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MECHANISM FOR STIMULATING AND EFFECTIVE USE OF THE INNOVATIVE POTENTIAL OF UZBEKISTAN

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МЕХАНИЗМ СТИМУЛИРОВАНИЕ И ЭФФЕКТИВНОЕ ИСПОЛЬЗОВАНИЕ ИННОВАЦИОННОГО ПОТЕНЦИАЛА УЗБЕКИСТАНА

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Аннотация. В статье рассматривается комплекс теоретических и практических аспектов совершенствования механизмов повышения инновационной активности промышленных предприятий, теоретические вопросы инновационной экономики, в частности, инновационная среда в целом, в качестве основы обеспечения конкурентоспособности субъектов инновационного предпринимательства и развитие инновационных процессов в модели знаний, кроме этого анализируются непосредственно механизмы повышения инновационной активности промышленных предприятий на основе различных методов и инструментов.

Abstract. The article examines the complex theoretical and practical aspects of improving the mechanisms of increase of innovative activity of industrial enterprises, the theoretical questions of the innovation economy, in particular, innovative Wednesday in general, in a framework for ensuring the competitiveness of innovative businesses and the development of innovative processes in the knowledge model, in addition analyzed directly mechanisms increasing the innovative activity of industrial enterprises based on various methods and tools.

Ключевые слова: механизм, инновация, глобальный индекс, стимул.

Keywords: mechanism, innovation, global index, incentive.

Introduction

In modern scientific literature, considerable attention is paid to the conditions that form the platform, or the institutional basis for the development of certain segments of entrepreneurship. Scientific research in the field of the formation of certain conditions necessary for the development of innovation-oriented economic entities is used, inter alia, in the practice of constructing ratings, indices characterizing the level and quality of innovative development of the national economy as a whole. So, for example, the Global Innovation Index includes two groups of indicators (available resources and achieved results), while a priori it is understood that the presence of the first is the probability of obtaining the second [1, 2]. At the same time, the first group includes such parameters as: institutions, human capital, availability of infrastructure, development of the internal market and business development. That is, in fact, this group of indicators describes the innovation environment, which carry out their activities of economic entities, including and subjects of innovative entrepreneurship.

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The difficult economic conditions faced by the economy of Uzbekistan in recent years before the enterprises there is an urgent need to increase innovation activity. Under the innovative activity of industrial enterprises understand the complex characteristics of its innovative activity, which includes in itself the susceptibility to the innovations (consumer feature innovative product), the degree of intensity of the ongoing actions of the transformation innovation and timeliness (property of the supplier of innovative product), the ability to mobilize the potential of the required quantity and quality , the ability to ensure the validity of the methods used, the rationality of the technology of the innovation process in terms of the composition and sequence of operations [3]. Innovation activity characterizes the readiness to update the main elements of the innovation system - their knowledge, technological equipment, information and communication technologies and the conditions for their effective use (structure and culture), as well as receptivity to everything new [4].

The practical aspects of improving the mechanisms for increasing the innovative activity of enterprises are considered in two dimensions: for specific management mechanisms and for sectors of the economy. The monograph presents two mechanisms for increasing the innovative activity of industrial enterprises: logistics mechanisms and advertising tools. In the context of financial and resource constraints, these mechanisms seem to be the most relevant.

The theoretical and methodological basis of the study was the scientific work of foreign and domestic researchers specializing in the analysis of innovation management mechanisms for the development of territories and municipalities; increasing investment attractiveness and efficiency of functioning of socio-economic subsystems; implementation of organizational and managerial mechanisms to stimulate innovation in the economy; normative legal acts of the republican, regional and municipal levels. The research was carried out on the basis of economic, mathematical and systemic approaches using methods of analysis, systematization, and expert assessments. The work also used special and general scientific methods: analysis of variance and statistical analysis, induction and deduction, synthesis, modeling and analogy. In the course of the study, an analysis of statistical data and methodological materials was also carried out, reports from scientific and practical conferences were studied. (https://www.globalinnovationindex.org/analysis-economy)

Results and discussion

Uzbekistan ranked 93rd out of 131 in the Global Innovation Index 2020 (GII, Global Innovation Index). For the past five years, the country has not been included in the GII due to lack of data, the report says.

“Uzbekistan’s continuous and systematic process to improve data coverage has led to the country's inclusion in the GII this year. However, additional progress in data collection, especially on the Innovation Input sub-index, is still needed to further improve the credibility of the country's overall ranking”, the index compilers emphasized.

El Salvador (92) and Kyrgyzstan (94) occupy the places next to Uzbekistan in the ranking.

GII assesses the innovative development of countries according to 80 indicators. The overall score is calculated as the average of the scores across two sub-indices: Innovation Input and Innovation Output. These, in turn, include seven main components.

At GII-2020, Uzbekistan showed better indicators in terms of investment in innovation than in terms of results: 81st in the Innovation Input sub-index and 118th in the Innovation Output sub-index.

Switzerland is ranked first, followed by Sweden, the United States, the United Kingdom and the Netherlands. Singapore is on the 8th line, China - on the 14th. At the bottom of the list are

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Myanmar, Guinea and Yemen. India became the leader of the regions of Central and South Asia (48th place in the overall ranking). In second place is Iran (67), in third - Kazakhstan (77). The Global Innovation Index has been published since 2007 and is compiled by Cornell University (USA), European Institute for Business Administration INSEAD (France) and the World Intellectual Property Organization (UN specialized agency). In September 2018, President Shavkat Mirziyoyev approved the Strategy for Innovative Development of Uzbekistan for 2019-2021. Its main task is to enter the country by 2030 into the 50 leading countries in the world according to the Global Innovation Index rating.

Although it should be noted that our country is steadily increasing its rating of innovative development, while other countries (in particular, innovative leaders - Switzerland, innovative followers - Ireland and the United Arab Emirates) are losing their rating positions. At the same time, none of the countries gains the maximum (established by the rating) 100 points. The dynamics of changes in the point rating of individual countries is shown in Fig. 1. It should be noted that the analysis of the Index under consideration for 2014 shows that the human factor and the presence of 10 effective institutions, which is fully consistent with the conceptual provisions describing the general theoretical features of an innovative economy and innovative entrepreneurship [5]. In fact, the Global Innovation Index also demonstrates the ability of the national economy to develop using new factors that intensify knowledge and the ability to create conditions for fundamental and applied knowledge not only to be produced, but also applied in the practical (direct) activities of business entities. The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.

The following table shows the rankings of Uzbekistan over the past three years, noting that data availability and changes to the GII model framework in fl year-on-year comparisons of the GII rankings. The statistical con fi interval for the ranking of Uzbekistan in the GII 2021 is between ranks 84 and 90.

Table 1

RANKINGS FOR UZBEKISTAN (2019–2021)
https://www.globalinnovationindex.org/Home

Year	*GII*	*Innovation inputs*	*Innovation outputs*
2021	86	75	100
2020	93	81	118
2019	-	-	-

- Uzbekistan performs better in innovation inputs than innovation outputs in 2021.
- This year Uzbekistan ranks 75th in innovation inputs, higher than last year.
- As for innovation outputs, Uzbekistan ranks 100th. This position is higher than last year.

10th Uzbekistan ranks 10th among the 34 lower middle-income group economies.

4th Uzbekistan ranks 4th among the 10 economies in Central and Southern Asia.

The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations. Relative to GDP, Uzbekistan's performance is at expectations for its level of development. The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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Uzbekistan produces less innovation outputs relative to its level of innovation investments.

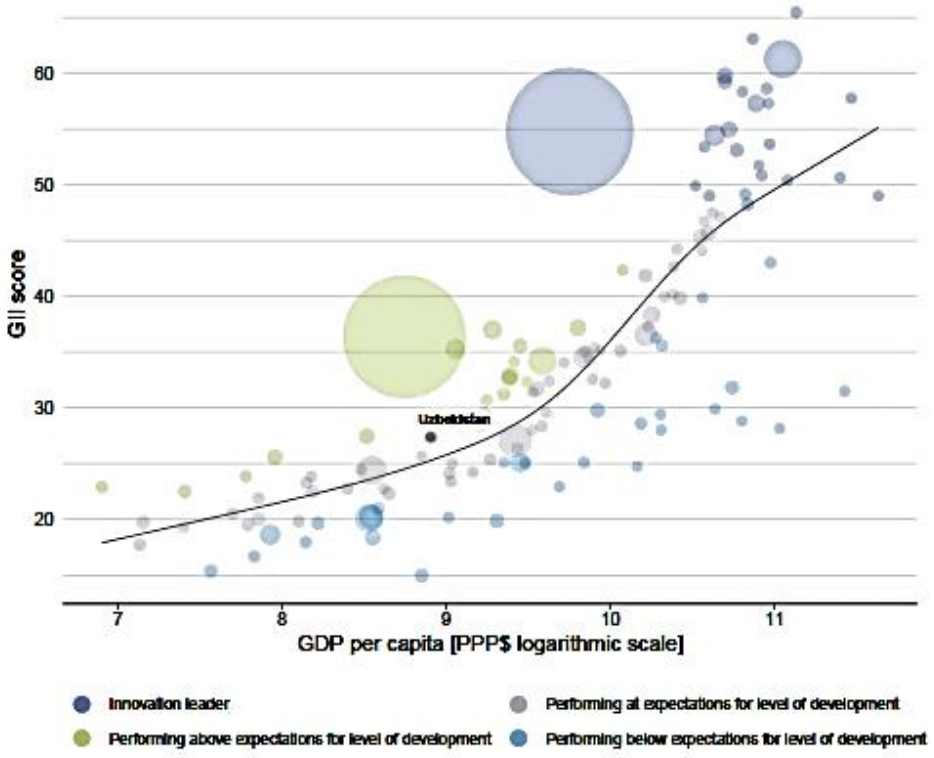

Figure 1. The positive relationship between innovation and development [11]

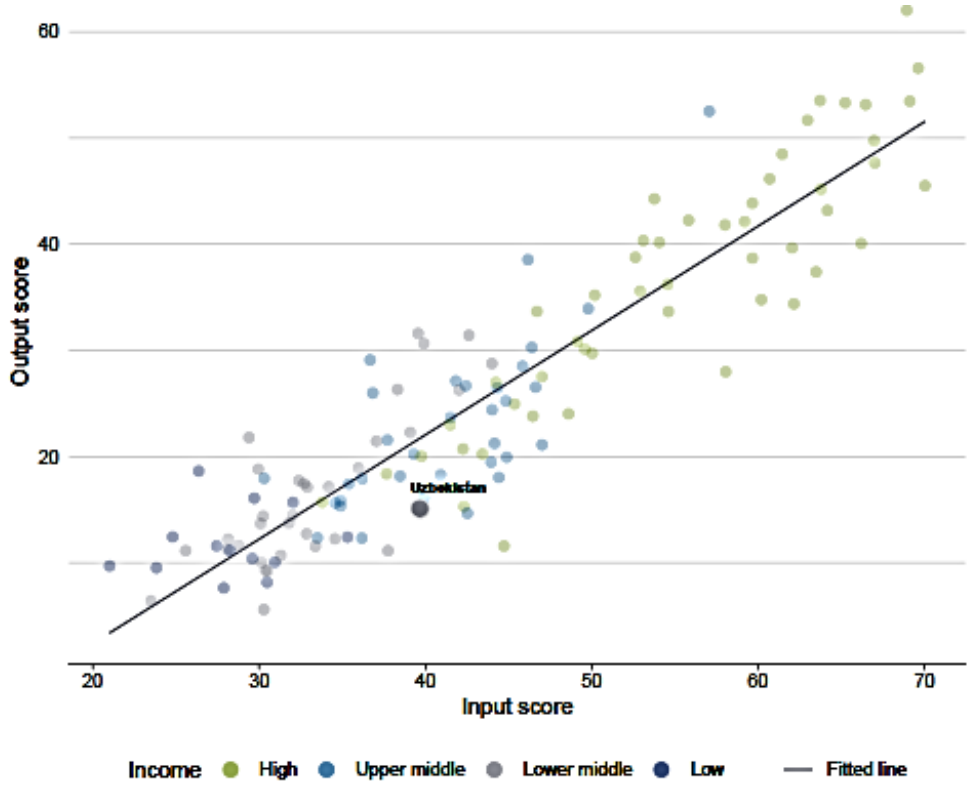

Figure 2. Innovation input to output performance [11]

Uzbekistan above the lower middle-income group performs average in fi ve pillars, namely: Institutions; Human capital and research; Infrastructure; Market sophistication; and, Knowledge and technology outputs. Central and Southern Asia, Uzbekistan performs above the regional average in

four pillars, namely: Institutions; Human capital and research; Infrastructure; and, Market sophistication.

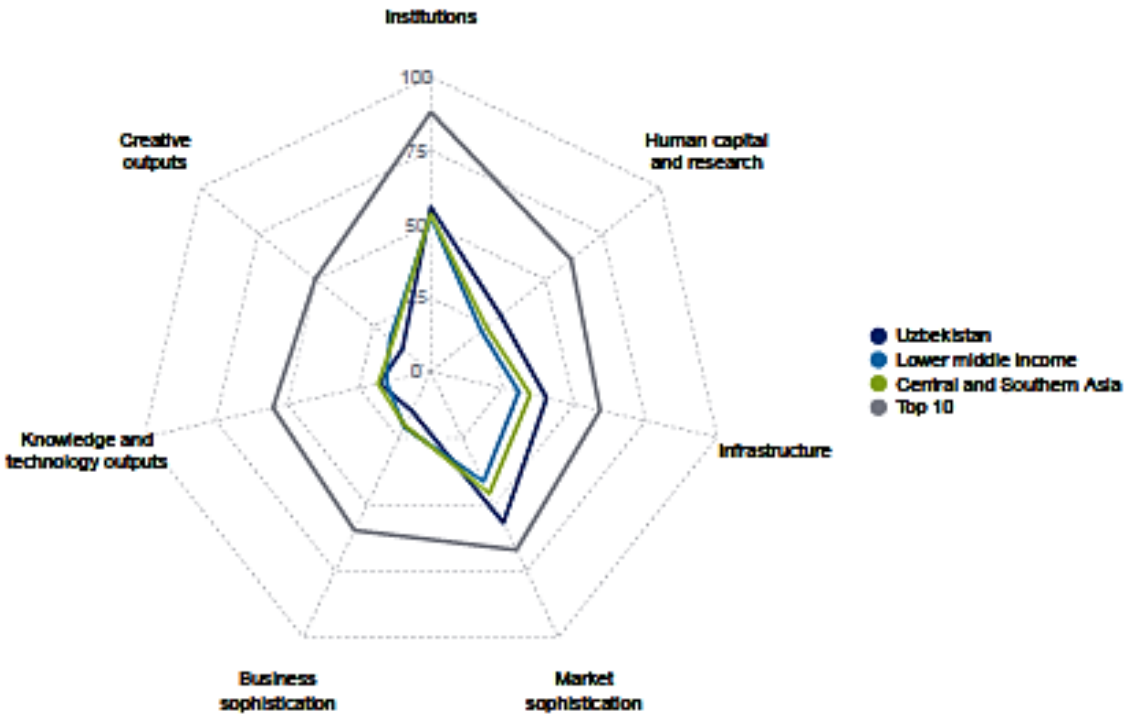

Figure 3. The seven GII pillar scores for Uzbekistan[11]

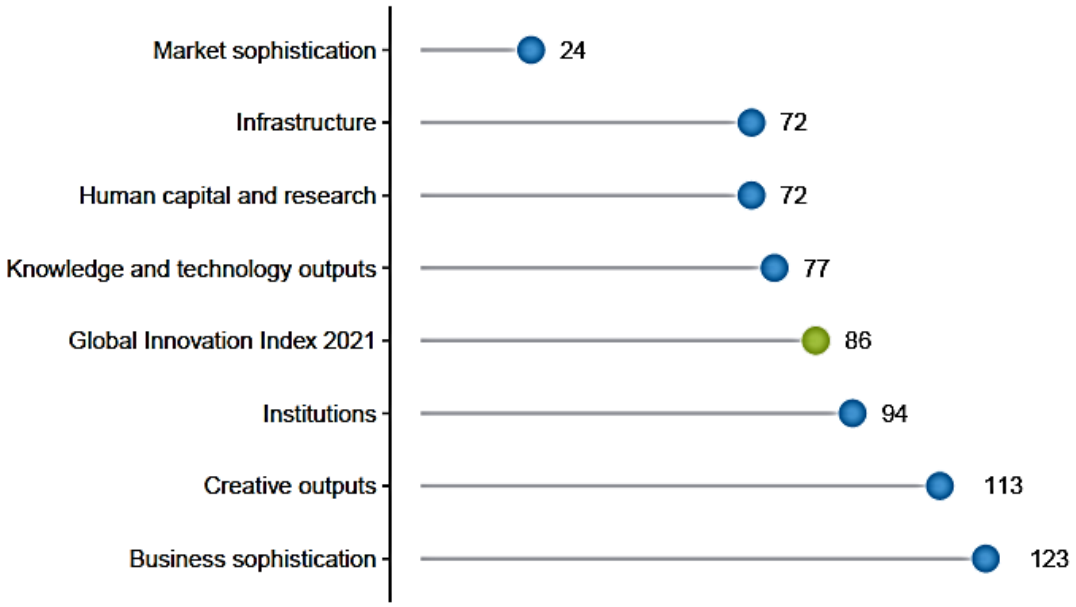

Figure 4. The seven GII pillar ranks for Uzbekistan [11]

The country performed above average on such sub-index components as 24th place, Market sophistication, 72, Infrastructure, 72, Human capital & research and below average - in components 77, Knowledge & technology outputs, 94, Institutions, 113, Creative outputs and 123, Business sophistication.

In practice, there is a certain opinion that the “innovation environment” and “innovation climate” are identical concepts. In fact, it is far not so much as, if to consider the interpretation of

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the term "environment" in its geophysical aspect can be noted that this interpretation reveals this term as a specific mode [weather], which is relatively constant at separately taken territory in a certain time period [6].

Table 2

STRENGTHS AND WEAKNESSES FOR UZBEKISTAN

Strengths			*Weaknesses*		
Code	*Indicator name*	*Rank*	*Code*	*Indicator name*	*Rank*
1.3.1	Ease of starting a business	eight	1.2.1	Regulatory quality	126
2.1.1	Expenditure on education,% GDP	28	2.2.3	Tertiary inbound mobility,%	105
2.1.5	Pupil-teacher ratio, secondary	37	2.3.3	Global corporate R&D investors, top 3, mn US $	41
2.2.2	Graduates in science and engineering,%	7	2.3.4	QS university ranking, top 3	74
3.1.3	Government's online service	46	4.1.3	Micro fi nance gross loans,% GDP	80
3.2	General infrastructure	37	5.2.3	GERD fi nanced by abroad,% GDP	97
3.2.3	Gross capital formation,% GDP	7	6.1.2	PCT patents by origin / bn PPP $ GDP	98
4.2.1	Ease of protecting minority investors	36	6.1.4	Scienti fi c and technical articles / bn PPP $ GDP	125
4.3.2	Domestic industry diversification	22	7.3.1	Generic top-level domains (TLDs) / th pop. 15–69	131
6.1.3	Utility models by origin / bn PPP $ GDP	22	7.3.4	Mobile app creation / bn PPP $ GDP	99
6.2	Knowledge impact 42 6.2.1 Labor productivity growth,%	8			

In our opinion, with a relatively clear structuring of the elements and components of the innovation environment, proposed by I. V. Zhukovskaya, there is a certain mixing and localization of individual elements [12]. For example, information support of innovative activity appears only at the microeconomic level, the internal environment and the mezzo level can be quite logically integrated with the micro-economic level of the environment as their constituent elements are generally identical [7].

Table 3

ELEMENTS AND COMPONENTS
OF THE INNOVATION ENVIRONMENT BY HIERARCHICAL LEVELS

Environment level	*Elements included in the level*
Macroeconomic level	legal and legislative framework, represented by separate branches of the executive branch; research centers (regional and local significance); venture and innovation funds (public specialized associations); human rights organizations and patent offices
Mesoeconomic level	technology transfer centers (technology parks, technology innovation zones, consulting centers, etc.); centers of financial and economic support for national innovation activity (credit and other financial organizations, funds)
Microeconomic level of the external environment	centers promote innovative activities (business incubators, training centers, laboratories, etc.); investors (strategic, institutional)
Microeconomic level of the internal environment	organizational research base; market, personnel, financial, scientific and technical potential; information support and support for innovative activity

In turn, Volosatov V. D, considering the technology of forming an innovative environment in the context of studying the specifics of the functioning and development of a manufacturing

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enterprise, simplifies its structuring (the innovation environment is considered through the levels: internal environment, external environment of direct and indirect impact) [13]. At the same time, the author points out that each environmental component has its own stimulating and restraining components [8]: the internal stimulating component is represented by the ability to generate and perceive innovative ideas; the internal constraint is considered from the perspective of resource constraints affecting the conduct and provision of innovative activities; the external stimulating component is inter-firm cooperation (coordinated innovation with counterparties); the external constraining component is represented by restrictions on the adaptation of innovative activities to external conditions.

Thus, S. S. Poloskov, comes to the conclusion that the presence of stimulating and restraining components determines the quality and speed of innovation-intensive growth of socio-economic systems of various sizes [14].

It is necessary to dwell on this in a little more detail. To date, the task has been set not so much to search for directions of national innovative development (these areas are determined by the state innovation policy), as to search for drivers of intensive and innovative growth of economic entities in the real sector of the economy, including subjects of innovative entrepreneurship. Drivers of intensive innovative growth of business entities are incentives that ensure progressive development. They are formed due to the ability of the internal environment of these subjects to use the capabilities (signals) of the external environment and transform them into factors of strategically sustainable and competitive development in the long term.

Taking into account the above, we propose our own vision in terms of the formation of an innovative environment in the national socio-economic system, which is based on the understanding that the modern construction of national socio-economic systems is based on the triple helix model proposed relatively recently by F. Nazarova the triple helix presupposes such an institutional construction of the national socio-economic system in which three key factors (state, science and business) interact as partners. And this is natural, since in a post-industrial economy, the development of which should be characterized by sustainability and innovation, one of the most important resources is knowledge. And it is quite natural that the three most important institutions that generate the knowledge necessary for sustainable and innovative development change the specifics of their interaction. If earlier in the industrial economy the state was a supersystemic institution that determines the principles of organizing economic, social, political or technological interaction, then in the post-industrial economy the state is seen as an equal partner constructing a new space. In an industrial economy, the links between major institutions were predominantly two-dimensional. Moreover, if business and science had both rights and obligations (respectively, in the aspect of conducting effective economic activity and in the aspect of creating and diffusing new knowledge), then the state (as a supersystemic institution) had preemptive rights and a smaller amount of obligations in relation to two other institutions. In the post-industrial economy, the state, business and science, acting as partners that form the trend of sustainable innovative development, interact on the basis of three-dimensional relationships.

Understanding this allowed Umarov S. to put forward a hypothesis that in the postindustrial economy, the interaction of these three actors is based on the triple helix model. The general vision of an innovative environment that provides incentives and conditions for ensuring the competitiveness of innovative entrepreneurship entities can be structured as follows [9]. So, in our opinion, the innovation environment should be considered as a special institutional basis for the competitive development of innovative entrepreneurship entities, which forms the necessary incentives and ensures the formation of the proper motivation of these entities for intensive

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development and balanced economic growth through the cognitiveization of economic activity [10].

Currently, the range of subjects of production affected by government incentives for innovation is very wide. Within the analyzed sample, its positive impact was noted by the leaders of the majority (56%) of innovative firms. Contrary to popular beliefs, government support is primarily targeted at successful companies rather than outsiders. Tax incentives are characterized by the maximum "coverage", and by virtue of their specificity, they are more conducive not so much to the "start" of innovative activity, but to its expansion. Only a small part of the measures is focused on the dynamic development of existing and the creation of new businesses, and their effectiveness is largely limited by the quality of administration. The overwhelming majority of functioning, resource-based instruments are addressed to the traditional sectors. Changing business perceptions about the ways of technological modernization increases the relevance of developing new, "smart" mechanisms for stimulating innovation, proactively adapting to changes in corporate demand for technology. The low level of innovation is largely due not only to the difficulties of their implementation, but also to weak business motivation. There remains a significant potential for the influence of competition on innovation activity. The share of the innovative segment in public procurement is still small. The motivation of enterprises to innovate is largely increased due to the tightening of technical standards.

The unstable business environment and intracorporate bureaucratization, which limit the innovation susceptibility of businesses, are serious barriers to the expansion of innovation. Since even positive changes create uncertainty and increase risks, especially for long-term projects, ensuring the stability of regulation becomes one of the most important tasks. In markets in need of change, the corresponding adjustments should be as predictable as possible for the business community. The creation of an attractive investment environment will expand the circle of innovative companies. It is advisable to combine such measures with the promotion of innovative initiatives focused on demonstration effects and support for relatively young actors in need of risk sharing. The choice of most organizations in favor of import substitution is justified, because they do not yet have the necessary potential to promote high-tech products to world markets. However, such mechanisms should not restrict competition with foreign players, otherwise the motivation of domestic producers to innovate sharply decreases and the conditions for technological borrowing and adaptations worsen.

In this regard, it is proposed to carry out a set of organizational and economic measures in four main areas: development of investment processes; development of innovative activities; development of the financial and credit sphere; implementation of territorial policy. Development of growth points. Thus, the use of a mechanism for stimulating investment and innovation activities of industrial enterprises will contribute to transformations in order to ensure high quality innovations, maximize profits, ensure competitiveness in the world market, etc.

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