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ПРЕИМУЩЕСТВА И НЕДОСТАТКИ ГОСУДАРСТВЕННОЙ СИСТЕМЫ ИНСТИТУТОВ ПОДДЕРЖКИ ИННОВАЦИЙ
GOVERNMENT INNOVATION SUPPORT INSTITUTION SYSTEM ADVANTAGES AND DISADVANTAGES

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Актуальность *представленной работы определяется участием Российской Федерации в глобальной экономической конкуренции и необходимостью совершенствования инновационной экосистемы РФ.* ***Задача работы:*** *предложить возможные способы улучшения механизма государственной поддержки трансфера технологий в России на основе сравнения опыта России и Финляндии.* ***Содержание работы.*** *В работе рассматривается понятие инновационной экосистемы и системы государственной поддержки инновационных проектов начального уровня в Финляндии и России как элементы данных экосистем. Излагаются итоги 4-летнего опыта работы с российскими инновационными проектами в сравнении с результатами месячного анализа инновационной инфраструктуры Финляндии.* ***Результаты****. На основе изучения опыта Финляндии выделены ключевые и наиболее явные отличия системы Финляндии от России и предложены способы улучшения российских механизмов поддержки инновационных проектов начального уровня. Очень важно уделять внимание не только научной новизне предлагаемых изобретательских идей и инновационных проектов, но и их потенциальным рыночным перспективам, а для этого вводить инструменты «первичного тестирования» инновационных идей. Также важно переходить от вертикальной интеграции в инфраструктуре поддержки инновационных проектов к горизонтальной, что позволит значительно увеличить количество ресурсов, доступных проектам.*

Ключевые слова: *инновационный проект, институты поддержки, инновационная система, фонд, стартапы.*

The relevance of the research *is determined by the fact that Russia is a participant in the global economic competition, so there is a need to improve Russian innovation ecosystem.* ***The main aim of the study*** *is to propose possible improvements to the mechanism of state support for technology transfer in Russia by comparing Russian and Finnish experience.* ***The content of the research****. The study deals with the concept of the innovation ecosystem and considers the system of innovation projects state support on the initial level in Finland and Russia as elements of these ecosystems. The results of 4 years of experience working with Russian innovative projects are presented in comparison with results of Finnish innovation infrastructure monthly analysis.* ***Results.*** *On the basis of Finnish experience the key and most obvious differences of Finland from Russia are highlighted and improvements for Russian support mechanisms for innovative projects on the initial level are suggested. It is important to pay more attention not only to the scientific novelty of the proposed inventive ideas and innovative projects, but also to their potential market opportunities and to introduce tools for "initial testing" innovative ideas. It is also important to move from the vertical integration in the innovative projects support infrastructure to the horizontal, which will greatly increase the amount of resources available to the project.*

Key words*: innovation project, support institutions, innovation system, fund, start-ups.*

In 2010 a group of young and active students of TPU won a grant of the Ministry of Education of Russia. Part of the grant money was invested into the program "Students Involvement in Innovation and Entrepreneurial Activities in University" run by the Department of Engineering entrepreneurship of Tomsk polytechnic university. Our team has been engaged in consulting and promoting students and young researches' start-ups and organizing educational programs for young entrepreneurs. For these five years, our team has taught more than 6,000 people, and graduates of the program only in 2014 have founded more than 10 businesses with 50 employees, that pay taxes to the state budget enough to compensate the money spent to the program, so the program 'pays for itself'.

In a few words, the main principle of the system of activities is the principle of consistency: everything is aimed at reaching the goal. That is why the project work process is divided into 4 stages (fig. 1).

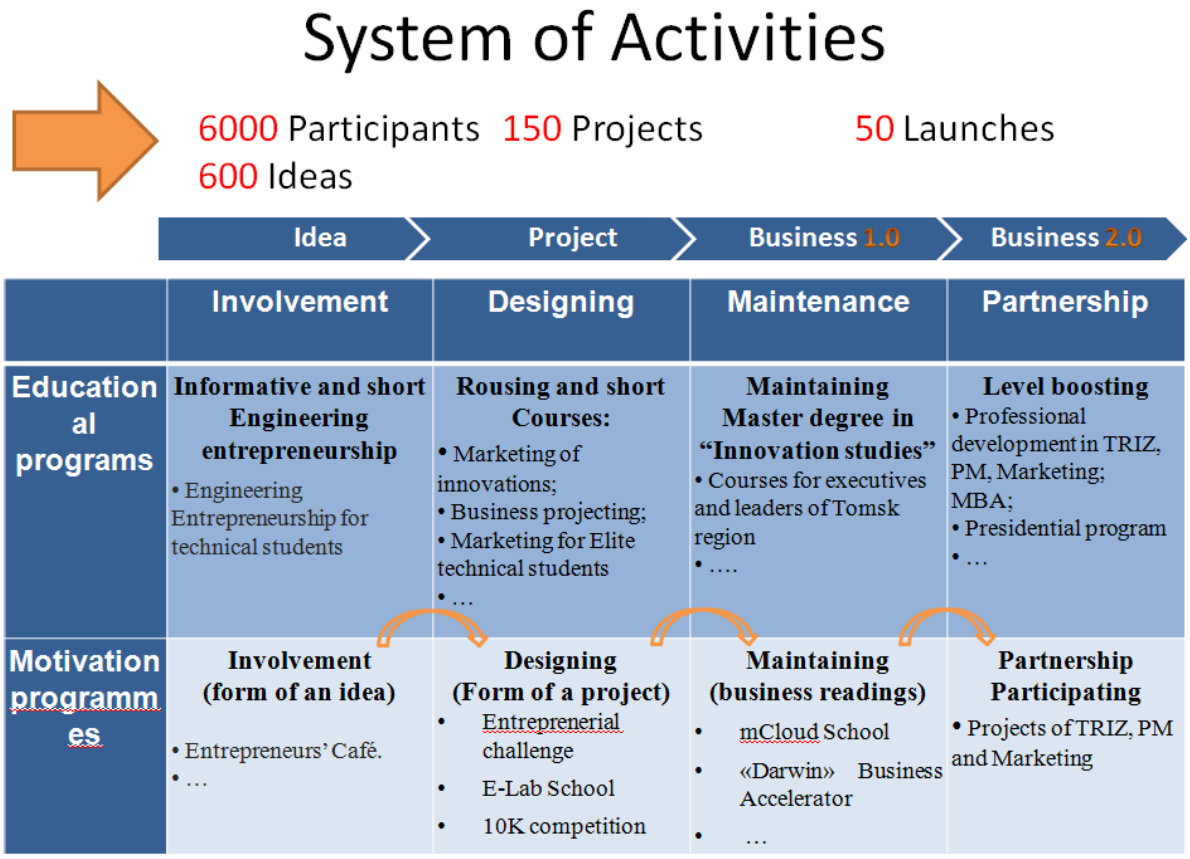

Fig. 1. *Process of youth involvement into entrepreneurship events*

- Involvement. The participants get acquainted with the basis of entrepreneurship, formulate the primary business ideas.
- Designing. There is a team (3–5 people) and the elaborated project idea.
- Maintenance. An enterprise has developed a product, has done the first sales.
- Partnership. The enterprise has grown and integrated into the local community. For each of these stages our team had developed special activities, totally more than 30 events.

At the same time, for three years (2010–2013) one member of our team has been the regional Head of the all-Russia project in Youth innovation support holding the title of the "Best regional curator". More than five hundred innovative projects have been consulted and supervised for these four years. Other member of our team has been the regional Head of the all-Russia project in Youth involvement in entrepreneurship, also assisting hundreds of youth business projects.

Last year three members of our team had business trips to Finland to study the infrastructure of innovations in the local higher educational establishments. There were considered the systems of support in Aalto University, Helsinki, the municipal system of small business support. All in all there

were studied more than forty start-ups. We have theoretical and practical experience about how start-up support is organized in Russia – we have described our experience in some works ([1–5]) – and we would like to know the same about Finland.

This article is going to compare the approaches how innovative start-ups are organized and supported in the Russian Federation and Finland, how the innovation ecosystems in the countries are organized.

James Moore introduced the term "business ecosystem" in 1993, since that time the term "entrepreneurial / innovation ecosystem" became widespread in the European scientific and business communities. This term came to the Russian business turnover relatively recently, and still there is no single definition for it. In this regard, first of all, it seems appropriate to give definitions to this phenomenon [6].

According to E. Morgunov and G. Snegirev, it is necessary for the innovation system to have subsystems performing the following functions:

- knowledge generation, education and training,
- production of goods and services,
- financial support, legislation, macroeconomic policy, etc. [7].

Practitioner, director of programs and projects of the Russian Venture Company (RVC) Andrey Vvedensky believes that "innovation ecosystem is a set of relationships of all its elements: investors, including venture capital funds, and infrastructure elements – service and packaging company, technology parks and technology transfer centers, as well as innovative campaigns themselves (start-ups)" [8].

The definition provided by another practitioner, L. Kopeikina, director of the well-known US corporation Noventra, specializing in innovative projects: "Innovation ecosystem is a set of conditions conducive to enterprises creation and development" [9].

Kopeikina identifies three key factors to create an innovation ecosystem:

1) presence of researchers and companies involved in the development of advanced technologies in the field of specific knowledge;
2) existence of the community, presence of people who create ideas, opportunities to get together and discuss them;
3) presence of people with entrepreneurial, managerial and business skills in the ecosystem;
4) sufficiently large number of venture capital companies, business angels and private investors (financial aspects). These people perform a very important function of the sort of ideas and new companies competing for investment, investing only in the best of them [9].

As a result, we can include on the view of man who combine theory and practice – Professor Daniel Eisenberg, founder and executive director of the project Babson Entrepreneurship Ecosystem Project – BEEP. He believes that building an effective entrepreneurial ecosystem should consider six main lessons:

1) understanding and comprehensive development of all elements of the entrepreneurial ecosystem: policy; financial industry; culture; infrastructure for the support of entrepreneurship; human capital (including education); market. It is important to understand that without the funding of education and culture the system will not lead to growth of entrepreneurship. It is necessary to take into account all of these elements and their mutual influence on each other;
2) do not try to change all elements of the ecosystem at once, you need to start with a few items and then change all the rest;
3) it is necessary to study the best practices around the world, but not to imitate the success of others;
4) to build the ecosystem at local levels, only some elements of the entrepreneurial ecosystem (such as politics) should be established at the national level;
5) it is necessary to create the entrepreneurial team, which would have the special skills and energy, could affect the stakeholders, developing all the elements of the entrepreneurial ecosystem, but at the same time, would act independently;
6) one needs to demonstrate success stories, "success breeds success"; successful entrepreneurs are ready to help start-up businesses, sharing their experiences and investing [10].

The article tells about the first steps of the innovative ecosystem – the ways that system supports innovative projects on early stages. In Russia we have been dealing with the projects having applied for the programs of the Small Business Development Assistant Fund, FASIE (In the scientific sphere this represents the very beginning of the innovative process – the idea and the start-up). In Finland we studied the projects having the support from Finnish Funding Agency for Innovation, TEKES fund which holds the similar place in the innovative process (fig. 2, they are both marked with arrows). Thus, we can make the comparison.

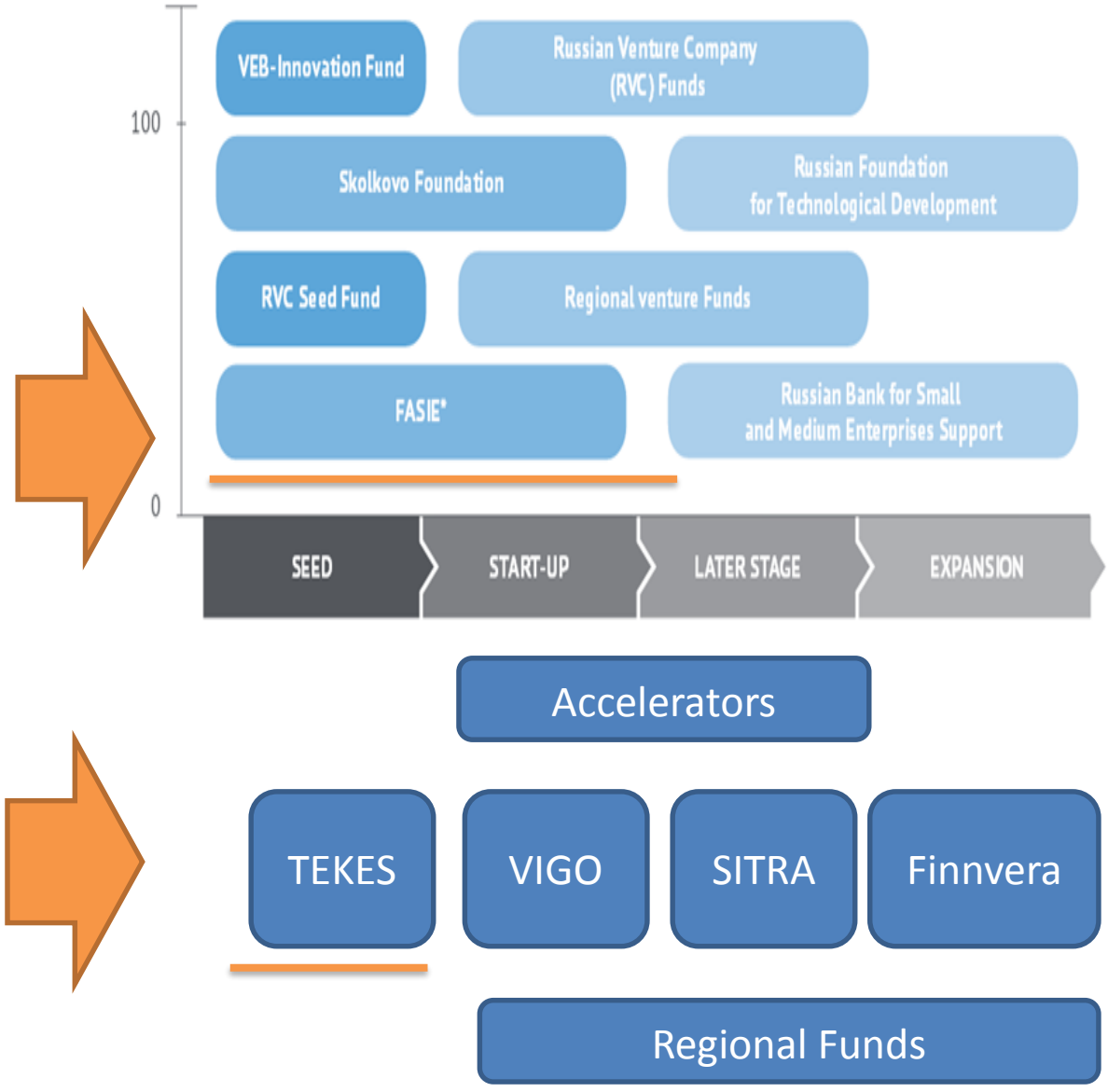

Fig. 2. *Innovative system of the Russian Federation and Finland, by author*

Let us, first of all, compare FASIE and TEKES (table 1).

Table 1. FASIE and TEKES comparison

	FASIE [11–14]	TEKES [15–20]
Brief	The state non-commercial organization, founded in 1994	Tekes is the Finnish Funding Agency for Innovation. Tekes is the most important publicly funded expert organisation for financing research, development and innovation in Finland
Aims	The main objectives of the Fund: • Public policy development and support for science and technology. • Creation and development of support infrastructure. • Promotion of the creation of new jobs for the effective use of scientific and technological potential of the Russian Federation. • Financial, information and other assistance. • Involvement of young people in innovation. • Attraction of extrabudgetary investments in small innovative businesses	Tekes aims to: • create opportunities for global growth; • promote customers' renewal; • support upcoming business ecosystems; • build, together with our partners, a top-level innovation environment; • offer a path to market in Team Finland co-operation
Programs	The main programs of the Fund: • "UMNIK" – a program aimed at identifying and supporting young scientists; • "START" – a program to support the commercialization of scientific technologies; • "DEVELOPMENT" – a group of programs to support high-tech business, stepped starting line	A lot of programs, some of them support: • wireless data communications; • international investments; • products and services promoting health, the early diagnosis of illnesses, health monitoring and personalized treatment; • community of electric vehicle and support system; • gaming and entertainment; • etc.
Results	Receive annual financial support of more than 1,500 small businesses. During the existence of the fund, as of May 2014, served about 35,000 applications for R & D, supported more than 11,000 projects from 75 subjects of the Russian Federation. Representative Fund is active in 64 regions of Russia	TEKES: • has partly funded 65 % of well-known Finnish innovations; • in growth companies funded by TEKES the increase of turnover was 24 % faster than in other SMEs in 2010–2013; • in 2014 projects generated 1,500 products or services; • SMEs expect projects in 2014 produced about 6 bln euros in turnover

The main difference that stipulates all the rest ones is the orientation of the Finnish system on practice-based business building whereas the Russian system is meant to support the researchers and their work. It can be seen from the aims. Finland supports the idea that is aimed not only at the surviving (employment providing, tax revenues attraction) but at scaling (the possibility to export the product due to the small size of the market in Finland). At the same time the key point in the Russian fund is the novelty, the possibility to create intellectual property.

In Finland the project applications with the investors co-funding are considered favorable at this very first stage.

In the Russian system it is not the matter of the deal as it is the science (mostly applied sciences) that is supported.

Now let us consider the key differences in ways and meanings of support that is given to projects (table 2).

Table 2. The difference in the main support system characteristics, by author

Criteria for project supporting	
Finland	Russian Federation
• working places, • taxes, • export, • competency of the people in the team	• novelty of the project, possibility to create the intellectual property, • one person takes the whole responsibility (grant is given to one natural person)
Key idea	
Finland	Russian Federation
To set up a business	To support the researcher
The form of support	
Finland	Russian Federation
Up to 50 000 euro	400 000 rubles for 2 years
Form: subsidy: loan, co-financing is preferable	Form: subsidy

What is the deep reason of the difference? According to our practical experience, the most vivid difference that stipulates all the following ones is the difference in the start-up types. According to our experience, it is typical for the Russian Federation to have the majority of start-up projects for heavy industries (oil, gas, electric power). For Finland it is more common to have a lot of start-ups for IT, Mobile and Web services. Minor part of start-ups belongs to electrical power and biotechnologies. The situation in general is outlined in fig. 3.

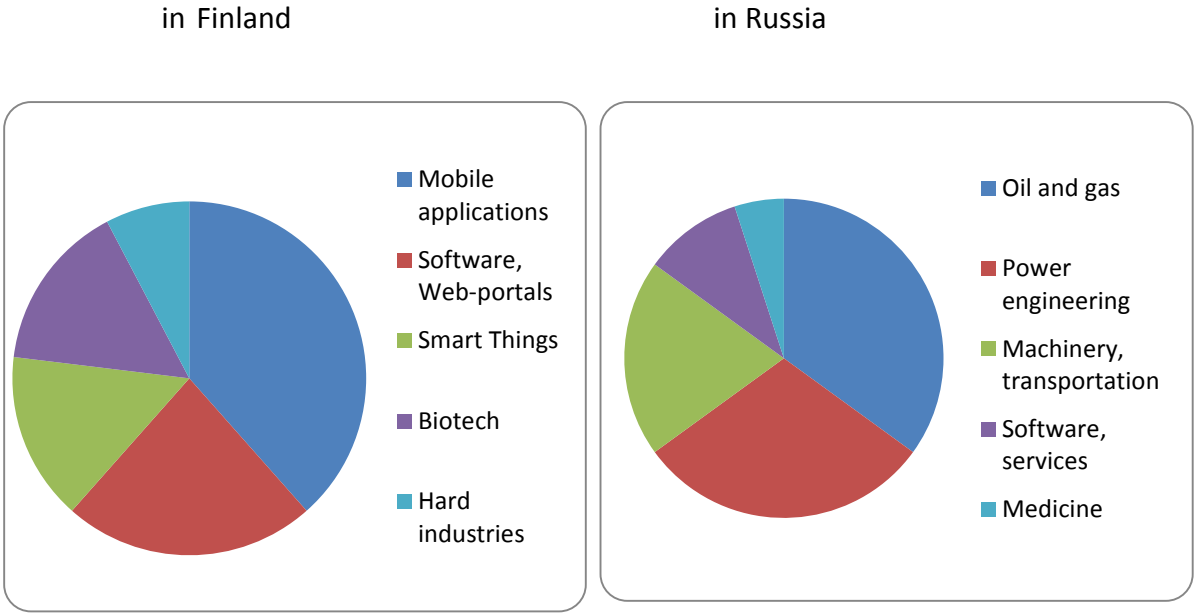

Fig. 3. *Comparative analysis of the start-ups types in different branches (Russian Federation and Finland), by author*

Thus, the following differences can be traced:

- the vector of application (creation of mobile apps does not require the scientific basis whereas to generate a relatively new idea in electric power industry is possible only for a scientist-researcher);

- the project team participants. In the Russian Federation the project teams applying for grants mostly consist of young researchers and engineers. It can be explained by the necessity of the technical competences in the project. For Finland it is more typical to have interdisciplinary teams with the developers, designers and economists. It is explained by the necessity to develop a ready made product (not only a prototype) and it requires more non-technical fields to be concerned;
- the body of the project consulting support. In Finland great attention is paid to marketing and product testing because the IT-products (that is the majority) are not difficult to be tested. It is quite different for the hard industries.

We have been dealing with the project of the technology of underground coals gas provision. The laboratory researches were completed and it has been trying to enter a coal field for two years to try the product.

Basing on our experience it is possible to conclude that the methodological basis of the project, clever goals setting, developing scientific novelty are the priorities in the Russian Federation.

- Innovators society structure. In Finland horizontal communications are very strong, we saw tremendous student-driven communities, for example Startup Sauna in Aalto University. In the Russian Federation the networking is not developed so well.
- Infrastructure. The resource base is more important for projects for the Russian Federation than for Finland as laboratories, equipment and other facilities are crucial for real researches and hard industries. Thus, the formal battery limits and facilities accommodation right were often argued. In Finland for the majority of the projects the only equipment necessary is a laptop and a chair. The differences are described in table 3.

Table 3. The deep differences of the main support system characteristics, by author

Criterion	Finland	Russian Federation
Content of consultative support	Testing (especially in IT)	Package; to show practical relevance theoretically
Way of organizing communication	Community; horizontal	Vertical
Importance of resources and infrastructure	Not important	Crucially important
Project language	Language of needs	Language of science

Nevertheless, in recent years there have been marked the positive changes. Two changes, the most important from our point of view, are the lot system creation and a framework agreement. There has been introduced the system of lots when enterprises order the innovations according to their needs.

There has been developed a framework agreement between a grant-taker (a student or a young scientist), a fund and an educational establishment. That aims to reduce the possible misunderstandings between them.

Conclusions: What are the conclusions drawn from the comparison of two systems (the Russian Federation and Finland)? Are there going to be any changes in the Russian model of work?

We consider the following two tasks to be the most important.

The first task is to make the projects more practice-oriented, to pay more attention not only to the novelty of the projects discussed but also to the prospective market, the barriers to entry, the term of the return of investments. Unfortunately, the scientists and researches of the

Russian Federation are not very strong in “business language” that makes their position weaker.

E.g., one of innovation projects developed at TPU – construction of 3D-scanner for nondestructive control – faced a plenty of difficulties on the market despite the fact that it exceeded existing tools in its quality and – until top-management of the project has moved from scientists to business people who put emphasis not only on quality, but also on other customer values, such as convenience, ‘smart functions’, etc.

The second task is the development of horizontal network communication in the society. We have proved the benefits of the so called soft infrastructure implementing: these are the trust, readiness to discuss the problems of each other, sharing time and resources. The way to implement the ideas mentioned above in the condition of constrained resources remains the challenge for us.

It was typical for all innovation infrastructure bodies that we studied – Vigo acceleration program, University of Aalto – and other well-known organizations, such as Technopolis, etc. We think that weak horizontal network communication based on the lack of trust is the most important problem for modern Russian innovative ecosystem.

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