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MODERN TRENDS IN DEVELOPMENT OF LOGISTICS MARKET

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Abstract. In logistics, analytical, technological and marketing paradigms are being replaced by an integrated (logistics) paradigm, which goes beyond the problems of optimizing the business processes of an individual enterprise and involves the integration of individual enterprises into supply chains to improve management processes and increase the overall efficiency of their business.

The article provides a theoretical and methodological justification for the influence of institutional and technological factors on the transformation of the logistics market in modern conditions. It defines that the mutual influence of institutional and technological factors forms in logistics the specifics of multi-channel supply networks, which have a fundamentally different more complex market mechanics, and also form a new institutional framework of trade and logistics infrastructure of multi-channel supply of modern consumer market.

It has been proven that the development of e-commerce creates new institutional conditions and encourages changes in corporate governance strategies and consumer behavior, and the dominant type of institutional agreements imposes certain restrictions on determining the needs, preferences and choices of agents, thus stimulating the development of even more modern technologies.

Key words: multi-channel networks, e-commerce, institutional environment, supply chain, logistics market.

Introduction

The latest stage of economic development, which experts call the «economy of interactions» or «economics of competencies», is directly associated with the spread of network structures and organizations. Improving their efficiency requires a new quality of interactions and management, which are associated with the integration of processes and organizations into a single whole.

Formulation of problem

Under such conditions, in logistics, analytical, technological and marketing paradigms are replaced by an integrated (logistics) paradigm, which goes beyond the

problems of optimization of business processes of an individual enterprise and involves the integration of individual enterprises into supply chains to improve management processes and improve overall efficiency of their business.

In this regard, there are a number of problematic issues related to determining the market mechanics of further development of the logistics market, the dynamics of consolidation of its operators, the fidelity of the vector which will be measured by the resulting factors determining modern institutional and technological development of logistics business.

Analysis of recent research results

A significant contribution to the development of the theory of logistics and the peculiarities of the development of the world market of logistics services has been made by: C. Karatas-Cetin, G. Denktas-Sakar [9], A. Marasco [12] and O. Sumets [18].

Institutional aspects of logistics development were studied by: J. Monios, B. Lambert [13], E. Rauch, P. Dallasega, D. Matt [16], F. Ye, X. Zhao, C. Prahinski, Y. Li [20] and O. Zagurskiy [3].

Current trends in the development of various areas of logistics and supply chain management in the world were considered by: P. Neirotti, A. De Marco, A. Cagliano, G. Mangano, F. Scorrano [14], N. Raimbault [15], G. Schliwa, R. Armitage, S. Aziz, J. Evans, J. Rhoades [17] (urban logistic), K. Gy, K. Sebastian [5] (production logistics), K. Govindan, H. Soleimani [4] (reverse logistics), I. Irtyshcheva, O. Ishchenko, J. Barabanova [7], I. Kabashkin, D. Bazaras, K. Čižiūnienė, R. Palšaitis [8] (transport logistic), I. Kozlenkova, G. Hult, D. Lund, J. Mena, P. Kekec [10], P. Macurová, K. Jurásková [11], E. Tijan, S. Aksentijevic, K. Ivanić, M. Jarda [19], O. Zagurskiy, M. Ohienko, T. Pokusa, S. Zagurska, F. Pokusa, L. Titova, I. Rogovskii [21] O. Zagurskiy, L. Titova [22] (supply chains).

However, despite the variety of modern research on certain topics, it should be noted that there are almost no attempts to investigate the complex impact of institutional and technological changes on the development of the

logistics market. This determines the relevance of our study.

Purpose of research

The purpose of the work is the theoretical and methodological substantiation of the influence of institutional and technological factors on the transformation of the logical market in modern conditions.

Research results

The methodology of institutionalism is characterized by the so-called dichotomization, ie the separation from the system of social production of two more or less independent subjects of study, which interact closely with each other.

One of the subjects "technology" the achieved level of scientific and technical knowledge and intellectual experience embodied in the production of tools and machines, the qualifications of manufacturers and production management, service provision. The second "institution" a real form of organization of behavior and motivation of economic agents that have developed in a particular society. Based on this, institutionalists see the reason for all the contradictions of capitalism in the inconsistency of the institutional environment with the level and needs of the development of "technology". Thus, according to experts of the World Economic Forum, economic growth in innovation-active countries by 50% depends on the development of technology, 25% on the efficiency of public institutions and 25% on the quality of the microeconomic environment, which can also be considered an element of society.

In logistics markets, the institutional environment has been transformed, moving towards reconciliation between planned top-down approaches and market development of the private sector. In addition, encouraging public-private consortia has potentially facilitated the development of national corridors that can support new markets, while receiving both public and private benefits [13, p.45].

Institutional changes in the logistics market, related to the processes of globalization and informatization of the economy and society, have led to the fact that the main emphasis in traffic management technologies today is on networks: IT technologies and multi-channel sales system. And if in the traditional system of construction of sales wholesale and retail link having in the product matrix of thousands of products of hundreds of suppliers are not able to provide them with accurate information about consumer demand. That is, the structure of the product offer is formed by trade intermediaries and it does not always coincide with real demand, and the existing deviation is offset by expanding marketing budgets, which are then transferred to the buyers of products (laid in the price of goods). In a multi-channel (network) sales system, the product range is formed by the consumer and is close to the absolute maximum.

The Internet makes any product offer equally accessible, regardless of its territorial origin. A new more accessible and developed feedback with the consumer is

formed, the presence of which fundamentally changes the whole system of chain management.

The multi-channel (network) sales system forms a completely new institutional environment. It opens opportunities for consumer market participants that exceed the "potential of today's best practices" [1, p. 539]. At the heart of these capabilities is the virtualization of the market, where there are no distances or restrictions on the volume and speed of information processing, while management algorithms are unified and automated.

Moreover, this approach changes the very essence of supply chains, disappears "the need for a reliable central organization (focus company), which supports the entire system and coordinates and controls the continuous supply chain and transactions from raw materials to consumers" [22, p. 71]. After all, the powers and responsibilities in modern supply chains are differentiated and distributed according to how the information flows themselves are distributed. Marketing and product policy remain in the management of producers, and sales organization is implemented by external market operators who develop appropriate competencies, technologies, infrastructure, etc.

Such fragmentation is also manifested in the system of virtual commerce, when some companies take on logistics outsourcing online stores, leaving them only trade policy and marketing. Under such conditions, according to G. Bubnova, B. Levin loses the relevance of the generally accepted in the theory of logistics economic criterion "minimum costs", and comes to the fore "maximum economic effect, benefits, values." [2. p. 74.].

At the same time, increasing requirements for last mile logistics, permanent strengthening of industry supply standards (e.g. those related to batch management, electronic data exchange with customers, packaging, etc.) stimulate closer cooperation between market participants and logistics providers, which is also accompanied by changes and substitutions. their roles and functions. Thus, the modern decentralized and autonomous organization of intelligent logistics facilities in service-oriented environments provides for the storage of logistics information on RFID tags that are attached to the transported goods, which means that all the necessary information for logistics decisions is directly adjacent to the goods.

Accordingly, the logistics facilities themselves have to choose the routes through the transport networks.

In addition, processes, methods and tools for their management are also evolving within supply chains. Increasingly popular are platforms for collaboration that connect multiple buyers and suppliers with financial institutions, allowing them to conduct automated supply chain financing operations.

Thus, there is a replacement of utilitarian interpretation of logistics efficiency by minimizing the cost of increasing the usefulness of supply processes and greater customer satisfaction, which is associated with the breadth of changes affecting the technological level (new technologies of monitoring and control, new methods of supply and payment), and the institutional level (new models of consumer behavior, innovative business models that include elements of the sharing economy), new requirements for institutional intermediaries).

These changes are confirmed by the Global Logistics Efficiency Rating (LPI 2018), which is based on a global survey of operators (global freight forwarders and express carriers) and combines in-depth knowledge of the countries

in which they operate with qualitative assessments of other countries in which they trade and have experience in the global logistics environment.

Table 1. World Bank Rating Logistics Performance Index (LPI) in 2018.

№	Country	LPI Rank	LPI Score	Customs		Infrastructure		International shipments		Logistics competence		Tracking & tracing		Timeliness	
1	Germany	1	4.2	1	4.09	1	4.37	4	3.86	1	4.31	2	4.24	3	4.39
2	Sweden	2	4.05	2	4.05	3	4.24	2	3.92	10	3.98	17	3.88	7	4.28
3	Belgium	3	4.04	14	3.66	14	3.98	1	3.99	2	4.13	9	4.05	1	4.41
4	Austria	4	4.03	12	3.71	5	4.18	3	3.88	6	4.08	7	4.09	12	4.25
5	Japan	5	4.03	3	3.99	2	4.25	14	3.59	4	4.09	10	4.05	10	4.25
6	Netherlands	6	4.02	5	3.92	4	4.21	11	3.68	5	4.09	11	4.02	11	4.25
7	Singapore	7	4	6	3.89	6	4.06	15	3.58	3	4.1	8	4.08	6	4.32
8	Denmark	8	3.99	4	3.92	17	3.96	19	3.53	9	4.01	3	4.18	2	4.41
9	UK	9	3.99	11	3.77	8	4.03	13	3.67	7	4.05	4	4.11	5	4.33
10	U. Arab E.	11	3.96	15	3.63	10	4.02	5	3.85	13	3.92	13	3.96	4	4.38
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65	Serbia	65	2.84	78	2.6	74	2.6	57	2.97	80	2.7	76	2.79	62	3.33
66	Ukraine	66	2.83	89	2.49	119	2.22	68	2.83	61	2.84	52	3.11	56	3.42
67	Egypt	67	2.82	77	2.6	58	2.82	73	2.79	63	2.82	89	2.72	74	3.19
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
160	Afghanistan	160	1.95	158	1.73	158	1.81	152	2.1	158	1.92	159	1.7	153	2.38

Source: Global Rankings 2018 URL. <https://lpi.worldbank.org/international/global>.

The first places in this ranking are traditionally occupied by technologically developed and institutionally stable countries of the European Union (Germany, Sweden, Belgium), Asian countries (Japan, Hong Kong, Singapore) and the United States.

As for Ukraine, gaining 2.83 points, it ranks 66th among 160 countries in the ranking (among the post-Soviet countries 3 after Estonia (3.31 points and 36th place) and Lithuania (3.02 points and 54th place)) rising to 14 positions compared to the previous rating in 2016.

If we understand in detail the Global Ranking of Logistics Efficiency of the 6 criteria by which the study was conducted - 3 contain technological features: international transportation of goods; cargo tracking; timeliness of delivery, and three institutional: customs procedures; infrastructure; logistical competence.

Moreover, the institutional environment, in our opinion, affects competitiveness and economic growth through the formation of individual and organizational incentives in logistics markets. These incentives initiate the processes of resource accumulation and modernization, development and dissemination of technologies; allocation, use and coordination of resources; interaction of buyers and sellers and internationalization of logistics activity.

T. Hamalainen in the work "National competitiveness and economic growth: the changing determinants of economic performance in the world economy" identifies five factors that have a decisive impact on economic growth through the process of creating technological

innovations, four of these factors depend on existing institutional structures:

- market potential for innovation may be limited by institutional frameworks, such as monopoly rights, technological standards, tariffs and quotas, national differences in the regulatory regimes of specific sectors of the economy;

- the level of competition among producers directly affects the practical application of innovations, therefore, an important institutional factor of economic development is the predominant regime of antitrust regulation and competition;

- the regime of "guaranteeing" property rights (practical application) is an important factor in stimulating innovation;

- the institutional environment also influences the dissemination of new technologies [6].

Thus, institutional changes contribute to the development of new technologies in the logistics sector and the digital transformation of supply chains in the consumer market, which entails a number of important changes, namely:

- change of processes of commodity-sales cooperation in supply chains of multichannel trade;

- change of approaches and models of formation of commodity supply of the modern consumer market;

- end-to-end change of all elements of the supply chain (CRM, ERP, WMS, TMS.), through the development of solutions in SaaS format that allows you to deploy new functionality based on the expertise that is formed with each new customer;

– expanding the intersection of logistics and marketing in multi-channel supply chains.

Examining trends and innovations in the field of logistics and supply chains in 2020, Transmetrics analysts

identified 10 TOP-10 important innovative logistics trends of today and sorted them by relevance.

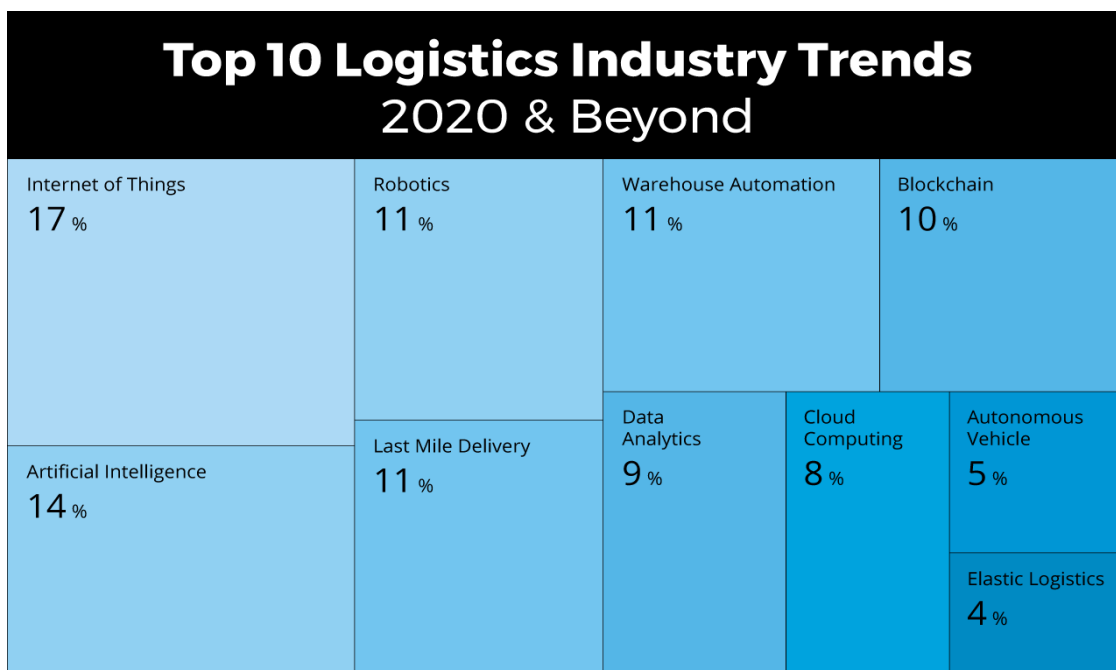


Fig. 1. Top 10 Logistics Industry Trends & Innovations: 2020 & Beyond.

Source: Transmetrics. URL. <https://www.startus-insights.com/innovators-guide/logistics-industry-trends-10-innovations-that-will-impact-logistics-companies-in-2020-beyond>.

1. Internet of Things (Fleet Management, Real-Time Supply Chain Visibility) – 17%.
2. Artificial Intelligence (Demand Forecasting, Process Optimization) – 14.
3. Robotics (Collaborative Robots Cobots work collaboratively with human workers, Robotic Process Automation) – 11%.
4. Last-Mile Delivery (Drones, Smart Lockers) – 11%.
5. Warehouse Automation (Automated Guided Vehicles, Automated Storage & Retrieval System) – 11%.
6. Blockchain (Smart Contracts, Freight Tracking) – 10%.
7. Big Data & Data Analytics (Performance Management, Prescriptive Analytics) – 9%.
8. Cloud Computing (Cloud Platform, Cloud TMS) – 8%.
9. Autonomous Vehicles (Autonomous Vehicle Fleet, Autonomous Vehicle Software) – 5%.
10. Elastic Logistics (On-Demand Warehousing, On-Demand Delivery Vehicles) – 4%.

What does it mean? As customer expectations continue to grow and interests shift to a variety of products and personalized services, the logistics and supply chain sectors are facing increasing pressure. The rapid development of new technologies, such as the Internet of Things, modern mobile robots, artificial intelligence solutions and blockchain solutions, leaves companies facing a dilemma in choosing the most attractive technologies for investment. Thus, the development of new technologies encourages changes in corporate governance strategies and patterns of consumer behavior, and the

dominant type of institutional arrangements imposes certain restrictions on determining the needs, preferences and choices of agents, thereby stimulating the development of even more modern technologies.

The mutual influence of institutional and technological factors forms in logistics the specifics of the functioning of multi-channel supply networks. They have a fundamentally different more complex market mechanics, and also form a new institutional framework of trade and logistics infrastructure of multichannel supply of the modern consumer market a system of socio-economic institutions that influence the directions and forms of interests of economic agents in the structural modernization of logistics.

The latter can be defined as an institutional structure, which, in turn, shapes the institutional environment, conditions and models of future changes in logistics in particular and supply chains in general. In our opinion, the new model of the supply chain that meets the institutional needs of today may have a complex network structure both in the supply process and in the processes of financing management and especially the sale of goods (Fig. 2).

In contrast to traditional logistics, which is governed by the movement of inventories and data on commodity supply, the system of movement of goods of multi-channel trade is dominated by payment flows and information on the state of consumer demand. This difference is basic. It creates operational advantages and high efficiency in the form of accelerated turnover, operational savings and a significant increase in the efficiency of supply of producers, which are achieved through technological innovation.

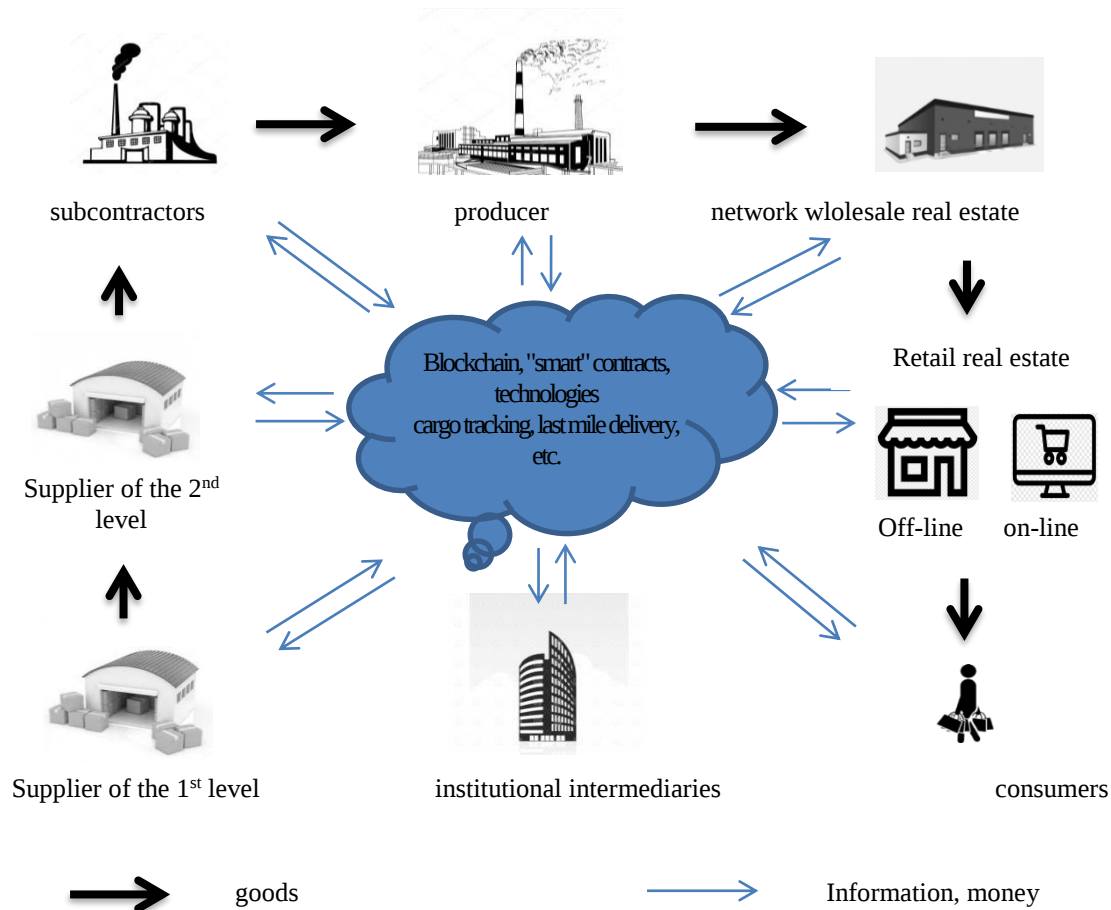


Fig. 2. New model of supply chains. Source: made by the author.

The development of e-commerce, market entry of online aggregators, national and global trading platforms forms a fundamentally new configuration of the value chain where the dominant position is occupied by digital links, which without a product, solve the problem of attracting customer base, which allows them to keep a significant percentage. value added. However, leaving retail completely online is not one hundred percent the right solution and panacea for all problems, because in such a scenario, a very important component is lost personalized trust between seller and buyer. Therefore, in our opinion, it would be more correct to combine traditional offline methods with technological online methods in an innovative multi-channel sales model.

The formation of a multi-channel sales model creates a fundamentally new role of logistics, which in the current phase of online retail not only provides the opportunity to differentiate product and service offerings, but also creates an additional barrier to market entry, increasing retail monetization in digital sales channels. And the very combination of logistics and service in online retail is becoming the main catalyst for the development of the commodity market.

That is, there is not only a change in supply chains, but also a change in the entire transport, logistics and warehousing infrastructure, which must now be restructured and serve the multi-channel logistics of the market. Institutional transformation of supply chains in turn is accompanied by profound technological changes in

logistics. A new institutional and market direction in the development of supply chains and product distribution systems is being formed, which has important distinctive features:

1. The configuration of supply chains and methods of commodity-sales cooperation of commodity producers and real estate are changing, which is becoming virtually autonomous. The growing concentration of capital in the field of trade, its rapid infrastructure and technological development lead to sales autonomy, which in the long run eliminates the possibility of building vertically integrated value chains in the sense in which this concept is traditionally interpreted.

2. There are operationally and technologically more complex multi-channel supply chains, in which logistics acts as a de facto primary component of the supply of goods and services. It is possible that this is a consequence of the immaturity of the initial stage of development of multi-channel sales, when many tasks in the context of radically new purchasing experience and behavior in different channels led to a number of logistics tasks to be solved within existing technologies and IT solutions.

Conclusions

1. The digital transformation of supply chains creates fundamentally new effects that have no analogy in the practice of logistics market development. In particular, the

effects of over-scaling of the supply network in e-commerce are not typical for traditional retail. This allows us to identify new areas of scientific and practical development of logistics, replacing the utilitarian interpretation of logistics efficiency by minimizing the cost of increasing the usefulness of supply processes and greater customer satisfaction, which is associated with the breadth of changes affecting the technological level (new technologies of observation and control, new methods of supply and payment) and the institutional level (new models of consumer behavior, innovative business models that include elements of the sharing economy), new requirements for institutional intermediaries).

2. The development of e-commerce creates new institutional conditions in which the bulk of profits will be received by companies that have access to the customer and encourages changes in corporate governance strategies and patterns of consumer behavior, and the dominant type of institutional agreements imposes certain restrictions on needs, benefits and the choice of agents thereby stimulating the development of even more modern technologies.

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СУЧАСНІ ТЕНДЕНЦІЇ РОЗВИТКУ
ЛОГІСТИЧНОГО РИНКУ

О. М. Загурський

Анотація. У логістиці на зміну аналітичній, технологічній та маркетинговій парадигмам приходить інтегральна (логістична) парадигма, яка виходить за межі проблем оптимізації бізнес-процесів окремого підприємства і передбачає інтеграцію окремих підприємств у ланцюги постачання товарів з метою наскрізного удосконалення процесів управління та підвищення загальної ефективності їх бізнесу.

У статті проведено теоретико-методологічне обґрунтування впливу інституціональних і технологічних чинників на трансформацію логістичного ринку за сучасних умов. В ній визначається, що взаємний вплив інституціональних і технологічних чинників формує в логістиці специфіку функціонування багатоканальних мереж постачання, які мають принципово іншу більш складну ринкову механіку, а також утворюють новий

інституціональний каркас торгівельно-логістичної інфраструктури багатоканального товаропостачання сучасного споживчого ринку.

Доведено, що розвиток інтернет-торгівлі формує нові інституціональні умови та спонукає до зміни стратегій управління компаніями й моделей поведінки споживачів, а домінуючий тип інституціональних угод накладає певні обмеження на визначення потреб, переваг і вибори агентів тим самим стимулюючи розвиток ще більш сучасних технологій.

Ключові слова: багатоканальні мережі, інтернет-торгівля, інституціональне середовище, ланцюг постачань, логістичний ринок.

СОВРЕМЕННЫЕ ТЕНДЕНЦИИ РАЗВИТИЯ ЛОГИСТИЧЕСКОГО РЫНКА

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Аннотация. В логистике на смену аналитической, технологической и маркетинговой парадигмам приходит интегральная (логистическая) парадигма, которая выходит за пределы проблем оптимизации бизнес-процессов отдельного предприятия и предусматривает интеграцию отдельных предприятий в цепи поставок товаров с целью сквозного совершенствования процессов управления и повышения общей эффективности их бизнеса.

В статье проведено теоретико-методологическое обоснование влияния институциональных и технологических факторов на трансформацию логистического рынка в современных условиях. В ней определено, что взаимное влияние институциональных и технологических факторов формирует в логистике специфику функционирования многоканальных сетей поставок, которые имеют принципиально другую более сложную рыночную механику, а также образуют новый институциональный каркас торгово-логистической инфраструктуры многоканального товароснабжения современного потребительского рынка.

Доказано, что развитие интернет-торговли формирует новые институциональные условия и побуждает к изменению стратегий управления компаниями и моделей поведения потребителей, а доминирующий тип институциональных соглашений накладывает определенные ограничения на определение потребностей, предпочтений и выборы агентов тем самым стимулируя развитие еще более современных технологий.

Ключевые слова: многоканальные сети, интернет-торговля, институциональная среда, цепь поставок, логистический рынок.