The formation of innovation environment – main source of society's economic growth

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Abstract. The concept of social and economic development of the Russian Federation supported by people over the world − a historical milestone in the country life, answering to objective need of introduction of science achievements and technology in economic component of new democratic society. Overcoming negative manifestations and the consequence of the world economic crisis which has also concerned our state, a course is of restructuring of economy, investment of investments into the human capital, creations of the environment for innovative movement, lifting of education, science and health care, in creation of new democratic national structure inherent in society as a whole are carried out. The existence of innovative policy is possible, when the science is an integral part of industrial production and direct productive force on the basis of growth of labor productivity. Innovations as a new combination of production and intellectual resources reveal new goods and services, production methods, sources of raw materials and technologies. In turn, new products and technologies lead to emergence of the new markets and their development where the intellectual property acts as object of the most various transactions and the relations.

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Introduction.

As numerous researches of the Russian and foreign scientists show and also the experience of the developed countries, the formation of the innovative environment directly depends on a number of prerequisites of fundamental character.

First of all, it is necessary to point out a question of establishment of an economic and institutional regime, creation of the innovative environment, providing interest in effective use of existing and new knowledge in development of intellectual business, creation of innovative climate. Essentially important thing here is a combination of the state and market mechanisms of effective and greatest possible involvement of objects of intellectual property in economic circulation [1,2].

The science and education system, skills of working people, aimed at creation, distribution and target use of intellectual resources and researches act as the main component of innovative economy [3,4].

We speak not only about conceptual bases, characteristics, indicators and features of the knowledge-intensive economy, but also methods, tools and approaches to the solution of economic and organizational problems on all way from origin before use of innovations, from science and education to the end user in interests of continuous ensuring competitiveness of the organizations, the enterprises of small and medium business.

The driving force and the main core of innovative development today is pattern of thought, got by desire to do something new and to develop new technologies and bring them to the markets, also to form structures satisfying both the organizer and society.

1. Concepts of formation of the innovative environment

The formation of the new economy based on knowledge and innovations, can successfully be carried out in society on condition of adequate structural and institutional changes. From four defining factors of economic growth — work, capital, natural resources and a scientific and technical state — last admits the long-term plan decisive [6].

To be more exact in a temporary field from the scientific point of view, we can point out the following factors of economic growth: development of quality education; fundamental and applied science; creation of new branch complexes; widespread introduction of target program approach; partnership of business and state; creation of institutional forms and incentives of innovative activity as main links of

economy; primacy of compensation over accumulation [7].

Within the Program of Presidium of the Russian Academy of Sciences "Economy sociology of knowledge" the calculations of production sector of knowledge on economic growth are carried out. They show, that transition from raw direction of economy to the innovative orientation requires some victims, because investments or innovations in sector of production of knowledge give return not at once, but with some log equal to about 4 years. But the main thing — it isn't simple their increase in sector of production of knowledge, but, firstly-, their efficiency, and, secondly-a susceptibility of all components of economy to innovations [6].

According to the theory of the extending markets, emergence of economy of knowledge was inevitable. Question: when? The mentioned theory testifies not simply to expansion of the markets, and to acceleration of this expansion. What essence realized by mankind you didn't take, it would become a subject of the market relations and receive the price.

The mankind tried to understand for a long time that the knowledge itself represents a certain independent essence with which it is possible to make the most various operations: to transfer something from one person to another, to possess, sell, buy, also people learned to measure knowledge, separate from that is called as information, to codify, represent in the formalized look. One knowledge in one cases became independent, separated from their creator, others couldn`t be separated from the knowledge carrier. Last one we can call inseparable, or personal. In detail this phenomenon was investigated by M. Polani [8].

Knowledge, as well as any other products gets the value if they are demanded. For market or private products the act of recognition consists in product purchase. For knowledge as public benefit the act of recognition consists in knowledge use in this or that form. The knowledge can be used differently. The most primitive — is inquiry. More profound — acquaintance or reading. The most profound — storing a knowledge, ability to reproduce it, to transfer to that person, who is interested in it.

And, at last, the most productive use of knowledge — production of new knowledge on the basis of used knowledge. Use in scientific work results of predecessors — an example of the most effective use of knowledge. The main assumption, containing in this definition of an indicator of amount of knowledge, consists of that the consumed knowledge of one type develops with used knowledge of other type.

The considered concept of consumption of knowledge gives the answer to a question why demand is key in economy of knowledge. You can easy imagine a situation that the differential calculus was opened not by I. Newton and G. W. Leibniz, but long time before them. But, probably, then this discovery didn't cause any interest and, therefore, it wasn't recorded in mankind memory.

Therefore, the offer of knowledge is, of course, the important part of the process, but not defining. Demand and only demand defines the further existence of knowledge, if the knowledge was used by a large number of people, it`s value is high.

The conclusion about need and expediency of formation of the innovative environment arises. The first Russian researchers of economics A.A. Dynkin, N. I. Ivanov and V.P. Kolesov revealed, that it is necessary not only to define the purposes, but also accurately represent sequence of transition from raw to innovative economy. So, first of all it is necessary to create the favorable innovative environment on which the results of scientific and technical achievements in society can grow [9].

When it is said about innovative economy, economy of knowledge, it is said about the main tool of this economy - the market of knowledge, the knowledge understood in the broadest sense of this word. The market of knowledge as institute significantly differs from the traditional markets and is presented by the following components:

− property institutes on knowledge (author's and patent right, the laws protecting intellectual property);

− incubators, innovative zones, technological parks, exchange.

−exchanges of technological companies and features of price formation in them;

− innovative managers;

− consulting companies;

− judicial system (performance of contracts);

In each of the listed institutes there is a mass of the peculiar features, requiring special preparation for their development.

However, for a wide segment of the population such concepts as "inseparable knowledge", "reputation", "brand", "patent", "license", "competence", "ability" are very dim. In practice, it leads to misunderstanding, deception and similar things. Therefore educational activity in this direction is an important component at formation of innovative environment, especially in the company of living in recent times at planned conducting of managing.

2. Modern society and paradoxes of innovative development

The economic world is arranged in such way, that any progress in the field of technologies, a grocery variety, ways of the organization of production and management is carried out through rejection or a correction of existing knowledge and creation of new knowledge, in something more

effective and perfect in comparison with the available. The modern stage of innovative development in this regard differs nothing from the previous.

Another thing is, that evolution of knowledge leads to high-quality changes in economy and eventually finds additional acceleration. The innovative progress in the economy is also accelerated. Meanwhile, the economic mainstream is rather poorly reacts to these processes. It is interested in all features of achievement of equilibrium states, instead of how they are broken under the influence of the competition and innovative development. There is a question of adequacy of a mainstream to realities of economic practice and evolution inside economic theory.

The paradox of modern post-industrial society is the following: the fundamental economic science in the countries which have achieved success in area of innovative progress, still is in captivity of the orthodox theories, inadequately describing features of "technologically progressing market economy".

However the existing outlook is resisted by the evolutionary economic theory which considers economic development as irreversible process increase of complexity, variety and efficiency of a production due to periodically repeating change of technologies, types of production, the organizations and institutes (rules of behavior, according to D. Nort) [10,11,12].

The evolutionary theory perceives technologically progressing economy as the self-organizing system which action is caused considerably by its intellectual resources, evolution of knowledge and that is important, activity of the innovators transforming intellectual products to the new benefits.

First aspect. Orthodoxes and evolutionists differently treat essence of economic subjects. For orthodoxes all subjects are rational, maximize profit and strive for balance. In this sense all subjects are uniform. For evolutionists the similar uniformity is insignificant and, moreover, isn't indisputable.

As evolutionists pay paramount attention to development as a process of high-quality changes, they are interested in the distinction between those subjects, who carry out changes of this sort interests, and subjects which counteract changes and eventually become victims of changes. So, according to Y. Shumpeter, all great number of subjects can be divided into two groups:

− innovators who trace evolution in system of knowledge and on this basis project, develop and introduce new technologies and products, create new firms, modernize old firms or influence changes in institutional structure of economy;

− conservatives who are indifferent to evolution of knowledge, use available technologies use, make "old" types of production, work within the developed firms, aspire to invariance differently institutes [13].

We will note that fact, that economic subjects, depending on, whether they are innovators or conservatives, submit to the different purposes and behave themselves in different way. Innovators are less rational, than conservatives because their behavior generates the condition of uncertainty, excluding possibility of rational behavior. They consciously break the balance whereas conservatives try to keep this state.

At last, innovators really maximize profit (because they aspire to excess profit from innovations) whereas conservatives try to keep its reached level.

Second aspect. If orthodoxes (neoclassics) as an ideal market model consider the model of the perfect competition where all characters aspire to Pareto's so-called Pareto's − an optimality, it` necessary to say, that evolutionists represent the market differently. They perceive the market as main system, where are the following driving forces: processes of balance violation e, i.e. processes, which are directly inverse to the principle of Pareto-optimality.

According to M. Blaug — well- known expert in the field of methodology of economic science, "the perfect competition — extremely the wrong concept... the competition — is a phenomenon of balance violation, i.e. a disbalance phenomenon, while the theories of the general balance according to K. Errou and Zh. Debre... of welfare are directed on the analysis of a final equilibrium state, instead of judgment of the competition as dynamic process" [14].

Though Blaug doesn't carry himself to evolutionists, he precisely reflected the main position of the evolutionary economic theory: progress is moved by nonequilibrium processes. This theoretical position is not a result of abstract reasonings, it results from real economic life. Really, from economic practice we learn, that starting point of generation of nonequilibrium condition is the competition in field of knowledge. Everything begins with "production" of more effective scientific ideas: new ideas displaces the old.

Then, new ideas are picked up by innovators, and unbalance passes from the sphere of ideas into the production sphere. The competition in this sphere leads to any high-quality changes, to change of old economic designs by new. Also it is unbalanced process. New requirements exceed for some time the possibilities of new production.

However, the market economy is arranged in such a way that this excess (disbalance) in each time point is "hidden" behind balance of supply and demand. The mechanism of the prices works, and this fact is decisive for the orthodox theory. Nevertheless,

the prices in itself don't destroy a market disbalance. They develop in a nonequilibrium situation.

Thanks to this information, eventually the disbalance disappears because the economic subjects, copying innovators and sating unsatisfied new requirement appears..

But thedisbalance remains for a while, it assumes monopolism of innovators in the field of their activity. This monopolism, as Shumpeter noted, is incompatible with model of the perfect competition. Monopolism, a disbalance and innovations — the connected concepts. And this communication eventually is shown in formation of excess profit from innovations.

Certainly, innovators do not know in advance what this excess profit will be and whether will it be in general. Here the factor of uncertainty, caused first of all by competitive fight between innovators and conservatives, and also in group of innovators works. Uncertainty generates innovation risks. However, these risks are inevitable, and they will be quite coordinated with the nonequilibrium nature of innovative excess profit. To these explanations we will add three more.

1. If the orthodoxy "looks" at economy from positions of statistic balance or equilibrium economic growth, the evolution theory pays attention that fact, the competitive market economy surely has to be nonequilibrium. Unfortunately, this distinction "served bad service" to evolutionists. The orthodox (equilibrium) treatment was more convenient for mathematical modeling, than evolutionary. In any case, models gained the greatest distribution in economic literature whereas creation of models of evolutionary type is in an embryonic state. In our opinion, this circumstance to a certain extent predetermined alignment of forces in the modern fundamental theory.

2. Serious problem of economic science is its "clannishness" and dissociation. Evolutionists don't want to agree with argument of orthodoxes, and orthodoxes — with evolutionists. Meanwhile, opposition of these branches of economic science could disappear or take softer shape if their representatives agreed with that obvious fact that the movement to balance, and violation of the last is equally inherent in economy. Everything depends on foreshortening of economy. Understanding of this polyhedrality has to prevail sooner or later over scientific ambitions. Therefore, future development of economic science can follow the way of synthesis of evolutionary and orthodox theories.

3. As representatives of technological (innovative) business in the West countries quite do without services of fundamental economic science, opposition of orthodox and evolution theories has more likely informative value, than practical. And the evolutionary theory seems far from economic practice, as many tasks of this theory are formed in the language not clear for practicians.

However, we will notice, that the huge army of the economists serving in various corporations, firms, financial structures, etc., daily solves many problems of evolutionary type, but in own language. In fact, these experts carry out the applied evolutionary analysis of concrete aspects of innovative progress, in particular, in the field of high technologies.

3. Breakthrough innovations and applied evolutionary analysis.

From the point of view of the evolutionary theory, transition to essentially new technologies (especially at its initial moments) depends not on the prices and solvent demand, and on needs of the economic subjects interested in these new technologies, i.e. innovations that we noted earlier.

The producer of essentially new technology (innovator) doesn't foreknow what will be requirement of the market. Therefore, traditional analytical methods of decision-making " make or not to make don't work here. However, if the innovator decides to pass to this technology, conservatives start losing positions in the market.

We will address to J. Bauer and K. Christensen's research in the field of management of change process of high technologies of firms (corporations) [9]. It is guided mainly by empirical data on development of information technologies in the USA in 1970 — the 90th years. Authors asked a question which is actual today also for the Russian economy: why companies-leaders practically in all branches of the American economy and especially in computer branch of the leading company, as a rule, can't hold the won positions if technologies or the market change.

The answer is paradoxical: "The leading companies die because of one of the most popular and useful administrative dogmas: need to be closer to their clients". Having conducted numerous examinations of the leading companies (IBM, Xerox, Digital Equipment, Apple Computer, etc.), authors came to a conclusion that "the majority of well operated, strengthened companies are in the lead in the branches in development and introduction of new technology if these technologies are addressed to future needs of their clients. However, the same companies seldom are in the lead in introduction of new technology which don't answer the desires of the majority of their present clients and are intended only for the small or new markets".

The reasons of such behavior consist first of all in those rational analytical methods, which are applied at investment of innovations. In well operated companies, methods of definition of consumer

preferences, forecasting of technological trends, an assessment of profitability, distribution of resources between alternative investment projects and decision-making about production of new products are focused on clients already available for the companies and the markets. "These methods are created to get rid of those offers of products and technologies which aren't addressed to needs of present clients".

Other reason is connected with behavior of managers of the leading companies. It would seem, managers have to pay due attention so-called breakthrough (i.e. essentially new) innovative technologies which don't meet needs of their clients in the beginning, because in separate parameters they are worse than existing technologies, or clients didn't manage to realize appeal of breakthrough technology yet. However, it is not easy for managers to make it.

The problem consists of the fact, that managers continue to do that things, which worked earlier: serve only quickly growing needs of their clients... As manager estimate on their ability to do sure bets, it is not a surprise, that in well operated companies managers of average and a highest level support those projects in which the market looks guaranteed.

In J. Bauer and K. Christensen's works, in our opinion, generalizing recommendations how to distinguish innovative technologies and how further to work with them represent the interest [1].

We will bring them in summary form.

− One of approaches to identification of breakthrough innovative technologies are served by the analysis of intra firm contradictions concerning development of a new product or technology. As a rule, they appear between marketing specialists and financiers, on the one hand, and leading technologists (engineers) — with another.

− If competent technologists consider, that the new technology will develop higher speed (process of improvement of qualitative characteristics), than rate of increase in needs of the market, it means, though it doesn't satisfy inquiries of the client now, it will be able to satisfy them in the future. In this case, the breakthrough technology is extremely necessary.

− it is possible to define the initial market of breakthrough technology only by means of creation of information on such markets that supposes answers to questions of the one who becomes the consumer of the new production, what its characteristics are most important for the potential of consumers what will be its price. Managers can create such information, only having carried out a series of experiments both with a product, and with the market. Ways of experimenting are various, from small production of any goods (technology) to monitoring of information on the companies pioneers.

− according to authors, large leading company shouldn't allocate in the independent organization the divisions, connected with further development of already being applied technology, and even production of breakthrough technologies if the last are more attractive from the further point of view, than now in use.

Creation of the separate organization is necessary, only if the breakthrough technology is characterized by lower rate of return, than the main business, and is intended for satisfaction of single requirements of new group of consumers. The large companies can dominate in the appearing new markets, only creating the small organizations.

What to do when the new market becomes big, and small organization is commercially viable? Many managers believe that such organization should be included in structure of the main company as its constant expenses can be carried on bigger quantity of products and consumers.

Bauer and Christensen keep the other point of view. They consider, that the company has to consist of a set independent business−units, and their existence is final. One business−units only arise, others — are in a blossoming stage, the third — die. To alive, the corporation shouldn't stir development young business−unit sand in due time close the dying. "If the corporation doesn't destroy them, it will be made by competitors".

Conclusions are interesting to that closely intertwine with results of researches of other western economists paying attention to a role of small business not only in development of breakthrough innovative technologies, but also in the solution of other social and economic problems.

According to D. Berch's data, the considerable part of new workplaces is created by firms - "gazelles"" (the enterprises with initial sales volume from 100 thousand dollars and annual growth rate of the income not less than 20%; the majority of "gazelles" — to 97% is among small firms). In 1990 — 1994 in the USA they created 5 million workplaces. At the same time, the general increase in employment taking into account the lost workplaces made 4,2 million people.

Such results caused ambiguous reaction of economists, as from the point of view of the orthodox theory smaller expenses and big profits are peculiar to major companies, and therefore, apparently, they have to have advantages at expansion of production and creation of new workplaces. However, as A. Kantarbayeva notes, the effect opened by Berch, has no any relation to orthodox theory, and represents the nonequilibriumphenomeno, i.e. is described by the evolutionary economic theory.

Conclusion.

The applied evolutionary analysis of problems of growth, employment, innovations, investments plays an important role and will play the increasing role in economic activity both in post-industry society, and in economy of Russia today. One of tasks of the evolutionary economic theory is to rely on understanding of economy of knowledge as the generator of the unbalanced processes, to generalize results of this analysis and to form the innovative environment as an economic component at the market relations in society.

Summary.-based on realistic situation it is necessary to maintain the consistency of transfer from raw- to innovations-oriented economy, whilst making a favorable innovation environment where the results of scientific achievements will grow;

-using various recommended by science approaches for detection of breakthrough innovations, it should go deeply into the inner firm contractions about new product or perspective technology development;

-for implementation of new technologies it is rather appropriate to use the methods of consumers preferences by forecasting the technological trends, estimation of proceeds, allocation of resources between alternative investment projects.

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