

UDC 37.072

FORMATION OF A MECHANISM FOR INTEGRATING UNIVERSITIES INTO SCIENTIFIC INNOVATION ECOSYSTEM

© Muratova Y.D., Efimova E.A.

Samara National Research University, Samara, Russian Federation

e-mail: yana1murmuratova@gmail.com

The main goal of the university as an actor of the scientific innovation ecosystem is to increase the knowledge accumulated by ecosystem through processing and transformation of information into knowledge, generation of new information and new knowledge [1]. Thus, the direct influence of the university on others ecosystem actors consists in the transfer of knowledge along the chain: «university – cross-industry project – science – innovation – economy». In the report of the Organization for Economic Cooperation and Development were highlighted the main formal and informal channels of formation a mechanism for integrating universities into scientific innovation ecosystem along this kind of chain [2].

Formal channels include research collaborations, intellectual property transactions (licenses, patents, etc.), scientific mobility, spin-off organizations in the university environment and university graduates, who were employed in the particular sphere of the university [3]. Informal channels include research publications, conferences and web-interaction, geographic or territorial proximity, technology sharing (research centers, laboratories) and continuous training of employees at enterprises [2]. In this way, it is important to emphasize that a key characteristic of successful scientific innovation ecosystems is that knowledge moves in all directions between all actors of ecosystem.

Development practices and tools for integrating universities into scientific innovation ecosystem: First of all, the process of integrating universities into scientific innovation ecosystem starts with a need to consider an innovation ecosystem as a tool for the development of the whole university, including scientific programs or place of the university in international or domestic rankings. As a result, a commercialization of innovations becomes a purpose of the university. For the future development of the university ecosystem it is necessary to ensure the unity of the applied tools: regulatory acts, incentive systems, ongoing activities, partnerships and so on. It is possible through a formalized commercialization strategy which includes stage-by-stage plan of the ecosystem of the university and identification of key knowledge-sharing processes.

What is more, an expert in the field of university-based entrepreneurial ecosystems Ruth Graham notes the role of leaders as one of the key factors in the development of a scientific innovative ecosystem [4]. Thus, the involvement of university management and informal leaders, as well as the involvement of regional entrepreneurs give an impetus to the development of a new scientific ecosystem.

Secondly, there is a need to activate a development of interaction network including the internal environment of the university, venture partners and collaborations with other universities. The development of a partnerships also affects the ability of the particular industry to accept and adapt technology. In this regard, it is necessary to sign formal agreements between all actors of the ecosystem, make a relationship of trust and follow a desire to form a common vision by collaborations of universities specialists, their consortia and joint projects.

At this step, the main role of the local government is to support research at their early stage and to create convenient for market's participants (universities and research organizations) conditions for the development of commercialization.

There should also be noted the important role of university alumnus as a part of university interaction networks, because successful graduates create the reputation of the university and can contribute to the creation of new collaborations.

The last step of the development of a mechanism for integrating universities into scientific innovation ecosystem is ensuring the quality of the ecosystem environment. Contradictory and formal system of reporting indicators and numerous bureaucratic obstacles impeding capital investment are the main barriers of technology transfer in Russia. For example, registration of intellectual property for reporting, rather than for commercial use. Therefore, it is necessary to eliminate these barriers to develop the innovative ecosystem.

The technical ability of the university to implement complex research projects is also important. It is necessary to create an infrastructure for the transfer of technology such as a technopark, a business incubator, a development licensing center, a prototyping center, an engineering center, etc.

Finally, the student's environment tends to face risks and can provide the necessary energy for the development of an innovative ecosystem. Universities can conduct internal marketing among student communities and introduce entrepreneurial programs and science events.

Conclusions: The mechanism for integrating universities into scientific innovation ecosystem consists of a goal-oriented process, the process of commercialization of innovations, the process of connection between all subjects of the ecosystem and the environment, which provides resources for these subjects. Therefore, the main issues of the development of an effective scientific innovation ecosystem are the implementation of the event-management in the university, the utilization of formal and informal institutions as a stimulation instrument for all actors of the ecosystem, a sufficient amount of financial and infrastructural resources, generation of all processes of self-organization and self-development of all ecosystem's actors.

References

1. Hussler C., Picard F., Tang M.F. (2010) Taking the ivory from the tower to coat the economic world: Regional strategies to make science useful // *Technovation*. Vol. 30. P. 508–518. URL: <https://www.elibrary.ru/item.asp?id=28645718> (accessed 12.03.2021).
2. The report of the Organization for Economic Cooperation and Development «OECD» (2019) *University-Industry Collaboration: New Evidence and Policy Options*, Paris, OECD Publishing.
3. Rosli A., De Silva M., Rossi F., Yip N. (2018) The long-term impact of engaged scholarship: How do SMEs capitalize on their engagement with academics to explore new opportunities? // *International Small Business Journal: Researching Entrepreneurship*. Vol. 36. P. 400–428. DOI: <https://doi.org/10.1177/0266242617749885> (accessed 12.03.2021).
4. Graham R. (2014) *Creating University-Based Entrepreneurial Ecosystems Evidence from Emerging World Leaders*. MIT Skoltech Initiative. P. 14–24 // rhgraham.org. URL: <https://www.rhgraham.org/resources/MIT:Skoltech-entrepreneurial-ecosystems-report-2014-.pdf> (accessed 12.03.2021).