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KUNYTSKA-ILIASH, M. V.¹ (<https://orcid.org/0000-0003-2559-1065>),
HRYMAK, O. Ya.¹ (<https://orcid.org/0000-0002-9730-120X>),
DUBYNA, M. P.¹ (<https://orcid.org/0000-0001-6536-0152>),
BEREZIVSKYI, Ya. P.¹ (<http://orcid.org/0000-0001-9480-3688>),
and **ZBARSKA, A. V.**² (<http://orcid.org/0000-0003-2731-0968>)

¹Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies,
50, Pekarska St., Lviv, 79005, Ukraine,
+380 32 239 2643, admin@lvet.edu.ua

²National University of Life and Environmental Sciences of Ukraine,
11, Heroiv Oborony St., Kyiv, 03041, Ukraine,
+380 44 527 8205, rektorat@nubip.edu.ua

INNOVATION- AND TECHNOLOGY-DRIVEN DEVELOPMENT OF ECONOMY: STRATEGIC IMPERATIVES FOR REALIZING REGIONAL DEVELOPMENT CAPACITY

Introduction. *The qualitative identification of the level of innovation and technology development in a country and regional disparities of this level requires the formation of better information and analytical support of government policy.*

Problem Statement. *The study deals with the problem of regional disparities in innovation and technology development of the national economy of Ukraine, factors for their formation, as well as with the determination of strategic imperatives, tools, and means of government policy to intensify innovation and technology activities in regional development policy systems.*

Purpose. *The purpose of this research is to substantiate, from a scientific standpoint, the innovation and technology aspects of the economic development and to identify the strategic imperatives for equalizing interregional disparities.*

Materials and Methods. *The correlation-and-regression, system, structural, and statistical analysis and grouping, theories of economic growth, modern concepts of transitional economic systems have been used as a methodological framework of the study.*

Results. *The authors' methods for analyzing the level of innovation- and technology-driven development and identifying the interregional disparities of innovation- and technology-driven growth of the national economy have been developed and tested. Based on the integral values of innovation- and technology-led growth of the regions, the nature of interregional disparities in the analyzed area has been identified and explained. Six groups of regions of Ukraine in accordance with the values of the integrated index of innovation- and technology-driven development of regional economies have been identified. The strategic imperatives of further innovation and technology development for each group have been determined.*

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Conclusions. *The scientific and methodological principles and practical recommendations set out in the study aim at improving the efficiency of the national economy, ensuring its sustainable viability, and realizing the potential in the system of international division of labor.*

Keywords: regional development, economic potential, imperatives, strategic priorities, innovation- and technology-driven development.

At the present stage of its progress, Ukraine has declared its desire for full European integration. In addition to the political and ideological transformations, this supposes simultaneous and proper convergence of the social and economic environment of the country and the European Union. Instead, Ukraine's economy lags significantly behind in terms of both the scale and the rate of economic growth as compared with most EU-27 countries.

There are being updated the decisions, the approbation of which may intensify the development of Ukraine's national economy to such rates that, at least, will significantly reduce the gap, if not level the situation in the medium term. In the structure of such decisions, the leading role is given to the policy of activation and increase in the efficiency of innovation and technology. Success in this area is a direct way to strengthening the competitiveness of Ukraine's national economy in both domestic and foreign markets with the results: increasing the domestic production, expanding the domestic market capacity, overcoming the pitfalls of import dependence, monopolization, corruption, ensuring a growth in the employment rate and the budget revenues, improving the level of life quality of the population, increasing the high-tech export of goods and services.

Ukraine is characterized by many positive practices of the intensification of innovation- and technology-led development by individual strategic enterprises, sectors, and types of economic activity and in regional and spatial aspects. The situation is complicated by the fact that in several regions of the country, there has been a lack of attention to innovation and technology, while in others, the existing capacity for the development

of industry, R&D, technology, and high-tech sector has not been fully realized.

Innovation- and technology-driven development is the subject of studies by many researchers who have dealt with various theories and areas of research. The content of the concept of "innovation- and technology-driven development" includes various aspects of support, as far as it is possible to achieve the required level. Therefore, in the course of studying the innovation- and technology-driven development of economy, the main attention is paid towards the preconditions, factors, directions, and tools for its speedup.

Undoubtedly, to ensure the innovation- and technology-driven development of economy, appropriate prerequisites shall be formed in the country. In particular, it concerns the status and development of the internal market where all processes providing the receipt of required resources for the achievement of a necessary level take place. First of all, the domestic market shall develop with the signs of competitiveness, efficient use of industrial potential of national producers, and structural reproduction (production, distribution, exchange, consumption). The decisive place in the system of such relations should be attributed to the development of interregional relations of national producers, which ensure the exchange of technologies and equalization of territorial disparities [1]. The economy of the region acts as a platform for the exchange of technological goods and at the same time is able to provide attractive conditions for their successful implementation. It is important for the government authorities to rationally divide the regions in terms of establishing innovation production in accordance with their competitive potential and prospects for its development [2].

There is no doubt that the regional economy is not able to create innovation and technology on its own, which are usually imported. This model of innovation- and technology-driven development has been used worldwide and has many advantages and positive results [3]. The market environment should not be dependent and directly influenced by foreign economic factors. This has been emphasized by R. Lupak (2021) [4], Kolo-myitseva (2019) [5], who link innovation- and technology-led development with the degree of import dependence of the domestic regional market and the ability of local producers to establish domestic production, in particular with a high degree of innovation and manufacturability.

It is clear that to form such a model, it is necessary to have a sufficient amount of resource capital. It is important to create attractive institutional conditions in the region, which stimulate increasing the capitalization of innovation programs, strengthening the technological production interconnections, and accelerating the adaptation of local producers to globalization tendencies [6]. There are significant interregional disparities in the absence of a single institutional system of innovation and technology development in the country, which requires the territorial division of the economy into separate parts as their resource potential for the creation and implementation of technologies [7].

In the regional economy, conditions shall be created for the efficient use and a further increase in innovation and technology resource potential. Given these characteristics, many researchers seek to identify its main aspects. In particular, the importance of investment support [8; 9; 10], human capital [11; 12], institutional infrastructure [13; 14], competitive environment and fair market relations [15; 16]. Undoubtedly, each condition is important and their priority should be determined in the context of specific situations. For example, it is impossible to create and implement innovations without sufficient investment, but, on the other hand, there shall be conditions in the intra-regional market, which do not impede ac-

cess to such resources. The formation of an effective competitive environment and fair market relations is based on the regulatory framework that is created, improved, and controlled by the institutional infrastructure. If to study the processes of direct implementation of innovations and technologies, it is necessary to highlight the need for human capital, on which their effectiveness depends. Here it is worth emphasizing the socio-economic conditions that determine the degree of the formation of local human capital and hence the prospects for innovation- and technology-driven development [17].

Innovation- and technology-driven development of a region is also associated with the development and implementation of local projects that are characterized by a clear definition of objects and tasks, spatial and territorial boundaries, time constraints. It is known that the main value of project development is the introduction of new or the improvement of existing development tools [18]. Therefore, it is important to correctly determine the industries in which they will be implemented.

The world experience of advanced economies has confirmed the priority of projects in strategically important areas related to the development of information and communication technologies, robotics, genetic engineering, artificial intelligence, aerospace engineering, biotechnology, and nuclear energy. In the context of such industries, it is possible to rationally approach the distribution of regions in relation to their innovation and technology potential. For each country, the choice of priority industries is different, because their development depends on many factors and the economy shall be adapted to such an environment. Innovation- and technology-led development of economy is associated with the IT industry (I. Rishnyak, O. Veres & etc. [19], I. Gontareva, V. Babenko & etc. [20]); with high-tech engineering and instrumentation (Z. Varnaliy, S. Onishchenko & A. Masliy [21]); and with digitalization of social and economic relations (Y. Rudnichenko, S. Melnyk & etc. [22]).

To achieve innovation- and technology-driven development, it is important to develop appropriate strategic programs with the use of a set of tools and measures to perform required tasks. The advantage of this approach is that the strategic documents quite reasonably identify all the opportunities for innovation, their risks, and threats, expected results. This allows qualitatively predicting future changes. Thanks to strategic programming, it is possible to effectively implement projects for developing the clustering and elements of innovation production infrastructure [23], foreign economic investment & innovation and technical & technological cooperation [24], commercialization and bringing new products with a high added value to domestic market [25].

It is known that the country's economy may develop being driven by innovation and technology, among others, if all processes are rationally structured, optimally balanced, and qualitatively regulated on a spatial and territorial scale [26]. Noncompliance with such features does not allow obtaining required results in the implementation of processes that are critically important for innovation and technology. It seems quite difficult to ensure any activity unless resource and raw material inflow, transit and logistics flows, commodity-money market relations are properly organized and, especially, complete manufacture of products with high added value is established. Accordingly, forming a model of innovation- and technology-driven development of interregional relations in a country becomes more important, since it underlies the creation of the required domestic market environment, resource provision, strategic and project management.

This study is based on the conclusions on the results of the analysis of the current state of innovation, technology, R&D and engineering in Ukraine. They have given reasons to believe that the level of the innovation- and technology-driven development of Ukraine's economy is low and falls significantly behind the EU to which Ukraine seeks to integrate (High-technology exports (% of manufactured exports), *The World*

bank; European Innovation Scoreboard 2020, *Hugo Hollanders and Nordine Es-Sadk*; Framework for State aid for research and development and innovation; Survey of innovation activity in the economy of Ukraine (according to the international methodology, the State Statistics Service of Ukraine, etc.).

To understand the causes of this situation, as well as to justify management decisions aiming at significant intensifying and improving the efficiency of innovation and technology in Ukraine, it is important to do research focused on the relationships between "innovation and technology environment" and "interregional disparities and innovation and technology differentiation".

To implement this task, an economic and mathematical model of innovation- and technology-driven development (*InnovTechDev*) has been elaborated. It is a set of indicators, the analysis of which allows comprehensively describing the characteristics of the environment of innovation and technology in the regions of Ukraine by the three components (directions): (1) self-sufficiency of innovation- and technology-driven development, (2) quality of innovation and technology, and (3) development of innovation and technology:

$$ITD = f \left\{ \begin{array}{l} (SS[C_I; PP_I; P_I; LA_S]); \\ (QL[IT_Q; InnovT_Q; IR_Q; NewITP]); \\ (ITD[Inc_E; InnovAct; LOP; DMC_{Innov}]); \end{array} \right\}, (1)$$

where *SS* is the index of the self-sufficiency of innovation- and technology-driven development; C_I is the cost capacity of innovation in the economy; PP_I is the employment efficiency of innovation and technology; P_I is the ratio of partners of industrial enterprises for the preparation and implementation of innovation and technology projects; IA_S is the ratio of availability and accessibility of information and analytical support for innovation and technology;

QI is the innovation and technology quality index; IT_Q is the level of innovation and technology in the economy real sector; $InnovT_Q$ is the level of innovation and technology by key types of inno-

vation; IR_Q is the level of the innovation and technology commercialization; $NewITP$ is some new innovation and technology processes that have been implemented;

ITD is the innovation and technology development index; Inc_E is the return on investment in innovation and technology; $InnovAct$ is the share of enterprises of the economy real sector in the production and sale of innovation products; LOP is the labor output of production and sale of innovation and technology products in the real sector of national economy; DMC_{Innov} is the size and capacity of the domestic market of innovation and technology products.

The information base on this model is formed upon the data of the official statistics of Ukraine by regions of the country for ten years (2010–2019).

Using *Statistica 7.0* software, a cluster analysis has been made. As a result, the regions of Ukraine have been grouped according to the relevant parameters of self-sufficiency of innovation- and technology-driven development, the innovation and technology quality, the innovation and technology development, as well as the integral indexes of innovation and technology. These results allow identifying the presence and extent of interregional differentiation in the analyzed area and the most problematic aspects as well as making a prospectus for strategic guidelines of government policy to stimulate the intensification and efficiency of innovation and technology in the country.

Results of the cluster analysis of innovation- and technology-driven development of the regional economy of Ukraine

Table 1 shows the results of grouping the regions of Ukraine by the self-sufficiency index of innovation- and technology-driven development. The city of Kyiv, as the region with the largest concentration of investment, economic, and resource potential of the country, is characterized by the highest self-sufficiency of innovation- and technology-driven development in the structure of Ukraine's economy.

Dnipropetrovsk, Kharkiv, Lviv, Odesa, Mykolaiv, and Zaporizhia Oblasts are among the regions with a high self-sufficiency of innovation- and technology-driven development. It is important to pay attention to the aspect of rather strong differentiation and disproportion of the self-sufficiency of innovation and technology, which does not contribute to the integral innovation- and technology-driven development of Ukraine's economy. It manifests itself in the fact

Table 1. The Results of Grouping the Regions of Ukraine by the Self-Sufficiency Index of Innovation and Technology-Driven Development, 2010–2019

Administrative areas	Euclidean distance	Clusters	Characteristics of clusters		
City of Kyiv	0.00	I	The highest level		
Dnipropetrovsk Oblast	8.963635	II	High level		
Kharkiv Oblast	9.104235				
Lviv Oblast	10.000431				
Odesa Oblast	12.697432				
Mykolaiv Oblast	15.654821				
Zaporizhia Oblast	40.840330				
Kherson Oblast	4.546294	III	Average		
Kyiv Oblast	5.764212				
Chernihiv Oblast	5.806509				
Luhansk Oblast	8.607763				
Vinnitsia Oblast	10.231382				
Sumy Oblast	10.279051				
Chernivtsi Oblast	17.086763				
Donetsk Oblast	22.483431				
Cherkasy Oblast	1.869838			IV	Below average level
Volhynian Oblast	2.754054				
Ivano-Frankivsk Oblast	3.398967				
Khmelnyskyi Oblast	4.414455				
Kirovograd Oblast	4.635786				
Ternopil Oblast	5.349918				
Zhytomyr Oblast	6.429009				
Poltava Oblast	6.589139				
Rivne Oblast	7.121929				
Zakarpattia Oblast	8.074046				

Source: authors' results.

that 10 regions (which is about 40% of the country's territory) fall into the group of low self-sufficiency of innovation- and technology-driven development.

Additionally, Table 1 shows the indexes of clusters and the reliability of the cluster analysis of grouping the regions of Ukraine by the indexes of self-sufficiency of innovation- and technology-driven development, which have confirmed the appropriate level of statistical significance of the results and, accordingly, their reliability.

Table 2. The Results of Grouping the Regions of Ukraine by the Innovation and Technology Quality Index, 2010–2019

Administrative areas	Euclidean distance	Clusters	Characteristics of clusters
Odesa Oblast	1.239092	IV	High quality
Chernihiv Oblast	1.532007		
Donetsk Oblast	1.666933		
Dnipropetrovsk Oblast	2.129680		
Zaporizhia Oblast	4.538542		
Rivne Oblast	6.001741		
Sumy Oblast	1.179146	III	Below average quality
Kyiv Oblast	3.695621		
Kherson Oblast	4.389265		
Kirovograd Oblast	6.121868		
Kharkiv Oblast	7.952594		
Luhansk Oblast	10.181610		
Ivano-Frankivsk Oblast	1.474366	II	Low quality
Cherkasy Oblast	2.940787		
Ternopil Oblast	3.154363		
Zhytomyr Oblast	1.072153		
Vinnitsia Oblast	1.889261		
Volhynian Oblast	2.380881		
Poltava Oblast	2.637251	V	Average quality
Lviv Oblast	2.929765		
Zakarpattia Oblast	2.945198		
Mykolaiv Oblast	3.095701		
Chernivtsi Oblast	4.015177		
Khmelnitskyi Oblast	5.378361		
city of Kyiv	0.00	I	The highest quality

Source: authors' results.

Table 2 presents the results of grouping the regions of Ukraine by the innovation and technology quality. The highest level of quality has been reported for the city of Kyiv. High indexes have been obtained for such regions of the country as Odesa, Chernihiv, Donetsk, Dnipropetrovsk, Zaporizhzhia, and Rivne Oblasts. It should be noted that, to some extent, there is a relationship between the regional characteristics of the self-sufficiency and quality of innovation- and technology-driven development. However, there are some exceptions. Kharkiv, Lviv, and Mykolaiv Oblasts are not included in the group of regions with high innovation and technology environment quality. Accordingly, it may be supposed that in these regions, resource provision and a sufficiently high potential for the innovation and technology growth of the economy are not fully used.

On the other hand, Rivne Oblast, having almost the lowest self-sufficiency of innovation- and technology-driven development, is in the group of regions with high quality of innovation- and technology. Zhytomyr, Volhynian, Poltava, and Zakarpattia Oblasts have shown an average quality of innovation- and technology-driven development. Therefore, in these areas, the authorities should focus on solving the problems of improving the resource provision of innovation and technology, as the level of its use is quite good there.

Additionally, Table 2 shows the indexes of clusters and the reliability of the cluster analysis of grouping the regions of Ukraine by the indexes of quality of innovation- and technology-driven development, which have confirmed the appropriate level of statistical significance of the results and, accordingly, their reliability.

Table 3 shows the results of grouping the regions of Ukraine by the innovation and technology development index. From the obtained data it is possible to state the existence of a positive situation, as 10 regions of the country have the highest rates of innovation and technology development and 7 regions show high rates of innovation and technology development.

Accordingly, the general situation with the intensification of innovation- and technology-driven development in the country has been improving, which is a positive sign. However, this is still not enough for stating a sufficient growth and an efficient use of the potential for production, marketing, and export of high-tech products. One of the key reasons for this is the lag of the other areas in terms of the intensification rate of innovation and technology. These are primarily Donetsk, and Kirovohrad Oblasts (the lowest rates of development), as well as Ternopil, Chernihiv, Zakarpattia, Zaporizhzhia, Volhynian, and Cherkasy Oblast (average rates of development).

Particular attention should be paid to Zaporizhzhia Oblast. The region is among the five ones having a high level of industrial development, the potential of the real sector of the economy, and possesses almost the highest self-sufficiency (resource, personnel, innovation, research) of innovation- and technology-driven development and, at the same time, does not utilize it, which is a negative trend.

In addition, Table 3 shows the indexes of clusters and the reliability of the cluster analysis of grouping Ukraine’s regions by the innovation and technology development index, which have confirmed the appropriate level of statistical significance of the results and, accordingly, their reliability.

Table 4 shows the results of grouping the regions of Ukraine by the integral indexes of innovation- and technology-driven development. The following facts have been established: firstly, there is a rather strong polarization of the country’s regions by the analyzed parameters (6 clusters); secondly, there are as few as seven regions having the highest level of innovation and technology growth; thirdly, there are several significant discrepancies between the potential of innovation and R&D and the level of their commercialization.

Thus, Vinnytsia, Zaporizhzhia, Lviv, Odesa, Kherson, Chernihiv Oblasts, and the city of Kyiv are included in the group of regions with the

highest level of innovation- and technology-driven development. Dnipropetrovsk, Donetsk, Poltava, and Sumy Oblasts belong to the group with a high level of development.

The other regions of the country are characterized by medium and low levels of innovation and technology growth. The situation is especially critical in Luhansk, Mykolaiv, and Chernivtsi Oblasts. Innovation- and technology-driven development is below average in Volhynian, Zakar-

Table 3. Results of Grouping of the Regions of Ukraine by Innovation and Technology Development Index, 2010–2019

Administrative areas	Euclidean distance	Clusters	Characteristics of clusters
Donetsk Oblast	453.416021	III	Low rates of development
Kirovograd Oblast	453.416021		
Ternopil Oblast	17.400362	II	Average rates of development
Chernihiv Oblast	29.499651		
Zakarpattia Oblast	51.699463		
Zaporizhzhia Oblast	97.895911		
Volhynian Oblast	104.563024		
Cherkasy Oblast	216.706217		
Poltava Oblast	11.642487	IV	High rates of development
Kherson Oblast	45.644251		
Vinnytsia Oblast	49.349450		
Kyiv Oblast	95.554710		
Zhytomyr Oblast	97.955328	I	The highest rates of development
Ivano-Frankivsk Oblast	104.252618		
Sumy Oblast	117.448411		
Luhansk Oblast	3.5894511		
Rivne Oblast	6.2976279		
Dnipropetrovsk Oblast	9.0486712		
city of Kyiv	36.994730		
Chernivtsi Oblast	39.136975		
Mykolaiv Oblast	40.792261		
Khmelnitskyi Oblast	44.656758		
Kharkiv Oblast	44.781012		
Lviv Oblast	47.939259		
Odesa Oblast	72.515990		

Source: authors’ results.

pattia, Ivano-Frankivsk, Ternopil, and Cherkasy Oblasts.

In the context of the above considerations, it is especially important to talk about the imbalances associated with a sufficiently high industrial potential of the Mykolaiv Oblast (whose competitiveness is neither enhanced nor supported by product technology), the average level of innovation and technology self-sufficiency in Luhansk, and Chernivtsi Oblasts, the average level of innovation- and technology-driven development in

Volhynian and Zakarpattia Oblasts, the high rates of innovation and technology development in Mykolaiv and Chernivtsi Oblasts. These characteristics are not consistent with the critically low integral values of innovation and technology growth in these areas regions of the country.

These facts highlight the relevance of the formation and implementation of a balanced but proactive government policy to equalize interregional disparities and to ensure the intensification and effectiveness of innovation- and technology-driven development in Ukraine as key factors in strengthening a competitive position of the national economy and ensuring a quality process of the European integration.

Additionally, Table 4 shows the indexes of clusters and the reliability of the cluster analysis of grouping the regions of Ukraine by integral indexes of innovation- and technology-driven development, which have confirmed the appropriate level of statistical significance of the results and, accordingly, their reliability.

Strategic imperatives for ensuring and equalizing interregional disparities while supporting innovation- and technology-driven development of the economy real sector

The policy of the state in such a systemic and complex sphere as innovation- and technology-driven development should be systemic and complex. Given the key weaknesses of the national economy in this aspect, it seems appropriate to identify the key strategic imperatives for the formed regional clusters (Fig. 1).

For the entities of the economy real sector, which plan to implement innovation and technology and find themselves in the conditions of formed interregional disproportion, maintaining high rates of the development of intra-regional technological production is important. Such expectations are related to the *minimization of uncertainty in the processes and results of investing in regional economy*, as well as focused on the processes associated with the preparation, adoption, and implementation of management decisions in all areas of innovation.

Table 4. The Results of Grouping the Regions of Ukraine by the Integrated Indexes of Innovation- and Technology-Driven Development, 2010–2019

Administrative areas	Euclidean distance	Clusters	Characteristics of clusters
Volhynian Oblast	0.076755	IV	Below average development
Zakarpattia Oblast	0.089264		
Ivano-Frankivsk Oblast	0.030205		
Ternopil Oblast	0.039391		
Cherkasy Oblast	0.033992	II	The highest development
Vinnitsia Oblast	0.094988		
Zaporizhia Oblast	0.085111		
Lviv Oblast	0.062030		
Odesa Oblast	0.059254		
Kherson Oblast	0.077515		
Chernihiv Oblast	0.057911		
city of Kyiv	0.047638	V	Average development
Zhytomyr Oblast	0.102835		
Rivne Oblast	0.120106		
Khmelnitskyi Oblast	0.104586	III	High development
Dnipropetrovsk Oblast	0.097834		
Donetsk Oblast	0.059878		
Poltava Oblast	0.091827		
Sumy Oblast	0.089335		
Kyiv Oblast	0.063446	I	Above average development
Kirovograd Oblast	0.103233		
Kharkiv Oblast	0.056865		
Luhansk Oblast	0.088392	VI	Low development
Mykolaiv Oblast	0.030171		
Chernivtsi Oblast	0.073509		

Source: authors' results.

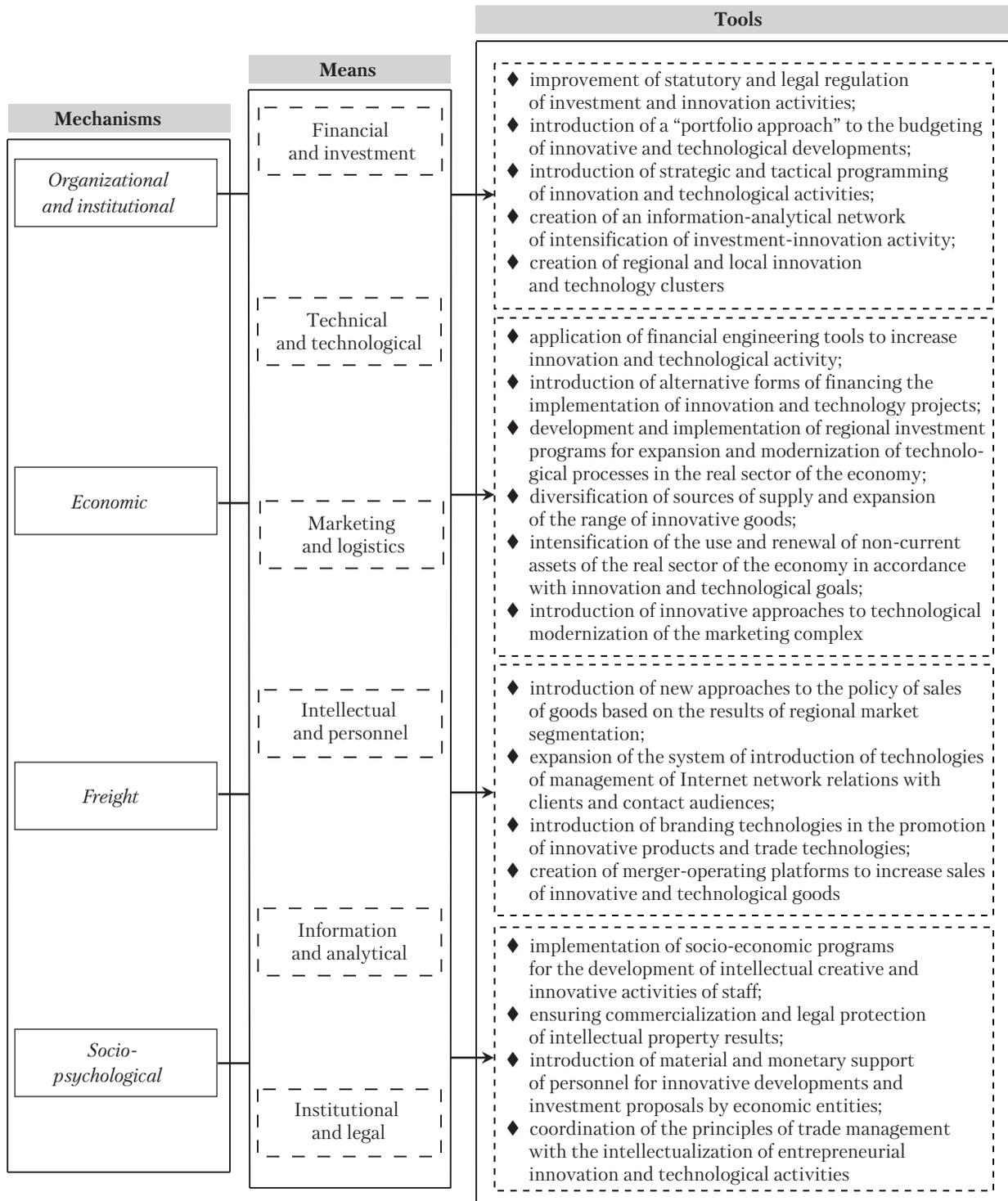


Fig. 1. Strategic imperatives of innovation- and technology-driven development of the real sector of the regional economy according to its clustering.

Source: authors' results.

As it is necessary to intensify innovation- and technology-driven development, it is important for enterprises to generate resource capital. To this end, it would be advisable to *maintain the focus and concentrated growth of local competitive production*. It is the matter of possession of innovation resource technologies that can provide a quick return on invested funds and rationally diversify business processes. This requires from regional authorities to form appropriate financial, investment, technical and technological incentives.

E-commerce and marketing management, which involve the search for new sources of the supply of goods and ways of their further movement to the final consumer, are becoming increasingly important in ensuring innovation- and technology-driven development. And as regional disparities manifest themselves, the achievement of expected results is directly determined by the effectiveness of the implementation of information and analytical, marketing and logistics, and intellectual and human resources means, which stimulate *the consistent implementation of diversification of production from the export-oriented sector to the domestic market*.

In addition to the influence of institutional, economic, and commodity factors, innovation- and technology-driven development depends on the motivational component. Obviously, it is difficult to achieve expected innovative and technological results unless following the logic of innovation commercialization with the maximum investment result. Here, it is also important to form a conscious attitude of the participants (which may differ in territorial location) to the tasks assigned to them. All this determines *strengthening the investment activity of local producers and increasing the scale of innovation projects*, and to achieve the required efficiency it involves the implementation of several measures, including intellectual and HR, financial and investment, institutional and legal significance.

Given the priority of equalizing interregional disparities, the targets for the entities of the real sector should be considered to improve the orga-

nization of cooperation with government and local authorities for implementing the measures to intensify investment and innovation, as well as to increase the role of the technological change in the socio-economic development of the local community. As a result, it will be possible to *build a regional infrastructure for expanding innovation and technology production*.

Obviously, to intensify the innovation- and technology-driven development it is necessary to specify the tools for implementing selected measures. At the same time, businesses need to adapt to the investment environment and its specific target groups. In the context of increasing regional disparities, the targets of innovation- and technology-driven development should be considered as follows: (1) improving cooperation with public administration and self-government bodies, (2) establishing cooperation with investment companies, (3) introducing modern banking products and innovative marketing technologies, (4) improving the logistics of the supply of innovative goods, (5) meeting the needs of consumers, (6) preparing and organizing advertising campaigns to promote investment and innovation projects, (7) preparing and implementing business training programs, implementing pilot designs, (8) organizing the promotion of investment and innovation programs and projects, (9) forming teams of competitive professionals while preparing business projects (Fig. 2).

The results of the cluster analysis of regional disparities has shown that economic entities are constantly choosing strategic mechanisms (means, tools) that can effectively ensure innovation- and technology-driven development and improve competitive positions in a dynamic market environment. At the same time, the effective use of mechanisms and means to intensify innovation- and technology-driven development is due to some features that include regulatory, financial and investment, marketing and logistics, intellectual and personnel, socio-psychological, and other transformations. It is also necessary to take into account that innovation- and technolo-

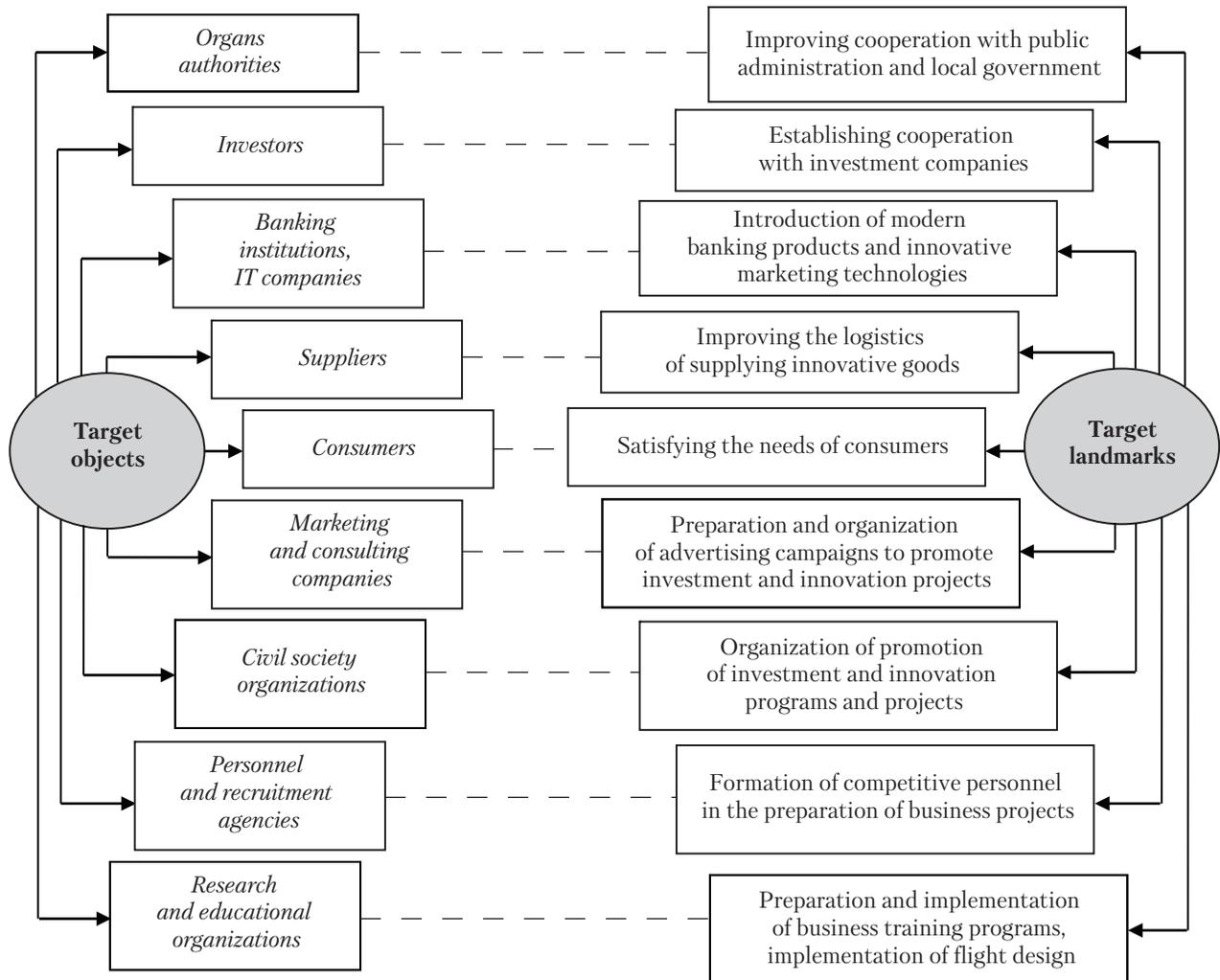


Fig. 2. Targets of innovation- and technology-driven development of the real sector of the economy
 Source: authors' results.

gy-driven development is determined by time and space/territorial constraints, rapid loss of relevance of business ideas and requires a significant amount of financial and resource support.

Based on the system analysis method, the tools of investment and innovation-led development of the real sector of the economy have been substantiated by appropriate mechanisms. So, (1) *the organizational and institutional mechanism*: to improve the statutory and legal regulation of investment and innovation; to introduce a “portfolio approach” to the budgeting innovation and technology, strategic and tactical programming

of innovation and technology; to create an information and analytical network for the intensification of investment and innovation; and to form regional and local innovation and technology clusters; (2) *the economic mechanism*: to apply modern financial technologies and artificial intelligence for enhancing innovation and technology; to introduce alternative forms of financing the implementation of innovation and technology projects (venture financing, public-private funds, budget-grant programs); to develop and implement regional investment programs for expanding and modernizing technological processes in

the real sector; to diversify the supply sources and to widen the range of innovation products; to intensify the use and renewal of nonworking assets of the real sector for the innovation and technology purposes; and to introduce innovative approaches to the technological modernization of the marketing complex; (3) *the commodity mechanism*: to introduce new approaches to the policy of sales of goods based on the results of regional market segmentation (intensive, exclusive, selective distribution); to expand the system of the introduction of management technologies of Internet network relations with customers and contact audiences; to introduce branding tech-

nologies in promoting innovation products and commercial technologies; and to create operating merger platforms for increasing the sales of innovation and technology goods; (4) *the socio-psychological mechanism*: to implement socio-economic programs for developing the intellectual creative and innovative activity of human capital and ensuring the commercialization and legal protection of intellectual property; to introduce material incentives of employees by economic entities for innovation and investment proposals; and to coordinate the commercial management principles with the intellectualization of business innovation and technology.

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*М.В. Куницька-Іляш*¹ (<http://orcid.org/0000-0003-2559-1065>),
*О.Я. Гримак*¹ (<https://orcid.org/0000-0002-9730-120X>),
*М.П. Дубина*¹ (<https://orcid.org/0000-0001-6536-0152>),
*А.В. Збарська*² (<http://orcid.org/0000-0003-2731-0968>),
*Я.П. Березівський*¹ (<http://orcid.org/0000-0001-9480-3688>)

¹ Львівський національний університет ветеринарної медицини та біотехнологій імені С.З. Гжицького, вул. Пекарська, 50, Львів, 79005, Україна, +380 32 239 2643, admin@lvet.edu.ua

² Національний університет біоресурсів і природокористування України, вул. Героїв Оборони, 15, Київ, 03041, Україна, +380 44 527 8205, rectorat@nubip.edu.ua

ІННОВАЦІЙНО-ТЕХНОЛОГІЧНИЙ РОЗВИТОК ЕКОНОМІКИ: СТРАТЕГІЧНІ ІМПЕРАТИВИ РЕАЛІЗАЦІЇ ПОТЕНЦІАЛУ РЕГІОНАЛЬНОГО РОЗВИТКУ

Вступ. Якісна ідентифікація рівня розвитку інноваційно-технологічної діяльності в країні та її міжрегіональних диспропорцій потребує формування більш досконалого інформаційно-аналітичного забезпечення державної політики.

Проблематика. Актуальним на сьогодні є вивчення проблеми регіональних диспропорцій інноваційно-технологічного розвитку національної економіки України, пошуку чинників їх формування, а також визначення стратегічних імперативів, інструментів і засобів державної політики активізації інноваційно-технологічної діяльності в системі політики регіонального розвитку.

Мета. Наукове обґрунтування інноваційно-технологічних аспектів розвитку економіки та виділення стратегічних імперативів забезпечення та вирівнювання міжрегіональних диспропорцій.

Матеріали й методи. Як методичну основу дослідження використано положення кореляційно-регресійного, системно-структурного та статистичного аналізу й групування, теорій економічного зростання, сучасних концепції перехідних економічних систем.

Результати. Розроблено та апробовано авторську методику аналізування рівня інноваційно-технологічного розвитку та ідентифікації міжрегіональних диспропорцій інноваційно-технологічного зростання національної економіки. На основі інтегральних значень інноваційно-технологічного зростання регіонів виявлено та пояснено характер міжрегіональних диспропорцій в аналізованій сфері. Ідентифіковано 6 груп регіонів України відповідно до значень інтегрального індексу інноваційно-технологічного розвитку регіональних економік. Визначено стратегічні імперативи подальшого інноваційно-технологічного розвитку для кожної з груп.

Висновки. Викладені в дослідженні науково-методичні засади та практичні рекомендації спрямовано на підвищення ефективності управління національною економікою, забезпечення її стійкої життєздатності та реалізації потенціалу в системі міжнародного поділу праці.

Ключові слова: регіональний розвиток, економічний потенціал, імперативи, стратегічні пріоритети, інноваційно-технологічний розвиток.