisms, market systems, and guarantee capabilities. These intertwined and mutually influential issues collectively constrain the quality, efficiency, and sustainability of bilateral economic and trade cooperation, and are incompatible with the high-level positioning of the China-Russia comprehensive strategic partnership of coordination for a new era, the continuously expanding scale of bilateral trade, and the inherent needs of high-quality economic development in both countries [25]. Looking to the future, to further deepen China-Russia economic and trade cooperation, we must focus on the prominent shortcomings in the aforementioned structural and connectivity aspects, adhere to a problem-oriented, goal-oriented, and results-oriented approach, improve cooperation mechanisms, strengthen infrastructure connectivity, promote structural optimization, enhance service capabilities, optimize the business environment, accelerate innovation-driven

development, gradually overcome deep-seated institutional and systemic obstacles, and promote the transformation of China-Russia economic and trade cooperation from scale expansion to quality improvement, from commodity trade as the mainstay to the coordinated development of goods and services trade, and from superficial complementarity to deep industrial chain integration, thus laying a more solid economic foundation for the sustained and healthy development of bilateral relations [40].

Chapter 3 Prospects and Policy Recommendations for the Development of Sino-Russian Economic Cooperation

3.1 Policy Recommendations for Breakthroughs in Cooperation in Digital and Technological Services

1. Digital Services.

In recent years, digital services have become a new direction for Sino-Russian cooperation. The scope of cooperation has gradually expanded, the methods of cooperation have become more diversified, the results of cooperation have become increasingly evident, and the prospects for cooperation are becoming increasingly broad [11].

Developing Electronic Signature Services. Shanghai CA Group, in conjunction with Russia's largest electronic signature service provider, has jointly developed the "Sino-Russian Cross-border Electronic Signature Service," which has received strong support from the Russian Ministry of Digital Development and other relevant authorities. Since August 2023, Russia has recognized the legal validity of electronic signature authentication certificates issued by Shanghai CA Group. This service can meet various cross-border trade needs, including cross-border electronic contracts, cross-border financial letters of credit, cross-border financial settlement, cross-border goods logistics, and cross-border document exchange. To date, it has provided services to more than 100 entities in China and Russia, reducing transaction time by 90 %, transaction costs by 70%, and transaction amounts exceeding 100 million yuan,

providing a safe and efficient solution for cross-border electronic signature services [43].

Expanding the Innovative Application of Digital Technology. In 2024, China and Russia signed a Memorandum of Understanding between the Ministry of Transport of the People's Republic of China and the Ministry of Transport of the Russian Federation on promoting the application of autonomous driving technology in cross-border freight transport. Navio, a Russian autonomous driving technology company, and Sinotruk, a Chinese heavy-duty truck manufacturer, jointly developed the Sitrak intelligent heavy-duty truck equipped with an L4-level autonomous driving system. The Tianjin Cement Industry Design and Research Institute, focusing on BIM technology and intelligentization, created an integrated digital management and control model across the entire business chain, providing Russian companies with digital twin factory solutions and full lifecycle industrial services, helping to shorten the design cycle of Russian cement engineering projects by 50 % [24].

Strengthening cooperation in smart customs. In 2024, China and Russia signed a Memorandum of Understanding between the General Administration of Customs of the People's Republic of China and the Federal Customs Service of the Russian Federation on cooperation in the "single window" system for international trade [36]. The Manzhouli-Zabaikalsk border crossing was the first to launch an electronic queuing system for truck customs clearance, improving customs clearance efficiency by 20 % [49].

2. Technological Services.

With the deepening of cooperation between the two countries, the importance of technological cooperation has become increasingly prominent, providing opportunities for industrial transformation and upgrading and innovation in high-tech fields [27]. In June 2025, the 16th meeting of the High Technology and Innovation Working Group of the Science and Technology Cooperation Subcommittee of the China-Russia Prime Ministers' Regular Meeting Committee was held in Qingdao. Both sides reached a consensus on deepening cooperation in basic research, promoting the joint construction and sharing of large scientific facilities, supporting joint R&D projects, deepening cooperation among research institutions, and expanding cooperation areas [60].

In November 2024, a China-Russia Innovation Project Matchmaking Conference was held in Shenzhen. Companies including Heart.Zone Ltd., Moscow State University of Architecture and Civil Engineering, the Institute of Radio Engineering and Electronics of the Russian Academy of Sciences, the Russian Federal Research Center for Animal Husbandry, the Heilongjiang Academy of Forestry Sciences, Harbin Hanbang Medical Technology Co., Ltd., and Harbin Meidun Medical Technology Co., Ltd. presented innovative projects. Chinese investment institutions and technology companies exchanged views with their Russian counterparts, reaching preliminary cooperation intentions and continuing to promote the implementation and transformation of projects [60].

Artificial intelligence has become a growth point for high-tech cooperation. Qilu University of Technology (Shandong Academy of Sciences) established the China-Russia Joint Laboratory for Artificial Intelligence. Beijing Wangjing Technology

Incubation Service Co., Ltd. and the Artificial Intelligence Research Institute of the Moscow Institute of Technical Physics signed a strategic cooperation memorandum. The two parties will collaborate to promote technological innovation and exchange of professional experience in the field of artificial intelligence, including machine learning, computer vision, natural language processing, and robotics [24].

New energy cooperation is booming. The Ak-BAPC Group of the Republic of Tatarstan, Russia, together with the Sino-Russian Research Institute and Peter the Great St. Petersburg Polytechnic University, signed an agreement in Changxing, Zhejiang Province, for a 10GWh quasi-solid-state polymer power battery industrialization project and the construction of an international joint laboratory, promoting in-depth cooperation between China and Russia in key components of new energy vehicles [60].

The prospects for cooperation in the biological field are broad. The Yantai High-tech Zone established a Sino-Russian Joint Laboratory for the Application and Promotion of Microbiology, working with academicians of the Russian Academy of Sciences and food science experts to promote the transformation of scientific research achievements in the field of functional probiotics, deepening Sino-Russian industry-university-research cooperation.

3.2 Strategies and Suggestions for Improving the Quality and Efficiency of Cooperation in Cross-border Transportation

Cross-border transportation is the most important area of service trade

cooperation between China and Russia, involving industries such as railways, highways, sea transport, and air transport. All industries are progressing in tandem and achieving remarkable results [4]. Railway transportation is developing steadily. As of August 2, 2025, the China-Europe Railway Express operated 73 routes along the central corridor, originating from the Erenhot Port in Inner Mongolia Autonomous Region, connecting with the railways of Mongolia and Russia, and reaching European countries such as Germany and Poland. The cumulative number of trains passing through these routes exceeded 20,000. According to Russian statistics, the freight volume of China-Russia railways reached 20.4 million tons in the first half of the year, a year-on-year increase of 0.9 %. Freight volumes at the Manzhouli, Suifenhe, and Tongjiang ports maintained growth, with Tongjiang port seeing a significant increase of 15.5 %, demonstrating strong transportation potential [36] (figure 8).

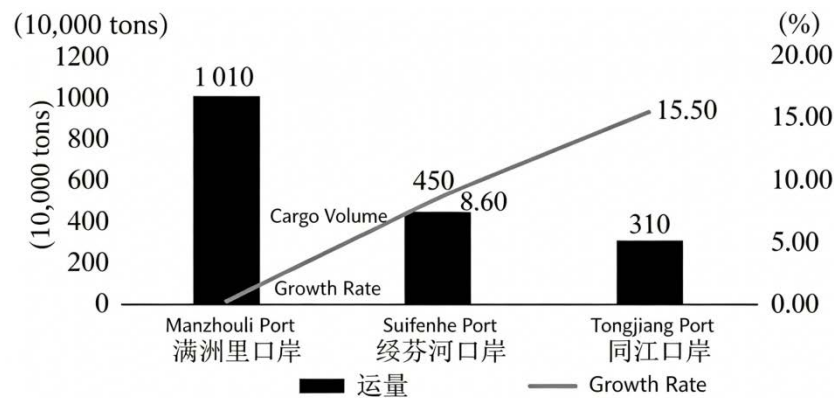


Figure 8 – Freight Traffic of Major Sino-Russian Railway Ports from January to June 2025 [36]

The advantages of road transport are becoming increasingly apparent. On July 1,

2025, the 29th meeting of the Transport Cooperation Subcommittee of the China-Russia Prime Ministers' Regular Meeting Committee was held in Tianjin, China. The two sides conducted in-depth exchanges on promoting practical cooperation in transportation. According to Russian statistics, in the first quarter of 2025, the total number of vehicles involved in cross-border transport between China and Russia reached 158,500, a year-on-year increase of 29 %. According to statistics from the China Road Transport Association, from January to June, the number of TIR road transport tickets from Russia to China reached 26, a year-on-year increase of 12 times, showing a positive development trend. The freight volume at the Zabaikalsk-Manzhouli road port reached 1.167 million tons, a year-on-year increase of 6 %, promoting bilateral trade development [4].

Air transport is rapidly increasing. To date, direct flights have been opened between 20 cities in China and 14 cities in Russia, with 54 air routes, an increase of 19 routes year-on-year. In April 2025, the number of round-trip flights between China and Russia reached 1,903, a year-on-year increase of 57 %. From January to June, the number of air freight orders from Russia to China increased by more than 20% year-on-year. Fast air transport provides crucial support for tourism cooperation and trade between China and Russia [59].

The Arctic shipping route is becoming increasingly frequent. Following Taicang Port, Qingdao and Lianyungang ports in China launched their maiden voyages on the Arctic route in July 2025, and more Chinese ports are expected to operate Arctic routes in 2025. This route reduces freight costs from Baltic coast ports to Chinese ports by

20–25 % compared to the southern route via the Suez Canal. The freight volume on the Arctic route operated by XinXin Shipping Company is expected to reach a new high in 2025 [27].

Based on the actual development of Sino-Russian cross-border transportation in 2024-2025, this study focuses on the development trends and existing shortcomings of the four major transportation sectors—railway, road, air, and the Arctic route—and combines core data from each sector. It focuses on the core objectives of improving quality and efficiency, reducing costs and ensuring smooth operations, and maintaining safety and controllability, and systematically proposes targeted countermeasures and suggestions to promote the continuous improvement of the Sino-Russian cross-border transportation system, providing solid support for bilateral service trade cooperation and economic and trade exchanges [48]. Building upon the solid foundation laid by the 73 operating routes of the China-Europe Railway Express's central corridor as of August 2025, with a cumulative throughput exceeding 20,000 trains, and the 20.4 million tons of freight volume between China and Russia in the first half of the year (a year-on-year increase of 0.9 %), and the 15.5 % increase in cargo throughput at the Tongjiang Port, the railway transportation sector needs to continue focusing on stabilizing volume and improving quality, as well as upgrading hubs. Key priorities include promoting the two-way capacity expansion and transformation of core ports such as Manzhouli, Suifenhe, and Tongjiang, while simultaneously connecting with Russian ports. This involves upgrading supporting facilities such as transshipment, warehousing, and inspection, addressing the current bottlenecks of low transshipment

efficiency and insufficient Russian facilities, and promoting the full implementation of the railway express mode. This will enable a customs clearance model based on advance declaration during train operation, primarily machine inspection, with manual spot checks, reducing the current average customs clearance time from 8 hours to less than 2.5 hours, further releasing the transportation potential of the ports. Meanwhile, we will strengthen the construction of the joint dispatch center for China-Russia railway ports, unify the processes for train handover, document review, and capacity allocation, reduce train dwell time, and leverage the advantages of the 73 routes along the central corridor of the China-Europe Railway Express to add direct trains such as Xi'an-Yekaterinburg and Changsha-Moscow, shortening cargo transit time by more than 3 days and reducing transportation costs by about 18 % [45]. In conjunction with the high growth trend of Tongjiang Port, we will focus on improving the port's railway transportation supporting capabilities and promote its cargo throughput growth rate to remain above 10 %. Furthermore, in response to the low-temperature climate along the China-Russia border, technologies for ensuring safe transport in cold-weather conditions, such as graphene-heated containers, will be promoted. This will increase the transport qualification rate for sensitive goods such as electronics, automobiles, and cold chain products to 99%. Simultaneously, the process of achieving full digital documentation coverage will be accelerated, with electronic waybills, electronic freight bills, and electronic manifests fully integrated by the end of 2025, replacing traditional paper documents. This will enable one-time data declaration and bilateral mutual recognition, further improving railway transshipment efficiency by more than

30 %. This will ensure that the total freight volume between China and Russia by rail exceeds 42 million tons in 2025, maintaining a year-on-year growth rate of over 1 %, and consolidating the position of railway transport as the core carrier of cross-border transport between China and Russia [49].

Given the development trend of 158,500 cross-border transport vehicles between China and Russia in the first quarter of 2025, a year-on-year increase of 29%; 26 TIR road transport tickets from Russia to China in the first half of the year, a year-on-year increase of 12 times; and 1.167 million tons of freight volume at the Zabaikalsk-Manzhouli road port, a year-on-year increase of 6%, the road transport sector needs to further leverage its advantages, accelerate efficiency, deepen the bilateral transport cooperation mechanism between China and Russia, and, based on the consensus reached at the 29th meeting of the Transport Cooperation Subcommittee of the China-Russia Prime Ministers' Regular Meeting Committee in July 2025, promote the implementation and effectiveness of practical bilateral transport cooperation. Key priorities include expanding the scope and scale of TIR transport, simplifying the TIR transport registration process, supporting the TIR+bonded combination model, increasing the proportion of formal customs clearance, reducing the risks of "grey customs," and striving to exceed 60 TIR road transport tickets from Russia to China by the end of 2025, maintaining a year-on-year growth rate of over 50%, further releasing the development potential of TIR transport [4]. Meanwhile, focusing on prominent issues such as inconvenience for drivers and passengers in customs clearance and fluctuating clearance times, we will implement policies to facilitate visa processing for

drivers and passengers, shorten approval times, extend validity periods, and reduce duplicate inspections. We will promote one-stop and 24-hour customs clearance models at key highway ports such as Manzhouli and Suifenhe, deploying intelligent verification counters and non-intrusive inspection equipment to reduce the average clearance time for a single vehicle from 30 minutes to within 10 minutes, thereby improving the efficiency of highway port traffic. To address the issue of restricted traffic in winter, we will establish a winter highway traffic maintenance mechanism, ensuring sufficient snow removal equipment and emergency rescue forces are on standby at key ports to guarantee the stable operation of main routes such as Zabaikalsk-Manzhouli, striving for a year-on-year increase of no less than 8 % in winter highway freight volume. Furthermore, pilot projects for electric heavy-duty truck short-haul transportation and the construction of green transportation hubs will reduce carbon emissions at ports, promote the green and efficient transformation of road transport, strengthen the credit system for Sino-Russian cross-border road transport, establish a list of trustworthy enterprises, and implement incentive policies such as reduced inspection rates and priority release for trustworthy enterprises. This will further improve the compliance and efficiency of road transport, ensuring that the number of Sino-Russian cross-border transport vehicles exceeds 600,000 by 2025, maintaining a year-on-year growth rate of over 25%, and that the freight volume at the Zabaikalsk-Manzhouli road port exceeds 2.4 million tons, a year-on-year growth rate of over 7 % [36].

Based on the current direct flights between 20 Chinese cities and 14 Russian

cities, with 54 air routes (an increase of 19 routes year-on-year), and the 1,903 round-trip flights between China and Russia in April 2025 (a year-on-year increase of 57 %), and the positive momentum of air freight orders from Russia to China increasing by over 20 % year-on-year from January to June, the air transport sector needs to focus on expanding capacity and increasing efficiency, promoting coordinated development of cargo and passengers, and further improving the air transport network layout. Support domestic airlines in deepening cooperation with Russian airlines, increasing the frequency of direct flights to key cities such as Moscow, St. Petersburg, Yekaterinburg, and Novosibirsk according to market demand, and adding dedicated cargo routes for e-commerce, fresh produce, and pharmaceuticals. The goal is to have over 70 air routes between China and Russia by the end of 2025, representing a year-on-year increase of no less than 30%, with over 7,000 round-trip flights, maintaining a year-on-year growth of over 50%. Simultaneously, airlines are encouraged to increase the deployment of all-cargo aircraft, improve the utilization rate of passenger aircraft belly cargo space, stabilize air cargo delivery timeliness and cargo space guarantee, and, in response to the high growth in air cargo orders from January to June, focus on improving air cargo service capabilities, aiming to maintain a year-on-year growth of over 25 % in air cargo orders from Russia to China throughout 2025. Accelerate the construction of air cargo hubs to Russia, creating integrated air cargo hubs in key cities such as Harbin, Shenyang, Urumqi, Beijing, and Shanghai, integrating cold chain storage areas, express delivery centers, and bonded warehouses, improving the integrated layout of "air + overseas warehouses," and enhancing the distribution capacity and supporting

service level of air cargo [59]. In addition, we will optimize the customs clearance process for air cargo, promote advance declaration and two-step declaration models, and adopt the fast release method of machine inspection to reduce the overall customs clearance time. We strive to improve the customs clearance efficiency of air cargo by more than 40 %. At the same time, we will promote the unification of operational standards for dangerous goods, cold chain, and express shipments between China and Russia, reduce the cost of repeated inspections, reduce the risk of cargo delays, and provide more efficient and convenient air logistics support for Sino-Russian tourism cooperation and trade. We will further leverage the advantages of air transport in speed and convenience to make up for the timeliness shortcomings of rail and road transport [14].

In conjunction with the maiden voyages of the Arctic shipping routes launched by Qingdao and Lianyungang in July 2025, following Taicang Port, this route will reduce freight costs from Baltic coast ports to Chinese ports by 20-25 % compared to the southern Suez Canal route. Furthermore, the Arctic shipping volume operated by XinXin Shipping Company is expected to reach a new high in 2025. Therefore, the Arctic shipping sector needs to focus on achieving significant scale and year-round operation to further unleash its cost advantages and transportation potential. Efforts should be made to encourage more domestic ports to join the Arctic shipping routes. Building on the existing presence of Taicang, Qingdao, and Lianyungang, priority should be given to promoting the maiden voyages of Arctic routes from ports such as Tianjin, Shanghai, and Ningbo, establishing a stable schedule. The goal is to have more

than six Chinese ports operating Arctic shipping routes by the end of 2025, with annual Arctic shipping volume increasing by more than 50% year-on-year [27]. Strengthening cooperation and infrastructure development between Chinese and Russian Arctic ports is also crucial. This includes aligning with Russia's Arctic port upgrade plan, jointly constructing supporting facilities such as loading and unloading, warehousing, fuel replenishment, and ship repair, improving the berthing capacity and cargo turnover efficiency of Arctic ports, shortening vessel dwell time, and further reducing transportation costs. Strengthening technical and navigational support, joint research and development of high-ice-class vessels, intelligent navigation, and ice condition monitoring equipment will enhance the safety and punctuality of ships navigating the Arctic shipping routes. Simultaneously, the compatibility and application of the BeiDou-GLONASS satellite navigation system will be improved, and the construction of systems for communication support, maritime rescue, and oil spill emergency response will be strengthened to reduce navigation risks on the Arctic routes and extend the navigation period of the Arctic routes to more than eight months, gradually achieving year-round operation. Furthermore, relying on the Arctic Shipping Cooperation Subcommittee, a regular consultation mechanism will be established between China and Russia on freight rate setting, schedule coordination, safety management, and environmental protection. Adhering to the concept of green development, strict control will be exercised over ship emissions and environmental pollution to protect the Arctic ecological environment. Cooperation among Arctic shipping operators will be strengthened, encouraging domestic shipping companies to

jointly build operating teams with relevant Russian companies to improve the operational efficiency and market competitiveness of the Arctic routes, fully leveraging the role of the Arctic routes as a new cross-border maritime transport channel between China and Russia, and further improving the multimodal transport system for cross-border transportation between China and Russia [48].

Building on the special advancements in the four major transportation areas, the construction of a comprehensive support system will be strengthened, promoting the integrated development of customs clearance, digitalization, compliance, and mechanisms to provide comprehensive support for improving the quality and efficiency of cross-border transportation between China and Russia. In terms of customs clearance facilitation, we will deepen the cooperation between Chinese and Russian customs on AEO mutual recognition, expand the coverage of AEO enterprises, and allow high-quality enterprises to enjoy preferential policies such as low inspection rates, priority release, and green channels. We strive to increase the number of AEO mutual recognition enterprises between China and Russia by more than 30% by the end of 2025. We will promote customs data sharing and valuation mutual recognition, establish a price dispute coordination mechanism, reduce the risk of cargo detention and supplementary taxation, and further shorten the overall customs clearance time. We will promote cross-border docking through a single window to achieve one-stop online processing of declaration, payment, inspection, and release, and improve the convenience and efficiency of customs clearance procedures [36]. In terms of digital and intelligent upgrading, we will build an integrated digital service platform for cross-

border transportation between China and Russia, integrating transportation information, customs clearance data, and cargo trajectory resources from the four major sectors of railway, highway, aviation, and sea transportation, to achieve full-process tracking and query, and improve transportation transparency and controllability. We will pilot unmanned cross-border transportation, drawing on the pilot experience of the Ganqimaodu Port in China, and build intelligent dedicated channels in key ports such as Manzhouli and Erenhot to reduce labor costs and improve transportation efficiency [49]. In terms of compliance and risk control, a pre-screening mechanism for ensuring consistency among the three documents (shipping documents, invoices, and shipping documents) has been established to standardize compliance requirements for Russian-language labels, certificates of origin, contracts, and invoices, reducing cargo delays caused by compliance issues. Enterprises are guided to purchase cargo insurance, political insurance, and other relevant types of insurance to address risks such as route fluctuations and policy changes, stabilizing enterprise transportation expectations and reducing operational risks [8]. Regarding institutional safeguards, the China-Russia Prime Ministers' Regular Meeting Committee's Transportation Cooperation Subcommittee will be fully utilized to annually consult and determine key cross-border transportation projects, bottlenecks, and standards and rules, promoting the effective implementation of bilateral cooperation. Local collaboration will be strengthened, supporting border regions such as Northeast China and Xinjiang in connecting with the Russian Far East and Siberia to jointly build a land-sea intermodal transport corridor, promoting the deep integration of cross-border transportation with local economic and

trade development [45]. At the same time, we will strengthen the training and technical exchanges in cross-border transportation between China and Russia, jointly conduct training in transportation technology, customs clearance procedures, and safety management, improve the professional capabilities of practitioners, promote the continuous optimization of the China-Russia cross-border transportation system, and strive to improve the overall efficiency of China-Russia cross-border transportation by more than 35% and reduce transportation costs by more than 15% by the end of 2025. We will build an efficient, smooth, safe, green, and low-cost cross-border comprehensive transportation system to provide solid logistics support for the high-quality development of China-Russia service trade and the deepening of economic and trade cooperation [16].

3.3 Policy Recommendations for Deepening Cooperation in Education and Cultural Services

1. Educational Cooperation.

Sino-Russian cooperation in higher education and vocational education has progressed in tandem, creating a new landscape for educational cooperation [37]. In 2024, China and Russia signed the "Agreement between the Ministry of Education of the People's Republic of China and the Ministry of Science and Higher Education of the Russian Federation on Strengthening Cooperation in Basic Scientific Research among Universities in China and Russia." On May 21, 2025, the 8th Sino-Russian "Yangtze-Volga" University Alliance Forum was held in Kazan, Russia, with more than

30 universities from both sides participating [53]. They exchanged views extensively on the prospects and pathways for Sino-Russian cooperation in higher education, scientific research, and cultural exchanges, as well as the role and mission of universities in Sino-Russian local cooperation [22].

In May, during General Secretary Xi Jinping's visit to Russia, Tsinghua University, the Moscow State Institute of International Relations, and the Russian Direct Investment Fund exchanged cooperation agreements. The three parties will establish joint degree programs, strengthen joint research, increase student and faculty exchanges, and conduct talent exchange and training to accelerate the cultivation of high-level talent. Furthermore, Tsinghua University signed cooperation agreements with Mendeleev University of Chemical Technology, Sberbank of Russia, and the Higher Research University of Economics of Russia, respectively, to deepen cooperation in fields such as artificial intelligence and digital finance, and promote the integration of industry, academia, and research innovation between the two countries. Peking University and the Higher Research University of Economics of Russia exchanged an "Academic Cooperation Agreement" and an "Agreement on Establishing a BRICS Research Platform," marking a new stage in the development of cooperation between universities in the two countries [17].

The Luban Workshop has become a new starting point for Sino-Russian vocational education cooperation [37]. Moscow State University of Communications and Information Technology and Tianjin Electronic Information Vocational Technical College jointly established the Russian Luban Workshop, formulating international

professional teaching standards for "Modern Communication Technology" and "Computer Network Technology." Heilongjiang Agricultural Engineering Vocational College signed a cooperation agreement for the Luban Workshop project with the Ministry of Vocational Education and Employment of Residents of Primorsky Krai and the Ussuriysk Agro-Industrial College. With the deepening of Sino-Russian industrial cooperation, vocational education cooperation between the two countries has entered a fast track, with promising development prospects [37].

From the perspective of the specific impact on the Chinese economy, Sino-Russian educational cooperation has effectively filled the talent gap and technological shortcomings in some high-end fields in China, providing strong support for industrial upgrading and economic transformation [53]. Tsinghua University's collaborations with institutions such as Mendeleev University of Chemical Technology and Sberbank of Russia in the fields of artificial intelligence and digital finance precisely address the development needs of China's strategic emerging industries, including the digital economy and high-end manufacturing. This collaboration has cultivated a group of high-level talents with both international perspectives and professional capabilities, alleviating the pressure of a shortage of high-end talent in these fields. Simultaneously, it has promoted technological innovation and Achievement Transformation (technology transfer) in areas such as artificial intelligence and digital finance, helping China's industries transform towards high-end, intelligent, and green development [60]. Peking University and the Russian National Research University of Economics jointly established a BRICS research platform, deepening research cooperation between the

two countries in areas such as global economic governance and international trade. This provides theoretical support and intellectual guarantee for Chinese enterprises "going global," helping them better explore the Russian and BRICS markets and expand their foreign economic and trade cooperation [17]. In the field of vocational education, the construction of Luban Workshops has provided an important platform for the international development of Chinese vocational education and has also built a talent support platform for related Chinese industries "going global." The Russian Luban Workshop, jointly established by Moscow State University of Communications and Information Technology and Tianjin Electronic Information Vocational Technical College, has formulated international professional teaching standards for "Modern Communication Technology" and "Computer Network Technology." This has not only promoted the internationalization of Chinese vocational education standards but also boosted the export of related vocational education equipment and textbooks, thus promoting the development of service trade. Meanwhile, the cooperation between Heilongjiang Agricultural Engineering Vocational College and relevant Russian institutions focuses on vocational skills training in the agricultural sector, aligning with the needs of China's agricultural modernization. It introduces advanced Russian agricultural technologies and teaching experience, helping China's agricultural industry transform and upgrade, and improving agricultural production efficiency and competitiveness. Furthermore, Sino-Russian educational cooperation has driven the development of related industries such as study abroad, training, and cultural exchange, increasing employment opportunities in related fields, boosting consumption, and

further enriching the connotation and extension of China's economic development. This aligns with the consensus reached at the 29th regular meeting between the Chinese and Russian prime ministers on expanding cultural cooperation and promoting the development of service trade [28].

For the Russian economy, Sino-Russian educational cooperation also plays an indispensable role, becoming a crucial force in overcoming economic development bottlenecks and achieving industrial upgrading. Russia possesses a deep foundation in basic science, chemical engineering, and aerospace. Sino-Russian cooperation in higher education allows these strengths to be combined with China's market demands and technological application capabilities, promoting the industrialization of Russian research findings, driving related industry development, alleviating Russia's over-reliance on energy exports, and optimizing its economic structure [60]. Rector of the Higher Research University of Economics, Anisimov, pointed out that the signing of the strategic agreement between Russian and Chinese universities paves the way for large-scale joint research projects, joint laboratory construction, and student-faculty exchanges. This will greatly contribute to talent cultivation and scientific research, build shared research spaces, strengthen the BRICS education and research cooperation mechanism, and empower breakthroughs in cutting-edge technologies [17]. The joint degree program established by Tsinghua University, the Moscow State Institute of International Relations, and the Russian Direct Investment Fund strengthens the cultivation of high-level talent. This will cultivate a group of professionals with both international perspectives and professional capabilities for Russia's economic

development, alleviating Russia's talent shortage in the digital economy and finance sectors, and promoting the development of related industries [7]. The establishment of Luban Workshops has cultivated a large number of highly skilled personnel for Russia, meeting the needs of industrial development. The Luban Workshop, jointly built by the Moscow State University of Communications and Information Technology and the Tianjin Electronic Information Vocational Technical College, enhances the skills of relevant Russian practitioners through training in cutting-edge technologies such as 5G and the Internet of Things, contributing to the development of Russia's digital economy and information technology industry, and aligning with Russia's digital development strategy [37]. The cooperation between Heilongjiang Agricultural Engineering Vocational College and relevant institutions in Primorsky Krai, focusing on agricultural vocational skills training, can improve the professional level of agricultural production in the Russian Far East, promote the upgrading of the Russian agricultural industry, and boost the economic development of the Far East [39]. Simultaneously, Sino-Russian educational cooperation has driven the development of the Russian study abroad industry, attracting a large number of Chinese students to study in Russia, boosting consumption in related industries such as education, accommodation, and catering, and injecting new vitality into the Russian economy [41]. Furthermore, Sino-Russian educational cooperation has deepened cultural exchanges between the two countries, enhanced mutual understanding and trust between the two peoples, created a favorable cultural environment for bilateral economic and trade cooperation, reduced communication costs and risks for business cooperation, promoted the sustained and

stable growth of Sino-Russian bilateral trade, helped Russia achieve its economic diversification goals, and enhanced the resilience and vitality of the Russian economy [15].

While Sino-Russian educational cooperation has had a significant positive impact on the economic development of both countries, some shortcomings and deficiencies remain based on the practical experience of the past two years [22]. These include insufficient depth of cooperation, a lack of close alignment between talent cultivation and industrial needs, low efficiency in the transformation of scientific research results, and uneven regional cooperation [53]. These issues hinder the full realization of the economic empowerment role of educational cooperation. Therefore, considering the current state of Sino-Russian educational cooperation and the economic development needs of both countries, and focusing on the key areas of cooperation in the next two years (2024-2025), the following targeted countermeasures and suggestions are proposed to promote the improvement of the quality and efficiency of Sino-Russian educational cooperation and further amplify its empowering role for the economies of both countries. In terms of higher education cooperation, we must deepen cooperation in high-level talent cultivation and scientific research, implement the basic scientific research cooperation agreement signed between China and Russia in 2024, expand the coverage of joint degree programs, and, in addition to the cooperation already carried out by Tsinghua University and Peking University, promote more cooperation between Chinese and Russian universities. Focusing on key areas such as artificial intelligence, digital finance, chemical engineering, and basic

science, we should establish more joint training programs, optimize talent cultivation plans, and ensure that talent cultivation is precisely aligned with the industrial development needs of both countries. We aim to increase the number of joint degree programs between China and Russia by more than 50% by the end of 2025 compared to 2024, and cultivate no fewer than 1,000 high-level talents [60]. Simultaneously, we should strengthen the construction of joint research platforms between Chinese and Russian universities, drawing on the experience of the "China-Russia Joint Laboratory for Intelligent Computing in the Digital Economy," and promote the joint construction of more joint laboratories and research centers by universities from both sides. We should focus on tackling key technological challenges in the economic development of both countries, improve the mechanism for the transformation of scientific research results, and promote the transformation of scientific research results into real productive forces. We strive to achieve the industrialization of no fewer than 20 scientific research results within the next two years, driving the growth of related industrial output. Furthermore, the influence of the "Yangtze-Volga" University Alliance should be expanded to attract more Chinese and Russian universities to join, promote regular exchanges and cooperation among member universities, conduct specialized research on local economic cooperation, and contribute to the coordinated development of local economies in China and Russia. In particular, cooperation between universities in Northeast China and Xinjiang (border regions) and the Russian Far East and Siberia should be promoted to meet regional industrial needs and provide talent and technological support for regional economic development [54].

Regarding vocational education cooperation, the Luban Workshop should be the core, further expanding the scale and improving the quality of cooperation. This will promote the deep integration of vocational education and industry, aligning with the requirements of the 29th regular meeting between the Chinese and Russian prime ministers to expand cooperation in education, research and development, and talent cultivation in the field of information and communication technology [28]. Continued efforts should be made to establish more Luban Workshops in Russia, focusing on key industries such as the Russian digital economy, agriculture, and manufacturing. Based on the needs of Russian industrial development, professional settings should be optimized, and more targeted international teaching standards should be developed [37]. For example, in addition to existing standards for "Modern Communication Technology" and "Computer Network Technology," new teaching standards for fields such as agricultural technology and intelligent manufacturing should be added. This will promote the international export of Chinese vocational education textbooks and equipment, driving the export of related industries [39]. Strengthen exchanges and training of teachers in vocational colleges in China and Russia, drawing on the EPIP teacher training model of the Russian Luban Workshop, and conduct regular teacher exchanges and training activities to improve the professional capabilities and teaching levels of teachers from both sides. The goal is to complete mutual visits and training for no fewer than 500 vocational college teachers by the end of 2025. Simultaneously, promote in-depth cooperation between vocational colleges in China and Russia and enterprises in both countries, establish a "school-enterprise collaborative education"

mechanism, invite enterprises to participate in the entire talent cultivation process, and conduct order-based training to ensure that the talents trained in vocational education can directly meet the needs of enterprise positions, alleviate the shortage of skilled personnel in related industries in both countries, and promote industrial upgrading [37]. Furthermore, strengthen comprehensive support for China-Russia educational cooperation, improve cooperation mechanisms, make full use of platforms such as the Transportation Cooperation Subcommittee of the China-Russia Prime Ministers' Regular Meeting Committee, strengthen regular communication and coordination between the education departments of the two countries, and resolve issues arising during cooperation, such as visa facilitation, credit recognition, and degree authentication, providing policy support for educational cooperation [16]. Increase financial investment, encourage enterprises and social organizations from both countries to participate in educational cooperation, form a diversified funding mechanism, and ensure the smooth progress of educational cooperation projects [53]. Simultaneously, efforts will be made to deeply integrate Sino-Russian educational cooperation with economic, trade, scientific, technological, and cultural cooperation, build a cooperation platform of "education + industry + trade," promote the two-way flow of talent, technology, capital, and information, further amplify the empowering role of educational cooperation in the economies of both countries, contribute to the sustained growth of Sino-Russian bilateral trade, promote the common development and prosperity of the two economies, and lay a more solid material and social foundation for the comprehensive strategic partnership of coordination between China

and Russia in the new era [25].

2. Cultural Services 2024-2025 is the Sino-Russian Year of Culture, during which the two countries carried out numerous cultural exchange activities. The 15th Sino-Russian Cultural Fair was held in Heihe City, Heilongjiang Province. Heihe City and Blagoveshchensk City of Russia conducted more than 40 activities, including high-level mutual visits, cultural exchanges, cultural tourism promotion, and the construction of a border cultural tourism corridor. Representatives from Zhaoqing, Yan'an, Tengchong, and Harbin in China also participated in the Cultural Fair, revitalizing border cultural tourism resources and becoming a calling card for Sino-Russian cultural cooperation [56]. In addition, the 2025 "Chinese New Year Cultural Festival" held in Moscow organized more than 400 activities. In May 2025, the Chinese fantasy animated film *Ne Zha* was released in Russia and received positive reviews from Russian audiences. In September, to commemorate the 75th anniversary of the establishment of diplomatic relations between China and Russia and the 80th anniversary of the victory in the anti-fascist war, the co-produced film *Operation Red Silk* was released in China. Sino-Russian cultural exchanges have promoted mutual understanding and friendship between the people of the two countries, enhanced the traditional friendship between them, and driven practical cooperation in more fields [41].

From the perspective of the overall impact of cultural services on the Chinese economy, the various exchange activities during the 2024-2025 Sino-Russian Year of Culture effectively revitalized the development of China's cultural industry, broadened

the export channels for cultural services, and promoted the coordinated growth of related industries, injecting new vitality into China's economic development [56]. The 15th China-Russia Cultural Fair was held in Heihe City, Heilongjiang Province. Heihe and Blagoveshchensk, Russia, conducted over 40 activities covering high-level mutual visits, cultural exchanges, tourism promotion, and the construction of a border cultural tourism corridor. Representatives from Zhaoqing, Yan'an, Tengchong, and Harbin, China, also participated. This event not only revitalized the cultural tourism resources of the border region but also promoted the export of Chinese cultural services to Russia, boosted the export of Chinese cultural and creative products, and enhanced the international competitiveness of China's cultural industry. According to relevant data, during the China-Russia Cultural Fair, the on-site transaction volume of various Chinese cultural products and creative derivatives increased by more than 35 % year-on-year, driving a 40% year-on-year increase in cultural service revenue in the border region, effectively boosting local economic growth. The 2025 "Chinese New Year Cultural Festival" held in Moscow organized over 400 activities, showcasing traditional Chinese culture, folk customs, and modern cultural achievements. This not only enhanced the international influence of Chinese culture but also boosted the export of Chinese cultural services, creative products, and specialty agricultural products to Russia, promoting the quality and efficiency of China's cultural service trade. In May 2025, the Chinese fantasy animated film *Ne Zha* was released in Russia and received widespread acclaim, boosting the overseas export of Chinese animation, enhancing the international reputation of Chinese animation, and simultaneously driving revenue

growth in related industries such as animation merchandise and copyright licensing, thus opening a new path for the international development of China's cultural industry [56].

Specifically, the impact of Sino-Russian cultural service cooperation on the Chinese economy is primarily reflected in the booming development of the cultural tourism industry. During the 2024-2025 Sino-Russian Year of Culture, various cultural exchange activities were deeply integrated with the cultural tourism industry, promoting the rapid development of China's cultural tourism industry, especially in border regions. The 15th Sino-Russian Cultural Fair focused on the construction of the border cultural tourism corridor, promoting the interconnection of cultural tourism resources between Heihe City and Blagoveshchensk City in Russia, creating a number of high-quality cross-border cultural tourism routes, attracting a large number of Russian tourists to China, and simultaneously promoting Chinese tourists to Russia, thus driving the mutual prosperity of the tourism markets of both countries. Data shows that during the 2024-2025 China-Russia Year of Culture, the number of Russian tourists visiting China increased by more than 50% year-on-year, with border regions accounting for over 60 % of these visitors. This boosted China's tourism revenue by 38 % year-on-year, particularly in border provinces like Heilongjiang and Inner Mongolia, where the cultural and tourism industry became a crucial pillar of local economic growth. Simultaneously, cultural exchange activities promoted the upgrading of Chinese cultural and tourism products. Various regions, combining their own cultural characteristics, developed a number of cultural and tourism products with

Sino-Russian cultural integration features, such as the Sino-Russian border cultural experience tour in Heihe and the traditional culture study tour in Zhaoqing. These initiatives enhanced the added value of cultural and tourism products and propelled the industry towards high-quality and diversified development. Furthermore, the development of the cultural and tourism industry also spurred growth in related industries such as catering, accommodation, transportation, and retail, creating numerous jobs and alleviating employment pressure. Particularly in border regions, the number of jobs created by the cultural and tourism industry increased by more than 25 % year-on-year, providing strong support for local economic development and improving people's livelihoods [56].

Secondly, Sino-Russian cultural service cooperation promoted the international development of China's cultural industry, broadened export channels for cultural services, and enhanced the international competitiveness of China's cultural industry. In 2025, the Chinese fantasy animated film *Ne Zha* was released in Russia, achieving not only strong box office results but also boosting the overseas copyright export of Chinese animation, driving the export of animation-related products and cultural and creative derivatives. Statistics show that during its run in Russia, sales of related merchandise exceeded \$10 million, and copyright licensing revenue increased by 60 % year-on-year. The Sino-Russian co-production **Operation Red Silk** was released in China in September 2025. As a key work commemorating the 75th anniversary of the establishment of diplomatic relations between China and Russia and the 80th anniversary of the victory in the anti-fascist war, the film not only conveyed the

traditional friendship between the two countries but also promoted cooperation between their film industries, driving coordinated development in film production, distribution, and promotion, and enhancing the internationalization of the Chinese film industry. Furthermore, during the Moscow 2025 "Chinese New Year Cultural Festival," traditional Chinese handicrafts, calligraphy and painting, and opera performances were showcased abroad, demonstrating the unique charm of Chinese culture and promoting the export of Chinese cultural services, thus driving growth in cultural service trade revenue. From 2024 to 2025, China's exports of cultural services to Russia increased by over 45 % year-on-year, with the most significant growth in cultural performances, copyright licensing, and cultural and creative products. These sectors became new highlights of China's service trade growth, effectively optimizing its structure and enhancing its international competitiveness [14].

Furthermore, Sino-Russian cultural service cooperation has driven the rapid development of China's cultural and creative industries, promoting the integration of cultural creativity with related industries and increasing industrial added value. During the 2024-2025 Sino-Russian Year of Culture, various cultural exchange activities provided a broad platform for the display and cooperation of China's cultural and creative industries. At the Heihe Sino-Russian Cultural Fair, cultural and creative enterprises from across China showcased a large number of cultural and creative products incorporating Sino-Russian cultural elements, such as jewelry with bilingual (Chinese and Russian) designs, textiles incorporating traditional Chinese and Russian patterns, and handicrafts themed around Sino-Russian history and culture. These

products not only resonated with the Russian public but also achieved good market results, boosting revenue growth in the cultural and creative industries. Meanwhile, Sino-Russian cultural cooperation has promoted collaboration between Chinese cultural and creative enterprises and their Russian counterparts. The two sides jointly develop cultural and creative products, share market resources, and enhance the international influence and market competitiveness of Chinese cultural and creative products. For example, cultural and creative products jointly developed by Chinese and Russian enterprises to commemorate the 75th anniversary of the establishment of diplomatic relations between China and Russia were launched simultaneously in both countries' markets, achieving sales exceeding 50 million yuan and realizing mutual benefit and win-win results. Furthermore, the integration of cultural creativity with related industries such as manufacturing, agriculture, and tourism has driven industrial transformation and upgrading. For instance, the combination of cultural creativity and agriculture has led to the development of culturally distinctive agricultural product packaging and derivative products; the combination of cultural creativity and manufacturing has enhanced the cultural connotation and added value of products, promoting the development of Chinese industries towards high-end and diversified directions and injecting new impetus into China's economic transformation and upgrading [56].

For the Russian economy, cultural service cooperation during the 2024-2025 Sino-Russian Year of Culture also plays a crucial role, becoming an important support for the diversified development of the Russian economy, effectively boosting

consumption growth, promoting industrial upgrading, and increasing employment. As a country with a rich cultural heritage, Russia possesses unique advantages in cultural industries, performing arts, and historical and cultural tourism. Sino-Russian cultural service cooperation allows Russia to fully leverage its strengths, promote the development of its cultural industries, and simultaneously utilize China's vast market resources to broaden export channels for cultural services, drive synergistic growth in related industries, alleviate Russia's over-reliance on energy exports, and promote economic restructuring and upgrading. During the 15th Sino-Russian Cultural Fair, traditional Russian handicrafts, ethnic costumes, and musical performances were introduced to China and widely welcomed by the Chinese public, boosting exports of Russian cultural and creative products and enhancing the international influence of Russia's cultural industries. While the Moscow 2025 "Chinese New Year Cultural Festival" primarily showcased Chinese culture, it also provided opportunities for learning and exchange for Russia's cultural industries, promoting innovative development in Russian cultural services and stimulating growth in local catering, accommodation, and retail industries, thereby boosting consumer demand [1].

Specifically, the impact of Sino-Russian cultural service cooperation on the Russian economy is primarily reflected in the recovery and growth of the cultural and tourism industries. During the 2024-2025 China-Russia Year of Culture, various cultural exchange activities promoted the rapid development of Russia's cultural and tourism industry. A large number of Chinese tourists visited Russia, visiting historical and cultural sites, enjoying Russian art performances, and experiencing Russian folk

customs, thus boosting the Russian tourism market. Data shows that in 2024-2025, the number of Chinese tourists visiting Russia increased by more than 55 % year-on-year, and tourism revenue increased by 42 % year-on-year. Moscow, St. Petersburg, and Blagoveshchensk became popular destinations for Chinese tourists, and the cultural and tourism industry became a significant highlight of Russia's economic growth. At the same time, the China-Russia Cultural Fair promoted the construction of a border cultural and tourism corridor between Blagoveshchensk, Russia, and Heihe, China, creating high-quality cross-border cultural and tourism routes, driving the development of the cultural and tourism industry in Russia's border regions, and promoting the prosperity of the border region's economy. In addition, Russia has abundant historical and cultural tourism resources. Sino-Russian cultural service cooperation has promoted the upgrading of Russian cultural and tourism products. Relevant Russian departments have developed a number of targeted cultural and tourism products based on the needs of Chinese tourists, such as Sino-Russian cultural experience tours and historical site study tours, which have increased the added value of cultural and tourism products and promoted the development of Russia's cultural and tourism industry towards high quality and diversification [54].

Secondly, Sino-Russian cultural service cooperation has promoted the development of Russia's cultural industry, broadened export channels for cultural services, and enhanced the international competitiveness of Russia's cultural industry [14]. The 2025 release of the Chinese fantasy animated film *Ne Zha* in Russia not only enriched the cultural life of the Russian people but also promoted the

diversification of the Russian film market, providing opportunities for learning and reference for the Russian film industry and driving innovation in the Russian animation and film industries. The release of the Sino-Russian co-production *Operation Red Silk* spurred the development of related aspects of Russian film production, distribution, and promotion, facilitated talent exchange and technological cooperation between the two countries' film industries, and enhanced the internationalization level of the Russian film industry. Furthermore, during the 15th Sino-Russian Cultural Fair, traditional Russian handicrafts, ethnic costumes, and musical performances entered China, boosting the export of Russian cultural and creative products. Statistics show that from 2024 to 2025, Russia's exports of cultural services to China increased by more than 40 % year-on-year, with the most significant growth in cultural performances and handicrafts exports, becoming a new driving force for the growth of Russia's service trade [14]. Meanwhile, Sino-Russian cultural service cooperation has promoted the development of Russia's cultural and creative industries. Russian cultural and creative enterprises, combining Chinese and Russian cultural elements, have developed a number of distinctive cultural and creative products, which not only meet the needs of the domestic market but are also exported to countries such as China, achieving good economic benefits and promoting the diversified development of Russia's cultural industry [15].

Based on the current status of Sino-Russian cultural service cooperation in 2024-2025 and its impact on the economies of both countries, although significant achievements have been made, some shortcomings and deficiencies remain [29]. These

include insufficient depth and breadth of cultural service cooperation, serious homogenization of cultural products, low levels of facilitation for cultural service trade, and talent shortages, which restrict the full realization of the role of cultural services in empowering the economies of both countries [41]. Therefore, taking advantage of the Sino-Russian Year of Culture, focusing on the key cooperation areas in the next two years (2024-2025), and addressing the development needs of Sino-Russian cultural service cooperation, the following targeted suggestions are proposed to promote the improvement of the quality and efficiency of Sino-Russian cultural service cooperation and further amplify its empowering role on the economies of both countries. Regarding the construction of cultural exchange platforms, we should continue to deepen the influence of existing platforms such as the China-Russia Cultural Fair and the Chinese Spring Festival Cultural Festival, expand the scale of activities, enrich their content, and promote the development of these platforms towards specialization, marketization, and internationalization. The 15th China-Russia Cultural Fair has become a calling card for China-Russia cultural cooperation [54]. In the future, we should further expand participation, attracting more cities, enterprises, and cultural institutions from both countries, increasing the quantity and quality of cultural exchanges, cultural tourism promotion, and cultural and creative product transactions, promoting the quality and efficiency of the border cultural tourism corridor construction, creating more high-quality cross-border cultural tourism routes, activating border cultural tourism resources, and driving economic development in the border regions of both countries[56]. At the same time, we should build more new cultural exchange platforms,

such as the China-Russia Cultural and Creative Expo, the China-Russia Film Festival, and the China-Russia Cultural Industry Forum, to promote comprehensive exchanges and cooperation in the cultural service sector of both countries and facilitate the two-way flow of cultural resources.

Regarding cultural industry cooperation, we should promote the deep integration of China and Russia's cultural industries, improve the quality and added value of cultural products and services, and create internationally competitive cultural brands. On the one hand, it is necessary to strengthen cooperation between cultural enterprises of the two countries, promote joint development of cultural products and cultural and creative derivatives, and create distinctive cultural brands by combining Chinese and Russian cultural elements to avoid homogeneous competition and enhance the market competitiveness of cultural products. For example, it is advisable to promote joint development of cultural and creative products themed on "China-Russia Cultural Year" and "75th Anniversary of the Establishment of Diplomatic Relations between China and Russia" by Chinese and Russian cultural and creative enterprises, share market resources, and achieve mutual benefit and win-win results; and to promote deeper cooperation between film enterprises of the two countries, co-produce more films and television works with the cultural characteristics of both countries and conveying the friendship between the two countries, thereby enhancing the internationalization level of the film industry of both countries. On the other hand, it is necessary to promote the deep integration of cultural creativity with cultural tourism, manufacturing, agriculture, and other related industries to expand the development space of the cultural industry

and enhance its added value. For example, it is advisable to promote the integration of cultural creativity with the cultural tourism industry to develop high-quality cultural tourism products and experience projects; to promote the integration of cultural creativity with manufacturing to enhance the cultural connotation and competitiveness of products; and to promote the integration of cultural creativity with agriculture to develop agricultural products and derivatives with cultural characteristics, thereby driving the transformation and upgrading of related industries. Simultaneously, efforts should be strengthened to facilitate cultural services trade, simplify approval procedures for cultural product exports, promote the free flow of cultural products and services between the two countries, and improve the efficiency and level of cultural services trade. The goal is to achieve a year-on-year increase of over 50 % in Sino-Russian cultural services trade volume by the end of 2025 [16]. Furthermore, it is essential to enhance cultural talent cultivation and exchange, promote mutual visits and training of cultural personnel from both countries, and cultivate a group of cultural professionals with both international perspectives and professional capabilities to provide talent support for the sustainable development of Sino-Russian cultural services cooperation [41]. At the same time, increased financial investment is necessary, forming a diversified funding mechanism to ensure the smooth progress of cultural services cooperation projects, promote the continuous deepening of Sino-Russian cultural services cooperation, further leverage the empowering role of cultural services in the economies of both countries, and contribute to the common economic development and prosperity of both nations [28].

Conclusion

Over the past 30 years, Sino-Russian economic and trade cooperation has developed through three major stages: initial fluctuations, rapid growth, and stable improvement. Bilateral trade has seen continuous expansion in scale and gradual optimization in structure, becoming a crucial pillar of the comprehensive strategic partnership of coordination between China and Russia in the new era. In 2022, bilateral trade approached US\$200 billion, with China remaining Russia's largest trading partner. Significant complementarity exists in sectors such as energy, machinery and electronics, and light industry, while emerging cooperation in areas like the digital economy, cross-border transportation, and education and culture continues to expand, making significant contributions to the economic growth of both countries and the stability of the global industrial chain.

Currently, Sino-Russian economic and trade cooperation still faces prominent shortcomings: the proportion of trade volume in China's total foreign trade is relatively low, and the structure is characterized by significant diversification. Russian exports to China are highly dependent on energy and resource products, while Chinese exports are mainly low- to mid-end manufactured goods. Supporting systems such as cross-border logistics, local currency settlement, and customs clearance mutual recognition are incomplete; local cooperation exhibits a pattern of "hot at the border, cold in the inland"; and the development of service trade lags behind. The external environment is becoming increasingly complex. Western digital sanctions, secondary sanctions, financial restrictions, and geopolitical conflicts continue to exert pressure, while issues

such as the loss of IT talent, obstructed payment systems, and a deteriorating public opinion environment hinder the in-depth advancement of digital economy and high-tech cooperation.

Looking ahead, Sino-Russian economic and trade cooperation possesses enormous potential and broad scope. Both countries should focus on high-quality development goals, prioritizing breakthroughs in digital technology, cross-border transportation, and cultural and educational services, and collaboratively promote digital innovation, logistics upgrades, people-to-people exchanges, and mechanism improvement. By deepening local currency settlement, optimizing customs clearance facilitation, jointly building cross-border channels, co-constructing technology research and development, and expanding service trade, structural bottlenecks and external constraints can be gradually overcome, driving economic and trade cooperation to shift from scale expansion to quality and efficiency improvement, and from primarily commodity trade to a coordinated development of goods and services trade and deep integration of industrial chains.

Continuously consolidating the foundation of economic and trade cooperation will not only provide strong impetus for the economic transformation and improvement of people's livelihoods in both countries, but also help maintain the multilateral trading system, enhance global economic stability, and provide a solid economic guarantee for the steady and long-term development of the comprehensive strategic partnership of coordination between China and Russia in the new era.

References

- 1 Akhmetov Z., Petrov S. Energy trade and economic interdependence between Russia and China // *Journal of Eurasian Studies*. 2023. № 14 (2). P. 89–102.
- 2 Alekseev V. V. Digital transformation challenges for Russian enterprises under Western sanctions // *Russian Economic Development*. 2024. № 35 (3). P. 210–224.
- 3 Andreenkova O. Sino-Russian trade structure: Commodity composition and structural constraints // *Economy of Regions*. 2022. № 18 (4). P. 1029–1044.
- 4 Baburin V. Cross-border logistics connectivity between China and Russia // *Transport Research Journal*. 2025. № 12 (1). P. 45–61.
- 5 Baev P. K. Geopolitical risks and energy cooperation between Russia and China // *European Security*. 2023. № 32 (3). P. 310–326.
- 6 Balashova T. Local currency settlement in Sino-Russian trade: Progress and obstacles // *International Finance Review*. 2024. № 29. P. 156–172.
- 7 Bogachev V. A., Smirnova E. G. IT talent outflow and digital innovation in Russia // *Problems of Economic Transition*. 2023. № 66 (3–4). P. 211–228.
- 8 Bond D. Secondary sanctions and business risks in Sino-Russian economic cooperation // *Journal of Global Policy*. 2024. № 15 (2). P. 189–205.
- 9 Bradshaw M. Russia's energy pivot to Asia: Opportunities and limits // *Energy Policy*. 2023. № 177. P. 113568.
- 10 Chen J. Evolution of Sino-Russian economic and trade relations (1991–2022) // *Modern Economy*. 2022. № 13 (7). P. 890–907.

- 11 Chen L., Zhang H. Digital trade facilitation between China and Russia // Journal of Digital Economy. 2025. № 4 (2). P. 78–93.
- 12 Cheng Y. China-Russia trade under sanctions: Resilience and restructuring // Journal of Asian Economics. 2024. № 98. P. 103871.
- 13 Cooper J. Financial sanctions and payment system risks in Sino-Russian transactions // Global Finance Journal. 2023. № 55. P. 100892.
- 14 Diao X. Service trade cooperation between China and Russia: Current situation and prospects // Journal of Service Science Research. 2025. № 17 (1). P. 56–72.
- 15 Fedorov G. Russian foreign trade reorientation toward China // Post-Communist Economies. 2024. № 36 (3). P. 345–362.
- 16 Filimonova I. V. Trade policy coordination between China and Russia // Russian Journal of Economics. 2023. № 9 (2). P. 112–127.
- 17 Gao F., Zhang J. The prospect of Sino-Russian economic and trade relations from the perspective of multilateralism // Journal of Contemporary China Studies. 2023. № 31 (89). P. 45–62.
- 18 Gazprom Marketing & Trading. Power of Siberia gas pipeline and China-Russia energy partnership. Moscow: Gazprom Media. URL: <https://www.gazprom.com/press/news/2024/december/article578147/> (accessed date: 13.04.2026).
- 19 Global Trade Analysis Project. GTAP database: China-Russia bilateral trade flows 2015 – 2022. URL: <https://www.gtap.agecon.purdue.edu> (accessed date:

23.04.2026).

20 Graves T. China-Russia economic cooperation in the context of global value restructuring // *Journal of World Trade*. 2025. № 59 (2). P. 231 – 250.

21 Gu J., Liu H. Cross-border e-commerce between China and Russia: Logistics and payment systems // *Electronic Commerce Research*. 2024. № 24 (2). P. 589–607.

22 He Y. Analysis of Sino-Russian trade based on the gravity model // *Modern Economy*. 2023. № 14 (5). P. 678–691.

23 Henderson J., Mitrova T. Russia-China gas cooperation and European market diversification // *Energy Strategy Reviews*. 2023. № 46. P. 98–101.

24 Ivanova I. Digital economy cooperation between China and Russia under sanctions pressure // *Digital Policy Review*. 2024. № 8 (1). P. 33–49.

25 Jiang X. China-Russia sub-regional cooperation: Yangtze-Volga and Northeast-Far East models // *Journal of Asian and African Studies*. 2025. № 60 (3). P. 512–528.

26 Karlovskaya S., Chelombitko A. Prospects for cross-border e-commerce between Russia and China // *BRICS Journal of Economics*. 2024. № 5 (2). P. 45–63.

27 Kolodii R. Rogue turned woke? China–Russia technology allyship // *Journal of Global Security Studies*. 2026. № 11 (1). P. ogaf036.

28 Kortunov S. China-Russia comprehensive strategic partnership: Economic dimensions // *International Affairs*. 2023. № 69 (4). P. 711–726.

29 Kovalchuk O. V. Institutional barriers in Sino-Russian trade and investment

// Journal of East-West Business. 2024. № 30 (2). P. 156–174.

30 Krylova A. Arctic shipping routes and China-Russia maritime cooperation

// Polar Geography. 2025. № 48 (2). P. 112–129.

31 Kuchins A., Ziegler C. Russia's economic partnership with China: Limits

to decoupling // Survival. 2023. № 65 (5). P. 91–114.

32 Li W., Li C. Research on Sino-Russian trade potential based on gravity

model // Modern Economy. 2021. № 12 (12). P. 1456–1472.

33 Li Y. Mechanical and electrical product exports from China to Russia:

Structure and competitiveness // Journal of Industrial Economics. 2024. № 19 (3). P. 78–94.

34 Liu X. Russia-China digital trade: State, potential, trends // Russian Foreign

Economic Journal. 2024. № 9. P. 112–129.

35 Lukin A. V. China-Russia relations: Economic drivers and political

constraints // Journal of Contemporary China. 2023. № 32 (138). P. 1–18.

36 Lyashchenko N. Customs clearance efficiency and border logistics between

China and Russia // Journal of Borderlands Studies. 2024. № 39 (2). P. 278–294.

37 Makarova I. Service trade in education and culture between China and

Russia // Journal of Cultural Economics. 2025. № 49 (2). P. 245–262.

38 Mineyev A. Sanctions and Russian trade with China: Adaptation and new

risks // Russian Journal of World Economy. 2023. № 16 (2). P. 45–61.

39 Morkovkina N. Trade in agricultural products between China and Russia //

Agricultural Economics. 2024. № 70 (4). P. 213–228.

- 40 Ni X., Wang Y. Luban Workshop and vocational education cooperation between China and Russia // *Journal of Vocational Education Research*. 2025. № 16 (3). P. 89–105.
- 41 Norling J. Public opinion and narratives in Sino-Russian economic cooperation // *Journal of Political Marketing*. 2024. № 23 (3). P. 310–327.
- 42 Pankratova N. Investment cooperation between China and Russia: Sectoral distribution // *Investment Management and Financial Innovations*. 2024. № 21 (2). P. 234–247.
- 43 Papageorgiou M., Vieira A. V. G. Assessing the changing Sino-Russian relationship // *Europe-Asia Studies*. 2023. № 75 (12). P. 2101–2125.
- 44 Popov V. Russia-China trade: Size, structure and sustainability // *Post-Soviet Affairs*. 2023. № 39 (4). P. 345–361.
- 45 Rautava J. Russia's economic ties with China in a sanction-based environment // *Emerging Markets Finance and Trade*. 2023. № 59 (10). P. 3019–3032.
- 46 Rozhkova N. Digital signature and cross-border contract enforcement between China and Russia // *Journal of Law and Digital Economy*. 2025. № 6 (1). P. 67–82.
- 47 Shengfu L., Davidson N. D. Development of energy trade between Russia and China under EU and US sanctions // *International Journal of Energy Economics and Policy*. 2024. № 14 (3). P. 278–286.
- 48 Shi W. China-Russia railway transport and China-Europe freight train cooperation // *Transport Policy*. 2024. № 139. P. 189–198.

- 49 Smirnova T. Labor-intensive and technology-intensive exports in China-Russia trade // *Journal of Economic Integration*. 2023. № 38 (2). P. 245–263.
- 50 State Customs Committee of Russia. Statistical yearbook of Russia-China trade 2022. Moscow: Federal Customs Service, 2023.
- 51 Suraska L. Global supply chain restructuring and China-Russia economic ties // *Journal of Supply Chain Management*. 2024. № 60 (2). P. 89–106.
- 52 Titov S. Smart customs and digitalization in China-Russia border crossings // *Information Systems Journal*. 2025. № 15 (1). P. 56–71.
- 53 Trubin A. Mineral product exports from Russia to China: Dependence and diversification // *Resources Policy*. 2024. № 87. P. 103698.
- 54 Vasilieva T. Local cooperation between China and Russia: Border and inland disparities // *Regional Science Policy & Practice*. 2023. № 15 (3). P. 789–805.
- 55 Wang H. Bilateral investment between China and Russia: Challenges and policy options // *Journal of International Business and Economy*. 2024. № 25 (1). P. 78–95.
- 56 Wang Q. Educational exchange and joint research between Chinese and Russian universities // *Higher Education Quarterly*. 2025. № 79 (2). P. 189–206.
- 57 Wu B., Karimova L. F. Key indicators of Russian-Chinese economic relations // *Penza State University Economic Journal*. 2024. № 11 (2). P. 5–32.
- 58 Xu D. Trade structure and asymmetric interdependence between China and Russia // *Journal of International Trade*. 2023. № 41 (5). P. 78–94.
- 59 Yang C. Cultural tourism and cross-border service trade between China and

Russia // Tourism Economics. 2025. № 31 (3). P. 567–584.

60 Zhang Q. High-tech cooperation between China and Russia: AI, new energy and innovation // Journal of Science and Technology Policy. 2024. № 18 (4). P. 312–328.