
РЕГІОНАЛЬНА ЕКОНОМІКА

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CONCEPTUAL APPROACH TO THE DEFINITION OF INNOVATIVE-INFORMATION SECURITY OF THE REGION

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The article shows the impact of innovative-information security on the economic security of the region. The main risks and problems that have a negative impact on the economic security of the region are analyzed. The necessity to observe the principle of interdependence and interaction of innovation security and information security within the framework of a complex regional economic policy has been proved. The necessity of detailed diagnostics of the state of the regional economy, macroenvironment, innovation ability of the enterprises of the region using the system approach and system analysis is shown. A conceptual approach to the definition of innovative-information security of the economic complex of the region is proposed, taking into account the analysis of threats to information security of the development of innovative activity in the form of nine elements of the block diagram: identification and classification of threats to the innovative-information security of the region; the formation of a system for monitoring the innovative-information security of the region; substantiation of the system of indicators and information base for the process of diagnostics of innovative-information security of the region; pre-planned research of the state of innovation activity and the level of providing innovation and information security (by component – innovation) of the region; development of the program of diagnostics of innovative-information security of the region; conducting economic and statistical analysis on the components of innovation and information security of the region; conducting situational and strategic analysis on the situation of innovative-information security of the region; quantitative assessment of the state of innovative-information security and determination of preventive measures; development of program-targeted measures to neutralize threats to the innovative-information security of the region. Formation of the current innovative-information policy of the region is based on the principles of interdependence and interaction of innovation security and information security. Measures have been developed to ensure innovative-information security of the region.

Keywords: innovative-information security, economic security, region, diagnostics, thresholds, conceptual approach.

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Problem statement

During the transformation period, the Ukrainian state must implement a set of measures to remove the economy from the crisis, which will guarantee the economic security of the individual region and the country as a whole. These measures need to be implemented in all areas of the economy. In determining the specific tools and mechanisms for ensuring the economic security of the region

(ESR), it is necessary to take into account the formulated threats to economic security (including its major components), and to take into account the short- or long-term nature of these threats and their potential for prevention in the given period. One of the important components of the economic security of the region is information security, which is beginning to play an increasingly important role and affect the economic security of the region.

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From this point of view, increasing the influence of local authorities and regionalization of decision-making mechanisms to prevent economic panic are of paramount importance. To solve this problem, it is important to develop a conceptual approach to innovative-information security of the economic complex of the region.

Statement of the main material

Taking into account that, as a whole, the ESR is a collection of the current state of languages and factors that reflect the stability, stability and gradual development of the territory's economy, a certain independence and integration with the state's economy, it is essentially expressed in:

- opportunities to implement their own economic policies aimed at realizing the economic interests of the region, but within the limits of national interests and current legislation;
- the ability to carry out major economic events (in the fields of society, resource support, regional infrastructure, industrial production, innovative-information security, demographics, etc.) for urgent socio-economic, socio-environmental emergencies in the region;
- an opportunity to maintain (on a balanced basis) the conformity of valid economic standards in the region, which would provide the necessary standard and quality of life for the population;
- the ability to respond to severe geopolitical changes in the country and the world, including in the field of innovative-information security.

Nowadays, all regions of Ukraine are experiencing a number of complex and acute problems of economic, ethical, environmental, and other. Among the regional aspects, the following strategic issues are important:

- uneven development;
- depressed areas;
- formation of points of innovative growth;
- lack of balance of the infrastructure complex, that is the presence of asymmetry factor;
- low level of self-sufficiency potential of the region;
- failure to achieve the required efficiency of decentralization processes;
- lack of proper level of innovation and information security;
- the presence of external threats to the ESR, including foreign currency outflows, displacement from foreign markets, degradation of the environment, reduced exports of high-tech products, that is, reduced foreign exchange earnings and the ability to upgrade machinery and equipment.

It should also be noted that there are threats throughout the ESR, based on the so-called regional monopoly in the production of the most important products that reinforce current trends. In Ukraine,

the monopoly market with a high level of stability of technological and economic ties is characterized by electricity, coal, oil and gas supply. Social and information tensions are also a powerful factor in reducing security at the regional level; the presence of socio-environmental crises that reduce the economic potential of the regions.

Such centers of social tension include:

- dangerously concentrated regions below the poverty line;
- regions and cities - potential centers with too high unemployment;
- cells of interethnic tension;
- areas of forced immigration from other countries;
- deterioration of economic and social conditions in large industrial centers, which causes increased social tensions.

Against this backdrop, the role of an important component of the EDB – information security, including innovation and information security – is growing. The development of parameters and criteria for information security of the region should be based on the following basic principles: complexity, systematic, interdependent, variability, risk acceptability, in the context of the impact of information on the social environment of the regional space.

A generic indicator (criterion) of regional security, in terms of the components of the ESR, is the sufficient ability of a particular region's economy to function in the context of enhanced reproduction within the global economy. The basic principle of the ESR is the thresholds of indicators, that is limit values, beyond which destructive unregulated processes occur and the region's economy operates in an extreme mode. The following regional security thresholds can be identified:

- total production, GDP per capita;
- the level and quality of life of the region's population;
- demographic status of the region (fertility, mortality, natural increase, life expectancy, etc.);
- employment of the population and its dynamics by major economic regions, age and social groups;
- state of the financial and budgetary and credit system;
- the level of development of market relations, ownership structure, social activity of the population;
- the level of balance of regional infrastructure;
- innovative activity of industrial and infrastructural complexes of the region.

The threshold values of the indicators should be determined taking into account the specific stages of economic development and the characteristics of the region.

Within the framework of a complex regional economic policy, a necessary element of the formation of the current innovative-information policy of the region is observance of the principle of interdependence and interaction of innovation security and information security. There is a clear need for innovation security of the regional industrial complex, combined with the protection of the innovation-intellectual and economic interests of the subjects of the complex in the conditions of information space. The objective of this principle, first of all, is to determine the degree of security threats to its level, the impact of the causes of their emergence, identify the possibilities and ways of their neutralization and assess the potential impact of information flows on the protection of innovation and intellectual security, including through the complex of operational measures of inadmissibility of excessive damage to innovative activity of subjects of economic complex of the region.

These tasks can be solved on the basis of detailed diagnostics of the state of the regional economy, macro environment, innovative ability of the enterprises of the region using the methods of system approach and system analysis. The first allows to cover the range of issues of innovative development of the region in combination with the provision of innovative-information security, and the second – provides a comprehensive and interconnected logical and mathematical consideration of this development within the regional information space.

On the basis of the received information, taking into account the analysis of threats to the information security of the development of innovative activity, a conceptual approach to the innovative-information security of the economic complex of the region is developed, which in a practical aspect is a system of the following provisions:

- identification of the problem to be addressed (compliance with the Sustainable Development Strategy of Ukraine and its Regions – 2020 and 2030);
- term of conceptual approach implementation;
- the purpose of the conceptual approach (enhancing the effectiveness of reforms to improve the innovative development of industrial and in general economic production in the region, including the achievement of the objectives of ensuring the innovation and information security of the region);
- ways of implementing the conceptual approach (own capabilities of the region, assistance of the center, attraction of international assistance);
- expected results of conceptual approach implementation (implementation of EU standards); improving the quality of the innovation process and increasing the number of innovation-active industries; providing updates on the new high-tech basis of the

region's innovation system; creating the necessary level of innovative-information security within the regional and national information space;

– financial support;

– implementation of monitoring mechanisms for development, production and marketing of innovations;

– evaluation of the effectiveness of the proposed measures.

Figure presents a conceptual approach to defining the region's innovative-information security as nine elements of a block diagram.

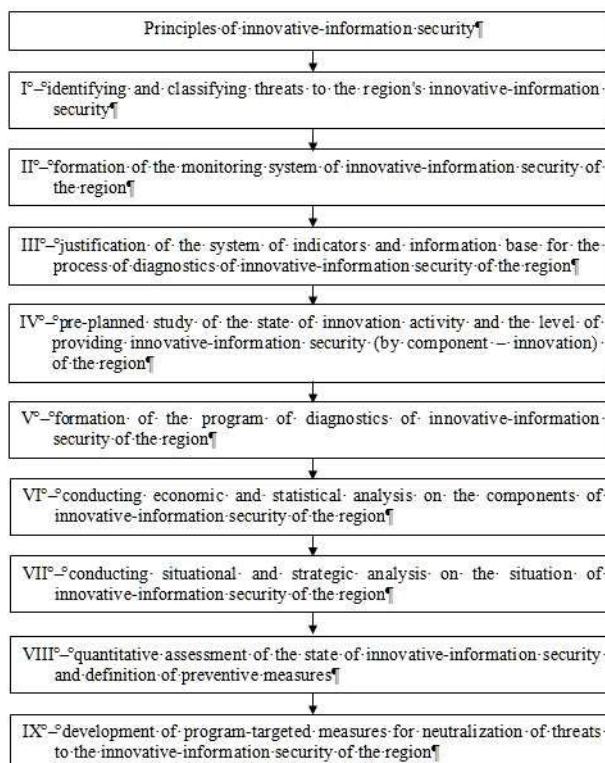
Block I: identification and classification of threats to the innovative-information security of the region within the information regional space (the criteria for innovative-information security should include the determination of the reliability of the economic (industrial) system of the region, the level of protection of the regional innovative-information space, ways to implement innovative development, the ability to neutralize development, excitatory effects, dynamics of accumulation of threats, appropriate reactions to excitatory effects).

Block II: formation of a monitoring system for innovative-information security of the region. It defines the objects of direct influence (which the system can influence) and the objects of indirect influence (which aren't a direct characteristic of innovation, they determine the additional opportunities and threats that accompany them – energy supply, ecology, etc.). The objects of the monitoring system in the region are, first of all, the objects of innovation and information activity, which prove, within the regional information space, scientific and technological achievements in practical implementation.

Also, monitoring objects should include: innovation risk objects, investment objects, integration activities, information space objects, organizational and legal entities. In the case of integration activities, in our opinion, it is necessary to distinguish the following levels of integration: cross-sectoral, inter-regional, business and international.

Block III: justification of the system of indicators and information base for the process of diagnostics of innovative-information security of the region. The following conditions must be taken into account when designing a system of indicators: it must correspond to the list of threats to the innovative-information security of the region; include only the required metrics that are calculated promptly; related to the general system of diagnostics of the economic complex of the region.

In our opinion, it is possible to divide the whole set of indicators into two types: 1 – criteria, that will reflect the tendencies of the state of innovative-



Conceptual approach to the definition of innovative-information security of the region

information security of the region; 2 – indicative, reflecting the direct impact on the innovation process within the information space of the region and beyond the state.

Block IV: pre-planned study of the state of innovation activity and the level of providing innovative-information security of the region. This block includes modeling of different scenarios of innovative development of the region.

Block V: formation of the program of diagnostics of innovative-information security of the economic and industrial complex of the region. Such a program in its general form should include the following components: determination of the general nature of threats to the innovative-information security of the region, characteristics of monitoring objects, aggregated monitoring objects, information system, presentation of the state of innovative-information security of the region in accessible qualitative and quantitative estimates.

Block VI: conducting a statistical analysis on each component of the region's innovative-information security.

Block VII: conducting situational and strategic analysis on the situation of innovative-information security of the region.

Block VIII: quantitative assessment of the state of innovative-information security of industrial production in the region, qualitative assessment of

the state of the information space of the region and the adoption of preventive and preventive measures.

Block IX: development of program-targeted measures to neutralize threats to the innovative-information security of the region and further its sustainable innovative development.

The state of regional economic security, by an important component of the region's innovation and information security, is influenced by many different factors that either hinder or contribute to security. If the influence of factors is incorrectly or timely regulated, its transition from a relatively manageable state to a new, destabilizing and often unpredictable one is considered as a threat to the region's innovation and information security and economic security. Consequently, any unmanageable factor or timely unregulated and influential condition of the region's basic economic security components, including the region's innovative-information security, could be jeopardized.

The threat to the economic security component of the region, the innovative-information security of the region, should be understood as a set of conditions and factors, phenomena and processes that occur in the internal and external environment of the information space, which leads to undesirable changes in the state of innovation activity, while creating direct or indirect the risk of damage to the vital economic interests of the region, its competitiveness and investment attractiveness due to the formation of conditions of scientific and technological development the establishment of the economic complex of the region.

Timely intervention in the development of factors should lead to the prevention of crises in the context of scientific and technological development of the region, which is the most favorable development of events. If the factor has become a security risk, then it is necessary to minimize the possible damage. Measures to ensure the innovative-information security of the region should be implemented in the following sequence:

- identification and classification of factors that influence the state of innovative-information security of the region and as a consequence of the economic security of the region;

- identification of the threat if this factor of innovative-information security of the region is out of control, including under the influence of external threats to the information space of the region, the state and the global economy;

- development of measures, using economic and mathematical modeling tools, to prevent the consequences of the factor of innovation and information security of the region;

- implementation of the measures taken, including through the formation of a mechanism for

innovative-information security of the region and the implementation of systematic monitoring. At the same time, one of the main tasks of the management system in the area of innovative-information security of the region is to identify and assess the existing and potential challenges and threats to the innovative-information security of the region and the overall economic security of the region. To do this, the quantitative parameters of indicators and thresholds should be determined based on the indicator for assessing the state of innovative-information security of the region established in the region. Thresholds are limit values of indicators of innovative-information security of the region, breach (increase or decrease) of which creates a threat to innovation and information security of the region. It is the establishment and systematic effective control over the achievement and compliance with the thresholds that is an important function of the innovative-information security management system of the region.

However, it should be borne in mind that ensuring the innovative-information security of the regions of Ukraine is a function of their respective authorities. Of course, in the necessary cases to solve complex issues of joint management, etc. relevant national authorities, the Ministry of Education and Science of Ukraine, the National Academy of Science of Ukraine in the field of creating conditions for the development of science in the country, as well as the media of the national information space are connected.

Conclusions

Countries, their regions, which can't provide their own information security, become uncompetitive and, as a consequence, can't participate in the fight for the division of markets and resources. It is the provision of innovative-information security that has a great impact on the economic security of the region. It is indisputable that in every developed country, as well as in its regions, there must be a system of information security, and the functions and powers of the relevant public authorities should be enshrined in law.

The proposed conceptual approach to the definition of innovative-information security of the region provides an idea of the system of information and innovation security of the region, outlines the stages of monitoring and diagnostics of the state of innovative-information security of the region and measures to ensure the innovative-information security of the region.

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КОНЦЕПТУАЛЬНИЙ ПІДХІД ДО ВИЗНАЧЕННЯ ІННОВАЦІЙНО-ІНФОРМАЦІЙНОЇ БЕЗПЕКИ РЕГІОНУ

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В статті показано вплив інноваційно-інформаційної безпеки на стан економічної безпеки регіону. Проаналізовано основні ризики та проблеми, які здійснюють негативний вплив на стан економічної безпеки регіону. Доведено необхідність дотримання принципу взаємозалежності та взаємодії інноваційної безпеки та інформаційної безпеки в межах комплексної регіональної економічної політики. Показано необхідність здійснення детальної діагностики стану регіональної економіки, макроочолення, інноваційної здатності підприємств регіону з використанням системного підходу та системного аналізу. Запропоновано концептуальний підхід до визначення інноваційно-інформаційної безпеки господарського комплексу регіону з урахуванням аналізу загроз інформаційної безпеки розвитку інноваційної діяльності у вигляді дев'яти елементів блочної схеми: визначення та класифікація загроз інноваційно-інформаційної безпеки регіону; формування системи моніторингу інноваційно-інформаційної безпеки регіону; обґрунтування системи показників та інформаційної бази для процесу діагностики інноваційно-інформаційної безпеки регіону; передпланове дослідження стану інноваційної діяльності та рівня забезпечення інноваційно-інформаційної безпеки (за компонентою – інновація) регіону; формування програми діагностики інноваційно-інформаційної безпеки регіону; виконання економіко-статистичного аналізу за складовими компонентами інноваційно-інформаційної безпеки регіону; виконання ситуаційного та стратегічного аналізу з ситуації інноваційно-інформаційної безпеки регіону; кількісне оцінювання стану інноваційно-інформаційної безпеки та визначення профілактичних заходів; розробка програмно-цільових заходів щодо нейтралізації загроз інноваційно-інформаційної безпеки регіону. Формування діючої інноваційно-інформаційної політики регіону базується на принципах взаємозалежності та взаємодії інноваційної безпеки та інформаційної безпеки. Розроблено заходи щодо забезпечення інноваційно-інформаційної безпеки регіону.

Ключові слова: інформаційно-інноваційна безпека, економічна безпека, регіон, діагностика, порогові значення, концептуальний підхід.

КОНЦЕПТУАЛЬНЫЙ ПОДХОД К ОПРЕДЕЛЕНИЮ ИННОВАЦИОННО-ИНФОРМАЦИОННОЙ БЕЗОПАСНОСТИ РЕГИОНА

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В статье показано влияние инновационно-информационной безопасности на состояние экономической безопасности региона. Проанализированы основные риски и проблемы, которые оказывают негативное влияние на состояние экономической безопасности региона. Доказана необходимость соблюдения принципа взаимозависимости и взаимодействия инновационной безопасности и информационной безопасности в рамках комплексной региональной экономической политики. Показана необходимость проведения детальной диагностики состояния региональной экономики, макроокружения, инновационной способности предприятий региона с использованием системного подхода и системного анализа. Предложен концептуальный подход к определению инновационно-информационной безопасности хозяйственного комплекса региона на основе анализа угроз информационной безопасности развития инновационной деятельности в виде девяти элементов блочной схемы: определение и классификация угроз инновационно-информационной безопасности региона; формирование системы мониторинга инновационно-информационной безопасности региона; обоснование системы показателей и информационной базы для процесса диагностики инновационно-информационной безопасности региона; предплановое исследование состояния инновационной деятельности и уровня обеспечения инновационно-информационной безопасности (по компоненту – инновация) региона; формирование программы диагностики инновационно-информационной безопасности региона; проведение экономико-статистического анализа по составляющим компонентам инновационно-информационной безопасности региона; проведение ситуационного и стратегического анализа по ситуации инновационно-информационной безопасности региона; количественная оценка состояния инновационно-информационной безопасности и определение профилактических мероприятий; разработка программно-целевых мероприятий по нейтрализации угроз инновационно-информационной безопасности региона. Формирование действующей инновационно-информационной политики региона базируется на принципах взаимозависимости и взаимодействия инновационной безопасности и информационной безопасности. Разработаны мероприятия по обеспечению инновационно-информационной безопасности региона.

Ключевые слова: информационно-инновационная безопасность, экономическая безопасность, регион, диагностика, пороговые значения, концептуальный подход.

CONCEPTUAL APPROACH TO THE DEFINITION OF INNOVATIVE- INFORMATION SECURITY OF THE REGION

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The article shows the impact of innovative-information security on the economic security of the region. The main risks and problems that have a negative impact on the economic security of the region are analyzed. The necessity to observe the principle of interdependence and interaction of innovation security and information security within the framework of a complex regional economic policy has been proved. The necessity of detailed diagnostics of the state of the regional economy, macroenvironment, innovation ability of the enterprises of the region using the system approach and system analysis is shown. A conceptual approach to the definition of innovative-information security of the economic complex of the region is proposed, taking into account the analysis of threats to information security of the development of innovative activity in the form of nine elements of the block diagram: identification and classification of threats to the innovative-information security of the region; the formation of a system for monitoring the innovative-information security of the region; substantiation of the system of indicators and information base for the process of diagnostics of innovative-information security of the region; pre-planned research of the state of innovation activity and the level of providing innovation and information security (by component – innovation) of the region; development of the program of diagnostics of innovative-information security of the region; conducting economic and statistical analysis on the components of innovation and information security of the region; conducting situational and strategic analysis on the situation of innovative-information security of the region; quantitative assessment of the state of innovative-information security and determination of preventive measures; development of program-targeted measures to neutralize threats to the innovative-information security of the region. Formation of the current innovative-information policy of the region is based on the principles of interdependence and interaction of innovation security and information security. Measures have been developed to ensure innovative-information security of the region.

Keywords: innovative-information security, economic security, region, diagnostics, thresholds, conceptual approach.

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