

K. Ozarko,*PhD (Economics),*

ORCID 0000-0002-1452-0686,

e-mail: ndii@i.ua,

V. Chelombytko,

ORCID 0000-0002-8792-4956,

e-mail: vvchh@ukr.net,

State University of Intellectual Technologies and Communications, Lviv

PROBLEMS OF MANAGEMENT RISKS OF INFORMATIVE PROVIDING OF REALIZATION OF INNOVATIONS

Raising of problem. Fourth industrial revolution during the last decade assisted to swift development of the newest information technologies and digitization of national economy. In the same time these processes are accompanied by the increase of cybercrime, losses from informative sources. At modern highly dynamic operating conditions any processes (including business processes in particular innovative) are inseparable from riskiness, what inherent to all industries of market activity. To ignore risks it does not cost, expedient is an acceptance of passing (preventive) ahead measures for the sake of their warning, decline of their level or compensation (in dependences on the types of risks, circumstances of their origin, level) and others like that. Providing of steady development of domestic enterprises at the modern terms of instability, crisis, war in Ukraine substantially becomes complicated by the ponderable factors of danger. Among them an all greater value is acquired exactly by the risks of informative character.

Analysis of the last researches and publications. To the range of problems of risk, riskiness plenty of scientific researches (monographic, dissertation et al.) was devoted. Range of problems of the informative provision of enterprises and their innovation was reflected in the research of such scientists as S. Babinska [1], S. Barkova [10, p. 184-190], O. Belikova [10, p. 184-190], I. Britchenko [3, 22, p. 43-66], Yu. Horyashchenko [15, p. 103-107], K. Goffen [23], A. Zaverbnyi [7; 8, p. 110-113; 16], S. Ilyashenko [9], A. Knyazevich [22, p. 43-66], M. Korzh [10, c. 184-190], S. Mishchanchuk [7], L. Nojak [7], Ya. Petrova [16], Y. Pushak [8, p. 110-113], I. Fomichenko [10, p. 184-190], I. Paderin [15, p. 103-107]. The management of innovative risks was studied by specialists such as T. Andrukhiv [12], S. Barkova [18, p. 80-88], V. Bashtovy [17, p. 103-109], V. Brych [11], I. Britchenko [3], D. Kozhurin [17, p. 103-109], O. Kraychuk [3], T. Plysyuk [3], V. Vitlinsky [4], I. Volynets [5], A. Zaverbnyi [6], Yu. Makarova [6], P. Mykytyuk [11], Yu. Mykytyuk [11], L. Oleksenko [14, p. 156-168], O. Pakhomova [17, p. 103-109],

I. Fomichenko [17, p. 103-109], N. Shvets [20, p. 90-102], M. Shkilniak [11]. Scientists such as S. Babinska [1], S. Baranovska [2, p. 376-380], S. Barkova [18, p. 80-88], V. Bashtovy [18, c. 80-88], V. Vitlinsky [4], S. Ilyashenko [9], O. Pakhomova [18, p. 80-88], I. Fomichenko [18, p. 80-88], A. Cherednychenko [19], H. Yarovenko [21].

Isolation of previously unresolved parts of the general problem. At the same time, analyzing the achievements of risk management of information support for the implementation of innovations, we observe an insufficient number of conducted studies dedicated to the issue of ensuring information security of innovative activities of enterprises through risk management.

Formulation of the goals of the article (statement of the task). The goals of the article are the study of the issues of risk management of information support for the implementation of innovations and the development of proposals for its improvement.

Presentation of the main research material. Informatization of society and the economic system determines the expansion of the information and communication space of enterprises and organizations. This will contribute to increasing the level of their performance. However, in contrast to a positive result, it will lead to an increase in negative effects (possibility of information loss, insufficient level of information, inappropriate use, etc.) [1-3; 5; 12-13]. This actualizes the importance of research, improvement of the risk management system of information provision, as one of the key elements of ensuring a high level of operational efficiency, sustainable development of domestic enterprises. An important condition for effective information provision of the process of implementing innovative projects is the ability to turn uncertainty into risk, and further manage it. Information provision of implementation innovation (implementation of innovative projects) is characterized by a high level of risk. The key reason for this is the term of the implementation of the innovative project, which, as a rule, is long, so its results cannot be predicted, especially

in a highly dynamic external environment. It is important for the system of information support of innovations to identify and assess the levels of risks, to establish ways of reducing them by developing a risk management system for the information support of the implementation of innovations.

Taking into account the contributions and interests of stakeholders in the process of implementing an innovative project, based on the analysis [1; 4-5; 11; 22], the following key risks of innovative activity were

identified: currency, price, banking, investment, innovation, information, spontaneous, moral, personnel risk, technological and legal. Visually, the inherent nature of each of the specified types of risks to a certain stakeholder is shown in Fig. 1.

In order to simplify the visualization of the risk structure of the stakeholders of the innovation project, we equated the probability of the occurrence of a certain type of risk to "1", and its absence to "0" (Fig. 1).

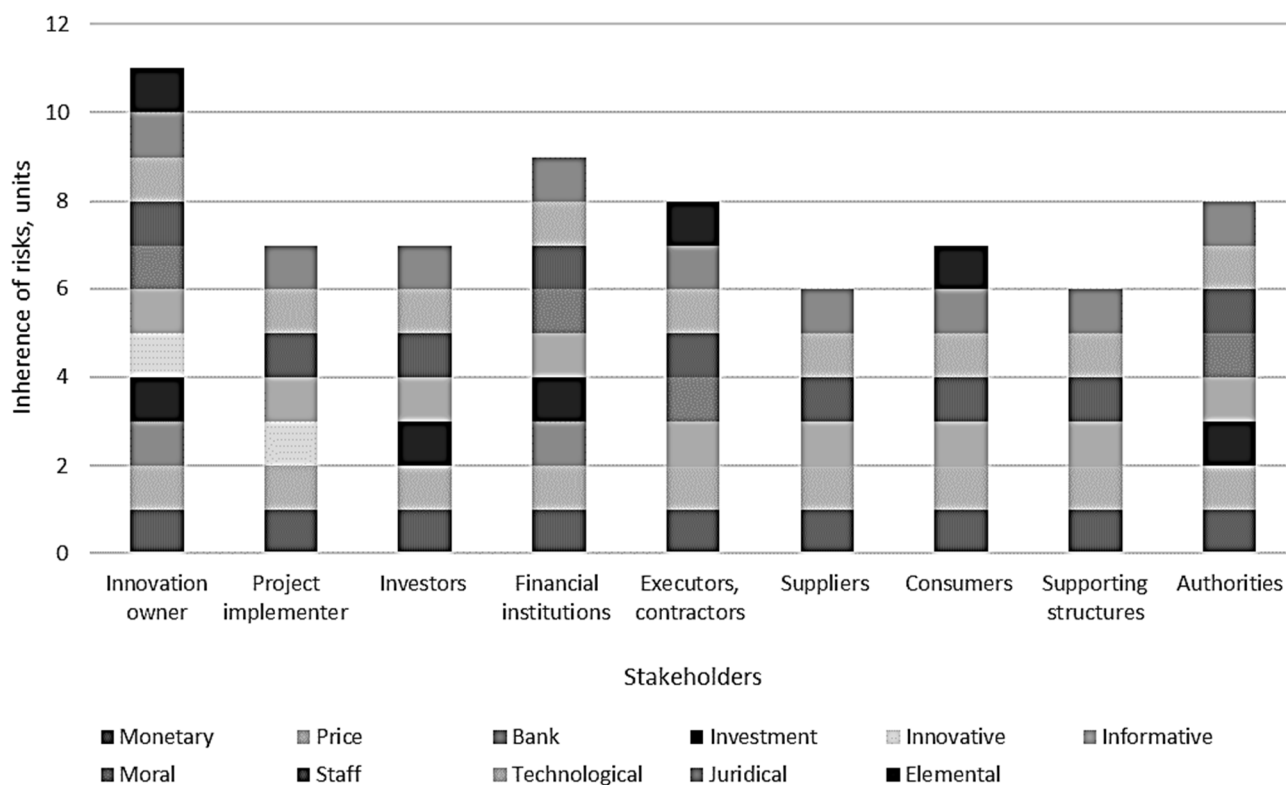


Fig. 1. Risks of innovative activity to a certain stakeholder

From Fig. 1, it is possible to draw conclusions that it is the information (similarly to currency, price) that is inherent to each of the stakeholders of innovative projects, therefore it is important for management. Scientists understand the information risk as "the probability of receiving distorted information and making incorrect management decisions" [1; 4; 9; 13].

An effective risk management system of information support for the implementation of innovations consists in the application of key (main) functions. A functional approach to the risk management process of information support for the implementation of innovations will involve planning and organizing this activity, as well as further monitoring and, in case of deviations from the plan, regulation (adjustment).

Feedback from the regulatory function to planning (see Fig. 2) is also appropriate in order to prevent identified deficiencies in the future.

It is clear that the first stage (Fig. 2) can cause misunderstanding due to the terminology of risk "planning". But, like any other processes, the planning function is necessary for the facility management system. At the same time, proper risk planning will allow effective management of identified risks in the future (one of the generally accepted methods). Agerizik warns about possible failure, loss, etc., but also about possible gain. Everything will depend on the situation and the ability to use it, adapt it, etc. For the effective implementation of innovative projects, domestic enterprises need to investigate and manage the risks of information provision of this activity at each separate stage. Improvement, development of information provision of innovative projects, formation of the risk management system of this activity will help save time for all stakeholders, increase the level of efficiency, accuracy of information, reduce the level of uncertainty, etc.

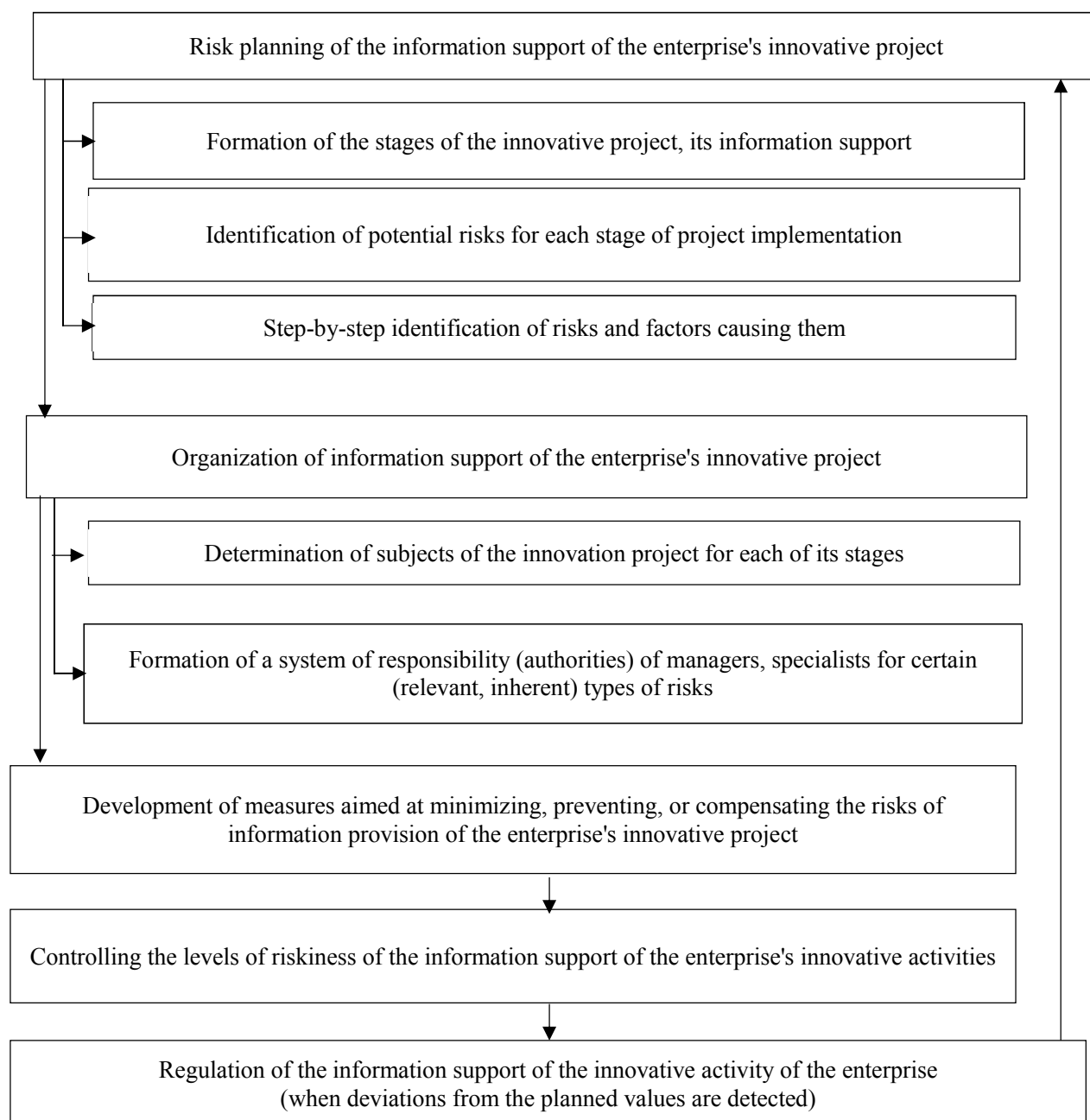


Fig. 2. The process of step-by-step risk management of the information support of the enterprise's innovative activities

Conclusions. Improvement, development of information support of innovative projects, formation of the risk management system of this activity will help save time for all participants, increase the level of efficiency, accuracy of information, reduce the level of

uncertainty, etc. Systems for improving the security of information support should serve as further directions of research, taking into account analytical, objective, rational requirements.

References

1. Babinska, S. Ya. (2018). Informatsiine zabezpechennia rozroblannia ta realizatsii innovatsiinykh proektiv [Information support for the development and implementation of innovative projects]. *Doctor's thesis*. Lviv. 233 p. [in Ukrainian].
2. Baranovska, S. P. (2008). Ryzkyk diialnosti innovatsiinykh struktur ta metody yikh znyzhennia [Risks of activity of innovative structures and methods of their reduction]. *Visnyk Natsionalnoho universytetu "Lvivska politehnika" – Bulletin of the National University "Lviv Polytechnic"*, 628, pp. 376-380 [in Ukrainian].

3. Britchenko, I. G., Kraichuk, O. V., Plysiuk, T. G. (2016). Mekhanizmy upravlinnia innovatsiinymy ryzykamy v silskomu hospodarstvi [Mechanisms of innovative risk management in agriculture]. *Efektivna ekonomika*. 1. Retrieved from <http://www.economy.nayka.com.ua/?op=1&z=4714> [in Ukrainian].
4. Vitlinskyi, V. V. (2002). Ekonomichni ryzyk: ihrovi modeli [Economic risk: game models]. Kyiv, KNEU. 446 p. [in Ukrainian].
5. Volynets, I. H. (2016). Ryzyky innovatsiinoi diialnosti: sut, vydy ta etapy upravlinnia [Risks of innovative activity: essence, types and stages of management]. *Ekonomika ta suspilstvo – Economy and Society*, 2, pp. 241-245 [in Ukrainian].
6. Zaverbnyj, A. S., Makarova, Yu. S. (2021). Problemy i potentsiini mozhlyvosti realizuvannia innovatsiinych stratehii dlia pidvyshchennia rivnia konkurentospromozhnosti pidpriemstva [Problems and potential opportunities of implementing innovative strategies to increase the level of competitiveness of the enterprise]. *Ekonomika ta suspilstvo – Economy and Society*, 34, DOI: <https://doi.org/10.32782/2524-0072/2021-34-23> [in Ukrainian].
7. Zaverbnyj, A. S., Nodzhak, L. S., Mishchanchuk, S. A. (2021). Informatsiino-analitychne zabezpechennia innovatsiinoho rozvytku ekonomiky Ukrainy za yevrointehratsiinych umov [Informational and analytical provision of innovative development of the economy of Ukraine under the conditions of European integration]. *Ekonomika ta suspilstvo – Economy and Society*, 33. DOI: <https://doi.org/10.32782/2524-0072/2021-33-5> [in Ukrainian].
8. Zaverbnyj, A. S., Pushak, Ya. Ya. (2022). Problemy ta potentsiini mozhlyvosti rozvytku IT-sfery v Ukraini za umov aktyvizuvannia protsesiv intehruvannia do mizhnarodno-ho rynku: upravlinskyi aspekt [Problems and potential opportunities for the development of the IT sphere in Ukraine under the conditions of intensifying the processes of integration into the international market: a managerial aspect]. *Visnyk ekonomichnoi nauky Ukrainy*, 1 (42), pp. 110-113. DOI: [https://doi.org/10.37405/1729-7206.2022.1\(42\).110-113](https://doi.org/10.37405/1729-7206.2022.1(42).110-113) [in Ukrainian].
9. Illiashenko, S. M. et al. (2005). Problemy upravlinnia innovatsiinym rozvytkom pidpriemstv u tranzitivni ekonomitsi [Problems of managing the innovative development of enterprises in the transitive economy]. Sumy, VTD «Universytetska knyga». 582 p. [in Ukrainian].
10. Korzh, M. V., Belikova, O. Yu., Fomichenko, I. P., Barkova, S. O. (2021). Osoblyvosti stratehichnoho upravlinnia innovatsiinym rozvytkom promyslovykh pidpriemstv [Peculiarities of strategic management of innovative development of industrial enterprises]. *Ekonomichni visnyk Donbasu – Economic Herald of the Donbas*, 3(65), pp. 184-190. DOI: [https://doi.org/10.12958/1817-3772-2021-3\(65\)-184-190](https://doi.org/10.12958/1817-3772-2021-3(65)-184-190) [in Ukrainian].
11. Mykytyuk, P. P., Brych, V. Ya., Shkilniak, M. M., Mykytiuk, Yu. I. (2019). Innovatsiinyi menedzhment [Innovation management]. Ternopil, Ekon. dumka TNEU. 518 p. [in Ukrainian].
12. Ozarko, K. S., Andrukhiv, T. V. (2022). Osoblyvosti formuvannia optymalnykh orhanizatsiinych struktur upravlinnia IT-biznesom yak element yoho informatsiinoi bezpeky [Features of the formation of optimal organizational structures of IT-business management as an element of its information security]. *Ekonomika ta suspilstvo – Economy and Society*, 43. DOI: <https://doi.org/10.32782/2524-0072/2022-43-2> [in Ukrainian].
13. Ozarko, K. S., Kudria, E. N. (2016). Vrakhuvannia napriamkiv informatsiinoi komunikatsii v upravlinni pidpriemstv zviazku [Consideration of directions of information communication in the management of communication enterprises]. *Ekonomika, menedzhment, tekhnologii infokomunikatsii [Economics, management, information and communication technologies]*. Proceedings of the Scientific and Practical Seminar. (pp. 30-37). Lviv, NDP [in Ukrainian].
14. Oleksenko, L. V. (2021). Innovatsiina ultrastruktura yak neobkhidnyi komponent natsionalnoi innovatsiinoi systemy [Innovative ultrastructure as a necessary component of the national innovation system]. *Ekonomichni visnyk Donbasu – Economic Herald of the Donbas*, 2(64), pp. 156-168. DOI: [https://doi.org/10.12958/1817-3772-2021-2\(64\)-156-168](https://doi.org/10.12958/1817-3772-2021-2(64)-156-168) [in Ukrainian].
15. Paderin, I. D., Horiashchenko, Yu. H. (2021). Stratehichni priorytety innovatsiinoho rozvytku pidpriemnytstva [Strategic Priorities for Innovative Development of Entrepreneurship]. *Ekonomichni visnyk Donbasu – Economic Herald of the Donbas*, 1 (63), pp. 103–107. DOI: [https://doi.org/10.12958/1817-3772-2021-1\(63\)-103-107](https://doi.org/10.12958/1817-3772-2021-1(63)-103-107) [in Ukrainian].
16. Petrova, Ya. Yu., Zaverbnyj, A. S. (2021). Problemy ta perspektyvni shliakhy naroshchuvannia obsiahiv eksportuvannia naukomistkykh posluh Ukrainoiu v umovakh yevrointehruvannia [Problems and prospective ways to increase the volume of export of Scientific services by Ukraine in the conditions of European integration]. *Menedzhment ta pidpriemnytstvo v Ukraini: etapy stanovlennia ta problemy rozvytku – Management and entrepreneurship in Ukraine: stages of formation and problems of development*, 2 (6), pp. 231-239. DOI: <https://doi.org/10.23939/smeu2021.02.231> [in Ukrainian].
17. Fomichenko, I. P., Bashtovyi, V. P., Kozhurin, D. O., Pakhomova, O. V. (2022). Suchasni aspekty ta metody upravlinnia innovatsiinoiu diialnistiu na vitchyznianskykh pidpriemstvakh [Modern aspects and methods of management of innovative activities at domestic enterprises]. *Ekonomichni visnyk Donbasu – Economic Herald of the Donbas*, 1(67). pp. 103-109. DOI: [https://doi.org/10.12958/1817-3772-2022-1\(67\)-103-109](https://doi.org/10.12958/1817-3772-2022-1(67)-103-109) [in Ukrainian].
18. Fomichenko, I. P., Bashtovyi, V. P., Barkova, S. O., Pakhomova, O. V. (2021). Peculiarities of innovative risk management at industrial enterprises of Ukraine. *Ekonomichni visnyk Donbasu – Economic Herald of the Donbas*, 4(66), pp. 80-88. DOI: [https://doi.org/10.12958/1817-3772-2021-4\(66\)-80-88](https://doi.org/10.12958/1817-3772-2021-4(66)-80-88).
19. Cherednychenko, A. O. (2016). Orhanizatsiino-ekonomichne zabezpechennia upravlinnia informatsiinoiu bezpekoiu pidpriemstv budivelnoi haluzi [Organizational and economic support of information security management of enterprises in the construction industry]. Extended abstract of candidate's thesis. Kharkiv. 24 p. [in Ukrainian].
20. Shvets, N. V. (2022). Rehionalnyi innovatsiinyi rozvytok na zasadakh smartspetsializatsii: typolohiia smartpriorytetiv oryativ [Regional innovative development based on smart specialization: typology of smart priorities]. *Ekonomichni visnyk Donbasu – Economic Herald of the Donbas*, 1(67), pp. 90-102. DOI: [https://doi.org/10.12958/1817-3772-2022-1\(67\)-90-102](https://doi.org/10.12958/1817-3772-2022-1(67)-90-102) [in Ukrainian].
21. Yarovenko, G. M. (2021). Informatsiina bezpeka yak draiver rozvytku natsionalnoi ekonomiky [Information security as a driver of the development of the national economy]. Doctor's thesis. Sumy, Sumy State University. 590 p. [in Ukrainian].
22. Britchenko, I., Kniazevych, A. (2015). The bases of functioning and development of innovative infrastructure of Ukraine. *Spisanie «Ikonomicheskii izsledvanija»*. Institut za ikonomicheskii izsledvanija pri BAN, Sofia, Bulgaria, vol. 4, pp. 43-66.
23. Goffin, K., Mitchell, R. (2010). Innovation Management: Strategy and Implementation using the Pentathlon Framework. 2nd Edition. Palgrave Macmillan, Basingstoke. DOI: <https://doi.org/10.1007/978-1-137-04752-6>.

Озарко К., Челомбитко В. Проблеми управління ризиками інформаційного забезпечення впровадження інновацій

У роботі досліджено проблеми управління ризиками інформаційного забезпечення впровадження інновацій. У сучасних високодинамічних умовах функціонування будь-які процеси (у тому числі бізнес-процеси) невіддільні від ризику. Він притаманний усім галузям ринкової діяльності. Не можна ігнорувати ризики. Доцільно використовувати випереджувальні (попереджувальні) заходи щодо їх запобігання, зниження рівня або компенсації залежно від видів ризиків, обставин їх виникнення, рівня тощо. Забезпечення сталого розвитку вітчизняних підприємств в сучасних умовах нестабільності та кризи в Україні суттєво ускладнено значними факторами ризику.

Важливою умовою ефективного інформаційного забезпечення при реалізації інноваційних проектів є вміння перетворювати невизначеність на ризик і подальше управління ним. Інформаційне забезпечення впровадження інновацій (реалізація інноваційних проектів) характеризується високим рівнем ризику. У статті проаналізовано структуру ризиків стейкхолдерів інноваційного проекту. Запропонований процес поетапного управління ризиками інформаційного забезпечення інноваційної діяльності підприємства. Запропонована система управління ризиками інформаційного забезпечення впровадження інновацій підприємствами складається із застосування ключових (основних) функцій. Функціональний підхід до управління ризиками процесу інформаційного забезпечення впровадження інновацій передбачатиме планування та організацію цієї діяльності, а також подальший контроль і, у разі відхилення від плану, регулювання (коригування). Для ефективної реалізації інноваційних проектів вітчизняним підприємствам необхідно досліджувати та управляти ризиками інформаційного забезпечення цієї діяльності на кожному етапі. Удосконалення, розвиток інформаційного забезпечення інноваційних проектів, формування системи управління ризиками цієї діяльності сприятиме економії часу всіх учасників, підвищенню ефективності та точності, зменшенню невизначеності.

Ключові слова: інформація, інформаційне забезпечення, інновації, ризики, інформаційний ризик, інформаційна діяльність, управління ризиками.

Ozarko K., Chelomytko V. Problems of management risks of informative providing of realization of innovations

The work investigated the problems of risk management of information support for implementing innovations. Under current, highly dynamic operating conditions, any processes (including business processes) are inseparable from risk. It is inherent in all branches of market activity. Risks cannot be ignored. It is advisable to use anticipatory (preventive) measures to prevent them, reduce their level, or compensate depending on the types of risks, circumstances of their occurrence, level, etc. Ensuring the sustainable development of domestic enterprises under the current conditions of instability and crisis in Ukraine is significantly complicated by significant risk factors.

An important condition for effective information provision in implementing innovative projects is the ability to turn uncertainty into risk and its subsequent management. Information support for implementing innovations (implementation of innovative projects) is characterized by a high level of risk. The paper analyzes the risk structure of the stakeholders of the innovative project. The proposed process of step-by-step risk management of the information support of the enterprise's innovative activities. The proposed risk management system of information support for implementing innovations by enterprises consists of applying key (main) functions. A functional approach to the risk management process of information support for implementing innovations will involve the planning and organization of this activity, as well as further control and, in the event of deviation from the plan, regulation (adjustment). For the effective implementation of innovative projects, domestic enterprises need to investigate and manage the risks of information provision of this activity at each stage. Improvement, development of information provision of innovative projects, and formation of the risk management system of this activity will help save time for all participants, increase efficiency and accuracy, and reduce uncertainty.

Keywords: information, information support, innovations, risks, information risk, information activity, risk management.

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