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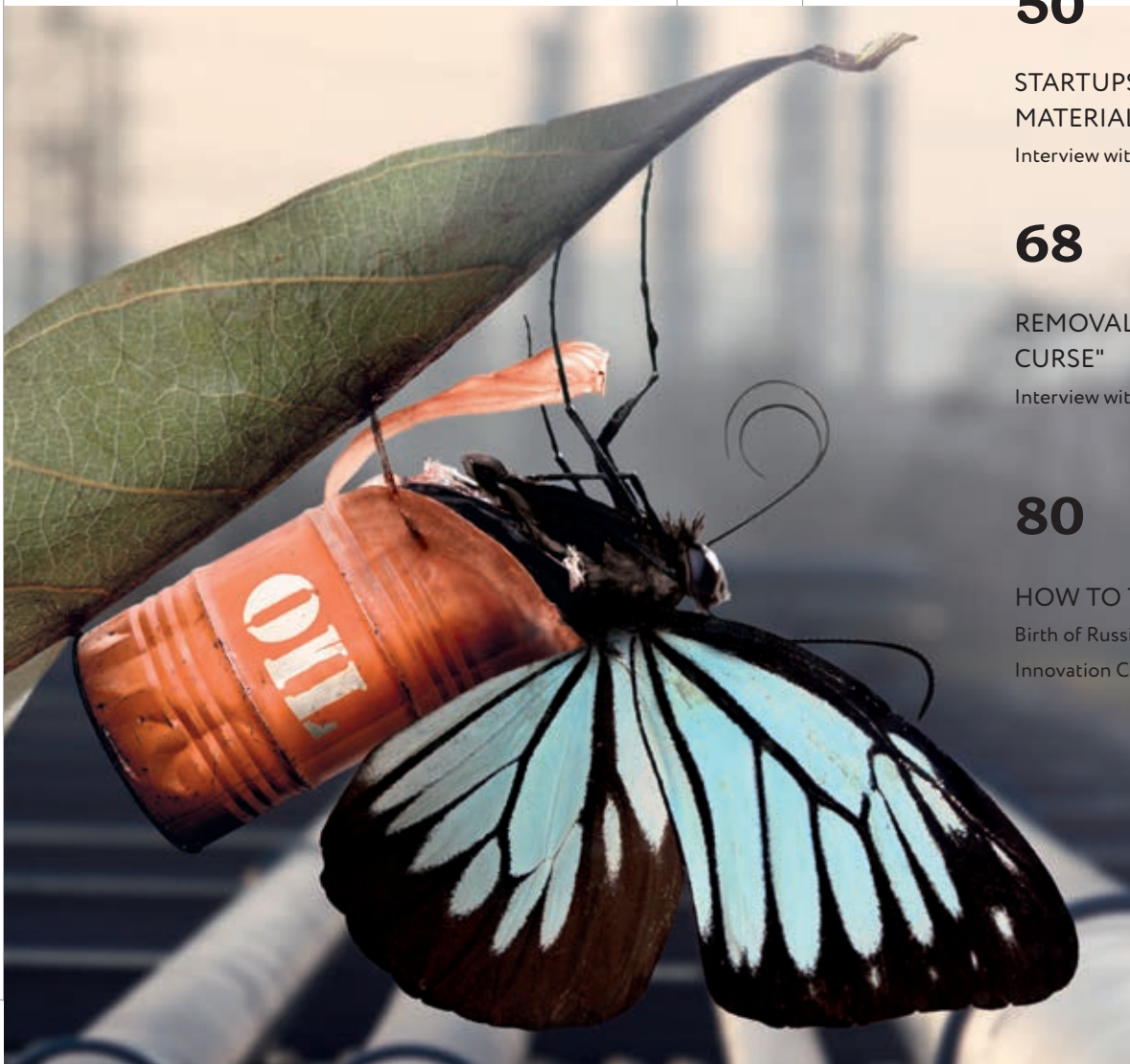
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РОССИИ

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Anniversary events always cause a desire to discuss results and prospects. This edition of Journal Strategy is significant for us, as exactly three years will be in March since the first issue of the journal.

It is too early to sum up work of our editorial board, as many interesting projects will be implemented in future. There is also no necessity to draw the line between past and future. We live in such an interesting and dynamic time when each day brings something new. The dynamic of events is so intensive that it turns into a continuous process, which cannot be described with the help of "past-present-future" paradigm.

This issue is entitled as "the Period of changes". When did the period begin? How long will it last and whether it is possible to say about a new reality, the permanent state of accelerating changes in the world economy, social systems, and a technological structure? What are the planning prospects in this new reality? How can we predict the way of the world's development? How to build a winning strategy in order not to be among outsiders? Those states, companies and individuals that intend to remain popular and competent are looking for the answers to these questions. It is hardly possible to give a comprehensive answer on the pages of one issue. Therefore, we should focus on the following fact – what it means to the modern era, especially for the economy of our country, Russian entrepreneurs and managers. How to «switch» from raw materials to the innovative model? How to adapt to the impact of a new global industrial revolution on the structure of the economy? How to save and develop small businesses in conditions of instability? How to maintain and increase the human capital? These matters have been repeatedly discussed, but topical issues are always in the focus of our journal.

We sincerely believe that the "period of changes" will bring renewal to Russia, open opportunities for high-quality transformation, make our economy stronger and more stable. It is extremely important for Russia not to "miss" the next technological revolution. We consider that our role is to be co-participants who watch and tell readers about the most interesting things that happen today in the state manufacturing, public administration, science and social spheres.

Dmitry Mikhailov,
Editor-in-Chief



Challenges of Our Era

Alexander Shokhin, the president of the Russian Union of Industrialists and Entrepreneurs, told Journal Strategy about the reaction of the Russian business community in respect of changes that occur due to the economic crisis. The expert also announced initiatives that will allow to minimize critical consequences for the real sector of the domestic economy.

What has the year 2015 become for Russian manufacturers on the legislative and economic plane? What events have mainly marked the crisis and what will be in 2016?

The year 2015 proved to be challenging, forecasts for 2016 are also not encouraging. The unstable exchange rate against the euro and the dollar throughout the year, the fall in oil prices up to \$30 per barrel, the prolongation of sanctions against Russia worsened that difficult situation in the economy when the growth rate of investments in fixed assets was in the negative zone, starting from 2013. The government tried to compensate business for the deterioration of operating conditions. The anti-crisis plan for 2015 was adopted in order to provide support of industrial and banking sectors, many of those measures were in demand of the business community.

Some positive projects were implemented in 2015 and the beginning of 2016. Both amendments in respect of the business position to the legislation, which regulates controlled foreign companies, and increase in the effectiveness of the legislation on association's employers. The law on industrial policy came into force. New profile organizations started their work: the Industrial Development Foundation, the Russian export hub, the Federal Corporation for the Development of SMEs. Sectoral plans on import substitution are being implemented. Thresholds of access to application-based VAT refund procedure were reduced.

At the same time there was a failure in terms of strategy. Prolonged acceptance of long-term strategic documents from the Energy Strategy till 2035 up to the SME development Strategy till 2030. The RF Government Action Plan has just accepted the document with elements of systemic reforms to ensure sustainable socio-economic Russia's development in 2016.

The agreed decisions are being implemented not quickly enough. Many important business laws have not been adopted yet, for example, in respect of regional investment projects and special investment contracts.

Prevalent tactical measures unconsidered on the stage of preparation lead to strategic consequences. For example, the work on improvement of the system of compulsory social insurance administration, which is transforming into a serious reform of this system. Its main element is likely to enlarge businesses load.

Such an uncertainty level of the state socio-economic policy significantly limits companies' development in addition to losses due to the unfavorable economic situation.

According to respondents' information, monetary instability, lack of working capital, non-payments by counterparties, unavailability of extra financial resources, the reduction of demand for products were among consequences of the crisis that had a negative impact on their business. The list contains a number of anti-crisis measures by the companies that reduce costs (primarily consumed services costs), implement programs for the introduction of energy-saving and resource-saving technologies and raise prices of products / services (if it is possible in the market situation). The most active companies retain and even increase the amount of their investment programs in order to be ready for the post-crisis breakthrough.

The investment and innovation active business needs to be supported on a priority basis through the improvement of the effectiveness of development institutions, project financing and systemic measures to improve the business environment.

You discussed mediation between business and law enforcement agencies at a recent meeting with Vladimir Putin. What body should deal with these issues and how reasonable it can be implemented, in your opinion? What should be amended in the legislation?

A working group on monitoring and analysis of enforcement practices in the field of entrepreneurship was formed following the results of the meeting.

The working group consists of representatives from associations of industrialists and entrepreneurs: Russian Union of Industrialists and Entrepreneurs, the Chamber of Commerce, OPORA of Russia, and Business Russia, the Presidential Administration, as well as the following law enforcement agencies: the General Prosecutor's Office, the Investigative Committee of the Interior Ministry and FSB.

The working group is headed by Sergey Ivanov, the head of the Presidential Administration. We hope that its first meeting will take place in the near future. It is planned to identify specific problems based on systemic issues and form proposals for their solution instead of solving specific cases.

"The investment and innovation active business needs to be supported on a priority basis through the improvement of the effectiveness of development institutions, project financing and systemic measures to improve the business environment"

The investment and innovation active business needs to be supported on a priority basis through the improvement of the effectiveness of development institutions, project financing and systemic measures to improve the business environment.

According to the results of a survey published by PwC, 86% of respondents have a fear due to the state's economic policy. What complicates entrepreneurs' activity, in your opinion? At whose expense it is possible to reduce the business risks due to the budget deficit?

RUIE annually questions its members in order to make a list of the most important constraints for the development of companies. The crisis has not significantly changed the list of issues. The majority of them are of systemic nature. However, succession has changed a little bit and therefore the so-called level of concern for one or another problems. More than half of the respondents noted that the key issue for Russian business in 2015 was increase in prices and tariffs. Excessively high taxes hinder 46.3% of companies, and anxiety about this problem intensified in comparison with 2014.

26.9% of organizations noted high insurance payments as the main problem. Traditionally, representatives of business in all countries are unsatisfied with too high taxes. But the anxiety about this problem is due to the fact that money is neither enough for investments, nor working capital.

In recent years, the lack of qualified personnel was the main problem for business, but according to 40% of respondents it is in the third place now. Nevertheless, this is an important signal even during the crisis when business is experiencing lack of skilled workers, engineers, operators and machinists. 36.5% of companies have difficulties with access to resources. According to companies, main specific of the crisis is not only limitations of investment projects realization, but also a lack of working capital.

According to the opinion by the surveyed companies, members of RUIE, their development is limited by high administrative barriers, corruption of authorities, the lack of effective judicial system, unfair competition, the lack of clear objectives, targets for the country's development.

And the last answer immediately rose five points up. Its share increased from 8.9% to 15.4%, while the same high level of concern for this problem was recorded in the crisis in 2010.

If your proposals regarding the refusal of the state from the "golden shares" and a moratorium on the purchase of private assets by state companies during the crisis are accepted what effect you will expect from the economy and when? How else is it possible to reduce the role of the public sector in the economy?

Indeed, we proposed to limit the use of the "golden share" mechanism, or even abandon it in favour of the privatized companies. Otherwise, it decreases the interest of potential investors in the purchase of assets, as well as reduce and limit the possibility of increasing the efficiency of the privatized company.

One of our main proposals for a new wave of privatization supported by the leadership of the country is the sale of privatized assets (especially of small stake size) at the current market price to non-state pension funds with the extension of their right to invest in such assets, and the refusal to renew a moratorium on the transfer of pension savings and investment in the privatized assets. It provides social orientation of privatization and the sustainability of the pension system in the long term perspective and does not raise the further questions why the assets are sold at a low price.

It is also necessary to introduce a ban on the purchase, merger, absorption or other purchases of any asset that belongs to private state corporations, state-owned companies and companies with state participation in the period of privatization. The share of state assets in the economy should be reduced rather than increased.

We offer to conduct an inventory and determine the terms of sale of assets that were received during the previous crisis by state companies / state-owned companies (including banks) as a result of foreclosure of the pledged assets of private companies. It would be an effective measure to use various privatization models for different assets. As for the companies that are not in strategic and operating competitive sector, there is a possibility of selling a controlling stake (even without saving a blocking stake in the state) at the current market price.

As for strategic investors, it is possible to sell controlling / blocking stakes even with a discount in some cases, and the variant of an IPO at international exchanges where it is possible to receive a "premium" to the current market price can be regarded in respect of individual assets. More than half of the respondents noted that the key issue for Russian business in 2015 was increase in prices and tariffs.

"More than half of the respondents noted that the key issue for Russian business in 2015 was increase in prices and tariffs"

The important event RUIE-promoted Russian Business Week is to take place in the near future. What issues will be discussed above all?

The Russian Business Week is a really important event that consists of an RUIE Congress traditionally attended by President of Russia. A closed meeting with members of the RUIE Bureau takes place after the public part of the Congress. The meeting with the RUIE bureau and the public event attended by President in the context of the Congress of RUIE allows to sum up the results of the year and outline the program of action for the next year. During the RUIE congress we present an annual report on the state of the business climate in the country and identify key issues that affect business. A lot of things have changed over the years when we conducted this survey. It turns out that the main problems don't differ significantly from those that had been before. Even the two crisis – in 2008-2009 and 2014-2015 didn't change the situation drastically, although they brought some adjustments.

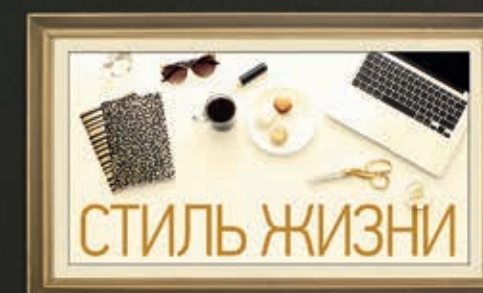
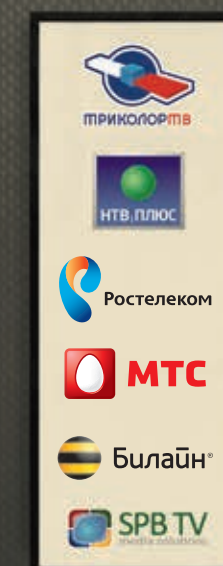
The second peculiarity of our Congress is that we hold a series of forums and conferences during the week. Every year we start from the Tax Forum and at the end we hold the forum of self-regulatory organizations. A series of conferences take place between these two events. In particular, the financial and banking forum, the discussion of financial and banking systems in Russia in the new economic conditions. In addition, the Industrial forum is also to take place. It will be focused on system issues on the implementation of the law about industrial policy, as well as technical regulations, quality control, conformity assessment, as one of the key issues, including in the context of of the Eurasian economic integration.

It is also planned to hold a traditional conference dedicated to industrial ecology and safety. The climate change and the role of business will be discussed this year in the context of the results of the Paris Conference on climate. Another topical conference will be held to solve state control optimization issues on reduction the administrative burden on business.

The Social Forum in the context of the NRB will be focused on the interaction between business and government, as well as business responsibility in the interest of social stability. The International Forum is dedicated to the new conditions and possibilities of Russia's economic cooperation with Asia Pacific countries on the Eurasian economic area.



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что всё достижимо!*



Cosmic Perspectives of IoT

Deputy General Director for Business Development at FSUE Russian Satellite Communications, Ksenia Drozdova, wrote in an article for Journal Strategy how Internet of things has influenced the progress of developing countries, as well as its possibility to improve lives of billions of people.

International Telecommunication Union (ITU) announced on January 19, 2016 in Honolulu that the Internet of things (IoT) has become one of the main opportunities for global development that can improve people's lives and accelerate the pace of growth in developing countries. Thus, ITU officially recognized the fact of transition of world economies the next technological phase, better known as Industry 4.0.

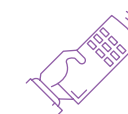
The Internet of Things is a "communication" process of household items from vehicles and aircrafts to toasters and refrigerators on the "machine-to-machine" (M2M) and "machine-man" (M2P) principles. The idea is that on a par with people machines can generate a flow of information transmitted to a specific type of digital devices through industry or public networks that ultimately forms so-called "Big Data flows" (Big Data).

The main condition that makes it possible to switch to the new principles of the national economy is accessible of devices with access to the global network and the maximum accessibility of the network itself to the population.

According to the ITU, global coverage of 2G networks is 95% of the population. The growth of the world's 3G coverage network was recorded in 2015 (89% of urban population and 20% of rural residents in the world). It is planned to build more than 200,000 kilometers of new fiber-optic line in Russia by 2020 in almost 14,000 settlements with a population of 250,000 to 500,000 people in order to connect them to the Internet access with a speed of transmission not less than 10 Mbit/s.

In the past two years, European, US and Russian communication satellites of the new generation with high energy characteristics that provide broadband access to the Internet, as well as the widest possible area of service were launched into orbit, from the Northern Sea Route to the Antarctic territories.

Thus, there are almost no places in the inhabited areas of land and the majority part of ocean territory where it would be impossible to allow access to the Internet. All these facts allow ITU to announce a new global industrial revolution as a fait accompli.



Market of Internet of Things products and services is estimated at 330 billion US dollars by 2020 with the net effect to the global economy not less than \$1.9 trillion

The flexibility and easy implementation of IoT devices by households set a pace of this new sector of the economy. The design of IoT devices gives an opportunity of scaling without help of experienced specialists for the installation or maintenance of services, as they can be easily replaced. All these benefits and their affordability make them popular.

Autonomous compact and alternative power sources (eg. solar panels) may maintain work of sensors and networks with no steady power supply.

It is expected that 6.4 billion devices (mobile telephones, parking cars, heart monitors, vehicles, cash registers and data from road surface), which had already been connected to the Internet, will be able to communicate with other devices without human participation. The number of devices will reach 25 billion by 2020.

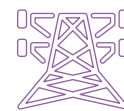
According to the most modest estimates, the Internet of Things (IoT) market of products and services is estimated at \$330 billion in 2020 with the resulting impact on the global economy in the amount not less than \$1.9 trillion.

This tendency went unheeded in Russia. Absorption in the general political context and the current economic crisis have not allowed to assess the impact on near-term perspectives of 2020 in respect of the ITU program release. But, whether we like it or not, the global trend of intensive development of IoT will become one of the factors with a dominant impact on the domestic structure of economy. The structure of employment will be changed fundamentally. The individual distance business will play a more significant role. Redistribution of roles among countries with huge manpower displaced by cyber physical integration systems into the production processes.

In fact, it is about the formation of new approaches to the control system process, logistics, material accountancy, transport, communications, as well as the management of the households' consumption structure and individual preferences. Today there is a massive use of "cloud technologies" for remote access to the desktop via different means of communication such as smart (computers, tablets, smartphones, etc.). This phenomenon leads to the introduction of new business models because entrepreneurs always focus on reduction of operating expenses.

The development of personal services is rapidly accelerating the appearance of Y-generation's medium and leadership positions in the economy, or "Net Generation" – those people who were born after 1981 and characterized by deep involvement in digital technology and individualism.

For example, one of the development drivers of the television market in the world in 2014-2015 was an active increase in the number of users who consume apps on mobile devices.



The market volume of digital pay-broadcasting grew by 21.3% in Russia and amounted to 70 billion rubles in 2015

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The invention of new products and solutions for viewing and TV management is based on their subsequent integration with mobile devices. This concerns the improvement of interfaces, content protection, and technologies of its "delivery" to the viewer. Modern service providers and digital TV operators seek to provide users with the opportunity for free and easy moving from one environment to another – watching large screen television, a tablet or a smartphone, using the cellular network or Wi-Fi.

In 2015 the market for digital pay-broadcasting grew by 21.3% and amounted to 70 billion rubles in Russia. It is important to note that last year reflected sustained households' demand for three main spheres of information spreading – cable (46%), satellite (40%), and IPTV (14%).

Despite the vast territory, the Russian Federation is a leader among the CIS countries in the telecommunication infrastructure index (0,6413), which was calculated on the basis of five components, including mobile (cellular) subscribers (per 100 people), Internet users (percentage of population), stationary broadband subscribers (per 100 people), wireless broadband subscribers (per 100 people), fixed-line telephone subscribers (per 100 people). The world leaders are Monaco (1,0000), the Republic of Korea (0,9350), Sweden (0,8866), the US (0,8748). Russia significantly lags behind on this indicator from all these countries.

The telecommunication infrastructure established in the country over the last five years and the rate of development of fixed satellite communication, which allows to provide broadband access to remote inaccessible regions of Russia have provided domestic and agriculture industries with infrastructural prerequisites for "seamless" access to new economic realities.

Oddly enough, but specialists of the Far Eastern commercial fleet were one of the first who actively began to introduce domestic satellite and cloud technologies. Search of interconnectivity in expanding



By 2015, more than 50 vessels were equipped with satellite communication stations for the Company Yuzhmorbyflot, Dobroflot Group of Companies (Vladivostok) and LLC Antarctica. The introduction of "cloud technologies", which provide data transmission, telephony, email, access to the corporate network of the holding with access to the Internet, as well as digital television broadcasting the fish-processing floating depots allowed to reduce company's monthly operating expenses for telecommunications services. The holding has implemented an electronic logbook and online-transmission of telemetry data from vessels' components and assemblies, monitoring the route of movement and location of vessels. According to the JSC Yuzhmorbyflot, economic efficiency is more than 600% with better service and wider capabilities of the system in comparison with the previous foreign analogues.

Ksenia Drozdova,
Deputy General Director for Business Development of FSUE Russian Satellite Communications Company

the use of IoT, the creation of international standards of devices for their interoperability on a global scale in close cooperation with international institutions, the synchronization with previously incompatible devices are the purposes for the development of the new industry during the next five years.

In the near future the flow of M2M connectivity (machine to machine), transmitted over networks will be significantly higher than the flow of digital information created by men. Interconnectivity is a keyword that defines the economy of the next decade.

Import as a Dependency

The Russian food market depends on imports. The matter is how such dependency should be considered. Some experts believe these are normal conditions for the free market that allow us to maintain food prices at a low level. Others claim that imported goods are the reason for the low level of agricultural development. Where is the truth and what is the golden mean? Journal Strategy correspondents tried to answer these questions.

Whose It Is?

According to Rosstat, a high proportion of imported goods prevent local producers from developing in Russia where the consumer demand was defrayed only in certain types of products. In 2013, prior to the introduction of anti Russian sanctions, the production of pork met 74% of the country's necessity, beef – 70%, sugar beet – 82%. Imports of foodstuffs and agricultural products from 2000 to 2013 grew from \$7 to \$43 billion in the country.

After deterioration of political differences with the West, Russia changed its policy in the field of food safety and started developing the trend of import substitution. According to experts, the support of local producers has already given results. The share of domestic products has increased in the country's



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market. According to the Ministry of Agriculture of the Russian Federation, today Russia satisfies the country's needs in grain, oil, sugar, potatoes. Over the past year supply of imported food decreased by 1/3 and it is amounted to \$27 billion. And exports of agricultural products in 2015 rose to \$16 billion. It is five times higher than it was 10 years ago.

Somebody Else's Product Is Cheaper

According to major global importers such as the US and the European Union, the dominance of imported goods is not dependence, but the possibility of lower prices and increased competition. Minister Plenipotentiary, Plenipotentiary Minister for Agriculture of the US Embassy in Russia Jonathan



According to Rosselkhoz nadzor, in January 2016 Russia exported **1,969,200 tons** of grain and its products, which is **26% less**, in comparison with January 2015

Gressel believes that the restriction of import is not always the right decision to support the domestic producers. Funding of individual spheres of agriculture is also not enough for the efficient growth of industry rates.

Food products in the amount of \$112 billion were imported in the United States in 2014. For comparison, according to the RANHGS Center of agrofood policy, prior to the introduction of anti-Russian sanctions the price of the imported products by Russia was almost three times less – about \$40 billion. As for the Netherlands, it sticks to the open market policy. The Netherlands is the second exporter of agricultural products in the world, but at the same time and it is a major importer. The country imports products in the amount of \$2,700 per a person. For comparison, Russia imports products in the amount of \$274 per one person. "It is not our goal to become self-sufficient in all kinds of agricultural products. It can hinder the successful model of agricultural development," Minister



The Russian legislation on the regulation of the alcohol market has been amended for the implementation of the export potential of the wine production. Provisions that create conditions for the development of a new class of high-quality Russian wines with a protected geographical indication, as well as for the development of wine-making by farms and other agricultural producers from their own grapes, came into force on June 1, 2015.

Alexander Tkachev,
the Minister of Agriculture of the Russian Federation



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Counsellor, Head of Economic Affairs, Agriculture and Innovation of the Kingdom of the Netherlands Embassy in Russia Philip de Jong says.

The Other Model

In Russia has its own idea of the successful model of agricultural development. But the key point is a focus on self-sufficiency in foodstuffs. According to Deputy Agriculture Minister Sergey Levin, the country's market cannot depend on foreign products. The analysis on the basis of the Doctrine of food security is the starting point in the selection of priority areas that require state support. The government has already approved 460 agricultural import substitution projects. It has been allocated 265 billion rubles. However, the share of imports is still quite high. In 2015, imports of dairy products are estimated at \$2 billion, meat – \$3 billion, vegetables – \$2 billion, fruits – \$1.6 billion.

According to the Ministry of Agriculture, the increase in production of pork (10%) and poultry (17.3%) reflect a positive trend over the past two years. The production of beef and milk are still problem sectors. According to preliminary estimates, imports of milk in 2015 amounted to more than 7 million tons. Sergey Levin is sure that it is impossible to reduce dependence quickly. We need to rebuild the entire model of milk production in order to solve the current problem.

"Support of the dairy sector should be intensified. The Russian Ministry of Agriculture has developed proposals for state purchasing and commodity interventions in respect of milk powder and butter this year, are to allow to smooth seasonal fluctuations in the dairy market and to support the processors," Minister of Agriculture Alexander Tkachev considers.

The Ministry of Agriculture has plans to reach 100% self-sufficiency of milk, meat and vegetables by 2020. In particular, the ministry expects to increase milk production by 7 million tons in five years, meat production by 500,000 tons, gross grain harvest by 10 million tons. 1,500 hectares of new greenhouses



Maintenance the annual grain harvest volume at the level of
104-105 million tons
is necessary in order to have enough domestic food in the domestic market. It is planned to reach
130 million tones
of the grain harvest by 2030

will allow receive additional 850,000 tons of tomatoes and cucumbers. It is also planned to plant 65,000 hectares of apple orchards and 50,000 hectares of new vineyards.

It will be necessary to receive 270 billion rubles until 2020 in order to achieve these indicators. Taking into account the achieved the level of state support (237 billion rubles) in 2016, it is necessary at least 40 billion rubles annually to provide the further development of the industry. But now the crisis makes its own rules. In particular, the budget expenditures for the development state program of agro-industrial complex in 2016 are planned to be reduced by almost 10% – up to 215,018 billion rubles.

More Export

Another food safety guarantee is considered to be an active export of food. The Adviser of Agriculture of the US Embassy in Russia, Jonathan Gressel, considers that the ideal scheme of industry organizations is when a part of goods is imported in order to provide population with cheaper products. More expensive products produced by local farmers should be exported, as it is more qualitative and competitive. It allows farmers to increase their income, while food prices remain affordable for all segments of the population. Exports of foodstuffs from the United States was estimated at \$150 billion in 2014.



**РОССИЙСКИЙ
ПРОИЗВОДИТЕЛЬ
ЭЛЕКТРООБОРУДОВАНИЯ**

Export of food products is also an economic driver in Russia during the crisis. Each year, the country sells about 30 million tons of grain abroad.

Executive Director at SovEkon analytical center Andrey Sizov noted that Russia needs three conditions to increase export of products: production of more competitive products, predictable rules of the game and government's participation only in establishing ties. As additional measures the analyst proposes to develop international cooperation in the field of technologies, intensify efforts to attract investment in the Center for Russian Agriculture, increase the capitalization of the land market and put additional allotments into circulation.

Help and Earn

In any case, neither in Russia, nor abroad the agriculture is considered as sphere for receiving easy money. Firstly, social welfare depends on the viability of this sector. Secondly, it should bring profit as the economic sector. If we take into account the first aspect, the population of Russia spends 30% of their income on food. In the US only 12% of the population. Although there are food support measures of the population in both countries. Thus, there are two risk management programs are the main form of direct state support to farmers in the USA since 2014. The first is a price loss coverage program. Farmers will receive payments if market prices fall below a certain level of historical prime cost. The second program relating to the coverage of agricultural risks is more popular. It provides payments if the proceeds of the crop falls below a certain historical level.

At the same time almost 80% of US Agricultural Department's budget is spent on food support of the poor. Participants of one of the programs receive an e-card for special purchases of food produced by the US and import production. A similar initiative may be realized – the introduction of electronic certificates of food that can be used by to receive state subsidies for the purchase of domestic products.

In addition, the Russian Ministry of Agriculture has plans to develop at least two directions and support domestic agriculture in order to solve the problem of food security in the country.

Firstly, according to Sergey Levin, efforts of public policy will be redistributed towards the development and support for food and processing industry, as these areas are form demand for the products of primary agriculture.

Secondly, it is planned to develop customer demand in terms of real income decline of the population. It is planned to be supported with the help of domestic food aid concept and development program, which was developed by the Ministry of Agriculture and the Ministry of Industry. In particular, the ministry has worked out a project to limit the procurement of imported food.



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РЕКЛАМА

Alloy of Lead and Gold



Journal Strategy columnist, Ksenia Drugoveyko, on the arms project by Aleksey Putilov, the most influential Russian banker and tycoon in 1900-1910 who managed to resolve the financial and military crisis of those years in his favor.

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In View of Witte

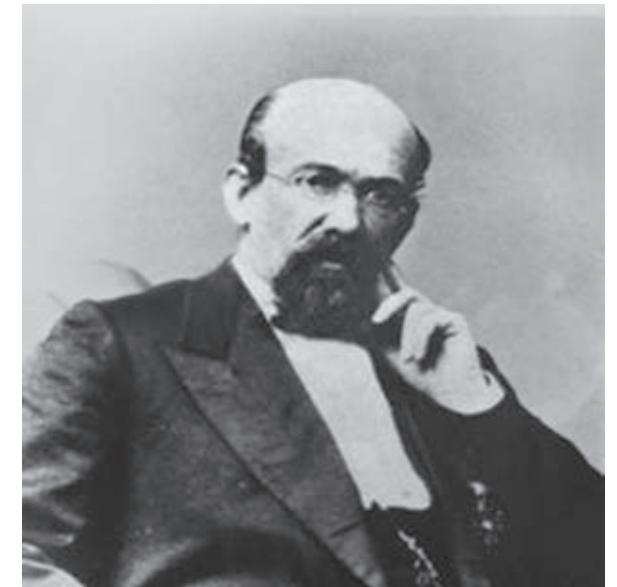
Prominent businessman was always between war and sports. But we have such a representative – the figure of the merchant. His activity is described as accurately nobody else's in the history of Russian entrepreneurship. Writer William McPhee noted that the world belongs to enthusiasts who are able to possess themselves. Wars also belong to them. Aleksey Putilov's history, thanks to whom the name of his great-uncle Nikolay Putilov was preserved in the memory of so many generations, shows how expensive the price of enthusiasm.

Aleksey Putilov, the son of a privy councilor and honorary magistrate Ivan Putilov, who was born in the Novgorod province in 1866, but spent all his childhood in St. Petersburg. The first years of Putilov's biography was a series of expected events for a young man – training at the First Petersburg Classical Gymnasium, graduation of the law department of St. Petersburg University with a gold medal, enviable academic perspectives, but he gave preference to the public service.

He started his career as an official at the Directorate General for Prisons of the Ministry of Internal Affairs. In 1890, Aleksey Putilov was transferred to the Ministry of Finance where he received the modest post of legal adviser assistant, but as a result it contributed to his acquaintance with Sergey Witte who became the head of the newly formed Department of Rail Affairs under the Ministry in 1889.

In 1900 Putilov became Witte's secretary who was the Minister of Finance. Later he wrote in his memoirs (full of unflattering comments about that environment), describing them as "outstanding financiers". Two years later he held the post of the general office of the Finance Ministry. In 1905 Witte became the chairman of the Committee of Ministers (later the Council of Ministers), Putilov was appointed as his companion (deputy) of the new Finance Minister Ivan Shipov.

Putilov was also entrusted with the superintendence of Nobility Land and Peasant Land banks. Their value has



Aleksey Putilov, the most influential Russian banker and tycoon in 1900-1910

significantly increased in the financial and land policies due to revolutionary unrests. He quickly immersed in the world of banking business, the laws of which were changing rapidly in the new political context. Therefore, Putilov's dismissal from the civil service after the order by Nikolay II (due to the memorandum where the official justified the necessity for peasant land tenure by means of compulsory redemption of the landed estates by the state) that just contributed to the early development of his financial career.

Since 1905 he was a member of the board of the Russian-Chinese Bank, formed in 1895 by Sergey Witte in order to carry out operations on financing on the construction of the Chinese Eastern Railway, penetration of the Russian capital in the country and, finally, the consolidation of the political influence of the Russian Empire in the Far East. Three years later Putilov was elected to the post of Managing Director of the Bank. Its creation and all follow-up activities made a good start for a new trend in the domestic large enterprise, i.e. increased penetration of international banking capital into the sphere of industrial production.

Bank for Settlements

Prior to the 1890s, the initiative in a foreign enterprise in Russia belonged to industrial groups that intended to establish branches here: French representatives expressed the most active interest.

However, increased dependence of French enterprises from banks led to the fact that the latter began to finance foreign department of first ones in a more intense way and then they became the main driving force of direct investments.

Société Générale and Banque Paris et des Pays-Bas (Paribas) (Paris-Dutch bank) also followed Rothschild Banking House that joined in the Russian oil industry. The crisis in 1899-1903 these banks has two variants: either getting rid of plants and firms on the brink of collapse, or the search for new loans to have a hope for a speedy improvement of the situation. The second variant forced Société Générale and Paribas to immerse deeply into the Russia's economic environment in order. Their leadership decided to establish their own branches in Russia.

In 1901, the moment when the crisis was in full swing, Société Générale established the Northern Bank in St. Petersburg. It was its branch office in a Russian credit structure on the basis of the Russian statute. However, taking into account both its capital and the management, it still remained French. Its main goal was to find local sources of capital to support coal and steel enterprises patronized by Société Générale, which was severely affected by the crisis.

Harsh competition among other banks, regular disputes due the need of independence degree for the Northern Bank and the structure of its capital significantly hindered the activities of the branch, but then all problems were settled in a few years. By 1909, the bank launched a network of 40 provincial branches. Deposits and accounting bills were markedly increased. But the Parish side was interested in industrial enterprises, which rapidly depleted its reserves due to their worsening conditions.



In 1900 Putilov was appointed the secretary of Sergey Witte, the Minister of Finance. Later called him "a prominent financier" in his memoirs

Meanwhile, the directorate of Paribas had plans to participate in one of the existing Russian banks as active as possible with a perspective of gradual complete mastery.

Sergey Witte managed to take advantage of these ambitions by deciding to form a Russian-Chinese Bank. The French side accepted the realization of 62,5% of

its share capital. But in fact, the bank was completely under control of the Russian side, as the remaining equity share in the form of single package was bought by the State Bank.

At the peak of activity of the Russian-Chinese bank had more than 40 offices: in Russia, Mongolia, Japan, France and China, which provided 1/3 of all foreign investments. The most part of his shares concentrated in the hands of the French government after the defeat of the Russian Empire in the war with Japan, the division of Chinese Eastern Railway and mass outflow of investors. Aleksey Putilov's appointment to the position of Managing Director was the result of long negotiations on the fate of the bank between foreign investors and the Russian Finance Ministry.

Putilov has managed to take advantage of the convergence at that time between Société Générale and Paribas. He announced and implemented the idea of a merger of Russian-Chinese and Northern banks that turn out to be in a similar non-staple position at the end of the decade.

After another series of negotiations and haggling in summer 1910 the Council of Ministers adopted a decree on the establishment of Russian-Asian bank, the power and large-scale financial institution that had not existed in the country before. At the beginning of 1911 its capital stock amounted to 35 million rubles, and all kinds of spare capitals were more than 20 million rubles.

Limited additional investment of the Chinese Government in the amount of 4.5 million rubles and banknotes in the amount of 1.2 million rubles increased the amount of capital in the bank's accounts up to 60 million rubles. The new bank's reserves inherited from its predecessors exceed 250 million rubles: 1/3 of them was in the accounts of the former offices of the foreign Russian-Chinese Bank.

However, the subtlety was that 80% of loans were given under the non-guaranteed values "on demand" and with the help of correspondent accounts. It was also found the Northern Bank's participation in joint-stock

companies and syndicates formed to hold large stakes of troubled companies. Their collateral assessment was often overestimated.

The amount of unsecured loans was high and there was a large number of loss-making foreign bank branches established before the war against Japan. The new bank was a giant with feet of clay, which was necessary to strengthen the non-standard measures.

Aleksey Putilov intended to implement truly large-scale operations thanks to them and the bank would take a leading position in St. Petersburg and become the center of a powerful financial-industrial group.

It is not surprising that he planned to make an arms company the core of the bank: the war against Germany was inevitable, and the Russian army is in desperate need of rearmament.

Arms Banker

French Schneider and German company Friedrich Krupp AG were the leaders in the European defense market at that time. Putilov's idea was to create a Russian analogue on the basis of the Putilov metallurgical plant.

Aleksey Putilov was named after his grand-uncle, naval officer and engineer-inventor Nikolay Ivanovich Putilov (1820-1880). The plant headed by him was producing rails. Production of torpedo boat, locomotives, naval guns, tool steel and has a number of related products were established later by 1900.

It was the most powerful metallurgical and machine-building plant in the Russian Empire. As for Europe, it produced less than Armstrong in England and Krupp in Germany.

However, after several dismissals of management (Putilov passed away almost poor, and shares of the plant were bought by other person) and strikes in 1905 it became obvious that plant needs to be modernized. It also required urgent investments.

In 1912, Aleksey Putilov became the head of the board of the Putilov plants. During the next two years Russian Asian Bank invested 30 million rubles in the restructuring of the production. The sum was two times higher than the total value of the property. Company founded a shipyard – the Putilov shipyard.

The Putilov plant (Kirovsky plant since 1934) continues to operate even today under the name of Severnaya Verf. The Bank has not just modernized the plant, but turned it into a base, taking the production process to the next level. It actively bought and merged the companies, which produced weapons.

The shipyard was built on the basis of the Russian Society for the manufacture of shells and military supplies, which were bought by the bank. JSC Baranovsky mechanical, the sleeve and pipe plants have established production of gunpowder. Revel society of metallurgical, mechanical and shipyards Becker & Co – non-capital ship; JSC Tula ironworks restored Sudakov Metallurgical Plant (now Kosogorsky) provided the Society of Putilov plants with metallurgical base.

As a result, by the middle of 1912 a group of companies under control of the Bank produced almost all field artillery and ammunition for it, as well as light cruisers and destroyers for the Baltic Fleet. The amount of the capital of joint stock companies in its military-industrial concern (about 85 million rubles) reflected Russian-Asian bank's intensity of expansion.

However, the main Putilov's ambition in competition with Krupp was the production of large-caliber weapons. The tender announced by the government was won by British Vickers Limited. Apparently, not without pressure on Vladimir Sukhomlinov – the very Minister for War. Later he was accused of the collapse of the army and sentenced to life-long labor in exile. However, the proximity of the Putilov plant to the border made him too vulnerable in the event of the outbreak of hostilities that could also negatively affect the outcome of the tender.

St. Petersburg authorities still had a fear of increase in the number of workers in the capital that would

increase the risk of regular strikes. Despite the loss, the modernization of the Putilov plants only accelerated. Aleksey Putilov understood that Vickers Limited Compan's enterprises under construction in Tsaritsyno will begin to make products only a few years, but the beginning of the war was obvious.

By 1914, the Putilov plant produced half of Russian guns. Its products were on the highest demand due to a constant shortage of artillery guns. They started with only 30 guns per month, but the plant produced 150 guns by 1915. In a number of characteristics it immediately turned into a monopoly. This fact allowed the organization to determine prices for the government and it brought it huge profits.

Nevertheless, in the midst of World War II Aleksey Putilov ceased to extend production: the war could come to an end soon and it would lead to a huge loss of investments. According to Putilov's forecasts, it would have led to the revolution and the monarchical collapse.

The slowdown of production tempos have not gone unnoticed: the government accused the board of the plant and the Russian-Asian Bank of lack of patriotism and fraud in enterprise financing and manipulation with shares of Putilov Works Company. It was decided to sequester the Putilov plant, just shortly before strikes that completely paralyzed its work in early 1916.

The Game is Up

It is symbolic that farsighted financier's predictions came true: a mass strike by workers of the Putilov plant led to the beginning of the revolution. Meanwhile, Aleksey Putilov became the head of the Board of Trade of the Petrograd industrial union in spring 1917. He led the Society for Economic Revival of Russia. It was formed by representatives of big business to promote their candidates for the elections to the Constituent Assembly and the organization of anti-Bolshevik propaganda.

That summer, the Company and Putilov financially supported Kornilov's disastrous revolt. In December,



It is symbolic that farsighted financier's predictions came true: a mass strike by workers of the Putilov plant led to the beginning of the revolution

the Council of People's Commissars confiscated all property of the banker. After the decree on the nationalization of private banks Russian branches of the Russian-Asian bank were liquidated and its capital was confiscated in favor of the State Bank of the Russian Republic. Then Putilov avoided arrest. Firstly, he immigrated to China and then to France where he headed the Paris branch of the bank and convert it into independent Franco-Asian Bank.

During several years Putilov actively financed the White movement, until he occurred in the center of a scandal in 1921. During his stay in Paris, Leonid Krasin, his former business partner, and subsequently the first People's Commissar of Foreign Trade. The banker offered him to create a central bank with international participation in order to conduct a monetary reform in Soviet Russia.

Despite the fact that Krasin supported the idea Moscow categorically rejected it. Putilov's attempt in emigrant circles to compromise with the Bolsheviks provoked universal condemnation. Being ostracized, Aleksey Putilov led unsociable life during his last years.

The exact date of his death is unknown. He died in Paris a few years before or shortly after the beginning of World War II.

As you know, important scale is more important for reputation, rather than the result. In the history of Russian business Aleksey Putilov will always be one of the first innovators and modernizers. He was an entrepreneur whose self-interests were no in contrary to the vision of a global perspective, but every crisis just exacerbates this vision.

Theory of Evolution

The caste of those who are far from major budget contracts and often run the risk of all the savings, have the stable notion of "small business" and resorted to a variety of protective mechanisms in a stable economic situation. Now when the crisis has been lasting for two years, they need new tactics to maintain their positions. The Editorial Board of Journal Strategy offered businessmen to tell what tricks help them to survive.

CEO at Creative Agency Casta

Pavel Kirichenko

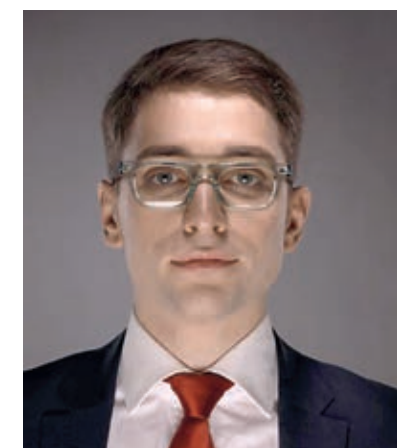
Advertising business is facing difficulties due to the fact that many customers begin to reduce advertising budgets. Thus, we have to work out new strategies for survival. Earlier, the agency was engaged in developing creative concepts only for large players. In connection with the current situation, we have adopted several anti-crisis solutions that reduce costs without losing efficiency. For example, the transfer of employees to the outsourcing project, creation of a new low-budget brand, which is focused on little companies with small budgets. There have always been two types of customers in our industry: those who work with large network agencies, and those who cooperate with small companies such as ours. It is observed an outflow of clients from large agencies. Small business is more flexible, as it can quickly adapt to changes.

In general, the crisis significantly influences everybody. Power structures are under restructuring in many companies. The companies with wrong structures of business management at the level of top management are sinking fast in times of crisis. In this regard, the number of direct competitors decreases and only competent companies can keep afloat. The entire economy of the country is in the process of change that is why companies with the right structure and highly qualified professionals evolve along with the company in times of crisis.

Managing Partner at BrandYourBrain

Mikhail Mizhinsky

We can assume that the most competitive will be those companies that can offer those products and services, which meet customer needs best of all in a crisis. Today creativity is important as never – the ability to offer customers exactly what they want to purchase. Creativity and the ability to control expenses are the key skills that companies can develop in difficult times. They will allow the majority to survive. But this is not about all companies. For example, we formed our start-up during crisis times. It helped many people to become free from the profit race. It suddenly became



clear that it was time to make a break until the economy recovers. People have some spare time and they are ready to invest in foreign education – their development, training and new experience. A crisis is always a point of growth, a litmus test, an opportunity to test themselves on the strength and understanding how your customers really need you. We can add that we are countercyclical startup in respect of the crisis. We help people not to spend the money, but receive them and "reboot" professionally.



Founder of SPACE BAR (mobile DJ-bar)

Kirill Cherenkov

Nothing has changed. We are working on the same mechanisms and schemes that were used in the pre-crisis period, but we began to use them more often. Aggressive marketing, including cold callings, SMS advertising has significantly intensified. Instagram has become a platform for the competition of advertising bots in the "fight" for customers. Companies actively evade taxation in the gray and black sectors. Small business will remain, despite competition with chain enterprises because the factor of personal relationships between people is much more important than profit, although they do not supersede the idea of business based on the receipt of income. For example, in the sphere of services. The crisis training has a positive effect on companies. Many small businesses start co-operating with each other to implement joint projects: rental of premises, payment accounting services, consolidation of advertising and marketing budgets, cross-promotion on the Internet, which ultimately has a positive impact on the results of individual work.



Sales Director at Fistashki agency

Pavel Targashin

The environment for small and medium-sized businesses in Russia is becoming more aggressive in times of crisis. The government seeks to strengthen the tax burden, introduce new amendments. The overall demand for services is reduced due our citizens' low consumer demand. I am an optimist, but I remember worse times, so we have learned to find ways for our own development. For example, this period contributes to the search for new foreign currency cash flows.

In this regard, we plan to open a European office. In addition, the crisis has pushed us to a more detailed consideration of the issue of internal business processes and internal structure of business. It has allowed us to reconsider some business processes. Now we think how to optimize or completely abolish them.

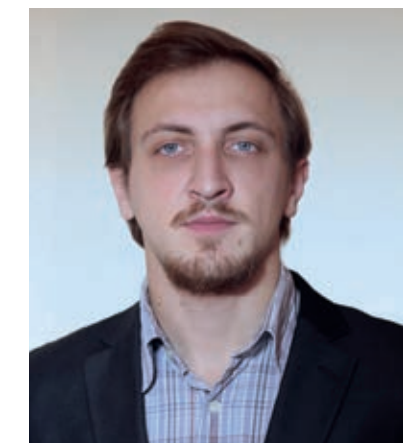
We have reduced the planning horizon and tried to strengthen the work on the product in order to reach a fundamentally different level of development after a 3-5 year crisis. We are flexible to make quick decisions, as the management team is constantly involved in the process. We are aggressive and hungry, as we have no a guaranteed global contract. Each project is a priority for us. Confidence of large customers motivates our team to launch really interesting advertising campaigns and offer what customers believe.

Difficult times is a good chance to look at the business in a new way and focus on the product. If you have no such a desire the market will push you to do this. It will become more difficult to sell and retain current customers. Unfortunately, the history of Russian small and medium-sized businesses is only 20 years. But we have already passed through successful and difficult times. Cycles were so short that the next crisis took place after two or three years of prosperity. It has taught us to be ready for a dirty trick, and live in the mode "if the war happens tomorrow".

General Director at LIBRA Design Bureau

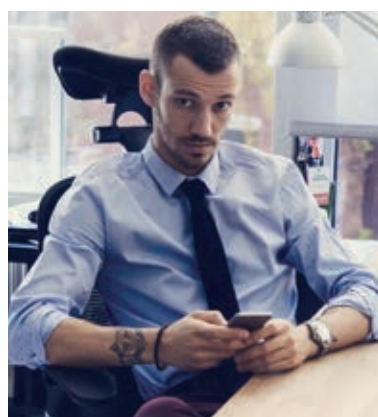
Sergey Emelyanov

Changeable oil prices and as a consequence exchange rates drastically affected the majority fields of entrepreneurship, including real estate, construction and design markets. Panic on the stock front literally have paralyzed investors' activity. Raw projects are frozen, many construction projects are in an expectation of stabilization of the economy. It was necessary to consider projects urgently in accordance with recent and potential changes in the future. We took principal steps. In the first wave, we redistributed fixed costs and redefined priorities. We moved from our office and passed through the stage of staying in a co-working space. Then we decided to rent a part of an office, which belongs to a larger company. Thus, we divide



service expenses. Certainly, such a scheme might be of interest to medium-sized businesses, which are forced to make reduction of their personnel. As for the staff, in the course of the natural rotation outsourcing professionals replace those who leave the company "at their own request".

Within six months, thousands of professionals who have never been involved in such projects joined the design sphere, as their projects suddenly lost their profitability. In terms of the increased competition the cost of project services has decreased in ruble equivalent at all levels – from the remuneration of an employees' labour per a conditional hour up to the cost of a full package of documentation. It is difficult to say whether the same approach is available in the prosperous years because in fact a couple of years ago, as there was an acute shortage of qualified personnel. It turns out that they were all busy. It means that you should not miss the time of the market's intensification for the team that intends to solve the problem in a more intensive tempo.



Co-founder at Nuzhen Uzhin

Alexey Polikarpov

During crises many companies have started saving on the quality of products. We see this tendency almost everywhere. Certainly, it is a way to nowhere. It is hard to deceive consumers who have become even more selective during the crisis. Those who continue to produce quality products will become the winner.

It has become more difficult to work during the crisis, but it only encourages us to search for new distribution channels, as well as to expand proposed positions. We have understood that in crisis time those people prefer to have a meal at home rather than in restaurants. That is why we propose them cook restaurant quality meals at home. We have also introduced the new "breakfast" category that helped us to increase our average bill and turnover with the same number of our client base. Everyone started saving money up. They think more about conversion, rather than the mythical PR. This period only encourages entrepreneurs to become more productive and marginal. I don't see anything wrong with it. Somebody's performance comes to an end in crisis times and curtain falls, but someone continues activity and receives ovations.

**СОВМЕСТИМЫЕ РАСХОДНЫЕ МАТЕРИАЛЫ
НОВОГО ПОКОЛЕНИЯ**

Официальный дистрибьютор SuperFine: www.rapid1.ru www.super-fine.ru

Long, Expensive, Unpredictable

A few years ago space guaranteed the Russian world prestige and its military safety. The state invested significant funds in this sphere. The commercial space program did not exist in the project that time. Today tourists are sent into space, and anyone can launch a satellite into orbit. We publish a set of start-ups, which prove the fact that space may become business.



Grishin Robotics

In 2013 Dmitry Grishin, co-founder and CEO at Mail.Ru Group, decided to invest \$25 million of personal funds in a variety of start-ups in the field of robotics, Internet of Things and space technologies. Today, the portfolio of the fund consists of two aerospace companies. Spire is one of them. It is dealing with the development of nano-satellites to collect weather data and track the movement of ships and goods in the world's oceans. According to employees, altogether the company has managed to attract \$70 million of external funding since 2013. It was included in the global top 5 well-funded private space startups on this indicator.

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The history of Spire started when a tendency for decrease in 'smart' iron prices and improvement of its quality became clear in the commercial space market. It was clear that the industry entry threshold for startups had significantly declined. It meant the involvement of a greater number of entrepreneurs who brought a new culture to the market – another spirit of enterprise that differed from traditional in the space field.

Dmitry Grishin has no plans to focus mainly on space exploration. Robotics continues to be the main specialization.



None of space start-ups has earned a lot of money today, including Spire. We are not ashamed, as it is a normal situation for the industry. We have signed pilot projects. We are on our way to other stages and hope that business technology will appear. Currently, there is a huge problem with weather data. The satellites, which have traditionally supplied weather data, are about out of order, or they will be very soon. In addition, we practically have no enough ground infrastructure that should collect some data at least. The impact of such data on the business is huge, that is why so people are ready to pay for information. Consumers do not care whether they received from the satellite data, drone or any other device. They are interested in data itself, the price and quality.

Valerya Komissarova,
Director of Development Venture Fund

I2BF Global Ventures

I2BF Global Ventures is a foundation with Russian roots. Its headquarters is located in New York. The company works around the world and deals even with near-Earth asteroids. About \$400 million is under the control of I2BF Global Ventures. The fund has been investing in "smart" hardware in different areas: from energy and industrial technologies and biotech up to Internet of Things for 7 years. Above all, the company's interests lie in the plane of sensorization of environment, where communication satellites are not considered in isolation from the unmanned vehicles of drones. Ultimately, these are the tools for data collection.

There are two aerospace companies in the fund structure: Russian private Dauria Aerospace that invested \$30 million in 2015. In general, it has attracted about \$35 million. Dauria Aerospace develops and manufactures new generation small space vehicles, components. The company is focused on three main areas: communications, remote sensing of the Earth, science and education in the field of space. There are three satellites of



Dauria Aerospace: two microsatellites Perseus-M that was put by carrier rocket Dnepr and spacecraft DX1 into orbit. It was transported by a passing launch of Meteor-M 2, carrier rocket Soyuz-2-1B and upper-stage rocket Fregat.

The second company is Planetary Resources. The main focus of its work is the extraction of gold, platinum and water in near-Earth asteroids. By the way, the company has no plans to return resources to the Earth. They will be used for research and industrial activities in space.



We believe that it is possible to make money from space because the convergence of iron and processing of data create companies, which can be evaluated and can earn with the help of models close to IT-business. They are very well capitalized, particularly in the European and American markets. It is planned to launched more satellites in the next five years than during the last twenty years. This means that the amount of data produced by these satellites, drones and other mobile sensors will significantly exceed the amount of previous information. Accordingly, the cost of information will decrease. It may lead to a big data problem: how to process information, so that it could be turned into useful products for business and private consumers. Remote sensing of the Earth is not a simple task. Even American companies engaged in remote sensing were forced to raise huge capital for launching, support of their own groups. That is why access to the capital will become harder and harder.

Ilya Golubovich,
Founder and Managing Partner at I2BF Global Ventures

Yaliny

According the founder's statement, the company is designed to make mobile communication cheaper, convenient and affordable. Space is just a tool for Yaliny and other similar startups. The company develops low-orbit satellites to create global infrastructure. The company will allow to provide telecommunications services.

During the first 1,5 years the company developed basic technologies because the current technologies in the market are not suitable for solving complex and ambitious tasks of Yaliny. Now the company is working not only on space, but also land products, which may be in demand now, not after five years when the satellite constellation is launched.

The company is interested in two strategic areas: the creation of a new generation of cellular base stations and low-earth-orbit communication satellites. Yaliny intends to carry out first tests in 2017, after that it will start the refinement of the technologies. According to the founder's opinion, the company will engage in global infrastructure scaling in 2020s together with major cosmic world companies.



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We see that the problem with communication on a global scale is still unsolved. There are problems such as problems as roaming and the lack of coverage. 2 billion people in the world live without access to mobile communications. Almost 4 billion people live without sustainable access to the mobile Internet. Communication and the Internet are much more interesting markets in financial terms. The companies aimed at these activities will have greater success, rather than working in remote sensing. Communication and the Internet services are in demand even among those who have never had access to them. Remote sensing market is incomparably smaller. It is necessary to engage in space communications. It has enormous potential.

Vadim Teplyakov,
Founder at Yaliny

Skanex

Skanex, the market maker on space shooting in Russia, was formed in 1989. Two years later, the company's engineers presented their first product – the Liana station for receiving analog data from meteorological satellites in the VHF range. These stations are used in 50 regional enterprises of Hydrometeorology and Environmental Monitoring Agency. A digital receiver was introduced in 1993. By the way, Skanex took part in the Yandex.Maps project. The company supplied highly detailed IKONOS satellite images for the total surface area of 10 million square meters. The annual turnover of the company is 1 billion rubles, including profits of all subsidiaries.

It was necessary to diversify its business and develop technologies of reception, archiving, processing, distribution of

information and even development of our own micro-satellites. The Sputniks startup has recently stood out in the Skanex structure and even became an independent company. Since 2011 this Russian private company is a manufacturer of high-tech satellite components and technologies for small spacecrafts, as well as services based on them.



The market has been developing very quickly in recent years. It is confirmed by the volume of investments in new wave companies, which are involved in remote sensing. I don't stick to a clear paradigm shift that this new wave will completely overwhelm and overcome all traditional approaches, as hybrid schemes begin to appear right before our eyes. Traditional players are looking to ensure that they were not hurt by these investment approaches. Coming cosmic cloud of new devices that change industrial structures is a serial, fast and flexible production. It requires a different approach for communications, infrastructure, information architecture and the center of communications on the Earth. It is happening very quickly in the next few years, including the necessary new algorithms and new approaches for more integrated information resources. These are today's challenges.

Vladimir Gershenzon,
founder at Scanex



Sovzond

In 1990s, Sovzond started its activities with remote sensing. This area is still a core competence of the company. It became uninteresting at a certain stage to provide consumers with space images. Moreover, the situation forced to extend the scope of activities. The management decided to propose customers means to process surveys and consultations. The company was successful. Now it has become a system integrator in the field of geoinformation technologies. By the way, it is one of the largest companies in this sector in the Russian market.

Today Sovzond works with all types of spatial data derived from outer space and aerial survey, including unmanned aerial vehicles and aircraft terrestrial laser scanning. Currently the company

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employs 120 people, while the entire staff was only 12 engineers in 2004. Today Sovzond is a partner of such world's leading suppliers as JSC Russian Space Systems, DigitalGlobe (USA), GeoEye (USA), RapidEye AG (Germany), MDA (Canada), Astrium GEO-Information Services (France-Germany), e-GEOS (Italy), PASCO (Japan).



The archive RDC contains
400,000 GBs
of information
and more than
3.5 million images
of the Earth from space



If our sphere was unnecessary, investors would not invest in it. The market that operate today with all services, applications will be developed extremely rapidly in the same way as the mobile phone market. We are trying to develop technologies that can help you to use information, telecommunication capabilities for processing large volumes of data – cloud technologies, Big Data and provide the final result to the consumer. This is not a trivial task.

Mikhail Bolsunovsky,
First Deputy General Director



The Soviet Union launched
first space
Earth satellite PS-1
(Simplest satellite-1) into orbit
in 1957

Securing of Growth

The 3rd InvestRos International Conference on Securing Investment Growth in Russia is to take place in Moscow on April 14-15th 2016. The leading economic event of this year is dedicated to the 110th anniversary of parliamentarism in Russia.

The InvestRos Conference is to be held under the auspices of the Investment Council under the Chairman of the State Duma, with the support of the St. Petersburg International Economic Forum and the Advisory Council on Foreign Investment in Russia.

The goal of the InvestRos conference is the analysis of law-enforcement practices and recommendations for improving the existing rules and regulations and stimulation of investment demand and supply in Russia. The legal support for attraction of investments, the search for new sources and forms of financing investment projects, the state of investment climate in the Russian Federation, the investment attractiveness of the Eurasian Union, the external conditions that helps to attract investments, regional and sectoral aspects of attracting investment, as well as investment in small businesses are among key issues of the event.

Sergey Naryshkin, Chairman of the State Duma of the Federal Assembly of the Russian Federation, authorized Presidential Council on Human Rights of Entrepreneurs Boris Titov, Managing Partner at Altera Investment Fund Kirill Androsov, Deputy Economic Development Minister Stanislav Voskresensky, CEO of the Russian Direct Investment Fund (RDIF) Kirill Dmitriev, Managing partner of EY companies in

Russia, coordinator of the FIAC foreign participants Alexander Ivlev and others have confirmed their participation in InvestRos.

The moderating sessions of the business program of the conference will be attended by the chairmen of committees of the State Duma.

Recommendations are to be formulated following the results of the event. They will be taken into consideration by the State Duma, the legislative and executive authorities.

It is planned to hold a meeting with Chairman of the State Duma Sergei Naryshkin, representatives of foreign companies, as well as the session of the International Economic Forum "Regions of Russia. New points of growth." in St. Petersburg in the context of the business program of the InvestRos conference.

Traditionally, the event is attended by representatives of federal and regional legislative and executive authorities, chambers of commerce and business missions of foreign countries, heads of international corporations and the largest domestic companies, banks, consulting, insurance, corporate and investment companies, leading experts and analysts.



**МЕЖДУНАРОДНАЯ КОНФЕРЕНЦИЯ
ПО ОБЕСПЕЧЕНИЮ РОСТА
ИНВЕСТИЦИЙ В РОССИИ**

14-15 апреля 2016 г. Москва, Гостиница Four Seasons

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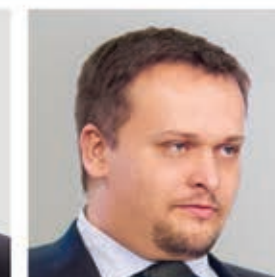
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Председатель
Государственной Думы
Федерального Собрания
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Кирилл Дмитриев
Генеральный директор,
Российский фонд прямых
инвестиций (РФПИ)



Андрей Никитин
Генеральный директор,
Агентство стратегических
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Сергей Катырин
Президент,
Торгово-промышленная
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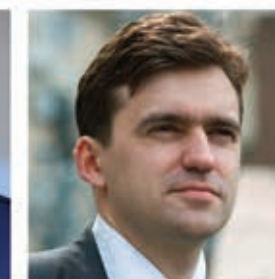
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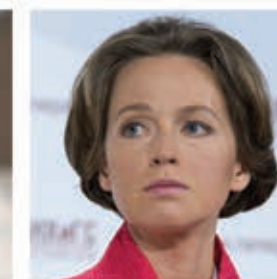
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Председатель Правления,
ПАО Банк «Объединенный
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Дмитрий Страшнов
Генеральный директор,
ФГУП «Почта России»



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Cosmos as Sympathy

The Russian space system has significantly changed since the time of Gagarin's flight, the creation of new transport vehicles and the launch of the ISS into orbit. According to the majority, today the country has ceased to set a tone in the industry.

We applaud successful foreign projects, expressing our sympathy for them. Experts discussed at the INSPACE 2016 forum what things are necessary to be changed in the system in order to return its former greatness.

We Are Not America, or Be Like Elon Musk

"It seems to me that after a year or half a year he private investor will announce a launch to Mars. I can even imagine how he will stand next to US President, and they together will announced it. The initiative will come from private representatives," Andrey Ionin, Chief Analyst at NP GLONASS said.

There is no such an astronaut as Elon Musk in Russia. We don't know when he may appear. That is why the enthusiasm for a successful example of the implementation of business models belongs to SpaceX and its founder. "They say that we have no significant space exploration, but Musk started with nothing at all, Andrey Ionin added. Now it has turned into a huge



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corporation with a capital with billions of dollars. Once he was on the brink of bankruptcy and he had to sell his house and car seven years ago. Now his fortune is estimated at \$15 billion. Certainly, Elon hasn't made aerospace business, but he took a chance and invested all his funds in it."

Director on key partners of the space technologies cluster and telecommunications at Skolkovo Foundation, Mikhail Tsygankov, believes that it is wrong to compare themselves with the major players in the space field.

"Private business in the country started just 20 years ago. It's no secret that it is much more difficult to explore space rather than sell oranges. It takes time for the capital accumulation period, the growth of pride and a desire to implement the project. It was difficult to expect that 20 years ago one of the oligarchs would



53,000 start-ups
are formed in the USA annually,
and only 1,000
in Russia at best.
The ratio is 1 to 500 in the space
sector, or even less

be ready to invest in space in order to do achieve something great," Mikhail Tsygankov says.

Russia has lost one of the main advantages – the sale of experimental results. For example, the same engineering training method has shown that a large practical training by the Imperial Moscow Engineering College was based on knowledge and skills.

"Americans understood it, and 100 years later sold us the Skolkovo services for \$300 million. What's new? It is all the same: knowledge, skills and an entrepreneurial training. But they managed to sell it for \$300 million, the president of the Moscow Space Club Sergey Zhukov said. We should remember that we are a great country and we should start competing. Our Vostok, Voskhod, Soyuz space stations were successful. But we failed after following the American Buran station." According to Sergey Zhukov, 53,000 start-ups are launched in the USA. And only 1,000 in Russia at best. The ratio is 1 to 50. And it may be even less in the space industry, about 1 to 500.

Example of USSR

In general, the construction of new and effective business models is almost impossible without the participation of public institutions, as today it is a major player in the market of consumer goods and services. It has been declaring the principle of using the results of space technology and achievements.

"The state does not have to make money, as it has quite different tasks: it spends taxpayers' money to ensure safety, solve problems in the field of education problems, health, social protection, as well as to ensure the defense capability and the national prestige. From this point of view, the costs of the Soviet Union in the space program were enormous since the 40s till the 70s. There is no such examples in any other industry, which would have had a similar return. The current space problem is that the government doesn't know how to secure national interests with the help of financing of the industry,"



Russian space activity is at the level when a lot is done for the main application systems. It is clear how to continue, so there is no necessity for technological breakthroughs. We should think how main value chains should be organized. The role of large and state cosmonautics is still perceived through the 10-year programs in the context of which we implement something meaningful and good. Works on hydrogen upper stage are planned as a part of the Federal Space Program. They can't be postponed anymore. The civil radiolocation from the point of view of applied devices. Speaking about the technical means of manned space flights, we mean the development of NPC, the new generation of spacecraft. The key system task is to create a customer image and a handling system, as well feedback from the re-establishment of the service rendered to the parameters of the system. For remote sensing of the Earth if such a system is currently being formed at the present moment.

Dmitry Paison,
Director of research and analytical center URSK (Rosorkk)

the Chief Analyst at non-profit partnership GLONASS Andrey Ionin said.

Representatives of the private sector cosmos business work in terms where both agents and consumers express great interest in the space market. They are focused only on the result. The key problem is the organization of direct access to customers. "The cheapest of part is a rocket. This activity is impossible without it. Its price in the service cost is just a part of expenditures. The satellite is a bit more expensive, but nobody is interested in it. In principle, the cosmic system is an interesting project, but consumers don't

understand it. Then an operator who receives and transmits signals. And only then a provider who sells the service," General Director at KosmoKurs LLC Pavel Pushkin said.

His company has changed the market and found a way to consumers. KosmoKurs is to send first space tourists into the orbit by 2020. At the same time, the organization doesn't design and assemble rockets. It trains travelers, books hotels, spaceport and maintain communication.

Another representative of a successful space company, General Designer, Head of the head of the design bureau of JSC Gazprom Space Systems, Nikolay Sevastyanov, proposes to develop a basis for space technologies in order to overcome the current market conditions.

"Our company has a satellite constellation. We help a half of Russian television channels to broadcast. At the very beginning, we realized that clients need a satellite, but a service. That is why we created ground

infrastructure," Nikolay Sevastyanov shared his experience. We had to create the Yamal-100 satellite that can compete with any best foreign analogues of another level of technology. It was important to create a long-life satellite – more than a decade. This project was for five years entirely with the help of startups. We have achieved that the functional satellite was better and its price was lower. It was a breakthrough in the commercialization of satellite communications in Russia. As a result, we have created the necessary conditions for self-sufficiency."

According to Pavel Pushkin, the current technologies may become the necessary basis for the creation of new services, but the majority of them are not used in Russia. When we come to the Technical Glass Research Institute (JSC INTN) and ask to make windows as the International Space Station. But it turns out that the last time they were made 10 years ago, so there is no equipment and no glass now. If we do not remember about our technologies for another two years we will completely lose them," CEO at KosmoKurs noted.



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Oil and Gas Prospects

The 3rd National Oil and Gas Forum and 16th International Exhibition Neftegaz-2016 is to take place in Moscow on April 2016. Events will be held at Expocentre. According to organizers, the key industry events are to take place at the same site and venue for the first time.

The National Oil and Gas Forum will be held on April 19-21st. The organizers of the event are the Ministry of Energy of Russia, Russian Union of Industrialists and Entrepreneurs, the Chamber of Commerce of the Russian Federation, Russian Union of Oil and Gas Producers, Russian Gas Society and CJSC Expocentre.

CJSC Expocentre and Messe Dusseldorf GmbH are the organizers of the Neftegaz-2016 exhibition that is to take place on April 18-21st. About a thousand exhibitors from 30 countries, including 400 Russian companies, will show its equipment and technologies. About 20,000 people are to visit the exhibition. The slowdown in global economic growth, breakthrough technologies, increased competition and the search for equilibrium prices are important factors of the new energy strategy.

Geo-economic challenges form an actual list of issues, turning the forum and exhibition into the central discussion platform of the industry in 2016. Prospects for the oil and gas industry, market infrastructure and competitive environment, innovation and energy efficiency, issues of fiscal policy and pricing of oil and oil products in the domestic market, the development of

industrial cluster centers and technology parks, industry machinery, import and international cooperation will be considered in the context of the event.

Members of the Russian Government, heads of ministries and departments, leaders of the expert and the business community will attend the events of the Forum and the exhibition.

The Organizing Committee of the National Oil and Gas Forum and the Neftegaz-2016 exhibition invite oil and gas companies, as well as related industries to participate in the major events of the year.

If you need to receive the necessary information, please, contact the organizing committee of the forum on the following telephone numbers: +7 (495) 640-34-64; 620-58-44, +7 (800) 333-05-15, or by e-mail mail@oilandgasforum.ru.

Addition information you can find on the site www.oilandgasforum.ru. Contact Organizing Committee: +7 (499) 795-37-61; 795-29-29, neftegaz@expocentr.ru, www.neftegaz-expo.ru.

КЛЮЧЕВЫЕ ОТРАСЛЕВЫЕ СОБЫТИЯ ТЕПЕРЬ НА ОДНОЙ ПЛОЩАДКЕ



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12+





Startups for Raw Materials

The oil and gas sector is in the lead in regard to the introduction of innovations in conditions of the ban in respect of the import of equipment. The goal is cheap extraction and processing of resources, that's why even start-ups receive the green light. Vice-President, Executive Director of the Fund Cluster of energy efficient technologies at Skolkovo, Nikolay Grachev, told what developments are in demand today.

Modernization and improvement of the effectiveness of technical-and-economic complex in Russia are mainly associated with a transfer of foreign technologies and equipment imports. What to do with energy technical-and-economic complex in terms of limited imports?

In recent decades, the use of foreign technology was the key tendency in the market. Naturally, there are also domestic equipment suppliers in different segments, but their position are not as strong in comparison with international players. A significant share of the oilfield services market belongs to foreign companies. The interest in domestic technologies of the oil and gas sector, as well as their localization has significantly increased due to import restrictions.

We can give specific examples in Skolkovo. Thus, a number of Russian service companies are actively looking for new technologies, including among residents of our Oil and Gas Center to replace international players in the Russian "oil industry". The interest of Russian oil and gas companies in the development of Skolkovo startups has qualitatively increased during the past year and a half. Several dozen of our companies test or sell their solutions to such companies as Gazprom Neft, Ritek (Lukoil), Rosneft and Tatneft.

But it is necessary to develop high-tech oilfield services and engineering companies, encourage the creation of consortia, address major industry challenges, as well support the development and production of new technologies and equipment in order to distance ourselves from the critical dependence on imports.

The country has the necessary intellectual potential. More than 110 startups operate only in oil and gas center at Skolkovo – a 30% increase over last year.

Do you believe in the effectiveness of the import substitution policy?

In my opinion, it is more accurate to say not about import substitution, but about the development and promotion of technologies with an export potential. The approach of the Skolkovo Foundation is based on this principle. We find and select competitive solutions, which are better than Russian and foreign analogues, instead of technologies that just solve issues of import substitution. It is always necessary to work in a proactive way. We should develop the best technologies by moving from point to integrated solutions, entering overseas markets.

In this case, we have a chance to create new, long-term and successful companies, retaining our presence in the market after the lifting of sanctions. Such success stories begin to appear at Skolkovo. For example, Novas, RRT, Engo successfully sell their technologies abroad, attracting leading engineering companies as strategic partners.

Support of local producers is a definitely right decision both in terms of production and in terms of research and development. And we are not alone. Many countries support producers with the help of a variety of mechanisms and different effective measures. By means of introduction of new developments, risk compensations associated with new technologies, and the development of exports. At the same time, we should attract top players to co-operation, including the field of research and development, instead of distancing ourselves from the rest of the world.

What energy sectors are able to take innovations?

In varying degrees, new technologies are being introduced in all segments of the fuel and energy complex. Our cluster brings projects of the entire chain together – starting from exploration and production of hydrocarbons up to improvement of energy efficiency in industry, housing and utilities infrastructure and construction. It has been already said that in the oil and gas sectors our technologies are being actively implemented or they undergo trial tests. A number of projects, including the winners of the "Energoproryv" competition, are undergoing tests at grid companies. I hope that their technologies will be introduced in regional companies PJSC Rossetti in the near future.

The segment of housing and communal services and construction has huge potential for the introduction of new technologies. On the one hand, the tariff restrictions and building codes are often slow down the introduction of new technologies. On the other hand, we see that it is a new technology, for example "smart" meters, which solve classic problems of poor accounting of energy and non-payments in a completely new way. Our industrial partner, the company of Morton, is a good example that major builders are actively seeking and willing to adopt new technologies.

Does the business community need integrated or point solutions today?

Certainly, business requires solutions on the "turnkey" basis. But at the same time startups can always determine what kind of business

"Despite the crisis, last year power cluster startups attracted more private investment than in 2014"

model they should choose – either develop a specific element and spend less money, or find an integrator in order to implement this solution in the final product and quickly reach first sales, money, and even try to implement a comprehensive solution, which can be much more attractive to the final user. But a startup may have neither enough competence, nor means, nor time to implement it.

There are interesting examples such as AT Energy, which is engaged in the fuel system for unmanned aircrafts based on hydrogen technologies. It develops power plants for aircrafts. If after receiving a grant the team releases a product with targeted technical parameters then it will be successfully sold.

How you can help technology start-ups?

Many companies intent to receive a grant from Skolkovo. Our grant is a critical factor, especially at the stage of completion of technology and training development of the industrial design for hardware-startups. The need for investments substantially increases at this stage. It is a difficult task for attraction private investors, while all technological risks are not removed.

In addition, we help start-ups to find partners for pilot tests or for the production of the first pilot plants. The next important step is a transition into the commercial phase, scaling of the project. Here, we provide professional support in order to find potential investors among venture capital funds, business angels and industry investors. Commercial sales can be started after successful completion of pilot tests. We help our members to present their projects to leading Russian and foreign companies, i.e. potential customers.

Before entering the market startups need mentoring support to refine their value proposals, completion of its presentation. That's why the service of mentoring panel is extremely popular. More than a hundred professional mentors work with our startups.

How do start-ups confirm successfulness of selected business model?

By means of earning money and increasing sales, as well with the help of attracting new investors and customers. It is important for us that 40–45% of our startups have revenues. More than 100 companies sell products in international markets. Despite the crisis, last year the power cluster startups attracted more private investments than in 2014.

To what extant are industrial enterprises ready to pay attention to innovations?

Over the past few years, the situation is changing for the better. We see that the leading industrial companies are becoming more open both in terms of cooperation with start-ups, and in terms of their technical communication needs, discussion and access of startups up to industrial tests. This is just the beginning. If you look at foreign companies we have new challenges ahead. Nevertheless, there is a positive tendency.

For example, OMZ and Skolkovo have been organizing a contest of innovative projects in engineering for several years. The partners of the competition are JSC ALROSA and Rostec. These companies are really interested in finding and implementing new breakthrough technologies.

Has the number of those who so desire to become residents of Skolkovo changed due to the economic crisis?

We had a fear at the beginning of last year that we have already received all benefits and the flow of applications might significantly reduce. On the contrary, the number of applications doubled in comparison with 2014. We still have quite strict criteria. Only every fifth applicant becomes a resident of Skolkovo. Now more than 1400 start-ups are members of Skolkovo. Our main task at this stage is the development of these companies, their revenue growth and "cultivation" of them as national champions in the corresponding segments. In addition, we actively expel teams, which are not involved in the research activity and its commercialization. 30 companies of the power cluster were excluded Skolkovo only in 2015.

Are there any examples of start-ups that work in international competitive markets?

In general, more than 100 participants of the fund work abroad. A number of oil and gas companies are located in China, the Middle East, in North America. Four years ago, we helped Novas IC to introduce its technologies in the North American market. After a program at the Houston Technology Center (our partner) the company found its first Canadian investor and began to test the technology of plasma-pulse stimulation in the United States. It is one of those startups when we can say that it is successful. It has a number of customers and investors both in Russia and abroad, including Millhouse Capital.

"We still have quite strict criteria. Only every fifth applicant becomes a resident at Skolkovo"

Heading for Markets

The oil and gas industry in Russia is one of the main drivers of the economy, regardless the government’s attempts to change the main resource of replenishment of the state treasury. While the current vector of economic development of the country remains the same we need technologies that can help efficiently produce and process hydrocarbons. Leaders of technological start-ups at Skolkovo told us what innovations exist in Russia and how they can enter international markets.



Bottomhole project

The increase in the recovery rate of hydrocarbons and the reduction of costs for the construction and operation of wells in the oil and gas industry are the most pressing issues at the moment.

The Rus company (Russian universal systems) proposes to achieve significant results in the field of mining by means of construction of directional and horizontal wells with a large area of drilling-in with the help of bottomhole telemetry systems. These systems transmit information to an operational geosteering information from the bottomhole, providing a highly accurate implementation of design solutions.

In general, the Russian technologies and equipment significantly lag behind in the segment of the oilfield services market in comparison with foreign technologies. The main goal of the company is the creation of steerable system for drilling wells of the advanced level. According to experts, its appearance in the domestic market will greatly improve the

The demand for our technology is constantly increasing, as the percentage of wells development with a large vertical deviation is also on the rise. The share of such wells was only 10% in 2010, but now it is more than 30% of all wells in the Russian Federation. There are more than 90% of the total number of such wells in the United States. Our technology allows to achieve the optimization of well productivity, eliminate the necessity to drill side tracks and minimize risks costs of well construction. Now we focused on geo-steering and geomechanics and stability of wellbores.

Stishenko Sergey,
Director at GeoSteeringTechnologies

drilling efficiency and overall development of the oil and gas fields, as well as significantly reduce the dependence of the Russian fuel and energy complex on foreign technologies.

The rotary steerable system project is to be implemented during four years. By 2019, the RUS company is to complete tests, begin the first equipment sales and return investments. According to the company's plans, the net profit of the company will be more than 1 billion rubles in 2020.

Today the RUS company intends to implement a pilot project in accordance with the order of JSC Bashneftegeofizika to develop a universal bottomhole telemetry system with hydraulic communication



Leading Russian oil companies are interested in developments of RUS LLC, and we are confident in the successful entry into the Russian market. At the same time it is planned to use unique technical solutions to develop rotary steerable systems, which can make your equipment competitive with leading foreign manufacturers not only in Russian, but also in the international markets. It worth noting that the introduction of innovations in the fuel and energy complex and their development are associated with significant risks and costs. Such costs are often inappropriate for small and medium-sized businesses. Today, system solutions are required to encourage fuel-and-energy company and allocate special funds for the development and implementation of innovations. Information and mentoring support for innovative small and medium-sized enterprises for the promotion of innovation is also important.

Valery Zlodeev,
Director at RUS

channel for examination of wells in the drilling process. In the near future, the company has plans to carry out pilot tests of the first stage of universal bottomhole telemetry system on the wells of SNG, owned by Rosneft.

In addition, preparatory works are carried out simultaneously for the implementation of the project of Development of an integrated rotary steerable system for geological steering of oil and gas wells.

At the end of 2015 the project was the winner of the Extraction 2.0 contest. It was decided to grant the status of the Skolkovo and negotiate with a potential co-investor.

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Production of liquefied natural gas is a promising direction in the world market of energy resources. The growth of interest stimulates the appearance of new players and promotion of competition. The introduction of advanced solutions will reduce costs and start developing markets far from the main gas pipelines. The innovative development of LNG industry in Russia is hampered by the lack of our own energy-efficient technologies. The desire of the state to support the development of innovation in the energy industry creates favorable conditions for research activities, and the results make it popular and relevant.

Vasily Vasilevich,
Co-founder at CEO at Tricell Solutions

Gas Ambitions

Tricell Solutions was founded in 2015 for the implementation of the project on creation an energy-efficient technology for liquefying natural gas (Liquefaction of natural gas by Direct Refrigerant Injection technology). The development of the company is based on an innovative technology that allows to cool the gas mixture by means of a direct injection into the flow of the refrigerant.

The feature of the technology is direct injection of DRIM and the cryogenic heat exchanger evaporation gradient, which allows significantly reduce the cost of finished products and increase profits of operating companies.

Installations with the help of DRI technology can be used in various sectors of the LNG industry: from small-tonnage production for the gasification of remote areas and the production of motor fuel to the large-scale production for the transcontinental transportation of liquefied natural gas.



It was modeled thermodynamic processes and designed the experimental installation. It is a prototype unit of the system of direct injection of the refrigerant. In addition, a series of laboratory tests have been carried out to confirm the effectiveness of the proposed solutions and obtain copyrights for intellectual property.

The company has plans to attract investments for further researches and the creation of experimental-industrial design installation for the production of liquefied natural gas.

In the next future three years, Tricell Solutions intends to enter the Russian market in partnership with the largest domestic industrial and energy companies and become the market leader in the production of low-tonnage LNG plants within 10 years.

Purification

Start-catalyst has been working on the desulphurization technology of oil and gas for more than 10 years. The team is working on a multiple reduction of expenses to ensure normative parameters on the content of hydrogen sulfide and mercaptans – the most toxic and corrosive impurities of major energy resources. The patent for a gas purification nanocatalyst was developed and received yet in 2006. Two years later, the pilot plant was successfully tested in the field.

Catalysts are used in the industry since 2011. They were tested in such major oil and gas Russian companies as Gazprom, Rosneft, Bashneft, and LUKOIL. The technology has shown that the quality of purification can be up to 0,001 ppm at the stages 1-2. The company became the resident at Skolkovo Fund after the effectiveness of the technology of gas flare line

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The relevance of our development is determined by the increase in sulfur extraction of raw materials up to 30-50% of deposits in the world in terms of tightening of the environmental requirements. Therefore, we plan to solve production problems of oil companies in Russia, the Middle East and other oil-producing regions. In particular, it provides tools to reduce the cost of oil desulfurization to 0,2-0,3 US dollars per one tonne and for ensuring the regulation term of lifespan of gas-turbine thermal power plant, gas engine generator station by means of APG refining. Our current main task is access to the global market with a set of technologies that compete with process of leaders and monopolies in some segments of the desulfurization market, for example, Jacobs-Comprimo, UOP (USA).

Lyudmila Tyurina,
General Director at LLC Start-catalyst

purification was confirmed. It was the time when simultaneous APG purification from hydrogen sulfide and mercaptans was proved for the first time. Today, the company is ready to supply domestic catalysts and equipment to all segments of the desulfurization global market.

Technologies and equipment produced by Start-catalyst are applied in purification of oil and gas, offshore production, refineries, gas processing plant, gas and chemical production, as well as a preparation for gas utilization in energy equipment.

Behind the Horizon

GeoSteering Technologies conducts developments in the field of optimization of hydrocarbon production processes. During its short history – the team was organized in 2010 – the start up under the direction

of Sergey Stishenko created technology of fast and simple geological support of horizontal drilling.

In 2011, the team released the first version of the Geonaf software system. In 2014 it became the winner of the contest "Innovation in the oil and gas sector" and was recognized as the best IT-startups in the oil and gas sector. Now the complex is at the stage of mass production, the company is actively selling its software to such Russian companies as Bashneft, Integra, Gazprom, Slavneft, Yamal LNG, SEC Oyltim, Rosneft. The startup has recently launched a new area of drilling support services. It has plans to enter the global markets in the second half of 2016.

According to developers, the complex by GeoSteering Technologies helps to reduce the GIS expenses in the amount of hundreds of thousands dollars for each well. The complex has already helped to drill more than 200 wells, including the Sakhalin shelf.



Extract or Not Extract?

The world population was more than 7.3 billion people in 2013.
This figure continues to grow from year to year. According to
scientists' forecasts, the number of people will reach 10 billion by
2050. However, cities will be extended and the number of transport
will also increase. In this regard, we cannot help thinking where to
extract resources when traditional sources are depleted.



According to the research by the International Energy Agency World Energy Prognosis, by 2040 the use of energy will be increased worldwide at least by 1/3. In 2014, renewable energy were nearly half of the new generating capacities. Humanity will continue to focus on hydrocarbons. The introduction of 'green technologies' is expensive, and they are not always energy intensive. Limited uranium reserves and the threat of environmental safety do not allow to see nuclear power as a fully fledged alternative to hydrocarbons.

A few years ago, scientists and leading experts discussed active depletion of oil and gas reserves. According to researchers, starting from 1984, annual global increase of traditional hydrocarbons worldwide do not compensate annual production. There is still a theory of 'oil peak', which is supported by the the International Energy Agency. But many analysts reject it, including Daniel Yergin, the author of popular books Production and Search. He and other experts

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believe that oil and gas reserves are almost unlimited in the world. The most important potential is non-traditional sources and hard-to-recover reserves. They are hydrocarbons, as the production is impossible or unprofitable with the help of traditional methods. For example, heavy, high viscous, oil bitumen, oil sands, oil shale, hydrocarbons. Their production is based on the Fischer-Tropsch process: the distillation of coal, gas or biomass to liquid fuels. The issue of depletion of easy hydrocarbons is relevant for Russia. According to World Energy Prognosis, in case of decelerating of field development and more rapid paces of reduction, the traditional long-term forecast of oil production in Russia will be changing to reduction. As a result, the level of production in 2040 will be 9 million barrels per day. It is 0.7 million barrels a day less in comparison with 2014.

"As for readily retrievable oil, we have no fields to increase production, as old fields in Western Siberia and the Khanty-Mansi Autonomous District, are experiencing the declining production. Last year, production decreased by five millions in comparison with 2014 year," the president of the Union of Oil and Gas Producers of Russia, Gennady Schmal, shared upsetting statistics.

According to the Ministry of Natural Resources, traditional deposits of oil will be depleted in 30-40 years.

Head of the Russian Ministry of Natural Resources, Sergey Donskoy, is quite optimistic: "Taking into account the extraction of gas (reserves and production), our



According to the Ministry of Natural Resources, traditional deposits of oil will be depleted in 30-40 years



The mineral resources base of Russia will allow it to be among the leaders in the production of non-traditional and hard-to-recover hydrocarbons. However, it is necessary to intensify the work on the examination of such resources and technologies for their development.

Oleg Korchagin, Deputy Director of the Planning and Development Department of object exploration on the state order of JSC Rosgeologiya

country was in the first place during the past 30 years. Despite various technological revolutions in the energy sector we will continue to be the leader in terms of mineral resources."

Gennady Schmal was not so optimistic, specifying that our country has lost its leading position. Thus, Russia's share in the oil trading is only 20%. Russia is the leader in the field of gas trading, but the United States were the temporary leader 3-4 years ago.

"They were in the lead mainly due to extraction of shale gas. While we thought it was a sham and 'a propaganda canard' they were developing technologies and began to extract shale gas. Today, about 40% of gas in the United States is the production of shale gas. They have managed greatly reduce the cost by increasing production and volumes of drilling," Gennady Schmal noted.

The potential of unconventional and hard-to-recover hydrocarbons significantly expands the provision with energy resources. According to preliminary estimates, stocks were projected at the level of 40 billion tonnes in 2013.

There are several large objects with hydrocarbons in Russia: the Khadum suite and the Kuma horizon in the

Caucasus, the Bazhenov, Abalak and Tyumen suites in Western Siberia, the Domanik suite (and analogues), including low-porosity oil-saturated reservoirs in carbonate and clastic reservoirs of Devonian, Carboniferous, Permian in the Volga -Uralsky oil and gas province, Kuonamka, the Sinskaya suite, the Osinsky horizon in Eastern Siberia.

The most promising fields are in the Bazhenov suite. Reserves of this field are estimated at 100-170 billion tons. Leading Russian petroleum geologist and academician, Alexey Kontarovich, believes that the recoverable ones are only 25-27 billion tons. For comparison, now Russia on the balance of recoverable oil reserves ABC1 + C2 – 28.9 billion tons.

"Testing of development methods of non-traditional and hard-to-recover hydrocarbons are extremely important nowadays. Especially for old commercial regions with developed infrastructure where oil fields are almost depleted. Owing to localization of perspective low porosity clastic and carbonate strata for the development within the unallocated subsoil fund, it is possible to achieve significant growth of the mineral resource base, which is very important for operating in the regions oil companies, as its stocks are being depleted." Deputy Director of the Planning and training facilities exploration Department on the state order by Rosgeologiya, Oleg Korchagin, said.

Russian companies are actively involved in the development of hard-to-recover reserves. Gazprom experts were the first who began to explore unconventional gas sources in Russia." In early 2000, the company began to produce coalbed methane and non-traditional gas jointly with the Ministry of Natural Resources. The works were conducted at the landfill in Kemerovo. The developed domestic technology allows to implement pilot production of this kind of gas in Kemerovo.

According to JSC Rosgeologiya, a number of companies such as Surgutneftegas, Rosneft, RITEK, Lukoil, Gazprom Neft successfully carry out works on the Bazhenov suite.



It is necessary to develop economically reasonable fields. About 400 fields are not being developed in Western Siberia now, as they are unprofitable due to the current tax regime.

Gennady Schmal,
the President of the Union of Russian Oil and Gas

Surgutneftegaz has the greatest experience in the sphere of development of deposits on the Bazhenov suite. Over the past 30 years, the company drilled more than 600 wells. 70% were with oil inflows up to 300 tons per day.

Representatives of the company RITEK (a subsidiary of LUKOIL) announced at the end of last year about ambitious plans to develop the Bazhenov suite. The company started testing a unique Russian technology how thermal gas influence the formation of rocks. The domestic oil efficiency may be up to 40% with the help of this method. It is planned to implement the technology into a commercial operation in 2018 in case of successful results of the tests.

RITEK is developing the Tutleymysk suite (facial analog of the Bazhenov suite) of Mid-Nazym and Galyanovsky fields. Since 2007, the operation has been carried out with the use of increasing oil efficiency methods. The most effective way was stimulation of hydrochloric inflows of acid processing in the bottomhole area. Salym Petroleum Development (a joint venture of Shell and Gazprom Neft) held the development of the Salym group of fields. It was attempted to achieve results with the use of the technology of horizontal drilling in the Bazhenov suite.

In recent years, Rosneft together with ExxonMobil have conducted in-depth study of the Bazhenov suite.



According to forecasts,
the level of oil production in Russia
may reach
9 million barrels
a day. It is 0.7 million barrels a day
less in comparison
with 2014

Oil industry of Tatarstan has great experience in the field of implementation of innovative technologies for extraction of heavy oil," Oleg Korchagin added.

Head of the Russian Ministry of Natural Resources, Sergey Donskoy, said that many companies have plans to start extraction of hard-to-recover reserves

in 2025-2030. And it is real, as part of filds, which are being developed now, were considered as hard-to-recover in the 70s.

"It is important that production support could stimulate the development of science, technology and production in related industries. For example, it was necessary to build a factory to drill the Kola Superdeep Borehole (over 12 km). Only for one borehole! And if they need more it will be necessary to use a large number of institutions and industries. Certainly, it is desirable to use domestic potential in order to we could develop our own economy with the help of natural resources," Sergey Donskoy underlined.

The insufficient level of technologies and profitability of production with existing methods continue to be one of the main problems.

Many serious issues should be solved in order to hard-to-recover reserves could become economically profitable. Despite optimism of RITEK, the president of the Union of Oil and Gas Producers of Russia,

Gennady Schmal, believes that a good technology for oil production from the Bazhenov formation has not been found yet. Efforts of one company are not enough. It requires the creation of scientific and industrial development of the program data fields, which can involve all academic institutions and companies. We need a symbiosis of science and practice in order to develop an effective solution to the problems.

"The Bazhenov suite consists of argillaceous sedimentary rocks. Traditional methods of oil recovery with the help of water injection won't be useful. On the contrary, if clay swells it may close access to the reservoir. These are matters of big science," Gennady Schmal added.

Experts at Rosgeologiya consider that the main issues are associated with newness of objects. Lack of conceptual framework, classification and the prediction theory, localization of objects, rules of geological exploration, estimation methods of reserves, evaluation of geological risks, and knowledge of the production technologies depend on the geological depth, reservoir properties, physico-chemical parameters of fluids and little experience of the extraction of such raw materials.

These problems are solved at the newly established center for the study and development of hard-to-stock and non-conventional hydrocarbons. The institution develops a conceptual base of objects and develops proposals to amend the legislation.

"Moreover, Russian scientists have enough their own interesting developments and ideas, which are worth developing. During the last two years Rosgeologiya created a bank of innovative technologies, including 18 domestic procedures of public research and private innovation groups (11 technologies relate to localization and diagnosis of hard inventory and unconventional resources. Another seven relate to the improvement of difficult reserves of hydrocarbons). Today the holding is ready to offer original solutions in respect of work with hard-to-recover reserves," Oleg Korchagin said.

Speaking at the International scientific and practical conference in Tatarstan, Doctor of geological

mineralogical sciences, Nikolay Zapivalov, noted another two important matters that should be in the focus of attention.

They are a slowdown in exploration and low oil production. In the first case, extracting companies often suspend large commercial risk. The exploration success rate is about 20-30%. In the second case, subsoil users refuse from residual oil after they produced light crude. According to experts, this raw material could be a good reserve that would allow at least maintain production at the current level.

"Today our oil recovery factor is about 0,29-0,3. American producers have a bit higher figures – about 0.4. The most important thing is that it has a tendency to increase. We need serious programs, associated with the use of methods to increase oil recovery. They are several hundred methods in the world. But we use a very small part of them. One of the reasons is a lack of funding for all activities related to the development of new technologies.



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The most promising field is the
Bazhenov suite.
Stocks on this site
are estimated at
100-170 billion tones

We spend about 1% on research and development works. Although even during the crisis in 2012 Shell spent more than \$1 billion. Last year all our companies together with Gazprom spent only \$250 million. Therefore, if we do not develop new technologies, new equipment, we will not be able to solve the problem of enhanced oil recovery. This is the second reserve associated not with an increase in production, but the maintenance at the current level," Gennady Schmal shared statistics.

The development of the Arctic shelf is a special point in the development of unconventional and hard-to-hydrocarbon reserves.

Recall that there are 28.9 billion tons of hard-to-recover oil is on Russia's balance now. Analysts believe that the successful development of a quarter of such reserves would be more effective in the short period of time, rather than the development of the very expensive Arctic shelf. Gennady Schmal agreed with experts who believe that Russia is ready for the development of reserves of the northern shelf neither in technical, nor technological, nor economical ways.

"We should carry out researches on the shelf (including seismic and wells), but it is very expensive. Taking into account the current prices, this aim is not even discussed now, as prime cost will be 2-3 times more expensive than the current price of oil. I believe that we should deal with Eastern Siberia in order to increase recovery factors, as well develop technologies of the Bazhenov suite and other

deposits. It is necessary to deal with legal issues now, but not with extraction. We should deal with the shelf to defend a thesis, not for our economy, as it can simply bring us to ruin," the president of the Union of Oil Producers in Russia expressed confidence.

He noted that the platform was built on the shelf during 15-17 years. The price of the platform is estimated at \$5 billion. As a result, about 1 million tons of oil were extracted. But the cost of raw materials was significantly higher in comparison with world prices. In addition, we have no the necessary supply vessels for effective development of this region. Gennady Schmal also noted the absence of technical regulations and standards for offshore area operations. All this also may lead to an environmental disaster.

However, the development of the Arctic, the exploration of the region, the formation resource bases of regions are important tasks, which are implemented at the state level. The implementation of these tasks will allow to work out a rational approach how use of the country's natural resources in order to solve problems of economic and social development of remote regions of the North and the Far East.

"At the same time, it would be wrong to avoid the development of the Arctic shelf. The exploration of non-traditional and hard-to-recover resources is becoming extremely relevant for Russia now. This task is discussed at the highest level. Certainly, it requires a specific program in this area, business support measures and stimulate the inflow of investment in this area," Oleg Korchagin concluded.

Head of the Ministry of Russia, Sergey Donskoy, said that works on the Arctic shelf is key to the future.

"If we fail to conduct exploration work and develop appropriate technology then we will miss the right moment. When it is necessary to develop these reserves (after 20-30 years) we won't be ready for this. American and Norwegian Global companies involved in development of the Arctic shelf stick to this particular viewpoint," the Minister said.



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Removal of "Resource Curse"

Gennady Schmal, the President of the Union of Russian Oil and Gas, has debunked the myth about "over-reliance on resources" and told Journal Strategy what to do during the period of low prices. He also explained why today's oil prices are not low indeed.

According to experts, earlier the raw sector was a competitive advantage of Russia. An increase in the growth tempos of non-commodity exports became an obvious tendency during the previous two years. How have strategies of Russian commodity companies changed?

The export volume in the sphere of fuel and energy was 63% in comparison with Russia's total exports last year. This is the reason why the non-oil exports cannot compete with the commodity. The latter involves metal and chemistry sectors. The revenue is about \$27 billion. But oil, gas, coal, electricity is still prevalent. Taking into account the sharp decrease in oil prices, gas prices also became lower (world gas prices depend on oil). The volume of sales in dollars has also decreased. It influenced the share proportion in the total basket. Earlier (in 2013-2014), the proportion share of oil and gas sector in Russia was more than 70% of foreign investments and about 75-80% with coal and other resources. However, exports volumes slightly increased. Oil supplies increased by 7.5% to 238 million tons in 2015, while exports decreased in 2014.

How strategies of commodity companies will be changed due to decrease in prices?

In any case, strategies are constantly regulating and refining because we are interested in higher prices than the current price of \$36 per barrel. I believe that the fair price is around \$80. However, the current price is lossless, as prime cost of Russian oil is much lower. Companies have different prices, but nevertheless on the average from \$5 to \$10. In principle, the price is normal, even taking into account transportation, taxes and so on. I remember times when oil prices were less than \$9-10 per barrel and we dreamed of \$20.

Certainly, it would be good to receive more dollars for lesser volume of sold oil. I suppose that oil will not be sold at the fair price by the end of the year, but it will be at the level of \$50-60 by the end of December. In addition, the Ministry of Energy held talks with OPEC to reduce production and slightly increase the price. 15-16 countries previously agreed to discuss this issue. The decision will probably be made at the end of March. Now they have just preliminary agreements. In addition, President met with Russian "oil generals" on March 1 in order to remain oil production at the level of January this year. I think our company would support this initiative, and production would be at the same level as last year, or a little lower.

I believe that we extract more oil than we need. However, half is exported. It is about 80% of produced oil. About 20-25% of the production would be enough for our needs, though the other volumes are sold in the market. The matter is that we have no clear understanding how much oil we need. Unfortunately, nobody can give a qualified answer to the question, as there is no clear balance between domestic consumption and export needs, especially now. The current situation is that there is no shortage of oil in the market. On the contrary, there is a surplus, which influence the price policy.

Will Russia change its goals in the commodities market?

In my opinion, we should not expect any revolutionary transformations. In recent years, about five years ago, we began to focus more on the Asia-Pacific region. I mean South Korea, Japan and China. The oil, which is supplied to the ESPO, is earmarked for the two-year-period in the region. I believe that this is a reorientation to the East. Speaking about transformations, it is necessary to continue them in a more intensive way. It also relates to oil and gas as China's demand for gas is about 300 billion cubic meters now, but they are able to produce only 140 billion cubic meters. Therefore, this region may be very interesting as a new market.

The second possibility to transform the market – it is necessary to think about internal ways of advanced refining processing of raw materials. Around 19-20% of the market is our portion, and 80% do not belong to us. Therefore, we cannot significantly influence the price, but we can make our country less dependent on price fluctuations by means of internal oil refining – not only engine fuel, but also high value-added products in the sectors of chemistry, petro-chemistry, artificial fibers and composite materials. There is no way around it, as 40% of auto parts are products of the chemical industry. 20% of products are used in TV sets, in airplanes and submarines. We pay very little attention to the development of the chemical industry.

Over the past 15 years, China built a series of chemical plants. Their chemical sector brings more than \$1 trillion 400 billion. It is 20% of China's GDP, which is 8 times more in comparison with Russia's GDP. Russia's chemical sector brings only \$80 billion. This amount is 20 times less in contrast with China. BASF, the powerful German chemical company, produced 1,5 as much products than all Russian chemists. Therefore, it is necessary to deal with development issues. In this case, we say about some kind of breakthrough.

"I believe that we produce more oil than we really need, as half is exported. It is about 80% together with other oil products"



Now oil and gas maintain our economy afloat. But they cannot become the driver of growth due to the above-mentioned reasons. Oil-gas chemistry may become such a driver. It is necessary to take drastic measures for the implementation of the program that had been planned for the development of petrochemical industries.

I remember the "great decade" when Khrushchev was Secretary General. It was the period of great attention to chemistry. Khrushchev held a large plenum of the Central Committee and proclaimed the following slogan: "Communism is Soviet power plus the electrification of the entire country plus chemicalization in the national economy." A large program on the development of chemistry was worked out during a short period of time. Two new potash plants were built during a short period of time only in Berezniki. The second soda plant, the aniline-ink plant and nitrogen fertilizer plant were extended. But then the rate began to fall, and there were no such large-sale programs.

Players of commodity market are the gainers, even if Russia slides out of "over-reliance on oil"?

Certainly, they will sell their raw materials to make products with high added value. They will use more raw materials in the country and sell less to the West. This step will allow to create new jobs. We cannot get rid of the impact of the commodity sector on the economy now. Some people call the current situation the "resource curse", "over-reliance on oil". It is nonsense, as there is no "over-reliance on resources". Not exporter, but importers depend on raw materials. We should be glad that we have such reserves. It has always been and it will be our competitive advantage, but it is necessary to use these resources wisely. For example, today we burn significant part of gas, about 15-16 billion cubic meters in flares.

Does the state have interests in the non-oil sector?

Today interests of the state are associated with the development of all sectors of the economy; however, it is necessary to choose the most effective ones. The sale of oil brings considerable incomes, but you can count the amount of incomes if you sell raw in the form of composite materials. It may be about 10-20, or even 100 times more effective. But today we are not ready for this yet. For example, the Industrial Development Fund was created in connection with the trend of import substitution. All the capital is just 20 billion rubles. It is necessary to spend \$500

million in order to build a catalytic cracking unit. It turns out that this amount is not enough. Therefore, a certain step was taken five years ago when signing an agreement among oil companies, the FAS, the Ministry of Energy and others. It has been done a lot for the reconstruction of our refineries, but not all. It has been built about 50 out of 150. Therefore, there is still a lot of work, even from the viewpoint of reconstruction of existing oil refineries, saying nothing of the petrochemical industry.

Foreign equipment (mainly French) was used at the Medvezhye gas field – the first a natural gas field that was discovered in the North. The field is good, as it produced about 70 billion cubic meters of gas at the best of times. Russian equipment was used at the oilfield in Novy Urengoy, except for gas cooling stations. The same was state of things was in Yambur, but the equipment was produced in Russia. There were plants and the Ministry of Chemical and Petroleum Engineering. Today, there are no ministries, no plants, no equipment. It is no coincidence that 56% of the equipment was produced abroad. Not everything concerns the countries, which introduced sanctions against Russia us. We should take it into account and search for solutions to these problems. What are the ways out of this situation? We can use either our production, or capacities of other countries, which did not support sanctions – China, Korea and Japan. It is necessary to deal with the problem, as we missed a lot of details. The law on industrial policy was adopted last year, but it has not even come into force, saying nothing of the necessary number of amendments, documents, orders. Before that we had simply nothing.

The same concerns the planning, development of balance issues. All countries are engaged in strategic planning, but we eliminated the good things we did. All the countries, on the contrary, adopted the experience of planning and development of long-term plans. The law on strategic planning was adopted in late 2014, but there is a large distance on the way the implementation of the law. That is the reason why the basic provisions are not implemented. We do not know our socio-economic program what we intend to implement.

How will the reorientation to the non-oil sector influence the environment when we start building chemical plants?

We have the technology that allows to reduce all emissions to a minimum. It is the matter of will and financial resources, as all environmental objects are very expensive. Absence of payback often lead to additional production costs and expenditures.

"Now oil and gas will maintain our economy afloat for a long time, but they cannot become the driver of growth"

Be Ready for Epidemic

In recent years, Russians have been worried by seasonal epidemics of influenza due to which more than 500 people died, rather than Ebola and Zeke fevers. According to experts, the bustle round the H1N1 virus was supported largely in the artificial way. The public health system was able to cope with such problems independently.

Triple Danger

When flu epidemic began to decline quarantine measures were canceled in the majority of regions and children continued to go to school. The influx of patients and frightened people at hospitals and clinics also reduced. H1N1 rapidly rolled across Russia, but it did not lead such catastrophic consequences, as epidemics five years ago. "125 cases of death from influenza were recorded in 2012-2013. 138 cases were recorded in 2013-2014. More than 530 people have died during this epidemic season in 2015-2016, which is about to come to an end," professor and academician at the Russian Academy of Sciences, chief freelance specialist epidemiologist at Ministry of Health of the Russian Federation, head of the department of epidemiology and evidence-based medicine at Sechenov Moscow Medical Academy, Nikolay Briko said. The diagnosis of influenza complications under other categories has significantly improved."

According to him, the most part of diseases were caused by the H1N1 virus. Initially, it is more virulent in



11 natural nidus of plague were registered on the territory of Russia.
320 people in the world fell ill with plague in 2015.
77 of them died.
No human sickness cases were registered in Russia

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comparison with H3N2, which dominated last year. That is a feature of the causative agent. It is a triple reassortant of swine flu, avian and human viruses. H1N1 is more severe because it affects the lower respiratory tract.

"The sickness rate of all infectious diseases is not the same from year to year, but it is cyclic. There were years of ups and downs. It is especially noticeable with infections without vaccination, the powerful mean to control epidemic processes. We can partially vaccinate against influenza. The scope of vaccination increases from year to year. This year it has reached the highest level of around 32%. This figure is much higher than in 2009-2010 when more than 760 people died. As a rule, the unvaccinated fall ill and die," Nikolay Briko said.

The scope of vaccination reached 40% in the regions of the Amur basin. A large number of vaccinated people were also in the Sverdlovsk region. That is why there were no significant increase in these regions. According to the expert, if 80% of the population is vaccinated most of the cases of flu may be controlled and prevented.

Smart System

The smart decision making system (SIP) has been developed by the Joint Instrument-making Corporation, a part of Rostec, in order to resist threats of biological and chemical nature. The system is a unique software that allows to speed up the initial diagnosis with certainty of 90%. The system does not replace a physician on site, but provides him with smart support. The decision on diagnosis is taken by an expert. SIP contains a complex with 76 symptoms of infectious and parasitic diseases, as well as 95 toxic and hazardous chemicals. During three years the Research Institute of communications and control systems operated in the defense industry structure over the development of SIP in during the three years. The institute was engaged in and implementation of the system. Thus, innovative development has already proved its effectiveness in the system of Rospotrebnadzor. The software is used in the Federal State-Funded Healthcare Institution of Hygiene and Epidemiology Centre, 23 medical institutions of the RF Ministry of Health. In addition, SIP is introduced in the health sector of the Republic of Adygea. Currently, SIP is being mastered in the Republic of Karachay-Cherkessia. On the average, the price of the system installation is 6-7 million rubles.

Under Control

The Russian system of identification and registration of dangerous diseases is organized in the way that even information about a single case immediately comes to the attention of specialists. All medical institutions in the country, regardless they are part of the municipal structure or privately owned, are obliged to follow the approved list of infectious diseases and transmit information to the consolidated body – the Hygiene and Epidemiology Centre of Rospotrebnadzor. Information is registered daily, weekly and monthly. Preliminary diagnosis by a doctor can be either confirmed on the spot or refuted with the help of a laboratory test. At the same time, primary anti-epidemic measures are conducted even in case of suspected case of illness. Their composition depends on the type of infection and the number of infected people.

"We have a fairly large list of infectious diseases, which are subject to mandatory registration. It is replenished annually," the professor said. "I should note that it is larger than in many other countries in the world. Our state system is organized better and works more effective, as it had already been proven to be effective."

In addition to the general system of monitoring and control, the anti-epidemic work is carried out by the anti-plague service of Rospotrebnadzor – a network of anti-plague stations, as well specialized research institutes. No cases of plague were recorded in Russia over the past year. The "vertical" controls both natural nidus of wild animals, and other especially dangerous diseases such as anthrax, tularemia, leptospirosis, brucellosis, Omsk fever, West Nile fever and Crimea-Congo fever. A number of preventive measures is conducted by the veterinary services.

Infectious Exoticism

Arbovirus infections, for example Zika fever, are one of diseases transmitted by mosquitoes. According to the expert, it can be compared with the yellow fever, or Chikungunya and Dengue fevers. The illness is taking



The sickness rates of measles have reduced by 5.7 times in the country in 2015, but the sickness rates of whooping increased by 35.3%

its benign course and recovery occurs in a few days. However, the disease may affect the fetus of a pregnant woman, causing microcephaly or the Guillain-Barré syndrome. No vaccine is still invented against Zeke fever in contrast to Dengue fever.

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According to the RF Ministry of Health, all tourists from countries with Zika fever are fully processed and examined on board before they are allowed to enter the territory of Russia. In case of any suspicions, patients are hospitalized for a quick consultation and examination.

Infected person can carry viruses from one continent to another if the disease is still in the incubation period or a benign form. It is also possible carry viruses through cargo transportations. Dengue fever has spread throughout the world during transportation of used tires. Wet created an ideal environment for mosquito larvae.

"We also have good news. We have registered a medicine for Ebola, which, shows high efficiency after appropriate tests. It is much better than medicine that had been used before in the world," Russian President Vladimir Putin stated in mid-January. The vaccine, developed by Gamaleya Institute of Epidemiology and Microbiology, was presented to the world community in Geneva in February.

Russian specialists established a special laboratory in the Republic of Guinea in order to assist in the fight against Ebola. No Ebola viruses have been registered in Russia, and they will unlikely spread there, threatening to escalate into an epidemic.

"The infection is endemic and it is spread only in Central and West Africa. In addition to favorable climatic conditions, there are also cultural and hygienic characteristics, traditions, food rituals that maintain the infection. Sometimes doctors were killed when they tried to ban the ritual farewell and ablution process. The international community has managed to cope with it and take control over Ebola in Guinea, Sierra Leone and Liberia. But in general, the sick rate is almost 30,000 cases and 13 000 lethal outcomes. 30% of deaths is a high rate," Professor Briko said.

In southern African countries Zika and Ebola fevers spread due to a favorable environment. There is no necessary conditions for them in Russia. But other

Strategy for HIV

388 cases of the HIV infection have been recorded in Russia – 542 cases per 100,000 people. The highest number of HIV positive patients was recorded in 26 regions of the country, including Sverdlovsk, Kemerovo, Samara, Orenburg, Leningrad, the Tyumen Oblast and St. Petersburg. According to the Ministry of Health, the scope of treatment was only 24% of the total number of cases in 2014. The Russian government expects to increase the figure to 60% with the help of a new strategy, which is being developed by the organization now. The Ministry of Health sticks to the following measures aimed at combating the spread of the HIV infection: prevention and informing of citizens with the help of broadcasts, videos on TV and creation of special sites on the Internet. In addition, it is planned to increase in the number of people engaged in the antiretroviral therapy. Now about 200,000 people (1/5 of the registered cases) are involved in it now. Voluntary and mandatory testings, preventive measures of the HIV transmission from a mother to a child are among the measures of the strategy.

exotic fever are fairly common. It is noted numerous illness cases of West Nile fever, Crimean-Congo hemorrhagic fever with a renal syndrome.

Typical for Russia

Infections without vaccines are typical things for Russia.

"Chicken pox is registered everywhere. The sickness rate is becoming high from year to year – almost a million cases annually. Our challenge is to include vaccination against this infection in the national immunization schedule. Scarlet fever, rotavirus and papillomavirus infections are the disease manifestations of the streptococcal infection," the academician at Russian Academy of Sciences says.

Until recently, the sickness rate of measles increased in the country. Zika fever, the virus of measles, can



penetrate into the placenta and adversely affect the fetus. Mass vaccination of the population began in 2001. Nearly 400 cases per 100,000 people were registered at the end of the 90s, but the statistics were three times more in Moscow. It was recorded only 20 cases in 2015.

According to Nikolay Briko, the scope of vaccination against German measles is 97-98%. According to experts in this field, vaccination against pneumococcal disease started last year. The effect is obvious, as mortality among young children has significantly declined.

Vaccines have been created especially to prevent many diseases, but not all of them are widely used in our country. Support for domestic producers is widely used in this field. Thus, according to a leading freelance expert at Ministry of Health of the Russian Federation, Russian medicine is included in the framework of the national calendar. As a rule, monovalent vaccines – one injection for one disease. There are combination vaccines with 5-6 antigens in Russia, but they are too few. According to the law on immunization, the country's citizens have the right to purchase such vaccine at the pharmacy on

prescription or they can be vaccinated in a private medical center.

"It is planned to develop a number of domestic combined vaccines against whooping cough, diphtheria, tetanus, as well as hepatitis B, poliomyelitis and haemophilus influenza," Nikolay Briko concluded.



6 cases
of rabies and
3 cases of anthrax
were registered last year

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How to Train Engineers

Nowadays, the period between ideas and their realization has significantly reduced. The new pace of implementation of projects requires new platforms. Centers for Youth Innovation Creativity are becoming such platforms in Russia. Their main goal is to arise interest among children and youth to science, modern technologies, research and innovation activities.

According to international consulting company Deloitte, there are about 3,500 active communities in the field of invention and technical creativity. As a result, they invent around 20-30 products a year. These sites are not only a source of ideas, but also a kind of source of manpower. Therefore, the governments of developed countries create the infrastructure with free access to the latest technologies.

This tendency has recently started developing in Russia, but more and more projects associated with youth innovation and engineering creativity are implemented annually. The initiatives are put into practice on the basis of specific platforms – Centers for Youth Innovation Creativity and Fablab.

Centers for Youth Innovation Creativity are a new form of training focused primarily on the younger generation. At the age of nine schoolchildren can try their hand at graphic design, create the first robot or their own 3D model and then print it with the help of 3D-printers.



More and more regions begin to join the project. More examples of the individual projects of interest and involvement Centers for Youth Innovation Creativity in the engineering development of the regions and interregional cooperation. To the center there is a genuine interest among authorities at all levels, including commercial companies, both local and regional, as well as the largest. It becomes clear that Centers for Youth Innovation Creativity can have a greater influence on the development of the engineering market.

Andrey Teslenko,
Head at Academy Center for Youth Innovation Creativity (Moscow)

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There are 176 Centers for Youth Innovation Creativity in Russia now. More than 100,000 students are involved in this activity. They perform the task of forming the country's new generation of designers and engineers.

The idea of the global network of Fablab came from abroad. It was invented at Massachusetts Institute of Technology (MIT) and now it is being implemented worldwide. For several decades digital production laboratories are actively developing. Any person can come and make almost anything with his own hands. In other words, realize his idea.

There are over 200 laboratories in the world with networking cooperation. It gives an opportunity for an exchange of ideas, digital resources, and collaboration on projects. A similar system of open groups of interest existed in the USSR.

Fablab has recently appeared in Russia. The first fully functional laboratory was opened in April 2012 at the National Research Technological University – Moscow Institute of Steel and Alloys in the framework of a joint project with MIT supported by the Moscow Department of Education. A special program was prepared by Ivan



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Bortnik, the ideologist, the chairman of the Foundation for Assistance to Small Innovative Enterprises, in the scientific and technical sphere. Thanks to this initiative, specialized Centers of Youth Innovative Creativity appeared in Russia.

It is necessary to have the two components to form such centers in your region. The first is the team, which

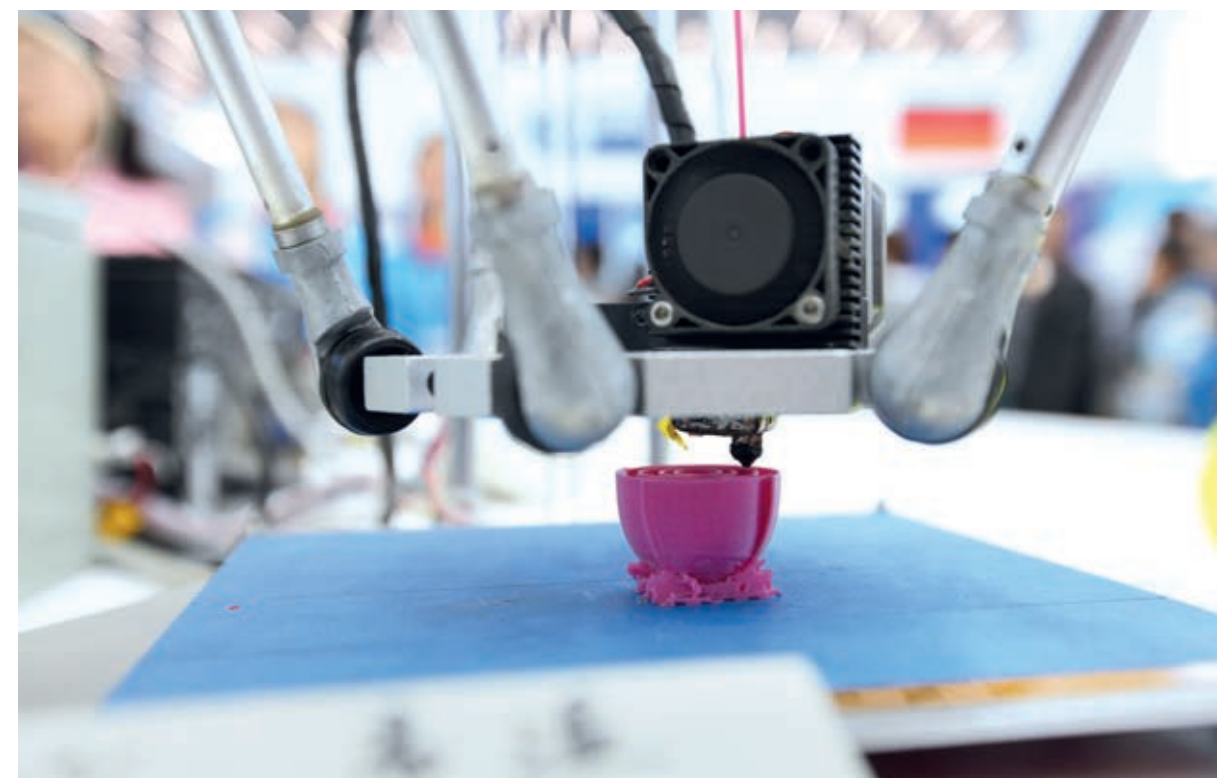
is ready to implement this project, the second is the desire of the authorities.

A subsidy in the amount up to 7 million rubles is allocated for small businesses in accordance with the program of the Ministry of Economic Development in order to form Centers of Youth Innovative Creativity. It can be spent on the purchase of equipment, supplies, computers and office equipment. Organizers are responsible for rent of premises, repair and wages. The region can also provide co-financing in the amount of 5%-20%.

In 2012, 253 million rubles were allocated to 13 regions from the federal budget to form Centers of Youth Innovative Creativity. Moscow received the biggest funding in the amount 20 million rubles, the Penza region – 32 million rubles, Tatarstan – 22.8 million rubles. In 2015, investments in the project from the federal budget amounted to 419.1 million rubles. 20 regions received funds to create or develop 67 centers.

Now Centers of Youth Innovative Creativity are not a separate independent profitable business. More than 70% of the centers work for free in Russia in accordance with contracts with schools or universities.

"The main idea is to make it available for schoolchildren and students. That is the reason why Centers of Youth Innovative Creativity have an obligation to provide free access. Centers of Youth Innovative Creativity can also generate income by providing access to equipment, providing services for prototyping and organization of paid educational courses. Centers of Youth Innovative Creativity very different models. For example, some centers were opened at universities and in this case organizers should not pay rent. They work in such Centers of Youth Innovative Creativity. As a rule, students and post-graduate students of the same university can minimize maintenance costs," Andrey Teslenko, head at the "Academia" Center of Youth Innovative Creativity (Moscow) said.



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According to the agreement, any Center of Youth Innovative Creativity shall work at least 10 years after it received support from the budgets of different levels. This is also one of the main projects of the competitive selection.

The most popular fields in training are 3D-prototyping, modeling, industrial design, electronics, nanotechnology and robotics. A number of areas – developed during the Soviet era such as automotive engineering, aircraft engineering and shipbuilding – are being revived now. According to many analysts, these areas will become the basis for future professions.

The principle of work of such sites is quite simple. Children and students or young scientists can come to the centers with their ideas, draw models with the help of a computer (experts of the centers will help them) and then print them on a printer or mill parts on special machines. The final product will be made of these components.

"No matter how much we discuss the future of the IT-sphere these predictions won't come true without complete changes in the production process in our country. We should form a new class of engineers. The generation of 20-30-year-old-people are not good for this, as limitations of their consciousness won't allow them to invent completely new and unique things. But we should start with training of children, as they understand that nothing is impossible in this world. Children think in a more free way in contrast with adults. They have more time to dream, invent and create," Executive Director at the All-Russian public organization Young Innovative Russia Anna Bukhalo said.

According to experts in the field of innovations, Centers of Youth Innovative Creativity are gradually becoming a base for experimentation and different solutions to urban problems. For example, they allow to design a city ashtray that would be convenient for residents.

These everyday things are very easy for understanding. They would be in demand and interest, as they would make the urban environment more comfortable.



The goal for 2016 is to create centers in another 5-7 regions, and then enter international children's and youth competitions, making Center of Youth Innovative Creativity work as a system where each student is not just a guest, but a young inventor, a scientist, an entrepreneur and an innovator. This year we determine specializations for Centers. Centers of Youth Innovative Creativity should become the point of growth of new knowledge, competencies and engineering tendencies among young people.

Anna Bukhalo,
Executive Director at the All-Russian public organization Young Innovative Russia

Each laboratory is equipped with the most modern equipment (not less than 15 units) – the a milling machine, a laser cutting device, a 3D-printer, 3D-scanner and a cutting plotter.

First laboratories were equipped with foreign-made devices, but the situation is gradually changing.

"The production market began to form not so long ago. But now a number of companies began to collect very decent samples of CNC machines. The cost is lower, but it doesn't affect the quality. Picaso, the Manufacturer of Russian 3D printers from, Zelenograd is a good example. In is the most famous 3D printer at Centers of Youth Innovative Creativity. In 2016, new centers will be able to purchase half of domestic equipment, including 3D-printers, Russian robotics kits and natural stands," Andrey Teslenko said.

According to him, high-quality printer models are also produced in Kazan, Voronezh and St. Petersburg. For example, on the basis of laboratories. Fablab Polytech produces 3D-printers with large work surface (two cubic meters). They allow to produce one-meter-

components, and even print a ready-made chair or a table. It significantly speeds up the manufacturing process. According to the laboratory management, the price of such printers is lower by nearly 100 times. Schoolchildren are actively involved in many of these processes in Polytech, including the creation of equipment. They are also engaged in assembling models from different components.

Head at MIR, Anna Bukhalo, also noted positive changes.

"The most part of the equipment has already been purchased in Russia. We have plans to shift the whole purchases to the Russian market, but it is too difficult to implement due to the fact that the market of this equipment is very disorganized and it does not have such a strong potential for large companies, which produce machines. Although during the last two years we managed to find suppliers of 3D-printers, 3D-scanners and hand tools," Anna Bukhalo underlined.

Associations of Centers of Youth Innovative Creativity are actively engaged in searching for Russian suppliers. They not only find domestic manufacturers, but also agree on special pricing, emergency services, hotlines and training programs.

Four years have passed since the beginning of the program on establishment of Centers of Youth Innovative Creativity. Two and a half of them are the result of the real work of platforms. "Graduates" of these centers are not yet ready to make a third industrial revolution, but they are getting closer to this goal.

"More children are involved in the scientific and technical creativity now. The number of active projects in the competitions reflect that the number of participants have become twice and in some areas three times as large. It is also obvious from the viewpoint of regional development and infrastructure. Producers of baby stuff are interested in Centers of Youth Innovative Creativity, as they form a new niche – the market of equipment adapted to work with children, which has been already formed," Anna Bukhalo says.



According to Andrey Teslenko, the activities of the centers are very successful.

"I can confirm this on the work results of our "Academy". During two years we had three absolute winners in the project activities in the Contest "Step into the Future", which allows students to enter Bauman MSTU. One of our representatives received a full scholarship to study and to be accommodated in one of the leading universities in the Netherlands. Then several startups were created. Two of them have already begun to receive revenues. I also see a lot of projects that appear on the basis of other centers. I believe that it will be possible to assess the impact of Centers of Youth Innovative Creativity on the engineering technologies market only after 5-7 years. But I can surely say that it is not waste of money and time," Andrey Teslenko said.

Abroad the potential of such laboratories was recognized a long time ago. They are providers of unlimited resources of human capital and collective intelligence. The practice of cooperation between the thematic communities and large companies is actively developing. Siemens, Intel and Qualcomm



According to international consulting company DELOITTE, about 3,500 active communities work now in the world now in the field of invention and technical creativity

have initiatives to attract self-taught inventors. There are a lot of such initiatives in Russia, but not all of the work. There are more examples of such interaction with big companies. Centers of Youth Innovative Creativity in Russia are working closely with Intel, as well the following Russian companies: ROSORCK, Morton, NeuroNet and UAK.

Centers of Youth Innovative Creativity throughout Russia plan to merge with federal programs. Structuring of the community and the establishment of close cooperation will help project participants to solve complex and large tasks together. The centers should become an important element for building a system of scientific and technical creativity. It is important to allow each center to develop on its own, maintaining their individuality and bringing something new into the overall program.

For example, Superlab Center of Youth Innovative Creativity is to be opened in Moscow this year in April. Biomechanics and rocket engineering will become its key areas. According to representatives of Alliance Media Strategy, the main feature of the Center of Youth Innovative Creativity is creative space. Comics about superheroes were in the basis of designers' ideas in order to each visitor could feel as if he is in a special universe.

"We have thought out every detail in our creative space. It is good to come here and have a good time. This design should attract every guest and made him

come back. There is a complete list of all the necessary equipment for prototyping in the Superlab Center of Youth Innovative Creativity. Our experts will help to transform ideas into concrete projects. Special master classes have been planned for training courses. Everything is aimed at stimulation of scientific creativity of young people," manager of the Superlab project, Antonina Kurinnaya, said.

More than 30 Centers of Youth Innovative Creativity are to be opened in Moscow in 2016.

Increase in the number of such centers allows children to come and receive information about construction and design, as well as work in the field of high technology in order to make the right choice about their future in a more conscious way.

It is planned to form a block of educational programs by organizing international competitions for the children and preparing schools for directors of centers. Anna Bukhalo believes that it is important not only to give a tool, but also information how actively use it.



Thousand Years of Waiting



The aim of overcoming the division of the Christian Church unites Orthodox and Catholic religious leaders, but the Moscow Patriarch and the Pope did not meet until 2016. Head at the Center of World Cultures Diplomatic Academy of the Russian Federation, Natalia Maslakova-Clauberg, told in a column of Journal Strategy about the Millennium event, i.e. the long-awaited meeting of the Pope and the Primate of the Russian Orthodox Church.

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The historical meeting with the participation of the Primates of the two Christian Churches – the Patriarch of Moscow and All-Russia Kirill and Pope Francis took place on February 12, 2016, at the airport of Havana in the framework of their pastoral visits to Latin America. The Havana meeting has already been called as a meeting of the century, as it was the first after the Great Schism of Churches in 1054. Pope John Paul II and Pope Benedict XVI, the Roman Pontiffs, and the Patriarch of Moscow and All-Russia Alexy II dreamed about it in the XX century and made every effort to organize it. The first probability of such a meeting began to discuss in 1996 during the pastoral ministry of Pope John Paul II and Patriarch Alexy II. It was even scheduled for June 1997 in the Abbey of the Holy Cross near Vienna. It is confirmed by entries in the library of the Roman Pontifical Institute. However, it was canceled due to the situation in Ukraine when several Orthodox dioceses were reassigned to the Ukrainian Greek-Catholic Church. The union has been and it still remains one of the main reasons that complicate relations between the Russian Orthodox and Catholic churches for centuries. Metropolitan Hilarion said that "the problem of the Union and has not been solved, and the union remains an unhealed bleeding wound that prevents the normalization of relations between the two churches." It is not overcome today. Modern political realities, associated primarily with the persecution and harassment of Christians in the Middle East and the crisis in Ukraine force the two pastors of Christian churches to start a dialogue in order solve the many pressing issues.

Warming between the two churches started during the parsonage of Benedict XVI. We can say that Pope Benedict laid the first stone in the Vatican rapprochement with Moscow. A meeting with the head of the ROC Department for External Church Relations of the Moscow Patriarchate Metropolitan Kirill (Patriarch in future). The first Orthodox church in Rome – Church of St. Catherine was even consecrated. In addition, Joint Address to the people of Russia and Poland was signed in 2012 by Patriarch of Moscow and All-Russia Kirill and Chairman of the Polish Bishops' Conference Archbishop-Metropolitan of Przemyśl Jozef Michalik, which was announced in Russia and in Poland.



Relations between the Russian Orthodox Church and the Roman Catholic Church remains difficult. Today both churches today call themselves as "Christian Churches-sisters", but these are complicated by many contradictions of the theological and dogmatic nature. The situation between the churches deteriorated in 2014 due to the events in Ukraine.

Preparations for the meeting in Havana lasted two years in a state of complete secrecy. Due to the complexity of problems the meeting took place on the neutral territory – "at the crossroads" at Havana's airport. At the very beginning it was planned to organize it in Hungary and Macedonia, but in the end it became possible to find a compromise. Cuba became the Center for Christian unity. Cuba is a special area for the two countries as the "island of freedom" is historically and religiously close to both to Russia and the Vatican.

The main topic of the meeting was the persecution of Christians in the Middle East and Africa, which has symptoms of genocide. According to recent data, one in four Christian in the world is being discriminated. It requires the adoption of urgent measures and close cooperation in the Christian world. The modern world has faced a dangerous line, and Christianity is attack from all sides.



Patriarch Kirill held liturgy on February 14 at the Orthodox Cathedral of the Kazan Icon of the Mother of God in Havana

There is Jihad of terrorists in the Middle East, the so-called liberal neglect of Christian values in the West. Religious diplomacy is necessary today for the salvation of the whole Christian world.

After Pope Francis became the head of the Holy See he set the task to bring relations with the Russian Orthodox Church to a new historical level. And he succeeded. This meeting took place and has already entered the history of the world. Pope Francis and Patriarch Kirill exchanged warm greetings, calling each other brothers. There were the flag of the Vatican and the standard of the Patriarch in the room. The crucifix was among them. Pope Francis repeatedly said: "It is impossible to negotiate with the help of the cross: it is either accepted or rejected."

A joint declaration was signed at the end of the meeting and it gave hope for the formation of a new phase in relations between the Christian churches. Following the results, Francis noted that a possible program joint

activities was scheduled, stressing that the unity of the church can only be achieved by moving forward. According to the Roman Pontiff, the signed document is not a political or sociological declaration. It is a pastoral declaration of two bishops, which refers to secularism problems biogenetic manipulation and other issues. Spiritual leaders urged the international community to cease the harassment of Christians in the Middle East and supported for overcoming the split in Ukraine on the basis of the canonical norms and for the preservation of traditional Christian values. According to Francis, the Christians have a special function of the mediators and peacemakers. Christians are the architects of unity. Their task is to immerse in the conflict, feel it and then resolve it by directing energies at the development.

In memory of this meeting Pope Francis presented a relic of St. Cyril (of the hand) and the cup to Patriarch Kirill. The Orthodox hierarch presented quite a symbolic gift – a copy of the icon of Our Lady of Kazan. The matter is that shortly before his death in 2005, Pope John Paul II donated the icon of Our Lady of Kazan to the Moscow Patriarchate. It was kept in his private chambers. It was a kind of guarantee for the future, unfortunately, the meeting of the two Primates of Christian churches didn't take place during his pastoral. This gift to the Roman Pontiff is in the Holy Cross Church of the Kazan Mother of God Monastery now. Besides, on February 14, Patriarch Kirill held a liturgy at the Orthodox Cathedral of the Kazan Icon of the Mother of God in Havana. He personally consecrated it as Metropolitan and chairman of the Department for External Church Relations in 2008.

I would like to say several words about the spiritual leaders of the two Christian churches. They have managed to accomplish what has not have been done be their predecessors for many centuries. What are the similarities in their lives and what mutual personal qualities they have?

They both belong to the so-called generation of World War II. They are well aware of the grief and peoples'



After Pope Francis became the head of the Holy See he set the task to bring relations with the Russian Orthodox Church to a new historical level

sufferings during the war. Pope Francis is 10 years older than the Patriarch, but in general they belong to the same generation.

They were born in the working-class families. However, the Patriarch's father, brother and grandfather took holy orders. Both Christian pastors received a technical education. Pope Francis received a degree of a chemical engineer, and Patriarch Kirill worked as a technician and cartographer at the beginning of his career. They both made life choices in favor of church service early enough. At the age of 19 Patriarch Kirill entered the seminary at first, and later the Leningrad Theological Academy. Pope Francis decided to join the Society of Jesus (Jesuit Order) at the age of 22. 1969 became significant for them. This year, Patriarch Kirill was tonsured a monk and ordained a deacon, and Pope Francis was ordained a priest. Their

church careers were successful and rapid. In 1991, Patriarch Kirill was elevated to the Patriarch at the age of 45. by Alexy II Metropolitan. Pope Francis is obliged to John Paul II for his ecclesiastical career from a bishop to cardinal. In 2001, he was elevated to the Roman Pontiff as the cardinal with the title of the Church of St. Robert Bellarmine. Both the church hierarchies have degrees and they were significantly involved in professorial work when they held the church leadership positions at higher educations. Their mentors Patriarch Alexy II and Pope John Paul II help them to take the first steps to the dialogue between the two churches. Patriarch of Moscow and All-Russia Kirill and Pope Francis have the mutual goal to overcome the split of the Christian Church. There is a lot of things should be done. It was just a start. "The power of the Church is in its unity and its weakness is in the split."

Science for Sport

Not only will and diligence helped Soviet athletes to be faster, higher and stronger, but also scientific knowledge. There were institutions involved in sports science. Results of their researchers are still used by all national teams in the world.



At some moment, the system turned to be split in Russia. A network of institutions and laboratories have lost the ability to cooperate with each other, and some of them even stopped researches. As a result, the regions were virtually isolated from the scientific information related to the sport.

In 2009, the Russian Government adopted the development strategy for physical culture and sports in Russia till 2020. Following the large-scale reforms in the sphere of education and health systems, it was decided to modernize the system of preparation of sports reserve in the country.

New standards relating to regulatory training sports reserve came into force in 2016, including a transition to normative funding per capita and methodological support of sports training. Not only economic component (now the Ministry of Sports is responsible for funding instead of the Ministry of Education), but also the evaluation of training qualities are changing now.

"A large number of institutions are involved in various aspects that relate to the issues of the sport science. But there are no systematic approach for its development. The organizations do not interact with each other. They do not share the results of researches. There is no single research strategy in the sphere of sport.

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Everybody knows that patients are treated in accordance with the federal educational standards. But not everyone knows, even those who are directly involved in the organization of athletes' trainings, that the federal government introduced the standards of sports training in almost all kinds of sports," Elena Yashina, Doctor of Medical Sciences, CEO at FGBU FNTS VNIIFK says.

The modernization system of sports reserve training is integrated with the concept of development of additional education of children. Now organizations of additional education are being transferred to the organization of a new type – the school sporting training. Vertically oriented and integrated system of sectoral organizations is being formed now. It is engaged in sports training.

"The results of modernization should be the formation of an independent branch of physical culture and sport



5,062 organizations
are involved in the system of sporting
reserve training.
The total number of athletes
is more than 3.2 million
and coaches is 99,200

with a balanced normative legal base, adequate funding and logistics, effective personnel policies, modern methodical, scientific and methodical, medical and anti-doping provision. It will allow to prepare the necessary

number of competitors who can enter join national teams to take any challenges in terms of increasing global competition in modern sports," Elena Yashina summed up.

The International Forum "Big Science is a great sport" was organized in Moscow in order to establish relations with regions, discuss innovations in the system and implement innovative platforms through which new knowledge will be introduced in the field of training of athletes in various specializations. The event is to take place on the basis of the Russian Academy of National Economy and Public Administration under the President of the Russian Federation.

In addition to organizational issues related to the implementation of the strategy and the modernization of the system, experts will discuss methodology of the training process, information technology, medical and biomedical support of physical culture and sports, sports nutrition, climatic and chrono-biological adaptation in the sports training system. Attention will be also focused on the problem of hypoxic trainings and sudden death in sports.

The issue of social security and insurance of professionals is still very urgent in the sphere of physical culture. Elena Yashina is sure that there are very effectively working mechanisms, but the regions are not informed about this. For example, it has been recently adopted a number of documents relating to the employment law. The definition of such professional standards, as the basis of individual rehabilitation programs for athletes. These and many other topics will be discussed during the round table.

Best practices approved by the Ministry of Sports on the use of various technologies for the preparation of athletes at innovative platforms will be represented at the forum.

The leader in the unpublished ranking of advanced regions is Tatarstan. Interesting projects were presented by Bashkiria. Bryansk, Voronezh, Tver,

Krasnodar and Krasnoyarsk, Moscow, the Moscow region (Bronnitsy), the Republic of Mordovia and Chuvashia, St. Petersburg and the Yaroslavl region (Rybinsk) were on the list of innovative platforms approved by the Ministry of Sports. Other subjects of the Russian Federation will be able to use successful experience of their colleagues.



In my opinion, there will be many important and useful areas, which may be put into practice in various kinds of sport in future. These are the most recent fundamental developments relating to cell biology, molecular medicine, i.e. current innovative technologies in sports. The normative documents presented and offered at the forum will be explained in many areas.

Later they will help to organize better athletic training. It is important to promote the knowledge, guidance, the entire system of integrated scientific groups, which are widely used in the sphere of sports, they are planned to be used for the preparation of sports reserves. It is a new area, which should be implemented for successful cooperation with subjects.

Elena Yashina,
Doctor of Medical Sciences,
CEO at FGBU FNTS VNIIFK



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**НЕДЕЛЯ
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2016**

РЕКЛАМА

21 марта

Налоговый форум «Фискальная нагрузка на российскую экономику: налоговая и неналоговые составляющие»

Финансовый форум «Финансово-банковская система России в новых экономических реалиях»

Конференция «Формирование стратегии развития электроэнергетики»

22 марта

Промышленный форум «Промышленная политика, техническое регулирование и контроль качества»

Конференция «Промышленная экология и глобальное изменение климата: роль бизнеса и государства в снижении рисков»

Конференция «Оптимизация государственного контроля и снижение административной нагрузки на бизнес»

23 марта

Социальный форум «Ответственное взаимодействие бизнеса и власти в интересах социальной стабильности»

Международный форум «Новые условия и возможности экономического сотрудничества в АТР и Евразийском пространстве»

Конференция «Современное состояние и перспективы развития жилищного строительства в России»

24 марта

Съезд Российского союза промышленников и предпринимателей

25 марта

VIII Всероссийский форум саморегулируемых организаций «Саморегулирование в России: перезагрузка»



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