



FOREIGN EXPERIENCE IN FORMING INNOVATIVE ECOSYSTEMS FOR SUSTAINABLE REGIONAL DEVELOPMENT

Ramazanov Sukhrob Sherzod o'g'li,

Independent researcher at Urgench State University

named after Abu Rayhon Beruniy

<https://doi.org/10.5281/zenodo.17286871>

ARTICLE INFO

Received: 01st October 2025

Accepted: 04th October 2025

Online: 06th October 2025

KEYWORDS

*region, sustainable development,
ecosystem, innovative
ecosystems, experience.*

ABSTRACT

This article discusses foreign experience in the formation of innovative ecosystems in the sustainable development of regions and their directions in various countries.

The integration of the innovation ecosystem into the regional economic system is applied to increase the production indicators of innovative products. This creates favorable conditions for achieving the goals of the sustainable development concept within the region. Based on this, the experience of foreign countries in forming innovation ecosystems plays an important role in identifying effective approaches and implementing them in regional development processes. In this regard, countries such as the USA, Germany, South Korea, Singapore, and other advanced states have developed innovation ecosystems based on close cooperation between advanced technologies, education, scientific research, and business. In these countries, state policy and financial support mechanisms play a vital role in the development of innovation activities.

Research shows that various industrial sectors have successfully developed innovation ecosystems. Each has its own characteristics and success factors. From this perspective, we have studied the experience of the following countries in forming innovative ecosystems for sustainable regional development:

The Experience of the United States

The United States is one of the world leaders in forming and developing innovation ecosystems for sustainable growth. In the U.S., innovation ecosystems are mainly established through close cooperation among universities, research centers, large corporations, startups, and government agencies. Within such systems, scientific ideas are quickly applied in practice, and the creation of new technologies and products is effectively realized. The rapid growth of higher education institutions and the rise and fall of major corporate laboratories are characteristic features of the U.S. innovation landscape. The rise of large corporate laboratories coincided with the decline of technological markets, while their collapse led to the revival of those markets and the increasing role of small firms in the U.S. innovation ecosystem [1].

Innovation centers such as Silicon Valley, Boston, and Austin are exemplary ecosystems that drive sustainable economic and social growth. In these regions, modern techno parks, incubators, and accelerators support startups, attract investors, and develop systems for

commercializing innovations. The state plays a key role in funding innovations, improving legislation, and providing tax incentives. The U.S. experience demonstrates that ensuring sustainable development requires strategic planning, public-private partnerships, and the strengthening of the education system and workforce development. Moreover, the U.S. emphasizes social inclusivity and reducing interregional disparities in forming innovation ecosystems. This approach helps maintain balance in regional development and ensures economic and social equality. Overall, the U.S. experience shows that to successfully form innovation ecosystems as tools for sustainable development, it is necessary to build an integrated, multi-stakeholder collaboration system adaptable to local conditions.

The Experience of Germany

Germany's experience in forming innovation ecosystems for sustainable regional development is considered advanced and effective globally. The country pays special attention to creating competitive and sustainable economic systems through the establishment of technology parks, research centers, startup incubators, and industrial clusters. Within these ecosystems, research, production, and state policies are harmonized, promoting innovations in environmentally friendly technologies, digital solutions, and energy efficiency. Accordingly, Germany's path toward a knowledge economy highlights the dynamics of regional innovation and governance, with a focus on the highly innovative clusters of Southern Germany [2].

The Federal State of Brandenburg (which surrounds Berlin), characterized by dry regions and sandy soils, faces challenges such as summer droughts, declining groundwater levels, water stress, increased fire risks, and reduced agricultural productivity—each having socio-economic consequences [3]. Additionally, the complex interplay of unemployment, rural depopulation, and population aging worsens regional difficulties.

The German government's financial support for innovation, strategies aimed at the green economy, and acceleration of digital transformation serve as crucial factors in achieving sustainable regional development. Local cooperation and social innovations also play roles in managing regional resources efficiently and ensuring inclusive growth. As seen in Germany, forming innovation ecosystems is a key principle for sustainable regional development that integrates economic growth, ecological balance, and social well-being. This experience can be a valuable source for other countries in designing effective strategies and practices.

The Experience of South Korea

South Korea is among the world's leading countries in forming innovation ecosystems for sustainable regional development. The close cooperation between the government and private sector, adoption of advanced technologies, and heavy investment in research and development have enabled Korea to ensure digital and environmental sustainability. The country promotes "Smart City," "Green Technology," and "Digital Economy" projects to achieve its sustainable development goals. Furthermore, South Korea's extensive network of incubators and technology parks plays a major role in supporting startups, regional economic growth, and ecological balance. Studies of its innovation sector have identified its operating principles, development features, and existing challenges that limit innovation potential, providing ways to overcome them [4].

Effective integration among local universities, research centers, and enterprises accelerates the practical application of innovative ideas and contributes to job creation. South

Korea's experience integrates social inclusivity, environmental protection, and economic competitiveness.

In implementing smart city models, South Korea applies a range of innovative approaches [5]. For example, in the Smartopia Gimpo model, the “top-down infrastructure” principle focuses on building large data systems to prevent crime, combat natural disasters, and protect the environment. Meanwhile, the Namyangju 4.0 model emphasizes training civil servants to create a highly skilled workforce capable of managing modern technologies and making data-driven decisions. Thus, South Korea's success in forming innovation ecosystems demonstrates that ensuring sustainable development relies on applying modern technologies, effective public-private cooperation, and rational use of local resources.

The Experience of Singapore

Singapore is one of the best examples of forming innovation ecosystems for sustainable regional development. Despite its small territory and limited natural resources, Singapore has successfully established an innovation ecosystem based on advanced technologies and efficient governance. The country's innovation model reflects its geographic location and colonial heritage, as well as its multicultural management approach across Chinese, Malay, and Indian communities [6].

The Singaporean government prioritizes sustainable development and digital transformation in its national policy, promoting the introduction of advanced technologies through research centers, innovation clusters, and technology incubators. Its policy of international openness and strong education system for highly skilled professionals enhance innovation efficiency. Integration between the state and private sectors, as well as cooperation with startups and research institutions, enables the rapid implementation of innovative projects. The Singaporean experience underscores the importance of systematic approaches, advanced technologies, and effective governance in shaping innovation ecosystems for sustainable growth—serving as a valuable guideline for other nations seeking resilient and competitive regional economies.

Conclusion

Countries have distinct yet mutually valuable experiences in forming innovation ecosystems and ensuring sustainable regional development. The United States, Germany, South Korea, and Singapore are global leaders in this regard. Their experiences highlight the role of state policy, cooperation between research and educational institutions, financing mechanisms, and the successful integration of digital and ecological approaches. These factors collectively contribute to creating modern and effective ecosystems that drive sustainable regional growth.

References:

- 1.Arora A., Belenzon S., Pataconi A. A Theory of the US Innovation Ecosystem: Evolution and the Social Value of Diversity. Industrial and Corporate Change, May 14, 2018.
- 2.Mitsch F., Hassel C., Soskice D. Southern Germany's Innovation Clusters: Regional Growth Coalitions in the Knowledge Economy. London School of Economics, 2024.
- 3.Reyer C., Bachinger J., Bloch R. Climate Change Adaptation and Sustainable Regional Development: A Case Study for Brandenburg, Germany. Reg Environ Change, 12, 523–542 (2012).

- 4.Ermyshov K.V., Konyagina M.N. The Evolution of South Korea's Innovation Policy and the Challenges of the 21st Century. Vestnik Akademii Znaniy, No. 39(4), 2020, p.193.
- 5.Umarov H.S. Modern Technologies in South Korea: Startups, Cities, Services. Voprosy Innovatsionnoy Ekonomiki, Vol.12, No.3, 2022, pp.1981–2000.
- 6.Osipova M.G. The Innovation Model of the Republic of Singapore. Southeast Asia: Current Issues of Development, Vol.1, No.2(39), 2018, p.173.

