Prospects for the development of virtual logistics on the territory of the EAEU

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Abstract: The article analyses the state of the e-commerce and virtual logistics market on the territory of the EAEU. The portrait of the participants of the virtual trading market in different segments has been considered. The influence of various indicators on the logistics efficiency index and the impact of each component on it has been studied. The comparison of the leading country on the territory of the EAEU with the world leader in the logistics efficiency index was carried out and the potential of its development was noted. The impact of the index on the country’s GDP and the volume of e-commerce is considered. The classification of levels of integration of logistics activities is presented – the influence of integration of organisations providing services in the field of logistics on the level of logistics service is determined. The problems of logistics development in the EAEU are identified by the authors. The study provides the insight into the main promising areas of development of Internet trade and reflects the impact of logistics providers on the development of the EAEU Member States.

1. Introduction

Globalisation of the world market contributes to a radical modification of the system of production management and distribution of products through the introduction of the platform economy while transforming the existing socio-economic, political, communication and other relations. At the same time, globalisation contributes to the emergence of economic unions, such as, for example, the EU, the EAEU.

The development of any territory is impossible without the unification of the information space, built on the strengthening of the importance of various platforms and business development. Further digitalisation of the economy will strengthen the role of the consumer in trade relations, which will lead not only to the expansion of the range of services, but also to the emergence of criteria such as speed and quality of delivery (time and place of delivery, integrity and quality of goods, culture of communication of representatives of the courier service, etc.); unconditional replacement of defective goods; the possibility of return and exchange of quality goods; the breadth of multi-vector services.

2. Findings and discussion

Participation in the virtual logistics system contributes to the competitiveness of the organisation on the territory of the EAEU. Economic growth in the EAEU is impossible without the development of e-commerce and modernisation of the economy through digital technologies. Taking into consideration the large area of the countries belonging to the EAEU grouping - Russia, Belarus, Armenia, Kazakhstan and Kyrgyzstan, it is necessary to pay special attention to the transport and logistics infrastructure of the territory, that is the length and quality of roads and railways, as well as the efficiency of their maintenance. The prolonged socio-economic relations of the EAEU countries allow to identify the population of similar features, which gives the opportunity to target market segments for the formation of a unique selling proposition. At the same time, there are also differences between the countries, primarily in the level of income and purchasing power – the average monthly nominal wage in 2017 amounted to $671 in Russia, $463 in Kazakhstan, $426 in Belarus, $228 in Kyrgyzstan, $228 in Armenia (taking into account the employer's payments for compulsory social insurance) – $404 [5,8].
The volume of mutual trade between the EAEU countries in 2017 amounted to 54,697.9 million dollars. Mineral products (27.5%) and machinery, equipment and vehicles (18.6%) accounted for the largest share in the structure of mutual trade. The volume of foreign trade of the EAEU States with third countries amounted to 634,221.3 million dollars. (imports - $247,271.1 million, exports-386,950.2 million dollars.). Russia’s share in the EAEU imports is 85%, in exports – 84% [5].

The volume of e-commerce in Russia in the B2B segment in 2015 was estimated at $550 billion, and in the B2C segment at $14 billion, due to the implementation of state and municipal procurement in electronic form. The dynamics of the volume of e-Commerce in the EAEU countries indicates that the B2C segment is growing at the most significant pace and belongs to potentially attractive areas of business development.

Over the past five years, the Russian e-commerce market has had an average annual growth of 19%, the volume of cross-border trade with an annual growth for the same period – 32.6% and occupies 37% in the structure of trade, the remaining 63% of the market volume falls on domestic Internet trade, with an average paycheck on the local market - 5,370 rubles according to the Association of Internet Trade Companies (AKIT); according to Data Insight in the C2C segment - 3,250 rubles, in B2C - 4,200 rubles [6,12].

![Figure 1. Russia's largest Internet participants a) online stores B2C; b) C2C-sales, %](image)

The rating of online stores in terms of online sales according to Data Insight research Agency is shown in Fig. 1 (a). In 2017, Wildberries - the Russian international online store of clothing, footwear, household goods and other items - was recognised as the largest participant on the online platform in the B2C segment. In addition to the Russian Federation, the company represents its interests in Belarus, Kazakhstan and Kyrgyzstan. In second place with the growth of online sales by 75% is the Russian chain of stores “CITILINK” positioning itself as an electronic discounter [6]. The leader in Russia in the share of transactions on C2C sites is Avito (70%). 21% of transactions are accounted for two also leading sites - VK.com and Yula (12 and 9%, respectively) (see Fig. 1 b).

According to the online survey for the first half of 2017, the portrait of C2C market participants showed almost complete identity of characteristics of buyers and sellers (Fig. 2). A typical representative of the users of this model of marketplaces is an individual aged 25 - 34 years old, with an income above average and experience on the Internet for more than 5 years. The predominant share of online purchases by persons under 34 years of age is made with the use of smartphones. The use of various gadgets and high activity are characteristic features of the category of buyers called "extreme shopper" (in Russia, 61% of the audience of online stores account for "extreme" buyers [10]).
At the same time, in the B2C segment of e-commerce, along with attractive time and financial savings, there are constraints: psychological (lack of tactile effect; distrust in forms of payment), technical (technical failures and fraud; weak information protection), logistics (unacceptable delivery terms), imperfection of legislation, etc. The organization of e-commerce assumes first of all that the buyer has access to the Internet, the quality of which is uneven in the territory of the EAEU countries.

The research conducted by VCIOM (Russian Public Opinion Research Centre) shows that the share of Internet users in Russia is 81%, however, the use of the Internet is primarily caused by work or educational purposes (44%), while Internet purchases are not a significant motive for the use of the Internet [11].

Another problematic factor hindering the development of Internet trade in the EAEU is the level of development of warehousing. The total area of warehouses in Russia is 24 million m², while the Moscow and Leningrad regions accumulate 70% of them [3]. Only a quarter of warehouses of the highest category A are located outside the Central and North-Western Federal districts of Russia. In the
Republic of Belarus, the area of warehouses, classes A and B was about 800 thousand m² at the end of 2017. Kazakhstan built two warehouses of class A, in the territory of Armenia there are only category B warehouses and below, and in Kyrgyzstan – the warehouses of hangar type are presented. Consequently, the development of e-commerce and virtual logistics requires a continuous growth of high-quality warehouses of A and A+ categories in all the above mentioned countries.

Despite the existing shortcomings, the volume of e-commerce in the EAEU is constantly growing and will continue to expand due to the expansion of the use of agile marketing - the manufacturer’s continuous response to changes in market needs.

One of the most important components of e-commerce is effective logistics (logistics providers), formed on the basis of quality services of the transportation and storage of goods at an adequate cost. Virtual logistics becomes the basis of competitive advantage of the organisation. At the same time, there is a growing trend in the global market for organisations to outsource part of their functions. Virtual logistics ceases to be a part of the organisation, turning into services of third-party organisations for the transportation of goods.

Logistics efficiency (productivity) index is a six-component index, the overall assessment of which reflects the perception of the country’s logistics on the basis of:

1. Efficiency of the customs clearance process.
2. Quality of services and infrastructure related to transport.
3. Ease of organisation of deliveries at competitive prices.
4. Competence and quality of logistics services.
5. Cargo tracking and control capabilities.
6. The frequency with which shipments reach consignee within scheduled or expected time.

The index value ranges from 1 to 5, and efficiency increases as the value increases. The analysis uses World Bank information in partnership with academic and international institutions, private companies and individuals involved in international logistics. The dynamics of logistics efficiency index for 2007 – 2016, calculated every two years is presented in Fig. 3 [7].

Figure 3. Logistics performance index
The leader in the studied indicator is Germany - 4.23 points. In general, it can be noted that in recent years, most countries have seen an increase in the indicator (the growth rate of the logistics efficiency index: China – 1.04, Japan – 1.01, the US – 1.02, the Eurozone – 1.02, the EAEU – 0.94, Russia – 0.95), while among the EAEU countries the only positive dynamics was observed in the Republic of Kazakhstan – the growth rate of the index 1.93%. The average decrease in the EAEU was 6.4 % in 2016 compared to 2014. This may be partly due to subjective geopolitical reasons, and partly due to objective economic factors. Component analysis of the index (Fig. 4) allows to state that Kazakhstan is the leader among the EAEU countries in 4 indicators, and Russia is the leader in quality of services and frequency of deliveries. Kyrgyzstan is lagging behind in most indicators, and the strong point of logistics in Belarus is the simplicity of the organisation of supplies, the level of prices for logistics services and the frequency of receipt of goods. The effectiveness of customs procedures for the majority of the EAEU members is the most problematic point. International analysts emphasise the abundance of documents for application, preservation of the procedure of physical inspection of goods, the duration of customs clearance procedures [4, 9, 15].

Figure 4. Components of the logistics performance index for the EAEU countries, 2016

A component-by-component comparison of the logistics efficiency index of the leading country in this indicator of Germany and Russia is presented in Fig. 5. The strongest side of the logistics leader is the quality of trade and transport infrastructure, the weakest - the quality of supply and price competitiveness [14].

In the course of the study, the authors established a close correlation between research and development costs as % of GDP and logistics efficiency, which indicates that international logistics is currently a high-tech industry, namely, high technology, primarily digital, that determines its further development. Germany's costs are respectively 2.88 % of GDP, Eurozone 2.14, Russia 1.13, the average for the EAEU - 0.44 % of GDP, which is less than the Eurozone 4.9 times. Therefore, the development of logistics in the EAEU will be largely determined by the volume of investment in research and development.
At the moment, the index of e-commerce development in the EAEU is significantly behind the leading states, with Russia in the 50th place out of 137 countries in 2015, Belarus – 62, Armenia – 87, Kazakhstan – 88, Kyrgyzstan-109 [1].

Figure 5. Comparative analysis of the logistics performance index of Russia and Germany, 2016

The coefficient of determination between the costs of research and development and the logistics performance index in 2016 amounted to 0.8372, the dependence is reflected in the formula (1). At the same time, the impact of the logistics efficiency index on real GDP per capita in 2016 R² = 0.9124 was expressed by the formula (2).

\[ y = 0.7389x + 2.1762 \]  
\[ y = 57292\ln(x) - 35091 \]

By elevating the quality of logistics to the level of Germany - the country-leader, Russia's GDP will be able to reach the level of 48012.97 $/person. Paradoxically, the authors could not establish a correlation between the level of the logistics efficiency index and the volume of trade of countries (correlation coefficient in the analysis of 132 countries was 0.05), however, a strong correlation with the volume of e-commerce is identified (Fig. 8).

Figure 6. The correlation between the logistics performance index and the volume of e-commerce in 2016
The presence of this dependence indicates that the electronic commerce to a greater extent than trading as a whole depends on effective logistics. Given the continuous expansion of the volume of trade operations in the B2C and C2C segments, we can talk about the need to improve virtual logistics in the EAEU. The nearest prospect of online trading-neuromarketing - the formation of predictive proposals based on the offer of goods to customers before they thought about the need to purchase [2, 13]. The integration of logistics companies will increase the level of services, reduce time costs and shipping costs, which will increase the competitiveness of e-commerce companies in the EAEU and the world market (table.1).

| Logistics service levels (LP – Party Logistics) | Participants | Integration levels |
|-----------------------------------------------|--------------|--------------------|
| 1 PL – logistics insourcing (autonomous logistics) | Cargo owners |                    |
| 2 PL – partial logistics outsourcing (traditional logistics) | Hauliers |                    |
| 3 PL – comprehensive outsourcing of logistics services (logistics for third parties): - international freight forwarder; - providers of warehouse services, transportation, optimisation of transport services, software. | Logistics operators | Transportation, warehousing and storage. |
| 4 PL – integrated logistics outsourcing | System logistics integrators | Forwarding, organisation of customs clearance, services for express courier delivery; door-to-door transportation; cross-docking; IT - integration and coordination of the activities of the focal company and key counterparts in the supply chain; commodity monitoring; logistics capacity leasing; SCM consulting. |
Any company from the Top 100 IT companies in Russia, geographically represented by Moscow, St. Petersburg, Kazan, Ufa, Ulyanovsk, Yekaterinburg, Novosibirsk, Nizhny Novgorod and other cities can act as a virtual logistics integrator. Any of these companies, having experience in the field of IT and management experience, can diversify its activities, acting as a 5 PL logistics provider.

3. Conclusion

E-commerce, as well as manufacturing, in the near future will be built on a scrupulous analysis of big data, which will allow to personalise the offers in the EAEU market [16]. Electronic and platform economy will allow to predict demand more accurately on the basis of digital footprint and collaborative filtering, the volume of product design for the consumer with constant cost will increase.

Thus, one of the main problems of the EAEU logistics development is slow customs clearance procedures, especially veterinary and phytosanitary control, the quality of infrastructure and ease of organisation of supplies. The first and last problems can be solved by virtual logistics capabilities, partly combining the capacities and investment opportunities of logistics providers, which will improve the situation in the second direction as well. The authors believe that the emergence of national logistics providers united in a single transnational provider on the territory of the EAEU is promising, which will allow:

1) to simplify the customs clearance procedure by expanding the possibilities of preliminary information and consulting;
2) to make better and more efficient use of the existing logistics infrastructure;
3) to increase the efficiency of investments in the development of virtual logistics;
4) to reduce the costs of enterprises for the organisation of logistics processes;
5) to improve the efficiency of logistics operations and economic activities in general, by improving the speed and quality of supply. This, in turn, will expand the possibilities of e-commerce as one of the promising areas of development of the integrated Eurasian economic space.

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