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## **MECHANISMS OF IMPLEMENTING REGIONAL POLICY FOR COOPERATION IN THE SPHERE OF INNOVATION BASED ON THE STIMULATION OF INNOVATION DEMAND AND SUPPLY**

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**Introduction.** *The regions have a strong potential for innovation development. In the context of self-government reform, the issue of forming a regional innovation policy has become especially relevant for Ukraine, as the innovation component is a necessary prerequisite for the economic capacity of communities.*

**Problem Statement.** *The world experience has shown that the innovation-driven development of regions requires the formation of regional innovation systems and relationships among all its participants. In the context of the decentralization reform in Ukraine, regional cooperation becomes one of the tools of their socio-economic and innovation-driven development. However, this tool is rarely used in the field of innovation.*

**Purpose.** *The purpose of this research is to develop of the methodological framework and practice for cooperation mechanisms based on the stimulation of innovation demand and supply in regions of Ukraine.*

**Materials and Methods.** *The information base of the research is represented by the OECD analytical materials, innovation brokerage platforms of corporations and regions of the world, scholarly research works of leading domestic and foreign researchers, data from the State Statistics Service of Ukraine, which have been studied by the methods of theoretical generalization, analysis and synthesis, systems analysis, economic and statistical analysis.*

**Results.** *The conceptual framework for the interactions among innovation demanders and suppliers has been proposed; the corresponding mechanisms have been systematized; cooperation among those who supply and those who demand innovation in regions of Ukraine has been assessed; the key characteristics of mechanisms of regional brokerage in the field of innovation and their options for joint territorial communities have been classified, the mechanism of regional brokerage focused on demand-side cooperation has been developed.*

**Conclusions.** *The mechanisms of regional brokerage contribute to strengthening the innovation capacity of regions by overcoming the fragmentation of regional innovation systems.*

*Key words:* innovation cooperation, region, brokerage, mechanisms, and innovation demand and supply.

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The regions have a strong capacity for innovation-driven development. In the context of the self-government reform, forming a regional innovation policy has become especially important for Ukraine, as the innovation component is a necessary prerequisite for the

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economic capacity of communities. The world experience in the implementation of regional innovation policy has shown that its systematic nature is ensured through the balanced development of regional innovation systems and the formation of relationships between all their participants. In particular, the fragmentation of regional innovation systems in Central and Eastern Europe, the gap between supply of and demand for innovation have become significant obstacles to the implementation of European innovation policy in CEE countries. In the context of the decentralization reform in Ukraine, regional cooperation becomes one of the tools of their socio-economic and innovation-driven development. At the same time, this tool is insufficiently used in Ukraine in the field of innovation.

One of the most recent studies of the mechanisms of cooperation between universities that are the source of innovation supply and industry that determines demand for innovation has been conducted by the Organization for Economic Cooperation and Development [1]. In this study, the researchers have classified and described various tools that provide knowledge transfer, identified the interactions between the institutional factors of innovation-driven development in the country and the peculiarities of policy-making. The role of universities in promoting economic development has been studied by the international team of researchers and practitioners under the auspices of the World Bank [2]. The mechanisms of brokerage in the field of innovation have been reviewed by researchers Goggin C.L., Cunningham R. [3], Ujj A., Bálint C., Goda P., Jancsovszka P., and Mutua K.N. [4], Parjanen S., Hyypiä M. [5]. The competencies of innovation brokers have been systematized on the basis of the generalization of European experience by international team of authors edited by the REBASING Partnership [6]. Innovation policy shall correspond to the level of regional development and take into account regional features, opportunities, and needs. Trying to clone successful policies of other regions and countries is likely to lead to inefficient use of re-

sources. Ensuring this principle requires a preliminary diagnosis of the status of innovation-driven development of the region and determining the needs of all members in the regional innovation system.

The “smart specialization” approach that combines industrial, educational, and innovation policies allows countries and regions to identify and to select a limited number of priority areas for knowledge-based investment while focusing on their strengths and comparative advantages [7].

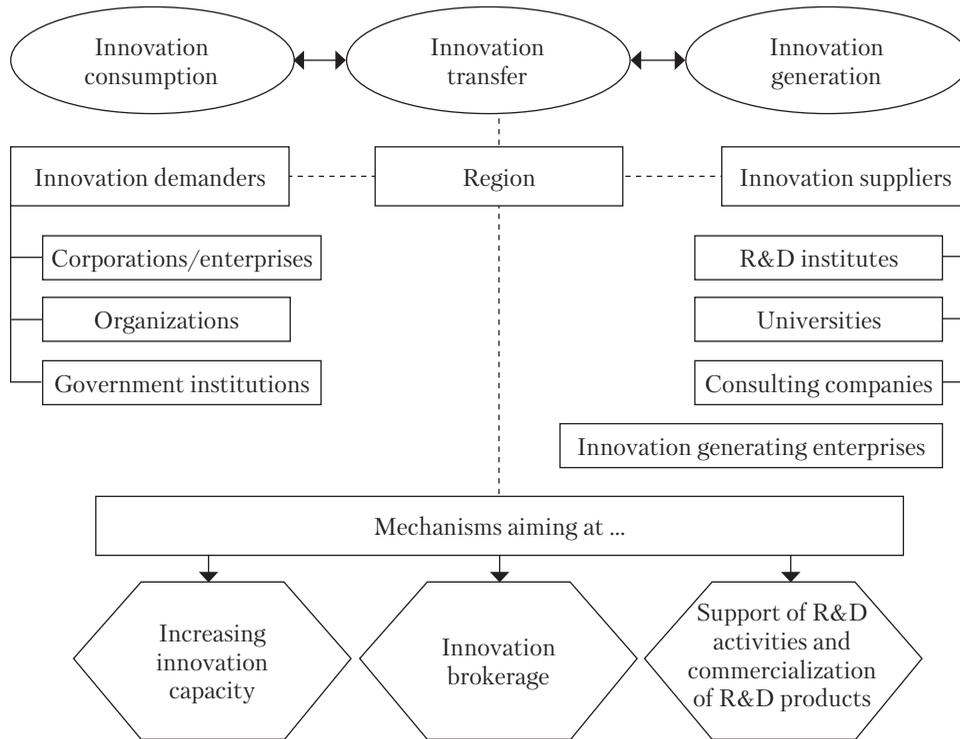
In the framework of this research, we are primarily interested in the mechanisms aiming at ensuring cooperation between the innovation suppliers and demanders.

The purpose of this research is to develop methodological framework and practice for the implementation of mechanisms of innovation cooperation based on stimulating demand for and supply of innovation in the regions of Ukraine.

The objectives are as follows:

- ◆ to develop conceptual framework for the formation of mechanisms for the implementation of regional policy of innovation cooperation based on the stimulation of demand and supply of innovation;
- ◆ to diagnose the status of innovation cooperation between those who supply and those who demand innovation in Ukraine’s Black Sea Maritime Region;
- ◆ to develop an organizational and economic mechanism of regional brokerage in the field of innovation in accordance with the needs of Ukraine’s Black Sea Maritime Region.

The world practice of regional management of innovation-driven development has developed various mechanisms to overcome the fragmentation of innovation systems and to form dynamic interterritorial and intersectoral partnerships. On a systemic basis, these mechanisms have been studied by the Organization for Economic Cooperation and Development [1]. System of mechanisms for specific regions shall be developed given their characteristics, capabilities, and needs. In order to identify the most acceptable mechanisms to be



**Fig. 1.** Flowchart of the process of interaction between innovation demanders and suppliers  
 Source: prepared by the author.

implemented in the regions of Ukraine, an exhaustive list of such mechanisms has been prepared and the mechanisms have been systematized (Table 1). The systematization of the mechanisms of regional policy of innovation cooperation is based on the key tasks of the main stakeholders (Fig. 1): to increase innovation capacity, for the demanders, and to support R&D innovations and their commercialization, as well as to ensure innovation brokerage that is usually belongs to responsibilities of regions, for the suppliers. It should be emphasized that in the framework of this research, we are primarily interested in the mechanisms aiming at ensuring cooperation between those who demand and those who supply innovation.

Increasing the competitiveness of corporations and products encourages cooperation between business and R&D, as innovation today has become a determining factor of competitiveness, growing productivity, and profitability. Only a few large corporations may have a research unit in

their organizational structure, so for the vast majority of enterprises, cooperation with the R&D sector is an opportunity to raise their innovation level and to find innovation solutions to their needs. Cooperation with educational institutions helps to involve highly qualified specialists into work at corporation.

The encouragement for the R&D sector to cooperate with the business sector is the practical implementation and commercialization of R&D innovations, additional sources of funding, alternatives to direct government funding, increase in the publishing activity based on real cases, and the development of new areas of research.

For educational institutions, the encouragement for cooperation is the intensification of applied research, the formation of modern practical competencies and job opportunities for students.

Regions play the role of an intermediary in the organization of the process of interaction between suppliers and demanders of innovation, i.e.

**Table 1. Systematization of Mechanisms for Implementing Regional Policy of Innovation Cooperation Based on Stimulating Demand for and Supply of Innovation**

Mechanisms	Description	Type	Necessary preconditions
<i>I. Increasing innovation capacity (stimulation of demand for innovation)</i>			
Tax incentives	Tax benefits for companies that reinvest in innovation	Regulatory	Reinvesting in in-house innovation projects
Government procurement of innovations	The application of the mechanism of public procurement of R&D and finished innovation products and services	Regulatory	Adding the principles stated in Cl. 3 of the Law of Ukraine on Public Procurement, the principle of innovation stimulation, and fixing the concept of innovation. Implementing the following mechanisms: <ul style="list-style-type: none"> <li>• competitive dialogue;</li> <li>• application of specifications based on a functional approach;</li> <li>• pre-commercial procurement and procurement of innovation solutions;</li> <li>• use of an approach based on the life cycle of goods, in order to eliminate the dependence of public procurement solely on the purchase price of goods, works or services</li> </ul>
Innovation vouchers	Certificate entitling the voucher holder to receive support from a research or consulting organization in the course of the implementation of its innovation project	Financial	Regional target funds
Open orders for research	Regional corporations place an open order for R&D innovation, and R&D institutes make their offers of innovation solutions	Institutional	Introducing a system of interaction between business and research institutions/universities according to the open order procedure
<i>II. Supporting R&amp;D innovations and their commercialization (stimulation of innovation supply)</i>			
Co-financing and grants	Co-financing and grants to research institutions and universities to conduct research ordered by corporations	Financial	Special government grant programs aiming at supporting projects co-financed by business sector
Grants for the intellectual property right registration	The reimbursement of costs for registering intellectual property rights, including for obtaining patents to promote R&D commercialization	Financial	Target funds
Establishment of commercial departments at universities and R&D institutes	The use of spin-off mechanism for commercializing innovations made at universities and R&D institutes	Institutional	Developing a system for support of innovation business at universities and R&D institutes
Training programs	Training programs for innovators on various aspects of commercialization of R&D innovations; professional mobility programs	Educational	Partnership agreements between regional authorities and educational institutions; development of training programs for innovation brokers and managers
<i>III. Innovation brokerage (stimulation of innovation transfer)</i>			
Innovation platforms	Innovation platforms based on modern digital management tools provide new formats of interaction between suppliers	Institutional	Concept development, configuration depending on the needs and capabilities of the region/community

Mechanisms	Description	Type	Necessary preconditions
Innovation partnership	and demanders of innovation, which facilitates developing the culture of open innovation, partnerships, consumer orientation, and joint creation of innovation Mechanism of long-term partnership between the customer and the developer of innovation products for the development and subsequent acquisition of an innovation product, service or work on a commercial basis	Institutional	Harmonizing the Ukrainian legislation with Art. 31 of Directive 2014/24 / EU in accordance with the provisions of Chapter 8 of Association Agreement
Raising awareness and networking	The publication of information booklets with regional achievements in the sphere of innovation and popular science articles; the creation of websites; the conduct of conferences, forums, fairs, etc..	Informational	Developing brokerage in the sphere of innovation
Strategying	The presence of a strategy and program for innovation-driven development of regions or communities ensures the systematic implementation of regional innovation policy, helps to identify the areas for cooperation between regions and communities	Regulatory	Developing regional strategies and programs for innovation-driven development

Source: prepared by the author.

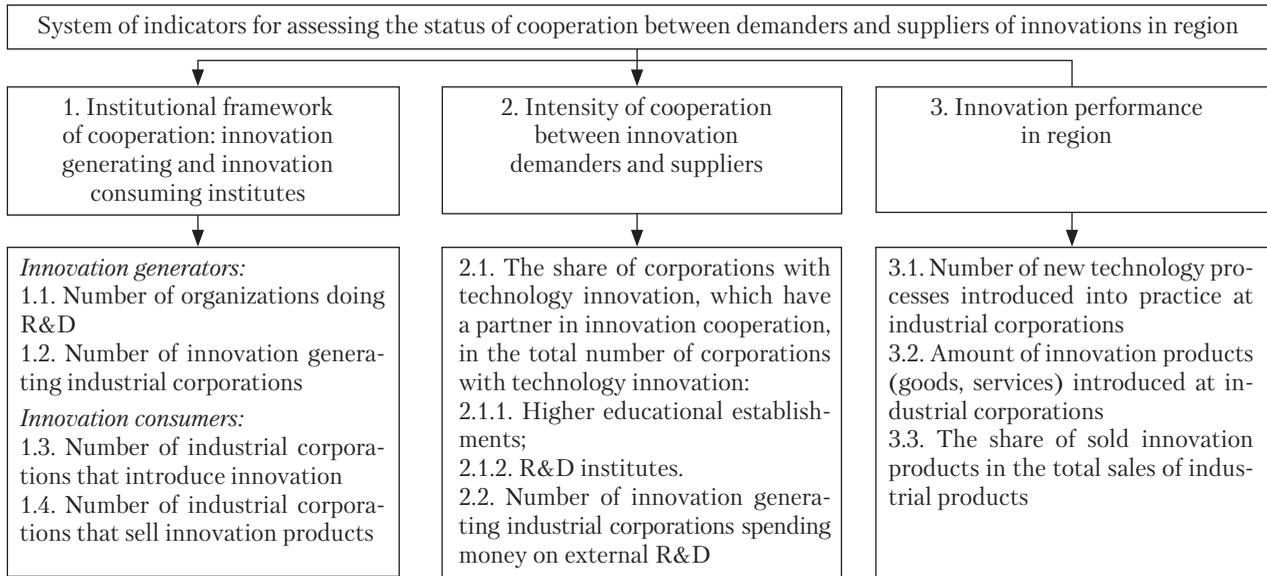
provide innovation brokerage. The interest of regional authorities in these activities is caused by the following advantages: ensuring innovation-driven development of the regional economy, increasing the region's competitiveness, creating new jobs, developing entrepreneurship, science and education in the region, and improving quality of life.

To understand the opportunities provided by each considered mechanisms (Table 1) we not only describe them, but also identify the types of mechanisms (financial, regulatory, institutional, informational, educational) and the necessary prerequisites for the implementation of each mechanism.

Stimulating the demand for innovation is an important component of the nonlinear model of the innovation process. Appropriate mechanisms can be aimed at enterprises for encouraging them to innovate, as well as at government agencies for making public procurement of innovation products.

Public procurement in Ukraine accounts for about 13% of GDP and is a powerful market for innovation, especially in such areas as healthcare, environment, defense, education, transport, and power engineering [8]. Tax incentives encourage corporations to innovate. Among the mechanisms of financial incentives for enterprises to cooperate with research institutions and universities there is innovation voucher, but such a mechanism requires the definition of a source of funding, which may be a regional trust fund. The mechanism of open orders for research is promising given that it provides a focus of research on specific needs of enterprises and, accordingly, on the practical implementation of R&D results.

The innovation stimulation mechanisms, including grant funding ones, encourage innovation developers to cooperate with customers, to establish educational mechanisms and commercial units at research and educational institutions. Such coopera-



**Fig. 2.** The system of indicators for assessing the status of cooperation between innovation demanders and suppliers in region  
Source: prepared by the author.

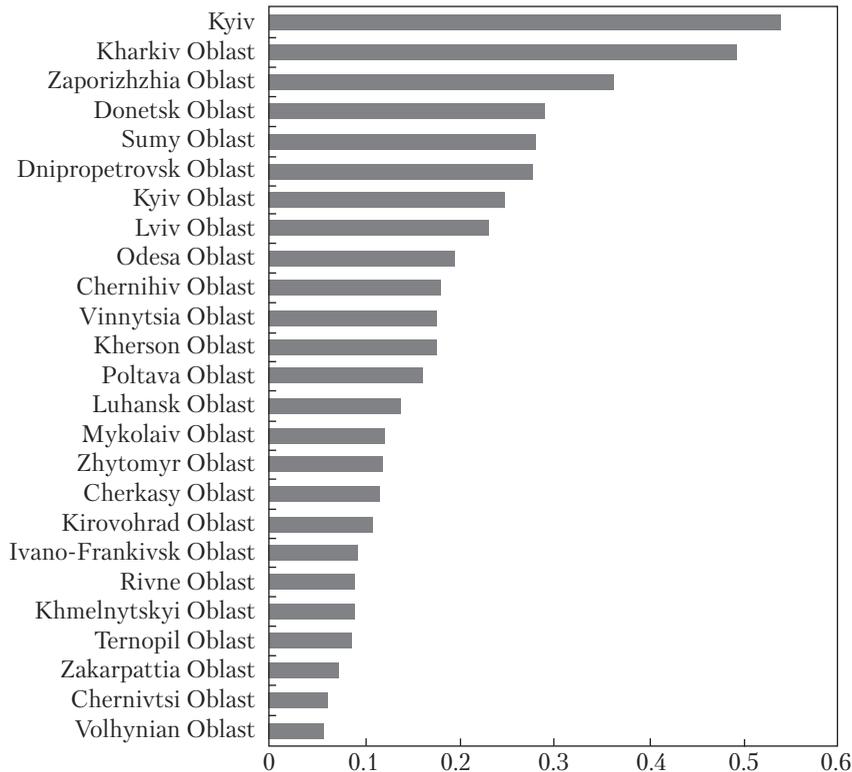
tion contributes to addressing an important problem of domestic R&D sector – the practical implementation and commercialization of R&D innovations – which is caused by the long-term use of a linear model of organization of the innovation process.

The innovation brokerage mechanisms (stimulation of innovation transfer) are aimed mainly at the regional level. The formation of various innovation platforms, innovation networks (clusters) has become an effective global practice of regional innovation policy, as they contribute to the accumulation of social capital (interaction capital), which is a necessary prerequisite for diffusion of innovation and, consequently, for innovation-driven development. Strategies and programs of innovation-driven development of regions play a system-forming framework for the application of the above-mentioned mechanisms. The effectiveness of the mechanisms is achieved by taking into account the specifics of each region, its capabilities and needs, which is also ensured by strategizing.

Previous studies [9, 169–175] have confirmed the direct interdependence between the intensity of cooperation (social capital) and the sales of innovation products as the main indicator of the effectiveness of innovation activities. Based on

these studies, to develop them, the status of cooperation between suppliers and demanders of innovation is proposed to be assessed in conjunction with determining institutional support (that is ensured by the institutions of generation and consumption of innovation, i.e. the subjective component of cooperation), intensity of innovation cooperation (the content-related component), and effectiveness of innovation in the region. The system of indicators for the diagnosis of innovation cooperation between suppliers and demanders of innovation in regions is presented in Fig. 2.

Based on the estimates, the regions of Ukraine have been ranked based on the index of innovation cooperation between suppliers and demanders of innovation in 2019 (Fig. 3), where Odesa Oblast is 9<sup>th</sup>, Kherson Oblast is 12<sup>th</sup>, and Mykolaiv Oblast is 15<sup>th</sup> among the regions of Ukraine. There is a significant divergence between the leaders (Kyiv and Kharkiv Oblasts) and other regions of Ukraine. Also, there is reported a divergence in innovation capacity within regions, between the regional centers and other districts and communities. For example, more than 52% of innovation enterprises in Odesa Oblast are concentrated in Odesa. For the rural communities, the problem of



**Fig. 3.** Ranking of the regions of Ukraine based on the index of cooperation between innovation demanders and innovation suppliers in 2019

Source: prepared by the author based on data [10, 11].

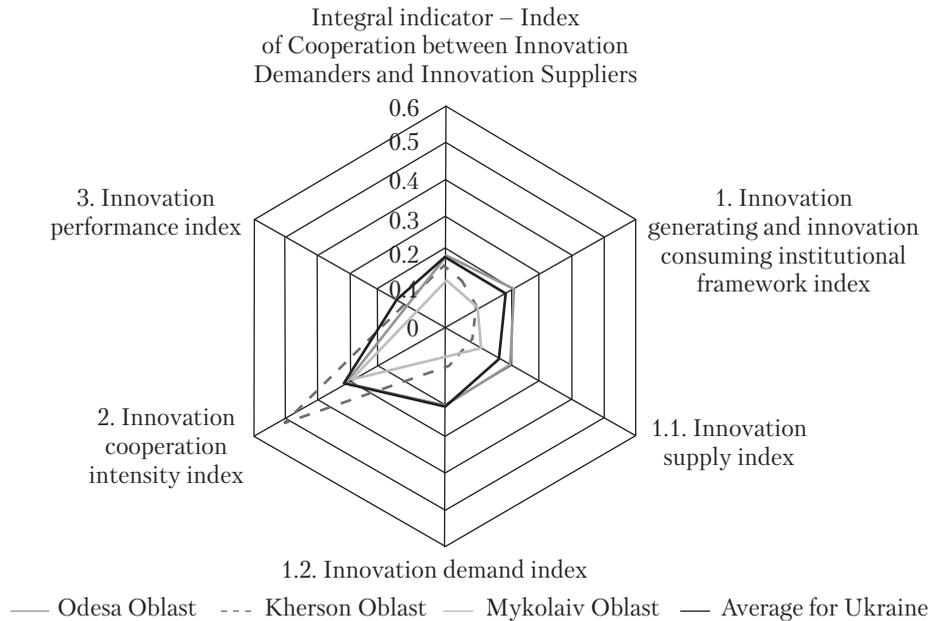
ensuring innovation development is critical due to the lack of their own innovation capacity. So, the mechanisms of innovation cooperation have been aimed at overcoming these disparities.

The Innovation Demand Index, as well as the Innovation Performance Index for all oblasts of Ukraine's Black Sea Maritime Region are lower than the average across Ukraine. Only Odesa Oblast has an index of innovation supply higher than the average in Ukraine, and only the Kherson Oblast has an index of intensity of innovation cooperation higher than the average in the country (Fig. 4). The following problematic issues of innovation cooperation of innovation suppliers and demanders and its components in the oblasts of Ukraine's Black Sea Maritime Region have been identified:

- ◆ a low demand for innovation as a result of small number of industrial enterprises that implement innovation and sell innovation products;

- ◆ a low intensity of innovation cooperation, except for Kherson Oblast, because of a weak cooperation between the industrial enterprises and the higher education institutions and R&D institutions. This is a nationwide problem common to all regions of Ukraine;
- ◆ a low innovation performance that manifests itself in a few innovation products and new technological processes, which have been introduced by industrial enterprises, as well as in small sales of innovation products;
- ◆ divergence in innovation capacity both across the regions of Ukraine and within the regions, between regional centers and other districts and communities.

Based on the above analysis, we have concluded that it is necessary to develop a brokerage mechanism for the regions of Ukraine and, in particular, Ukraine's Black Sea Maritime Region, which aims primarily at stimulating demand for



**Fig. 4.** Comparison of indicators of the status of cooperation between innovation demanders and suppliers in Ukraine’s Black Sea Maritime Region with the average for Ukraine in 2019  
 Source: prepared by the author based on data [10, 11].

innovation cooperation between business and research sectors. Overcoming divergence in the innovation development of regions will contribute to the application of this mechanism in the context of cooperation between different communities.

The term “brokerage” means mediation. Most often, this term defines intermediary services in the field of real estate and stock exchange transactions, the main task of which is to facilitate meeting of seller and buyer and making of a purchase/sale agreement between them.

In the field of innovation, brokerage provides a similar function, i.e. helps to establish links between suppliers and demanders of innovation. As the role of regions in the economic development of the state strengthens, the formation of capable regional innovation systems becomes especially relevant and brokerage mechanisms are useful for this purpose.

The experience of innovation brokerage in regions of the EU has shown that this service leads to a significant increase in profits of 50% of corporations that use it; 6 companies out of 10 re-

spondents say they have strengthened their reputation through cooperation with research institutions, 55% report they have improved business strategy and created jobs [12].

There are many specific features of brokerage mechanisms, which determine the formation of unique brokerage business models in the region. Table. 2 presents the key characteristics of regional innovation brokerage mechanisms and their variations for amalgamated territorial communities (ATCs).

Let us consider the defined characteristics in more detail.

1. Any entity interested in innovation R&D products may initiate a brokerage mechanism:

- ♦ enterprise: there is a practice of introducing a mechanism of innovation brokerage in order to find innovation solutions for a particular enterprise. This practice is typical for large enterprises, for example, DTEK has its own innovation platform for finding innovation solutions on the principles of crowdsourcing (openinnovation.dtek.com);

- ◆ regional authorities: a brokerage platform may be initiated by regional or local authorities to find innovation solutions for the development of region, city or community. This practice is common in EU regions and cities, in particular in terms of implementing the smart city concept. Among the examples, there is the *Interface* platform established in 2005, in Scotland [12]. Another example is the interregional project *6 Cities Strategy (6Aika)* [13] that involves the cooperation of six Finnish innovation cities that are leaders in developing their smart strategies and strengthening their international position in Europe; there, innovation platforms have become the main tool;
- ◆ regional development agencies: promoting innovation and investment development of territories is one of the main functions of agencies,

**Table 2. Key Characteristics of Regional Brokerage in the Sphere of Innovation**

Characteristic	Possible options	Most acceptable options for ATC
1. Initiator of creation	Enterprise/corporation; Regional authorities; Regional development agencies; University / research institute	Regional development agencies
2. Financing	Customer enterprise (commission fee); Association of enterprises; Budget funds (when the platform is looking for innovation solutions for the development of city/community); Grants; Combined option	Combined option
3. Organizational form	Permanent institution; Online platform; Combined option	Combined option
4. Specialization	Nationwide; Regional (region, city, community); Multidisciplinary; Single-industry	Regional, multidisciplinary (industries in which the region is specialized)
5. Functions	Facilitation Mediation; Marketing; Consulting; Information; Monitoring	All functions; requires involvement of respective professionals
6. Formation of orders for R&D	Order from company; Search for opportunities to commercialize existing R&D innovations; Order from startup	Request from enterprise
7. Search of ideas	Professional community, scientists; Involvement of students; Crowdsourcing	Professional community, researchers
8. Selection of ideas	Competition for applications from research institutes/universities/private researchers; Pitching sessions for the best applications; Hackathons	All options
9. Establishment of partnership	Contract; Agreement; Consultancy services agreement/contract	Depending on organizational and legal form of stakeholders

Source: prepared by the author.

and the introduction of brokerage mechanisms in the innovation sphere contributes to achieving this goal. Among examples, there is *Business Tampere*, a sub-regional agency established in Finland, in the Tampere sub-region; its objectives are the development of an innovation ecosystem and the interaction between business and science;

- ◆ university/research institution: universities and research institutions may initiate the introduction of an innovation brokerage mechanism in order to commercialize their own research. With the help of innovation platforms, universities are involved in regional development, thus realizing their third mission, along with education and research. An example is Mektory, an interdisciplinary innovation platform at Tallinn University of Technology.

In our opinion, for amalgamated territorial communities formed in Ukraine, the most acceptable option for initiating the introduction of innovation brokerage mechanism is the regional development agencies that are currently being formed and will be responsible for regional development. As for other options, the enterprise-based brokerage mechanisms focus on the needs of these specific enterprises rather than the community as a whole; the regional authorities do not always have specialists in the field of innovation brokerage, and the implementation of this function is likely to be an ancillary activity and will not give the desired effect; the situation is complicated with excessive bureaucracy; the universities and research institutions usually take initiatives in large cities and agglomerations where they are located, while the vast majority of ATCs are located in rural regions and do not have universities and research institutions.

2. Financing is a decisive factor in determining the mechanism of brokerage in the field of innovation. Brokerage institutions may be subsidized or self-supporting. An example of a commercial innovation brokerage company is *New Factory International Ltd* with a turnover of about EUR 1 million [14]. This and other similar examples

confirm that innovation brokerage is a very commercially viable business.

In the case where an innovation platform is created on the basis of a specific enterprise, it is funded by the enterprise itself. The problem of funding sources arises when the function of brokerage is implemented through the mechanism of a separate institution, in the interests of regional/community development. The activities of the brokerage institution in the region/community may be financed from the budget, in particular, the State Fund for Regional Development, specially created innovation funds, and various grants. If enterprises are interested in the services of a brokerage institution, these services are paid by such enterprise or group of enterprises in the form of commission fee. The option that combine all forms of financing on the principles of co-financing is also possible.

Given the limited financial resources of communities in Ukraine, the aim of brokerage mechanism is to minimize the financial burden on local budgets and enterprises. Therefore, the most acceptable form of financing is the payment of commission fee for brokerage services by association of enterprises that represent one industry, have similar needs, use the brokerage mechanism and jointly pay for brokerage services and innovation product, and share the results.

3. Organizational form: the mechanism of brokerage in the field of innovation may be implemented in the form of a permanent institution, online platform, or their combination. The operation of a permanent facility costs more than an online platform in terms of maintenance. In the context of digitalization, online platforms have become an integral part of doing business and have shown their effectiveness in the field of innovation. Examples of world-class innovation platforms are *Innocentive*, *Nine Sigma*, and *Demola* platforms acting as innovation intermediaries between customers interested in innovation solutions and knowledge holders. In domestic realities, it is recommended to use the hybrid option, i.e. to combine a permanent institution with an online plat-

form. In modern conditions, the operation of an institution without an online platform is inefficient, whereas the operation of exclusively online brokerage platform is a prospect for the future. Although today, in the world, there are examples of the operation of exclusively online innovation platforms on the principle of marketplace, where all activities are carried out with the use of algorithms, including the remote signature of contracts.

4. The specialization of brokerage institution in the field of innovation shall be determined based on the innovation capacity of the region and its industrial specialization. Brokerage institutions in regions with strong innovation capacity may operate at national and even international level. However, the vast majority of regions and communities are primarily interested in their own development. The regional specialization of brokerage institutions takes into account regional specifics in the best way. In terms of the sectoral specialization, brokerage institutions may be monospecialized, i.e. cover only a specific industry, or diversified, or cover as many specializations as possible. The branch specialization of the brokerage institution implies a high-professional services provided by it.

Given the specifics of domestic communities, regional, multisectoral specialization based on the region specialization is recommended. This, for example, may be a specialization in the agro-industrial complex, maritime complex, etc.

5. The most common functions of innovation brokers include such functions as: facilitation, mediation, marketing, consulting, information support, and monitoring. The implementation of these functions requires the involvement of relevant experts familiar with the organization of the innovation process.

6. The formation of order for R&D may be based on company's need to find contractors for development of new customized innovation or on existing R&D products of research institutes, which are ready for commercialization and introduction into practice. A special case is order from a startup that does not yet have any financial means to pay for research services. In this case, it is advisable

to provide for the participation of the research institute as a sort of shareholder in the startup with a certain share in future profits. The experience of OECD countries has shown that research and development supported by business becomes a driver of economic development of enterprises themselves, as well as regions and countries as a whole. Therefore, preference is given to the formation of orders from enterprises. Increasing the share of enterprises involved in R&D is a strategic goal.

For domestic communities, it would be advisable to focus on the needs of enterprises. The above studies of the status of innovation cooperation in the regions of Ukraine's Black Sea Maritime Region have revealed a low demand for innovation, so it needs to be stimulated through orders for R&D innovations from enterprises.

7. Identification of ideas: traditionally, the contractors of orders for innovation R&D works are representatives of the professional community and researchers. At the same time, as world experience has shown, it is also possible to engage students in innovation activities, for example, *Demola* project [15] (world), and *Casers* (Ukraine) [16]. Crowdsourcing platforms also enable involving the general public in the search for an innovative solution.

For domestic communities, we consider the involvement of the professional community and researchers into addressing innovation needs of enterprises is a priority, as at the initial stage of implementation of the concept of innovation brokerage, it is necessary to accumulate social capital based on trust. Given this, the quality of projects should be high, as it is guaranteed by highly qualified professionals. In the future, the range of those who are involved may be expanded by students, inventors, and others.

8. Selection of ideas: the most common mechanisms for the selection of ideas are competitions for applications from research institutions/universities/private researchers, etc., as well as pitching sessions among the best applications. The selection committee shall include representatives of the client company and specialists of the brokerage institution.

9. Interaction between the members of the brokerage mechanism is based on contracts, agreements, consulting services contracts. The choice depends on the organizational and legal form of stakeholders. At the stage of the formation of brokerage institution, standard contracts are designed for various forms of interaction with stakeholders.

Based on the defined characteristics of the regional brokerage in the field of innovation and given the needs of Ukraine's Black Sea Maritime Region, the following mechanism of regional brokerage in the field of innovation has been proposed (Fig. 5):

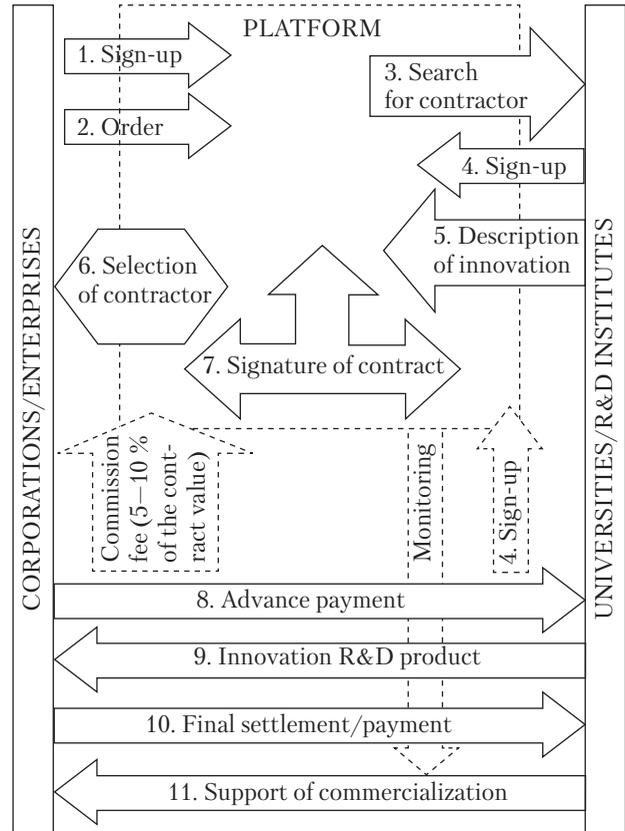
Stage 1. Enterprise shall sign up to a brokerage platform. At the initial stage, the company may get advice from platform experts in order to determine the need for and directions of further R&D works and possible sources of funding. If desired, the company may get support from government or regional sources of funding, in particular the State Fund for Regional Development through the competitive selection mechanism, and either independently or in cooperation with other interested companies finance the necessary innovation R&D.

Stage 2. The enterprise places an order for innovation R&D product with a description of the problem to be solved, the requirements for the contractor and its experience, timing, amount of funding. The platform specialists pre-develop the form of such an order and help the company to make an order in correct and clear manner.

Stage 3. The platform specialists search for contractors: information about the order is posted on the web platform and disseminated among professional communities and through direct contacts of the platform specialists with potential contractors.

Stage 4. Contractors who are interested in the order shall sign up to the platform for taking part in the competition. Signing up to the platform is necessary for further monitoring of the platform activities, the of formation customer base and networking.

Stage 5. The potential contractors fill out a standardized form with a brief description of their



**Fig. 5.** The regional brokerage mechanism focused on demand in the field of innovation

Source: prepared by the author.

vision of the task and provide information about themselves and their experience.

Stage 6. The winning contractor is selected jointly by the platform specialists together with the enterprise representatives based on predefined criteria. It is possible to organize a pitching session with authors of the best proposals.

Stage 7. The signature of agreement/contract between the customer, the contractor (developer), and the platform. The customer shall pay to the platform a brokerage fee of 5–10% of the contract amount, depending on the range of related services. The platform constantly monitors the contract implementation and, upon the completion of project, accumulates successful cases, forms their database, and disseminates information about them in order to attract new customers.

Stage 8. The company pays an advance payment for R&D works.

Stage 9. In due time, the contractor provides the customer with the R&D product.

Stage 10. The company makes the final settlement with the contractor.

Stage 11. The contractor, depending on the prior agreement, may support the introduction of the R&D product at the enterprise.

The proposed regional brokerage mechanism aims at stimulating cooperation between business and research sectors. As the platform develops, it is able to identify priority innovation projects that are promising in terms of government and/or regional support, and the proposed mechanism contributes to facilitating the transparency of this process.

**Conclusions.** Based on the research results we have proposed the following measures towards raising the intensity of cooperation between demanders and suppliers of innovation:

1. The systematization and typification of mechanisms of regional innovation cooperation policy proposed in this research describe the motivation considerations and objectives of the organization of interaction between those who supply and those who demand innovation in order to ensure the application of innovation R&D products in accordance with the needs of innovation stakeholders in the region.

2. The proposed methodological approach to diagnose the status of innovation cooperation in a region allows determining the potential members of innovation cooperation in terms of innovation generators and consumers, the intensity of cooperation and its effectiveness. This approach enables identifying problematic issues of innovation cooperation and key characteristics of mechanisms for its intensification.

3. For Ukraine's Black Sea Maritime Region, the proposed methodological approach identifies, in particular, such problematic issues of innovation cooperation as low demand for innovation, low intensity of innovation cooperation (except for Kherson Oblast), low efficiency of innovation, and significant divergence in terms of innovation capacity both across the regions of Ukraine and within them. With this in mind, for Ukraine's Black Sea Maritime Region it has been proposed to use a brokerage mechanism aiming at encouraging those who need/consume innovation (innovation demanders) for cooperation on the principles of inter-territorial and intersectoral partnership.

4. The key characteristics of the regional brokerage in the field of innovation have been identified. Variations of these characteristics condition the formation of unique brokerage business models in each region, depending on its needs.

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#### МЕХАНІЗМИ ПРОВАДЖЕННЯ РЕГІОНАЛЬНОЇ ПОЛІТИКИ ІННОВАЦІЙНОГО СПІВРОБІТНИЦТВА НА ОСНОВІ СТИМУЛЮВАННЯ ПОПИТУ ТА ПРОПОЗИЦІЇ ІННОВАЦІЙ

**Вступ.** Регіони мають потужний потенціал інноваційного розвитку. В умовах реформування місцевого самоврядування для України особливо актуальним є питання формування регіональної інноваційної політики, оскільки забезпечення інноваційної складової є необхідною передумовою економічної спроможності громад.

**Проблематика.** Світовий досвід свідчить, що інноваційний розвиток регіонів потребує формування регіональних інноваційних систем та взаємозв'язків між усіма їх учасниками. В умовах реформи децентралізації в Україні співробітництво регіонів стає одним із інструментів їхнього соціально-економічного та інноваційного розвитку. Водночас цей інструмент недостатньо використовується в сфері інноваційної діяльності.

**Мета.** Розробка методичних і прикладних засад впровадження механізмів інноваційного співробітництва на основі стимулювання попиту та пропозиції інновацій в регіонах України.

**Матеріали й методи.** Інформаційною базою дослідження стали аналітичні матеріали ОЕСР, інноваційні брокерські платформи підприємств та регіонів країн світу, наукові праці провідних вітчизняних та зарубіжних вчених, дані Державної служби статистики України, вивчені методами теоретичного узагальнення, аналізу та синтезу, системного та економіко-статистичного аналізу.

**Результати.** Запропоновано концептуальні засади організації процесу взаємодії суб'єктів попиту та пропозиції інновацій, здійснено систематизацію відповідних механізмів, діагностику стану інноваційного співробітництва між суб'єктами попиту та пропозиції інновацій в регіонах України, класифіковано ключові характеристики механізмів регіонального брокериджу в сфері інновацій та їх варіації для об'єднаних територіальних громад, розроблено механізм регіонального брокериджу, орієнтований на стимулювання суб'єктів інноваційного попиту до співробітництва.

**Висновки.** Механізми регіонального брокериджу сприяють посиленню інноваційної спроможності регіонів шляхом подолання фрагментарності їхніх інноваційних систем.

*Ключові слова:* інноваційне співробітництво, регіон, брокеридж, механізми, попит та пропозиція інновацій.