

СЕКЦІЯ 2

SECTION 2

НОВІ АКЦЕНТИ СТРАТЕГІЧНОГО ТА ІННОВАЦІЙНОГО МЕНЕДЖМЕНТУ

NEW TRENDS IN STRATEGIC AND INNOVATION MANAGEMENT

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PROBLEMS OF MANAGEMENT OF THE NATIONAL INNOVATION SYSTEM FORMATION OF GEORGIA

Summary. *The article outlines and substantiates the priority directions for the formation of the national innovation system in the context of a number of its key blocks (the block for ensuring the innovation policy of the state, the innovation production unit, the research sector, technology transfer organizations and other elements of the innovation infrastructure, the system of interaction with the international innovative environment, the block of financing of innovative activity, etc.).*

Key words: *innovative development; block of the national innovation system (NIS); technology transfer; financing of innovative development.*

Introduction. To date, the country's innovative system is very undeveloped and ineffective (although with the coming to power of the new government in 2012, some measures have been taken to improve it, but the reorganization is very slow, for example, only in June 2016, the "Georgian Law on Innovations" was adopted) [1]. Therefore, the task of forming a fully fledged national innovation

system (NIS) is acute before Georgia. However, for its formation, a sufficiently long time is required, large investments are needed. All this predetermines the gradualness of its formation. In these conditions, the state's task is to identify the priority areas for its formation and in the appropriate coordination of the development process of NIS.

Purpose. In this article, we tried to highlight and substantiate the immediate priority directions of the country's NIS development in the context of its constituent blocks.

Results. In the main part of the work, according to the purpose of the study, issues of managing the formation of the country's NIS in the context of its seven most important blocks were discussed.

1. The block providing innovation policy of the state: *a) governmental organizations, defining the innovation policy of the state, ministries, departments, agencies, foundations and other regulatory and funding agencies; b) the strategy and priorities of innovation policy.* In the strategy of innovation policy there must be defined the priorities of country development and designed basic industries with a view to industrial innovation for which basic public resources should be allocated, and the priority should be given to innovative development of traditional industries, the work of the majority of enterprises of which stopped in the early 90s owing to the lack of competitiveness of products manufactured on outdated technology and the lack of knowledge (the cessation of operation of these enterprises was the main cause of present huge imbalance between the volume of exported and imported products). In addition, the strategy must identify priorities for the formation and development of national and regional innovation systems and select priority areas for the development of national innovations in the public sector. An integral part of the strategy should be to develop special programs of innovative development, which is practiced in many countries; *c) the legal and regulatory framework in the field of development and stimulation of innovation, including the provisions governing the relationship between science, business and government.*

2. The block of production of innovations. In all developed countries, most of the innovations are made in the business sector. Currently in Georgia the production of innovations in the business sector is at a negligible level. Large corporations in the industrial sector are few in the country, although there are many in the trade sector (which mainly grow at the expense of exorbitant import and distribution of consumer products in the country), but in the commercial sector, there is no need to produce a large number of new

technologies. Therefore, before talking about the organization of innovation departments in large corporations it is necessary to rebuild hypertrophied sectoral structures of Georgia in the direction, in order that to have more enterprises in actual industries and agriculture. Now it is more important to create small innovative private companies (which mainly have to explore new foreign technologies for their subsequent transfer to the production) and the Technology Transfer Network, to ensure accelerated growth of these import-substituting and export-oriented industries. Although in some sectors, such as the rapidly growing industry of building materials, even now it is possible to create innovation divisions in large companies, which, in particular, will help to ensure the development of production in the country of many modern construction materials, which are now imported).

The priority is the creation of the state (or based on public-private partnership) small innovative enterprises, taking into account the imperatives of innovation strategy of the state (but the latter has not yet been developed).

3. Research sector. Universities and research institutions need to pay more attention to scientific research focused on innovative research.

In most developed countries (with evroatlantic NIS model, now transformed into the NIS, built on a "triple helix model") the core of the NIS, conducting research and development, are actually the universities and some other research centers [2]. Today, the basis of the United States NIS are approximately 150 universities, where main researches in the field of basic science and significant part of applied researches are concentrated. In addition to universities in the United States higher research institutes are engaged in fundamental research activities. Another structure of the US NIS are national laboratories (the largest institutions, developing any direction of applied science [3]). The leading role is played by universities in major European countries like Germany, Great Britain and Italy. However, in France, the vast majority of basic researches carried out in the framework of the National Centre of Scientific Research (CNRS), the analog of Academy of science in the country, there are two more categories of research institutions linked to the State: public research institutions; public industrial and commercial establishments primarily engaged in knowledge-intensive sectors of the national economy [2]. In a small country of Denmark, in addition to the universities an important part of the NIS are sectoral research institutions. Besides, there are GTS-institutes ("approved technological service provider"), extending bridge between the state and private structures. Powerful innovative

infrastructure is also established in Denmark. Nevertheless, much of the innovation activity is reduced to small innovations aimed at improving production process locally [4].

From this experience, it must be concluded that in a small country it is impossible to do without large-scale borrowing from abroad of new technologies. This is even more necessary in Georgia, where, as mentioned above, is required to rectify the hypertrophied industrial structure of the economy. Therefore, in the country at every stage of the promotion of innovation in production, special attention should be paid to the problem of borrowing (import) of innovation (i.e new technologies), in particular, at the research and development stage in the relevant institutions (either University or Research Institute) it is necessary to establish the scientific and research division dedicated to the study of demanded foreign innovative technologies and make recommendations for their promotion to production.

4. Organizations for transfer (transmission) technologies and other elements of the innovation infrastructure. The "Law of Georgia on innovations" observes the following elements of the innovation infrastructure: science technology park; business incubator; business accelerator; transmission center (i. e. a transfer) of technologies; laboratory of industrial innovation; innovation laboratory; innovation center; other innovative infrastructure.

In this area, in our opinion, at first, technology parks the founders of which would outline the range of its member research organizations should be formally set up in several regions, contribute to the establishment and deepening of innovative linkages between research institutions and production and also promote the establishment of the necessary elements of the innovation infrastructure as well.

The main objective of the innovation infrastructure is a transfer (transmission) technology. However, under the transfer is meant a wider range of tasks than it is specified in the said Act for the "Technology Transfer Center". In fact, in the transfer directly or indirectly, other elements of the innovation infrastructure are involved. For example, a business accelerator problem usually is to support the development of technologies (including investment), by innovative start-ups, which can also be considered as a part of the technology transfer process. Therefore, along with business incubators there must be founded first technology transfer centers and business accelerators in several regions of Georgia.

5. The system of cooperation with international innovation environment. Georgia is a small country and therefore can not produce a large number of new production technologies (and in

general such production is currently negligible). Basically, it should be guided by borrowing (import) of production technologies from foreign countries (as well as in large countries there is mass importation of foreign and domestic exports of new technologies). Therefore, domestic technology transfer centers should cooperate with relevant foreign systems, in particular, domestic enterprises to assist in the acquisition of patent licenses, know-how, attract foreign engineering firms for setting of new production technologies purchased abroad and delivery of object "turnkey" and also promote the organization of joint, in particular, venture capital companies.

Another area of international cooperation in innovation is cooperation in the development and production of innovations, in particular at the stage of research and development. The problem of international cooperation in this field has not been yet solved at the appropriate level, but with the EU countries, there are broad prospects for the development of such cooperation on the basis of guidance of the provisions of Chapter 12 of Section VI of the Agreement on Association of Georgia with the EU "Agreement in the field of research, development and demonstration of technologies", where in particular, it said: "The Parties shall promote cooperation in all fields of civil research, development and demonstration (RTD) of technology focused on two-way benefit and in accordance with all levels of the adequate and effective protection of intellectual property" (Article 342). "Cooperation in the field of research, development and demonstration (RTD) of technology encompasses: (a) the sectoral dialogue and the exchange of scientific and technical information; (b) appropriate assistance to appropriate access to each side of the program; (c) increase of research capabilities and participation of Georgian research institutions in the framework of the EU programs; (d) promote joint research projects in all fields of research, development and demonstration (RTD) of technology ..." (Article 343).

6. The block of financing of innovative activity. As noted above both public and private funding of innovative activity in Georgia is very low. Therefore, in order to form and use the NIS in Georgia, you need to dramatically increase both public and private expenditures in this area.

Public funding of innovation activities depends on the capabilities of the state budget expenditures. Due to the low tax base of its replenishment, it is now, as noted, negligible. Therefore, to provide a reasonable size of public funding, it is necessary to improve the tax system by increasing rates of certain taxes. And private capital is not

yet sufficiently organized to allocate sufficient funds for the development of NIS and innovation activity. In private business, most of the available funds are concentrated in the area of commercial capital, which, in view of the large risk because of incompetence, does not seek to place them in the innovative sphere of the industrial sector. Therefore it is necessary to self-restructure the system of business. In order to confirm the correctness of our following proposals in this field, we first give the following quote: "The rapid success of the innovative development of South Korea has become possible thanks to the active borrowing of foreign technology and competent patent policy. An important role in the "economic miracle" of Korea played large **financial-industrial groups** (chaebol), which were the basis for national economic development for many years" [4, p. 14]. "In South Korea, initially modernization was built on **borrowing** foreign technologies, which took place in various forms: contracts "turnkey", licensing, consulting services. The study of foreign experience took place mainly through **the establishment of joint venture companies** with Japanese partners. At the present time, despite the fact that Korea is leading in many high-tech positions in world exports, the country is still largely dependent on imported equipment due to insufficient development of their own core technologies "[4, p. 7, 8].

In Georgia, in order to increase the investment activity of the business, it is necessary, according to the previous example of the South Caucasus, to create a FIG with the inclusion of trading companies (like the US [5] and the same SK [6]), and the bank in the FIG must have sufficient competence to select the appropriate areas for financing the creation of innovative firms in the industrial sector, not only through lending, but also through venture capital investments made both by the bank itself and by other companies that are part of the FIG, possibly and on the terms of public-private partnership with the participation of the Georgian Agency for Innovation and Technology. Venture innovation firms should be created jointly with foreign partners to.

7. Training block. Training of innovative personnel (including innovative managers) can not be carried out haphazardly. It should consist of interconnected stages of increasing knowledge and competence. Along with universities, training experts in the field of fundamental and applied sciences, and institutions directly focused on the acquisition of knowledge in the field of innovation activity (such as innovation center according to the Law of Georgia on innovation), National Engineering schools play a huge role in developed countries [3]. Of great importance for the development of innovative activity is

the training of highly qualified specialists — namely doctors of sciences. In some European countries, such as the Netherlands and Austria, there is an increasing shortage of doctors of scientific and technical professions, or even a lack of competent personnel, which leads to low returns from research and technological development [4, p. 6, 9, 10], and the insufficient development of cooperation between science and business in some countries, such as Germany, encourages them to build in the universities the departments of business, designed to promote broader commercialization of research [4, p. 12].

In our opinion, the doctor of sciences in Georgia must be prepared not only at the university departments (as is the case now), but also in specialized research institutes, where scientific researches of both fundamental and applied nature are mainly held.

8. Block supporting innovation development of agriculture.

Currently, agriculture is very inefficient in Georgia: its productivity is low; the organizational and institutional forms of agricultural production are not regulated, in particular, there is a large number of small non-market households with very low productivity; few specialists, in particular, agronomists, designed to provide advisory assistance to agricultural producers, and there is no regulated system of their consulting service. Therefore, in our opinion, the formation of isolated systems is necessary to promote innovative development of the agricultural sector. It seems appropriate to urgently establish the Agency of innovation development of agriculture under the auspices of the Ministry of Agriculture of Georgia, where consulting and other necessary services will be created as its part based on public-private partnership.

Conclusions. Thus, the country is facing a daunting task of forming a national innovation system. At its formation we should adhere to the principle of gradualism, focusing on the top priorities in the context of each key block of innovation system. In the innovative development strategy the main branches should be scheduled with the prospect of industrial innovation, and particular attention must be paid to the innovative development of traditional industries, the production of which is strongly curled up in the post-communist economic collapse. In terms of innovation production unit it is necessary to encourage large corporations to create innovative industrial units, it is also actually to create small private and innovative enterprises based on public-private partnerships, which in particular, and to a greater extent must master borrowed technology. The country needs to establish an effective network for technology transfer, which in addition to "centers of technology transfer" will involve other

elements of the innovation infrastructure. Domestic technology transfer centers should cooperate with corresponding foreign systems in order to promote domestic enterprises to learn new production technologies purchased abroad. It is necessary to increase both public and private financing of innovation, which is currently at a very low level compared with the financing in developed and emerging countries. In the private sector this problem will be solved by the creation of financial-industrial groups.

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