MORE PRECISE DEFINITION OF A NOTION OF ENTERPRISES' INNOVATION ACTIVITY

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Abstract

The innovation activity of enterprises is declining. From our point of view, the reasons for this lie not only in the absence of demand for innovations, but also in the legislation complexities and the lack of resources. There are a lot of interpretations for the notion of innovation activity and the methodology of its evaluation. However, these approaches are controversial and do not stimulate growth of the innovation activity. From the methodological point of view, the notion of innovation activity, which would allow setting quantifiable parameters, is not specified.

Our approach to specification of this notion is based on the system approach (IDEF0) and on such its components as input, output, management, and resources. According to this, innovation activity may be characterized with the help of the following components: innovation perceptivity (input), efficiency (output), resource endowment, and degree of legislative assistance.

In the future the specification offered in this article will make it possible to develop a system of factors designed not only for evaluation but also for planning and stimulation.

Key words: innovation activity, innovation, economics of innovation

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Introduction

The government of our country has repeatedly drawn attention to the fact that Russia has a raw-material economy, thus putting forward a slogan of changing priorities and switching to an innovation way of development[1]. The fact that our economy has raw-material orientation is

[1] http://www.kremklin.ru/news/5413 (10.09.09).

confirmed with the World Trade Organization statistics[2]. In 2008 Russia ranked No. 9 in the world export of goods (2.9%) and No. 22 in the world export of commercial services (1.3%). At the same time Russia caters for 25% of the world demand for natural gas, 10% of the world demand for oil, and 12% of the world demand for coal[3].

Despite almost in variable percentage of expenses on financing science through the Federal budget[4], the number of brand new manufacturing technologies is decreasing. In 2008 the number of such technologies reduced from 75 to 54. It is also worth mentioning that the innovation activity of enterprises fell. Within two decades (from 1992 up to 2011) the number of scientific research institutions in Russia has decreased by almost 20% (from 4555 up to 3682), and the number of industrial entities that have scientific research and engineering design departments has decreased by 18% (from 340 up to 280). The number of design bureaus fell by a factor of 2.4 (from 865 up to 364), and that of engineering companies– by a factor of 13 (from 495 up to 38).

To our opinion, the decrease of the enterprises' innovation activity is stipulated by the following factors: underdevelopment of demand for innovations; complication of external environment and globalization; appearance of more prioritized tasks in the volatile economic environment, and some other factors. Besides objective factors, we lay a great emphasis on complexity is caused by a great variety of techniques and parameters, as well as the predominance of qualitative approaches to measuring, and the vagueness of classification of innovations.

The timeliness described above conditioned the purpose of the present research and its objectives, namely: analysis of the current state of the enterprises' innovation activity and specification of the notion of innovation activity with the aim to subsequently develop the system of factors.

1 Analysis of modern approaches to evaluating the innovation activity of Russian enterprises

The innovation activity of enterprises is one of strategically important factors of theircompetitiveness. The given issues have been touched upon in the research studies of the leading foreign scientists such as M. Kiernan, C. Christensen, P. Senge, A. Slywotzky and D.

[2] WTO «WorldTrade 2008, Prospects for 2009» //http://www.lotpp.ru/vto.153.
[3] Promishlennie vedomosti №3-4, 2009/.
[4] Russia in figures, 2009. Federal State Statistics Service//www.gks.ru.

Morrison, F. Janszen, J. Schumpeter, G. Mensch, J. Van Dejn, and Ch. Freeman. Innovation activity has also been studied by such Russian scientists as F.F. Bezdudniy, S.V. Valdaitsev, G. Ya. Goldstein, P.N. Zavlin, S.D. Ilyienkova, A.K. Kasantsev, N.D. Kondratiev, G.A. Krayukhin, V.V. Kobzev, N.P. Maslennikova, V.G. Medinskiy, L.E. Mindeli, Yu. P. Morozov, A.I. Prigozhin, K.F. Rumyantsev, V. A. Ustinov, A. N. Tsvetkov, Yu. V. Shlenov, and Yu.V. Yakovets.

The interpretations of a notion of "innovation activity" found by us have been summarized in Table 1.

Tab. 1: Interpretations of a notion of "innovation activity"

Notion of innovation activity	Source
Complex description of innovation activity of a company, including the intensity degree of actions being carried out and their timeliness, as well as the ability to sum on the potential of necessary quantity and quality.	Polyakov V.V. Scientific establishment innovation activity criteria: Analysis findings. Moscow, 2009, 54pp.
Degree of intensity of the enterprises' actions to create innovations and to implement them in practice. The criteria, allowing evaluating the innovation activity of a given enterprise, are the following: intellectuality, innovativity, and innovativeness.	Nikitina O. V. Methods of evaluating the innovation activity of enterprises // Synopsis of a thesis for getting a PhD in economics. Saint Petersburg: SPbGIEU, 2007.
Complex description of innovation activity intensity based upon the ability to summon the innovation potential.	Bogdanovskiy E. M. Formation of a higher educational institution management system on the basis of evaluating the innovation potential //Synopsis of a thesis for getting a PhD in economics. Saint Petersburg: SPbGUAP, 2009.
Complex description of innovation activity, including the degree of intensity and timeliness of the actions being carried out, the ability to sum on the potential of necessary quantity and quality, including its hidden parts, the ability to provide justification and progressiveness of the applied methods as well as rationality of technologies.	Piven A.V. Evaluating and managing the innovation activity of industrial enterprises (as exemplified bythe enterprises of the Khabarovsk Territory) // Synopsis of a thesis for getting a PhD in economics. Khabarovsk, TGU, 2009.
Complex description of innovation activity of a company, including: perceptivity to innovations, based upon the competence in the issues of progress within the given type of activity; degree of intensity of actions being carried out to transform an innovation and their timeliness; ability to sum on the potential of necessary quantity and quality, including its hidden parts; ability to provide justification of the applied methods; rationality of innovation process technology interms of structure and operation sequence.	Gilyardi Yu. A. Managing the innovation activity of business entities within the market environment // Synopsis of a thesis for getting a PhD in economics. Velikiy Novgorod, NGUnamed after Yaroslav the Wise, 2009.

Notion of innovation activity	Source
Complex description of innovation activity of a company, including: perceptivity to innovations (property of a consumer of an innovative product) based upon the competence in the issues of progress within the given type of activity; degree of intensity of actions being carried out to transform an innovation and their timeliness (property of a supplier of an innovative product); ability to sum on the potential of necessary quantity and quality, including its hidden parts; ability to provide justification of the applied methods; rationality of innovation process technology in terms of structure and operation sequence. The innovation activity characterizes readiness to renew the basic elements of the innovation system – its knowledge, techniques, information and communication technologies and the terms of their effective application (structureand culture), as well as their perceptivity to everything that is new.	Barancheev B.P. Measuring the innovation activity of a company as its competitive force //Management today, № 4, 2005. http://innovatika.boom.ru/Innov_act.htm (8/04/10)

Table 2 illustrates the comparative analysis of notions described above.

Tab. 2: Comparative analysis of the notions of "innovation activity"

Feature	PolyakovV.V.	NikitinaO.V.	BogdanovskiyE.M.	PivenA.V.	GilyardiYu.A.	BarancheevV.P.
Object	Scientific establish-ment	Enterprise	Higher educational institution	Enterprise	Business entity	Company
Complexity	□		□	□	□	□
Activity	□	□		□	□	□
Perceptivity					□	□
Intensity	□	□	□	□	□	□
Transformation					□	□
Timeliness	□			□	□	□
Summoning of potential	□		□	□	□	□
Rationality				□	□	□
Readiness to renewal						□
Practical implementation		□				

The following conclusions can be made on the basis of the comparative analysis of the given notions:

- Irrespective of the type of the object, the authors agree upon the interpretation of the "innovation activity" notion, taking notice of the complex nature of activity, possessing intensity and timeliness, and summoning potential in a rational way;
- In general, the authors don't take into account perceptivity and readiness to renewal as necessary but insufficient condition for the innovation activity. Almost all authors, except Yu. Gilyardiand V. Barancheev, don't take into consideration the transformational nature of the innovation activity as well;
- Part of the authors note the rational nature of innovation activity, and that offers the possibility of paying attention to algorithmization and development of different techniques;
- V.P. Barancheev draws attention to innovation activity – both as process and perceptivity – as readiness (or potential) of the object to implement it.

Such kind of distinction gave to V.P. Barancheev the possibility to distinguish fourcomponents of innovation activity[5]:

1) K1 – innovation perceptivity – innovation activity of a consumer of technologies andmethods, products, services and resources;

2) K2 – resources endow – innovation activity in searching, preparing and using the resources;

3) K3 – quality of communication and innovation process – innovation activity in organizingprocesses and organizational forms;

4) K4 – measure or depth (level) of competence – innovation activity of the supplier.

V.P. Barancheev mentions "black box" approach. We agree with that and notice that the components in some way correspond to the system analysis elements. In accordance with the IDEF0 methodology, system has inputs and outputs, resources and controls (Input, Output, Control, Mechanism). Innovation activity may then be considered an activity transforming the input (K1) into the output (K4) with the help of resources (K2) and directed by the organizing factors (K3). Although we would not regard the last mentioned factor – "innovation activity in organizing processes and organizational forms" – as a means of

[5] Barancheev V.P. Measuring innovation activity of a company as its competitive force //Management today, №4, 2005.

control. To our opinion, such parameter as degree of legislative assistance / hindrance to innovation activity would be more feasible here.

In the value chain the result of the previous activity is an entrance into the subsequent process of transformations. Therefore, perceptivity is a degree of the object's readiness to transform the results of previous innovation processes/products. Hence, perceptivity is a feature of input whereas degree or depth of competence is a property of the system output.

Inspite of the fact that the object of consideration is an enterprise, we may address to the objects of a higher level, for example, a region, in order to specify the terms. Two types of parameters are used while drawing up the rating of innovation development of the regions[6]:

1) Innovation perceptivity: workforce productivity, capital productivity ratio, ecological compatibility of production;

2) Innovation activity: research and development costs per one working person, technological development costs per one working person, innovative products output per one working person.

As it has been noted in the technique of drawing up a rating, the first group of factors characterizes technological profitability of the regional economy, whereas their second group characterizes its product profitability. Hence, innovation perceptivity is a necessary but insufficient condition of innovation activity, because, in the context of system analysis, it characterizes only the system input.

From our point of view, in the context of system analysis the innovation activity is defined by four parameters:

1) Innovation perceptivity (input),

2) Resources endow (resources),

3) Degree of legislative assistance / hindrance to innovation activity (control),

4) Efficiency of innovations (output).

Conclusion

1. We suggest that the innovation activity should be defined through the following system parameters: input, output, resources, control.

[6] Drawing up innovation development ratings of the regions of Russia and making recommendations on the stimulation of innovation activity of the Members of the Russian Federation/www.urban-planet.org/article_13.html.

2. To our opinion, the system parameters set the following characteristics of the innovation activity: efficiency, perceptivity, resources endow, and degree of legislative assistance.
3. The suggested characteristics will give us the possibility to select measurable parameters of innovation activity and to evaluate its maturity degree in different subjects.

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