

POSSIBILITIES OF DEVELOPING THE TRANSFER OF INNOVATIVE TECHNOLOGIES FOR THE POST-WAR RECONSTRUCTION OF UKRAINE

Oleksandra Mandych
State Biotechnological University
(Kharkiv, Ukraine)

Arkadii Mykytas
State Biotechnological University
(Kharkiv, Ukraine)

Tetiana Staverska
State Biotechnological University
(Kharkiv, Ukraine)

Nataliia Nikolaenko
State Biotechnological University
(Kharkiv, Ukraine)

Abstract. The article presents the peculiarities providing innovative development strategies through the involvement of technology transfer models. Prerequisites for the need to involve the transfer innovative technologies to obtain a higher level of competitiveness for Ukrainian business have been established. The relationship between innovation and technology transfer is elaborated. Models and directions of strategic management for Ukrainian business are presented, mechanisms of risk management and monitoring market situation in general are defined. Attention to the components, components and scenarios risk monitoring, and the main ones determined for today's situation and for the perspective of the coming years are presented, taking into account the conditions business entities during the state of war and subsequent post-war recovery. Procedures for creating a basis the further selection more relevant technology transfer model for the post-war recovery of Ukrainian business were developed.

Keywords: innovative development, transfer of innovative technologies, strategic management, strategy modeling, risk management, procedural approach.

The transfer of innovative technologies is one of the priority directions of the development of Ukrainian business for the perspective of wartime and the subsequent period of post-war recovery. Understanding the need to find and substantiate new models of strategic development to ensure the appropriate level of competitiveness of enterprises makes it necessary to fully study the substantive component of this process.

At the same time, it should be understood that the main prerequisite for ensuring the level of competitiveness for companies is the involvement of modern tools of innovative development.

Innovative development is extremely important for Ukrainian business for several reasons. First, improving competitiveness. Thanks to innovation, enterprises can develop and advance in the market, attract new customers, and increase their market share. Innovative development allows enterprises to create unique offers that ensure their competitiveness in comparison with other market participants. Secondly, increasing productivity. Innovation can help businesses improve productivity and production efficiency, which will lower costs and increase profits. Innovative technologies and processes can help reduce energy costs, increase production speed and improve product quality. Thirdly, the creation of new markets. Innovation allows businesses to create new markets and new products that may be unique and require specific skills. It can help businesses occupy new niches and develop in new directions. Fourth, raising the standard of living and a responsible society, creating a socially responsible business. Innovative development can contribute to raising the standard of living of the population, creating new jobs, and developing social infrastructure. This can have a positive impact on the economy and help reduce poverty. Fifth, improving the image of Ukrainian business using modern tools, with the aim of further attracting investments and international grant programs¹⁹⁷.

Innovative business development and transfer of innovative technologies are closely related. The transfer of innovative technologies helps enterprises to attract new technologies, knowledge, and experience, which allows them to develop and create new products and services. This can positively affect the competitiveness of enterprises and increase their profits.

The transfer of innovative technologies can take place with the help of various forms, for example, by purchasing licenses for new technologies, partnerships with other companies, cooperation with universities and research institutes, or taking part in projects for the introduction of new technologies¹⁹⁸.

Innovative development is an important factor for increasing the competitiveness of Ukrainian companies and the national economy in general.

The most common models of innovative development for Ukrainian companies are presented on Figure 1. Models for strategic management of innovative business development include:

1. Internal development. This model involves using the company's internal resources, such as research and development, to develop new products, services and technologies. Companies can create their own research and development centers or cooperate with universities and research institutes.

¹⁹⁷ Law of Ukraine "On scientific and scientific and technical activity" (2016).

¹⁹⁸ Kyzim M. O. et al. (2021). Theoretical and methodological approach to the determination of promising directions of scientific and scientific and technical activity in Ukraine, p. 23-36; Danko Y.I. et al. (2019). Competitiveness and price policy of Ukrainian agrarian enterprises for the production of organic product; Scientific and innovative activity of Ukraine 2020: Statistical collection (2021).

2. External development. This model involves collaboration with other companies, universities, research institutes or external consultants to develop new products and technologies. This model can provide access to new knowledge and technology, as well as reduce research and development costs.

3. Study of the market. This model involves analyzing the market and consumer needs to produce products and services that meet the needs of the market. This model can help ensure competitiveness in the market and increase sales.

4. Acceleration. This model involves working with incubators and accelerators that provide funding and mentoring for startups and other companies developing new technologies and products. This model can help increase the speed of development and bring the product to market.

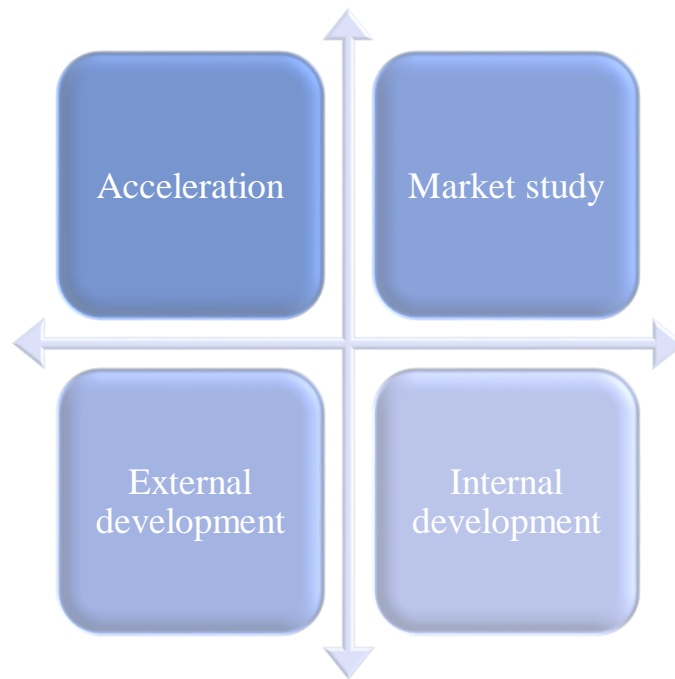


Fig. 1. Variations of innovative development models for business

Choosing an innovative development strategy for a business can be a difficult task that requires careful analysis of the market, consumer needs, competitors, and own capabilities¹⁹⁹. On Figure 2 shows the algorithm for choosing an innovative development strategy for business.

Consider individual positions in more detail.

1. Analysis of the market and consumers. Start with market and consumer research to find out consumer needs and wants, market trends, and potential competitors. Market research can be conducted independently or by contacting professional research companies.

¹⁹⁹ Olvinska Yu. O., Samotoyenkova O. V., Vitkovska K. V. (2021). Current state and trends of development of innovative activity in Ukraine, p. 64-71.

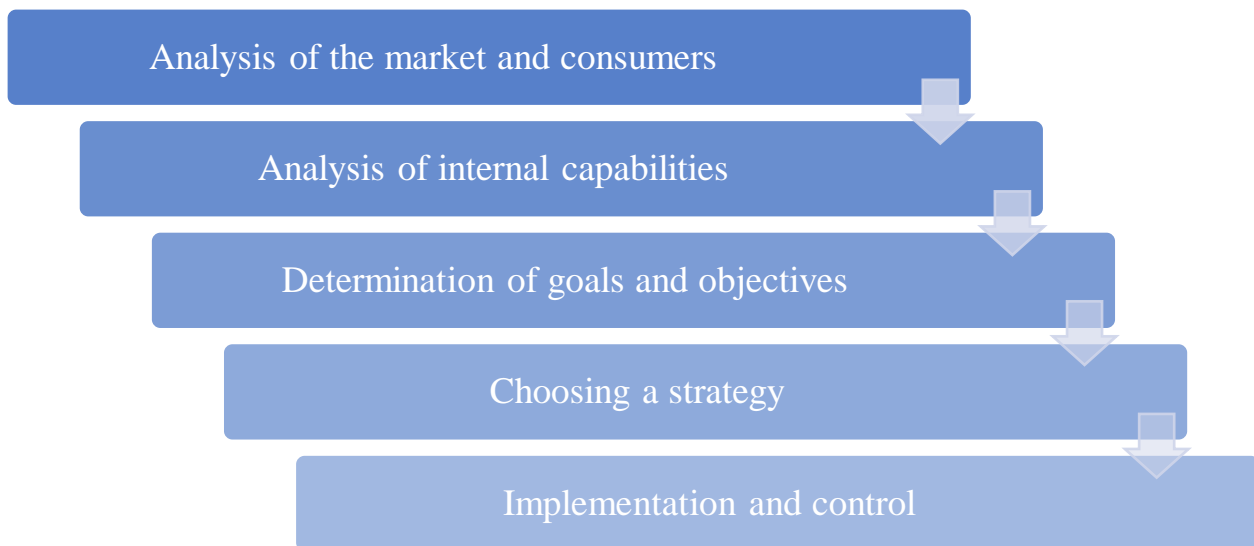


Fig. 2. Algorithm for choosing an innovative development strategy for business

2. Analysis of internal capabilities. Assess the company's own capabilities, such as the availability of technology, human resources, finance, and other resources that can be used to implement the innovation strategy.

3. Determination of goals and objectives. Formulate the specific goals and purpose of the innovation strategy, which should correspond to the needs of the market and the company's own capabilities.

4. Choosing a strategy. Based on the analysis of the market, internal capabilities, and definition of goals, choose the strategy that best suits the needs of the company. For example, if a company has a sufficient level of internal resources, internal development may be an effective strategy, while if the company has limited resources, external development may be more appropriate.

5. Implementation and control. Implement the chosen strategy, and the procedure for generating, implementing, implementing strategic management should include a full complex and analytical system of risk management²⁰⁰.

Innovative development can be associated with significant risks, as it requires the introduction of new products, services, and technologies to the market. Risk management is an important stage in the formation and implementation of an innovative strategy²⁰¹. Below are the procedures that will help manage the generation and implementation of models, as well as manage risks when forming an innovative development strategy (Figure 3).

²⁰⁰ Orlenko O. M., Ivanenko I. K. (2021). Dynamics of innovative activity in Ukraine and ways of its development, p. 96-99; Kviatko T.M., Rudenko S.V., Mykolenko I.G. (2018). Strategic management conceptual principles of agricultural enterprises competitive behavior, p.48-53; Babko N., Kviatko T. (2020). Section 2. Financial and economic issues of society development in the turbulence conditions. Topical issues of society development in the turbulence conditions, p.138; Babko N.M. (2022). Marketynh yak protses upravlinnia kompaniieiu v umovakh konkurentsii.

²⁰¹ Fiiier O. et al. (2019). Risk managment in the sphere of state economic security provision using the example of professionsl liability insurance, p. 51-60.

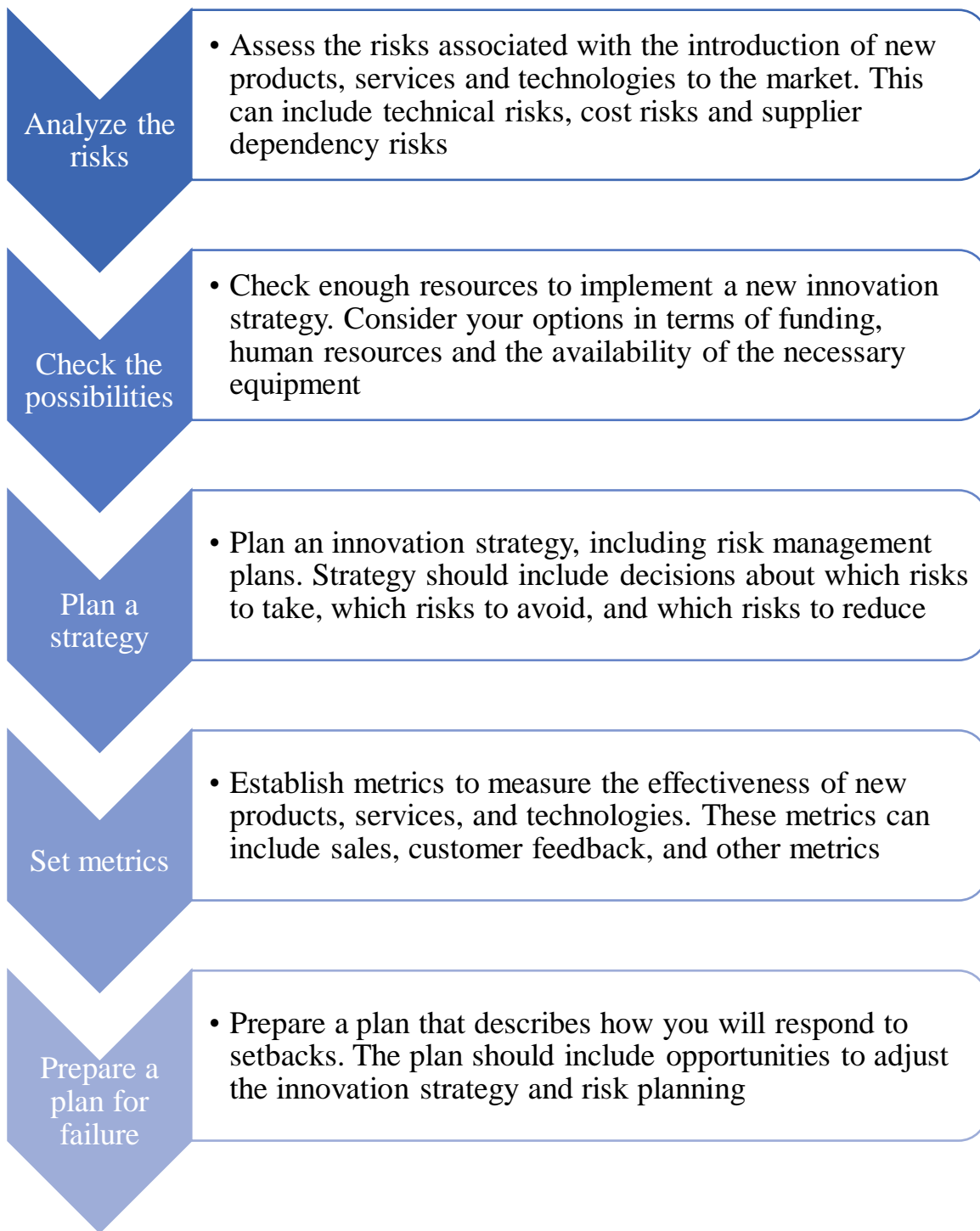


Fig. 3. Procedural solutions for integrated risk management

The final stage should be monitoring and risk assessment. In 2023, Ukrainian business should pay attention to the following areas of risk monitoring. Political risk. Ukraine remains a country with an unstable political situation, so business leaders should focus on monitoring changes in the country's political course, as well as relations with key partners, with Russia and the EU. Economic risk. Business must consider the impact of the economic situation on business activity, in particular on the inflation rate, exchange rate, interest rates and other economic indicators. Security

risk. Ukraine is a country with a high level of criminal activity and terrorist threats, so businesses must take measures to protect their employees and assets.

Reputational risk. Openness and transparency are becoming increasingly important in today's business environment. A business must closely monitor its reputation and take measures to ensure high ethics and social responsibility. Cyber security risk. Cybercrime protection is becoming increasingly important for businesses. Businesses must take measures to protect their information systems and the personal data of their customers. The risk of climate change. Climate change can have a major impact on business activities, particularly agriculture and transportation technologies.

Innovative business development involves the constant search for new opportunities to improve products, processes and services offered by the company. This is possible using new technologies and knowledge, which is the result of the transfer of innovative technologies. At the same time, it is an opportunity to solve many managerial, informational, economic, environmental, social, and other problems that are relevant in the modern world, and this can become an additional advantage for business in the eyes of consumers and investors²⁰².

Therefore, the transfer of innovative technologies and innovative business development are interrelated and can help companies improve their competitiveness, develop, and create new opportunities for growth.

The transfer of innovative technologies is the process of transferring new technologies from one organization, industry, or country to another to promote innovative development and improve competitiveness. This process may involve the transfer of knowledge, skills, technical documentation, materials, equipment, or software. The transfer can be made through technology licensing, franchising, joint development and production, international cooperation, etc. The main objective of the transfer of innovative technologies is to ensure the efficient use of resources and improve productivity by providing access to the latest technologies and knowledge. This can provide incentives for innovation and development in industries and regions where these technologies have not previously been used or were not available.

The transfer of innovative technologies is an important tool for ensuring economic growth and development of the country, as well as for improving competitiveness in the international market. Technology transfer is extremely important for the innovative development of Ukrainian business, as it can help increase production efficiency, improve the quality of products and services, reduce costs and increase competitiveness in the market. When transferring technologies from countries where the latest technologies are developed and successfully used, Ukrainian companies can gain access to new knowledge and practices that will allow them to improve their production processes and products. In addition, technological transfer can stimulate the development of research institutes and increase their

²⁰² Ukrinform. Multimedia platform of foreign language of Ukraine (2022); Global Innovation Index 2022: WIPO; International Monetary Fund; United Nations Conference on Trade and Development: Transfer of technology; Public Data. Data from the World Bank.

competitiveness at the international level. Technology transfer can also have social effects, such as raising living standards and employment levels, if new technologies allow businesses to increase output and create new jobs²⁰³.

However, technology transfer is not a simple process, and for its successful implementation many factors must be considered, such as the cultural, legal and economic characteristics of the participating countries, technical capabilities and economic potential of enterprises. In addition, the success of technology transfer depends on how well-trained specialists are who will be involved in the introduction of new technologies and ensure their further implementation.

Ukraine can use the following models of transfer of innovative technologies for the future. The main directions are presented on Figure 4.

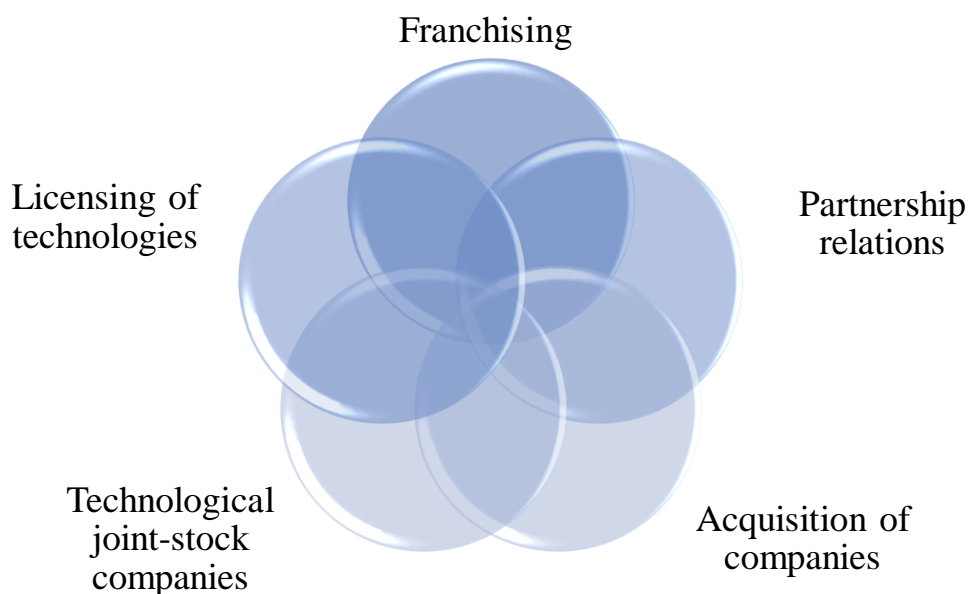


Fig. 4. Models and strategic solutions for the transfer of innovative technologies

Analyze the main content of the presented models and the possibilities of their use for the real sector.

Licensing of technologies. The model involves obtaining permission to use technology developed by another enterprise or organization. The license agreement allows enterprises to use the technology under certain conditions and for a certain period).

Partnership relations. This model provides for the creation of a partnership between Ukrainian and foreign enterprises for the purpose of exchanging

²⁰³ Public Data. Data from the World Bank. <https://cutt.ly/K2VX1AR>; Rothwell R. (2020). Towards the fifth-generation process, p. 7-31; World Intellectual Property Organization (2022).

technological knowledge and experience. This can be mutually beneficial for both parties as they can gain access to new markets, technologies, and resources²⁰⁴.

Franchising. This model involves the transfer of rights to use the brand and business model developed by another company for a certain period. Ukrainian enterprises can use this method to launch a new business based on an already successful model.

Technological joint-stock companies. This model involves the creation of a joint company between Ukrainian and foreign partners for the joint development and commercialization of new technologies. Each partner can contribute in the form of cash or technological equipment.

Acquisition of companies. This model involves the acquisition of a company that has valuable technologies and intellectual property.

The involvement of strategic management in the transfer of innovative technologies is important for business for several reasons:

- obtaining a competitive advantage – technological transfer can help the enterprise to gain a competitive advantage in the market, in particular, by improving productivity, product quality and reducing production times;

- increasing the efficiency of business processes – technologies can help the enterprise to improve the efficiency of business processes and reduce production costs, which positively affects profitability;

- development of new products and services – technologies can help the enterprise to create new products and services, which will ensure business development and increase profits;

- prevention of technology obsolescence – the involvement of innovative technologies can help the enterprise prevent the obsolescence of its technologies and the costs of their modernization;

- expanding the geography of business – innovative technologies can help the enterprise to expand the geography of its activities and enter new markets;

- increasing the level of competence of employees – the involvement of new technologies can help increase the level of competence of employees and ensure their professional growth²⁰⁵.

Therefore, the involvement of strategic management for the transfer of innovative technologies is important for business, especially during the period of martial law in our country and post-war recovery. Rebuilding Ukrainian businesses after the war can be a challenging task, as even if the physical destroyed buildings are rebuilt, companies may still struggle to maintain and increase profits without the right

²⁰⁴ Fier O. et al. (2019). Risk management in the sphere of state economic security provision using the example of professional liability insurance, p. 51-60.

²⁰⁵ United Nations Conference on Trade and Development: Transfer of technology; Public Data. Data from the World Bank; Rothwell R. (2020). Towards the fifth-generation process, p.7-31; World Intellectual Property Organization/WIPO (2022).

technology and resources. Therefore, the use of the transfer of innovative technologies can be a useful solution to support the recovery of Ukrainian business. Technology transfer is the process of transferring technology, knowledge, skills, and experience from one company or country to another, which helps to increase the efficiency and productivity of companies. This process may include transfer of knowledge and skills, development of new technologies and other innovative solutions. To ensure the successful transfer of technologies for the post-war recovery of Ukrainian business, several steps must be taken. First, it is necessary to conduct a detailed analysis of the needs of Ukrainian business to determine which technologies and innovative solutions can be useful for each industry. The next step is to find potential partners who can provide the transfer of necessary technologies and innovative solutions. These can be international organizations, scientific institutes, large companies, or other partners. After determining the needs and finding partners, technologies should be identified, and models of their involvement should be created to ensure innovative business development in the future.

References:

1. Babko N.M. (2022). Marketynh yak protses upravlinnia kompaniieiu v umovakh konkurentzii. Rozwój systemu kształcenia w zakresie nauk rolniczych – od teorii do praktyki: zbiór materiałów Międzynarodowej konferencji naukowo-praktycznej, Łomża, 04.11.2021 Wydawnictwo Wyższej Szkoły Agrobiznesu w Łomży. 126 s.
2. Babko N., Kviatko T. (2020). Section 2 Financial and economic issues of society development in the turbulence conditions. Topical issues of society development in the turbulence conditions, 138.
3. Danko Y.I., Halynska A.V., Plotnytska S.I., Kornietsky A.V., Boblovsky A.Y., Kvyatko T. (2019). Competitiveness and price policy of Ukrainian agrarian enterprises for the production of organic products. *Espacios*, 40(3), 03-03.
4. Fiier O., Arefieva O., Miahkykh I., Babko N., Kuskova S., Khloponina-Gnatenko O. (2019). Risk managment in the sphere of state economic security provision using the example of professionsl liability insurance. *Global journal of Environmental Sciens and management*, 51-60.
5. Global Innovation Index 2022: WIPO. Geneva, September 29, 2022. PR/2022/895. URL: <https://cutt.ly/02VXPwy>
6. International Monetary Fund/IMF. <https://www.imf.org/en/Home>
7. Kviatko T.M., Rudenko S.V., Mykolenko I.G. (2018). Strategic management conceptual principles of agricultural enterprises competitive behavior. *Actual problems of innovative economy*, (2), 48-53.
8. Kyzim M. O., Haustova V. E., Reshetnyak O. I., Uspalenko V. I. (2021). Theoretical and methodological approach to the determination of promising

directions of scientific and scientific and technical activity in Ukraine. Problems of the economy, No. 2 (48), 23-36.

9. Law of Ukraine "On scientific and scientific and technical activity" (2016). Information of the Verkhovna Rada (VVR), No. 3, 25. URL: <https://cutt.ly/c2VC1TQ>

10. Olvinska Yu. O., Samotoyenkova O. V., Vitkovska K. V. (2021). Current state and trends of development of innovative activity in Ukraine. Economy and the state, No. 4, 64-71.

11. Orlenko O. M., Ivanenko I. K. (2021). Dynamics of innovative activity in Ukraine and ways of its development. Scientific Bulletin of Odessa National Economic University. Collection of scientific papers. No. 5-6 (282-283), 96-99.

12. Public Data. Data from the World Bank. URL: <https://cutt.ly/K2VXIAR>

13. Rothwell Roy (2020). Towards the fifth-generation process. International Marketing Review, Vol. 11, No. 1, 7-31.

14. Scientific and innovative activity of Ukraine 2020: Statistical collection (2021). Edited by M. S. Kuznetsova. K.: State Statistics Service of Ukraine, 241 p.

15. Ukrinform. Multimedia platform of foreign language of Ukraine (2022). URL: <https://cutt.ly/E21eK1n>

16. United Nations Conference on Trade and Development: Transfer of technology. New York; Geneva, 2001/UN. URL: <https://cutt.ly/B2VV3Dd>

17. Public Data. Data from the World Bank. URL: <https://cutt.ly/K2VXIAR>

18. World Intellectual Property Organization/WIPO (2022). URL: <https://cutt.ly/G2VXIHG>

19. Rozhko O.D., Marenych T.H., Onegina V.M., Belyayeva L.A., Maliy O.G. (2019). Bank Credit in Financial Provision of Agricultural Enterprises. Financial and credit Activity: Problems of Theory and Practice. Vol. 4. No 31. P.41-51.

20. Krasnobaev V., Zub M., Kuznetsova T., Perevozova I., Maliy O. (2019). Mathematical Model of the Process of Tabular's Implementation of the Operation Algebraic Multiplication in the Residues Class. 2019 International Conference on Information and Telecommunication Technologies and Radio Electronics (UkrMiCo). Odessa. Ukraine. Pp. 1-6.

21. Staverska T., Kashchena N., Zhyliakova O. (2018). Financial diagnostics as instrument for promoting sustainable development of the enterprise in a crisis conditions. Professional competency of modern specialist: means of formation, development and improvement: monograph. Warsaw: BMT Eridia Sp .z o.o. P. 383-398.

22. Nesterenko O., Krutova A., Staverska T. (2021). Transparency of financial reporting in the conditions of modern information technology. Research and Innovation: Conference proceedings. Yunona Publishing, New York, USA. P. 112 – 127