MANAGEMENT OF LOGISTICAL SUPPORT OF INNOVATIVE COOPERATION INTENSIFICATION UNDER ECONOMY INTELLECTUALIZATION

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Methods. The results are obtained through the use of methods: analysis and comparison, synthesis and theoretical generalization – to form a system for ensuring the logistical interaction of intellectual elements of creating an innovative product; abstract-logical – to determine the conceptual foundations of management of logistics support for the intensification of innovation cooperation in the intellectualization of the economy; graphical analysis – to visualize the results of the study.

Results. The directions that need to be reformed in the context of the process of intellectualization of the economy and intensification of competition in the markets of high-tech products and services are identified. The priority value of intellectual work and intellectual resources for creation of an intellectual product and generation of innovative ideas is established. The elements of the intellectual environment as a set of conditions that contribute to the implementation of mental labor in the process of production and management are considered. The necessity of application of the concepts «intellectual income», «intellectual profit» and «intellectual rent» to characterize the final result of intellectual production is determined.

Novelty. The system of providing logistical interaction of creating intellectual elements of an innovative product is offered. Conceptual assumptions on the consideration of logistics flows within the national innovation system are formed. The algorithm of managing the intensification logistical maintenance of innovative cooperation at intellectualization of economy is developed.

Practical value. The research provides the possibility of applying the developed and submitted proposals for the management of logistics support for the intensification of innovation cooperation in the intellectualization of the economy in order to reform the individual structural elements of the national innovation system and increase its competitiveness at the international level. The conclusions and results of research and the given methodical recommendations will promote the increase of innovative cooperation efficiency at the national and international levels.

Keywords: logistical support, intellectualization, innovation cooperation, management, human capital, competitiveness, reform.

Statement of problem. The current stage of development of the world economy is characterized by the processes of evolution of social division and cooperation of labor, accompanied by intellectualization and technologicalization of economic processes and relationships between national economies, leading, in turn, to increase transaction costs of individual actors and information asymmetry at all levels. Accordingly, these processes require the development of new approaches to managing sustainability, knowledge reproduction and human capital development within individual economic systems, stimulating interest in studying intellectual, information and knowledge flows at micro, macro and mega levels, which enhance innovation cooperation and creation of intellectually innovative products and services.

Analysis of recent papers. The works of a number of domestic and foreign researchers are devoted to the study of the issues of resource provision of the intellectualization of the economy. Among them are the works of J. Galbraith,
P. Drucker, D. Bell, M. Porat, E. Toffler and T. Stonier, who conducted research on management technologies that can be used to improve the efficiency of intellectual resources at the macro level.

At the micro level, researchers traditionally allocate intellectual capital, determining its place among other types of enterprise resources, analyzing its components and approaches to its management. Within the framework of this research the works of such domestic authors as O. Kornukh, Yu. Levchenko, A. Yeremenko, V. Shkola, J. Sytnyk were considered.

The problems of innovation activity and innovation cooperation are devoted to the work of a number of domestic researchers, including A. Poruchnyk, A. Filipenko, V. Bazylevych, who identify problem areas of innovation activity and its competitiveness, as well as S. Ilyashenko, T. Melnyk, L. Fedulova, A. Lieutenant, exploring various aspects of innovation cooperation. However, the issue of management of logistics support for the intensification of innovation cooperation in the intellectualization of the economy, in our opinion, is insufficiently covered and needs further study.

Aim of the paper. The purpose of the study is to generalize the theoretical foundations for the management of logistics support for the intensification of innovation cooperation in the intellectualization of the economy.

Materials and methods. The development of the world economic system is accompanied by the intensification of processes of innovation and intellectualization of the productive forces of society, highlighting the intellectual component of labor, which allows to create a «push» for the active development of innovative production and cooperation. Developed economies of the world are gradually moving away from the routine use of conventional activities based solely on manual labor, and are actively integrated into the processes of mechanization and automation of all types of socio-economic activities. These processes lead to the dominance in the economies of developed countries and the economies of developing countries of the mental labor sector, which is the basis for information and intellectual economic activity at all levels. The first type of activity is associated primarily with the use of the analytical component of mental work, which allows to effectively process large arrays of information using appropriate software, the second – involves the generation of «breakthrough», innovative knowledge and ideas, giving them the form of innovation, commercialization of innovations and the organization of effective innovative cooperation which will promote full realization of creative competences of human capital within the limits of the given type of economic activity.

Intensification of innovation cooperation is both a goal and a method of intellectualization of the economy, because in itself significant available volumes of intellectual and innovative products are not able to generate income, thus, it is not enough to ensure the production of innovative products, it is also necessary to effectively sell it nationally, and internationally. The expanded scale of reproduction of intellectual and innovative products and services is due to the fact that in their creation there is a significant percentage of human knowledge, which is realized through the use of human capital, which, in turn, requires an effective mechanism for managing logistical support of new generation services [2].

It should be noted that on a global scale the process of intellectualization of the economy is uneven and takes a long time, due to the need to reform a number of areas:

– formation of a scientific and educational systems cluster at the national level;
– ensuring effective interaction of science and business through the integration of functional units of R&D of individual economic entities in the innovation system of the state;
– popularization of service activity and intellectual support of sold products and services, which will increase consumer demand and bring the producer of intellectually innovative products closer to its consumers;
– promoting the active use of remote communication technologies that intensify the processes of attracting national producers of innovative products to the global intellectual environment;
– support for international integration and institutional convergence in the development, implementation and support of innovative products.

In our opinion, the intensification of innovative cooperation is impossible without realizing the importance of product creation processes...
with a high degree of intellectual investment, both tangible and intangible, because the product becomes innovative only when its production is dominated not only by the use of new technologies but also creative component, which, as noted above, is created during the intellectual economic activity (Fig. 1).

The basic components needed to create an intelligent product are intellectual work and intellectual resources. Thus, L. Leontiev defines intellectual work as «appropriate activity to transform human intellectual resources into new products and services necessary for personal and joint consumption» [12, p.122]. This definition, in our opinion, most fully reflects the importance of intellectual work for the creation of intelligent
products and services, emphasizing the importance of its costs and organization on a par with other elements of the research process.

While the concept of «intellectual work» is relatively new and is quite rare in the context of the study of innovation, the concept of «innovative work» is quite actively used by researchers in determining the effectiveness of innovation. G. Slesinger defines innovative work as «part of labor activity, which includes such components as creative work, innovation-management and executive work» [14, pp. 177–178]. I. Ivanyuk, along with the concept of «innovative labor» considers the concept of «industrial intelligence», expressing the opinion that «in the process of intellectual labor intellectual potential is transformed into intellectual capital as an intangible asset of the enterprise» [7, pp. 26–28]. Thus, the authors draw attention to the priority of using intellectual labor in creating an innovative product.

As for intellectual resources, their importance was emphasized by foreign researchers even before the appearance of well-known works of such scientists as D. Bell, M. Porat, E. Toffler and T. Stonier. Thus, N. Senior noted that «intellectual resources far exceed all material capital not only in importance but also in their productivity» [17]. Supporting the ideas of these researchers, it should be noted that the intellectual resources of a modern company can be defined as an intangible component of its organizational assets, which is difficult to account and measure.

The combination of intellectual labor and intellectual resources creates the basis for the formation of the intellectual factor of production, which, by its nature, is an endogenous force of the intellectual production process, which involves the productive use of creative competencies and intangible resources, forming the basis for further innovation product.

The intellectual environment unites a set of conditions that contribute to the realization of mental labor in the process of production and management. In other words, the intellectual environment includes external and internal factors that accompany the process of intellectual production [3]. In turn, intellectual production is realized by so-called «intelligent companies». Intelligent, according to the magazine Intelligent Enterprise, is a company that «constantly monitors the market of its main products, capital markets (especially in the context of the ratio of owner to borrowed funds), labor markets (attracting qualified professionals)... innovations in the field of products and services, and, most importantly – actions that ensure the implementation of the strategy» [1].

Already today, the world’s leading companies have come to understand that the further development of innovation activity and product competitiveness is impossible without the effective implementation of intellectual production [8]. Thus, in 2018, MicroStrategy, a world leader in enterprise analytics and mobility software, offered a «map» of an intelligent enterprise, «the ideal organization that manages data». This map includes four basic stages of intellectualization of the enterprise: assessment of the external environment, cataloging of all assets of the enterprise, the use of powerful analytical tools based on the enterprise and their development in the process of expanding [16].

Thus, intellectual production aims to create an intelligent product that can take the form of either an intellectual good or an intelligent service. A similar opinion is held by T. R. De-Mark, who defines an intellectual product as «a product of the activity of the human brain, which is realized in a product or service, which in some cases take a material form, have a life cycle.» [5]. This definition, in our opinion, is quite complete, because it emphasizes the importance of combining information, scientific knowledge and production experience in creating an intelligent product.

In turn, T. Vlasova emphasizes that «new knowledge, ideas, technologies created in the process of intellectual activity not only become the theoretical basis for the manufacture of intellectually intensive products, but also accumulate as a cultural heritage, intellectual wealth of mankind. In the future, they can become the basis of new ideas, developments, discoveries.» [4]. In our opinion, there is a close relationship between the concepts of «intelligent product» and «innovative product», which can not be identified, but can not be considered in isolation. An innovative product is a broader and more complex category, including a set of components necessary to provide scientific ideas with the form of a product.
or service in order to commercialize and promote it. And the intellectual product, in turn, is the starting point for creating an innovative product, laying the foundation for its further development.

Intellectual capital and intellectual property are the categories that are most widely represented in the works of both domestic and foreign researchers. Thus, in the works of O. Kornukh [10], Yu. Levchenko [11], A. Eremenko [6], V. Shkoly [15], Y. Sytnyka [13] definitions, basic characteristics and components of intellectual capital are given. In a general sense, intellectual capital can be defined as a set of knowledge and skills of mental work that can bring economic benefit (profit) in various forms of its manifestation.

Regarding intellectual property, this concept was first formed in 1967 by the Stockholm Convention, which established the World Intellectual Property Organization. Article 2 of this convention states that «intellectual property includes rights relating to the results of creativity in the industrial, scientific, literary and artistic spheres» [9]. All author's definitions of this concept in one way or another reflect the provisions of this convention and define intellectual property as a «collective» characteristic of the rights to the results of intellectual work.

As a rule, the consideration of the results of intellectual activity ends with the formation of rights to its products, although this approach is not entirely correct from the point of view of the economy. The rights to the intellectual property product itself are not a source of its multiplication, which highlights the need to introduce into circulation such concepts as «intellectual income>, «intellectual profit» and «intellectual rent», which are able to fully characterize the end result of intellectual production.

In our opinion, an extremely important area of intensification of intellectual and transformational processes in the economy is the effective management of logistics support for the intensification of innovation cooperation. This cooperation is realized through the synergy of education, science and practice (business) or, in other words, it is necessary to have a clear understanding of the flow processes within the national innovation system, which is formed by a system of interconnected organizations and structures engaged in production and commercial dissemination of scientific and technological knowledge (intelligent products) (Fig. 2).

Figure 2. Management of logistical support of innovative cooperation`s intensification at intellectualization of economy
We propose to consider logistics flows within the national innovation system based on two conceptual assumptions that characterize it:

1. First, it is a system of interconnected and interdependent organizations (structures) engaged in the production, commercialization and sale of intellectual products within national borders and the development of strategies for their entry into international high-tech markets;

2. Secondly, it is a complex system of controlling structures of legal, financial, social, technological nature, the activities of which are aimed at promoting the interaction of educational (educational-scientific) and business structures taking into account national traditions, political and cultural peculiarities of their environment.

This approach to the management of logistics support for the intensification of innovation cooperation in the intellectualization of the economy allows not only to identify the lack of existing innovation techniques in the field of intensification of innovation cooperation, but also to trace the structural elements of the national innovation system in order to streamline innovation cooperation.

Conclusions. The study allows to draw conclusions about the need to further intensify innovation cooperation within the national innovation system by creating new forms of integrated innovation structures (both based on international experience and analysis of the practice of existing innovation structures), which are designed to achieve high quality and advanced nature of the production of intelligent products, which, in our opinion, is impossible without effective logistical interaction of intellectual elements to create an innovative product.

Література


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Запропоновано систему забезпечення логістичної взаємодії інтелектуальних елементів для формування системи забезпечення логістичної взаємодії інтелектуальних елементів створення інноваційної продукції. Сформовано концептуальні припущення щодо
розгляду логістичних потоків в рамках національної інноваційної системи. Розроблено алгоритм управління логістичним забезпеченням інтенсифікації інноваційного співробітництва при інтелектуалізації економіки.

**Практична значущість.** Полягає у можливості застосування розроблених та наданих пропозицій щодо управління логістичним забезпеченням інтенсифікації інноваційного співробітництва при інтелектуалізації економіки з метою реформування діяльності як окремих структурних елементів національної інноваційної системи, так і підвищення її конкурентоспроможності на міжнародному рівні. Отримані висновки та результати дослідження, надані методичні рекомендації сприятимуть підвищенню ефективності інноваційного співробітництва на національному та міжнародному рівнях.

**Ключові слова:** логістичне забезпечення, інтелектуалізація, інноваційне співробітництво, управління, людський капітал, конкурентоспроможність, реформування.

**УПРАВЛЕНИЕ ЛОГИСТИЧЕСКИМ ОБЕСПЕЧЕНИЕМ ИНТЕНСИФИКАЦИИ ИННОВАЦИОННОГО СОТРУДНИЧЕСТВА ПРИ ИНТЕЛЛЕКТУАЛИЗАЦИИ ЭКОНОМИКИ**

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**Методология исследования.** Результаты получены за счет применения методов: анализа и сравнения, синтеза и теоретического обобщения – для формирования системы обеспечения логистического взаимодействия интеллектуальных элементов создания инновационного продукта; абстрактно-логического – для определения концептуальных основ управления логистическим обеспечением интенсификации инновационного сотрудничества при интеллектуализации экономики; графического анализа – для наглядного отображения полученных результатов исследования.

**Результаты.** Определены направления, требующие реформирования в контексте процесса интеллектуализации экономики и интенсификации конкурентной борьбы на рынках высокотехнологичных продуктов и услуг. Установлено приоритетное значение интеллектуального труда и интеллектуальных ресурсов для создания интеллектуального продукта и генерации инновационных идей. Рассмотрены элементы интеллектуальной среды как совокупности условий, способствующих реализации умственного труда в процессе производства и хозяйствования. Определена необходимость применения понятий «интеллектуальный доход», «интеллектуальная прибыль» и «интеллектуальная рента» для характеристики конечного результата интеллектуального производства.

**Новизна.** Предложена система обеспечения логистического взаимодействия интеллектуальных элементов создания инновационного продукта. Сформированы концептуальные предположения относительно рассмотрения логистических потоков в рамках национальной инновационной системы. Разработан алгоритм управления логистическим обеспечением интенсификации инновационного сотрудничества при интеллектуализации экономики.

**Практическая значимость.** Заключается в возможности применения разработанных и предоставленных предложений по управлению логистическим обеспечением интенсификации инновационного сотрудничества при интеллектуализации экономики с целью реформирования деятельности как отдельных структурных элементов национальной инновационной системы, так и повышение ее конкурентоспособности на международном уровне. Полученные выводы и результаты исследования, предоставленные методические рекомендации будут способствовать повышению эффективности инновационного сотрудничества на национальном и международном уровнях.

**Ключевые слова:** логистическое обеспечение, интеллектуализация, инновационное сотрудничество, управление, человеческий капитал, конкурентоспособность, реформирование.