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R95 **Russian Economy in 2012. Trends and Outlooks.**
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The review provides a detailed analysis of main trends in Russia's economy in 2012. The paper contains 6 big sections that highlight single aspects of Russia's economic development: the socio-political context; the monetary and credit spheres; financial sphere; the real sector; social sphere; institutional challenges. The paper employs a huge mass of statistical data that forms the basis of original computation and numerous charts.

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State of Science and Innovation in 2012

From Innovation to Science

The past year was marked by the alteration of former trends and priorities following the change of the President and the Government. State policies for supporting science came to the fore while the encouragement of innovative activities and technological development lost in the frequency of its mentioning in the official documents. The switching of priorities was also reflected in the way consultative bodies were restructured.

In June the President signed Decree No. 878 of June 18, 2012 “On the Council under the President of the Russian Federation on economic modernization and innovation-based development of Russia” by which he eliminated the Commission under the President of the Russian Federation on modernization and technological development of Russian economy. A bit later – in August – the Government Commission on high technologies and innovations was eliminated as well¹. The declared rationale for cutting the number of institutions dealing with innovation-based development was the need to avoid overlapping of their activities; however, it also implied the fading of attention to this sphere.

Indeed, the word “innovations” has never been mentioned either in the Budget Message of the President on the budget policies in 2013–2015² or in the President’s Address to the Federal Assembly³ while the issues of development of science got fairly close attention. As soon as in August the Ministry of Economic Development (MED) declared that in the coming two years the state would cut expenditures on innovations⁴.

At the same time a new Department on scientific and educational policies under the President was established in June⁵, the general administration of which was entrusted to the President’s assistant – former Minister of education and science Andrey Fursenko. As different from the new Council on modernization of economy and innovation-based development of Russia under the President of the Russian Federation, the tasks of this Department were formulated rather explicitly. Among them was not only the participation in determining the guidelines for state scientific and educational policies but also the issues of funding scientific research including broader use of grant-based form of financing, programs for development of scientific-educational centers, scientific and educational institutions. Besides, the Department was charged with backing up the work of the Council on science, technologies and education under the RF President which in July was reorganized into the Council on science and education under the President of the Russian Federation⁶. So, the issue

¹ RF Government Resolution No.839 of August 16, 2012 “On the elimination of Government commission on high technologies and innovations”.

² Budget message of the President of the Russian Federation on budget policies in 2013-2015 of June 28, 2012 <http://kremlin.ru/acts/15786>

³ Address of the President to the Federal Assembly of December 12, 2012 <http://www.kremlin.ru/news/17118>

⁴ According to O.Fomichev, the Deputy Minister of economic development of the Russian Federation. *Source: Rossiya planiruet sokratit' raskhody na innovatsii*. [Russia plans to cut expenditures on innovations]. *RIA Novosti, RBC TV*. 28.08.2012. http://rbctv.rbc.ru/archive/main_news/text/562949984609693.shtml

⁵ Decree of the RF President No.882 of July 28, 2012 “On the Department on scientific and educational policies under the President of the Russian Federation”.

⁶ Decree of the RF President No.1059 of July 28, 2012 “On the Council on science and education under the President of the Russian Federation” <http://www.kremlin.ru/news/16087>

of “technologies” was also withheld from the area of priority concern. The new Council is an advisory institution and as different from the former one which concentrated largely on granting various kinds of State and Presidential awards, also has a range of clear-cut tasks for the implementation of which inter-departmental teams in four areas have been created. These are: “priority and inter-disciplinary research”, “research infrastructure”, “mechanisms for supporting scientific and educational sphere”, “scientific and educational provision of engineering activities”. They can be regarded as the current priorities of the President’s policies in the field of science and education.

The creation of the Department instigated the debate as to whether the new institution would be a sort of competitor to the RF Ministry of Education and Science with the consequent overlapping of functions and fight for influence and leadership. Competent experts expressed an opinion that such fears had no grounds and the President’s assistant Andrey Fursenko stressed that each institution would find its own field of work and, moreover, the Ministry and the Department would generate additional opportunities for each other¹. Since the Department and the Council on science and education under the President of the Russian Federation have just begun to operate, it’s still difficult to assess whether the executive body and the quite influential advisory institution that work in the same field will manage to co-exist peacefully.

Summing up the essentials of the basic Addresses and Decrees of the newly elected President of the Russian Federation, the priorities of the scientific policies from now on are:

- development of the system of grant-based financing of science including the increase of budget financing of public scientific foundations by 2018;
- growth of financing of R&D carried out in higher education institutions;
- increase of research workers’ salaries (within the framework of raising incomes of social sphere workers – school teachers, university professors, cultural workers, etc.);
- improvement of quality of scientific research which should be reflected in higher share of Russian researchers’ publications in the world scientific journals indexed in the database Web of Science;
- involvement of scientific community into the modernization of defense complex and creation of a special “Foundation for advanced research” to work with defense technologies. The latter was set up in October 2012². It will deal with R&D having respect to the country’s defense and security, modernization of the armed forces and creation of innovative technologies and facilities for the production of military, special and paramilitary produce. The rise of attention to defense research that has been the case for some time now is not infrequently regarded as a stimulus to the development of science at large. However, the recent world trends evidence that civil science is increasingly feeding the military one and not the other way round as was formerly the case.

¹ Granik I., Nagornych I., Chernych A. *Andrey Fursenko poluchaet vtoroye obrazovaniye. V administratsii prezidenta sozdayotsya novoye profil’noye upravleniye.* [Andrey Fursenko gets second education. A new specialized department is being created in the President’s administration.] // Kommersant, No.115, 27.06.2012. http://www.kommersant.ru/doc/1967938#_methods=onPlusOne%2C_ready%2C_close%2C_open%2C_resizeMe%2C_renderstart%2Concircled&id=I0_1355756199031&parent=http%3A%2F%2Fwww.kommersant.ru;

A.Fursenko ob’yasnil zadachi Upravleniya po obrazovatel’noy politike. [A.Fursenko explained the tasks of the Department on educational policies.] 28.06.2012. http://www.strf.ru/material.aspx?CatalogId=221&d_no=47400

² RF Federal Law No.174 of October 16, 2012 “On the Foundation for advanced research”. <http://www.consultant.ru/law/hotdocs/21403.html#.UNAzI8V3pEs>

Last year not all of the above mentioned priorities started to be actively implemented – i.e. not to a noticeable extent. But preparatory works got really going in several directions including the elaboration of staff support measures and development of science in higher education institutions, the coordination and approval of the RF State program “Development of science and technologies” in 2013–2020. The operation of development institutions continued; at the beginning of the year new measures in the domain of innovation were initiated – first of all, the carrying out of competition-based selection of innovative clusters eligible for further state support. Finally, the change of policies towards foreign grant-awarding institutions should not go unnoticed; formally it was not relevant to the domain of science but actually had a great impact on the atmosphere around foreign scientific foundations.

State Program for the Development of Science and Technologies

Within 2012 several draft projects of the RF State program “Development of science and technologies” in 2013-2020 were worked out but public debates focused mostly on the subsection pertaining to the support of fundamental research.

The original intent of elaborating a new program for fundamental research was to make it “integrated”, uniting major performers of fundamental research in the country and eliminating over-lapping of their activities. Besides, the role of competition-based financing should have grown. Respectively, the procedures for establishing the structure of coordination, management and interaction with state agencies as well as the set of performance indicators were being elaborated. In its initial version the program for fundamental scientific research in state academies of sciences constituted a separate block of the sub-program “Fundamental research and development of academy sector of science” of the draft RF State program “Development of science and technologies” in 2013-2020. In March 2012 the Russian Academy of Sciences (RAS) coordinated this draft with the then executives of the Ministry of Education and Science but on June 19, 2012 the fresh leadership of the Ministry placed on its website an updated version after the examination of which the administration of RAS countermanded its endorsing signature¹. The provision about the pivotal role of RAS in the implementation of the consolidated program disappeared from the new version while the role of the Ministry of Education and Science respectively grew. In its coordinated version the program was a sum of independent sub-programs implemented by major stakeholders – RAS, leading higher education institutions, the Russian Foundation for Basic Research, the Russian Humanitarian Scientific Foundation, etc. However, the forming of agenda and execution of fundamental research was supposed to be based on the integrated system of priorities that should be determined through the consideration of program participants’ suggestions (taking into account the Plan of RAS fundamental research till 2025) and approved by the Coordinating Council of the program. It was also essential that the Coordinating Council should be headed by the President of RAS. In the new version the Coordinating Council was renamed into the Council of Integrated Program, its functions as well as the subordination of participants were defined rather vaguely and RAS became a coequal partner.

The system of performance criteria also changed a lot. There were many of them in the coordinated version: beginning from financial, infrastructural (the number of large scientific

¹ Volchkova N. *Mozhno bep syurprizov?* [May there be no more surprise?] // *Poisk* [Search] No.38, 21.09.2012, p.3.

installations) and staff indicators to the frequency of citation. In particular, indicators of integration between different institutions engaged in fundamental research were proposed – for instance, the number of new basic chairs, educational and scientific centers, task academic laboratories created in higher education institutions – which was important for the integrated program. Only indicators of publication activity and frequency of citation remained in the new version. But it's not quite correct to use the data of exclusively bibliometric analysis for the current assessment of research results since they are adequate for longer periods and should be supplemented with other indicators.

After the active criticism from RAS a revision of the draft project began and several more versions appeared since then.

At the meeting of the Open Government expert council in October 2012¹ the parties concerned (representatives of RAS, state scientific centers, higher education institutions) noted that their remarks on the draft State program had not been taken into account. In its turn the RF Ministry of Education and Science insisted that the document had a framework nature and therefore all the details would be amended a lot of times and finally defined later.

At the RF Government meeting in November a consensus was reached at last: the program of fundamental research in state academies of sciences for 2013-2020 was included in the RF Integrated program for basic scientific research as a separate section, and RAS became one of the major coordinators thereof². In December the Prime Minister signed the Directive (No. 2433-p of December 20, 2012) enacting the state program “Development of science and technologies”. According to its final version the RF Minister of education and science Dmitry Livanov and the President of RAS Yuri Osipov were appointed co-chairmen of the Board of RF program for fundamental research.

It's indicative that the discussion around the place and role of RAS distracted attention from more serious questions including the scenario according to which the R&D sphere should develop. In the adopted version of the program the least favourable scenario was chosen – the one based on budget rather than modernization.

The set of indicators to be used for assessing the achievement of the program goals is also noteworthy. Among them there are both hard-to-attain targets (pertaining mainly to the increase of publication activity)³ and easy-to-reach figures. In particular, by 2020 one plans to enlarge the share of researchers aged under 39 up to 35% and to provide for the lowering of researchers' average age down to 43. By the first indicator the plan has been already over-fulfilled: the latest available data show that in 2011 the share of researchers under 39 years old reached 37.5%⁴. As to the average age of researchers, in recent years it stuck at the level

¹ Volchkova N. *Consensus v tseitnote. Chem i kogda zakonchatsya spory o novoy gosprogramme?* [Consensus in time-trouble. How and when will the debates on the new state program end?] // *Poisk* [Search], No. 42, 19.10.2012 <http://www.poisknews.ru/theme/science-politic/4325/>

² Aleksandrova N. *Tseny na scenariii* [Prices of scenarios] // *Poisk* [Search] No.45-46, 16.11.2012, p.3.

³ According to estimates of experts of the National foundation for personnel training in order to achieve the set indicators of publication activity the corpus of Russian publications indexed in the international databases should increase by no less than 57% as compared with 2011. If one takes into consideration only articles (without reviews and “letters”), their number should grow by no less than 27% which is also hardly attainable. *Source*: Belyaeva S. *Scenarnye plany. Podnyat' publikatsionnuyu aktivnost' mozjno raznymi sposobami.* [Scenario plans. Publication activity can be enhanced in different ways] // *Poisk* [Search], No. 1–2, 2013 <http://www.poisknews.ru/theme/science/5015/>

⁴ *Nauka, tekhnologii i innovatsii Rossii: 2012. Kratkiy statisticheskiy sbornik.* [Science, technology and innovation in Russia: 2012. Brief data book]. Moscow, *IPRAN RAN* [Institute for the Study of Science of RAS (ISS RAS)], 2012, p. 21.

of 48 years: although the inflow of young people to science became more active, they later leave this sphere. Meantime, elderly researchers do not retire and so the statistical average is not changing. But soon the share of elderly personnel will start to drop owing to the natural decline (so far the percentage of scientists above 70 years old has been growing) and by 2020 the required value of the “average age” indicator will be attained even in case nothing changes in HR policies. If the budget-based scenario remains the principal one, the results are not thus difficult to predict – the parameters of “scientific potential” will improve while the efficiency of science - will not.

Monitoring of RAS Institutions’ Efficiency

Notwithstanding active discussions about the forthcoming direct or indirect reforming of RAS that set off after the new government (and especially the new Minister of education and science Dmitry Livanov who had always been an opponent of RAS) came into office, in the past year the Academy at least preserved its positions. First, in compliance with the adopted plans for the development of fundamental research, within 8 years the annual budgeting of RAS will grow from Rb 55bn to Rb 75bn¹. Although the increase is not impressive, it’s essential that the financing is not being cut. Second, the President signed Federal Law No. 240-FZ of December 3, 2012 “On the introduction of amendments to Article 6 of the Federal Law “On science and state scientific and technological policies” and selected legislative acts of the Russian Federation” in compliance with which state academies of sciences retrieved their powers of establishers of the subordinate state unitary enterprises and public institutions including scientific organizations. From now on the state academies will have the right to take decisions on creation, restructuring and liquidation of such institutions. Therefore, the independence of RAS has consolidated.

Finally, RAS estimated the performance of its institutions using the methodology that comprised 130 criteria including the involvement in international cooperation, effectiveness of work, commercial potential of R&D, resource availability, research area prospects. The results of this estimation stirred up animated discussion as they showed that 290 of 297 institutions proved to be efficient². Indeed, against the backdrop of continuous discussions about the inefficiency of RAS which have certain grounds such a result can be interpreted as an evidence of inapplicability of either solely quantitative criteria for the evaluation of research results or the chosen criteria for an objective analysis of performance. In particular, the productivity of RAS institutions is below the level that could be attained given such a great number of researchers and institutions. The more so, as it is the system of state academies of sciences where the most part of fundamental research is still being carried out – academic institutions account for more than 60% of the country’s domestic expenditures on basic research. At the same time in Russia the share of publications with a high rate of citation in the total number of publications included in the Essential Science Indicators database is lower than even in other countries of BRICS to say nothing of the OECD countries³. Besides,

¹ Volchkova N. *S Instrumentom! Gosakademii sumeli otstoyat’ svoyu programmu*. [Felicitations upon the instrument! State academies have managed to defend their program]. // *Poisk* [Search], No. 50, 14.12.2012, p.3.

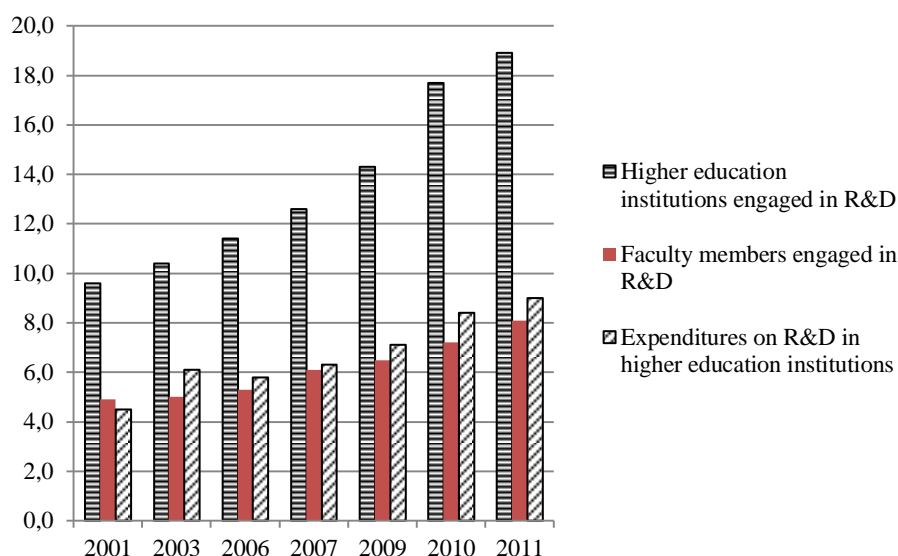
² Bykova N. *RAN otsenila effektivnost’ svoikh institutov*. [RAS has estimated the efficiency of its institutions]. http://www.strf.ru/material.aspx?CatalogId=221&d_no=51562 18.01.2013.

³ *Nauka, tekhnologii i innovatsii Rossii: 2012. Kratkiy statisticheskiy sbornik*. [Science, technology and innovation in Russia: 2012. Brief data book]. Moscow, IPRAN RAN [Institute for the Study of Science of RAS (ISS RAS)], 2012, p.84.

according to outcomes of the tender for conducting joint studies with companies for the purpose of establishing hi-tech operations¹ and judging from the number of applications submitted for participation in the tender for setting up laboratories under the direction of leading scientists (megagrants)² to which the institutions of RAS were admitted in 2012, the activity of academic organizations was low. The projects for creating hi-tech operations will be implemented by 67 companies in cooperation with 53 Russian higher education institutions and only 3 state scientific institutions³, and the share of institutions of state academies of sciences and scientific centers in the total number on applications for megagrants is only 20%⁴.

State Support of Science in Higher Education Institutions

The financing of science in higher education institutions continued growing. While in 2001-2009 its share in the domestic expenditures on R&D was stable ranging from 5 to 7% (Fig. 11), by 2011 it reached 8.7%⁵ and the government plans to raise this indicator up to 15% by 2020. So, the government policies aimed at supporting higher education institutions that had been implemented for quite a long period of time (actually beginning from 2006 when the national project “Innovative curricula of higher education institutions” was launched) started to bring statistically measurable results. But the increase of funding does not automatically imply higher quality of research as evidenced by the current state of affairs.



¹ RF Government Resolution No. 1040 of October 12, 2012 “On introducing amendments to RF Government Resolution No. 218 of April 9, 2010” (“On measures of state support to the development of cooperation between Russian higher economic institutions and institutions carrying out comprehensive projects aimed at establishing hi-tech operations”).

² RF Government Resolution No. 531 of May 30, 2012 “On introducing amendments to RF Government Resolution No. 220 of April 9, 2010” (“On measures for inviting leading scientists to the Russian educational institutions of higher professional training”).

³ <http://p218.ru/catalog.aspx?CatalogId=1228>

⁴ <http://минобрнауки.рф/новости/3043> [News of the RF Ministry of Education and Science].

⁵ *Nauka, tekhnologii i innovatsii Rossii: 2012. Kratkiy statisticheskiy sbornik*. [Science, technology and innovation in Russia: 2012. Brief data book]. Moscow, IPRAN RAN [Institute for the Study of Science of RAS (ISS RAS)], 2012, pp. 29, 44.

Sources: *Nauka Rossii v tsyfrakh: 2008. Stat. sbornik*. [Russia's science in figures: 2008. Statistical book]. – Moscow: CSRS (Centre for science research and statistics), 2008, pp. 16, 51, 89; *Nauka, tekhnologii i innovatsii Rossii: 2011. Kratkiy statisticheskiy sbornik*. [Science, technology and innovation in Russia: 2011. Brief data book]. Moscow, IPRAN RAN [Institute for the Study of Science of RAS (ISS RAS)], 2011, pp. 10, 14, 30, 46.

*Fig. 11. Higher Education Institutions as a Part of Russia's Scientific Complex:
Basic Indicators as % of the Country's Total*

In federal and national research universities (NRUs) which enjoy the most lavish financing (including funds for R&D) the progress has been very slow. The monitoring of scientific potential of the leading Russian higher education institutions carried out by the National foundation for personnel training¹ revealed that although the publication activity of NRUs and federal universities was growing, the higher education institutions lagged far behind academic organizations by such parameters as the number of publications per one researcher and the Hirsch index². It is no coincidence that the number of published articles is the biggest in the Novosibirsk State University³ where 70% of faculty members are dual jobholders working simultaneously in the Academy of Sciences. If one compares the performance of NRUs and federal universities with that of leading foreign universities, their indicators are utterly incommensurable even regardless of the institutions' size. For instance, in a relatively small MIT the number of publications is 1.5-fold bigger than in the whole Moscow State University (MSU) named after M.V. Lomonosov. By the number of selected most highly cited publications the gap between MSU and MIT is even greater – already 12-fold⁴.

It should, however, be noted that the gathering and comparison of quantitative data do not allow to identify development problems of a particular university. For instance, the percentage of faculty members with scientific degrees (i.e. formally having high scientific qualification) in all federal universities is approximately the same, but their scientific output measured by the number of articles and their citing rate differs greatly. Moreover, this output

¹ Arzhanova I. *Dinamika razvitiya nauchnogo potentsiala vedushchikh vuzov*. [Scientific potential of the leading higher education institutions: dynamics of development]. Presentation at the VI Baltic educational forum. Kaliningrad, 20.10.2012. <http://balticeducationforum.ru/presentation/02.pdf>

² The Hirsch index (h-index) is a scientometrical indicator suggested in 2005 by the US physicist Jorge E. Hirsch from UCSD, California. The index was designed to improve upon simpler measures of a scientist's productivity such as the total number of citations or publications. The h-index is a quantitative parameter of productivity of a particular scientist based on the set of his most cited papers and the number of citations that they have received in other publications. Like other bibliometric characteristics, the h-index is not strictly correlated with the researcher's profile and performance, because of a string of parameters that bias its value, e.g. the time that has passed since the moment the article was published (this is why young authors cannot enjoy a very high h-index).

³ According to data of the Web of Science, over the 10 recent years (2001–2011) the leader among NRUs was the Novosibirsk State University with 4253 articles, then followed the Saint-Petersburg Polytechnical University (4101 articles) and the Nizhny Novgorod State University (2870 articles). Source: *M. Murav'yova. Vedushchie vuzy: den'gi, nauka, stat'i*. [Leading higher education institutions: money, science, articles]. 24.10.2012. http://strf.ru/material.aspx?d_no=49734&CatalogId=221&print=1

⁴ Within 2001–2011 MIT issued 2147 most highly cited publications while MSU – only 181. Source: Essential Science Indicators, Arzhanova I. *Dinamika razvitiya nauchnogo potentsiala vedushchikh vuzov*. [Scientific potential of the leading higher education institutions: dynamics of development]. Presentation at the VI Baltic educational forum. Kaliningrad, 20.10.2012. <http://balticeducationforum.ru/presentation/02.pdf>

does not correlate neither with the level of qualification nor with the amount of R&D funding¹.

Finally, a paradoxical situation is being observed – despite the surge of budget financing Russian universities are sliding down in international ratings (Shanghai ranking, QS) mostly due to poor scientific results. The rating of Times HE published in October was a sort of exception: according to it MSU somewhat improved its positions but failed to enter the list of the Top-200 universities; meanwhile the Moscow Engineering and Physics Institute (MEPhI) unexpectedly appeared among universities ranking from 226 to 250. First it was reckoned to be a methodological mistake since the expert estimate of R&D level in MEPhI was low but then it emerged that the university had climbed to such a high position owing to one article with very high index of citation – the elementary particles handbook written by a large team of international authors which included one collaborator from MEPhI².

This is a spectacular example evidencing untrustworthiness of such a parameter as international university ranking. Ratings are interesting and useful but cannot be a goal in itself. Meantime, the past year showed that they had become such a goal and, moreover, - one of the strategic targets of state policies in the sphere of education and science. At the extended meeting of the State Council in April 2012 President Dmitry Medvedev expressed an opinion that no less than five Russian universities should join the ranks of the Top-100 universities according to the major world ratings. Later this opinion has become a guideline for action for the fresh leadership of the RF Ministry of Education and Science which plans to select 10-15 universities that will get sizable budget subsidies for attaining the level of international standards and joining the Top-100 list of some international rating. In 2013 Rb 9bn are reserved for these purposes, in 2014-2015 – already Rb 21bn and Rb 24bn, respectively³ although so far funds have been provided only for 2013. Nevertheless, the Ministry of Education and Science has prepared a draft Resolution “On measures of state support to the leading universities with a view to improve their competitiveness among the top research and educational centers of the world”⁴ that suggests granting competition-based subsidies to universities with the primary objective to encourage their penetration to the international educational space, to enhance mobility and improve postgraduate and doctorate training. The higher education institutions selected on the basis of competition will be obliged to work out roadmaps the implementation of which will be assessed annually by a specially set Board.

Such a decision is not beyond question not only from the point of view of benefits and costs but also because of the actual draining of budgets of other universities and research institutions. The world practice shows that there should be 4-5 strong universities per each world-class university which implies that the support to higher education institutions should not be so narrowly channeled. Besides, it’s difficult to fulfill the set task in principle since in order to transform Russian universities into internationally recognized ones too much is to be changed in the system of their management. So far, the number of foreign students in Russian

¹ Calculated using data of appraisal of federal universities. *Source*: M.Murav’yova. *Kakoy vuz federal’nee?* [Which higher education institution is more federal?] 27.09.2012. http://www.strf.ru/material.aspx?CatalogId=221&d_no=49157

² Rostovtsev A. *Reitingi nuzhno ponimat’* [Ratings should be understood]. // *Troitsky variant* [Troitsk version], No. 115, 23.10.2012, p.6.

³ Panov P. *Vuzam razdadut 55 mlrd. rub. dlya vkhozheniya v mirovuyu elitu.* [Rb 55bn will be allocated to higher education institutions to facilitate their entering the world elite] 06.12.2012. <http://izvestia.ru/news/540974>

⁴ <http://минобрнауки.рф/документы/3045> [Documents of the RF Ministry of Education and Science].

higher education institutions is falling and is even smaller than it used to be in the times of the “shut-in” Soviet Union. At present more than 39% of them come from the CIS countries, 35% - from the Asian countries¹. The main causes thereof are that the language of teaching is Russian and there are very few faculty members who can teach in English thus narrowing the range of potential students. The number of foreign professors is insufficient as well and despite the introduction of status of highly-skilled professional which facilitates recruitment of foreign professors and scientists, the contract system has not been duly revised. The terms offered in Russian contracts are unacceptable for many foreign researchers which seriously limits their inflow to Russia. In fact, the easiest way by now is to invite pensioners from abroad but it has its limitations.

In addition to allocating funds to universities as a whole, the government supported their research at the level of particular departments, including the creation of scientific laboratories under the direction of leading world scientists (the so-called *megagrants*) and the financing of projects carried out by scientific-educational centers (SECs).

The creation of scientific-educational centers started back in the mid-90’s and in some cases it implied attempts to support or revive cooperation between higher education and scientific institutions that existed in the USSR in the form of basic chairs. SECs got occasional support through different programs and measures but systematic funding of their projects began only in 2009 in the framework of the federal target program (FTP) “Scientific and scientific-educational cadres of the innovative Russia” for 2009-2013 (hereinafter – FTP “Cadres”).

The financing of SECs’ operation is rather modest. The maximum amount of funds that their projects were eligible for was Rb 15m for three years but taking into account the legislation on state purchases (where one of the basic criteria for selection on a competitive basis was the price of a project), the actual budgeting of selected SECs’ projects was far smaller – less than Rb 10m for three years. One should note the specifics of financing SECs – the support is provided to R&D projects carried out by the SECs’ staff.

No model was set for the creation and functioning of scientific-educational institutions except for the need to comply with some simple requirements (for SECs) such as the necessary number of students, postgraduates and young scientists that should participate in their work, and some other. As a result most Centers at the moment are ad-hoc teams gathered for carrying out a particular project. There are very few established and sustainably operating centers included in the international scientific cooperation.

A promising development pattern could be the creation of joint SECs on the basis of cooperation between scientific and higher education institutions with the involvement of scientists demonstrating high performance in research and teaching in Russia and abroad. This will give an impetus to progress in two directions – (1) stronger ties between scientific and higher education institutions (2) closer integration of education and research inside higher education institutions.

Last year first estimates of the performance under megagrants – the projects for creating laboratories directed by leading scientists² - were made. By then the laboratories had been

¹ S.Belyaeva. *Smotrite, kto edet. Kak privilech v Rossiyu luchshikh studentov?* [Look who is coming. How to attract the best students to Russia?] // *Poisk* [Search], No. 50, 14.12.2012, p.22.

² For more details about megagrants see: *Rossiyskaya ekonomika v 2011 godu. Tendentsii I perspektivy. Vypusk 33.* [Russian Economy in 2011: Trends and Outlooks. Issue 33]. – Moscow, Gaidar Institute Publishers, 2012, pp. 385-388.

working for 1-2 years but the Resolution in compliance with which they had been formed did not define the terms for their further operation thus creating an atmosphere of uncertainty. In May 2012 the situation cleared up after the RF Government Resolution specified the terms for extending megagrants and announced the requirements of a new competition for the creation of laboratories¹. It became known that the current grants could be extended for two years on condition that in the second year the laboratory was able to raise extra-budgetary funds to the amount not less than the amount of grant in the first year of extension. It has greatly improved the position of laboratories inside higher education institutions since in the overwhelming majority of cases the required extra-budgetary funds can be provided by universities after a re-distribution of their resources. On the one hand, a laboratory that used to be a sizable source of funds, becomes more dependent on the administration of university where it was created. On the other hand, such a rigorous approach has its merits since university administrations will support only those laboratories that have proved to be really efficient.

But for many invited heads of laboratories the co-financing requirement turned out to be not only unachievable but also unacceptable since, first, not enough time had passed for the laboratories to be able to earn extra-budgetary funds and, second, when taking the decision to come, the scientists did not expect that they would have to be not only researchers but also “efficient managers”². If one examines the text of Government Resolution No. 220 in compliance with which the laboratories were created, it’s really difficult to find there any counterarguments to complaints of laboratory heads since the objectives of this effort are formulated very vaguely. According to the document grants are extended “with the aim to enhance state support to the development of science and innovation in tertiary institutions and to improve the quality of higher education”. Now, when the new requirements to laboratories have been specified the objective becomes more clear – the getting of practical output from science and the encouragement of inflow of extra-budgetary (better said - private) funds to science. The assessment of performance of the first 40 laboratories that were set up in 2010 showed that all the higher education institutions concerned were ready to provide co-financing for the continuation of their operation; however, only 24 laboratories will get budget support³.

The terms for the to-be-created laboratories (that will be chosen in April 2013 summarizing the results of the contest announced at the beginning of December)⁴, have somewhat changed as well. They will be set up on account of more modest but still quite

¹ “On introducing amendments to RF Government Resolution No. 220 of April 9, 2010”. RF Government Resolution No. 531 of May 30, 2012.

² “The point is that we were invited to Russia not as efficient managers that would lift science to such a level where it would start bringing money. We were invited to change the image of Russian science, to raise its weight in the eyes of the world community, to integrate it in the global scientific process”, - Alexey Vinogradov, head of the laboratory for physics of strength and intellectual diagnostic systems created under megagrant in the Tol’yatti State University. *Source*: Murav’yova M. *Vedushchie uchyonye s protyanutoy rukoy*. [Leading scientists with hat in hand]. 11.10.2012. http://www.strf.ru/material.aspx?CatalogId=221&d_no=49480

³ Murav’yova M. *Minobrnauki prodlit 24 proekta pervoy volny megagrantov*. [The Ministry of Education and Science will extend 24 projects of the first wave of megagrants]. http://www.strf.ru/material.aspx?CatalogId=221&d_no=51017 24.12.2012.

⁴ Announcement of the holding of an open contest for receiving grants of the RF Government for state support of scientific research carried out under the direction of leading scientists in Russian educational institutions of higher professional training, research institutions of the state academies of sciences and state scientific centers of the Russian Federation. 3.12.2012. <http://минобрнауки.рф/новости/2885> [News of the RF Ministry of Education and Science].

sizable budget funds – Rb 90m per three years. But now the applicants for megagrants will have to prove their ability to secure 25% extra-budget co-financing at the very start. Accordingly, projects of applied research have better chances to get support. 719 applications have been submitted to the contest¹, of which 47% – by foreign researchers. This implies a noticeable boost of foreign participation as compared with the first contest held in 2010 (Table 9).

To some extent this result is logical: the program was most heavily criticized by grant receivers from among Russian-speaking scientific diaspora while foreign researchers who had got grants, estimated it positively.

Table 9

Distribution of Applications for Megagrants Depending on the Residence / Origin of the Project Head, 2010 and 2012

Residence / country of origin of the project head	2010, number of applications as % of the total (N=507)	2012, number of applications as % of the total (N=719)
Russian researcher	43%	29%
Foreign researcher	35%	47%
Foreign researcher – representative of the Russian-speaking diaspora	22%	24%

Source: *Rossiyskaya ekonomika v 2010 godu. Tendentsii i perspektivy. Vypusk 32*. [Russian Economy in 2010: Trends and Outlooks. Issue 32]. – Moscow, Gaidar Institute Publishers, 2011, p. 379; 2012 – calculated using data of the RF Ministry of Education and Science. <http://минобрнауки.рф/новости/3043> [News of the RF Ministry of Education and Science].

Research Cadres as the Core Element of Institutional Reforms

The reshuffled Ministry of Education and Science of the Russian Federation quite promptly embarked on efforts that taken together evidence the launching of works on the elaboration of institutional reforms in the sphere of science. One of the first tasks that was formulated and brought up for public discussion was the charting of a “Map of Russian Science”. It turned out that throughout almost 20 years of post-Soviet development the administering body had not known what object it actually administered despite all the contests held, measures taken and sizable investments made in the informational and analytical provision of the Ministry’s operation. The Map of Russian Science should elucidate the situation and show in what institutions and regions the work of research teams and individual researchers is either efficient or non-efficient. The task is difficult and ambitious since the Russian scientific complex remains very large by the number of personnel, and the mobility of researchers is growing with many of them combining work in scientific and higher education institutions. Thus it’s not easy to clearly identify efficient teams and so much the more to assign them to a particular institution which is a technically sophisticated task as it is. The idea is to create a nation-wide informational and analytical system which will allow to “see vigorous, competitive scientists”². Then it will be maintained and updated on a regular basis. Such a “map” will be created by means of aggregating quantitative data (such as publication activity, received grants, patents, participation in R&D under contracts); however,

¹ <http://минобрнауки.рф/новости/3043> [News of the RF Ministry of Education and Science].

² Murav’yova M. *Na karte otmetyat liderov*. [Leaders will be mapped]. Interview with the RF Deputy Minister of Education and Science I. Fedyukin. 14.12.2012. http://www.strf.ru/material.aspx?CatalogId=221&d_no=50789

it's commonly known that even taken together the latter fail to reflect the true state of affairs and provide just an approximate assessment of situation. The set of indicators is still being formed, *inter alia* taking into account suggestions of the scientific community and will differ by fields of research (humanitarian sciences cannot be estimated in the same way as the natural ones). One plans to finish this work quite soon – already by March-April 2013 the site is to be ready containing the so called “dashboards” for the scientists included “into the Map” where they will be able to see the data relating to them, to adjust and complement it. It's worth noting that in order to prevent the ignoring of this work by researchers, one plans to apply to them the policies of “soft compulsion”¹ implying that if a scientist wants to get a grant or any other scientific or organizational support from the state, it will be essential for him to have a full and precise record of his scientific performance in the new data base.

Three questions arise in connection with this initiative: 1) what for such an effort-consuming work is to be done, 2) is it possible to make an adequate estimate of the research teams' and collectives' expertise in a formalized way and, 3) whether the following managerial decisions based on this formalization are likely to do any harm to science as such? There are grounds for the latter concern as it was in 2012 that precedents with formalized estimate of the performance of both higher education and academic institutions took place demonstrating the inconsistency of a unified approach. It's not that difficult to identify and settle the arising discrepancies at the level of institutions. However, when they occur and later accumulate at the level of laboratories and individual scientists, the potential damage can be much greater.

But the purpose of creating the Map of Science remains the priority issue. According to the official standpoint it is needed in order:

1) to alleviate the bureaucratic burden in science – one won't have to duplicate the data already included in the Map when filing applications for contracts and grants²;

2) to carry out monitoring measures, e.g. the certification of dissertation boards after the review of their status based on the expertise of board members;

3) to ascertain which teams are competitive at the world level and which fields of research are lagging behind; then taking into account the obtained information to reward the leaders in the form of “priority support by state, scientific foundations and sponsors”³.

The latter intention causes the greatest concern as it is a common practice to determine leaders by holding various kinds of contests. It definitely requires a developed system of expertise that should be maximally objective and whenever possible international. At the same time, a question arises what will be done with the revealed low-performance teams, especially in case the latter belong to institutions that are not subordinate to the Ministry of Education and Science.

In general, if the Map helps to make at least some progress in solving the task of de-bureaucratization of state administration of science, the price paid for its working out – and

¹ *Minobrnauki rasskazalo o kontseptsii Karty rossiyskoy nauki*. [The Ministry of Education and Science came out with the concept of Map of Russian science]. 13.12.2012. http://www.polit.ru/news/2012/12/13/map_of_science/

² Murav'yova M. *Na karte otmetyat liderov*. [Leaders will be mapped]. Interview with the RF Deputy Minister of Education and Science I. Fedyukin. 14.12.2012. http://www.strf.ru/material.aspx?CatalogId=221&d_no=50789

³ *Uchyot uchyonykh* [Registering of scientists] // *Vedomosti*, 14.12.2012, p.1. http://www.vedomosti.ru/newspaper/article/363581/uchet_uchenyh

it's not limited to Rb 90m that the consulting company PricewaterhouseCoopers Russia B.V. has got for the project management and visualization of the Map – can be deemed justified.

Alongside with discussion of the project for charting the Map of Russian Science, two more measures have been examined aimed not only at the improvement of situation in science but also at its gradual institutional restructuring. The first of them is the establishment of postdocs positions after the Western pattern, the second – the step-by-step creation of one thousand new laboratories within 2014-2020 that will work in compliance with standards accepted in developed countries of the world.

The “postdoc grant” involves a three-year sponsorship of young researchers who have recently passed Ph.D. defense. This is the time when they can obtain experience sufficient for further heading and management of projects. It is expected that similar to the Western countries' case the postdoc grant will encourage academic mobility¹ – i.e. a postdoc will work not in the same institution where he wrote his thesis. This is a long overdue and useful measure. In the short run it solves the problem of young researchers' employment in the scientific sphere. In the long run it may allow to eliminate permanent positions of junior research fellows thus facilitating advancement of the new system of research organization.

At the same time the new measures will succeed only in case the terms of budgeting change. The effect from shifting to the grant and postdoc system will be less sizable if funds continue to be allocated with serious delays. The past year was indicative from this point of view – the grant funds that were usually transferred to researchers only in summer, that time were received by institutions and scientists even later. Some contests for young researchers were scheduled for summer since then the funding of scientific foundations was to be increased; but only in November one started to pay grants² that could not be postponed till the next calendar year. This means that the work, if any, was actually done without remuneration which is possible in some fields of humanitarian and social research (where personnel just has to wait long for the salaries to be paid) but is non-admittable in natural and technical sciences where one has to buy equipment, aids and appliances for experiments. It prompts the outflow of young scientists overseas despite all the programs, measures and grants that if summed up enable them to raise even larger funds for financing research than their senior colleagues can do.

In this financial situation being far from rosy one more promising initiative may be launched – the creation of 1,000 scientific laboratories working in compliance with the Western standards of research process organization³.

“The project for creating 1,000 laboratories” was initiated jointly by the RF Ministry of Education and Science and the SkolTech – the Skolkovo Institute of Science and Technology, the project name being suggested by the Institute. Indeed, if the state is building a new university designed to train world-class specialists, there should be new competitive workplaces available for graduates⁴. Otherwise, the outflow of young cadres will only intensify. SkolTech examined the world experience and attempted to adjust it to the Russian

¹ Igor' Fedyukin: “*Postdocovskiy grant dolzhen dlit'sya do tryokh let*” [“The postdoc grant should last up to three years”]. 27.08.2012. http://www.strf.ru/material.aspx?CatalogId=16080&d_no=48457

² Volchkova N. *Po edinomu biletu. RFFI otkryl molodyozhi dorogu v bolchuyu nauku*. [By travel card. The Russian Foundation for Basic Research opened the gateway to Big Science for young people] // *Poisk* [Search], No. 48, 30.11.2012, p.9; Turkov V. *Stimulom po karmanu*. [The stimulus that hits in the pocket] // *Poisk* [Search], No. 50, 14.12.2012, p.18.

³ Shatalova N. *Doschitat' do tysyachi* [Count up to one thousand] // *Poisk* [Search], No. 49, 7.12.2012, p.10.

⁴ *Nachinaetsya s lyudey* [It starts from people] // *Poisk* [Search], No. 29-30, 27.07.2012, p.12.

environment. As a result a draft program was prepared specifying potential parameters of such laboratories' operation¹. It has turned out that the number of aspects requiring discretionary decisions is much bigger than it initially seemed. There are actually no "absolutely explicit" parameters, with international experience offering a whole palette of possible solutions to the same question.

The purpose of creating new laboratories is to make work there attractive for the leading scientists and to involve (retain) researchers who are competitive in the world science. They should facilitate the shaping of the new organizational structure of Russian science that will ensure the emergence of "growth points". So, the primary objective is to provide gradual institutional shifts in the Russian science leading to the replacement of old practices with the new ones. As different from megagrants headed mostly by representatives of Russian-speaking diaspora and foreign scientists, grants for the creation of 1,000 laboratories are intended primarily for domestic researchers living and working in Russia.

The specifics of this initiative are that the amount of support will be smaller than that enjoyed by laboratories set up under megagrants, but its term will be longer – 5 years. The contests for creating laboratories will be held by stages so that to choose up to 200 winners a year. In the first years of holding the contests the number of selected laboratories will be smaller than in the years to follow since the mechanism of evaluation needs to be elaborated.

The grant will be awarded to the scientist who undertakes to form a team and choose the institution where he wants to work. The application for creating a laboratory should contain substantiation of the choice of institution with which a preliminary agreement on housing the laboratory has been reached. The institution assumes some commitments to service the research process at the expense of overhead costs from the awarded grant, the size of which is also subject to discussion, namely: the renovation of premises for the laboratory (in compliance with the international standards), the access to R&D infrastructure (available equipment and facilities), the providing of administrative support. The whole system is supposed to be flexible and dynamic – for instance, one can change the housing institution in case there arise problems with administration. So, double incentive is envisaged for institutions to motivate them to house laboratories: the financial benefit and the prestige gain since only the presence of new type laboratories is the evidence of not only up-to-date research but also of its adequate management.

In its turn, the head of a laboratory should devote not less than 75% of his working time to its development, i.e. if the grant is awarded to a foreign scientist (which is allowable), he should be ready to spend much time in Russia in contrast to 2-4 months which is the case with current programs involving foreign participation. On behalf of the laboratory its head can take part in both Russian and foreign contests and grant programs. However, the principle of spending additionally raised funds should be the same as is customary abroad – i.e. not for paying bonuses to key laboratory employees (their wages are ensured by the laboratory's base budget) but for the expansion of the laboratory, recruitment of postdocs and postgraduates, purchase of aids and appliances, participation in conferences and internships. Accordingly, the staff of laboratories will change depending on the purport and scale of research tasks which is the habitual practice for countries with advanced science. The permanent staff of a laboratory should include its head and 2-3 researchers while other experts should be hired for

¹ Next follow the suggestions of SkolTech worked out by the author in cooperation with Vice-President of SkolTech A.Ponomaryov that take into account the results of consultations with representatives of Russian-speaking scientific diaspora and some leading Russian scientists held in autumn 2012.

carrying out specific projects. The positions of laboratory assistants should also be permanent – skilled technicians are carriers of methodological and technological knowledge and can teach laboratory methods to new employees and postgraduates.

It's important for the laboratory head to be engaged not only in scientific work but also in teaching and tutoring of postgraduates since only in this case new competitive researchers will be trained that later will be able to create their own laboratories of the new type.

Grant applicants should meet a certain set of requirements that is still being worked out. Among them is the scientific degree, number, quality and citation of publications, experience in managing projects and contracts, organization and holding of scientific conferences.

A critical issue is the procedure and criteria of selecting applications. The former experience shows that failures not infrequently occur at this particular stage of project examination even in case international experts are involved. Therefore, an important issue is not only who makes the examination but also how it is organized and who takes the final decision. One of the suggestions is to use the practice of the US grant agencies when after an anonymous expertise is carried out and applications are selected at the sections of expert panels, the final decision is taken by officials of the department that initiated the contest. It somewhat reduces the scale of lobbying and levels down the conflict of interests which always emerges in case the final decision is taken by some "supreme council".

After laboratories start to operate, it's important to work out the procedure of their monitoring. The method of assessing results, both interim (annual) and ultimate (5-year total), is disputable but foreign experience evidences that the gathering of formal indicators should be coupled with the expert estimate of works. The results of assessment should be made public and lead to the following possible actions:

- 1) extension of the laboratory's operation;
- 2) replacement of the laboratory's head;
- 3) change of the housing institution;
- 4) pre-schedule closure of the project (discontinuation of its financing).

It should be noted that the mechanism of forming 1,000 laboratories that is being carefully elaborated at the moment faces a lot of challenges including those associated with factors that cannot be foreseen or predicted in advance. For instance, among them is the pattern by which the collaboration between new laboratories and older structures of the housing institutions will develop; how soon will the system of postdoc grants be introduced enabling to recruit young researchers into the laboratories' staff; how and whether at all the system of grant foundations will be expanded. There are some optimistic outlooks in this regard – according to the list of assignments given by the President in November following the meeting of the Presidential Council on science and education, the system of state and non-state foundations financing not only medium-term (3-5 years) but also long-term (10 years) research will develop¹.

¹ *Utverzhdyon perechen' porucheniy po itogam zasedaniya Soveta po nauke i obrazovaniyu.* [The list of assignments following the meeting of the Council on science and education has been adopted]. 16.11.2012. <http://www.kremlin.ru/assignments/16840>

Foreign Scientific Foundations and International Scientific Cooperation in the Context of Changes in Legislation

Along with favourable financial and organizational conditions, there should be propitious atmosphere for the development of international collaboration, the inflow of foreign researchers to the country and the expansion of scientific cooperation. However, the changes that took place in 2012 are rather a hindrance to such development.

Amendments and supplements to legislation have been adopted that concern both the work of non-commercial organizations sponsored from abroad and the issues of divulgence of state secrets, espionage and high treason. The changes do not affect the sphere of science and innovation directly but there is surely an indirect impact including the closure of and suspicious attitude towards foreign institutions that among other programs are sponsoring scientific and educational projects.

In July amendments were introduced to legislation regulating the work of non-commercial institutions receiving funds from foreign sources¹ – they acquired the status of organizations “performing the functions of a foreign agent”. The Law stipulates that this provision pertains only to organizations engaged in political activities, the latter not including “activities in the sphere of science, culture, art, public health service, disease prevention and health care, public social support and security, maternity and child welfare service, social support to invalids, promotion of healthy lifestyle, physical culture and sports, wildlife protection, welfare work as well as activities contributing to charity and volunteering”. It’s indicative that education is not mentioned in the exhaustive list and thus educational non-commercial organizations can be regarded as foreign agents.

The Law envisages frequent and detailed reporting for such organizations encompassing both their activities and sources of financing. Besides, in case they publish some materials, the latter should contain a notice reading that they have been prepared and disseminated by a non-commercial organization performing the functions of a foreign agent.

As cited above, the sphere of science was not considered to be politically-driven; however, there appeared concerns, *inter alios* felt by institutions receiving funds for their research from foreign organizations and foundations. They turned out to be not groundless since in September the Government took the decision to close the Russian office of US Agency for International Development² which among other projects supported some scientific and educational programs. The Agency was accused of attempts to influence political processes (including elections at different levels) and civil society via distribution of grants. Accordingly, Russia renounced its status of recipient of such aid. In November a scandal burst out around the US Russia Foundation for Economic Advancement and the Rule of Law (USRF) that was unexpectedly called the successor of closed USAID³. As different from

¹ Federal Law No. 121-FZ of 20.07.2012 “On introducing amendments to selected legislative acts of the Russian Federation pertaining to regulation of activities of non-commercial organizations performing the functions of a foreign agent”.

² See, for instance: *MID: predstavitel'stvo USAID dolzhno byt' zakryto v svyazi s popytkami vliyat' na vnutrenniye protsessy v Rossii*. [The Ministry of Foreign Affairs: the office of USAID should be closed due to the attempts to influence internal processes in Russia]. 19.09.2012; http://www.dp.ru/a/2012/09/19/MID_potreboval_u_SSHA_zakr/; *USAID pokidaet Rossiyu*. [USAID is leaving Russia]. 18.09.2012. <http://www.interfax.ru/politics/txt.asp?id=266330>

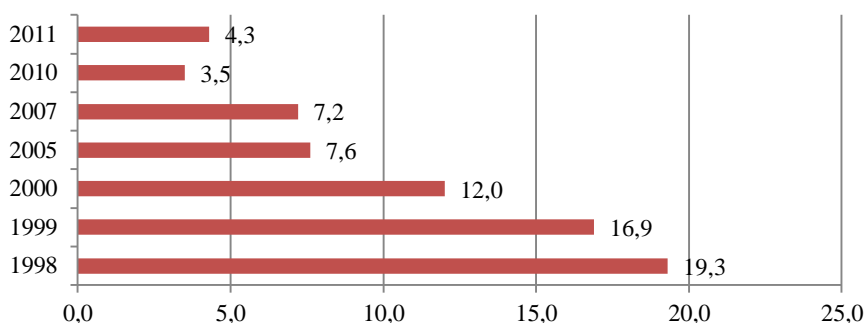
³ *USRF ne sobiraetsya zamenyat' USAID v Rossii*. [USRF is not going to succeed USAID in Russia]. The interview of Interfax with the President of USRF Mark Pomar. November 27, 2012. <http://www.interfax.ru/txt.asp?id=277881&sec=1483>

USAID, USRF is more widely known in the scientific and educational community as it implements the pilot program “EURECA” – “Enhancing University Research and Entrepreneurial Capacity”¹ coordinated with the RF Ministry of Education and Science. The pilot stage of the program was held in 2010-2012 and was targeted at creating a model for technology commercialization in two Russian research universities in cooperation with three US universities; later on the model could be extended to other universities. The final results were presented to the public including representatives of the RF Ministry of Education and Science and the RF Ministry of Economic Development. The Foundation explained that among its recipients there were no organizations that could be considered to be foreign agents, all the activity was transparent and information about recipients of grants was publicly available. But the atmosphere did not improve and scientific foundations having funds from the US Department of State in their budgets started to look suspicious.

Actually alongside with these developments (also in November) the law was adopted that introduced amendments to the articles of the RF Criminal Code pertaining to high treason, espionage and divulgence of state secrets². It enacted a broader interpretation of the term “high treason”. Now it’s not only the divulgence of state secrets but also any assistance to a foreign country, international or foreign organization if it is regarded as endangering the country’s security. Even an official employment under contract with a foreign civil organization can be considered as an act of crime in case the investigation proves that the respective institution works against the Russian state. Finally, the list of persons liable to criminal proceeding for the divulgence of state secrets was supplemented to include not only the ones who got to know secret information in the course of work but also those who learned it in the process of studying or “in other cases”. The vagueness of interpretations and implicitness of some terms causes concern and may be considered even dangerous since if desired actually any scientific and innovative cooperation with foreign organizations can be regarded as espionage and holds a possibility to be interpreted as high treason. Especially endangered are the applied projects that can result in dual purpose R&D. It’s impossible to preclude such a possibility, e.g. in the process of expanding international scientific cooperation in the framework of SkolTech research centers. Some experts examining the development of Skolkovo i-city project already voice their concern. Actually the fears may be exaggerated but the changes that have taken place are sure to discourage the inflow of foreign investments in science and innovation. In 2011 the share of foreign financing of R&D was as low as 4.3% (*Fig. 12*) and its further decrease is most likely to occur unless financing by business falls at an even greater pace.

¹ <http://www.eureca-usrf.org/>

² Federal Law of the Russian Federation No. 190-FZ of 12.11.2012 “On introducing amendments to the Criminal Code of the Russian Federation and Article 151 of the Criminal Procedure Code of the Russian Federation.



Source: *Nauka Rossii v tsyfrakh: 2004. Statistichesky sbornik*. [Russia's science in figures: 2004. Statistical book]. – Moscow: CSRS (Centre for science research and statistics), 2004, p.75; *Nauka Rossii v tsyfrakh: 2005. Statistichesky sbornik*. [Russia's science in figures: 2005. Statistical book]. – Moscow: CSRS (Centre for science research and statistics), 2005, p.75; *Nauka Rossii v tsyfrakh: 2008. Statistichesky sbornik*. [Russia's science in figures: 2008. Statistical book]. – Moscow: CSRS (Centre for science research and statistics), 2008, p.87; *Nauka Rossii v tsyfrakh: 2011. Statistichesky sbornik*. [Russia's science in figures: 2011. Statistical book]. – Moscow: CSRS (Centre for science research and statistics), 2011, p. 74; *Nauka, tekhnologii i innovatsii Rossii: 2012. Kratkiy statisticheskiy sbornik*. [Science, technology and innovation in Russia: 2012. Brief data book]. Moscow, IPAN RAN [Institute for the Study of Science of RAS (ISS RAS)], 2012, p. 30.

Fig. 12. Foreign Sources of Financing R&D as % of the Aggregate Domestic Expenditures Thereon

Support and Encouragement of Technological Innovation

In 2012 one continued to carry out measures for the support and encouragement of technological innovation, *inter alia* using the tools aimed at strengthening ties between science and business. The following measures should be emphasized:

1. Implementation of innovation development programs (IDPs) of state corporations and companies partially owned by state launched back in 2010 and now scheduled to undergo the assessment of interim results;
2. Continuation of technological platforms' operation and holding of competition to select innovative clusters;
3. Operation of development institutions such as the Foundation for assistance to small innovative enterprises (FASIE), Russian Venture Company (RVC), ROSNANO, Russian Fund for Technological Development and Skolkovo Foundation. In 2012 a peer review of these institutions' performance with participation of international experts was held but its final results have not been published yet.

Innovation Development Programs

In June the “Expert RA” rating agency presented the results of assessing innovation development programs of those companies that agreed to participate in the study¹. 16 out of 48 companies having IDPs submitted their data for the rating. The results of the assessment are far from the most optimistic: only 10 companies have development strategies, there are few breakthrough projects, the ties with external institutions are loose, i.e. the R&D outsourcing is not developed, marketing projects are often passed off as innovative.

¹ Rating of innovation development programs of state corporations and companies partially owned by state. Analytical materials. Forum of Russian innovations. Expert-RA, Skolkovo Foundation. – Moscow, 27 June 2012. http://www.raexpert.ru/researches/pir_2012/pir_2012.pdf

Meantime, from the financial point of view the situation looks favorable – by 2020 the 48 companies will have spent Rb 4.2 trillion on IDPs, of which Rb 3.7 trillion will be allocated by two companies – “Russian Railways” and “Gazprom” – and funded on the account of their planned investments. The least efficient IDPs are those implemented by public companies focusing on the execution of state orders. Indeed, their incentives to innovation are minimal.

Nevertheless, thanks to the “forcing” of companies to get engaged in innovation and in particular to cooperate with state research and higher education institutions, the latter can enjoy greater demand for R&D to be performed under contracts. It should be noted that the attempts made by many companies to develop contacts with sectoral research and educational institutions supervised by respective agencies turned out to be far from successful and induced them to broaden the field of search for R&D executors. In particular, a good solution was found by OJSC “Russian Railways” that held a contest in cooperation with the Russian Foundation for Basic Research (RFBR). Research topics suggested in the contest terms were formulated so that to correspond to the respective projects included in the program of “Russian Railways” innovation-based development. 38 applications won, the number of contestants per one project being 4.5 – above the average for RFBR. The financing is parity-based, i.e. “Russian Railways” and RFBR will on the average invest in a 2-year project about Rb 1m per annum each, the annual amount per project ranging from Rb 0.8m to Rb 3m¹. Representatives of the company say that even in case only one third of the financed projects bring the desired result, their investments will be fully recovered. Actually, it’s a non-expensive way to achieve the needed results by means of extensive mobilization of research and educational institutions of the country. This approach is quite promising and was also applied by other companies, in particular the ones that together with higher education institutions took part in efforts for establishing hi-tech operations².

Technological Platforms and Innovative Clusters

The development of ties between companies and research institutions is to be fostered by technological platforms (TPs) launched in 2011. In 2012 a contest was held for the forming of innovative clusters that are also based on networking. TPs and clusters as tools for promoting contacts are very pertinent for Russia. International comparisons show that these are the parameters of innovative system’s integrity by which Russia lags behind to the greatest extent (Table 10). In particular, the country still experiences shortage of technological brokers³ – companies-intermediaries between generators and buyers of innovative products.

Table 10

Indicators of Innovative System’s Development (scoring from 1 to 7 as estimated by the Knowledge Economy Index, 2010 data)

Indicator / Country	US	Great Britain	Germany	France	Japan	China	Russia
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¹ Volchkova N. *Magistral’ za gorizont*. [Highway beyond the horizon]. // *Poisk* [Search] No. 23, 08.06.2012, p.9.

² In compliance with RF Government Resolution No. 218 of April 9, 2010 “On measures of state support to the development of cooperation between Russian higher education institutions and institutions carrying out integrated projects aimed at establishing hi-tech operations”. For more details see: *Rossiyskaya ekonomika v 2011 godu. Tendentsii i perspektivy. Vypusk 33*. [Russian Economy in 2011: Trends and Outlooks. Issue 33]. – Moscow, Gaidar Institute Publishers, 2012, p. 396.

³ Kaz’min D. *Sut’ dela: Neponyatnyy rynek*. [The core of the matter: uncomprehended market]. // *Vedomosti*, 27.12.2012 http://www.vedomosti.ru/newspaper/article/371221/neponyatnyj_rynok

Private sector spending on R&D	5.4	4.6	5.7	4.7	5.9	4.1	3.2
University-company research collaboration	5.8	5.6	5.2	4.0	4.9	4.6	3.7
Intellectual property protection	5.1	5.3	5.7	5.9	5.2	4.0	3.0
Availability of venture capital	3.8	3.0	2.8	3.2	2.8	3.3	2.3
Value chain presence	5.1	5.5	6.3	5.7	6.3	4.0	2.6

Source: http://info.worldbank.org/etools/kam2/KAM_page3.asp

Technological platforms and clusters are potentially able to enhance the integrity of innovative system but for the time being they still remain disconnected tools without a specified standing towards each other.

In 2012 the platforms' progress slowed down as no funds were allocated for their start-up efforts including the working out of roadmaps. While the issue was being discussed (at least throughout 2012), some platforms managed to find funds for the organization and launching of works; however, the problem of allotting budget funds to their organizational support remains pending. The RF Ministry of Finance gave its principal consent to the allocation of Rb 300m but to the selection and coordination of topics for research, development and technological works (R&D&T) to be later incorporated in the effective federal target programs on behalf of a platform rather than to the organizational works that had been completed at many platforms.

The experience of both the Ministry of Economic Development and the Ministry of Education and Science showed that platforms turned out to be rather weak at generating new R&D projects. In September 2012 both Ministries announced the invitation of proposals from technological platforms with the aim to specify guidelines for the federal target programs wherein these agencies acted as commissioners. The Ministry of Education and Science offered TPs to take part in the shaping of research agenda for 2013 under the federal target program "Research and development in the priority areas of Russia's scientific and technological complex development for 2007-2013" so that to announce open contests for signing state R&D&T contracts by December 1. In its turn, the Ministry of Economic Development issued Circular No.18970-OF of September 7, 2012 "On submitting proposals as regards the linking of state programs with technological platforms / RF President Decree No. 596 of May 7, 2012, Clause 2, Sub-clause "d", Paragraph 2". The documents submitted by technological platforms appeared to be of low quality, poorly elaborated and non-coordinated by time limits and results¹. That's why the issue of getting funds from the Ministry of Finance for the development of platforms' suggestions linkable to the federal target programs has remained pending.

It was only the Russian Fund for Technological Development that provided focused support to the platforms' projects. But due to the budget constraints it selected 13 TPs out of 33, first of all establishing cooperation with those platforms that were not affiliated with financially powerful organizations (such as, for instance, ROSNANO supervising a number of platforms).

The in-depth case study of three technological platforms carried out by the author in autumn 2012 allowed to clear up the current state of affairs therein:

- the principal incentives for organizations to join platforms are first all the hope to get access to budget funds for R&D&T and the opportunity to lobby interests of particular

¹ S.Krymova. *Do vstrechi na platforme?* [See you at the platform?] // *Poisk* [Search] No. 41, 12.10.2012, p.10.

groups (those of organizations-members rather than of platforms at large). But since the platforms haven't got any sizable government support and paternalistic sentiments in associated organizations, especially in research and educational institutions that dominate in the platforms, are very strong, the development of TPs has got somewhat retarded;

- all the studied platforms were to a greater or lesser degree loaded with commissions and requests from agencies and participated in expert works despite the lack of budget funds for organizational procedures. Due to that a great burden was born by organizations-coordinators of the platforms;
- no criteria has been elaborated so far for the TPs' performance self-assessment. Major emphasis is made on two parameters – the implementation of joint projects and the amount of invited external funds. These are the most obvious indicators as at the same time they represent the tasks for coping with which the platforms have been created.

The platforms are at the initial stages of their development and it's too early to regard them as a consolidated tool and the more so – as a communication tool.

There is still no answer to the question whether technological platforms will continue to operate. Three basic sources of support to projects generated by TPs have been identified at the government level.

The first of them is the incorporation of projects suggested by TPs into the agenda of the federal target programs – the preparation for this process has already been launched by the request of Ministries to TPs to formulate the subject matters of lots.

The second one is the cooperation with large companies owned or co-owned by state that are implementing innovation development programs. This alliance can be mutually beneficial – on the one hand, TPs can identify topics that may become a part of such programs. On the other hand, state companies can participate in the working out of strategic research programs of relevant TPs. Both variants are possible and such partnership is quite logical: state corporations and companies co-owned by state act as coordinators of more than 1/3 of TPs.

The third source is budget subsidies for the elaboration of R&D agenda.

One more state initiative appeared to supplement TPs – the support of innovative clusters. The cluster policy is implemented in many countries of the world and involves the growing role of the state. At the same time clusters are considered to be a rather risky tool as cluster initiatives are time- and money-consuming and in case the choice of the object to be supported is wrong, the entailed losses will be significant. Besides, actually in all cluster initiatives state funds account for over a half of their budgets and in most cases the transfer of clusters to self-repayment is problematic. Therefore it's believed that on the whole it's more efficient to identify and support the already existing clusters than to create new ones. Nevertheless, the first approach has been chosen in Russia – that of supporting projects that claim to be cluster.

The selection of innovative clusters was held in two stages and in principle corresponded to the existing foreign practices. However, the term given for initial expertise was too short – only a month – affecting the quality of experts' work. Almost 100 applications had been submitted to the contest, of which 37 projects were selected. They were further examined for two months at the meetings of the Working group set up for choosing innovative clusters. Eventually 25 projects of developing territorial clusters were approved of which 14 were entitled to state subsidies.

In addition to short time-limits for preparing applications and assessment of projects, a few more parameters can be identified by which the Russian initiative of forming clusters seriously differs from its foreign analogues (first of all the European ones):

1. Goals of supporting clusters – in the Russian version the main idea is innovation-based development and consequently an active involvement of organizations engaged in R&D – higher education and academic institutions – in the work of clusters. The foreign experience demonstrates a whole palette of possible goals including the restructuring of hi-tech industries, raising of competitiveness in selected areas, etc., but in any case the list of goals and problems to be solved is more pin-pointed and clear-cut than that in the initiative for the development of Russian clusters;
2. Emphasis – in the Russian program it is made on solving the problems of large enterprises while small business is involved poorly and takes actually no part in managing clusters; meantime, in foreign clusters special attention is paid to small- and medium-sized entities;
3. Duration of the support – in foreign countries it lasts for 7–8 years while in Russia one can provisionally speak about a 5-year period of support; however, the first year has been actually wasted for choosing clusters and their support has actually failed to start despite the initial plans to make first allocations in 2012.

The process of selecting clusters revealed several patterns characterizing the current state of cluster projects¹:

- 1) in applications for creating innovative clusters one could distinguish the wish of as many as possible organizations to “sign up” for the cluster, sometimes disregarding industrial and regional aspects and the more so the fact of existence/non-existence of ties between major stakeholders;
- 2) the goals and tasks of some cluster projects actually reflected the interests of several large companies;
- 3) the level of participants’ interconnection was rather low – i.e. there were either no or very few joint projects in their cooperation record.

So, one can assert that applications for the contest were submitted not by clusters but in most cases by groups interested in the forming of a cluster (projects for forming clusters).

Those 14 clusters that are eligible for subsidies are focusing on investments in R&D; however, expenditures on infrastructure prevail in their outlay projections. The suggestions of 14 clusters regarding the structure of spending funds are presented in *Table 11*. The total amount of the requested subsidies is Rb 58.4bn.

Judging from the planned structure of expenditures under the subsidy, the most emergent task is the improvement of both innovation and transport infrastructures – over one half of the aggregate amount of subsidy is projected for these purposes (24.6% and 27.1% of the total funding, respectively). The following below items in the list of priorities are the support of R&D, the improvement of personnel skills and the development of engineering infrastructure. The least fund-demanding item is the upgrading of physical infrastructure of culture and sports.

Table 11

Suggestions of 14 Innovative Territorial Clusters as Regards the Channeling of Subsidy Funds in 2013-2017

¹ Based on observations of the author who took part in the expert assessment of applications for the creation of clusters.

Types of infrastructure	Requested by 14 clusters, as % of the total amount of subsidy
Innovation infrastructure	24.6
Transport infrastructure	21.7
R&D, training of personnel, innovative activities	18.5
Engineering infrastructure	13.7
Educational infrastructure	9.3
Housing infrastructure	7.0
Energy infrastructure	3.5
Physical infrastructure of culture and sports	1.7
Total	100%

Source: calculated using data of the Ministry of Economic Development, see “On the draft list of pilot programs for developing innovative territorial clusters”. Circular No. 13575-AK/D19ch of 05.07.2012.

One can state that measures for supporting technological platforms and clusters have got intertwined to some extent since the government suggests actually identical approaches thereto from the point of view of financing patterns. Similar to TPs, clusters should cooperate with development institutions and work with state companies implementing innovation development programs. The Ministry of Economic Development has recommended to start such interactions that are not dependent on the process of allocating budget funds. For the time being one can speak of creating mechanisms for the exchange of information in order to estimate opportunities for cooperation¹. The need to address the same sources has potential for fostering synergy of TPs and clusters.

With the view to make their cooperation closer, one can initiate coordination of R&D&T agenda suggested by TPs with clusters. There is also a good reason to consider the issue of forming a common expert community, including the working out of a standard mechanism for using the expert potential of TPs and clusters.

Assessment of Development Institutions’ Performance

One of the tasks pursued by innovative policies is to secure complementarity of various tools that in particular can be achieved by the agency of development institutions. In 2012 such development institutions as RVC, ROSNANO, Skolkovo Foundation and the Foundation for assistance to small innovative enterprises (FASIE) were expanding and diversifying their activities but it’s not that easy to assess the productivity of development routes chosen by them. For instance, only Skolkovo Foundation submits detailed data on the achievement of key efficiency indicators while the performance indicators of other development institutions do not allow to form a clear view of their effectiveness.

Table 12 displays the monthly updated data on basic results of Skolkovo Foundation’s performance (see the respective site) reflecting its progress in achieving key efficiency indicators. The specific feature of Skolkovo is the focus on small- and medium-sized business and supporting it by means of various kinds of grants, both requiring and non-requiring co-financing. The composition of reported indicators evidences the concern of Skolkovo about the number of companies-members in clusters, the development of science-intensive products (reflected in such indicator as registration of intellectual property rights), the amount of invited co-financing. All these indicators grow at priority rates.

Table 12

Selected Results of Skolkovo Foundation’s Performance as of December 31, 2012

¹ Online discussion “Territories of innovation - regional clusters”. http://www.strf.ru/material.aspx?CatalogId=223&d_no=49784 26.10.2012.

Key efficiency indicator	Target value	Actual value	Rate of achievement
Total number of members beginning from 2010	500	793	159%
Number of approved grant allocations in 2012	120	102	85%
Amount of approved grant allocations in 2012, million rubles	6300	3393.15	54%
Total amount of grants transferred by the Foundation in 2012, million rubles	4921	2935.5	60%
Average share of projects' co-financing in 2012, %	40	43	107.5%
Number of submitted applications for registration of property rights in 2012	100	137	137%
Number of created centers for collective use of equipment (CCUE)	3	3	100%
Capacity utilization ratio of CCUE equipment put into operation	50%	30%	60%
Number of R&D centers to be housed under signed agreements	20	24	120%

Source: <http://community.sk.ru/press/b/results/archive/2013/01/28/rezultaty-raboty-za-dekabr-2012-goda.aspx>

There is a risk that the Foundation will plunge into grant-based financing which is a disputable measure for fostering innovative activities. The opponents of such approach find that grants “corrupt” business orienting it to the receipt of budget funds. These concerns are voiced not only in respect to Skolkovo Foundation but as regards any grant scheme for small business beginning from the Russia’s Foundation for assistance to small innovative enterprises (FASIE) to the US SBIR (Small Business Innovative Research) – the program for supporting innovative research of small entities. The grant-based form of support is mostly justified for the startup stages of business development – the pre-seed and seed ones. But in case of Skolkovo Foundation there is a possibility of switching to grant support of “pure” R&D very loosely connected with innovations and carried out by individual researchers rather than research teams. In particular, there already exists a pilot program of grants for individual scientists that has been adopted by the Scientific Advisory Council¹.

Due to the fact that many experts viewed the construction of i-city Skolkovo as a political project, the shift of the country’s leadership has prompted an opinion that the initiative will not survive for long². However, alarms are expressed even in respect of the Skolkovo’s prototype – the American Silicon Valley which is predicted to die soon because of the proliferation of virtual networks and communities that will make the concentration of startup businesses and venture entrepreneurs in one physical spot unnecessary³. So, the growing number of investors and experts say that Internet is principally changing the pattern of innovative activities’ organization and from this point of view the Skolkovo project was launched too late when the approach to cluster type of innovation development in the world started to transform.

¹ So far only 12 such grants have been allocated and discussions are revolving around the expediency of continuing this initiative. See N.Shatalova, A.Shatalova. *Zhazhda skorosti*. [The thirst for speed]. // *Poisk* [Search] No. 50, 14.12.2012, p.12.

² An example of the typical viewpoint is the article of A.Vasil’ev. *Konets silikonovoy maliny*. [The end of silicon primrose path] // *Kommersant Den’gi* [Kommersant Money] No. 35, 03.09.2012. <http://kommersant.ru/doc/2013581?isSearch=True>

³ *Silikonovuyu Dolinu zhdyot krakh? Odin iz samykh populyarnykh segodnya IT-menedgerov v SSHA prorochit krakh Silikonovoy doline* [Collapse in store for the Silicon Valley? One the most popular for the day IT-managers in the US predicts the collapse of the Silicon Valley] // *Expert Online*, 23.08.2012. <http://expert.ru/2012/08/23/silikonovuyu-dolinu-zhdet-krakh/>

Still, there are grounds to see some political context under the project since the times of prompt adoption of legislation to provide privileged conditions for Skolkovo Foundation are over. For instance, the President rejected the Federal Law “On introducing amendments to Federal Law “On Skolkovo Innovative Center”” adopted by the State Duma on November 23, 2012 and passed by the Federation Council on November 28, 2012. The Law was adjusting the rules of educational activities on the territory of the Center by envisaging the possibility to set up higher and postgraduate education institutions thereon. It was also suggested to postpone by a year (till January 1, 2015) the date of settling Skolkovo residents on the Center’s territory due to the delays in construction of necessary premises. Several serious reasons for rejecting the Law were named including the absence of criteria for estimating the efficiency of performance in economic, scientific and social spheres and the illegitimate entitlement of the Skolkovo i-city’s managing company with the right to adopt the town planning and design regulations¹.

Although such criticism regarding efficiency indicators is quite justified, the same if not graver claims can be laid against other development institutions that at best list performance indicators in their annual reports (appearing in the middle of the next year) without providing either their numerical values or the rates of achieving target indicators. It is known that RVC sponsored 131 projects through the system of its foundations, and last year the growth of invited venture investments was higher than ever before². ROSNANO financed 107 projects with the total budget of Rb 488.1bn of which ROSNANO funds accounted for Rb 207.2bn³. In the total 35 plants have been put into operation, the output has grown, but the target indicator – to raise the sales of products produced by companies in collaboration with ROSNANO up to Rb 300bn by 2015 – will hardly be achieved as by the end of 2012 the respective output was as low as Rb 23-24bn⁴. The Chairman of the Board A.Chubais has actually admitted that the key problem is the poor management of ROSNANO; some projects have been announced to close and the restructuring of the company to be launched. By spring-summer 2013 ROSNANO plans to complete its work as a development institution and to be transformed into an investment fund by selling 10% of shares to institutional investors. For this purpose throughout the year it was carrying out an audit of the supported projects. The company’s staff was cut by 20%⁵ thus reducing the administrative costs down to 2.5% of the assets’ volume. But by this indicator ROSNANO is still uncompetitive on the world market where the said costs in venture investment funds are as low as 1-1.5% of the total assets.

An important direction of ROSNANO’s development was also the investment of funds in projects abroad, e.g. in the US biotech companies. At the end of October it announced the launching of a joint investment fund with Virgin Green Fund, Virgin Group (specializing on

¹ *Prezident otklonil Federalny zakon o vnesenii izmeneniy v zakon ob innovatsionnom tsentre “Skolkovo”* [The President has rejected the Federal Law on introducing amendments to the Law on Skolkovo Innovative Center]. 12.12.2012. <http://www.kremlin.ru/news/17120>

² *Predvaritelnye itogi deyatelnosti RVK v 2012 godu.* [Preliminary results of RVC performance in 2012]. <http://www.rusventure.ru/ru/press-service/news/detail.php?ID=12084>

³ *“Rosnano” ishchet pokupateley.* [ROSNANO is looking for buyers]. http://www.vedomosti.ru/newspaper/article/371141/rosnano_ishchet_pokupatelej 27.12.2012.

⁴ Chubais A. *Rosnano dolzhno nauchit’sya konkurovat’ na mirovom rynke kapitala, chtoby ne idti k gosudarstvu s protyanutoy rukoi.* [ROSNANO should learn to compete on the world capital market in order not to go to the government with hat in hand]. <http://www.finmarket.ru/z/nws/hotnews.asp?id=3207948> 30.01.2013.

⁵ Krasavina A. *Bol’she ne nano.* [No longer nano] // *Kompaniya* [Company] No. 3, 28.01.2013. <http://ko.ru/articles/24668>

energy saving technologies) that was named VGF Emerging Market Growth I. L. P. The respective financial commitments amount to \$200m¹.

A common trend for the development institutions was the diversification of activities, the growing attention to educational efforts and more active search for projects abroad. For instance, RVC was actively engaged in various educational projects including those to support startups as well as in popularization and promotion of innovative entrepreneurship. In particular, within three years it held about one hundred regional sessions of practical consulting that were free for their participants².

Development institutions enhanced coordination of their work and jointly identified the key problems hindering innovative activities. The following challenges were named³:

- low expertise of the ones who attempt to deal with innovations, poor understanding of specifics of innovative projects' implementation including the creation of startups;
- absence of "breakthrough" projects partially reflecting the weakness of scientific potential;
- shortage of funds allocated at the pre-seed and seed stages of project development and the resulting shortage of projects that could later proceed to the following development stages;
- wary attitude of private business to state initiatives, low demand for innovations, lack of belief in sustainability of state innovative policy measures. Indeed, there are all grounds for the latter concern as state policy is pinpointed at achieving quick results and remains case-specific in many aspects.

As to the supporting of pre-seed and seed stages, the major player continued to be the Foundation for assistance to small innovative enterprises (FASIE) with its relatively modest budget of Rb 4bn. A positive development is that the Foundation has got the right to award grants rather than finance small companies under the state order as was formerly the case – it generally reduces the bureaucratic burden on both the Foundation and small businesses⁴. Finally, there is some continuity in support of the projects: about 30% of projects sponsored by the RVC's Fund for seed investments were earlier supported by FASIE. Besides, in November the RVC's Fund for seed investments announced the launching of a new program "Business-angel" envisaging co-investment of projects being at an early seed stage in which business-angels would invest their funds⁵.

¹ *Virgin i ROSNANO ob'yavlyayut ob osnovanii sovместnogo investitsionnogo fonda.* [Virgin and ROSNANO announce the creation of a joint investment fund]. 31.10.2012. <http://www.rusnano.com/about/press-centre/news/20121031-virgin-rosnano-sovmestny-investitsionny-fond>

² *Chto zhdyot startup v RVK: interview s Igorem Agamirzyanom.* [What awaits a startup in RVC: interview with Igor Agamirzyan]. 28.08.2012. <http://www.nanonewsnet.ru/articles/2012/chto-zhdet-startapy-v-rvk-intervyu-s-igorem-agamirzyanom>

³ *A.Gorbatov. Chto meshaet innovatsionnomu liftu.* [What hinders the innovation lift]. 15.10.2012. http://www.strf.ru/material.aspx?CatalogId=223&d_no=49539; *Vse v odnov lifte* [All in one lift]. // *Poisk* [Search] No.42, 19.10.2012, p.12.

⁴ *Podorvanyuk N. Vazhno, chtoby nauka i biznes dogovarivalis' sami.* [It's important that science and business make arrangements on their own]. Interview with I.Bortnik, Chairman of the Supervisory Board of the Foundation for assistance to small innovative enterprises. 21.11.2012. http://m.gazeta.ru/science/2012/11/21_a_4861593.shtml

⁵ *Agamirzyan I. V Rossii est' ogromny spros na innovatsii so storony naseleniya.* [There is great demand for innovations from population in Russia]. <http://www.rg.ru/2012/12/20/tehnologii.html> 20.12.2012.

However, in 2012 the general trend for venture investments was the shifting of focus from the projects at seed stage to the ones at more mature stages. In particular, the number of seed transactions fell from 46 in 9 months 2011 down to 30 for the same period of 2012. At the same time the number of transactions involving projects at early growth and extension stages was up 2.5-fold – from 12 to 30¹. But in general venture investments in hi-tech sector were growing at high rates lifting Russia to the fourth place in Europe by this indicator right after Great Britain, France and Germany².

From the point of view of legal and regulatory framework, the conditions for venture business have not changed much. The introduction from January 1, 2012 of a new form of investment partnership similar to the international Limited partnership has so far produced no effect. The new form should have facilitated the creation of venture funds in Russia that used to be established predominantly as closed-end mutual investment funds subject to over-tightened regulation and difficult to manage. However, over the last year not a single company was instituted in the new form. At first experts saw the reason thereof in the lack of law application practice³ but later poor elaboration of institutionalization regulations was declared to be the main hindrance⁴. As a result companies still prefer to register abroad.

In 2012 an international review of Russian development institutions' performance was carried out. The co-executors of the study were the New Economic School and the international research team chaired by Professor of Harvard Business School, a reputed expert in the field of direct investments and venture financing Josh Lerner. The expert team was to prepare a package of recommendations for improving the performance of Russian development institutions by the end of the year. Presentation of the interim results of the study took place at the Moscow International Forum "Open innovations" on November 2, 2012. So far, the principal conclusions of the study are disappointing as they represent a set of rather general reasonings about the need to focus on the development of framework versus a mere distribution of funds, about the importance of coordination between venture investment agencies while understanding the difference of their missions and about the necessity of constant monitoring of results. It's noted that the carrying out of assessment is a difficult task since in Russia both the availability of information on venture capital and the transparency of regulations are worse than in other countries. So, the experts' attempt to involve and take into account global factors resulted in the shifting of accents towards the estimation of Russia's innovative system on the whole and thus largely in the replication of provisions of the Strategy of innovation-based development and some other Russian regulations of general nature. However, one should not rule out the possibility that in their finalized version the recommendations will be more case-specific.

¹ PwC i RVK: *obzor venchurnykh sdelok za tri kvartala 2012 goda*. [PwC and RVC: review of venture transactions over 9 months 2012]. Press-service of PwC company. 29.11.2012. <http://www.crn.ru/news/detail.php?ID=73226>

² Rooney B. U.K. Leads European Venture-Capital Funding, but Russia Is Fastest Growing. <http://blogs.wsj.com/tech-europe/2013/01/29/u-k-leads-european-venture-capital-funding-but-russia-is-fastest-growing/>

³ *Venchurny fond v Rossii: kakuyu yurisdiksiyu vybrat'?* [Venture fund in Russia: which jurisdiction to choose?]. Press release of RVC of 23.10.2012. <http://www.rusventure.ru/ru/press-service/news/detail.php?ID=11473>

⁴ Petlevoy V. *Instituty razvitiya namereny izmenit' zakon ob investitsionnom tovarishchestve*. [Development institutions intend to change the legislation on investment partnership]. // RBC daily, 29.11.2012. <http://www.rbcdaily.ru/2012/11/29/media/562949985227509>

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Last year witnessed the shift of priorities from innovation to science and interconnection of the latter with education. The innovative rhetoric faded as well as the discussion of plans for economic modernization of the country. All through the past few years one has been saying that there are enough funds in the innovative sphere including those allocated from the budget via various development institutions but worthy projects are lacking, the former scientific potential has been exhausted, science experiences personnel crisis affecting the innovative potential of economy at large. It is possible that the 2012 shift towards support of science and the downscaling of priority given to state financing of innovations are due to the intention to resume the suspended reformation of scientific sphere.

The new government proceeded to the elaboration of measures of indirect institutional restructuring of science involving the creation of “parallel structures” – new laboratories complying with up-to-date standards of research work organization, new forms of staff support and motivation. Here lies the difference between the approaches being worked out and the attempts of reformation and restructuring made in the previous years: the influence on scientific sphere should be indirect rather than exerted through reorganization or closure / opening of new institutions. According to the concept, later on the new forms are to replace the old ones - in conformity with the known effect of so-called “inside-out reforms”.

University science remained a priority with its financing steadily growing. However, even by formal indicators of research productivity Russian higher education institutions continue to lag far behind the leading foreign universities which is one more proof of the need to reform the entire system of scientific research organization.

However, even the most promising measures won't be efficient in case external factors affecting the performance of scientific sphere remain unremedied – arrears in allocation of budget funds, especially those under grants, difficulties in the organization of scientific process, discouragement of the inflow of foreign investments in Russian science, etc. From this point of view the past year was marked by further aggravation of the existing problems and the emergence of new ones.

Support to the development of technological innovations was still being provided but not so intensely as in the previous years. Innovation development programs of companies owned or co-owned by state as well as projects of technological platforms were progressing sluggishly. The innovative clusters selected in the first half of the year failed to get any financial support. The latter was postponed till 2013.

Development institutions stated the shortage of funds for projects at pre-seed and seed stages and started to diversify their activities increasing the focus on creation of “framework” (including educational projects). Still, in general the quality of performance data made available by development institutions is such that it's rather difficult to estimate their efficiency.

