

"Circulating" knowledge - a source of competitive advantage in the field of education in Bulgaria

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Abstract: We will also consider innovative strategies and innovative policies, which we will interpret as an important driving force for the development of innovations. We will also pay attention to innovative systems and innovative behavior, where each scientist and creative collective will discover new ways to develop innovations within the interdisciplinary communication and cooperation between different participants.

Keywords: circulating knowledge, competitive advantage, education

Introduction

The subject of our reflections will be the participants in the innovation process, interdisciplinary communication and cooperation between different participants and participants with the same value in the innovation process, since a key tool for achieving high competitiveness is innovation. We will also look at innovative strategies and innovative policies, which we will interpret as an important driving force for the development of innovation. We will also pay attention to innovative systems and innovative behavior, where every scientist and creative collective will discover new ways to develop innovations.

Research purposes:

One of the goals of the research is to summarize the contemporary challenges before science and innovations in the common efforts for achieving sustainable development of society. Another goal is to prescribe real possibilities for realization of the challenges through project activity. The goals follow the sustainable trend in the development of scientific research activity, namely, its transformation from individual activity to activity of interdisciplinary scientific teams. Many innovative analyses of the science developing process bring to the fore numerous political factors (Peltz, Andrews, 1973).

Analysis of results:

The National Innovation Strategy is already reality - a key tool for achieving high competitiveness in the economics and for applying development and innovation policy. Competitive industries with future potential for development, which can have a serious impact on the economics in its various spheres, are encouraged, namely:

- stimulating scientific research and promoting cooperation between research units, universities and companies.
- improving financing of innovations.
- promoting the implementation of new technologies and increasing the innovative activity of startups under the management of the universities.
- encouraging the creation of clusters.
- creating mechanisms for implementing and financing the set measures.

- attracting investments in the research and development activity - burdening the existing scientific units with orders from external contractors.
- creating and supporting the existing technology parks - conditions for development of high-tech productions, using the capacity and experience of established scientific organizations
- creating entrepreneurship centers in higher education institutions, to prepare graduating students for establishing and managing their own companies.

For realization of the innovative strategy goals and for overcoming the inequalities, "National Innovation Fund" is created, which is realized with a complex of scientific and organizational-technical measures:

- Elaborating development concept for innovative activity and innovative infrastructure with certain strategic goals and means for their achievement;
- Elaborating programs for innovative development of the region with a view to the near future.
- Organization of the practical activity of departments and implementation of the innovative activity.

It is sought connection between the interested groups through the modification of the scientific innovation policy instruments and thus inequalities are overcome: the scientific society, politics, business, public organizations and movements, etc. It can be considered that the "place" for such a dialogue is precisely the complex system of scientific and innovative development indicators. The range of means used is quite wide: from organizations using electronic communication to the formation of expert groups and cluster networks. The transparency of decisions' preparation allows increasing the work efficiency. Political instruments were created at the beginning of the 1950s, when significant resources were used to study the mechanisms and structure of science. In the 1970s, forces headed towards uniting the intellectual capital of science, the resources of industrial corporations, and the initiative of small scientific businesses into a single innovation potential. The idea of a European research area, based on the uniqueness of the case studies, becomes necessary.

National innovation policies are defined as an integral part of the socioeconomic policy of the country and are directly related to the national innovative activity, goals, directions in the field of science and the realization of its achievements. There is tendency to improve the conditions for innovations and renewal of the traditional technologies, and the following steps are being taken:

- Creating innovation centers for technology dissemination
- Improving the infrastructure of innovation regions and territories
- Stimulating small and medium technologically innovative enterprises
- Creating innovative funds
- Creating technological parks with the participation of universities and research institutes, to provide the innovative resource of startups

The experiment for infrastructural preparation of the European innovation space indicates that a decisive condition for success is the creation of interactive field between the main interested groups - politicians, representatives of large corporations, social movements, and small and medium-sized businesses. For integration of the scientific space in this list a basic and very important key group should be considered - the scientific community. National differences in research organization and notorious bureaucratic traditions could be overcome.

Models of science policy and communication are already being talked about. The innovative influence extends into all social and production spheres. The innovation policy is formed on a new conceptual basis, where orderliness, connections, communication, and diverse partnerships are reflected in the "national innovation system", "Triple spiral" and other concepts. The main features of the innovative policy are associated with: • technological; • institutional; • cultural innovations. The process phases are close to the market and to the IT transfer. The state has the role of coordinator of the innovation process. Innovative policy instruments are based on the construction of appropriate research-based infrastructure, based on the scientific research.

A new understanding of science policy is being formed, whose conceptual framework is characterized with diverse relationships and different types of communication values, which are reflected in the concepts of "Mode-2", "Triple spiral", "cluster associations", "national innovative system", "scientific networks", etc. The main features of the innovative policy are already associated with problem-oriented research, with commitment to consumer needs, with technological, institutional, and organizational innovations. According to the authors of the concept of the new mode of knowledge production, known as Mode-2, it is trans-disciplinary, taking place in the context of knowledge application through various communication channels. It appears and develops as a new form of creative activity, characterized with the united use of the intellect. The phenomenon is described as a crisis or transformation of the university research system" (Jacob, Hellström, 2003). It dates to the middle of the 20th century and continues its development to the present day.

The main challenges that have been overcome are related to the communication of the partners in the innovative activity. Need for development of interdisciplinary communication and cooperation between the various actors occurs. From a cognitive point of view, the so-called problem-oriented research acquires special importance. Significant changes in communications are driven by the need to interact with the users of scientific products - mainly industry and regional authorities, who are also looking for support to solve their local problems. There appear new communication channels whose function is more complete and accurate reflection of market needs. The new priorities, formed under the pressure of public opinion, strengthen the need for communication with society for the purposes of legitimizing science, for popularizing its achievements in the name of public interest while strengthening research in the field of health care, environment, and other social issues, i.e., openness to communities outside the academic disciplinary structures.

Regional innovative policies: It is shared the opinion that innovation regions in recent years are increasingly oriented towards the creation of small companies, with staff of no more than five-six to maximum of fifteen people. This is dictated by the opportunity of greater flexibility in case of necessity of remodeling. Three institutes are involved in establishing the innovation regions – academic, corporate, and state. Their cooperative innovation policy is aimed at generating entrepreneurial activity. And the principle of the "triple spiral" – the inclusion of business, state, and university in unified production of knowledge, is used as a basis for the growth of new innovation territories for development and improvement. Many researchers in this field emphasize the central role of the university in the triple link. The university becomes an entrepreneur and a strategic partner.

Regional characteristics, such as natural features and resources, climatic, soil, relief, underground, geographical, etc., as well as the historically accumulated human and social capital, including traditions, production links and cycles, skills, specialization, cultural, social and other features (sometimes elusive in classical economic categories), advantages and potentials, determine the specific, typical and characteristic for the region.

Large part of enterprises in the technical park (36%) - the "triple spiral" in the Swedish town of Linköping work on the grounds of ideas born at the university. The journey from ideas to commercial product takes several years. When the graduate student or teacher comes up with an idea, he is sent for training at the center for training entrepreneurs. If during his training the candidate makes a business plan, has the desire and opportunity to establish an enterprise, he is transferred to the so-called a business incubator where his enterprise receives office, marketing, accounting, legal and other support at a low cost. Judging by the experience of scientists from Linköping, the key element in the system is precisely the university holding, on whose territory the research centers of many large companies are located. The first step of the university in terms of innovation is to connect the technical training of the students with the training of the manager, the leader, i.e., cooperation with innovation management training. Along with conducting research, the holding initiated the creation of students' and teachers' companies. All structures are financed by the municipality. After two or three years, when it has already "stood on its feet", the enterprise moves to the technology park under lease, where it only performs all the necessary services (marketing, accounting, etc.).

Innovation systems - definition

In recent decades, a new model of science as a social institution has been formed. Its function is expressed by the constant generation of new knowledge and technologies.

The understanding that the new knowledge-based economics is upheld by four "pillars": innovation system, information society, continuing education, state innovation policy.

In this sense, the ability to create new knowledge, technologies, processes, the opportunity of access to them and their effective economic implementation are fundamental elements of competitiveness, both on a national and global scale. In fact innovation is a major source of long-term economic growth, a cornerstone of market competitiveness, and a factor in solving many social problems.

The modern idea is based on the understanding that scientific research is the only source of innovations.

The innovative system is associated with a complicated complex of economic, psychological, social, organizational and other factors, determining the creation of innovations (Edquist, 1997) 75. For example, the organizational structure is accepted as supporting the innovation processes, which, in turn, enables creating a constant cycle for new knowledge formation.

On the other hand, according to New Theories of Economic Growth, investments in human capital and research are only justified if there is viable circulation" of knowledge between academic institutions, the training process and the private sector (Aghion & Howitt, 1998).

Regional innovative systems: There is need for development of interdisciplinary communication and cooperation between different actors.

Various institutes are involved in the establishment of regional innovative systems:

- Academic - universities and scientific centers create and disseminate new scientific and technological knowledge.
- Corporate - implement the innovation - new product or technological process, result of own elaboration, purchased patent, etc.
- State - creates the legal and regulatory framework, builds the necessary infrastructure, stimulates the financial sector for participation, promotes the science development and technology through the relevant policies
- Intermediary organizations – connect and ensure the necessary interaction between the various participants in the system (Georgieva, 2008)

The new challenges before the development of scientific communications are related to their openness to communities outside the academic structures. It turns out to be more attractive for higher education institutions to create knowledge-intensive enterprises themselves. It is accepted that technology transfer has a specific role of universities today. In this sense, the linear model of innovation, in contrast to the poly linear model, suggests that the path of new elaborations initially passes through basic science. Part of the knowledge is used for scientific research and only then is it put into production. The innovative working way requires that the process itself covers all levels and stages of knowledge production and provides an opportunity to be corrected and stimulated by its participants.

What fundamentally distinguishes the university, which has become an entrepreneurial center, from the "ordinary" university? First of all, the sufficiently broad and precisely defined spectrum of research work is indicated. It is believed that narrow specialization is ineffective in this case, because of the financially insurmountable barriers in case of incorrect calculation of the development of one or another branch. Secondly, the reason given is that the university, as an independent commercial organization, in its actions must be guided mainly by economic expediency. The change of a given approach also entails a new type of management actions, for example: the creation of certain organizational mechanisms responsible for the technological shaping of research, market analysis, etc. The researchers put in third place the chances of economic success, which rise suddenly if the university is located in environment of highly developed entrepreneurial and inventive activity, a strategic partnership for the creation of an appropriate infrastructure of innovation works: business incubators, technology parks, various types of funds, etc. Specialists assume that in the 21st century, the competitiveness of national

economics will be determined by the presence of effective innovation regions - territories where dozens of enterprises are concentrated in one or several intermediate industries, places where discoveries are in the air" and the companies resonantly increase competitiveness and efficiency among themselves. Even in the absence of a unified management center, partner relationships, horizontal contacts, club forms of work, etc. can be actively used.

The main constituent elements for success, according to them, are related to the way of organization of knowledge production, namely:

- information
- communication, coordination
- cooperation
- interaction

The first step of the university in terms of innovation is to connect the technical training of the students with the training of the manager, the leader, i.e. cooperation with innovation management training. Along with conducting research, the holding initiated the creation of students' and teachers' companies. The journey from ideas to commercial product takes several years. When the graduated student or teacher comes up with an idea, he is sent for training at the center for training entrepreneurs. If, during his studies, the candidate makes a business plan and has the desire and opportunity to establish an enterprise, he is transferred to the so-called business incubator where his enterprise receives office, marketing, accounting, legal and other support at low cost. All structures are financed by the municipality. After two or three years, when it is already "on its feet", the enterprise moves to the technology park under lease, where it only performs all the necessary services (marketing, accounting, etc.).

Regional innovation systems

Innovative clusters

The created cluster structure makes it possible to unite the efforts of the main local economic units to increase the competitiveness of manufacturers of electronics, informatics, hardware and software products and services, in order to increase the competitiveness of the local economics and all accompanying and servicing industries.

Innovative behavior is a behavior of taking the initiative at individual or collective level, related to the adoption by social subjects of new working ways in various material or non-material spheres of social life. Innovative behavior is a means of implementing social innovations and refers to the active types of behavior. It is accepted as a perspective way of development of the individual, the collective and the society. Innovative behavior is also perceived as a strategic type of behavior - bearer of a wide range of opportunities.

Innovative behavior is considered a part of the innovative culture and a manifestation of personal orientation: • the motives, knowledge, skills, habits, norms of behavior, the worldview that determines the attitude of the members of the organization to the users and to the competitors in the environment; • the dominant cultural values, for example, to the work quality, to leadership, moments and legends accepted as important in organizational life; • the rituals and ceremonies, and the communication language, all of them characterizing the relations between the members in the organization, etc.

Research conclusions:

Partnership allows creating an optimal organizational model, as well as reducing the funds needed for scientific research. This is the effect of open innovations (Chesbaugh, 2007), which aims to create a conceptually new market for innovative production. (The term was introduced by Henry Chesbaugh in his book - "Open Innovations - a new way to create and use technology", 2003) To sum up, the logic of the open innovations model is based on "circulating" knowledge that the organization has obtained in the course of its research and is not limited by internal routes leading to the market, and the process of scientific research and elaborations is perceived as an open system that can rely on cooperation with other organizations, universities, etc.

Competitiveness should be examined through the prism of effectively used internal resources and external resources (Porter, 2000):

- the innovative organization is dynamic.
- the ideas, knowledge, and information move freely from one point to another.
- the innovations management is up-down and vice versa, to generalize innovative ideas.
- the innovative organization uses the network organizational structure, which implies informal communication, independent of the hierarchical level, etc.

Networks can be:

- intellectual and monitoring - pay special attention to users.
- for developing capabilities - mainly for the management of material and non-material resources.
- for innovation and development, to obtain results of great importance.
- for developing partnership relations.

The innovations, new combinations of production factors and technologies are considered sources of competitive advantage for organizations. The modern understanding of competitive advantage is associated with the dynamic development of knowledge and competences, typical for the innovative activity of the organization.

So, to maintain high efficiency of the innovation process, the following must be used:

- The knowledge and intelligence of the whole organization.
- Integrating the users and suppliers in the innovation process.
- Increase the pace of the innovation process, helped by innovation platforms and networks.

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