

FACTORS OF EFFECTIVE IMPLEMENTATION OF INNOVATION POLICY IN DEVELOPING COUNTRIES

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Abstract. This article analyzes the key factors influencing the effective implementation of innovation policy in developing countries. The theoretical foundations of innovative development, organizational and institutional mechanisms, and economic conditions are examined. Using the example of Uzbekistan, existing challenges in implementing innovation policy and possible ways to overcome them are proposed.

Keywords: innovation policy, developing countries, innovation environment, technological transformation, human capital, public-private partnership.

In the context of globalization and the digital economy, one of the most important factors in ensuring national competitiveness is the effective implementation of innovation policy. Especially for developing countries, innovations serve as a key driver of economic growth, industrial modernization, and the expansion of export potential.

However, the successful implementation of innovation policy depends on many institutional, financial, and social factors, which are not yet fully formed in developing countries. Therefore, a comprehensive and integrated approach in this field is required.

Innovation policy is a systematic activity carried out by the state aimed at supporting the introduction of new technologies, scientific research, and high value-added products into the economy.

According to J. Schumpeter's theory, innovations create new markets through the mechanism of "creative destruction," which drives economic development.

B. Lundvall and C. Freeman proposed the model of the National Innovation System (NIS), interpreting innovation not only as a technical process but also as an institutional one.

The main goal of innovation policy is to transform scientific and technological potential into economic benefits and to create national competitive advantages.

Developing countries (including Uzbekistan, Kazakhstan, Indonesia, India, Egypt, and others) face the following challenges in implementing innovation policy:

- ✓ Insufficient financing — expenditures on research and development account for about 0.2–0.5% of GDP (compared to 2–3% in developed countries);
- ✓ Insufficient human capital capacity — migration of scientific personnel and low adaptability of the education system;
- ✓ Underdeveloped innovation infrastructure — lack of technoparks, business incubators, and venture capital networks;
- ✓ Weak patent and legal system — inadequate protection of intellectual property rights;
- ✓ Difficulties in the transition to a market economy — excessive state involvement limits private initiative.

The main factors for the effective implementation of innovation policy include the following:

1. Organizational and institutional factors
 - Formation of a national innovation system by strengthening cooperation between the state, research centers, universities, and business;
 - Introduction of innovation management mechanisms through innovation agencies, national councils, and strategic programs;
 - Expansion of public-private partnership (PPP) systems.



2. Economic and financial factors
 - Establishment of venture capital and innovation funds;
 - Support for startups through grants and subsidies;
 - Tax incentives, including tax deductions for R&D expenditures and incentives for export-oriented innovative enterprises.
3. Human capital and education
 - Development of an innovative education system with a focus on STEM (Science, Technology, Engineering, Mathematics);
 - Establishment of technoparks and research incubators at universities;
 - Support for young scientists and researchers through international grants.
4. Digital infrastructure and technological transformation
 - Development of the digital economy as the foundation of innovation policy;
 - Promotion of internet infrastructure, cloud technologies, artificial intelligence, and the Internet of Things (IoT).
5. Institutional environment and legislative stability
 - Improvement of legislation regulating innovation activities;
 - Strengthening intellectual property rights protection;
 - Reduction of bureaucratic barriers within the innovation ecosystem.

In recent years, Uzbekistan has achieved noticeable results in strengthening its innovation policy:

- Establishment of the Ministry of Innovative Development (2017);
- Adoption of the “Digital Uzbekistan – 2030” strategy;
- Launch of technoparks such as Yashnobod, IT Park, and ChemTech Park;
- Introduction of an innovation grants system;
- Financing of scientific projects in cooperation with international organizations.

However, several challenges remain:

- Weak development of the venture financing market;
- Complexity of the patent application process;
- Limited integration of innovation outcomes into real production.

To effectively implement innovation policy in developing countries, an integrated approach is required, ensuring the coherence of economic, institutional, human capital, and infrastructure factors.

In the context of Uzbekistan, the successful implementation of innovation policy requires increasing private sector activity alongside state regulation, commercializing scientific potential, and integrating into international innovation networks.

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