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A Rationale for development of innovation management business model at mesoeconomic level

Olga V. Markova
Volga Region State University of Service, city of Togliatti, 4, Gagarin Str. Department of Management
Olga@mail.ru

Abstract

The goal of this study is to furnish a rationale for networking forms of economic agents' integration as a promising method for improving the management of innovation trends in Russia's economy. Utilizing the method of rank evaluation of normative performance scores, I reveal that the innovation potential of the mesoeconomic system is being put to use ineffectively. In conclusion, a network is the most effective form of object organization in innovation-related systems. For instance, innovation dynamics in horizontal networking links between research institutions and businesses differ dramatically from that occurring in hierarchical or market relations.

Keywords: Integration, Balance, Innovative Development, Clusters.

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Una justificación para el desarrollo del modelo de negocios de gestión de la innovación a nivel mesoeconómico

Resumen

El objetivo de este estudio es proporcionar una justificación para la integración de formas de redes de agentes económicos como un método prometedor para mejorar la gestión de las tendencias de innovación en la economía de Rusia. Al utilizar el método de evaluación de rangos de los puntajes de desempeño normativos, revelo que el potencial de innovación del sistema mesoeconómico se está utilizando de manera ineficaz. En conclusión, una red es la forma más efectiva de organización de objetos en sistemas relacionados con la innovación. Por ejemplo, la dinámica de la innovación en los enlaces de redes horizontales entre las instituciones de investigación y las empresas difiere drásticamente de la que ocurre en las relaciones jerárquicas o de mercado.

Palabras clave: Integración, Equilibrio, Desarrollo Innovador, Clusters.

1. INTRODUCTION

Today we can see many a program at work aimed at supporting pilot clusters, technology parks, business incubators and other support institutions fostering innovation in Russia's economy. In the context of the ever increasing financial crisis in the country, what is needed is a shift in the management model from bureaucratic to business-like based not on allocation and distribution of budget money, but on

effective partnerships between government, business and science. However, as long as no balance and proper integration are introduced in the work of such business entities in a particular region or territory, no positive effect will be accomplished. Another important aspect of the whole story is that such integration as a process does not need to be initiated by public authorities in a centralized way; it must be the desire and aspiration coming from below, from key innovation users, i.e. businesses and companies whose demand for innovation can be only identified and specified in the process of interaction, who are forced to effectively use their recourses and develop their innovation capital (Wolpert, 2002).

The pilot clusters supported by the government, having large production enterprises in their centre, are not conductive to the creation of competitive environments within this highly integrated complex. All this does not foster the emergence of favourable conditions for and incentives to develop entrepreneurship thanks to an overflow of knowledge and innovations. Consequently, what needs change is the approach to management that, first and foremost, is to become innovative, balanced and providing for the interests of all participants of the integrated complex. In contrast to the common view in Russian literature of innovation management as relating to a particular (specific) function of managing innovations, we argue in favour of a wider perspective on innovation management as a concerted interactive collaboration of business, government, science and society aimed at fostering continuing positive economic change.

Drucker (1993) once wrote, and this assertion can be related to innovation potential: Equally, everything that increases return on the input of already existing resources can be called innovation. In my view, nothing is more helpful in boosting return on available resources than professional and efficient management of the process, whose innovative development has to outpace the development of all other resources. In accordance with the common international understanding (Oslo Manual) innovations relate not only to products or technology, but also to marketing, organizational and managerial practices; not only to research and development of new products and services, but to infrastructural, social and environmental development. What the suggested concept of innovation management builds on are not the tenets of the evolutionary theory by Schumpeter (2008) based on the idea of creative destruction (when innovators deprive conservatives of resources), but the co-evolutionary theorizing by Kleiner (2004) who assumes asynchronous development of two economic agents being regulated by a third agent (coordination centre). This will be possible only if partnerships are established in horizontally integrated complexes with flexible structure and a coordinating centre to effectively deliver innovative services to the participants of the network and to realize key competencies of the region.

The author of the present paper believes that we will see no innovative development in the Russian economy without appropriate initiative and interest from all business entities within the mesoeconomic system, since purely administrative methods of innovation implementation are improper at this level and in this context. The growth and expansion of the innovation sphere, which began with establishing scientific innovation structures by the government, can be further fostered in the form of active

support to all initiatives by innovators on the grassroots level. The hypothesis I put forward here finds support in the European experience of setting up and developing integrated industrial innovation complexes. According to Marvy Kaicky, universities and research facilities can account today for no more than 4 percent of knowledge-intensive start-ups, despite the existing network of know-how commercialization centres. 96 percent of all innovation projects emerges in private enterprises. It is only striking that - as our surveys demonstrate - if you rely on conventional methods and approaches, i.e. try to push your technology to the market, the whole project cycle can take 10 years to complete, at the least. If it comes to biotechnology or some other areas, this period can extend to 15 and even 20 years. On the other hand, when the initiative comes from businesses, the time is halved, on average. Innovation is what has to be created within the market and according to its needs. We have to enhance and support the processes and ideas generated as a result of market demands. This is the reason why new companies in Finland grow out of thousands of already existing ones in the country (Markova et al., 2015).

2. MATERIALS AND METHODS

In order to define the innovation management score of an economy we shall rely on the method of rank evaluation. For this, all the above mentioned indicators have been categorized as either cost-effective or cost-ineffective. Proceeding from the general business efficacy rule that cost-effective indicators have to be in excess of their adversaries, we can rank them according to their importance. Normative performance score

(NPS) ranges the indicators by assigning to the appropriate patterns of their growth rate ratio. The higher should be the growth rate of an indicator against that of the others, the higher is its rank (Etzkowitz, 2008). In the NPS I did not include such derived indicators as prime cost or labour productivity. The set of indicators was evaluated by their impact on the magnitude of the controlled variable, on its boost. Indicators whose interval was longer than the control interval was left out of the study. It is worth noting that the NPS can encompass a wide variety of indicators, both physical and cost-based, because it is their relative value that is recorded and taken into account, i.e. their growth rate. The NPS is a dynamic system: with regard for requirements imposed by changing priorities, one can also introduce changes to the metrics. In our case the following ranked system comprising seven parameters was used: the volume of innovation goods supplied; the volume of goods supplied; the number of advanced know-how utilized; the number of advanced manufacturing technologies created; the number of employees involved in R&D activities; the number of organisations having been engaged in R&D; internal cost related to R&D (Chesbrough & Prencipe, 2008).

Application of this technique will allow us to make the following inference: if actual values of indicators' growth will relate to each other in the order of their ranking within the NPS, then efficiency conditions will be met. The problem of numerical efficiency evaluation, in this case, would be reduced to the assessment of relations between the optimal and the actual values of indicators' growth – the ones included in the NPS (Nazarova et al,2018).

We should note here that the advantages of NPS's dynamics ranking evaluation are as follows:

- System approach to economic systems analysis;

- Known patterns of efficiency rise are generalized into an integrated index of efficiency growth whose representation is the NPS;

- To the NPS belong parameters reflecting both the economic performances of a company and resources it has at hand;

- Since the NPS tracks only the relative value of indicator growth rate, it can include various parameters both physical and cost-related.

Further on I carried out an efficiency evaluation divided into three steps:

1. Development of the normative performance score.

2. Analysis of data and records pertaining to NPS indicators. Based on analytical estimations, I determined indicator growth and proceeding from this did the actual ranking.

3. Comparison of the optimal (determined in the NPS) and actual ranks.

In this comparison I determined: 1) rank deviation, by subtracting for each parameter its optimum rank from the actual one (with no account of the "-" and "+" signs); 2) rank order inversion that defines the number of indicators inverting the order of their ranking in relation to the indicator for which calculation is done. If rank deviation with "-", then no inversion is present (0). Proceeding from statistical data from the Samara Region, I estimated average annual growth rates for the above listed seven indicators (see Table 1).

Table 1. Average annual growth rates for innovation development indicators (Samara Region, Russian Federation)

№	Indicator	Indicator growth indices, for the period				Median annual growth rate
		2011/2012	2012/2013	2013/2014	2014/2015	
1	Amount of innovation products supplied	1.06	1.93	1.31	0.99	1.27
2	Amount of products supplied	1.33	1.27	1.15	1.06	1.20
3	Advanced production technologies used	1.10	1.11	0.97	1.09	1.07
4	Advanced production technologies created	0.86	1.37	0.73	1.11	0.99
5	Amount of personnel involved in R&D	0.98	0.78	1.10	0.97	0.95
6	Amount of organizations involved in R&D	0.93	1.17	0.98	1.02	1.02
7	Internal expenditure on R&D	1.20	1.84	4.27	0.89	1.70

Data in Table 1 is a testimony to the fact that cost-inefficient indicators are ahead of cost-efficient ones, which signifies a downslide in the effectiveness of resource utilization for innovation-driven economy growth.

3. RESULTS

In Table 2 I present an analysis of the variance between the actual ranks of innovation development indicators and their normative values, as well as determine the number of indicators that caused the inversion of this order.

Table 2. Normative performance score data for innovation-driven economy growth (Samara Region, Russian Federation)

The ranking sequence adopted as optimal (NPS) (S)	Median annual growth rate for the period of 2011-2015	Actual ranking sequence (X_S)	Rank deviation		S^+	S^-
			Y_s	Y_s^2		
1	1.27	2	1	1	5	1
2	1.20	3	1	1	4	1
3	1.07	4	1	1	3	1
4	0.99	6	2	4	1	2
5	0.95	7	2	4	0	2
6	1.02	5	1	1	0	1
7	1.70	1	6	36	0	0
TOTAL				48	13	8
					S = 13-8 = 5	

As the data in Table 2 show, internal expenditure on R&D for the period of 2011 - 2015 was ahead of the growth rates of other

indicators of economic agents' innovative activity in the Samara Region. At the same time, variance with normative dynamics' values was at its maximum (6 points). On the other hand, dynamics of the advanced production technologies fell behind the normative values of the sequence. Thus, relying on these data alone we can make a conclusion that the level of innovation commercialization is rather law and inputs (costs) are much ahead of outcomes. The impressive dynamics of the growth of the amounts of innovation products shipped by suppliers to customers can be accounted for, perhaps, by moderate market requirements linked to its insufficient saturation due to a low level of competition. To estimate the variance between actual ranks and normative ones I applied Spearman's and Kendall's coefficients. Spearman's coefficient takes into account differences in deviation and is determined by the formula:

$$C_{dev} = 1 - \frac{6 \cdot \sum_{S=1}^{n} Y_s^2}{n \cdot (n^2 - 1)} \quad (1)$$

where Y_S - difference between the actual and optimal ranks;
n - number of indicators included in the NPS.
Kendall's coefficient is calculated by the formula:

$$C_{inv} = \frac{S^+ - S^-}{\frac{1}{2} n \cdot (n-1)} \quad (2)$$

The optimal value for both coefficients is 1 because in this case we find no rank deviation of actual figures against normative one. Then, the management effectiveness coefficient (C m.e.) for innovation activity also is to tend to 1, which is determined by the formula:

$$C_{m.e.} = \frac{(1+C_{dev})\cdot(1+C_{inv})}{4} \to 1 \quad (3)$$

Table 3 below shows appropriate indicator values for the Samara Region, Russian Federation.

Table 3. Evaluation of innovation management effectiveness (Samara Region, Russian Federation)

№	Indicator	Formula	Calculation
1	Spearman's coefficient	$C_{dev} = 1 - \frac{6\cdot\sum_{S=1}^{n} Y_s^2}{n\cdot(n^2-1)}$	$1 - \frac{6\cdot 48}{7\cdot(49-1)} = 0{,}857$
2	Kendall's coefficient	$C_{inv} = \frac{S^+ - S^-}{\frac{1}{2}n\cdot(n-1)}$	$\frac{5}{21{,}6} = 0{,}231$
3	Management effectiveness coefficient (Cm.e.)	$C_{m.e.} = \frac{(1+C_{dev})\cdot(1+C_{inv})}{4} \to 1$	$\frac{(1+0{,}857)\cdot(1+0{,}231)}{4} = 0{,}572$

As we can see from Table 3, the rank correlation factor (Spearman's coefficient) for innovation activity indicators of economic

agents in the Samara Region is 0.857, which is a testimony to the fact that the indicators under investigation are interrelated to a significant degree. Management effectiveness coefficient for the same region is only 0.572, i.e. its innovation potential is underdeveloped because this figure is 1.75 times (1/0.572) less than the optimal value. In this connection, a natural question arises: why, in the presence of market institutions and ever increasing funding, the innovation system's performance does leave so much to be desired?

4. DISCUSSION

William Miller, Professor of Management Science and Computing at Stanford University and founder of several Silicon Valley's companies, in his interview to the Expert magazine identifies a range of key problems aggravating innovation trends in the economy. First, in many country policymakers believe that the key to innovative development is technology. Due to this reason, they focus on research and development activities at the expense of creating a necessary environment innovative business activities require for their spread and maturation. Too much emphasis is placed on all that is linked to research and development of new technology, while business ideas - the only instruments of achieving success - find no support. The outmoded linear model is research - knowledge - novel developments - implementation in business. The modern model is business communications - implicit knowledge - R&D - implementation in business. As we can see, the latter is a cyclic process as it begins from business and comes back to it in the end.

Second, what is emphasized is the task of attracting large companies to innovate. But small businesses and start-ups of the same size (in the first place, the services sector that stands between the wealth-producer and end users) are those who create innovation environment and revitalize innovative activities in the region (Taiwan being a success story). Start-up ventures introduce new types and open up new areas of business operations, whereas large enterprises mostly keep to already existing sectors. Many start-up companies emerge in the periods of crises when people lose employment but nurture new ideas and projects, which leads to setting up new businesses.

Third, innovation clusters in Europe are established for small and medium-size businesses with only a limited role of government. For this various finance sources are used: membership's dues and subscriptions, revenue from commercial services, crowd funding, material contributions (equipment and machinery) and labour (provided by employees). The role of a managerial body in the integrated innovation complex and its performance evaluation are highlighted by its competitive status among existing consultancy structures, in contrast to the continuing presence and exclusive monopoly of governmental control bodies as in Russian clusters. Therefore, because of special policy on clusters in Russia (support to pilot clusters) did emerge disparity between the Russian and European understanding of this phenomenon and, which is more important, its comparative effectiveness for cluster performance. A cluster in Europe comprises independent small and medium-sized companies (SMCs). It is a regional cluster, i.e. it is characterized by spatial agglomeration based on social capital and geographic proximity. Companies participating in it are less inter-dependent than in industrial clusters where there is always the so

called core - the largest manufacturing establishment. Clusters are structures that form themselves in a natural way, without the involvement of executive governmental bodies. In the case of compulsory setting up of clusters by the government, the regional economy demonstrates the emergence of prototypical territorial production complexes (TPCs). Such complexes used to be present in traditional industrial regions where separate large production facilities were developed in the first place. In order to enhance entrepreneurship and boost innovation activity of economic agents we will have to effect a change in the approach to managing such complexes starting with mesoeconomic level where, according to Kleiner (2011), the centre of economic development lies.

The conventional understanding of what a mesoeconomic system is relates to the regional economy as part of the national innovation system; what is highlighted is its intermediate place between the macro and micro economy. However, a comprehensive concept of the mesoeconomic system entails looking both at its statics and dynamics. Proceeding from this, we can assert that a mesoeconomic system is a dynamic structure with characteristically flexible forms, including networks. The dynamic approach determines nonlinear nature of innovation growth when innovations are created as a result of economic agents' interaction, because they endeavour to best solve their macro and micro problems through the joint exploitation of existing resources and potentials (West, 2011).

At the heart of integrative collaboration of economic agents within a mesoeconomic system do lie institutional relations, i.e. various social norms and agreements. Post-industrial development of society leads us to address the problem of modern institutionalism whose key mechanism is

reliance on the contract paradigm and agency theory. Within this approach, each and any economic system - including mesoeconomic ones - is an alliance of the owners of production/innovation factors interrelated through a system of contracts and agreements. In this respect, setting up innovation networks suggested by the author of this paper would be more than relevant. An effective business model for innovation networks is to be based on the market relations client - supplier of innovative services (Zhang, 2010).

The innovation network in a mesoeconomic system is a geographically localized group of economic agents characterized by formal independence and internal competition blended with cooperation. On organizational level, it can be identified as such if a coordinating centre (CC) is present, which is necessary for the interrelated and complementary functioning of key local competences when providing innovative services with the aim of yielding synergy effects. In order to establish reliable feedback loops coming back to the CC, participating economic agents appoint their representatives to the Committee for Innovative Development. Unlike clusters, innovation networks do not have any core or a large enterprise in the centre; conversely: small and medium-sized companies are brought together on parity terms in the form of partnerships combining competition and cooperation, which lays the foundation for a local business environment, fosters knowledge overflow and stimulates the emergence of various forms of education and adaptation (Nikiforova, 2011).

At the basis of horizontal integration of economic agents relying on partnerships and mutual interest in development and growth, there lies the

concept of open innovation first introduced by academic Chesborough; it rests on knowledge exchange in different stages of innovation process: from the initial idea to its implementation as a new product (service) and it's marketing. Making use of benchmarking methods, we have to draw on the open innovation management experience accumulated by our foreign colleagues and: determine organisational and economic relations between participants of the innovation diffusion process; create and distribute the mutually beneficial value of open innovations; integrate small companies with the aim of exchanging knowledge, competencies and resources needed for innovation-driven development.

The strength of innovation networks resides on so-called social capital that reflects rises in the level of trust towards and awareness of each other, which causes a reduction in cooperation costs or so called transaction expenses. In the context of the underdeveloped institutional environment in Russia, horizontal links are what enhances mutual trust among innovation network participants. Contrary to technology parks, business incubators and innovative technology centres, innovation networks are not establishments set up artificially by the government, but initiatives designed and launched by economic agents themselves and on the basis of voluntary participation.

A spectacular example of these in the USA is the Connect network started in 1985 in the San Diego region (South California) and comprising, as of today, 18 000 companies and the organizations in the region. Over the past fifteen years, more than a dozen replicas of the

same prototype (de-facto franchises) were established in other countries. Connect has been also successful in starting industry-specific sub-networks (virtual clusters). Schumpeter's (2008) evolutionary theory categorizes all economic agents – in relation to innovation – as either conservatives or pioneers. Not approving of the diametric criteria of this classification, I suggest the use of a matrix correlating such indicators as openness to innovation and innovation capacity, which will allow mesoeconomic agents to develop on the basis of mutual complementarity of potentials. Evaluation of innovation capacity and openness to novelties in terms of effectiveness of the innovation process management is what will provide us with a tool to determine the growth perspectives of an economic agent (Table 4) (Consoli & Patrucco, 2008).

In Table 4 I present a set of key roles in the process of innovation for which a company or organization is best fit subject to its potential. Proceeding from this classification we can make an inference that even smaller-scale enterprises exhibiting insufficient openness to novelty due to limited resources can demonstrate significant innovation capacity thanks to effective management based on the complementarity of potentials. According to the senior vice president of TusPark, China, Herbert Cheng, science and innovative business have long ago left behind that heroic period when success was the achievement of lone pioneers. Today it is a team-based business where one employee takes on the role of CEO, another is in charge of R&D, a third one is simply the latter's assistant or consultant, etc.

Table 4. Role structure of economic entities in the process of mesoeconomic systems' innovation-driven development

		OPPORTUNITIES		THREATS	
		Poorly used (1-5)	Well used (6-10)	Met efficiently (1-5)	Met inefficiently (6-10)
Strong point pronouncement	High (6-10)	«Powerhouses», large enterprises	«Integrators»	«Orderers» of change	Role of innovation implementation and commercialization
	Low (1-5)	Infrastructural support needed	«Innovation creator»	«Leaded» companies	«Deviation consultants»
Weak point pronouncement	High (6-10)	Organizational support needed	«Innovation customizer»	«Outsiders»	«Innovation catalysts»
	Low (1-5)	Financial support needed	«Innovation diffusion agent»	Technologically dependent enterprises	«Communicators»

We have to note here that in Silicon Valley there is no centralized management or government, but only structures that simply help other participants coordinate their respective activities. Another influential not-for-profit organization is Silicon Valley Community that has succeeded in making all jurisdictions adopt similar rules of the game, for participating companies to be able to do their business simpler and easier. The Community organizes and holds events where people can meet, talk and teach each other in a cooperative learning environment. The key objective is not simply that research establishments should carry out R&D and afterward push their results to business and production, but that business should ask its questions first. This is how and whence mutual interest arise. Students and lecturers learn the language of business and learn to think business. Thus, the Triple Helix of H. Etzkowitz is realized, when

interpenetration of the interests of business, science and government takes place and balanced innovative growth of the whole economic system unfolds itself.

To integrate the activities of economic agents into an innovation network is the task for the coordination Centre having the role of a service-providing intermediary. This type of agency and mediation in innovation networks has already spread far and wide in other countries across technology clusters. In structural terms, the Coordination Centre will be positioned between the ordered of a novel service (a business subject) and the provider/supplier of it (an innovative infrastructure subject), while its operation carried out on a competitive basis with due regard for the degree to which the demand coming from interested economic agents is met. It is only within the described interaction/collaboration context, granted a proper knowledge and expertise support, that small and medium-sized economic agent display the so called innovative activity when their striving for change is realized in the process of joint improvement of existing business processes by different participants in the innovative customer-value chain. As a result of such collaboration, network participants acquire new innovation-related knowledge that is, in itself, implicit (implied and not formalized) because it should be situation-driven and problem-focused to be used in future contexts.

This idea finds support in Hayek's (1948) conception of dispersed knowledge which inevitably divides itself into different bits. Whence it follows that such knowledge is to be developed, expanded and used. On the basis of the above scientific theses, a conclusion has been made that

innovation process is not linear, that multiple agents do participate in it and any support to a business idea has to be manageable and managed. These substantiated assertions allow us to formulate a modern cyclic model of innovation management from communication with business - to implicit knowledge - to R&D - to implementation again on the business level (Fig. 1).

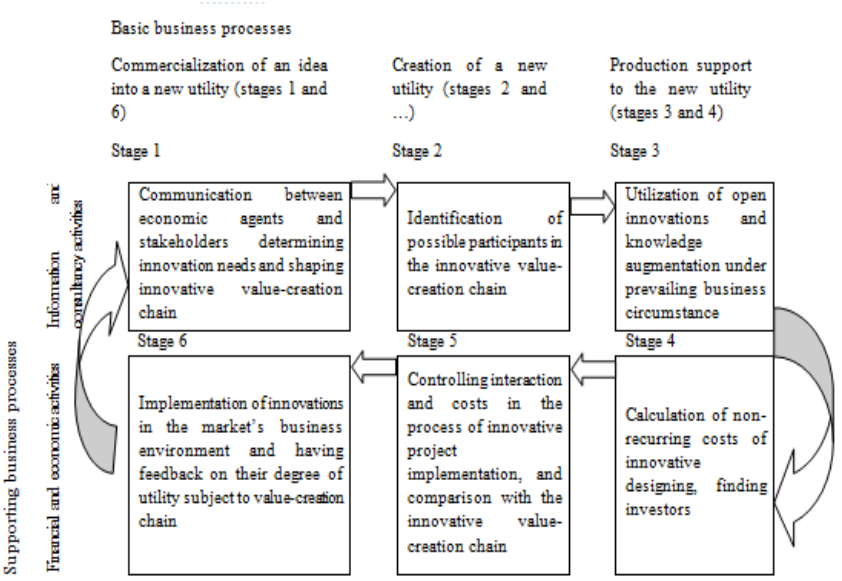

Figure 1. Cyclic business model of innovation management

As can be seen from the illustration above, each stage of the process rests on value-oriented management relying, in its turn, on communication with businesses. It is this business model, in my view, that can provide us with answers to the three fundamental questions: what is the need for innovation like? How can we meet it? And in what way can we ensure bottom-line performance in this context? The

process' cyclicity rests on feedback loops and continuous communication with innovation stakeholders. The interaction between participants, including end users, resource suppliers and holders of unique competencies within a company, this is what paves a way to knowledge/expertise exchange and its implementation in created novelties. From this we can infer that innovation openness, it would seem, is determined not by the transfer of formalized (explicit) knowledge per se, but by opportunities for its adaptation under prevailing business conditions, by the degree of its augmentation and translation into a concrete utility for end users. The suggested approach to innovation management is exactly what will secure uninterrupted innovation-driven growth based on the combination of competition (striving to be the best pushes agents to a search for new positive change) and cooperation (exchange of already accumulated knowledge, in order to avoid wheel reinventions, and to apply it under new circumstances). In practice, this will allow us to create a competitive entrepreneurship environment that is the prerequisite for and the driver of innovation trends.

Interaction of business processes generate certain problems at the following points:

- Between functions and roles related to resource allocation prioritizing, within one innovative company;

- Between principle developers in the Coordination Centre, for the same reason;

- Between resource suppliers, CC and businesses.

On the other hand, as experience has shown, that what often takes place in business processes is either overlapping when it comes to attractive functions (e.g. financial ones) or responsibility vacuum. In the latter case, no one is willing to take charge of a task or problem that is important and even strategic, whose solution may lay in the surface, but without any promise of quick reward. To foresee and solve such problems is the mission of a cross-functional coordinator in the form of CC that must strain after cost reduction in the integrated innovative chain. Alongside this, a joint decision is to be taken by the CC as an innovation integrator and by representatives of the business. This decision can proceed from the objective of general costs minimization, and also rely on such key indicators as project implementation time and service quality with the possibility of securing business results.

5. CONCLUSION

Therefore, both the idea of applying a business model to innovation management and the innovation process' non-linear nature is what necessitates paying closest attention to the coordinative role of management in bringing together and balancing the interests of different economic agents concerned with incessant positive and qualitative development and growth. A network is the most effective form of object organization in innovation-related systems. For

instance, innovation dynamics in horizontal networking links between research institutions and businesses differ dramatically from that occurring in hierarchical or market relations. Besides, networks with well-established institutional relations can optimize operating and organization expenses, thereby reducing transaction expenses associated with partnering. After all, network participants utilize the so called open innovations, i.e. translate available knowledge to something meeting their respective developmental needs. Due to this, explicit (manifest) knowledge becomes implicit (implied) that can be obtained solely from practice and interaction between the knowledge holder and someone who needs it. In this case, innovation network participants can act as integrators of someone other's knowledge and bring a number of advantages to the national economy:

- Looking for (at home and abroad), selecting, correlating, aligning and modifying state-of-the-art technologies to be used in Russia, with due regard for regional peculiarities;

- Making innovative products attractive for users (in this finished and adapted form), which in its turn stimulates demand for subsequent novelties;

- Accumulation - due to innovations - of commercial product creation competences across economic agents, i.e. they are becoming more competitive in the market.

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