

The Revision of Approaches to Innovative Analysis

Kulikova L.I.^a

Nesterov V.N.^b

Vakhotina D.A.^c

Yakhin I.I.^d

^{abcd} Kazan Federal University, Institute of Management, Economics and Finance, Kazan, 420008, Russia
Email: vakhotinadaria@gmail.com.

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Abstract

This article discovers main approaches and instruments of Russian innovative analysis and policy focusing on Volga region. Main theoretical and methodological opinions will be discussed. The national economy development within postindustrial times placed a priority on the maintenance and implementation of the industrial enterprises potential. The latter act as "growth points" of the region's economic area, transform its structure and provide progressive dynamics of mezeconomic indicators. Innovative development is modern key to economic growth.

Keywords: Innovations, Tatarstan, development, cluster, IT.

1. Introduction

Volga region high dynamic region of Russia, one of two centers of chemical, petrochemical, motor building. It's also third centers of science with heart in Kazan (Volga region) Federal University.

Investment interest in the region has also been driven by the Tatarstan government's emphasis on fostering innovation and nanotechnology. The republic is home to a network of technoparks featuring state-of-the-art infrastructure, including the Khimgrad Technopolis, the Idea Technopark, IT Park and modern business incubators located throughout Tatarstan. A further milestone in the region's development is the expected construction of an IT Village, which will offer high-tech facilities and a modern social infrastructure to facilitate the work of professionals in such fields as biomedicine, energy, information technology, nuclear power and other technologies.

The Republic of Tatarstan faces challenge of innovative development. So that this study is topical.

Aim of this article is to observe main theoretical approaches to innovative development of Volga region.

2. Methodology

All scientific views on innovation development might be divided in two groups – macroeconomic and microeconomic.

Brilliant representatives of macroeconomic view school such as N.G. Bagautdinova, L.N. Safiullin, A.V. Sarkin basically study contemporary conditions of innovative activities in Volga region – interest rate, protection of intellectual rights, number of researches [3].

Scholars of second school analyze economic value added of venture activity, methods of selection and acceleration of startups and others. To this school belong A.N. Bulatov, G.S. Klychova and others.

Macroeconomic school:

Scholars of this school argues three theses:

- In the economic should be settled paternalistic strategy with the account to the principles of behavioral economy;
- Clustering and link of economic and science enhance effectiveness of innovation development;
- Progressive evolution of technologies requires involve three parties – Government, Enterprises and Universities.

Microeconomic school argues more quantities data of each projects.

3. Results

Paternalistic strategy

Innovations require large cash flows therefore two models of innovations funding appeared. According to the first model companies like Apple and Google invest in technologies themselves. By the second model Government provides guarantees of funding.

For example, Japanese “dzajto” model means that Government issues bonds and loans to provide credits in preferable sectors such Energy, Communications, Pharmaceutical. Low interest rate settled by the government give a specific “signal” that launches a boom of private investment. This approach is well known as Paternalistic strategy.

In the conditions of turbulence of market economy the need of economic agents for the institutional design providing decrease in the level of information asymmetry is formed. However, strong institutes as the result of their planning and design can have self-supporting inefficient character which hinders the progressive development of economic and social indicators (“effect of blocking”) [10]. The technical-technological factors causing change of technological mode act as a necessary source of inefficient institutes, namely: post-industrial society characterized by the realization of product, administrative and technological innovations which defines high uncertainty and stochasticity of economy, and also risk increase as a quantitative index of this uncertainty. Along with technical-technological factors the existence of plurality of cognitive and behavioral anomalies acts as a necessary condition of nascence of QWERTY-effects [2].

The analysis of the state regulation measures of Russian economy in general, the industrial complex in particular, and the assessment of results of their implementation applying the methodological approach offered. In this work showed that there stay unresolved tasks connected with the transition from resource-oriented to innovation-focused type of development characterized by overcoming the inherent economic structure and by the formation of effective institutes. Thus cognitive and behavioral anomalies initiating the formation of institutional traps serve as the reason of low efficiency of state regulatory control measures towards the economic processes. In this respect it seems necessary to implement the methodical approach based on the principles of new paternalism according to which the state has to implant the normative standard into the structure of subjective preferences of economic agents. The content of this standard is defined by the vector of post-industrial economy development and based on refusal from methodological individualism in favor of the principle of complementarity of individual and social benefits. The basic parameters of the forecasting scaling factor formed for the assessment

The basic parameters of the forecasting scaling factor formed for the assessment of the current state and development prospects of an industrial enterprise [7] in the conditions of new paternalistic economy, which are treated as the initial parameters for three-level perception, are the integral criteria characterizing financial activity of an industrial economic entity, productivity and quality of client relations, efficiency of internal business processes, dynamics of training and organization development with the account of the importance of specific factors defining the trend of the industrial enterprise development in the conditions of the type of economy under research [12] (fig. 1).

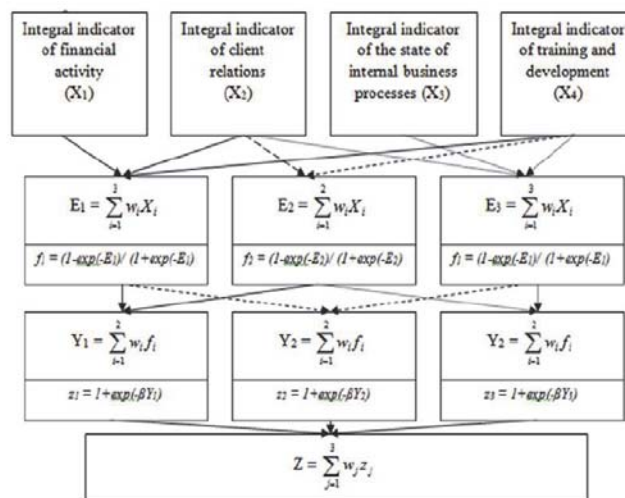


Fig.1. Three-level perception of forming the scaling factor of forecasting the results of industrial enterprise activity in the conditions of new paternalistic economy

Thus, the necessity of the development and implementation of paternalistic strategy of the industrial development according to methodology of behavioristic economy is determined by cognitive and behavioral anomalies adjusted as a result of state implantation of normative standards into the structure of subjective preferences of economic agents which causes application of measures of the direct influence limiting the opportunities for an individual choice at a high risk level of irrational behavior, and the measures of indirect influence adjusting the individual choice of short-term benefit, interfaced with high expenses in the long-term period. It proves that the inefficiency of applied measures of state regulation is determined by the lack of adaptable mechanisms in the national economic system the formation of which presupposes the necessity of formation of paternalistic strategies with the account to the principles of behavioral economy.

Clustering and link of economic and science enhance effectiveness of innovation development

Economic development is closely connected with development of science and technology. Long process of accumulation of scientific knowledge with definite time range – in the form of scientific discoveries – is implemented in technical and technological innovations, which, in its turn, leads to changes in methods of business activities management on enterprises and in macroeconomic mechanisms of regulation used by the state [4, 1].

Level of information support is the most important indicator of competitiveness of countries in modern economics. A lot of authoritative international organizations, such as World Bank, Economic Forum in Davos, United Nations Conference on Trade and Development of United Nations, UNESCO, Paris Institute of administration (INSEAD), International Telecommunication Union (ITU) and others take part in making of rating of readiness of countries for information society (network economics). Building of indexes of participation in network economics is one of the way to compare countries concerning the level of information support. In five most common ratings (DOI – Digital Opportunity Index, NRI – Networked Readiness Index, Information Society Index - ISI, Digital Access Index - DAI, Monitoring Index of Digital Divide) reciprocal rating of countries is approximately the same. Comparative analysis of range of 10 countries in different indexes of readiness for network economics is presented in table 1.

Table 1. Comparative analysis of 10 countries in different indexes of readiness for network economics [8]

Country	DOI	NRI	ISI	DAI	DIVIDE	TOTAL
India	10	7	10	10	10	47
China	9	8	9	9	9	44
Russia	8	9	8	8	8	41
Poland	7	10	7	7	7	38
USA	6	2	4	6	4	22
Hong Kong	2	4	6	5	5	22
South Korea	1	6	5	3	6	21
Netherlands	5	5	3	4	3	20
Sweden	4	3	1	1	1	10
Denmark	3	1	2	2	2	10

It is evident that possibilities of the countries concerning formation of information economics with GDP per capita of more than \$20000 and less than \$2000 are incomparable. In this connection for estimate of effort of governments for creation of necessary conditions of transition to information economics it is important to know how much wish and support of the country in preparing for network economics are in advance of its GDP. The results were the following: South Korea, Taiwan, Hong Kong, Singapore, Canada, China, Russia, Poland. Rich countries – the USA, Switzerland, , France, Belgium, Germany, Great Britain, Italy, Austria – as well as some comparatively poor countries – South Africa, Mexico, Venezuela – pay less attention to network economics infrastructure development than GDP allows them.

In the research process the following correspondence of ration of DOI index and GDP per capita is defined [9]:

$$DOI = 0,1227 \ln(GDP) - 0,6298, \text{ with } R^2 = 0,8573.$$

Real large-scale informational support of society is necessary so the volume of information will be effectively used for solution of real problems. Its implementation requires special information policy on all levels (national, industrial, regional).

Progressive evolution of technologies requires involve three parties – Government, Enterprises and Universities

L.N. Safiullin, A.M. Fatkhiev, K.A. Grigorian rightly argue the advantages of triple-helix model of innovative cooperation [12].

The Triple Helix symbolizes a union between government, business and university, which are the key elements of innovative system in any country. (Fig.2)

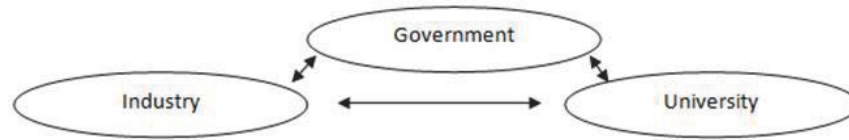


Fig.2. Tripple Helix model

A government-pulled the triple-helix model of innovation has the following characteristics:

- Government initiates and controls significant projects for social innovations;
- Most research universities and large-scale enterprises are affiliated to government;
- The top leaders' ideas and thoughts give direction and government policy and resolution are the batons to carry out the leaders will;
- Government organizes primary innovation agents, such as high-tech development zones (including incubators, science parks), technology and intellectual property markets.

Also such government that undertakes measures on triple helix model implementation has some advantages and disadvantages [6].

The advantages:

- Much more easier to achieve large-scale innovation projects;
- Protecting university interest in entrepreneurship through policies;
- Consensus forming in regional innovation;
- Artificially fostering university-industry links by government authority;

The disadvantages:

- University-industry joint innovations tending to be "shows", rather than real ventures – after all personnel, equipment and funds in the two parties are both from the state;
- University and industry possibly losing the flexibility to deal with problems in the innovation process;
- The government's needing to "pull" university and industry forward [11].

Therefore, that Kazan macroeconomic school of innovative development provide comprehensively approach to the innovation development. The mail idea is to cluster the economics of region and then settle "grow points" under Triple Helix model.

This concept applied in KFU via settling joint venture with "Nizhnekamskneftekhim".

4. Microeconomics

Great example of microeconomics approach represented by A.N. Bulatov [5] and others. He argue the effectiveness of "Enterprise factory" – Volga region startups accelerator.

It is quite difficult to estimate quantitatively the efficiency of the proposed project "Enterprise factory", because the constituent parts of the foreseen measures are targeted at the generating of the long-term effect. Nevertheless, for the new investment projects it is effective to use the following formula of the efficiency estimation:

$$K=NPV+S+B+C$$

Where K – complex efficiency of the innovative projects, realized under the educative and communicative initiatives of "Enterprise factory";

S – social efficiency of the project. For example in the form of the summary discount salary fund

B – discounted budget efficiency of the project;

C – indirect economic efficiency of the project for the associated connected branches of regional economy.

We estimated the effective of this project as 100 thousand dollars.

5. Conclusion

This article examined general approaches to the innovation development. All scientific views might be divided in two groups – macroeconomic and microeconomic.

Scholars of Macroeconomic school argues three theses:

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Researches of Microeconomic school focus on value added of projects.

Further development of innovation analysis provide growth of competitiveness.

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