

DIGITAL TRANSFORMATION OF DISTRIBUTION LOGISTICS: PROSPECTS FOR IMPLEMENTATION IN CHINA AND BELARUS

Li Yuyan

PhD student, School of Business of Belarusian State University, Minsk, Republic of Belarus, e-mail: iamyanplus@gmail.com

Supervisor: O. V. Miasnikova

PhD in economics, associate professor, School of Business of Belarusian State University, department of logistics, Minsk, Republic of Belarus, e-mail: miasnikovaov1@gmail.com

The article examines the current development of the logistics industry, taking China and Belarus as the research objects. The digital transformation trends in distribution logistics are explored. The main trends of digital transformation in distribution logistics, such as digitalization of processes, big data analysis, "Last Mile" solutions and electric vehicles, are highlighted.

Keywords: logistics; distribution logistics; digital transformation; development trend; China; Belarus.

ЦИФРОВАЯ ТРАНСФОРМАЦИЯ РАСПРЕДЕЛИТЕЛЬНОЙ ЛОГИСТИКИ: ПЕРСПЕКТИВЫ ОСУЩЕСТВЛЕНИЯ В КИТАЕ И БЕЛАРУСИ

Ли Юйянь

аспирант, Институт бизнеса Белорусского государственного университета, г. Минск, Республика Беларусь, e-mail: iamyanplus@gmail.com

Научный руководитель: О. В. Мясникова

кандидат экономических наук, доцент, Институт бизнеса Белорусского государственного университета, кафедра логистики, г. Минск, Республика Беларусь, e-mail: miasnikovaov1@gmail.com

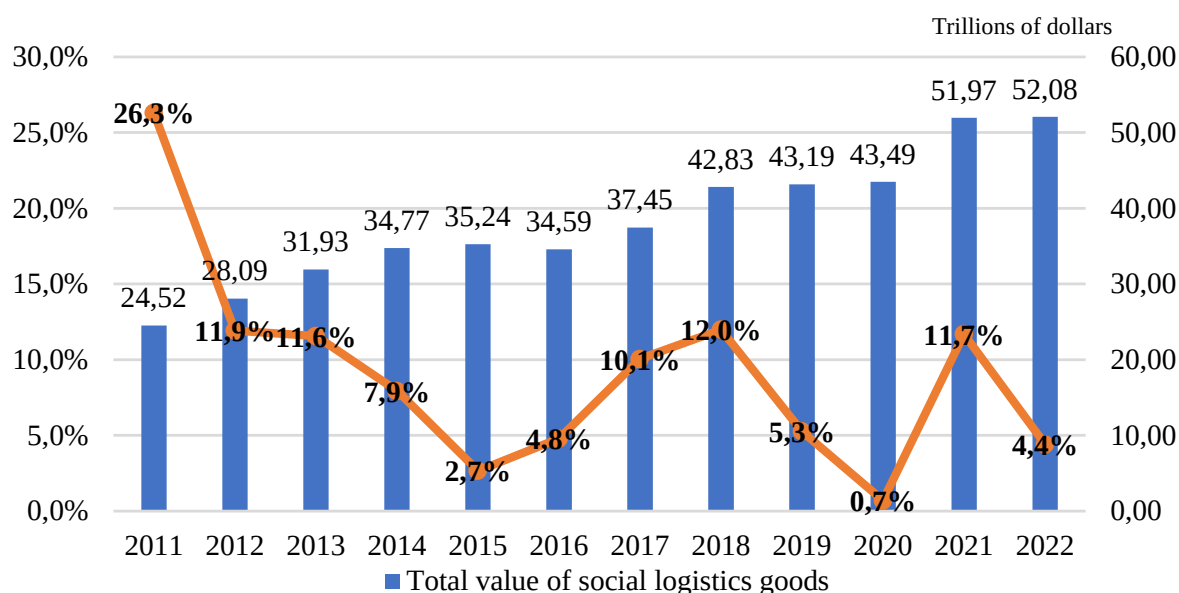
В статье рассматривается современное развитие логистической отрасли, принимая в качестве объектов исследования Китай и Беларусь. Исследуются тенденции цифровой трансформации в распределительной логистике. Выделены основные тенденции цифровой трансформации в логистике распределения, такие как цифровизация процессов, анализ больших данных, решения «последней мили» и электромобили.

Ключевые слова: логистика; распределительная логистика; цифровая трансформация; тенденция развития; Китай; Беларусь.

Introduction. The world is undergoing technological innovation and transformation as a result of the 21st century's economic development. Particularly, the digital transformation of the logistics industry with data as the core element will shape enterprises' ecological capabilities, improve logistics industry operational efficiency

through the industrial chain and supply chain, reshape global competitive advantage, meet consumer demand, achieve circulation to guide production, regulate distribution, and promote consumption under an intelligent circulation model. The distribution of goods is being altered by digital technology in order to realize the modern logistics model of «endpoint to endpoint» [1].

Results and discussions. In China, for example, logistics business activities will still tend to be active in 2022, and the transformation and upgrading of the logistics industry will accelerate, with total annual value of social logistics goods amounting to about US\$52 trillion and achieving smooth operation overall. However, the distribution end mode is still dominated by express collection at post sites and lacks digital transformation. The Chinese government has correspondingly introduced «14th Five-Year Plan for the Development of the Digital Economy», which attaches great importance to the development of digital logistics, and it is predicted that the scale of digital transformation in the domestic logistics market will exceed \$150 billion in 2025 (figure).



Total value of social logistics goods and Growth Rate of China in 2011–2017

Source: [2].

The Belarusian government is also investing in digital technologies to improve the efficiency and competitiveness of the economy in accordance with the State Program «Digital Development of Belarus» for 2021–2025 [3]. However, the Belarusian distribution logistics industry still faces a number of challenges. Many companies still rely on manual processes to manage their operations due to a lack of automation and digitalization, which leads to inefficiencies, delays, and increased costs. The lack of integration with other parts of the supply chain is another challenge. Companies often have difficulty sharing information with suppliers and customers, leading to inefficiencies and delays [4].

Logistics companies are the mainstay of the logistics industry, and digitalization is a powerful driver of their transformation and development. Belarus has a well-developed transportation infrastructure, which makes digital transformation an attractive location for distribution logistics companies. As directions for the distribution

logistics development, it is necessary to indicate the development of reverse logistics in distribution for the creation of Closed Loop Supply Chain [5], access to international markets, including China [6].

Therefore, to develop distribution logistics and strengthen cooperation between China and Belarus, including within the framework of the Digital Silk Road, the following digital transformation trends in logistics are explored to address the challenges.

1. Digitalization of logistics processes. Automated systems are an essential investment in the digital transformation of logistics companies to improve efficiency and reduce errors in cargo handling. Belarus' transportation management system, which automates data collection, analysis, and cost management and improves the speed and reliability of its services. For example, it collects data on current rates, spreads, and changes over selected periods to plan routes as well as determine fair prices for transportation.

2. Big Data Analytics. Big Data analytics and machine learning algorithms can help better understand consumer behavior, optimize supply chains, and improve distribution speed and accuracy. In China, companies like Alibaba and Jindong are using big data and artificial intelligence (AI) to optimize supply chains, predict and analyze consumer demand, and reduce distribution times. For example, Alibaba's logistics division uses 5G, intelligent algorithms, and other digital systems to improve warehouse distribution efficiency, and the entire process is digital and traceable. Edge computing, images, video AI, and other technologies are used at the end of distribution, allowing «receive», «send», «deliver» and «pick up» visualization as a whole.

3. Last Mile Solutions. The last mile refers to the provision of a «door-to-door» distribution method to customers. At this stage, the last-mile distribution method is mainly based on express collection at the post and intelligent cabinets that can be stored. With the advancement of artificial intelligence in China, unmanned delivery vehicles are now being piloted in major cities to provide instant distribution services at community sites. For example, Meituan's unmanned delivery vehicles are equipped with automatic delivery vehicles at community sites, using algorithms to find the most efficient delivery routes for them to deliver items to designated delivery locations quickly, cost-effectively, and safely [7]. This distribution model will be able to give full play to its cost advantages when achieving certain economies of scale.

4. Implementing logistics electric vehicles. Distribution logistics companies use electric vehicles to reduce emissions and improve the sustainability of their operations. The «New Energy Vehicle Industry Development Plan (2021 to 2035)» policy released by China specifies that the proportion of new energy vehicles in vehicles for logistics and distribution shall not be less than 80%, and develops new energy logistics vehicles to promote the development of digital logistics and green logistics together [8].

Conclusion. Trends and developments in the direction of digitalization are shaping the future of global distribution logistics as e-commerce and the digital economy develop. The Chinese and Belarussian governments' relevant investments in the field of digital transformation promote the adoption of digital technologies in the logistics industry and play a role in the future development of distribution-related industries. To promote a globalized, digitalized, and intelligent marketplace for the economy, as well as boost logistics companies' innovation and competitiveness.

References

1. Wang Luning. Digital Transformation Planning and Implementation Path for Large Supply Chain Enterprises // China Distribution Economy. 2022. № 4. P. 65–82.
2. China Logistics and Purchasing. Total value of social logistics goods and Growth Rate of China in 2011–2017 [Электронный ресурс]. URL: <http://www.chinawu-liu.com.cn/xs-yj/202202/09/570357.shtml> (дата обращения: 05.02.2023).
3. About the State Program «Digital Development of Belarus» for 2021–2025 [Электронный ресурс]. URL: https://pravo.by/upload/docs/op/C2210006-6_1612472400.pdf (дата обращения: 05.02.2023) (in Russian).
4. Miasnikova O. V. The logistics systems development in times of business digital transformation. Minsk : Kolograd, 2019. 203 p. (in Russian).
5. Miasnikova O. V., Verenich A. D. Transformation of Supply Chains Under the Influence of the ESG Agenda of Sustainable Development Ekonomika // Upravlenie. Innovacii = Economics. Management. Innovation. 2022. № 3 (6). P. 244–252. (In Russian).
6. Miasnikova O. V. Digital Transformation of Retail and Logistics in China: Opportunities for Export of Belarusian Goods // Problemy Upravleniya = Management Challenges. 2020. № 1 (75). P. 42–49. (In Russian).
7. Meituan. Use autonomous vehicles to deliver everything for everyone everywhere [Электронный ресурс]. URL: <https://mad.meituan.com/cooperation-case> (дата обращения: 05.02.2023).
8. National Development and Reform Commission. New Energy Vehicle Industry Development Plan (2021–2035) [Электронный ресурс]. URL: <https://www.ndrc.gov.cn/fg-gz/fzzlgh/> (дата обращения: 05.02.2023).