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**Institutionalization of the Russian Innovation Policy in the 2000s:
the case of business incubators**

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Problem statement

Support of innovation is an important part of national policy for many countries. In post-industrial societies innovations based on scientific discoveries and new technologies form the base for new industries and markets, and related businesses¹ become one of the most profitable economic activities. The creation of scientific and technical knowledge are similar processes, although there is a wide range of differences in how exactly discoveries and inventions are transformed into innovations, i.e. goods with high economic value added, at the national level. The result of this transformation is highly dependent on the institutional environment for the work of technological companies. This institutional environment is developed under the influence of historically established prerequisites, naturally emerging practices, as well as purposeful attempts to form new rules of social interaction².

The political decision to form an integral policy for supporting innovation was made in the early 2000s for the first time in the history of modern Russia. The main focus on this policy was on assisting technological businesses in their development. This assistance covered different areas - from financial subsidies and tax benefits to changing educational standards and the public image of entrepreneurial activity, as well as the organization of the knowledge and skills exchange.

In general, governmental support for the stimulation of commercialization of innovations was top-down in nature. In order to put it into practice new rules of social interaction needed to be created, to guide the different groups involved in the innovation creation and commercialization processes: universities, research institutes, corporation management, regional and city administrations. These rules were formed on two levels — formal and informal. The formal level covered deliberate, but insufficiently systematized actions of the state to develop a legislative framework for stimulating the commercialization of innovations. The informal level covered the spontaneously

¹ Further, it will be called a technological business or technological entrepreneurship. Companies that operate in this business will be called technological companies.

² Further, we will denote such attempts by the term "institution formation".

emerging work practices within professional communities and public authorities involved in the creation and support of innovations³.

The focus of the agenda was on the concept of 'innovation', which can be interpreted in a variety of different ways. This ambiguity gave rise to some uncertainty in the course of the new policy embedment.

The Russian case of creating a state support policy for innovation can be seen as an example of institutional construction. How did it happen? How did the rules of the state support for commercialization of innovation and development of technological entrepreneurship emerge and were fixed? To answer these questions, we will focus on the analysis of institutionalization — the process of the institution creation.

In this paper we consider institutionalization at the micro level using the example of interaction of individual actors involved in the process of the state support policy for innovations and analyze how the rules of this sphere are formed and are reproduced in the course of their interaction.

Most often the creation of a formal organization is a result of institutionalization⁴, so in this paper we will reconstruct the institutionalization process by analyzing a specific case — the emergence of business incubators⁵. They have become widespread after the start of the above-mentioned innovation policy. Within this topic, we are interested in three questions: where the practices of support of innovation and technology entrepreneurship came from, how they became embedded and turned into organizational rules of business incubators, as well as how business incubators obtained legitimacy in

³ For the results of the incentive policy and the process of institutionalizing the rules for supporting innovation, see, for example: Bychkova O., Chernysh A., Popova E. Dirty dances: academia-industry relations in Russia // *Triple Helix*. 2015. № 2(13). P. 1–20; Bychkova O. Innovation by coercion: Emerging institutionalization of university-industry collaborations in Russia // *Social Studies of Science*. 2016. № 46 (4). P. 511–535.

⁴ Jepperson R. Institutions, Institutional Effects, and Institutionalization // Powell W., DiMaggio P. (eds.). *The New Institutionalism in Organizational Theory*. Chicago, Il.: University of Chicago Press, 1991. P. 143–163.

⁵ A business incubator is an organization that aims to support business in the early stages of development. Such organizations arise both for supporting small businesses in general, and for stimulating technological entrepreneurship.

the eyes of potential users and partners. Finally, we try to create a generalized ideal-type scenario for the institutionalization of state support for innovation at the regional level.

The scope of prior research

In social science, innovation studies' framework investigates the issues of development and support of innovations. It originated from the works of J. Schumpeter. In the later works J. Clark, C. Freeman, R. Nelson, L. Soete, S. Winter investigated the influence of innovations on economic development, both in the short and long term perspectives.

The sources, resources and the general economy of industrial innovation from the position of the firm were investigated by K. Arrow, W. Cohen, C. Freeman, D. Levinthal, K. Pavitt, J. Schmookler, D.J. Teece.

B. Bellon, M. Crow, C. Freeman, B. Lundvall, S. Metcalfe, R.R. Nelson, J. Niosi, R. Ramlogan, P. Saviotti studied the concept of the national innovation system (NIS). B. Asheim, A. Isaksen, L. Mytelka, A. Saxenian investigated regional and local innovation systems. Their main research question is how the social environment formed on different levels (national, regional, etc.) affects the development of innovation and technological businesses. This issue is related closely to the problem studied in this paper.

In general, the study of national, regional or local innovation systems focuses on considering already existing structures and their impact on the economic development of individual states. The vast majority of researchers work at the level of structures and institutions. Such works are mostly descriptive and just state the successes or failures of these systems.

In contrast, Henry Etzkowitz and his followers are trying to reproduce successful scenarios for stimulating innovations and highlight the triple helix analytical model of university-industry-government relationships (Triple Helix).

E. Castilla, M. Ferrary, M. Granovetter, H. Hwang, D. Markley, M. Myrzakhmet, K. McNamara, S. Radosevic focused on particular aspects of the innovation systems. They studied the impact of social networks and specialized on intermediary organizations,

such as venture funds or technology parks, as well as on supporting and developing innovation and technological entrepreneurship, and particularly on the role of these organizations in innovation development and the effects of their work.

Most of the works about the development of innovations in Russia analyze the influence of the institutional environment on the development of innovations and the consequences of institutional construction. These questions were studied by O. Bychkova, M. Gershman, L. Gokhberg, L. Graham, D. Ivanov, N. Ivanova, G. Kitova, D. Klevshits, T. Kuznetsova, M. Kuzyk, N. Mikhailov, E. Popova, V. Roud, V. Rudashevskij, Y. Simachev, S. Zaichenko.

The research group under the leadership of Prof. O. Kharkhordin from the European University at St. Petersburg made an attempt to explain the successes and failures of the development of technological entrepreneurship through culture.

The above mentioned studies describe various socioeconomic aspects of stimulating and producing innovation, as well as the way institutions influence innovation. However, they pay insufficient attention to how, and, what is especially important, why institutions that support the development of innovation and technological businesses emerge in the existing form. In this paper, we will make an attempt to consider this aspect. Such an approach focuses on the process, rather than on the outcomes. In our opinion, it provides more opportunities to understand the reasons underlying the successes and failures of institutional reforms in the sphere of innovation development, strengths or weaknesses of national and regional innovation systems. To implement the chosen approach, we turn to the ideas of a new institutionalism in organizational theory and economic sociology, and study social interactions at the micro level in great detail.

Research goals and objectives

The goal of this research is to describe the process of forming an institute of state support for innovation development at the regional level and to identify its participants and the resources used by them through the history of the emergence of business incubators.

The object of this research is the institutional rules of the state support for the development of innovation and technological entrepreneurship. The subject of this research is the process of institutionalization in Russia in the period from 2005 to 2012.

A number of objectives are planned to be accomplished in order to achieve the goal:

- 1) To systematize the ideas of new institutionalism in organizational theory and economic sociology concerning the essence of institutions, the process of institutionalization, opportunities for institutional entrepreneurship, and apply these ideas to the analysis of the formation of the Russian state support for the development of innovation and technological entrepreneurship.
- 2) Identify the characteristics of technological entrepreneurship as a type of economic activity, affecting the process of institutionalization.
- 3) To study the specificity of the federal policy of supporting innovations by analyzing the history of its formation, in order to show the possibilities and limitations of the creation of the institution of state support for the development of innovation at the regional level.
- 4) Analyze the process of the establishment of regional business incubators to show who was involved in it, what resources were used and how this affected the formation of rules for the incubation of technological companies.
- 5) Highlight the main features of the process of institutionalization of state support for the development of innovations at the regional level using comparative analysis of empirical cases of the two business incubators of our choice.

The author's personal contribution to exploring the problem and gathering data

In this work, the author showed how the ideas of new institutionalists can complement the ideas developed in innovation studies, and presented an original interpretation of the emergence of the incubation institute for technological companies in Russia in the 2000s.

The author described two cases of setting up regional business incubators. On these examples the author showed why the sphere of innovation support works in a developed

way in Russia, and also in what conditions the institutional construction initiated at the federal level can achieve its goals. The results of the research can be the basis for analytical reports and recommendations on institutional formation for supporting innovation and technological business.

The contribution of institutional entrepreneurship and social skills to the institutionalization process was shown on the example of the state support for the development of innovation and technological entrepreneurship.

The results were presented by the author at five conferences. The program "Technology parks and Business Incubators: spaces for innovations' creation" at the Faculty of Technological Management and Innovations ITMO University was based on the results reported in this thesis.

Theoretical framework of research

Institutions are defined as a set of routinely reproducible rules that are shared by all members of society, reduce the uncertainty of the environment and increase the predictability of the social interactions⁶. By integrating various approaches that reflect the nature of institutions, we will assume that the institutions consist of three pillars - regulative, normative and cultural-cognitive. The normative and cultural-cognitive pillars provide the functional base of the institution, and the regulative pillar controls the relations between people⁷. Any of the pillars forming the institution can be represented in a set of formal and informal practices. In addition, we will take into account that institutions are not isolated from each other, but are connected in related areas. Also,

⁶ North D. Institutions, Institutional Change and Economic Performance. Moscow: Economic Book Fund «Nachala», 1997. 180 p. (in Russian).

⁷ Scott W. Richard. Institutions and Organizations: Ideas and Interests. Los Angeles; London; New Delhi: Sage Publications, 2008. 360 p.

institutions that regulate specific areas are complemented by controlling rules. These rules are created to support the institutions and to track how well they are respected⁸.

Institutionalization is the process of gradual formation of social agreements, which cement the institute, so that these agreements become indisputable⁹. In this sense, institutionalization is understood as a process that ensures the establishment of an institution.

As far as the emergence and consolidation of new rules is concerned, one should acknowledge that institutionalization is organized in such a way that the institutional structures do not suppress the agents completely, instead they mutually construct each other¹⁰.

There are two arguments for understanding the institutionalization as a process:

1. The creation of institutions can be the result of purposeful (strategic) actions, but their outcome and success can not be predicted in advance.
2. Institutionalization is the product of political efforts. Thus, the result of institutionalization will depend on the interests of the actors involved in the dispute over the rules, and on their ability to mobilize others and impose their opinions on them.

Institutional entrepreneurs are the actors who attempt to construct the institutions. They start the process of institutionalization and create new organizational forms. Institutional entrepreneurs start to take action operate in two cases:

- they have sufficient resources which enable them to realize their key interests;
- the current rules do not meet their interests, and they begin to struggle for new resources, being in a less favorable position as compared to other participants¹¹.

⁸ Kouzminov Ya., Radaev V., Yakovlev A., Yasin E. Institutions: From Import to Raising (Lessons from the Russian Reforms and Opportunities for Cultivation of Institutional Change) // *Voprosy Ekonomiki*. 2005. № 5. P. 5–27 (in Russian).

⁹ Jepperson R. Institutions, Institutional Effects, and Institutionalization.

¹⁰ Garud R., Hardy C., Maguire S. Institutional Entrepreneurship as Embedded Agency: An Introduction to the Special Issue // *Organization Studies*. 2007. Vol. 28 (7). P. 961.

¹¹ DiMaggio P. Interest and Agency in Institutional Theory // Zucker L. (ed.). *Institutional Patterns and Organization*. Cambridge, Ma.: Ballinger Press, 1988. P. 3–21; North D. *Institutions, Institutional Change and Economic Performance*.

Organizations or coalitions of organizations from a specific area can act in the role of institutional entrepreneurs. In this case, they are fighting for a wider expansion, legitimization of their organizational forms, as well as for redefining conventional rules in the area as a whole. Only new organizations can make a significant change to the institutions. The rest are immersed in the existing networks of relations and are subjected to organizational inertia¹². It is important to note that in the modern world many institutional understandings are interpreted so broadly that free resources for institutional entrepreneurship are liberated¹³.

Similar to any entrepreneurial activity, institutional entrepreneurship is to some extent a deviation from the norm and a risky undertaking. This is because a new configuration of ideas and meanings is formed which did not exist before and is not familiar to the other agents. As a result, the new rules face a crisis of legitimacy among the actors and groups who encounter them¹⁴.

In case of the new organizational forms, the crisis of legitimacy is connected to the necessity to adapt them to existing institutions and create an atmosphere of trust around them. To do this, they go through a period of legitimation, which consists of two components — cognitive and socio-political. Through cognitive legitimation new organizational forms become clear to other actors and take on the status of something self-evident. Then others actors can easily copy this form. Through socio-political legitimation, new forms become acceptable to the norms and laws of the social environment in which they exist¹⁵.

The lack of cognitive legitimation at the first stages of the existence of the new organization is closely linked with the principle of 'liability of newness'¹⁶. New

¹² Ingram P. Changing the Rules: Interests, Organizations, and Institutional Change in the U.S. Hospitality Industry // Brinton M. C., Nee V. (eds.) *New Institutionalism in Sociology*. New York: Russel Sage Foundation, 1998. P. 258–276.

¹³ DiMaggio P. Interest and Agency in Institutional Theory.

¹⁴ Garud R., Hardy C., Maguire S. Institutional Entrepreneurship as Embedded Agency.

¹⁵ Aldrich H. Entrepreneurial Strategies in New Organizational Populations // *Journal of Economic Sociology*. 2005. Vol. 6 (4). P. 39–53 (in Russian).

¹⁶ Stinchcombe A. Social structure and organizations // March J. (ed.). *Handbook of Organizations*. Rand McNally: Chicago, 1965. P. 142–193.

organizations are likely to face more difficulties than the old ones, as their organizational routine is not complete yet, and most acts of actors require new roles and rules to be invented. In existing organizations, rules and roles are transmitted through observation, daily communication of the experienced members and newcomers. As a result, the newcomers acquire the specific professional skills together with the criteria for decision-making, boundaries of responsibility within roles, ways to reduce tension and handle conflict situations, as well as loyalty to the organization as a whole.

New organizations, on the contrary, have to take into account the skills its members formed outside of this organization and make extra efforts to encourage them to adopt new roles and rules. In addition, the situation is complicated by the absence of trust both between the newcomers in new organizations and between the new organizations and their potential partners that might be willing to use their services.

In new organizations stable links with customers and partners, which are the main resource of established organizations, do not exist. As a result, the activities of these organizations are not well-understood, and are not reproduced neither within the organization nor outside it.

In order to overcome the crisis of legitimacy, institutional entrepreneurs should mobilize as many social groups as possible, organize a coalition and take a collective action. They will be able to achieve this if they act strategically. Acting strategically implies knowing the existing system of formal and informal rules well and being able to use it in order to demonstrate the changes in such a way that other groups are encouraged to cooperate¹⁷. In this process, institutional structures play the role of a material that is used intensively in entrepreneurial activities¹⁸. Thus, an institutional entrepreneur can be considered embedded in them.

¹⁷ See: DiMaggio P. Interest and Agency in Institutional Theory; Fligstein N. Fields, Power and Social Skill: a Critical Analysis of the New Institutionalisms // *Journal of Economic Sociology*. 2001. Vol. 2 (4). P. 28–55 (in Russian); Fligstein N., McAdam D. Towards a General Theory of Strategic Action Fields // *Sociological Theory*. 2011. Vol. 29 (1). P. 1–26; Fligstein N., McAdam D. *A Theory of Fields*. New York: Oxford University Press, 2012. 238 p.; Garud R., Hardy C., Maguire S. Institutional Entrepreneurship as Embedded Agency...

¹⁸ Garud R., Hardy C., Maguire S. Institutional Entrepreneurship as Embedded Agency... P. 961–962.

From this perspective, institutionalization as a process is similar to bargaining, where an institutional entrepreneur tries to find a certain gain from adopting new rules and offer it to external groups. In order for this process to be successful, he is required to possess certain social skills. These social skills include cognitive ability to recognize the interests and identities of various groups, form motivations and directions of action, and mobilize and coordinate individual actors and groups at the service of newly created meanings. Social skills help to smooth out the vulnerability of the new organizational form and create new identities for all groups associated with it. By the strength of their capabilities, social skills will surpass the power of resources and the net legitimizing effect of power.

Social skills are oriented toward the interests of others and allow to generate meanings and identities people can relate to. People need this by their nature. They seek for unity and meanings. If an institutional entrepreneur resonates with their ideas and gives them what they are looking for, they will be willing to cooperate more than if he acts based on power or resources¹⁹.

An institutional entrepreneur can use the following techniques and tools to implement social skills in practice:

- Readiness to interact with any groups regardless of their interest in the new rules. The actions of the institutional entrepreneur should go beyond the interests of his group to find allies. Therefore, he should be ready to communicate and get to know other people's interests²⁰.
- Finding a common good helps to mobilize groups. It demonstrates the neutrality of the institutional entrepreneur and his willingness to act in the interest of other groups, rather than his own. Other groups will be eager to cooperate, as due to embeddedness of the new rules, their interests will also be realized²¹.

¹⁹ Fligstein N., McAdam D. Towards a General Theory of Strategic Action Fields; Fligstein N., McAdam D. A Theory of Fields.

²⁰ Ibid.

²¹ Ibid.

- Working with the descriptive language by naming social phenomena, typifying actions and defining roles to form the basis for sensemaking in new unfamiliar situations, and cognitive legitimation. Some aspects of the created description language can be transformed into performance indicators in the process of institutionalization. According to them, the activity of various actors and organizations will be evaluated. These performance indicators will turn from local to public and then evolve into models that others aspire, and which are recognized as aims for achievement.
- Leadership in sensemaking. Sensemaking is a retrospective stream-like process that is based on the identity of the actor, depends on its socialization and initiates a sensemaking environment in which the actor begins to exist. That is, despite the fact that the sensemaking is intangible, it creates the foundation for action and leads to real consequences²². Therefore, the institutional entrepreneur should gain the power over sensemaking in order to direct the process of comprehending the new rules and encourage the groups to carry out the actions, which are advantageous to them.

The key information on which the actor is focused is very important in the sensemaking. It characterizes the whole phenomena and the objects in spite of its incompleteness. Thus, the extraction and reporting of key information for the sensemaking will be an important task of the institutional entrepreneur. At the same time, it should be noted that the extracted key information does not need to be accurate, rather — plausible, that is, associated with more general and familiar ideas.

- Working with status expectations in order to obtain additional legitimation of the entrepreneurs' actions. These status expectations are based on broader cultural understandings of who, on what occasions and under what circumstances can offer

²² Weick K. Sensemaking in Organizations. Kharkiv: Humanitarian Center, 2015. 320 p. (in Russian).

solutions for certain social situations. Status expectations are determined by social stereotypes, such as gender, race, age, education, and employment²³.

- Exploitation of embeddedness²⁴, that is, using existing interpersonal relationships and networks to gain greater confidence among groups interested in discussing rules. The task of the institutional entrepreneur is to look for those who have a shared experience with him within his networks, and at the same time represent the group which he needs to cooperate with.

Technological entrepreneurship as our research object imprints on the process of institutionalization. As a type of economic activity, it has specific features that can extend to the support for innovation and technological entrepreneurship.

Organizations from the field of technological entrepreneurship have a special organizational structure. The formal structure of organizations is vague, which makes the role of informal practices more significant. As a result job responsibilities are not well-defined, and the organization's aim becomes more important than abidance of the organizational hierarchy. This can be explained by the fact that technological companies need to be flexible in order to transfer the information quickly²⁵.

The market of technological companies is always unstable. Rules change during the game, depending on the undulatory introduction of new revolutionary technological solutions to the world. Therefore, the main advantage of the managers of technological companies is the ability to foresee the nature and direction of technological changes. This is possible only in the case of permanent adaptation of the company, the denial of the organizational hierarchy, building the new relationship with employees through sharing responsibility for the company success on an equal basis with management, reliance on the mission of the firm²⁶.

²³ Powell W., Colyvas J. *Microfoundations of Institutional Theory* // Greenwood R. et al. (eds.). *The Sage Handbook of Organizational Institutionalism*. New York: Sage, 2008. P. 276–298.

²⁴ Granovetter M. *Economic Action and Social Structure: the Problem of Embeddedness* // *Journal of Economic Sociology*. 2002. Vol. 3 (3). P. 44–58. (in Russian).

²⁵ Burns T., Stalker G. M. *The management of innovation*. London: Tavistock, 1966. 269 p.

²⁶ Brian Arthur W. *Increasing Returns and the New World of Business* // *Management of high-tech business*. M: Alpina Business Books. 2007. P. 162-189 (in Russian).

The lack of hierarchy and formal structure is compensated by the growing role of informal practices. The issue of trust becomes essential. It is formed on the basis of a system of reputations, embeddedness in professional networks and membership in professional organizations²⁷. As a result, the sphere of innovation is becoming strikingly close to the sphere of the informal economy²⁸.

Thus, technological entrepreneurship as a special type of economic activity, generating innovations, relies more on informal, rather than formal rules, even in the building and operating of organizations. The normative and cultural-cognitive pillars of institutions have a great meaning for the development of this area since the work is built on the basis of trust, common norms and values, not the rules written in the documents. Because of this, the importance of embeddedness in interpersonal and professional networks is growing.

Data gathering and analysis of methodology

Research strategy. In this work, the problem of emerging and fixing the innovation support rules was studied at two levels — the federal and the regional. The Federal level helps to answer the question of the context in which the rules were formed and how the opportunity for institutional entrepreneurship appeared. The regional level helps to understand the process and the reasons of appearance of the business incubator's working rules in the course of existing social interactions.

²⁷ Castilla E., Hwang H., Granovetter E., Granovetter M. Social Networks in Silicon Valley // Lee Ch., Miller W., Hancock M., Rowen H. *The Silicon Valley Edge*. Stanford: Stanford University Press. 2000. P. 218–247; Ferrary M., Granovetter M. The Role of Venture Capital Firms in Silicon Valley's Complex Innovation Network. *Economy and Society*. 2009. Vol. 2 (38). P. 326–359; Powell W., Smith-Dor L. Networks and Economic life // *Journal of Economic Sociology*. 2003. Vol. 4(3). P. 61–105 (in Russian); Stuart T.E., Ding W.W. When Do Scientists Become Entrepreneurs? The Social Structural Antecedents of Commercial Activity in the Academic Life Sciences // *American Journal of Sociology*. 2006. Vol. 112 (1). P. 97–144.

²⁸ Light D. From migrant enclaves to mainstream: Reconceptualizing informal economic behavior // *Theory and Society*. 2004. No. 33. P. 705–737.

The formation of rules for state support of innovations at the macro level was analyzed through:

- federal strategic programs ('The main directions of the Russian policy for innovation system development until 2010', 'Strategy for the development of science and innovations until 2015', 'Strategy for innovation development 2020');
- legislative acts regulating innovation activity and allocation of resources for it at the federal, regional or city levels (217, 335 Federal Laws, 218 Decree, Guideline No. 2473п-II7, Ordinance of the Government of the Russian Federation No. 328-p);
- data from official websites of authorities whose actions affect the development of the innovations (the President of the Russian Federation, the Ministry for Digital Development, Communications and Mass Communications of the Russian Federation, the Accounts Chamber of the Russian Federation, the Government of the Novosibirsk Region, the Administration of St. Petersburg);
- analytical reports analyzing the development of the innovation in Russia ("Russia: a course on innovation" (issue I II III), National report on innovations in Russia);
- data from specialised and business media (Vedomosti, Forbes, The Russian Information Agency Novosti, Business Assistance Portal, SPBITRU Portal - IT and Telecom in St. Petersburg and the North-West).

The formation of rules for state support for innovations at the regional level was investigated through a case study strategy — a detailed and multidimensional study of specific empirical cases²⁹. We analyzed two state business incubators that emerged in the Novosibirsk region and St. Petersburg correspondingly. Earlier we noted that we focus on the process of emerging and fixing of rules and analyze it at the micro level. Therefore, we consider it is especially important to analyze the history of incubators in as much detail as possible. This explains the choice of the case study strategy.

²⁹ Steinberg I., Shanin T., Kovalev E., Levinson A. Qualitative Methods. Field Sociological Study. SPb.: Aleteya, 2009. 352 p. (in Russian).

Methods of data gathering. Within the framework of case study, empirical data was collected by the following methods: interviewing using an approximate thematic guide, participant observation, analysis of the media and documents, including official documents regulating the activity of the selected business incubators.

It took us one month (March 2012) to carry out participant observation for the Novosibirsk case as a part of the collecting of biographical interviews with technological entrepreneurs³⁰. The obtained data was supplemented by 27 semi-structured interviews taken during the same project. The participated groups of informants were as following: 1) employees of the technopark and business incubator (2 interviews); 2) local authorities (1 interview); 3) regional experts involved in the support and development of innovation (5 interviews); members of local technological entrepreneurship community, including those who are affiliated with the technopark, business incubator and technological entrepreneurship business associations (19 interviews). During the data collection, we used snowball sampling for searching and selecting informants. The bias towards the business community can be explained by the fact that the technological entrepreneurs and their companies simultaneously occupy several roles in most cases. For example, the roles may involve: the technopark's resident, co-investor, the member of the supervisory board and the business incubator's expert council member, mentor of resident companies. In addition, they had the opportunity to freely share facts and stories about creating a business incubator. To balance that dominance, the data from interviews was supplemented with data from media and official documents, demonstrating the perspectives of authorities and incubator top management.

It took us a year (October 2010 – October 2011) to carry out participant observation in the St. Petersburg incubator. During this time the author had a part-time job (three times a week) in one of the companies-residents of the incubator.

The obtained data was supplemented by 13 semi-structured interviews. The participated groups of informants are as following: 1) employees of the technopark and

³⁰ For the project of the European University at St. Petersburg "Self-fashioning practices of successful technological entrepreneurs and their influence on the efficiency of high tech companies: the cases of Russia, Finland, South Korea and Taiwan". The project was run with the support of RUSNANO. The author of the text participated in the project as a researcher analyzing two regional cases.

business incubator (5 interviews); 2) residents of the business incubator, participants of special competitions organized by the incubator (5 interviews); 3) experts involved in the professional community and can give an independent assessment of the business incubator work (3 interviews). During the data collection, we used snowball sampling for searching and selecting informants as well³¹.

The period of analysis covers the time period from 2005 to 2012. In this time organizational structure of the selected business incubators was developing, and the most active phase of the state support for innovation and technological entrepreneurship was observed. The main field data was collected during 2010-2012. The area of the field study covers St. Petersburg and the Novosibirsk Region.

Methods of data analysis. From what was said earlier, it follows that the study involved several units of analysis: an interview, a document or publication, and a case of social interaction between various participants of the institutionalization process (for participant observation). The main unit of analysis in the study was an interview.

Despite the fact that the interviews for the research were conducted for various studies, the analysis algorithm described below allowed us to obtain comparable blocks of information. It consisted of the following steps:

1) A guide for the current research question was developed. 2) The thematic segmentation of the collected interviews data was conducted according to the questions of the thematic guide. It helped to identify the blocks of interviews that can be fitted to this study. 3) A priori coding³² was applied to the analysis of the selected blocks. 4) The selected interview blocks were analyzed using the “Membership Categorization Device”³³. It was used because most often the informants talked about their experience of

³¹ One part of the interview was conducted as part of the Master's study "Institutional Barriers to Technological Innovation", another part — for the project of the European University at St. Petersburg "Self-fashioning practices of successful technological entrepreneurs and their influence on the efficiency of high tech companies: the cases of Russia, Finland, South Korea and Taiwan", and one more — specifically for this study.

³² Miles M. B., Huberman A. M. *Qualitative Data Analysis: A Sourcebook of New Methods*. California; SAGE publications Inc. 1984.

³³ Temkina A., Zdravomyslova E. *Membership Categorization Device: The construction of gender identity in sexual field // Russian Gender Order: Sociological Approach*. Temkina A., Zdravomyslova E. (eds.) SPb: EUSPb, 2007. P. 250–264 (in Russian).

participating in the work of the technopark or business incubator describing their interaction with various groups and organizations. At the same time, they gave these interactions a certain meaning. Summarizing the different points of view and interpreting the meanings, we tried to reconstruct the picture of the institutionalization.

Justification for the choice of cases. The choice of cases in this study was determined by several parameters:

- The purpose of the research. We aimed to analyze the process of creating and securing the rules for supporting innovations.
- The necessity to consider the process of institutionalization on the example of successful cases of institutional formation. For us, it means that the created organizational form met the initially set goals — support of the commercialization of innovations and the development of technological entrepreneurship³⁴. In general, such a scenario is not typical for the Russian case of innovation support. Many attempts at institutional construction in this area face unintended consequences and do not achieve their goals. In our opinion, it is more important to consider the successful, although to some extent deviant cases. This can allow making a feasible contribution to the discussion on the possibilities and limitations of institutional construction in Russia.
- The necessity to ensure comparability of cases. To achieve this, we created a homogeneous sample, that is, we have chosen cases that are similar to each other according to certain criteria. Both cases were created within the state policy for supporting innovations, according to the federal program ‘Establishment of high-tech technoparks in Russian Federation’. They are the units of larger structures with the same organizational form — the technopark. They have the same organizational form (business incubator) themselves. They are actively working with technological companies, are recognized and accepted within the professional

³⁴ We deliberately do not consider the degree of efficiency of the created organizational forms, their influence on the economy of a city, region or country. This could be the subject of a follow-up research. Instead we talk about the absence of a “the inflation of notions” (Gokhberg L. Principles for a New-Generation Innovation Policy / Baltic Rim Economies, 2010. No. 3.) during the creation of organizations aimed at developing and supporting technological entrepreneurship.

community. Thus, within this research, we describe a group of cases related to sufficiently successful attempts of institutional construction, and try to identify characteristic features of this group.

Main findings of this research

1. Key features of the institutionalization process

At early stages, federal state support for innovation was formed on a regulatory basis. It covered the creation of formal rules and financing of areas related to innovation. A vaguely defined term "innovation" was introduced as a core term of a new agenda. This introduction, on the one hand, was a deliberate or an undeliberate political act that facilitated integration of various social groups. On the other hand, it hampered the understanding and realization of new ideas in real life. In this regard, sociopolitical legitimacy has outpaced cognitive legitimacy, and this has created opportunities for institutional entrepreneurship. Institutional entrepreneurship was aimed at creating specific practices for technological businesses and their support, e.g. business incubation guidelines and principles.

The process of institutionalization at the regional level depends on the actions of the institutional entrepreneur, however they are largely predetermined by the local conditions and environment for creating a new organization, and the development path set earlier by the regional or city community.

In the generalized form, the scenario of institutionalization of state support for innovations for our two cases can be described as follows:

**The generalized scenario of institutionalization of state support for
innovations for two cases**

Stage of institutionalization	What is happening at the stage	The role of an institutional entrepreneur (with the focus on creating a business incubator)	Which level of the institute it contributes to
Appearance of an opportunity to organize the support	<p>The political agenda related to the development of innovations and increase of technological companies at the federal level arises.</p> <p>Financing for the innovation development is allocated.</p> <p>There is an interest in developing this area (from the professional community or regional authorities) at the regional level.</p>	<p>Describing the existing request for the support of technological businesses and spreading information about this request.</p> <p>Conveying the idea that the development of technology parks, business incubators is one of the possible ways to support the innovations.</p>	Normative
Cultivation of the idea of innovation and technological companies' support	<p>The federal agenda, local needs and the idea of technological business / innovation support combine into a common meaning.</p> <p>It is substantiated, why supporting innovations can be interesting to regional officials.</p> <p>Organizational forms (technopark, business incubator) and methods (incubation, mentoring, sharing equipment), through which innovations can be supported, are named.</p>	<p>Creating a value-based justification for the innovation support.</p> <p>Conveying the idea that the development of technology parks, business incubators is one of the possible ways to support the innovations.</p>	Normative

Table 1 (cont'd)

Stage of institutionalization	What is happening at the stage	The role of an institutional entrepreneur (with the focus on creating a business incubator)	Which level of the institute it contributes to
	Lobbying emergence of state programs that support specific organizational forms (technology park).	Preparation of applications and justification for the emergence of state programs.	
Formation of the concept of support	<p>The goals of the regional support for innovation (for the region and the professional community) are formulated.</p> <p>The needs of the regional community are formulated, as well as the specific remedies to satisfy them.</p> <p>Under the pressure of the state support programs, umbrella organizational forms are chosen (technopark). The umbrella organizational forms aggregate the support remedies and additional organizational forms within them (business incubator, prototyping center) that can help to achieve the goals by meeting the existing needs.</p> <p>Specification of the functional content for the selected organizational forms is described.</p>	<p>Identification of additional community needs, formation of their more detailed description.</p> <p>Description of the necessary infrastructure and rules of its operation.</p> <p>Formulation of the rules of incubation, the selection of projects for the incubator.</p> <p>Criticism and correction of the concepts created by officials.</p>	Normative, Cognitive

Table 1 (cont'd)

Stage of institutionalization	What is happening at the stage	The role of an institutional entrepreneur (with the focus on creating a business incubator)	Which level of the institute it contributes to
<p>Cementing the concept in the rules of a formal organization and its units</p> <p>(can go in parallel with the previous stage)</p>	<p>The created concepts acquire a documented form consisting of the development strategies, constituent documents, and provisions relating to the internal work of the organization.</p> <p>If necessary, new legal entities are created.</p>	<p>The institutional entrepreneur are not involved in the direct bureaucratic work.</p> <p>Involvement of managers who are able to structure the work of the incubator formally.</p> <p>Criticism and correction of the documented concepts.</p>	Regulatory
<p>Launching the work of organizations</p>	<p>Organizational decisions regarding the construction of facilities, the launch of the infrastructure of various divisions, the recruitment of employees and residents are accepted and implemented.</p>	<p>Co-financing or searching for opportunities for government subsidies.</p> <p>The engagement of employees, mentors, and residents of the incubator through entrepreneurs' own networks. Participation in the selection of employees</p> <p>Monitoring the implementation of the project.</p>	Normative, Cultural-cognitive
<p>Routine activities aimed at the support</p>	<p>The program for supporting technology companies and projects described in the concept is launched.</p> <p>Specific actions in the framework of the previously described support methods are invented on the ground, in the course of communication with residents, accumulation of experience.</p>	<p>Mentoring and other work related to incubation of residents.</p> <p>Community development.</p> <p>The engagement of employees, mentors, and residents of the incubator through entrepreneurs' own networks. Participation in the selection of employees.</p>	Cultural-cognitive

2. The place of an institutional entrepreneur in the institutionalization process

The role of the institutional entrepreneur could be represented both by the collective actors (business associations) and by the individual experts. However the representatives of the professional community were always involved in the institutionalization process.

Compliance with the status expectations of incumbents associated with the confirmation of the expert title allowed institutional entrepreneurs to take this role legitimately.

The title of an expert was confirmed by: the specialized education, experience in running a technological business and/or special programs and initiatives to support it. The evaluation was based on the economic results of their professional activity: whether there was a technology business, how successful it was, what contribution it made to the economy of the region; whether there were clear and meaningful results of the infrastructure projects.

Institutional entrepreneurs formed the normative, cognitive or cultural-cognitive level of the institution by their work. Institutional entrepreneurs took the least part in creating a regulatory framework for the work of the new organization through fixing the created rules in a formalized form.

The work on the regulatory framework was more typical for a collective institutional entrepreneur (two business associations in the Novosibirsk region) than for the individual experts united in one team (St. Petersburg). The latter became institutional entrepreneurs accidentally rather than purposefully and did not fully realize their potential in this role. For them, the institutionalization of rules has become a side effect of organizing the work of the organization most efficiently.

The ability of institutional entrepreneurs to form a new institution relied on the social skills. These were the skills to find interests and benefits for all participants in the creation of a new organization in such a way that these interests and benefits did not run counter to the profile activities of the technopark or business incubator.

Depending on whether the actors were independent or accountable to the federal authorities, these motivations could be reduced to the possibility of gaining professional advancement, an increase in strategic vision, material resources or practical skills in managing of technological business in Russia.

The institutional entrepreneurs' ability to invest the financial resources in the project was not a decisive argument in the negotiation process. This confirms that the use of social skills in the Russian case played a greater role than resources or power.

The implementation of social skills was carried out through working with meanings. It consisted of three components:

- 1) Conveying the idea or indication that the creation of the technopark and/or incubator is one of the possible ways to support the innovation. This allowed institutional entrepreneurs to help the incumbents understand the new political and economic processes and connect the ideas of the technopark and the business incubator with the existing federal agenda.

This has become a profitable strategy due to the existence of sociopolitical legitimacy that endorsed the support of innovations and the development of special organizations associated with it.

- 2) Specification the of idea and essence of new organizations. Institutional entrepreneurs turned abstract ideas about supporting innovation and the work of a business incubator into specific concepts of a new organization, which were later formalized by the officials. Through this process, institutional entrepreneurs formulated and highlighted certain needs and aspects of life of local technological entrepreneurs.

- 3) Participation in the practical implementation of the project. It was an innovative decision in the process of sensemaking. This involvement allowed to exercise "author supervision" and to implement the inventions in the correct form. Leaving the project at the stage of concept formation did not allow institutional entrepreneurs to achieve the desired result because of the specifics of the organizations created: reliance on the informal, loose coupling of the formal organization structure and the methods of companies' incubation.

Trust of the potential users and experts in the business incubator work was formed through assessment of the degree of institutional entrepreneurs' embeddedness in the professional networks. The most important component of the incubator's work is the level of expertise. And a key way to check it is either to test it personally or to get the opinion of other members of the professional community. Thus, such an assessment reduced the risks of cooperation.

3. Features of business incubators as organizations

In the process of institutionalization, specific organizational forms (business incubator, technopark) were used more as myths³⁵ to attract resources, rather than as working solutions for organizing support and reducing cognitive burden of the involved actors. These organizational forms-myths contributed to reciprocal legitimacy. They conveyed a clear message that the region was ready to support the federal agenda and knows how to do it. These myths also partly guaranteed that the regional efforts would be supported.

Within the created business incubators, formalization involved the work of the organization itself. Incubators' structure, indicators of work, the rules for selecting residents and partly for community creation were formally fixed. In practice formalization did not embrace the very process of developing residents as businesses. The incubator team and experts engaged in this work could lead the incubation process at their own discretion, based on past experience, their own views and the needs of a particular resident. Also, the requirements for the selection of the staff responsible for the incubation were not formalized. Thus, the state support of innovations in its institutionalized form could not overcome the bias in the informal practices typical for this sphere. Habitualization and typification of actions connected with the company development almost did not happen. So these actions could not transfer to the formal dimension. On the one hand, the lack of formalization helped to preserve the essence of the work and its

³⁵ Meyer J., Rowan B. Institutionalized Organizations: Formal Structure as Myth and Ceremony // *Journal of Economic Sociology*. 2011. Vol. 12 (1). P. 43–67 (in Russian).

efficiency (efficient incubation could have hardly taken place under other conditions). On the other hand, it made innovation support more vulnerable and dependent on the presence of specific professionals and the quality of their work in the incubator team.

Paradoxically, despite a high degree of informality, the incubators that were able to consolidate the presence of the professional community in their structure could benefit the most. Thus, they institutionalized the principles of work (the normative level of the institution), rather than the specific consulting activities (the cognitive level of the institution). This later allowed the use of the solutions that corresponded to the genuine goals of the organization.

General conclusions from research

Despite the fact that the institution construction for the state support of innovation was initiated from the top, institutionalization became a two-sided process of interaction between authorities and the professional community, which acted as an institutional entrepreneur.

This can be explained by the fact that the state support for innovation development as a social institution was constructed in the top-down manner and comprised an initial conflict in the first place. The grounds for this conflict were the gaps between its regulatory, normative and cognitive levels. Sociopolitical legitimacy was significantly ahead of the cognitive one. This particular conflict was resolved at the local level, namely through the activities of institutional entrepreneurs. This conflict led to a significant variation in the scenarios and the results of the institutionalization of state support for innovation in the regions.

The conditions in which the potential for institutional entrepreneurship had an opportunity to be realized were related to the existence of a supportive regional context (whether the city where business incubators were established had a developed scientific and technological sector) and, most importantly, socio-political legitimacy. It provided an opportunity to predict the actions of other actors and to assess their benefits, which

contributed to the strategic action. However, a high degree of institutionalization in this area was not observed.

In the course of the analysis, we observed that on the one hand, the institutional entrepreneur initiated and supported purposeful actions aimed at the formation of new institutions. On the other hand, this work was more likely to include identification and establishment of informal rules and practices at cognitive and normative levels, than the creation of formal rules at the regulatory level.

This is the fundamental difference between an institutional entrepreneur and a manager. In the process of institutionalization, the manager is primarily focused on the formation and support of the regulatory basis of the institution and pays much less attention to the normative and cognitive levels. The control function strengthens to the detriment of filling the institution with practices and values for its subsequent efficient work. That is, for the positions of the manager and the institutional entrepreneur, the watershed takes place according to the forms in which they work with the existing uncertainty.

The key difference between the two cases is the self-awareness of experts from the professional community in the role of an institutional entrepreneur, which included the willingness to actively engage in the creation of formal rules. This ultimately determined the scale of the development of the state support in the regions and its efficiency. In the case of Novosibirsk, business associations were more able to lead the creation of diverse support for technological companies (from formulating the rules of incubation to the creation of special housing programs). In the St. Petersburg case, the role of institutional entrepreneurs was limited to the formation of basic principles of working with companies, using personal social networks, transferring of knowledge within the incubator. Further development of support was formed by project managers at later stages.

The history of the business incubators' creation in the Novosibirsk Region and St. Petersburg has shown that institution construction has a chance to take place if the informal rules (social norms, business arrangements, and profile practices) already exist locally and are close in meaning to the newly created formal ones. These informal rules allow to fill the formal regulatory framework with appropriate content, give value-

normative guidelines and ensure the functioning of the new institution through routine practices.

However, for us the key feature is different: even if there are informal rules and practices, successful institution formation should be accompanied by a large-scale negotiation and search for suitable motivations for all the stakeholders. This translates the professional task into a political dimension. The search for motivations promotes unification of various social groups for the benefit of common goals, as otherwise officials, technological entrepreneurs, scientists, etc. remain separate and a new social reality does not arise. In the Russian case the demand for innovation from the federal authorities does not only provide a socio-political legitimization, but also gives the negotiating process a chance to be successfully implemented. In the context of current decrease in the state's interest in innovations, we can expect complications in the negotiation process and weakening of the positions of the institutional entrepreneurs from the professional community.

There is no doubt that the Novosibirsk case is unique, as there are few cases of grassroots consolidation of the professional community in the Russian science, R&D sector and technological entrepreneurship (with the exception of IT) especially those that have reached such a degree of formalization and efficiency. However, the case of St. Petersburg shows that the willingness to negotiate can lead to similar results, even if the community of technological entrepreneurs is not so united and successful in the region, as it was in the Novosibirsk region. One or several experts who are ready to assume the role of an institutional entrepreneur and negotiate are sufficient for the successful institution formation.

Thus, the development of institutions of state support for innovation in the Russian case can be closely related to the role of individuals. This is due to the fact that independent collective actors (associations, societies, etc.) capable of carrying out collective action rarely emerge in Russia. Especially when the organizational field is in the period of formation. Additionally, the sphere of innovations has always been more informal and connected with the expert's personality. It happens because of the need to pass an expertise that is weakly separable from its carrier. In this regard, support for the

development of innovation is in line with the transfer of any practical knowledge — not a knowledge of "what", but a knowledge of "how", i.e. non-propositional knowledge. It requires special spaces where one can see the experience of others, as well as the mechanics of interaction that help to comprehend this knowledge through working with experts. This feature strengthens the position of institutional entrepreneurs from the professional community forcing the incumbents to enter into negotiations.

The list of publications of the author reflecting the key scientific findings from the dissertation

1. Chernysh A.V. Institucionalizacija pravil gosudarstvennoj podderzhki innovacionnoj dejatel'nosti v Rossii 2000-h gg. Na primere biznes-inkubatora v Novosibirskoj oblasti (Institutionalization of the Rules in Russian Innovation Policy in the 2000s. On the Example of a Business Incubator in the Novosibirsk Region) // Journal of Economic Sociology. 2018. Vol. 19, № 1. P. 25–61 (in Russian).
2. Chernysh A.V. Vozniknovenie organizacionnyh modelej: vzgljad novyh institucionalistov (The Emergence of Organizational Models: New Institutionalism Perspective) // Sotsiologicheskie Issledovaniia (Sociological Studies). 2017. № 4. P. 140–146 (in Russian).
3. Chernysh A.V. Kogda vozmozhny innovacii: socialnaya ukorenjonnost' i doverie v soobshhestve tekhnologicheskikh predprinimatelej (When Innovations Are Possible: Social Embeddedness and Trust in a Community of Technological Entrepreneurs) // Etnograficheskoe Obozrenie (Ethnographic Review). 2012. № 3. P. 65–77 (in Russian).