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GRADUATE SCHOOL OF MANAGEMENT  
MASTER IN MANAGEMENT PROGRAM

**One Belt One Road: The possibility of developing fourth-party  
logistics driven by Sino-Russian e-commerce**

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MIM Thesis

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28.05.2022

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THE MASTER THESIS

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## ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

Я, Тянь Юй, студент второго курса магистратуры направления «Менеджмент», заявляю, что в моей магистерской диссертации на тему «Один пояс – один путь: возможности управления логистикой на основе китайско-российской электронной торговли», представленной в службу обеспечения программ магистратуры для последующей передачи в государственную аттестационную комиссию для публичной защиты, не содержится элементов плагиата.

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Мне известно содержание п. 9.7.1 Правил обучения по основным образовательным программам высшего и среднего профессионального образования в СПбГУ о том, что «ВКР выполняется индивидуально каждым студентом под руководством назначенного ему научного руководителя», и п. 51 Устава федерального государственного бюджетного образовательного учреждения высшего образования «Санкт-Петербургский государственный университет» о том, что «студент подлежит отчислению из Санкт-Петербургского университета за представление курсовой или выпускной квалификационной работы, выполненной другим лицом (лицами)».

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28.05.2022 (Дата)

## ABSTRACT

Master Student's Name	Tian Yu
Master Thesis Title	One Belt One Road: The possibility of developing fourth-party logistics driven by Sino-Russian e-commerce
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Main field of study	Management
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Academic Advisor's Name	Panibratov Andrei
Description of the goal, tasks and main results	The aim of the given study is to study how BRI provides new impetus for the development of Sino-Russian e-commerce 4PL, and to reveal the important factors affecting the development of Sino-Russian 4PL under the DC framework. By collecting 152 questionnaires from 4PL practitioners, we believe that the policies of the two countries and the diplomatic, political, and economic actions in recent years show that the BRI provides a good development space for the logistics industry of China and Russia. Despite the great difficulties of COVID-19 and the current international situation, the development of Sino-Russian 4PL has great potential.
Keywords	Belt and Road initiative, the fourth-party logistics, dynamic capabilities, China, Russia

## АННОТАЦИЯ

Автор	Тянь Юй
Название магистерской диссертации	Один пояс – один путь: возможности управления логистикой на основе китайско-российской электронной торговли
Факультет	Высшая Школа Менеджмента
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Научный руководитель	Панибратов Андрей Юрьевич
Описание цели, задач и основных результатов	Целью данного исследования является изучение того, как инициатива «Один пояс, один путь» (BRI) дает новый импульс развитию китайско-российской логистики четвертой стороны (4PL) в сфере электронной коммерции, а также выявление важных факторов, влияющих на развитие китайско-российских 4PL в рамках динамических возможностей. Собрав 152 анкеты от практиков 4PL, мы считаем, что политика двух стран, а также дипломатические, политические и экономические действия последних лет показывают, что BRI обеспечивает хорошее пространство для развития логистической отрасли Китая и России. Несмотря на большие трудности COVID-19 и текущую международную ситуацию, развитие китайско-российского 4PL имеет большой потенциал.
Ключевые слова	инициатива «Один пояс, один путь», логистика четвертой стороны, динамические возможности, Китай, Россия

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## ***Introduction***

The implementation of the "One Belt, One Road" strategy has expanded and realized the interconnection between Asia, Europe and Africa, and also provided market opportunities for the construction of "One Belt One Road" cross-border e-commerce logistics infrastructure. In 2021, due to the impact of the COVID-19, the global industrial chain and supply chain faced the risk of rupture, and sea and air transportation are seriously hindered.

Under this circumstance, the China-Europe Railway Express has exceeded 10,000 trains for the second consecutive year, reaching 15,183, a year-on-year increase of 22% (Xinhuanet, 2022). The data shows that in the first quarter of 2022, the China Railway Group will strengthen the organization of international intermodal transportation, and cooperate closely with domestic customs departments, foreign trade and logistics enterprises (Xinhuanet, 2022). At the same time, in order to increase the speed of cross-border e-commerce logistics transportation between China and the countries along the "Belt and Road", China has been building logistics bases, overseas warehouses and cross-border e-commerce logistics industrial parks. For example, the Lianyungang logistics base jointly invested and constructed by China and Kazakhstan has been identified as the China-Kazakhstan logistics transit center (People's Daily, 2022).

In terms of Sino-Russian trade, in 2021, the bilateral trade volume between China and Russia will exceed 140 billion US dollars, an increase of more than 35%, and a new record high (Xinhuanet, 2022). According to the "2018 China Cross-border E-commerce Market Data Testing Report" released by the E-commerce Research Center, the scale of China's export cross-border e-commerce transactions in 2018 was 7.1 trillion yuan, a year-on-year increase of 12.7%. Among the business countries and regions, Russia accounts for 11.3% (E-commerce Research Center, 2019).

As China's largest neighbor by area, Russia has a vast territory and frequent economic and trade cooperation. In 2020, China's online retail sales reached 11.7 trillion yuan, a year-on-year increase of 10.9%. In the same year, the number of people who used online shopping in Russia exceeded 80 million yuan, accounting for about 70% of the total population (gov.cn. 2021). On the whole, the online shopping demand of Chinese and Russian people is constantly increasing. For a long time to come, Russia will be a potential market for China's rapid growth of online sales (Tan Litao, 2020).

While BRI brings opportunities to e-commerce logistics, it also brings challenges. With the continuous expansion of the international logistics market, the development of third-party logistics (3PL) has been limited, which is embodied in the following three aspects: 1) Single service item, limited service scope; 2) The level of information technology is backward and the degree of informatization is not high; 3) lack of professional logistics talents and low management level (Wei Yao, 2016). The emergence of 4PL logistics services can help enterprises to effectively solve these problems. Compared with 3PL, 4PL has the following four advantages: 1) Provide customers with the best logistics service solutions by optimizing the combination of suppliers; 2) Comprehensive supply chain solutions to expand the scope of logistics services; 3) Integration An information application platform for different logistics enterprise resources; 4) to meet the growing informatization needs of customers (Wei Yao, 2016).

Under the background that China and Russia are actively promoting BRI, the development of China-Russia 4PL has a good prospect. Therefore, it is necessary to make a reasonable assessment of the possibility of the development of the 4PL in China and Russia, deepen the related academic research, and provide a certain reference for the future development of the 4PL in the two countries. Finally, through the analysis of 4PL development factors, we use the theory of Dynamic capabilities to discuss how Sino-Russian e-commerce 4PL companies can form their own competitive advantages.

The aim of the given study is to study how BRI provides new impetus for the development of Sino-Russian 4PL, and to reveal the important factors affecting the development of Sino-Russian 4PL under the DC framework.

**Subject:** the development of Sino-Russian fourth party logistics

**Object:** effect of Belt and Road initiative and other factors



## ***1. BRI and modern logistics industry***

### ***1.1 The Belt and Road initiative***

The BRI was launched by Xi Jinping, the President of the People's Republic of China (PRC), in Astana<sup>1</sup>, the capital of Kazakhstan, in September 2013. It is a major initiative to increase China's economic links to Southeast Asia, Central Asia, Russia and Central and Eastern Europe. The BRI reflects the changing status of China, which has emerged as a global economic power and become a dominant player in the international financial system over the past two decades and is willing to exert its soft power (Harri Taliga, 2021).

In terms of research on the connotation of BRI strategy, Xiheng Jiang and Guoqiang Cheng believe that the Belt and Road Initiative contains the concept of peaceful development, mutual benefit and win-win cooperation, and opening up (Xiheng Jiang & Guoqiang Cheng 2014). Zhuangzhi Sun believes that the construction of the "Silk Road Economic Belt" covers three areas of cooperation in the fields of trade, finance, energy, market intermediary services, and technology, health, tourism, education, and culture (Zhuangzhi Sun, 2014). Jiansheng Wu believes that BRI is the most comprehensive strategy for the new round of opening to the outside world. It is a cross-field strategy centered on economic cooperation and a geospatial strategy that organically integrates the two silk roads with their own characteristics (Jiansheng Wu, 2015). Jianhu Zhuo shot the areas where BRI interconnection needs to be realized. He believes that interconnection not only covers transportation infrastructure, but also covers such aspects as capital, technology, talents, information, and institutional mechanisms (Jianhu Zhuo, 2015).

In terms of research on the strategic significance of BRI, Congyu Duan, from the perspective of historical inheritance and practical development, believes that the Belt and Road Initiative is of great significance in realizing the cultural exchanges between China and foreign countries throughout the ages and the current strategic demands of China's opening to the outside world (Congyu Duan, 2014). Yongji Mu believes that the One Belt One Road strategy is not only limited to the historical scope of Sino-foreign economic and cultural exchanges, but also has far-reaching significance in influencing the world (Yongji Mu, 1996). From the perspectives of politics, economy, culture, and diplomacy, Yan Shi believes that it will have a significant and far-reaching impact on the above-mentioned fields (Yan Shi, 2014). Minhui Tian pointed out that the Belt and Road Initiative has great strategic significance for China to form an international

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<sup>1</sup> Astana, previous name of capital city of Kazakhstan. The city acquired its present name Nur-Sultan on 23 March 2019. It was named after Nursultan Nazarbayev, President of Kazakhstan from 1990 to 2019.

strategy of returning to the mainstream of world civilization, form a new pattern of reform and opening up, export superior production capacity, support peripheral infrastructure construction, and significantly enhance foreign economic and trade relations (Minhui Tian, 2015).

In terms of research on the development of the Belt and Road Initiative, Liangyue Zhan and Dong Liu suggested that the regional integration of domestic and foreign markets should be used to promote the optimization and upgrading of the industrial structure, so as to encourage China to strengthen its economic ties with the world and enhance its international competitiveness (Liangyue Zhan & Dong Liu, 2015). Jianhui Huang and Hongxia Li put forward policy recommendations to promote the One Belt One Road strategy in terms of planning, finance and taxation, finance, trade and investment (ianhui Huang & Hongxia Li, 2015). Maochun He, Yibing Zhang, etc. believe that when China is advancing the One Belt One Road plan, it should be guided by a correct view of justice and benefit, actively strengthen external exchanges, optimize strategic layout, and integrate internal resources (Maochun He, Yibing Zhang, etc. 2015). Siling Yang believes that the governance of the relationship between China and countries along the route is an important factor in the successful implementation of the One Belt One Road strategy (Siling Yang, 2015).

## ***1.2 Status Quo of Sino-Russian Logistics Industry***

### ***1.2.1 Current Situation and Development of China's Logistics Industry Related Policies***

China's logistics industry started late, and its development foundation is slightly weak, but it has developed rapidly and has been able to achieve more remarkable achievements. In 2019, the total social logistics in China was 298 trillion yuan, a year-on-year increase of 5.9%; the total social logistics cost was 14.6 trillion yuan, a year-on-year increase of 7.3% (gov.cn. 2020). The logistics industry is in strong demand, and the scale of expenses continues to expand. The ratio of total social logistics expenses to China's GDP was 14.7%, down 0.1 percentage points from 2018 (gov.cn. 2020). The efficiency of the logistics industry has gradually improved, the development of logistics has become better and better, and the role of the logistics industry in guaranteeing and supporting the national economy has been further enhanced.

Since 2001, the logistics industry has been highly valued by the Chinese government, and relevant policies and regulations have been promulgated one after another, creating a favorable external environment for the development of the logistics industry. The phenomenon of "logistics fever" is gradually taking shape nationwide. Logistics companies and logistics parks are emerging one after another, and there are more and more jobs related to logistics.

Universities and vocational and technical colleges pay more attention to the training and education of professional talents. The logistics industry, which is the arterial system of the national economy, is increasingly bursting with new vigor and vitality in China (Ministry of Transport of PRC, 2020). Driven by the national logistics policy, local governments at all levels have successively issued logistics policies and plans based on local realities, gradually forming a top-down policy support system. In general, the domestic logistics policy has the following characteristics (Ministry of Transport of PRC, 2020):

(1) The adjustment and changes of the logistics policy closely follow the development of the domestic logistics industry and have distinct time stages. Before 2000 was the initial stage of the logistics industry, with few logistics policies and mainly related to port cities with developed coastal transportation industry; 2001-2008 was a period of rapid development; since 2009, in order to adjust the development period, the logistics industry has received widespread attention in China, and the number of logistics policies issued has increased, involving government units and the geographical scope has gradually expanded. In 2014, the "Long-term Plan for the Development of the Logistics Industry (2014-2020)" was issued, and the plan regards reducing logistics costs and improving the scale and intensification level of logistics enterprises as development priorities. In 2019, 24 departments including the National Development and Reform Commission and the Central Cyberspace Administration jointly issued the "Opinions on Promoting the High-quality Development of Logistics and Promoting the Formation of a Strong Domestic Market".

It aims to improve the efficiency level of the entire logistics industry and build a high-quality logistics infrastructure network system.

(2) National-level policies are mostly overall logistics planning, focusing on macro-guidance for logistics development. The objects supported by provincial and municipal policies are more clear and have their own inclinations. Policies cover a wide range of topics, involving major logistics node projects, land, taxation, capital, market supervision, fee clearance, general policies, efficiency optimization, information statistics, technological innovation and standard promotion, talent introduction and cultivation, logistics brand building and enterprise development support and many more.

(3) Keep pace with the times, reflect the new concept of logistics development, and promote the development of green logistics and smart logistics. The relevant policies of smart logistics mainly include four aspects: information opening and sharing, development of modern supply

chain, logistics equipment and logistics facilities construction. Green logistics focuses on energy saving and emission reduction in the packaging and distribution of goods and the development of green circulation processing.

(4) Pay attention to regional differences, develop logistics in the central and western regions, and attach importance to urban and rural logistics. To promote the implementation of public welfare and infrastructure construction in remote areas in the west, build a regional logistics information platform, and give full play to the geographical advantages of the Silk Road Economic Belt. It is advocated to improve the urban and rural distribution network, optimize the urban and rural distribution organization, strengthen the application of urban and rural distribution technical standards, and carry out pilot demonstration projects.

(5) Pay attention to international logistics, create an international business environment, encourage the development of the international logistics industry, accelerate the construction of international logistics hubs, create a major international logistics channel, promote the construction of a modern international logistics supply chain system, and help smooth the domestic and international dual circulation.

### ***1.2.2 Current Situation and Development of Russia's Logistics Industry Related Policies***

In 2018, Russia ranked 75th in the Global Logistics Performance Index (LPI) released by the World Bank, with a comprehensive score of 2.76, among which the efficiency score of customs and border management clearance was the lowest at 2.42, ranking 97th in individual items; trade and transportation infrastructure Ranked 61st in quality, with a score of 2.78; Cargo transportation services scored 2.64, ranked 96th; Logistics quality and competitiveness scored 2.75, ranked 71st; Ability to track consignments ranked 97th, with a score of 2.65; Scheduled delivery time Efficiency to the consignee has the highest score at 3.31, ranking 66th (the word bank. 2018). In the same year, the comprehensive score of China's logistics performance index was 3.61, ranking 26th in the world (the word bank. 2018). There is a big difference in the development level of the logistics industry between China and Russia. The development of the Russian logistics industry faces many problems such as unstable macroeconomic situation, imperfect infrastructure, lack of funds and professional talents, and low level of supply chain integration. In order to promote the healthy development of the logistics industry, it is urgent for the state to issue relevant policy plans.

When it comes to legal support for the development of the Russian logistics industry, it can be divided into four levels according to the legislative system. The first is international

regulations, such as the "Convention on Contracts for the International Carriage of Goods by Road", "United Nations Convention on the Carriage of Goods by Sea", "United Nations Convention on International Multimodal Transport of Goods", "United Nations Convention on the Liability of Port Operators for International Trade and Transport" and other international transport of goods. The relevant transportation provisions to be followed; the second is the Constitution of the Russian Federation, and domestic transportation and communication are within the jurisdiction of the Russian Federation; the third level is federal laws, such as Chapter 40 "Transportation" and fourth chapters of the Civil Code of the Russian Federation. Chapter 11 "Transportation Agency", "Russian Federation Freight Forwarding Law", etc. Finally, there are local regulations, which are promulgated by Russian federal subjects at all levels according to their own economic and social development conditions. According to the implementation object, it can be roughly divided into articles and regulations related to railway transportation, such as the "Russian Federation Railway Transport Law", "Russian Federation Railway Transport Regulations", "Russian Federation Railway Passenger, Parcel and Luggage Transport Rules", etc.; Articles and regulations related to road transport, such as the Regulations on Motor Transport and Municipal Electric Transport and the Law on Road Traffic Safety of the Russian Federation; Articles and regulations related to air transport, such as the Aviation Code of the Russian Federation and those approved by the Ministry of Transport of the Russian Federation "General Rules for Air Transport of Passengers, Baggage and Cargo and Service Requirements for Passengers, Shippers and Consignees"; decrees related to water transport, such as "Russian Federation Merchant Shipping Code".

In general, Russia's legal support for the logistics industry focuses on transportation and freight forwarding. According to the "Russian Federation to 2030 Transportation Development Strategy" (gov.ru. 2020) approved by Russian Prime Minister Vladimir Putin in 2008, the main directions for the development of the Russian transportation service market are: improving anti-monopoly regulations and gradually transitioning to a free price market; improving the licensing mechanism, advocating More flexible government regulation; Stimulate the consolidation of certain transport operations in the market; gradually replace quantitative quotas with quality quotas; adopt a competitive allocation mechanism for socially oriented transport services.

Different from the previous development strategy of "node-like" transportation complexes, the current Russian transportation policy focuses on integrating infrastructure resources and promoting coordinated regional development. On the issue of transport infrastructure development, expand public-private partnerships, develop transport network systems according

to regional conditions, focus on modernization and expansion in the European part of Russia, and build backbone transport networks in Siberia and the Far East.

In the context of globalization and regional integration, form and develop the common transport space of the CIS and Eurasian Economic Community countries; gradually adjust the legislative and regulatory framework of the transport industry in accordance with the rules and regulations of the World Trade Organization; ensure that Russia While effectively interacting with the EU regional transport system, it will give full play to its geographical advantages across Europe and Asia, and develop transit corridor projects complementary to international transport corridors. However, there are dissents about this transport development strategy in Russia.

Critics believe that the tasks set lack practical considerations, ignore bureaucracy and corruption in the industry, have not formed an intermodal cooperation mechanism, and have unclear performance appraisal methods. According to the federal plan of "International Trade Logistics" until 2024 under Russia's national special program "International Cooperation and Exports" (gov.ru, 2020), the total exports of transport services (road, rail, water and air transport) of the Russian Federation should increase to \$25.03 billion by the end of 2024 , the throughput of border ports increased to 2 times (gov.ru, 2020). The plan calls for improving the competitiveness of the Russian transport system in the international transport services market, increasing the share of transport in foreign exchange earnings, striving for world leadership in containerized cargo transport, and improving the "seamless" delivery in the Asia-Pacific-Europe direction Possibility of speed. The planning involves east-west and north-south transport routes in Russia, as well as the "Western Europe-Western China" international transport corridor and the "Meridian" highway project.

In order to attract the supply of goods around the international transportation route and ensure the smooth development of cross-border transportation, it is necessary to increase the construction of technical infrastructure. The main objects of border technical infrastructure include border checkpoints, customs, health and epidemic prevention inspection, veterinary health supervision, and plant quarantine. and traffic control. The federal program aims to increase the competitiveness of Russian goods on the international market by reducing logistics costs, speeding up border crossings and establishing a high-quality distribution system.

### ***1.2.3 International docking of Sino-Russian logistics policies***

The formulation and specific implementation of logistics laws and policies directly affect the efficiency of Sino-Russian logistics industry cooperation. The inconsistency of transportation

means standards and statistical calibers is also an important factor hindering the construction of Sino-Russian logistics market, while legal restrictions on inbound transportation will lead to regional integration (Shevchenko M.V. et al. 2018). The transport mechanism is difficult to form.

In recent years, China and Russia have achieved initial results in promoting the internationalization of logistics policies. On February 16, 2016, the Department of Transportation of Xinjiang Uygur Autonomous Region and the Far East Branch of the Automobile Transport Bureau of the Federal Budget Bureau of the Ministry of Transport of the Russian Federation exchanged for the first time in Urumqi the "License for the Temporary Transit of Cargo Transport by Sino-Russian Freight Vehicles through the Territory of the Republic of Kazakhstan". Due to the simplification of customs transit procedures between China and Russia in the transit country of Kazakhstan, after that, Sino-Russian freight vehicles will leave the customs at Jimunai port or Baktu port in Xinjiang. When passing through Kazakhstan, there is no need for unloading customs declaration and re-export trade, and only simple customs transit is carried out. The further smoothness of the Xinjiang-Kazakhstan-Novosibirsk international transportation road is of great significance to promoting the future trade development between China and Russia.

On June 8, 2018, representatives of the governments of China and Russia signed the Agreement on International Road Transport between the Government of the People's Republic of China and the Government of the Russian Federation in Beijing. According to the agreement, the scope of China-Russia international road transportation will be expanded to the entire territory of both sides, the restrictions on freight routes will be cancelled, and carriers can choose according to market needs. . In addition, for the purpose of realizing comprehensive management of cross-border transportation vehicles between the two countries, the agreement also clearly requires that the future Sino-Russian cross-border passenger and freight vehicles must be equipped with Beidou-GLONASS compatible vehicle-mounted terminals.

### ***1.3 The logistics industry under BRI***

Since the “Belt and Road Initiative” (BRI) was announced in 2013, it has triggered a lots of international logistics activities (Hing Kai Chana et al. 2019). China’s ambitious vision is gradually changing the landscape of world economy from many aspects, leads to several consequences to the business environment and logistics activities (Jing Ye & Hans-Dietrich

Haasis, 2018). The World Bank research group has labeled the BRI as one of the “major new international initiatives address logistics issues” (Arvis et al. 2016).

It is expected that the BRI will derive benefits not only to China but also to collaborating countries. It is not surprising that the BRI will reshape global supply chains (Thürer et al., 2019). By the same token, there are lots of challenges while implementing the BRI. Innovative business models for logistics and supply chain management would be required to support such a huge ambition. In this connection, logistics and supply chain innovation can help develop new business models to support BRI activities. Technological innovation in this context can also help reshape the current business models particularly the flows of goods and information. Consequently, logistics and supply chain innovation will enhance sustainable business and economic development.

According to a recent review conducted by Thürer et al. (2019), the BRI will affect global supply chain management in two aspects: Supply chain entities and Supply chain flow. Due to the scope and coverage of the BRI, it plays an irreplaceable role for connecting the physical logistics (i.e., supply chain entities) and supply chain activities (i.e., supply chain flow) along the BRI countries.

In terms of Russian logistics industry, two scholars, Kizim A.A. and Batykov I.V.(2004), put forward several factors that have the greatest influence on the basis of their research: economic factors, environmental factors, and policy factors. They point out the extent to which the modern international logistics industry is affected by social psychological factors. Kurganov V.M. and Belik S.A. (2009) analyzed the main problems and reasons facing the development of Russia's international logistics, and comprehensively discussed the main development direction and main components of Russia in the industry.

Belik S.A and Goncharuk O.V. (2004) studied the whole process of logistics from two different perspectives, micro and macro, and proposed several directions for the development of Russia's international logistics industry:

- From a micro perspective, Russia should strengthen the foundation of international trade logistics enterprises Construction of facilities. This includes:

- strengthening the construction of corporate logistics networks;
- only with a reliable logistics network can they provide services to commodity



transportation companies;

- the improvement of the environment means the introduction of advanced technology and management concepts;

- It is necessary to vigorously cultivate logistics talents with comprehensive business qualities.

- From a macro perspective, it is necessary to

- strengthen infrastructure construction, improve transportation networks, and provide basic guarantees for convenient and fast logistics services;

- strengthen industry legislation, regulate and guide the development of the logistics industry through legal forms, and at the same time encourage cooperation among large enterprises to cultivate Chinese trade logistics enterprises with world competitiveness;

- looking at the development trend of world logistics, it is an inevitable choice to integrate trade and logistics closely, and only in this way can it have a place in the international logistics industry competition.

A.A. Kizim, I.V. Batykov Platonov S.R. Rezgo G.Ya. and others (2004) elaborated on the main problems and reasons facing the development of logistics in Sino-Russian goods trade activities as a research phenomenon. The status quo of the trade channel and logistics network is analyzed, and the obstacles and reasons for the construction of the Sino-Russian trade channel and logistics network are pointed out.

Platonov S.R. (2009) pointed out the obstacles facing the construction of the Sino-Russian trade channel and logistics network, and proposed targeted solutions. Among them, the development of the "Western China-Kazakhstan-Russia" transit corridor and the optimization of the entire process organization of the transit logistics corridor. The literature involves issues such as transportation security for transit channels, bilateral management systems, legal security for logistics operations, and customs. In addition, an innovative industrial chain model that improves the efficiency of Russia's international logistics industry has been proposed. This model is conducive to adjusting the work rate, logistics management system, information circulation, implementation of storage management, improving service levels, and promoting the level of logistics circulation in Sino-Russian bilateral trade.

Kirichenko A.V. (2004) emphasized the importance of logistics in the trade activities of the two countries during the development of China and Russia. The scholar believe that the

construction of China-Russia logistics channels and logistics networks will, on the one hand, have important strategic and practical significance for China and Russia, and on the other hand, bring about further development of Sino-Russian economic and trade cooperation.

Under the One Belt One Road strategy, China's domestic regions along the routes have responded positively and have proposed development directions one after another.

Bin Zhang, Bo Huang, and Pin Fan (2015) believe that the combined transportation of land and sea that connects the Silk Road on the road and the Maritime Silk Road will be a development trend in the future. Heng Chen and Xiujian Wei (2015) believe that formulating differentiated labor scale expansion policies, optimizing labor regional structure, and improving labor efficiency are effective ways to promote the development of the logistics industry along the Belt and Road. Yucheng Ma and Chuangzhong Yin (2015) believe that by establishing logistics parks, improving operational capabilities, strengthening port alliances, and building smart ports can promote the development of port logistics. Lianwei Zhang (2015) proposes to accelerate the implementation of the national strategy of the Belt and Road and the operation of the free trade zone by promoting the strategic synergy between international logistics and international trade. Juanjuan Wang and Wei Qin (2015) advocate building a new normal e-commerce model composed of cross-border e-commerce platforms, specialized cloud logistics systems, internet finance and other components to promote e-commerce in the Belt and Road strategic zone to achieve a new normal.

## ***2. Theoretical background***

### ***2.1 The fourth-party logistics (4PL)***

The concept of fourth-party logistics was originally proposed by management consulting firm Accenture: A fourth-party logistics provider is a supply chain integrator, which has resources, capabilities and technologies within the company and complementary service providers. Integrate and manage to provide a complete supply chain solution (Bhatti R. S. et al. 2010). Fourth party logistics is a higher stage of outsourcing logistics, which is an integrator of logistics activities, providing customers with integrated logistics operation solutions. It attaches great importance to the integration and optimization of the resources of the entire logistics system, rather than focusing on the actual logistics operations such as transportation, warehousing, etc (Gattorna J. 1998).

The fourth party logistics is responsible for the formulation and optimization of the logistics plan, and assigns it to the third party logistics for implementation (Stefansson G., 2006). It is the only connection between customers and third-party logistics, manages and supervises the work of third-party logistics, and shares the risks and benefits of logistics management with customers (Visser E. J. et al. 2007).

The core difference between fourth-party logistics and third-party logistics is that 4PL is the manager and supervisor of logistics activities, while third-party logistics is the actual executor of logistics activities. Based on the careful retrieval and investigation of the existing domestic and foreign fourth-party logistics research literature, the existing research mainly includes: supplier evaluation, route optimization, operation integration, contract design and platform design (Jun Tu, Min Hua, Guihua Bo. 2013).

The table below compares 4PL with 3PL in various dimensions, clearly showing the advantages of 4PL.

item	3PL	4PL
Service area	Perform actual goods circulation activities	Coordination and management of logistics planning programs
Fixed asset investment	Need to invest a lot of fixed assets	Do not invest in large fixed assets, pay more attention to the sharing and communication of information
knowledge level	Low, work according to industry standards	High, need to organize product circulation and complete the design of the supply chain
Customer service level	Moderate, reduce external logistics	High, both internal and external logistics costs can be reduced

	costs	
Relationship with customers	Contractual relationship	Strategic partnership
Degree of information sharing	Limited information sharing	Information is widely shared between customers and suppliers for the formulation and optimization of logistics solutions

Table 1. Comparison of functions between third-party logistics and fourth-party logistics

The emergence of fourth-party logistics can solve the problems of third-party logistics in informatization and collaborative operation, but at present, fourth-party logistics is in the ascendant, and there are many problems that need to be solved urgently. When the concept of fourth party logistics entered the logistics industry, many scholars have studied it.

(1) Lack of fourth-party logistics awareness

Zhou Zhengxiang (2013), Yuan Kaihong (2005) and others believe that the fourth party logistics in China is still in its infancy, and a real fourth party logistics market has not yet formed, and the current logistics technology cannot provide the overall design and integration of the logistics supply chain. Ability. Wang Hui (2011) and Yang Lijun (2008) pointed out that under the circumstance that the development period of China's logistics industry is still short, logistics enterprises have insufficient understanding of improving logistics efficiency and optimizing the allocation of social logistics resources, and they have not yet realized the fourth party logistics. Most of the emerging logistics organizations still use outsourcing or self-operation to solve logistics services. Fourth-party logistics mainly integrates the logistics service needs of upstream and downstream enterprises in the supply chain. At present, third-party logistics companies operate independently and do not realize the necessity of fourth-party logistics.

(2) It is difficult to promote

Song Tao (2009), Xi Xiangying (2002) and others pointed out that supply chain management and related links are relatively complex, and the fourth party logistics, as the "brain" of the supply chain, not only provides effective information sharing for enterprises, but also provides services for enterprises and customers. Service feedback work, therefore, it is more difficult to promote the fourth party logistics.

(3) Relevant systems, policies and regulations have not been perfected

Zhou Xunyang (2005), Chen Weihua (2016), etc. pointed out in the literature that China's 4pl is still in the initial stage of development, and the relevant systems, policies and regulations

have not been perfected. Such as: market access and exit system, financing system closely related to enterprise development, etc. Enterprises want to improve logistics efficiency by optimizing internal logistics resources. However, the defects of relevant systems and policies and regulations will seriously affect the optimal allocation of enterprise logistics resources. The logistics efficiency of enterprises is also affected by local protectionism, especially when logistics enterprises operate across regions, causing enterprises to encounter huge resistance when cooperating with high-efficiency logistics services in other places.

(4) The industry standard is not clear

Lu Fengjiao (2015) and Pan Yamei (2016) analyzed the standardization of fourth-party logistics services and procedures. Service standardization refers to the provision of quality undifferentiated services; program standardization refers to the standardization of program design, business operations, and operation processes. If the industry standards are not clear, it will seriously affect the cooperation between 4PLs and other companies in the supply chain, and hinder 4PLs from playing the role of improving operational efficiency and reducing logistics costs.

(5) The traditional logistics organizational structure is unreasonable

Zhou Zhengxiang (2013) believes that the traditional Chinese logistics organization structure is unreasonable, which hinders the sharing of logistics information among enterprises, cannot optimize the allocation of resources, and causes the waste of logistics costs in related links, resulting in the high total social logistics costs, which is in line with the total national production. The ratio of value means that the logistics efficiency cannot be reduced, and the classification of logistics costs is not clear enough.

(6) The government management function is not in place

Pan Yamei (2016) and Yan Zaigeng (2006) pointed out that China's logistics industry is currently managed and controlled by transportation, land resources and other parts, and because there are many management parts, it is impossible to make a unified decision on a certain policy. Agreed as soon as possible, which resulted in wasted time and vegetarian meals. The inability to make decisions efficiently will result in the repeated construction of logistics enterprises, the inability to improve the construction of logistics transportation networks, and the large-scale waste of logistics resources. The overall planning of the company cannot implement "multimodal transport", which hinders the long-term development of the fourth party logistics.

In the study of 4PL obstacle factors, Yingping Mou (2018) started from the definition and obstacle factors of 4PL, screened the obstacle factors of 4PL development and divided the hierarchical structure, and then classified the obstacle factors to find out all the key factors for empirical analysis , evaluate the degree of its influence on the development of the fourth party logistics, and finally construct the solution path of the obstacle factors .

In the research, the author first summarizes the developmental barriers of the fourth party logistics, and obtains 13 factors, as shown in Table 2.

number	factors	Si
1	Lack of 4PL awareness	S1
2	difficult to promote	S2
3	Relevant systems, policies and regulations have not yet been perfected	S3
4	Industry standards are not clear	S3
5	The traditional logistics organization structure is unreasonable	S5
6	The government management function is not in place	S6
7	lack of professionals	S7
8	Poor infrastructure	S8
9	High barriers to entry	S9
10	Insufficient ability to integrate supply chain resources	S10
11	Insufficient ability to develop market and human resources	S11
12	Uncoordinated industrial development	S12
13	Lack of customer recognition and trust	S13

Table 2. Barrier factors to the development of 4PLs

Then use the Interpretative Structural Modeling Method (ISM) to rank the 4PL development barriers in order of importance, and obtain the barrier factor structure model of the development 4PL, as shown in figure 1. The next step is to use cross matrix multiplication (MICMAC) to calculate the driving value and dependent value of obstacle factors, find out all key obstacle factors and conduct empirical analysis, and use vector autoregressive model (VAR) to analyze the impact of key factors on the development of fourth party logistics. influence level. Finally, a solution path for key factors is constructed, and detailed countermeasures for the development of China's fourth-party logistics are proposed in a targeted manner.

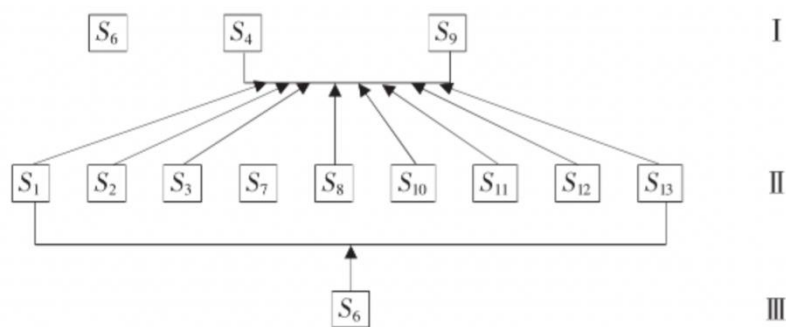


Figure 1. Barrier factor structure model for developing 4PL

Xiaohong Jiang , Huiying Wang, Xiucheng Guo, and Xiaolin Gong (2019) studied 15 factors that affect last-mile delivery in rural areas. Figure 1 shows the 15 influencing factors that the author summarizes from 6 dimensions based on literature analysis. The improved fuzzy analytic hierarchy process (FAHP), the interpretative structural model (ISM) (figure 3) and cross-impact matrix multiplication (MICMAC) (figure 4) are used during the research. The figure 5 shows the process of the research. This research provides valuable information for decision makers to develop proactive strategies and reinforcement policies to improve the service quality of rural last mile delivery, which could promote the sustainable development of rural logistics .

Dimension	Influencing Factors
Service convenience (D1)	Convenience of payment ( $S_{01}$ )
	Convenience of setting the pick-up time ( $S_{02}$ )
	Convenience of returning goods ( $S_{03}$ )
Service responsiveness (D2)	Timeliness of customer service response ( $S_{04}$ )
	Timeliness of goods return processing ( $S_{05}$ )
	Timeliness of goods delivery ( $S_{06}$ )
	Timeliness of goods arrival ( $S_{07}$ )
Service reliability (D3)	Integrity of goods ( $S_{08}$ )
	Accuracy of goods arrival ( $S_{09}$ )
	Accuracy of logistics information ( $S_{10}$ )
Service empathy (D4)	Employee service attitude ( $S_{11}$ )
	Employees actively remind customers to open the inspection ( $S_{12}$ )
	Advance reservation of goods pickup ( $S_{13}$ )
Service economy (D5)	Delivery costs ( $S_{14}$ )
	Rationality of the value-added services ( $S_{15}$ )

Figure 2. Sustainability influencing factors of the last mile delivery of rural 3-commerce logistics

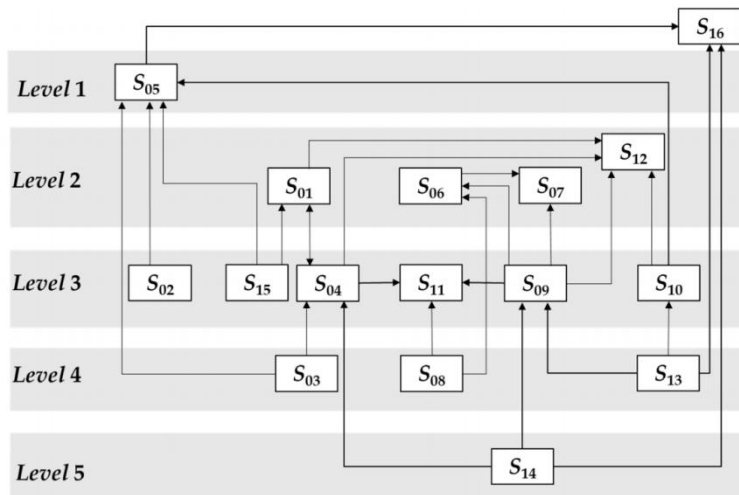


Figure 3. The ISM model

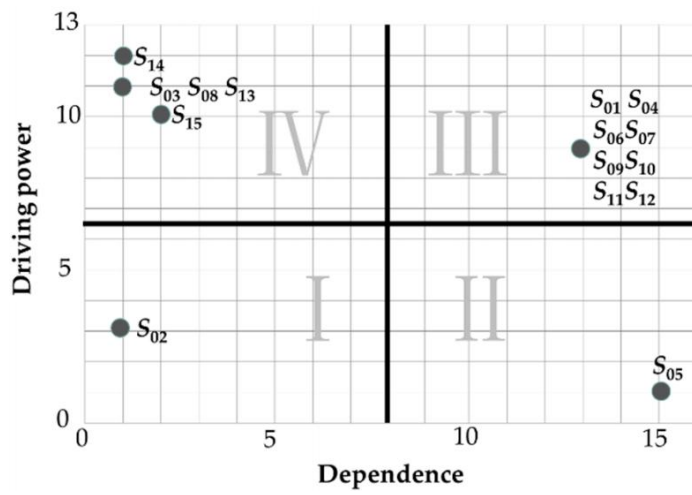


Figure 4. Driving power and dependence diagram



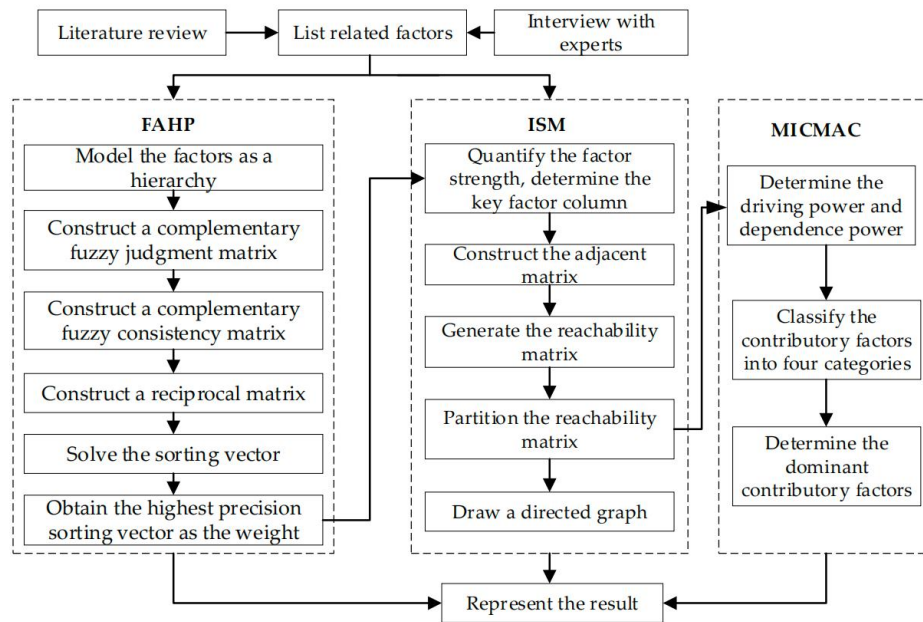


Figure 5. flow chart of the integrated methodology

## 2.2 Dynamic Capabilities

### 2.2.1 Concept of dynamic capabilities

In a competitive environment with increasingly complex social environment and changing consumer demand preferences (D'Aveni, 1994), business management has gradually become a dynamic adjustment discipline. Dynamic capability theory examines how firms collect, integrate, construct, and reset internal and external resources and capabilities to form new capabilities that urge firms to adapt to rapidly changing social and business environments (Teece, 1997). In this context, Teece, Pisano, and Shuen first proposed "dynamic capabilities" in 1997, and explored how enterprises can gain sustained comparative advantage through dynamic changes in a dynamic environment. Besides that its crucial theoretical pillars are grounded in the behavioral theory of the firm, transaction cost theory and the evolutionary theories of firms (Li et al., 2019). RBV (Peng, 2001) and knowledge-based views (Kogut and Zander, 1992) are considered appropriate theoretical underpinnings to study internationalization through the lens of the DC perspective.

According to these theories, enterprises formulate their own internationalization strategies based to their own resources. However, the use of resources may not be sufficient to make it necessary for companies to develop unique capabilities for better use of resources (Prange and Verdier, 2011). These capabilities help firms compete in international markets (Chang and Rosenzweig, 2001; Luo, 2002; Sapienza et al., 2006; Tallman and Fladmore-Lindquist, 2002).

The traditional capability theory focuses on the special resources and capabilities of enterprises, and believes that they are one of the important reasons for enterprises to continue to operate and obtain relative advantages. Today, with the rapid development of technology and the ever-changing politics, the traditional capability theory (Foss, 1997) has been unable to meet the modernization development needs of enterprises. Compared with the traditional capability theory, the dynamic theory adopts the method of dynamic analysis, and considers the enterprise itself and its competitors in the same industry, so the processing of enterprise resources is more complete. Capability; in an ever-evolving market, how does an enterprise rationally allocate or even re-build resources and capabilities from a strategic perspective according to changes; how to continuously learn and develop new resources and capabilities under the premise of re-identifying and re-allocating resources and capabilities (Huzi Chao, 2021).

### ***2.2.2 The composition of DC***

DC is studied at both the company and individual levels, and individual-level DC enables managers to navigate the changing business environment by managing human capital, social capital, and cognition, including decisions to select and identify emerging international opportunities (Mustafiz et al. 2019).

By acquiring innovative resources and capabilities, enterprises can continuously polish and reshape their core competitiveness, and make strategic adjustments to themselves based on the dynamic environment to achieve the ultimate goal of maintaining a comparative advantage. Therefore, discussing the construction of dynamic capabilities of enterprises needs to consider the integration of internal and external resources of enterprises, and how to reset or cultivate resources and capabilities.

When discussing enterprise resources, the internal resources of the enterprise should be identified. The internal resources of the enterprise are the foundation of the enterprise. From a static perspective, internal resources are the fundamental reason for the formation and development of an enterprise; from a dynamic perspective, internal resources are one of the foundations for an enterprise to achieve internal and external integration (Huzi Chao, 2021). Compared with the company's own resources, external resources seem to be more in line with the definition of "dynamic change". Many resources that are not controlled by the enterprise itself, such as industry resources, industrial resources, market resources, macro conditions, etc., can be included in the discussion (Huzi Chao, 2021). It can be seen from this, DC plays a leading role in the optimization of the strategic course of a company's future. The company should

implement the formation and modification of its resources and competences in compliance with the conditions of a changing competitive environment (Panibratov A. & Klishevich D. 2019).

Panibratov et al. proposed 5 variables of DC:

1. Alliance capabilities: it make the external sourcing in the network environment more promising. As soon as firms transform the alliancing experiences into alliancing capabilities, the performance outcomes improve (Vogel and Guttel, 2013). These capabilities rest on various learning mechanisms such as internalization, integration and institutionalization of the alliance know-how (Vogel and Güttel, 2013). Emerging market MNEs (EMNE) strategic partnerships and acquisitions of multinationals from developed markets lead to their competitive advantage both in the home and host markets.

2. Absorptive capacity: it is the ability to recognize the value of new external knowledge, assimilate it, and apply it to commercial ends (Cohen and Levinthal, 1990). Internal sources such as organizational learning are critically important for firms' DC (Park et al., 2019). Absorptive and learning capacity significantly assists internationalization in a way that helps companies overcome the negative effects of cultural distance, which hinders the internationalization activities of firms (Li et al., 2016).

3. Innovation capability: it often gives a company the initial basis for further gains that may include increased market share or higher revenues.

4. Adaptability: it significantly increases a company's chances of success in its internationalization (Onodi and Pecze, 2014). Adaptability in the sense of adaptive capability differs from adaptation and means predominantly searching and balancing exploration and exploitation strategies. This capability is realized through strategic flexibility that embraces the resources available to a firm and flexibility in using these resources (Wang and Ahmed, 2007). Adaptability in a sense of the ability to align internal resources with external challenges is necessary for companies' evolution and further development (Wang and Ahmed, 2007).

5. Political influence: The country's policy formulation will have a non-negligible impact on the company's internal policy formulation and development strategies. These policies are not limited to internal policies. Other international policies, such as foreign investment policy, are also under discussion.

### ***2.3 Research gaps***

Based on the literature review of the study, there are several research gaps have been identified. In BRI's research on Sino-Russian 4PL development, scholars concluded the following two research gaps:

Gap 1: The research on 4PL under the influence of BRI is limited.

4PL started relatively late in developing countries. Although BRI has brought great opportunities for cooperation between the two countries in various fields, due to the gap between China and Russia in their respective logistics systems compared with developed countries, researches are mostly focused on 4PL in their respective countries. The research on the cooperation and development of 4PL between the two countries is relatively limited (Ming Wang & Hua Lu. 2018).

In terms of cooperative research on DC, in the research of Tao Meng, Jialei Li. (2019), figure 6 shows the cooperative network of the countries (regions) that issued the article, and the top three are the United States, China and the United Kingdom. Although China has 166 articles published in international journals, second only to 176 articles in the United States, its betweenness centrality is only 0.08, ranking sixth, while 1,400 articles are published in local journals. It can be seen that the existing research on dynamic capabilities based on the Chinese context is very rich, but it has not fully participated in the international dialogue. In addition, in Figure 7, China has only 9 connections with other countries, far less than the United States, and the number of cooperative research with Russia is 0. From this, research gap 2 can be obtained.

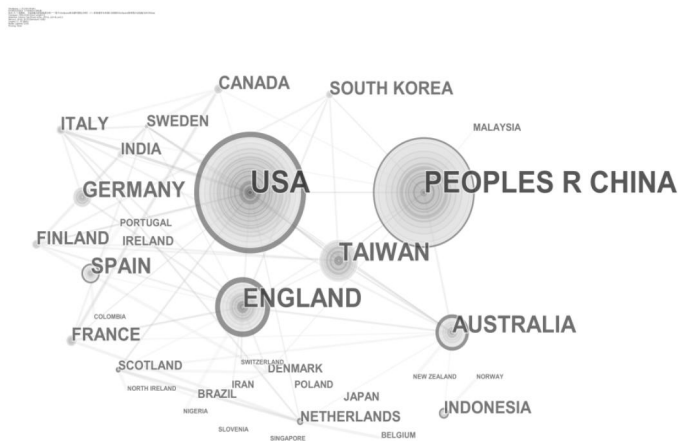


Figure 6. Cooperative network of countries (regions) where the document was issued

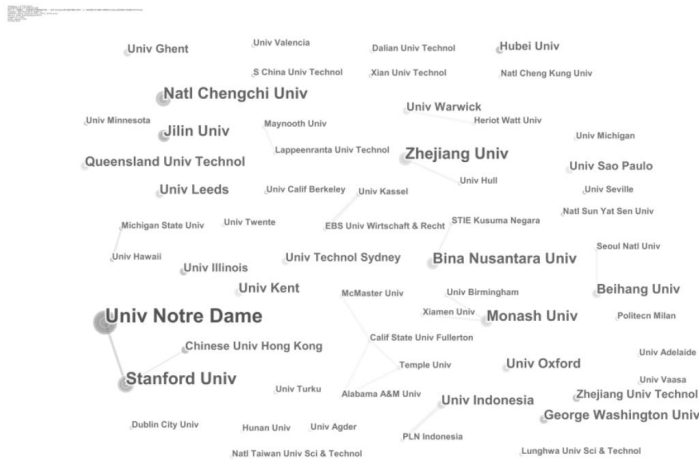


Figure 7. Global cooperation network of issuing agencies

Gap 2: Chinese and Russian scholars have insufficient research on DC, and insufficient research with international cooperation.

As DC are problematized mostly for situations of uncertainties that firms face, the DC perspective fits well with the study of companies' internationalization that exists in the reality of multiple transitions (Panibratov A. et al. 2019). Though there have been a few reports on the role of DC in the process of the international expansion of companies, the empirical papers devoted to the exploration of this phenomenon remain rare (Li et al., 2019). Only a few recent studies (Deng et al., 2018; Cuervo-Cazurra et al., 2019; Mostafiz et al., 2019) address the topic of how companies from transition economies use their DC during internationalization.

In addition, in the era of Web 2.0, new enterprise management environments such as employees' intra-enterprise entrepreneurship, platform-based organizations, and sharing economic organizations have emerged. Specifically, Haier's platform-based strategic transformation, Didi, Airbnb and other sharing economy organizational models have been developed in practice, and have received continuous attention in academia. Such enterprises can make full use of leverage to achieve strategic goals and improve their competitiveness through learning, deconstruction and sharing under the situation of insufficient resources and capabilities. However, the research on these phenomena lacks a theoretical basis with sufficient explanatory power. The core idea of DC theory is strategic decision capability, and it has important guiding significance for enterprises to adapt to the new environment by paying attention to the dynamic update of enterprise competitiveness. Therefore, DC theory should have sufficient explanatory power for these emerging organizational models and phenomena, but there is no directly related research (Tao Meng, Jialei Li. 2019). From this we can get the last research gap of this study.

Gap 3: DC theory has limited research on 4PL among developing countries.

The identified research gaps are to be filled up as the result of this study.

- Research questions

Although academic studies have analyzed the influencing factors of 4PL development from different levels and dimensions, we still need to determine which factors are applicable under the framework of cooperation between China and Russia, or under the framework of BRI. From this we determine that the first research question is:

Research question 1. What are the factors that affect the development of Sino-Russian 4PL.

After the influencing factors are identified, it is necessary to study the BRI and how other factors affect the development of Sino-Russian 4PL.

Research question 2. How does each influencing factor affect the development of Sino-Russian 4PL

Finally, we want to know, at the company level, how these factors can help Chinese and Russian 4PL companies to gain competitiveness under the DC framework.

Research question 3. How BRI and other factors help Chinese and Russian 4PL companies form DC.

### ***3. Methodology***

This chapter is aimed to describe the methodology that will be used during the research work. This chapter will provide explanation concerning the chosen research method, the data gathering process also will be described as well as the profile of a respondent that our research is targeting. The content of this chapter includes descriptions of the selected research methods, the process of data collection, the profile of the respondents to which the research was conducted, the analysis of the results and the discussion in four major sections.

#### ***3.1 Data and respondents***

The data for this study was collected through a survey conducted in 2021-2022 in two countries: China and Russia. To answer the research questions in this study, the respondents we need must have the following:

- work in Sino-Russian e-commerce logistics industry;
- affiliated logistics companies has joined the“Belt and Road”support plan.

If respondents do not meet these two conditions, the questionnaire will be terminated directly, and the data will not be retained in the final database.

One of the purposes of this questionnaire is to analyze the influencing factors of the 4PL industry of Chinese and Russian e-commerce, so we hope that as many respondents as possible come from companies of different sizes and hold different positions, that is, the data has a certain diversity. Additionally, our questionnaire is produced on the WIX.com<sup>2</sup> web page and sent via a link. If there are respondents who missed a question, the system will prompt the missed question and the number of people in the final survey results. Ultimately, The 152 questionnaires were filled out by the representatives of e-commerce logistics company of two countries. It can be seen from the report of WIX.cn that everyone answered all the questions, basically ensuring the validity of all the data.

At the same time, in order to achieve a sufficient number of samples, this study sought professional companies to participate in the distribution and collection of questionnaires.

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<sup>2</sup> WIX.com is a professional online questionnaire survey, examination, evaluation, and voting platform, focusing on providing users with a series of services such as powerful and user-friendly online questionnaire design, data collection, custom reports, and survey result analysis. Compared with traditional survey methods and other survey websites or survey systems, Questionnaire has the obvious advantages of being fast, easy to use and low-cost, and has been widely used by a large number of enterprises and individuals. The Chinese official site is: <https://www.wjx.cn/?source=baidu&plan=问卷星（正常）PC&keyword2=问卷星晶专标题>

### ***3.2 Method and measures***

In order to answer research questions stated in the first chapter, survey was chosen as the method of collecting the necessary data.

"Questionnaire on Fourth Party Logistics Development and Influencing Factors" is compiled based on the 13 factors that affect the development of 4PL sorted out above as evaluation indicators. By collecting the first-hand data of Chinese and Russian logistics practitioners, quantitative analysis is carried out to determine the importance of each dimension and each indicator. The purpose of the questionnaire is to study the degree of influence of the 13 latitudes on the development of the fourth logistics in China and Russia. The results of the questionnaire can be used as an effective reference for the study of "the possibility of the development of the fourth logistics between China and Russia under the influence of the Belt and Road policy".

The questionnaire is five pages long, contained 55 questions, divided into three parts (Appendix 1). It was originally designed in Chinese, because most of the practitioners of Sino-Russian 4PL are Chinese. Although there are some Russians, they basically have a certain Chinese reading ability. In addition, the web page of the questionnaire can automatically generate better visualization modes such as bar charts and charts, but only supports Chinese. Taking all into consideration, the questionnaire is published in Chinese. In order to better present the questions, structure and results of the questionnaire, both the questionnaire and the results were translated into English.

Except the first part of the questionnaire, all the questions presented in the survey are closed one. There are two main reasons for choosing this method. First of all, from the perspective of the respondent, there are not many 55 questions. If the answer is within a given range, it will reduce the time for the respondent to fill in the questionnaire to a certain extent, so as to ensure the accuracy of the results as much as possible. Secondly, considering the purpose of designing the questionnaire, because several assumptions were made, we naturally hope to verify it through the questionnaire, so we think that closed questions are a great tool when it comes to figuring out connections between variables and making further conclusions.

This questionnaire is mainly composed of three parts, the first part is the basic information of respondents, the second part is the 4PL companies' status of respondents, and the third part is the influencing factors of the development of the 4PL.



Basic information part: including the gender, education, age, occupation, monthly income and other basic information of the respondents. Since this questionnaire is mainly to study the Sino-Russian logistics industry, there are restrictions on the industries that the respondents are engaged in. In addition, this paper focuses on the impact of the Belt and Road policy on the development of the industry, so there are also requirements for whether the companies that fill in the questionnaires belong to the "Belt and Road" support plan. This part is more about the collection of the respondent's personal information. Through the understanding of the respondent's working time, education and other aspects, it is convenient for subsequent analysis of the results.

4PL development part: there are 7 indicators including enterprise scale, informatization level, management mode and concept, enterprise influence, enterprise high-end talents, logistics supply and GDP contribution rate, with a total of 7 questions. This part is a brief introduction to the logistics company where the respondent works. Companies of different sizes and types may respond differently to a unified policy.

The influencing factors of fourth-party logistics development part: This part is the main body of the questionnaire. Its design is based on the test model section of 4PL development factors in chapter 1.2. We summarize 13 possible influencing factors, as shown in the table 3.

number	Possible influencing factors of Sino-Russian 4PL	Si
1	logistics development stage	S1
2	logistics service scope	S2
3	logistics industry standards	S3
4	logistics organizational structure	S3
5	government management functions	S5
6	logistics professionals	S6
7	logistics infrastructure	S7
8	industry entry barriers	S8
9	supply chain resource integration capabilities	S9
10	resource development capability	S10
11	coordination of logistics and industrial development	S11
12	customer recognition and trust	S12
13	logistics system and policy	S13

Table 3. Possible influencing factors of Sino-Russian 4PL

There are 13 dimensions with 3 questions for each dimension, with a total of 39 questions. The 13 dimensions are logistics development stage, logistics service scope, logistics industry standards, logistics organizational structure, government management functions, logistics professionals, logistics infrastructure, industry entry barriers, supply chain resource integration capabilities, resource development capability, coordination of logistics and industrial development, customer recognition and trust, logistics system and policy. This part is the core of the questionnaire. The three questions under each dimension will measure the impact of this dimension on the development of Sino-Russian e-commerce 4PL from different perspectives, which will be reflected in the subsequent analysis of the results.

In order to measure to what extent the 13 factors described above have an impact on the development of Sino-Russian 4PL, questions are scored on a five-point Likert scale, that is: 5 points for complete compliance, 4 points for some compliance, 3 points for uncertainty, 2 points for less compliance, and 1 point for complete noncompliance. WIX.com automatically generates a questionnaire report, as shown in appendix 2.

### ***3.3 Empirical study***

After all necessary data has been collected, there comes the procedure of processing and analyzing. In this master's thesis several analyzing techniques was be used, the main tool for technique implementation is SPSS statistics.

For determining whether 13 factors and BRI have an effect on 4pl development, and to what extent, the multiple linear regression and the one-way ANOVA analysis were conducted.

### ***3.4 Findings and discussion***

#### ***3.4.1 Sample characteristics***

Due to industry restrictions on the questionnaires, the 152 existing valid questionnaires were filled by practitioners in the fourth logistics industry in China and Russia, and their affiliated companies all joined the "Belt and Road" support plan.

In terms of gender, 52.97% were male and 48.03% were female.

In terms of age, people aged 31-40 account for the majority, accounting for 42.76%. Followed by 41-52, 21-30, 51 and above, respectively 34.21%, 19.08%, 3.95%.

In terms of education level, 50% of them completed undergraduate education, 34.87%

completed junior college education, 10.53% completed postgraduate education, and 4.61% completed doctoral education or even higher.

In terms of positions held by the company, the vast majority of people are ordinary employees. Middle management and senior management accounted for 26.97% and 14.47% respectively.

In terms of income, most people's income is 3001-3006 RMB, followed by 9001RMB and above, 6001-900, 3000RMB and below, respectively 20.39%, 16.45%, and 6.58%. In general, most of the respondents of the questionnaire are the backbone of the Sino-Russian Fourth Logistics Company, have more understanding of the industry, and their answers have a relatively high reference.

From the results of the first part of the questionnaire, the vast majority of respondents are ordinary employees of the company, most of them have a bachelor's degree or collage, their age groups are concentrated in 31-50 years old, and most of them have a salary level of 3001-6000 RMB. The general situation of the respondents we summarize is as follows:

educational level	age	Position in the company	monthly income (RMB) <sup>3</sup>
bachelor	50%	31-40	42.76%
collage	34.87%	41-50	34.21%
master	10.53%	21-30	19.08%
Doctor and above	4.61%	51 and above	3.95%
		general staff	58.55%
		Middle manager	26.97%
		Senior manager	14.47%
			3001-6000
			9001 and above
			6001-9000
			3000 and below
			56.58%
			20.39%
			16.45%
			6.58%
			Sample size: 152

Table 4. Characteristics of respondents

Overall, most of the respondents have certain industry experience, and middle and senior managers account for more than 40%. They have a comprehensive understanding of the industry. From the respondents' situation, the collected data is very in line with our expectations and is suitable for further analysis.

The second part of the questionnaire gives an overall understanding of the Sino-Russia 4PL companies in which respondents work. The number of votes for each question, the proportion of options and the average score are shown in the table 5.

<sup>3</sup> Salary division according to "2019-2020 Logistics Industry Salary Report". Available at: <https://wenku.baidu.com/view/39a2424f5222aeea998fcc22bcd126ff7055df4.html>

question	Absolutely disagree	Rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your logistics company has developed a large scale	10(6.58%)	12(7.89%)	31(20.39%)	64(42.11%)	35(23.03%)	3.67
Your logistics company has a relatively high level of informatization development	10(6.58%)	15(9.87%)	30(19.74%)	49(32.24%)	48(31.58%)	3.72
The management mode and concept of your logistics company are relatively advanced	12(7.89%)	13(8.55%)	39(25.66%)	43(28.29%)	45(29.61%)	3.63
Your logistics company has great influence in the logistics industry	9(5.92%)	10(6.58%)	37(24.34%)	53(34.87%)	43(28.29%)	3.73
Your logistics company has many logistics talents	6(3.95%)	21(13.82%)	31(20.39%)	42(27.63%)	52(34.21%)	3.74
The logistics supply of your logistics company is relatively large	6(3.95%)	16(10.53%)	37(24.34%)	54(35.53%)	39(25.66%)	3.68
Your logistics company has a high contribution rate to the GDP of the local logistics industry	7(4.61%)	12(7.89%)	38(25%)	54(35.53%)	41(26.97%)	3.72
Subtotal	60(5.64%)	99(9.3%)	243(22.84%)	359(33.74%)	303(28.48%)	3.7

Table 5. 4PL companies' development level

It can be found from the table that most of the respondents work for are medium or large logistics companies. These companies are characterized by having a relatively high level of informatization development, having a great influence in the logistics industry, having sufficient talent reserves. Nonetheless, a considerable number of respondents come from small and medium-sized companies. It should be noted that due to the large number of employees in large companies, the possibility of several groups of samples from the same company cannot be ruled out. Therefore, samples from small and medium-sized companies also need to be considered. The companies that respondents work for are summarized in the table 6:

Micro business	Small business	Medium business	Large business
5.64%	9.3%	33.74%	28.48%
Sample size: 152			

Table 6. Company classification

We believe that most respondents are from medium and large companies, which are largely representative of the state of the industry. samples from small and micro companies also need to

be considered. Ultimately we concluded that our data met our research needs, both at the respondents and company level. Therefore, further data analysis can be carried out.

### 3.4.2 Linear analysis

The first step of this stage is conducting the reliability test. It would provide us with Cronbach's Alpha for each component of the given study before conducting the multiple linear regression for identifying the relationship between the variables of our research. The Cronbach's Alpha would demonstrate how closely related each set of questionnaire are as a group.

The reliability test of 13 factors component of the questionnaire resulted Cronbach's alpha 0,917 and greater than 0.8, that is, the data obtained from the survey have good reliability and are suitable for further analysis.

Reliability Statistics		
Cronbach Alpha	Cronbach based on normalization terms Alpha	item
.917	.911	51

Table 7. Reliability Statistics

The KMO test and Bartlett sphericity test were performed on the data obtained from the survey. In the table 8, we could see that the KMO statistic value is 0.789; the Bartlett significance result is 0.000, which is less than 0.05, indicating that the reliability of the research data is high.

KMO and Bartlett's test		
KMO Measure of Sampling adequacy		.789
Bartlett's Test of Sphericity	Approx. Chi-Square	6110.592
	df	990
	Sig.	.000

Table 8. KMO and Bartlett's test

The KMO test and Bartlett sphericity test on each indicator is shown in the table 9. The KMO statistic value of logistics development stage is 0.719, the KMO statistic value of logistics service scope is 0.746, the KMO statistic value of logistics industry standards is 0.727, the KMO

statistic value of logistics organizational structure is 0.734, the KMO statistic value of government management functions is 0.759, the KMO statistic value of logistics professionals is 0.725, the KMO statistic value of logistics infrastructure is 0.730, the KMO statistic value of industry entry barriers is 0.744, the KMO statistic value of supply chain resource integration capabilities is 0.729, the KMO statistic value of resource development capability is 0.729, the KMO statistic value of coordination of logistics and industrial development is 0.722, the KMO statistic value of customer recognition and trust is 0.749, the KMO statistic value of logistics system and policy is 0.709.

Additionally, the Bartlett significance result of all the indicators are 0.000, which is less than 0.05, indicating that the reliability of the research data is high and the next step can be carried out.

	Indicator	KMO value	Sig. Bartlett
1	logistics development stage	.719	.000
2	logistics service scope	.746	.000
3	logistics industry standards	.727	.000
4	logistics organizational structure	.734	.000
5	government management functions	.759	.000
6	logistics professionals	.725	.000
7	logistics infrastructure	.730	.000
8	industry entry barriers	.744	.000
9	supply chain resource integration capabilities	.729	.000
10	resource development capability	.729	.000
11	coordination of logistics and industrial development	.722	.000
12	customer recognition and trust	.749	.000
13	logistics system and policy	.709	.000

Table 9. KMO and Bartlett's test on each indicator

The main purpose of this questionnaire is to study 13 factors on the development of Sino-Russian fourth logistics, so linear analysis will be chosen.

From the histogram table below, we can see that the distribution is normal.

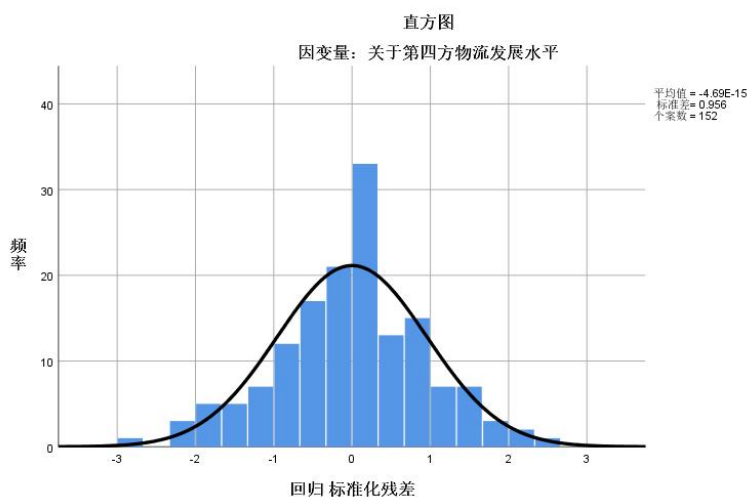


Figure 8. Histogram

From the model summary table (table 10) and ANOVA table (table 11), the model is significant  $p=0.000$ ,  $F=13.651$ , adjusted  $R^2=0.563$ .

Model summary<sup>b</sup>

model	R	R square	Adjusted R square	Std. Error of the Estimate	R-squared Variation	change statistics			Sig. F Variatio n
						F Variation	df 1	df 2	
1	.750 <sup>a</sup>	.563	.521	.64643	.563	13.651	13	138	.000

a. Predictive variables: (constant), logistics systems and policies, industry entry barriers, resource development capabilities, logistics and industrial development coordination, logistics organizational structure, logistics industry standards, logistics development stages, logistics service scope, customer recognition and trust, logistics professionals, local government management functions, supply chain resource integration capabilities, logistics infrastructure

b. Dependent variable: about the development level of the fourth party logistics

Table 10. Model Summary<sup>b</sup>

ANOVA<sup>a</sup>

model		Sum of squares	df	Mean square	F	P
1	regression	74.158	13	5.704	13.651	.000 <sup>b</sup>
	residual	57.666	138	.418		
	total	131.824	151			

a. Dependent variable: about the development level of the fourth party logistics

b. Predictive variables: (constant), logistics systems and policies, industry entry barriers, resource development capabilities, logistics and industrial development coordination, logistics organizational structure, logistics industry standards, logistics development stages, logistics service scope, customer recognition and trust, logistics professionals, local government management functions, supply chain resource integration capabilities, logistics infrastructure

Table 11. ANOVA<sup>a</sup>

The table 12 shows the relationship between the development of 4PL and 13 factors. We could see that the sig. of five out of 13 variables - Logistics Service Scope, Logistics Professionals, Supply Chain Resource Integration Capabilities, Resource Development Capabilities, Customer Recognition and Trust, are all above 0.05, (0.267, 0.067, 0.508, 0.710, 0.204 respectively), indicating the relationships are not very significant. The predictor variables Logistics and Industrial Development Coordination and Logistics Systems and Policies have a significant contribution to the prediction outcome.

Model		Unstandardized		Standardized	t	Sig.	95.0% confidence interval for B	
		B	Std. Error	Beta			Lower limit	Upper limit
1	(Constant)	-.515	.348		-1.481	.141	-1.204	.173
	logistics development stages	.100	.049	.125	2.058	.041	.004	.196
	logistics service scope	.054	.048	.070	1.114	.267	-.042	.150
	logistics industry standards	.110	.047	.146	2.327	.021	.016	.203
	logistics organizational structure	.116	.048	.152	2.429	.016	.022	.210
	local government management functions	.104	.050	.133	2.076	.040	.005	.204
	logistics professionals	.089	.048	.116	1.844	.067	-.006	.185
	logistics infrastructure	.125	.053	.157	2.363	.020	.020	.229
	industry entry barriers	.111	.048	.143	2.326	.021	.017	.206
	supply chain resource integration capabilities	.034	.051	.042	.663	.508	-.067	.135
	resource development capabilities	.018	.049	.022	.373	.710	-.079	.116
	logistics and industrial development coordination	.134	.048	.167	2.771	.006	.038	.229
	customer recognition and trust	.062	.049	.078	1.278	.204	-.034	.159
	logistics systems and policies	.139	.050	.172	2.777	.006	.040	.237

a. Dependent variable: about the development level of the fourth party logistics  
Table 12. Coefficients<sup>a</sup>

### 3.4.3 Result and discussion

It can be seen from the results of ANOVA that among the 13 factors that affect the development of 4PL summarized in the literature, 5 of them have no significant impact on the development of



4PL. Therefore, in the research of this paper, the answer of the first research question is there are 8 factors that could have some impact on the development of Sino-Russian 4PL. Next we discuss the reasons why these five factors are not significantly correlated.

- Logistics Service Scope: Since it is e-commerce logistics, the scope of logistics services itself has been largely limited.

- Logistics Professionals: Although the sig. = 0.067 > 0.05, the differences are not much. Besides, although this questionnaire is aimed at the Sino-Russian e-commerce logistics industry, the respondents of the questionnaire may have different understandings of the development of 4PL by Logistics Professionals because of different occupations and companies.

- Supply Chain Resource Integration Capabilities: The three questions in this dimension are, Your logistics company can effectively integrate resources from different industries, Your logistics company can coordinate cooperation between different suppliers, Your logistics company can take into account both supplier and customer resources. Due to the restrictions of industry, some Sino-Russian e-commerce logistics companies in the industry have limited supplier and customer resources, or it is relatively fixed and therefore may affect the final result.

- Resource Development Capabilities: Two of the problems are, Your logistics company can continuously update the talent system, Your logistics company gradually develops new market resources. Similarly, due to the restrictions of the industry, some companies in the industry have limited new market resources; according to the sample characteristics in the second part of the questionnaire summarized above, most of the companies that respondents belong to are companies with a certain scale. Large and medium-sized companies already occupy more resources, which may limit the speed at which they can discover new resources to some extent.

- Customer Recognition and Trust: this is actually the problem with 3PL. 3PL cannot make breakthroughs in the overall supply chain technology and strategy, and there are technical and strategic limitations. At the same time, due to technological advancements, customers have also raised expectations for third-party logistics companies, which has resulted in increased demand for third-party logistics. The lack of trust in improving the supply chain has turned to partnering with professional supply chain consulting firms to design a complete supply chain integration solution. In addition, the third-party logistics focuses on the enterprise's own supply chain and cannot design a set of supply chain integration for customers alone. In addition, the third-party logistics focuses on the company's own supply chain and cannot design a set of

supply chain integration solutions for customers, which also forces customers to seek new logistics organization cooperation (Yingping Mou, 2018).

In addition, the reason why these five factors have no significant impact on the development of 4PL may also be because the literature on the factors affecting the development of 4PL has been published in the past 3-5 years, but in recent years, with the rapid development of the e-commerce industry, e-commerce logistics is also developing rapidly, so some factors are no longer the difficulties faced by the current 4PL.

After analyzing the factors that affect the development of 4pl, the next step is to study the impact of each factor on the development of 4PL and answer the research question 2.

As can be seen from the ANOVA table, the remaining 8 factors have varying degrees of influence on the development of 4PL. Sig. of Logistics Development Stages = 0.041, Sig. of Logistics Industry Standards = 0.021, Sig. of Logistics Organizational Structure = 0.016, Sig. of Local Government Management Functions = 0.040, Sig. of Logistics Infrastructure = 0.020, Sig. of Industry Entry Barriers = 0.021, Sig. of Logistics and Industrial Development Coordination = 0.006, Sig. of Logistics Systems and Policies = 0.006.

The biggest impact on 4PL development is Logistics and Industrial Development Coordination and Logistics Systems and Policies, and the least impact is Logistics Development Stages.

When it comes to the question of how BRI has a positive impact on the development of 4pl, we set up 3 questions for this dimension: The "Belt and Road" initiative promotes the cultivation of fourth-party logistics talents; The "Belt and Road" initiative will help improve the efficiency of cross-border logistics customs clearance; The "Belt and Road" initiative promotes work efficiency in the cross-border logistics industry.

It can be seen that BRI has a positive impact on the cultivation of fourth-party logistics talents, efficiency of cross-border logistics customs clearance, and work efficiency in the cross-border logistics industry. Besides, sig. of Logistics Systems and Policies = 0.006 further proves the positive impact of BRI on the development of 4PL in China and Russia.

In order to have a further understanding of the second research question and answer the last research question, we summarize the questions in the questionnaire and put them under the DC framework, so that we can intuitively see what capabilities the current Sino-Russian 4PL companies have and discuss their deficiencies. Three questions were set under each factor of the

questionnaire to help measure the impact of this factor on the 4PL of Sino-Russian e-commerce. We only choose suitable items to fill in the table. As shown in table 13, the horizontal column is the five aspects that make up the DC, which are alliance capabilities, absorptive capacity, innovation capability, adaptability and political influence. The vertical column is the factors that affect the development of China-Russia 4PL. We screened each item on the basis that the vast majority of respondents gave it a score of 4 (somewhat agree) or 5 (strongly agree).

Factors \ capabilities	Alliance capabilities	Absorptive capacity	Innovation capability	Adaptability	Political influence
logistics industry standards				a clear development plan	
logistics organizational structure				efficient logistics information circulation	
local government management functions					The local government effectively supervises and manages the fourth-party logistics industry The local government encourages the financial industry to support the 4PL industry
Supply Chain Resource Integration Capabilities	can effectively integrate resources from different industries			coordinate cooperation between different suppliers	
Resource Development Capabilities		can continuously update the talent system		gradually develops new market resources	
logistics and industrial development coordination	has solid cooperation with other (financial, etc.) industries			cooperates effectively with a third-party logistics company	
logistics systems and policies			promotes work efficiency in the cross-border logistics industry	BRI promotes work efficiency in the cross-border logistics industry	BRI promotes the cultivation of fourth-party logistics talents

Table 13. BRI and other factors under the DC framework

It can be seen that the Sino-Russian e-commerce 4PL company is relatively strong in terms of adaptability. Specifically in the following aspects:

- Companies have clear development plans. In recent years, the international situation has generally not been very stable, and COVID-19 has seriously affected the world economy. In this case, most companies adapt well to the external environment and make and plan for future development.
- Companies efficient logistics information circulation. This shows that most companies make good use of their ability to obtain relevant logistics information to actively respond to changes in the international situation.
- Companies coordinate cooperation between different suppliers. Affected by factors such as COVID, whether in China or Russia, suppliers themselves have been affected to varying degrees, resulting in inefficiencies. However, most Chinese and Russian e-commerce 4PL companies can actively coordinate supplier resources.
- Companies gradually develop new market resources. Both China and Russia have large

e-commerce markets. Most 4PL companies can seek new markets based on their current resources and their own advantages.

- Companies cooperate effectively with a third-party logistics company. The development of 4PL relies heavily on 3PL. Especially in developing countries, efficient cooperation with 3PLs can help companies effectively face risks and develop their competitive advantages.
- BRI promotes work efficiency in the cross-border logistics industry. The BRI facilitates many multinational companies to formulate their internal policies and coordinate internal resources as soon as possible, thereby helping companies effectively face risks and form their competitive advantages.

In addition, political influence is more prominent in this theoretical framework. The local government encourages the financial industry to support the 4PL industry, effectively supervises and manages the fourth-party logistics industry. The local government's policy support has undoubtedly had a positive impact on 4PL's internal policy formulation and development strategies. BRI is to help these companies actively enter each other's market.

Of course, it can also be seen that the Sino-Russian e-commerce 4PL company is weak in three aspects: alliance capabilities, absolute capacity, and innovation capability. The vast majority of companies have just received investment, but there is a lack of patent sharing, technical cooperation, etc. In addition to this, many companies are not good at absorbing external knowledge, nor do they have a lot of capital and capacity to focus on R&D. These may be because the development of 4PL in China and Russia is still in its infancy, lack of platform cooperation, and the internationalization strategy has not been perfected.

## ***Conclusion***

This research focuses on the possibility of the development of 4PL in Sino-Russian e-commerce under the influence of BRI. By combining the DC theory, the factors that affect the development of Sino-Russian e-commerce 4PL are analyzed, and how these factors help 4PL companies to form their competitive advantages .

This master theses has three parts to answer the proposed research questions and finally achieve the research goal. The first chapter is literature review of Belt and Road initiative and the development of modern logistics industry under BRI. The purpose of this chapter is to explain the concepts of BRI and to understand the cooperation and future development prospects of China and Russia in various fields under the background of BRI, especially in infrastructure and logistics.

Through the analysis of the current situation of Sino-Russian logistics industry in the first chapter, we believe that the current situation of China and Russia has the conditions which are suitable for the development of 4PL. The second chapter introduces the concepts of 4PL and DC on the basis of Sino-Russian logistics industry. We believe that the use of DC theory to build a framework of 4PL between the two countries can help analyze the possibility of developing 4PL between the two countries. At the end of this chapter, 4 research gaps and 3 research questions are presented. By using appropriate methodology in subsequent chapters, we attempt to fill the research gaps to some extent, while 3 research questions are answered and ultimately the research purpose of this study is accomplished.

The third chapter is the methodology. The research method which is used for collecting the needed data for empirical study and the measures used during the study will be presented in this chapter. At the end of this chapter, the results of the empirical research are comprehensively presented, and relevant conclusions are drawn after discussing the results. Moreover, by using the DC theory to build a framework, we can intuitively see the capabilities and the missing capabilities of the current Sino-Russian 4PL companies.

In general, the policies of the two countries and the diplomatic, political, and economic actions in recent years show that the BRI provides a good development space for the logistics industry of China and Russia. The vast territory of China and Russia, especially in Northwest China, and the uneven economic development of Russia's Asian sectors, to a certain extent have brought difficulties and opportunities to the development of the logistics industry. The use of 4PL on the basis of 3PL can help companies maximize efficiency. Despite the great difficulties

of COVID-19 and the current international situation, the development of Sino-Russian 4PL has great potential.

- Limitation

It is necessary to recognize some of limitations of the study. One limitation concerns limited sample size (152 questionnaires). Although Sino-Russian e-commerce logistics is a relatively small industry, especially under the influence of COVID-19 and the international situation in recent years, our research still needs more data to support our findings. For practical analytical reasons, we think a slightly flawed operation is desirable because the shortcomings of the questionnaire survey method itself include that the survey results may be broad but not deep, and the quality of the questionnaire objects may not be guaranteed.

Another limitation is that due to some force majeure factors, the survey company cannot guarantee that the 152 questionnaire respondents are from different companies as much as possible, which may also cause the final questionnaire results to be unable to represent the industry situation of China and Russia 4PL to the greatest extent

The last limitation concerns the applicability of DC to different types of companies. Although the data distribution meets our expectations from the perspective of sample characteristics, micro, small, medium and large enterprises are covered, and the data can explain the situation of the entire industry, the actual situation of each company could be different. Therefore, the general situation under the DC theory we summarized may not apply to every 4PL company.

- Theoretical contribution

This research has made the following theoretical contributions to the development of Sino-Russian e-commerce 4PL under the BRI framework.

The BRI framework has been reasonably applied in the Sino-Russian 4PL research. Our study attempts to cover the research gaps identified during the literature review. As we stated earlier, few studies have put the “Belt and Road” initiative and the competitiveness of the logistics industry in the same framework system. In this study, by fixing the research gap between China and Russia, we put the development of 4PLs in the two countries under the same framework as the BRI. The research results fill the gap of related theoretical research to a certain extent.

Most of the influencing factors summarized in this study are applicable to Sino-Russian e-commerce 4PL, which proves that the theory and model of previous analysis of influencing factors have general applicability. On the basis of literature review, by analyzing and summarizing the factors that affect 4PL in different countries, regions and specific situations, the influencing factors applicable to the development of 4PL in China and Russia are summarized and verified.

Our research attempts to expand the applicability of DC to immature markets in developing countries. The very context of transition countries is rarely chosen for investigation, as DC are rather studied on the advanced markets, thus making our study a useful endeavor (Panibratov A. et al. 2019). In the end, we found that DC has a good explanation of the dynamic competitiveness of Chinese and Russian 4PL companies.

- Practical contribution

The study found that although BRI has brought a lot of policy convenience to the development of China-Russia e-commerce 4PL, many 4PL companies have not been able to make good use of internal and external resources to improve their performance due to the fact that practitioners in the industry pay less attention to DC. At the same time, under the influence of COVID-19 and the international situation, many companies cannot combine internal resources with external challenges well, thus limiting future development.

We believe that practitioners in the industry should develop reasonably from the following points:

- 1) Make reasonable use of BRI and other local government policies to standardize the internal regulations and policies of the enterprise, thereby forming the enterprise's own Alliance capabilities.
- 2) In the operation of the enterprise, attach great importance to the feedback of the market, and quickly respond to, resolve and deal with any changes.

In the modern business environment, enterprises are always faced with changes in the industry and market. Whether it is the innovation of competitors or the variation of consumer preferences, companies are required to be highly sensitive to, attach great importance to, actively respond to, and effectively review information from the outside world.

- 3) Attach importance to the development of innovation capability.

One of the characteristics of 4PL is that it pays more attention to the integration and optimization of the resources of the entire logistics system, so the company is likely to ignore the importance of research and development. Our research does prove that most 4PL companies lack innovation capability.

4) A web-based fourth-party e-commerce logistics platform or industry alliance is needed.

The development of Sino-Russian e-commerce 4PL is relatively immature. At this stage, alliances and common development among enterprises in the industry are more important. On the one hand, enterprises can observe and experience other operating models and strategic ideas from other companies, and form novel and effective new models at any time by combining industry characteristics and corporate characteristics. On the other hand, the common development of multiple enterprises in a positive direction is also conducive to the overall progress and development of the industry and reduces the negative situation in the industry.



## *References*

1. A.A. Kizim, I.V. Batykov. (2004). Socio-economic aspect of the development of the regional transport and logistics system. Russia, Krasnodar: Kuban State University, 5 (2). P. 82-87.
2. Arvis, J.-F., Saslavsky, D., Ojala, L., et al. (2016). Connecting to Compete 2016: Trade Logistics in the Global Economy .  
[https://wb-lpi-media.s3.amazonaws.com/LPI\\_Report\\_2016.pdf](https://wb-lpi-media.s3.amazonaws.com/LPI_Report_2016.pdf).
3. Belik S.A. (2004). Transportation of export-import cargo. Organization of logistics systems. Russia, St Petersburg: Peter.
4. Bhatti R S, Kumar P, Kumar D. (2010). Analytical modeling of third party service provider selection in lead logistics provider environments. *Journal of Modelling in Management*, 5 (3). P. 275-286.
5. Bin Zhang, Bo Huang, Pin Fan. (2015). my country's land-sea combined transportation construction and development under the background of the Belt and Road Initiative. *China's Circulation Economy*, No. 6. P. 96-102.
6. Binglian Liu. (2004). Research on logistics demand analysis and forecasting methods based on value quantity. *China Soft Science*, No. 5. P. 66-73.
7. Chang, S.J. and Rosenzweig, P. (2001), "The choice of entry mode in sequential foreign direct investment", *Strategic Management Journal*, Vol. 22 No. 8, pp. 747-776.
8. Cohen, W.M. and Levinthal, D. (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35 No. 1, pp. 128-152.
9. Congyu Duan. Xinghua Li. (2014). The Belt and Road Initiative and the Strategic Choice of Yunnan Higher Education Development. *Journal of Yunnan Administration Institute*, No.5. P. 133-135.
10. Cuervo-Cazurra, A., Carneiro, J., Finchelstein, D., Duran, P., Gonzalez-Perez, M., Montoya, M., Borda Reyes, A., Fleury, M. and Newburry, W. (2019), "Uncommoditizing strategies by emerging market firms", *Multinational Business Review*, Vol. 27 No. 2, pp. 141-177.
11. D. Kisperka-Moron. (1994). Logistics change during the transition period in the Polish economy. *International Journal of Production Economics*, No. 35. P.23-28.
12. Decrypting the Belt and Road Initiative: Barriers and Development Paths for Global Logistics Networks.
13. Deng, P., Liu, Y., Gallagher, V. and Xiaojie, W. (2018), "International strategies of emerging market multinationals: a dynamic capabilities perspective", *Journal of Management*

and Organization, doi: 10.1017/jmo.2017.76.

14. E-commerce Research Center. (2019). 2018 年度中国跨境电商市场数据监测报告 [EB/OL]. Available at: <http://www.100ec.cn/zt/2018kjsj/>
15. Foss, N.J. (1997). Ethics, discovery, and strategy. *Journal of Business Ethics*, 16(11), pp. 1131-1142.
16. Fulconis F., Saglietto L., Pache G. (2007). Strategy dynamics in the logistics industry a transnational center perspective. *Management Decision*, 45 (1).P. 104-117.
17. Gattorna J. (1998). *Strategic supply chain alignment: Best practice in supply chain management*. Gower Publishing Company.
18. Goncharuk O.V. (2003). *Economic efficiency of transport and technological systems*. Russia, Moscow: Nauka.
19. gov.cn. (2021). 国家统计局门户网站. Available at: <http://data.stats.gov.cn/>.
20. gov.cn. (2021). 中华人民共和国海关总署门户网站. Available at: <http://www.customs.gov.cn/>.
21. gov.ru. (2020). «Транспортная стратегия Российской Федерации на период до 2030 года»[EB/OL]. Available at: <https://mintrans.gov.ru/documents/3/1009>, 2020-10-01.
22. gov.ru. Федеральный проект «Логистика международной торговли»[EB/OL]. Available at: <https://mintrans.gov.ru/ministry/targets/141/271>, 2020-10-02.
23. Harri Taliga. (2021). *Belt and Road Initiative in Central Asia*. ITUC 2021, Desk study.
24. Heng Chen, Xiujian Wei. (2015). The dynamic trajectory evolution of the driving factors of the logistics industry along the Belt and Road-Based on the perspective of labor input. *Journal of Shanghai University of Finance and Economics*, No. 17(2). P. 31-43.
25. Hing Kai Chana, Jing Dai, Xiaojun Wang, Ewelina Lack. (2019). Logistics and supply chain innovation in the context of the Belt and Road Initiative (BRI). *Transportation Research Part E*, 132 (2019). P. 51–56.
26. Hou Bing, Xue Geng, Huanfang Wang, Zou Xiao. (2019). The research on mode and path of China's logistics industry upgrading under the background of the Belt and Road Initiative. *China academic journal electronic publishing house*, 39 (5). P. 13-17.
27. Huzi Chao. (2021). 基于动态能力理论的企业相对优势分析. *CONTEMPORARY ECONOMICS*, 2021 (17). P. 76-79.
28. Jian Hu. (2015). The strategic core and urban layout of the Belt and Road Initiative. *Social Observation*, No.6. P. 9-12.
29. Jianhui Huang, Hongxia Li. (2015). The coordinated development of my country's regional economy from the perspective of the One Belt One Road strategy. *Tax Research*, No. 6.

P. 22-30.

30. Jiansheng Wu. (2015). The connotation of the One Belt One Road strategy and the opportunities and challenges it faces. *Frontline*, No. 9. P. 47-49.

31. Jing Ye, Hans-Dietrich Haasis. (2018). Impacts of the BRI on International Logistics Network. *Lecture Notes in Logistics*. P. 250-254.

32. Juanjuan Wang, Wei Qin. (2015). Exploration of a new model of e-commerce in the Belt and Road strategic zone. *China's Circulation Economy*, No. 5. P. 46-54.

33. Jun Tu, Min Hua, Guihua Bo. (2013). A Survey of Fourth Party Logistics Research. *Systems Engineering*, 31(12). P. 53-59.

34. Kirichenko A.V. (2004). Transportation of export-import cargo. Organization of logistics systems. Russia, SPb: Peter.

35. Kogut, B. and Zander, U. (1992), "Knowledge of the firm, combinative capabilities, and the replication of technology", *Organization Science*, Vol. 3 No. 3, pp. 383-397.

36. Kurganov V.M. (2009). Transport and warehouse in the supply chain. Russia, Moscow: Book World. 7 (12). P. 176-189.

37. Latukha, M., Poor, J., Mitskevich, E. and Lingec, D. (2019), "Human resource management practices transferring from foreign firms to Russia: the case of MNCs subsidiaries", *Journal of Business Research*, doi: 10.1016/j.jbusres.2019.03.020.

38. Li, J., Li, P. and Wang, B. (2016), "Do cross-border acquisitions create value? Evidence from overseas acquisitions by Chinese firms", *International Business Review*, Vol. 25 No. 2, pp. 471-483.

39. Li, S., Easterby-Smith, M. and Hong, J.F.L. (2019), "Towards an understanding of the nature of dynamic capabilities in high-velocity markets of China", *Journal of Business Research*, Vol. 97, pp. 212-226.

40. Liangyue Zhan, Dong Liu. (2015) The Belt and Road Initiative and China's Economic Development. *Economist*, No. 11. P. 51-58.

41. Lianwei Zhang. (2015). Synergy analysis of international trade and international logistics under the One Belt One Road strategy-Taking Guangdong Province as an example. *Science of Finance and Economics*, No7. P.81-88.

42. Likert, Rensis. (1932). A Technique for the Measurement of Attitudes, *Archives of Psychology*, 1932, 140: pp. 1-55.

43. Litao Tan. (2020). "一带一路"倡议下中俄跨境电商发展的挑战与策略. *Business Economics Research*, 2020(22):149-152.

44. Luo, Y. (2002), "Capability exploitation and building in a foreign market: implications for multinational enterprises", *Organization Science*, Vol. 13 No. 1, pp. 48-63.

45. Luo, Y. and Tung, R. (2007), "International expansion of emerging market enterprises: a springboard perspective", *Journal of International Business Studies*, Vol. 38 No. 4, pp. 481-498.
46. Maochun He, Yibing Zhang. (2015). Obstacles and countermeasures facing the One Belt One Road strategy. *Journal of Xinjiang Normal University (Philosophy and Social Sciences Edition)*, No. 36(3). P. 36-45.
47. Melandez. Maria Fernanda. (2001). Logistics and transportation problems of Latin American integration efforts: The Andean Pact, a case of study. The university of Tennessee. P.11-26.
48. Ming Wang, Hua Lu. (2018). 论我国物流产业高质量发展的趋势与路径 [ J ] . 中国物流与采购, 18 (20). P. 54-57.
49. Minhui Tian. Wanyun Zeng. (2015). Research on China's One Belt One Road Strategy. *The Chinese market*, No. 21. P. 10-12.
50. Ministry of Transport, National Development and Reform Commission. (2020). 关于进一步降低物流成本的实施意见[N]. 现代物流报, 2020-06-08, A06 版.
51. Mostafafiz, M., Sambasivan, M. and Goh, S. (2019), "Impacts of dynamic managerial capability and international opportunity identification on firm performance", *Multinational Business Review*, Vol. 27 No. 4, pp. 339-363.
52. Onodi, A. and Pecze, K. (2014), "Behind the exporters' success: analysis of successful Hungarian exporter companies from a strategic perspective", *Managing Global Transitions*, Vol. 12 No. 4, pp. 325-346.
53. Panibratov A., Klishevich D. (2019). Dynamic capabilities during the internationalization of MNCs from post-socialist emerging markets. *Multinational Business Review*, 28(3). P. 307 - 331.
54. Panibratov, A. (2015), "Liability of foreignness of emerging market firms: the country of origin effect on Russian IT companies", *Journal of East-West Business*, Vol. 21 No. 1, pp. 22-40.
55. Panibratov, A. (2016), "Home government influence on Russian MNEs: balancing control against interest", *International Journal of Emerging Markets*, Vol. 11 No. 4, pp. 474-496.
56. Park, J., Muaid, R., Lew, Y.K. and Oh, C.H. (2019), "Exploring the role of organizational learning and leadership in creating dynamic capabilities", *European J. Of International Management*, doi: 10.1504/EJIM.2020.10020955.
57. Peng, M.W. (2001), "The resource-based view and international business", *Journal of Management*, Vol. 27 No. 6, pp. 803-829.

58. People's Daily. (2022). 连云港中哈物流合作基地内, 大型机械正在向列车装载集装箱. Available at: <https://baijiahao.baidu.com/s?id=1724363023914800522&wfr=spider&for=pc>
59. Perry A Trunick. (1999). Is your region logistics friendly, *Transportation & Distribution*. Cleveland, 40 (5). P. 55 - 65.
60. Platonov S.R. (2009). Evaluation of the efficiency of investment projects for the development of multimodal transport and logistics centers. *Investments in Russia*, No. 4. P. 19-26.
61. Richard, A., D'Aveni. (1994). CEO duality as a double-edged sword: how boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal*.
62. Sapienza, H.J., Autio, E., George, G. and Zahra, S.A. (2006), "A capabilities perspective on the effects of early internationalization on firm survival and growth", *Academy of Management Review*, Vol. 31 No. 4, pp. 914-933.
63. Siling Yang. (2015). The governance and challenges of the relationship between BRI China and countries along the route. *South Asian Studies*, No 2. P. 15-34.
64. Stefansson G. (2006). Collaborative logistics management and the role of third-party service providers. *International Journal of Physical Distribution & Logistics Management*, 36(2). P. 76-92.
65. T. Hyland. (2002). Speaking out for NE Ohio. *Transportation & Distribution*, Vol. 43, No. 10. P. 40-42.
66. Tallman, S. and Fladmore-Lindquist, K. (2002), "Internationalization, globalization, and capability-based strategy", *California Management Review*, Vol. 45 No. 1, pp. 116-135.
67. Tao Meng, Jialei Li. (2019). 动态能力理论研究现状与热点的文献可视化分析. *Science & Technology Progress and Policy*, 36(11). P.153-160.
68. Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 2 No. 13, pp. 1319-1350.
69. Teece, D.J. (2014), "A dynamic capabilities-based entrepreneurial theory of the multinational enterprise", *Journal of International Business Studies*, Vol. 45 No. 1, pp. 8-37.
70. Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.
71. Thüerer, M., Tomašević, I., Stevenson, M., Blome, C., Melnyk, S., Chan, H.K., Huang, G.Q., 2019. A systematic review of China's Belt and Road Initiative: implications for global supply chain management. *Int. J. Prod. Res.* 1–18.

<https://doi.org/10.1080/00207543.2019.1605225>.

72. The word bank. (2018). Global Logistics Performance Index (LPI) ranking. Available at: <https://lpi.worldbank.org/international/global>

73. Tie Junwen. 2013. Eight crises: China's real experience. China: Oriental Publishing House.

74. Visser E. J. (2007). Logistic innovation in global supply chains: An empirical test of dynamic transaction-cost theory [ J]. *Geo Journal*, 70 (2). P. 213-226.

75. Vogel, R. and Güttel, W. (2013), "The dynamic capability view in strategic management: a bibliometric review", *International Journal of Management Reviews*, Vol. 15 No. 4, pp. 426-446.

76. Wang, C.L. and Ahmed, P.K. (2007), "Dynamic capabilities: a review and research agenda", *International Journal of Management Reviews*, Vol. 9 No. 1, pp. 31-51.

77. Wei Yao. (2016). Research on the Cooperation Mechanism of Fourth Party Logistics and Third Party Logistics. *Industrial strategy research*, 11(23). pp.144-146.

78. Xiaohong Jiang , Huiying Wang, Xiucheng Guo, and Xiaolin Gong. (2019). Using the FAHP, ISM, and MICMAC Approaches to Study the Sustainability Influencing Factors of the Last Mile Delivery of Rural E-Commerce Logistics. *Sustainability (Switzerland)*, 11 (14). DOI: 10.3390/su11143937

79. Xiaoping Guo, Qishan Zhang. (2008). Analysis of factors affecting logistics demand based on econometric model. *Logistics Technology*, No. 27(2). P. 55-57.

80. Xiheng Jiang, Guoqiang Chen. (2014). Summary of opinions and suggestions of domestic and foreign experts on the construction of the Belt and Road Initiative. *Chinese foreign investment*, No 19. P. 30-33.

81. Xinhua Silk Road. (2022). 中欧班列逆势而上创新业绩 . Available at: <http://www.chinanews.com.cn/cj/2022/05-17/9756365.shtml>

82. Xinhua Silk Road. (2022). 综述：中俄携手奏响维护全球稳定与发展强音. Available at: [http://www.news.cn/silkroad/2022-02/09/c\\_1128348184.htm](http://www.news.cn/silkroad/2022-02/09/c_1128348184.htm)

83. Yan Shi. Build the Belt and Road Initiative and build a prosperous community with a shared future. *Education for the Elderly: Home for the Elderly*, No.9. P.24-25.

84. Yongji Mu. (1996). The Silk Road and Hui Commercial Trade. *Gansu Ethnic Studies*. No. 10. P. 8-10.

85. Yucheng Ma, Chuanzhong Yin. (2015). Research on my country's port logistics development strategy under the background of the One Belt One Road strategy. *China Water Transport Monthly*, 15(7). P. 45-47.

86. Zhuangzhi Sun. (2014). The background, potential challenges and future trends of the "Silk Road Economic Belt" concept. Eurasian Economy, No. 4. P. 5-58.
87. 陈卫华. 我国第四方物流发展现状及问题[J]. 经营管理者, 2016, (02): 220.
88. 刘明靖. 关于第四方物流企业三方合作运作模式中信息不对称问题的研究[J]. 物流工程与管理, 2017, (02): 30-31.
89. 卢凤娇, 金鑫. 我国第四方物流发展问题研究[J]. 中国集体经济, 2015, (15):
90. 牟莹萍. (2018) Research on the Obstacles and Solutions to the Development of the Fourth Party. 知网, 硕士学位论文.
91. 潘娅媚. 第四方物流运作模式及发展前景分析[J]. 商业经济研究, 2016, (12):
92. 宋韬, 汤晶, 郑静. 第四方物流发展的制约因素分析[J]. 福建论坛(社科教育版), 2009, (12): 101-102.
93. 徒君, 黄敏. 不对称信息下第四方物流配送时间契约设计[J]. 控制与决策, 2016, 08: 1429-1434.
94. 王慧梅, 温泉. 我国开展第四方物流存在的问题研究[J]. 企业技术开发, 2011, (07): 108-109.
95. 奚祥英. 第四方物流在我国的应用及发展[J]. 武汉理工大学学报(信息与管理工程版), 2002, (01): 71-74.
96. 晏再庚. 国内企业发展第四方物流的障碍及对策研究[J]. 湖北财经高等专科学校学报, 2006, (03): 16-18.
97. 杨丽君. 中国第四方物流发展对策研究[D]. 大连理工大学, 2008. 82-85.
98. 袁开洪. 第四方物流: 资源整合下现代物流发展的主导[J]. 华中科技大学学报(社会科学版), 2006, (05): 47-50.
99. 周堯阳. 第四方物流及其在我国的发展对策研究[D]. 武汉大学, 2005.
100. 周正祥, 陈艳. 第三方物流与第四方物流协同发展的路径探析[J]. 公路与汽运, 2013, (01): 80-83.
101. Шевченко М.В., Фролов Д.В., Хамбурова Д.С. Типовость в транспортной геологистике России и Китая[J]. Московский экономический журнал. 2018. № 5(2). 95-96.

## *Appendix*

### *Appendix 1*

# **Questionnaire on Fourth Party Logistics Development and Influencing Factors**

Questionnaire on Fourth Party Logistics Development and Influencing Factors

Dear Sir/Madam:

Hello! In order to understand the development of my country's fourth-party logistics and make suggestions for the construction and development of my country's fourth-party logistics companies, you are invited to participate in this questionnaire. This questionnaire is anonymous. Your answers will be used for data statistics for academic research and will not have any adverse impact on you. Please select the appropriate option according to the actual situation and mark "✓".

Thank you for your cooperation and participation!

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Please leave your basic information below, all information will be kept confidential:

## **Part 1: basic information**

● Whether your logistics company is a fourth party logistics company: A. Yes B. No

(Choose A to continue answering the question, choose B to end the answer)

● Whether your logistics company has joined the "Belt and Road" support plan: A. Yes

B. No

(Choose A to continue answering the question, choose B to end the answer)

● Your gender: A. Male B. Female

● Your education: A. College B. Bachelor C. Master D. Doctor or above

● Your age: A. 21–30 years old B. 31–40 years old C. 41–50 years old D. 51 years

old and above



● Your position: A. Ordinary employee B. Enterprise middle management C. Enterprise executive D. Others

● Your monthly income: A. 3000 yuan and below B. 3001—6000 yuan C. 6001—9000 yuan D. 9001 yuan and above

● Are you engaged in Sino—Russian (e—commerce) logistics industry: A. Yes B. No

## Part 2: Fourth party logistics development level

Please select the degree you are in line with according to the description of the topic below, and tick "✓" on the corresponding number behind it

topic		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
1	Your logistics company has developed a large scale	1	2	3	4	5
2	Your logistics company has a relatively high level of informatization development	1	2	3	4	5
3	The management mode and concept of your logistics company are relatively advanced	1	2	3	4	5
4	Your logistics company has great influence in the logistics industry	1	2	3	4	5
6	Your logistics company has many logistics talents	1	2	3	4	5
7	The logistics supply of your logistics company is relatively large	1	2	3	4	5
8	Your logistics company has a high contribution rate to the GDP of the local logistics industry	1	2	3	4	5

## Part III: Factors Influencing the Development of Fourth Party Logistics

Please select the degree you are in line with according to the description of the topic below, and tick "✓" on the corresponding number behind it

1. Logistics development stage		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
1	Your company is growing slowly	1	2	3	4	5
2	Your company's business development is just getting started	1	2	3	4	5
3	Your company development system is immature	1	2	3	4	5
2. Scope of logistics services		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
4	Your company has a variety of logistics services	1	2	3	4	5
5	Your company has a wide range of logistics services	1	2	3	4	5
6	It is difficult to promote your company's logistics services	1	2	3	4	5
3. Logistics industry standard		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
7	Your company currently has a clear development plan	1	2	3	4	5
8	You think the logistics industry has a unified industry standard	1	2	3	4	5
9	Your company's logistics specialization is similar to that of others in the industry	1	2	3	4	5
4. Logistics organization structure		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
10	Your logistics company has a complete organizational system	1	2	3	4	5
11	Your logistics company has efficient logistics information circulation	1	2	3	4	5
12	Your logistics company has a well-organized staff structure	1	2	3	4	5
5. Local government management functions		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
13	Russian and Chinese governments vigorously	1	2	3	4	5

	support the development of the fourth party logistics industry					
14	Russian and Chinese governments carry out effective supervision and management of the fourth party logistics industry	1	2	3	4	5
15	Russian and Chinese governments encourage the financial industry to support the 4PL industry	1	2	3	4	5
6. Logistics professionals		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
16	Most of the employees of your logistics company have received training from logistics colleges or professional institutions	1	2	3	4	5
17	The personnel of your logistics company have strong logistics management capabilities	1	2	3	4	5
18	The staff of your logistics company have strong import and export business capabilities	1	2	3	4	5
7. logistics infrastructure		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
19	Your logistics company has a wide range of infrastructure	1	2	3	4	5
20	The infrastructure of your logistics company is relatively large	1	2	3	4	5
21	The infrastructure of your logistics company is rich in functions, especially the informatization function	1	2	3	4	5
8. Industry entry barriers		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
22	Your logistics company can meet the high demands of the market	1	2	3	4	5
23	Your logistics company was established with a high standard of auditing	1	2	3	4	5
24	You think the quality supervision and evaluation standards of the fourth party logistics industry are strict	1	2	3	4	5
9. Supply chain resource integration capability		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree

25	Your logistics company can effectively integrate resources from different industries	1	2	3	4	5
26	Your logistics company can coordinate cooperation between different suppliers	1	2	3	4	5
27	Your logistics company can take into account both supplier and customer resources	1	2	3	4	5
10. resource development capability		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
28	Your logistics company can continuously update the talent system	1	2	3	4	5
29	Your logistics company has a stable source of capital	1	2	3	4	5
30	Your logistics company gradually develops new market resources	1	2	3	4	5
11. Coordination of logistics and industrial development		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
31	Intralogistics and external logistics of your logistics company are coordinated	1	2	3	4	5
32	Your logistics company has solid cooperation with other (financial, etc.) industries	1	2	3	4	5
33	Your logistics company cooperates effectively with a third-party logistics company	1	2	3	4	5
12. Customer recognition and trust		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
34	Customers recognize the business ability of your logistics company's employees	1	2	3	4	5
35	The services of your logistics company are well received by customers	1	2	3	4	5
36	Customers trust the customer information management work of your logistics company	1	2	3	4	5
13. Logistics system and policy		Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree
37	The "Belt and Road" initiative promotes the cultivation of fourth-party logistics talents	1	2	3	4	5
38	The "Belt and Road" initiative will help improve the efficiency of cross-border logistics customs clearance	1	2	3	4	5

39	The “Belt and Road” initiative promotes work efficiency in the cross-border logistics industry	1	2	3	4	5
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*Thanks for your hard work! Please check the questionnaire to see if there are any missing answers to some of the questions. Thanks again for your participation in our survey!*

## Appendix 2


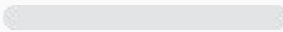
Result of questionnaire

# Questionnaire on Fourth Party Logistics Development and Influencing Factors

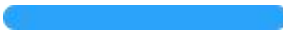
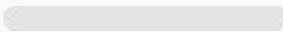
## Part 1: basic information

Please leave your basic information below, all information will be kept confidential

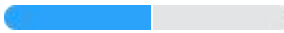

1. Whether your logistics company is a fourth party logistics company [\[multiple choice\]](#)

option	subtotal	proportion
A. Yes	152	 100%
B. No	0	 0%
Number of valid fills in this question	152	


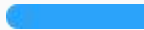


2. Whether your logistics company has joined the “Belt and Road” support plan [\[multiple choice\]](#)

option	subtotal	proportion
A. Yes	152	 100%
B. No	0	 0%
Number of valid fills in this question	152	





3. Your gender [\[multiple choice\]](#)

option	subtotal	proportion
A. male	79	 51.97%
B. female	73	 48.03%
Number of valid fills in this question	152	




4. Your educational level [\[multiple choice\]](#)

option	subtotal	proportion
A. collage	53	 34.87%
B. Bachelor	76	 50%
C. Master	16	 10.53%
D.PHD and above	7	 4.61%
Number of valid fills in this question	152	


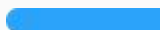
5. Your age [\[multiple choice\]](#)

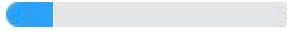
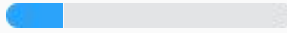
option	subtotal	proportion
A. 21-30	29	 19.08%
B. 31-40	65	 42.76%
C. 41-50	52	 34.21%
D. 51 and above	6	 3.95%
Number of valid fills in this question	152	

6. Your job position [\[multiple choice\]](#)

option	subtotal	proportion
A. Ordinary staff	89	 58.55%
B. Middle manager	41	 26.97%
C. Senior manager	22	 14.47%
D. Other	0	0%
Number of valid fills in this question	152	

7. Your monthly income (RMB) [\[multiple choice\]](#)

option	subtotal	proportion
A. 3000 and below	10	 6.58%
B. 3001-6000	86	 56.58%

C.6001-9000	25	 16.45%
D. 9001and above	31	 20.39%
Number of valid fills in this question	152	

## Part 2: Fourth party logistics development level

8. About the development level of the fourth party logistics

[\[matrix scale questions\]](#)

The average score for this matrix question: 3.7

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your logistics company has developed a large scale	10(6.58%)	12(7.89%)	31(20.39%)	64(42.11%)	35(23.03%)	3.67
Your logistics company has a relatively high level of informatization development	10(6.58%)	15(9.87%)	30(19.74%)	49(32.24%)	48(31.58%)	3.72
The management mode and concept of your logistics company are relatively advanced	12(7.89%)	13(8.55%)	39(25.66%)	43(28.29%)	45(29.61%)	3.63
Your logistics company has great influence in the logistics industry	9(5.92%)	10(6.58%)	37(24.34%)	53(34.87%)	43(28.29%)	3.73
Your logistics company has many logistics talents	6(3.95%)	21(13.82%)	31(20.39%)	42(27.63%)	52(34.21%)	3.74
The logistics supply of your logistics company is relatively large	6(3.95%)	16(10.53%)	37(24.34%)	54(35.53%)	39(25.66%)	3.68
Your logistics company has a high contribution rate to the GDP of the local logistics industry	7(4.61%)	12(7.89%)	38(25%)	54(35.53%)	41(26.97%)	3.72
subtotal	60(5.64%)	99(9.3%)	243(22.84%)	359(33.74%)	303(28.48%)	3.7



### Part III: Factors Influencing the Development of Fourth Party Logistics

9. Logistics development stage [\[matrix scale questions\]](#)

The average score for this matrix question: 3.53

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your company is growing slowly	15(9.87%)	23(15.13%)	30(19.74%)	53(34.87%)	31(20.39%)	3.41
Your company's business development is just getting started	12(7.89%)	20(13.16%)	29(19.08%)	52(34.21%)	39(25.66%)	3.57
Your company development system is immature	15(9.87%)	13(8.55%)	36(23.68%)	40(26.32%)	48(31.58%)	3.61
subtotal	42(9.21%)	56(12.28%)	95(20.83%)	145(31.8%)	118(25.88%)	3.53

10. Scope of logistics services [\[matrix scale questions\]](#)

The average score for this matrix question: 3.54

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your company has a variety of logistics services	17(11.18%)	25(16.45%)	24(15.79%)	54(35.53%)	32(21.05%)	3.39
Your company has a wide range of logistics services	16(10.53%)	15(9.87%)	27(17.76%)	47(30.92%)	47(30.92%)	3.62
It is difficult to promote your company's logistics services	12(7.89%)	21(13.82%)	27(17.76%)	48(31.58%)	44(28.95%)	3.6
subtotal	45(9.87%)	61(13.38%)	78(17.11%)	149(32.68%)	123(26.97%)	3.54

11. Logistics industry standard [\[matrix scale questions\]](#)

The average score for this matrix question: 3.51

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your company currently has a clear development plan	21(13.82%)	22(14.47%)	24(15.79%)	51(33.55%)	34(22.37%)	3.36

You think the logistics industry has a unified industry standard	11(7.24%)	19(12.5%)	27(17.76%)	47(30.92%)	48(31.58%)	3.67
Your company's logistics specialization is similar to that of others in the industry	18(11.84%)	19(12.5%)	34(22.37%)	30(19.74%)	51(33.55%)	3.51
subtotal	50(10.96%)	60(13.16%)	85(18.64%)	128(28.07%)	133(29.17%)	3.51

### 13. Logistics organization structure [\[matrix scale questions\]](#)

The average score for this matrix question: 3.49

question\option	Absolute ly disagree	rather disagree	Not sure	Rather agree	Absolute ly agree	Average
Your logistics company has a complete organizational system	18(11.84%)	21(13.82%)	25(16.45%)	60(39.47%)	28(18.42%)	3.39
Your logistics company has efficient logistics information circulation	14(9.21%)	16(10.53%)	37(24.34%)	39(25.66%)	46(30.26%)	3.57
Your logistics company has a well-organized staff structure	17(11.18%)	21(13.82%)	27(17.76%)	41(26.97%)	46(30.26%)	3.51
subtotal	49(10.75%)	58(12.72%)	89(19.52%)	140(30.7%)	120(26.32%)	3.49

### 14. Local government management functions [\[matrix scale questions\]](#)

The average score for this matrix question: 3.56

question\option	5Absolute ly disagree	rather disagree	Not sure	Rather agree	Absolute ly agree	Average
Russian and Chinese governments vigorously support the development of the fourth party logistics industry	15(9.87%)	22(14.47%)	33(21.71%)	48(31.58%)	34(22.37%)	3.42
Russian and Chinese governments carry out effective supervision and management of the fourth	12(7.89%)	19(12.5%)	34(22.37%)	38(25%)	49(32.24%)	3.61

party logistics industry						
Russian and Chinese governments encourage the financial industry to support the 4PL industry	13(8.55%)	16(10.53%)	31(20.39%)	43(28.29%)	49(32.24%)	3.65
subtotal	40(8.77%)	57(12.5%)	98(21.49%)	129(28.29%)	132(28.95%)	3.56

15. Logistics professionals [\[matrix scale questions\]](#)

The average score for this matrix question: 3.49

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Most of the employees of your logistics company have received training from logistics colleges or professional institutions	18(11.84%)	27(17.76%)	25(16.45%)	51(33.55%)	31(20.39%)	3.33
The personnel of your logistics company have strong logistics management capabilities	14(9.21%)	18(11.84%)	29(19.08%)	49(32.24%)	42(27.63%)	3.57
The staff of your logistics company have strong import and export business capabilities	16(10.53%)	14(9.21%)	35(23.03%)	41(26.97%)	46(30.26%)	3.57
subtotal	48(10.53%)	59(12.94%)	89(19.52%)	141(30.92%)	119(26.1%)	3.49

16. logistics infrastructure [\[matrix scale questions\]](#)

The average score for this matrix question: 3.55

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your logistics company has a wide range of infrastructure	18(11.84%)	22(14.47%)	26(17.11%)	57(37.5%)	29(19.08%)	3.38
The infrastructure of your logistics company is relatively large	12(7.89%)	19(12.5%)	30(19.74%)	40(26.32%)	51(33.55%)	3.65

The infrastructure of your logistics company is rich in functions, especially the informatization function	9(5.92%)	22(14.47%)	34(22.37%)	41(26.97%)	46(30.26%)	3.61
subtotal	39(8.55%)	63(13.82%)	90(19.74%)	138(30.26%)	126(27.63%)	3.55

17. Industry entry barriers [\[matrix scale questions\]](#)

The average score for this matrix question: 3.54

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your logistics company can meet the high demands of the market	17(11.18%)	25(16.45%)	22(14.47%)	60(39.47%)	28(18.42%)	3.38
Your logistics company was established with a high standard of auditing	14(9.21%)	19(12.5%)	31(20.39%)	35(23.03%)	53(34.87%)	3.62
You think the quality supervision and evaluation standards of the fourth party logistics industry are strict	13(8.55%)	17(11.18%)	28(18.42%)	50(32.89%)	44(28.95%)	3.63
subtotal	44(9.65%)	61(13.38%)	81(17.76%)	145(31.8%)	125(27.41%)	3.54

18. Supply chain resource integration capability [\[matrix scale questions\]](#)

The average score for this matrix question: 3.54

question\option	Absolutely disagree	rather disagree	Not sure	Rather agree	Absolutely agree	Average
Your logistics company can effectively integrate resources from different industries	18(11.84%)	22(14.47%)	25(16.45%)	60(39.47%)	27(17.76%)	3.37
Your logistics company can coordinate cooperation between different suppliers	12(7.89%)	18(11.84%)	36(23.68%)	41(26.97%)	45(29.61%)	3.59
Your logistics company can take into account both supplier	9(5.92%)	21(13.82%)	31(20.39%)	40(26.32%)	51(33.55%)	3.68

and customer resources						
subtotal	39(8.55 %)	61(13.3 8%)	92(20.18 %)	141(30.9 2%)	123(26.9 7%)	3.54

19. resource development capability [\[matrix scale questions\]](#)

The average score for this matrix question: 3.65

question\option	Absolute ly disagree	rather disagree	Not sure	Rather agree	Absolute ly agree	Aver age
Your logistics company can continuously update the talent system	10(6.58 %)	27(17.76 %)	28(18.42 %)	55(36.18 %)	32(21.05 %)	3.47
Your logistics company has a stable source of capital	7(4.61%)	18(11.84 %)	30(19.74 %)	48(31.58 %)	49(32.24 %)	3.75
Your logistics company gradually develops new market resources	9(5.92%)	20(13.16 %)	30(19.74 %)	39(25.66 %)	54(35.53 %)	3.72
subtotal	26(5.7%)	65(14.25 %)	88(19.3 %)	142(31.1 4%)	135(29.6 1%)	3.65

20. Coordination of logistics and industrial development [\[matrix scale questions\]](#)

The average score for this matrix question: 3.45

question\option	Absolute ly disagree	rather disagree	Not sure	Rather agree	Absolute ly agree	Avera ge
Intralogistics and external logistics of your logistics company are coordinated	19(12.5 %)	24(15.79 %)	36(23.68 %)	49(32.24 %)	24(15.79 %)	3.23
Your logistics company has solid cooperation with other (financial, etc.) industries	13(8.55 %)	23(15.13 %)	30(19.74 %)	44(28.95 %)	42(27.63 %)	3.52
Your logistics company cooperates effectively with a third-party logistics company	12(7.89 %)	20(13.16 %)	24(15.79 %)	58(38.16 %)	38(25%)	3.59
subtotal	44(9.65 %)	67(14.69 %)	90(19.74 %)	151(33.1 1%)	104(22.8 1%)	3.45

21. Customer recognition and trust [\[matrix scale questions\]](#)

The average score for this matrix question: 3.54

question\option	Absolute ly disagree	rather disagree	Not sure	Rather agree	Absolute ly agree	Avera ge
Customers recognize the business ability of your logistics company's employees	19(12.5%)	19(12.5%)	30(19.74%)	55(36.18%)	29(19.08%)	3.37
The services of your logistics company are well received by customers	13(8.55%)	15(9.87%)	34(22.37%)	42(27.63%)	48(31.58%)	3.64
Customers trust the customer information management work of your logistics company	10(6.58%)	24(15.79%)	27(17.76%)	45(29.61%)	46(30.26%)	3.61
subtotal	42(9.21%)	58(12.72%)	91(19.96%)	142(31.14%)	123(26.97%)	3.54

22. Logistics system and policy [\[matrix scale questions\]](#)

The average score for this matrix question: 3.58

question\option	Absolute ly disagree	rather disagree	Not sure	Rather agree	Absolute ly agree	Avera ge
The "Belt and Road" initiative promotes the cultivation of fourth-party logistics talents	16(10.53%)	19(12.5%)	28(18.42%)	56(36.84%)	33(21.71%)	3.47
The "Belt and Road" initiative will help improve the efficiency of cross-border logistics customs clearance	14(9.21%)	18(11.84%)	29(19.08%)	43(28.29%)	48(31.58%)	3.61
The "Belt and Road" initiative promotes work efficiency in the cross-border logistics industry	8(5.26%)	21(13.82%)	34(22.37%)	40(26.32%)	49(32.24%)	3.66
subtotal	38(8.33%)	58(12.72%)	91(19.96%)	139(30.48%)	130(28.51%)	3.58