INNOVATION TRENDS

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MAIN SUBJECT

Global Policy Forum at Yaroslavl

The Confrontational and Sterile Axis between Markets and State Is Now a Thing of the Past



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What are the latest changes to innovation policy in the world? Innovation policy has been for a while very focused on achieving high tech industries, the kind of industries

that we would call general purpose technologies, such as electricity, IT etc. We have seen that a nation certainly needs these technologies, but they also need the industries which these technologies modernize. Of course, you will need biotech, but you will also need the industry that will these biotechnologies modernize. For

instance, biotechnology is going to produce bacteria that eat oil and therefore cleans oil spills. So, instead of focusing just on the general purpose technologies themselves, there is now more focus on integrating these technologies into a national innovation system.

What we are observing today is that two kinds of thinking are coming together. One will be to modernize and revive traditional industrial sector, and the other one is to have the very best peak technologies in the world. And I think both these approaches are correct. But not alone, only together. Yes, you need a science park with high-tech, but you also need industries which these general purpose technologies can modernize. We have seen in certain areas, for instance in the Mid-West in the US, in Madison, Wisconsin, where people complain that the main new technological breakthroughs invented there do not stay there in the central part of the country. They are taken either to the East coast or to the West coast where there were venture capital and industries to modernize. This is an important insight that, in fact, you need the synergy between the new technology and the old industries

What examples of innovation policies in the world you think are the most and the least successful?

Here is a tendency to look towards the US. But the US is a country which has its own problems. Clearly, Silicon Valley has had a huge success. What is important about the Silicon Valley is a meeting of private entrepreneurship, important universities and government procurement. The government has been very important in establishing these mechanisms.

Perhaps, the most interesting parallel for Russia is Brazil. Brazil is also a very big country. It is a country with big differences between regions, some are poor and some are less poor.

> Perhaps, the most positive thing about the Yaroslavl Forum, as I see it, was that the ideological approach to economic policy is crumbling. It's much less a question of left and right in the sense that the state either solves all the problems or

state should leave the scene. People are coming together and say "Yes, the state does play a role". In this sense ideological convergence, as I see it, is very positive. And the ideological convergence, I think, is a product of a more pragmatic thinking.

In terms of nations which are doing a good job, they were also represented here. Singapore which is only a city state, very small, is doing an excellent job. But Russia is much more than a city state. It's interesting to see what Singapore is doing, but Russian context is very different.

Israel is having some very good innovation policy in the sense of how can you create mechanisms where you can match government money to private enterprises. Government money is not very knowledgeable. So, So, what I think a big country like Russia should do is to see what other countries are doing, think whether it will work in the given context and then pick the best among all the ideas that are out there. I think this will be Russia's approach, and a very good one.

In what area you think there will be a technological breakthrough in the nearest future? Do you think that such a breakthrough will happen?

The interesting thing with technological breakthroughs is that they are unpredictable. There are examples of people being very close to the process but still not seeing the revolutionary aspects of their breakthroughs. For instance, Werner von Siemens was the pioneer

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how do you take capital with very little knowledge and combine it with the knowledge in the private sector? This is something which is also a problem in Russia, it is a problem everywhere. Here is something to learn from Israel.

Perhaps, the most interesting parallel for Russia is Brazil. Brazil is also a very big country. It is a country with big differences between regions: some are poor and some are less poor. Brazil has some very interesting innovation policies, among them a very successful development bank (BNDS) which is an example for other countries to follow. Brazil also has some very interesting policies toward wealth from the petroleum sector, and mechanisms of getting the cash from these industries that produce access cash and put them into both innovation and social work in many sectors. I think it is interesting.

s was the pioneer in electricity. He said that electricity was going to be very important for industry, but would never get into homes. A man who was

very close to the technology and he didn't understand the size of the breakthrough. The president of IBM in 1970s said "Probably, in the world we are only going to need five or six big computers". He didn't at all see the PCs coming. So, this is an interesting aspect of technological change. We can do all kinds of guesswork, but what we have to do is really to invest in all the possibilities and see what happens

The obvious examples now are nanotechnology, biotechnology and IT. But it's like in the 1890s. Everybody understood that horse transportation was out. But then there were three possibilities: there was already then an electrical car, there was a steam car, and then there was just this man Benz who created a gasoline engine. In many countries gasoline is still called "benzin". Nobody could at the time see which of these three technologies would I win.

So, from a government point of view, you have to keep research in all these areas, and in the end see which technology will win? It is not at all obvious what it will be, and that's what makes this area so fascinating.

What thoughts and ideas expressed at the Forum you think are important?

What is important is that we see a new and a more pragmatic attitude towards innovation and towards economic policy in general. The confrontational and sterile axis between markets and state is now a thing of the past. In my seminar there were people who represented the ideologies of the 1990-es, like Mr. Chubais, but there also was the head of the Communist party Mr. Zuganov. To me, it was satisfying to see them sitting around the same table discussing and not disagreeing violently. You could see that they were coming together. This deideologisation, this more pragmatic view is going to do to Russia a lot of good, and this is in the end going to do to the rest of the world a lot of good also. The same kind of ideological confrontation that you had here in Russia you also had in Latin America and elsewhere. The only area in the world which escaped this destructive right-left axis was Asia because Asia has been pragmatic all the time. That is why Asia is doing so well. I am very happy to see this deideologization of economic policy. That is a necessity for Europe in general, and also for Russia, to really learn from successes of Japan and later of China, India, Malaysia and many other places. The wealth of a nation is determined by its economic structure: a large division of labour (many different industries) and constant innovation is a generalized formula for success

When You Take Up the Innovation Business, You Must Always Think a Few Steps Ahead



Tatyana Alekseeva - Doctor of Philosophy, Head of a Chair of Political theory at MGIMO University, Honoured Scientist of the Russian Federation, member of Academy of Political Science and Academy of Military Science

What are the latest developments in the innovative policy worldwide?

Before taking up the subject of innovation policy, I think we should get a good grasp of the relationship existing between innovations and regular even-paced development of any country. If we fail to understand it, this way or another we will always end up in a void. There is a hypothesis which I think is quite convincing. Suppose we take up a development model and we live in the 19th century. Then we would face no problems whatsoever. We would know that development is linear, that all countries resemble long distance runners: some lead the race, some lag behind, some might shove another aside, even a scuffle might flare up, but they all run in one direction. Hence, the well-known theory of formations and the idea of progress.

Modern science drifted away from the outlook on development as a linear and progressive process. Differing views are expressed, including that the development can follow the «three steps ahead, two steps back» or «one step back» patterns. A complete rollback and degradation may well become a reality; there may be side steps or a great leap forward followed by complete failure. In other words, there is a great multitude of different models. Effectively, the progressive development is not a guarantee, and this is the first thought that I would like to emphasize. If any state claims to be something more than just a small neutral country, like a state with the past and the future with a more important role in international politics and global economy, it must go ahead and make a serious effort in choosing an appropriate model for future development. That's point number one.

Now let's move to point number two. Suppose a state decided to stage an across-the-board breakthrough. Let's dub it modernization, although, of course, it is a far cry from the modernization theory of the 1960-70's. The issue at hand today is slightly different. We still use the term, but its meaning has changed. If a state decides to join the advanced vanguard countries, it should realize that it should choose such reference points, which will secure an innovative breakthrough and, probably, its presence in this vanguard.

The most important thing in this case is how these innovative programs are perceived by society. We can bring together gifted scientists, remarkable government officials and topnotch experts. They will think of a way to implement this breakthrough using innovations, but such innovations will lack the support of the society, or even worse, will be rejected by it. There is no end to such examples.

Therefore, the issue is not only about the innovation policy. The question is that this innovation policy should cover not only technical issues and ways to allocate money. There is need to understand how this innovation policy can be built based on the current social framework. Everyone criticizes it today. However, criticism is inconsequential in this case; most importantly, we should understand mechanisms underlying the societal evolution.

In other words, the question is can you make a society accept an innovation as something natural and then carry it forward? One can come up with a model, establish institutions, allocate major funds, start developing certain areas, but none of them will have anything to do with existing infrastructure whatsoever. How do you put them together? As a matter of fact, the innovation policy in Russia has no solution for that. This issue needs to be pondered. And it should be pondered by public opinion, not just decision makers. If we refer to the countries that managed to implement such innovative breakthroughs, such as Singapore, Malaysia, India, Japan, South Korea, or Israel, we'll see that normally, in addition to outstanding programs, serious funding, enlistment of renowned specialists, both domestic and foreign, all of them backed their respective breakthroughs with putting in place an entire infrastructural system. What do I include in infrastructure? First off, I include the availability of certain traditions in a given society, such as scientific, technical and even spiritual. I even include attitude toward success, implementation practices and values maintained by a given society. If there is a discord between innovation and such infrastructure, then the innovation will go belly up very soon and will just get rejected as another fleeting idea. There's need for something that would turn innovation into a tradition, when innovation itself becomes a tradition in the given society.

This can be done in two ways. The first one is when existing traditions are displaced and coincident ways are sought for. What did the Japanese do? Let's take, for example, Meiji Revolution. At that point in time Japan was a society with the highest level of education and literacy. On top of that, there was a matching body of Japanese traditions, such as life-time employment, work ethics and a series of other parameters that facilitated modernization. Same thing occurred in South Korea, Singapore, and Malaysia. This briefly describes the first way.

The second way has innovations implemented top down. We love this option a lot. Speaking of which, I enjoyed the fact that the participants, including foreign ones, discussed it again and again in Yaroslavl. I'm talking about the Peter the Great's reforms and reforms dating back to late 19th – early 20th century associated with Vitte. Put differently, those were the breakthroughs in our history when a certain type was forced into application and then artificially spliced up with what was available. Fundamentally, schools and universities create new citizens. Not only they transmit culture and values, but also the have this "innovation gene" and make people more open minded. Sometimes it works, sometimes it doesn't. It works with the support of a very potent educational system. Therefore, if we speak of Skolkovo, I have a very good feeling about it. That's exactly the way it started everywhere. Never ever the innovation programs have been spread thin across vast territories of a country. There have always been vanguard outposts. I will give you just one case in point. It's very comforting to know that MGIMO University ranks first and MFTI University comes second in the Forbes ratings. From the very beginning there was an innovation approach to education at MGIMO, and the standards of education today as high as they used to be back then. At some point in time MFTI introduced the Cambridge education system, which churned out a series of brilliant Soviet physicists who not only weren't inferior to their Western colleagues, but exceeded them in many ways. Therefore, there is need for both Skolkovo and a certain education model.

Here comes another interesting and very important contradiction. First off, Skolkovo doesn't mean loss of interest in other already existing science cities. We are always facing the danger of getting carried away with a novelty and forgetting about and dumping everything else. We should think about a model whereby the existing science cities and research centers are tied in with Skolkovo, at least, when it's possible. Only then things will fall in place. In addition to that, connections should be established with certain higher schools. I have no idea why they keep rejecting the idea of setting up a separate school for Skolkovo, but I believe that'd be the right thing to do.

Let me repeat it: Innovations should be based on the society infrastructure. Such backing might be there already, but it needs to be searched for. This issue cannot be resolved in one day. It calls for time to ponder, engage in public discussions and clear up the situation. Speaking of which, we have a very poor idea of what our society really is. Nobody has ever given it serious consideration. For example, let's assume someone comes up with an invention, no matter what kind of invention. Do we have everything in place in order to instantly issue a patent and, taking it up a notch, instantly implement it into production? Are we capable of running an adequate ad campaign to build demand for such product? I don't think so. When you take up the innovation business, you must always think a few steps ahead. The mere fact of declaring that nanotechnology is cool and we'll get into it is not enough. Ask any person in the street why we need nanotechnologies, and they'll fail to explain why. However, they do need to understand it. In order for people to understand, there must be a system supported by both major business entities and the government. There must be a host of popular science magazines similar to Znanie - Sila, Nauka i Zhizn, etc. Such magazines should be spread among the general audience. There's also need for high school lessons and relevant courses at colleges. If we manage to establish the right atmosphere around this issue, things will start ticking.

If we speak about innovations per se or the feasibility of an innovative breakthrough in Russia, I believe it would make sense to take a look at the academic schools in Russia, latest developments at such schools that didn't get any followthrough for some reason. There's no point is blindly pursuing the latest faddish idea, as we'll find ourselves always catching up with something. We need to take a thorough look and see if we have anything that we've put away and forgotten about, which might well constitute a 21st century breakthrough? I am positive that Russia has such things. However, this kind of job is best done by professionals. If it's delegated to people who put together reports about completed research projects, the whole thing would end up in total failure. There are world class experts in every area of knowledge who are in a position to say what was developed and where exactly Russia can make a breakthrough today.

I don't believe, either, that we can achieve concurrent fast modernization if we spread our resources thin across vast numbers of Russian enterprises. Therefore, I believe there must be certain single-point breakthroughs, which will tow everything else in their wake.

I have a very good feeling about the Global Political Forum in Yaroslavl, which was mentioned earlier. It was insanely interesting: A powerful shot of adrenaline, if you will. On my way there, I feared to become part of another pompous, ritualistic function, which I've my fair share of. I'm very pleased indeed that things turned out quite differently. I witnessed a serious conversation about very serious issues and, most importantly, conducted at the highest scientific level.

I attended three panels. I will not mention plenary meetings, the most interesting part of the Forum, but I'd like to emphasize that I was deeply impressed by two panels on modernization and on regional security. Almost each and every speech was a phenomenon and an event in itself.

There Is a Deficiency in Innovation Policies in the World



Igal Erlich – The Yozma Group, Founder, Chairman, Managing Partner

What are the latest changes to innovation policy in the world?

First of all, the last two years there were a lot of talks about innovations. I doubt that there are many changes, but everybody is talking about it because competition became much more severe. There are countries that feel that they cannot compete with products, with manufacturing. The main threat came from the East, from China and India. Maybe, this is what made Western countries to wake up, to understand that they may lose if they don't innovate. So, I have heard many talks about how to increase innovation, how to transfer economy to innovative economy, even here in Yaroslavl, but as for specific programs, I didn't hear much about it.

Also, there are talks about the role of government in this respect. What happens now is that there is a financial crisis which means that there is less money in the business sector, and spending on R&D decreases. And if you want to keep up with the level that was before, the government should intervene.

What are the best and the worst examples of innovation policy in the world?

I didn't see that many new concrete programs. To my mind, the only place where there is progress in innovation policy is Brazil, which is considered to be an emerging market. I don't see anything new in the US, no special program for innovation. In specific European countries, there are programs with money. In the UK, for instance, there are programs that the government did to push more money to the industries. There is a big program of 500 million pounds to establish a fund of funds. In Ireland they have the same program, and there are such programs in France and Germany. Each of these countries is looking to increase the amount of money spend on innovation

What about Israel?

Israel is also in a problem because we don't have a new program. The government now is sitting on the issue. So far, I don't see anything new. The question is always about how much money you want to put into the market and in what way? Israel invests 4.6% of its GDP in R&D. It is a huge number. If you break down the numbers, you will see that out of this 4.6%, 75% is made by the private sector. The most of the burden is on the private sector. What happens when the private sector decreases his part in the investment because

of the financial crises the government has to fill in the gap. It should act now, but not two year after. They really need to decide what to do, how to fill in the gap. They came up with a program which is a very small one. People are not happy with that. Therefore, probably, they will have to change it.

Who proposed this program?

The Ministry of Finance. In Israel the programs are coming from bottom – up, from the people that work in the Government to the Ministers.

What are the peculiarities of Russian innovation system? Is there an innovation system?

The question is how you motivate the people and what means you give them? I don't know how big the motivation in Russia is? In order to be more motivated and more innovative, people should have trust in the government policy. So I think there is a need to change some laws and regulations. Also, you have to feel that they will let you do what you think you should do, and not watching every step you do. This is on the side of the people. On the side of the plans, I think Russia is putting a lot of money in different programs. There is a reason to believe that Russia really will keep up with the program they have.

You have mentioned laws and regulations. In the sphere of venture capital funds, the sphere you are working in, what regulations should be changed?

There are several problems. I think they started to change them. The first one is companys' laws. They are not good enough for venture funds. There is a need to solve the problem with jurisdiction of the companies. There is an understanding that the world is one place. If you want a company to be registered in India and not in Russia, and still work in Russia and get funding from Russian sources, they should enable it. So, if you don't change it, you will have a problem.

You have to look at what the world is doing and, more or less, to be at the same level, because you are competing not only at the local market, but also in the world market. You must have the same rules, and not limitations and restrictions. For instance, intellectual property regulations should be changed. The government understands they need to do that, but bureaucracy, which is another problem on the way of Russia to be global, probably, prevents it.

What are you feelings about the Forum? What ideas you find the most interesting and important?

I think it was very interesting because there were people from other countries saying what their countries did and wether Russia can learn or adopt some of these policies; people from Russia that discussed what should be done, some criticism and some good ideas.

I liked the most, in the panel I participated, the speech of Mr. Gref, who was defending Russia, and what Russia did until today. I think he is right because you cannot be only against, only show the bad things. You need to show the good things that Russia is doing, things which are not being done before. Himself, he was very courageous about starting the venture fund market in Russia. It was an exception at that time. So, I think it was very interesting.

Change Is Possible in Russia



Chris Hayter – Director, Innovation and Sustainability at New York Academy of Sciences

What are the latest changes to innovation policy in the world?

First, there has been a lot of interest in innovation, mostly led by few country-specific examples. And I would define success as a sustained economic growth. In particular, these stories have occurred in a very short period of time – 30-50 years. I would also include the US, but the most rapid growth has been in Asia, first Japan, then Taiwan, Korea, and Singapore, and more recently China and India. Though Israel and Finland have also attracted much attention.

Did the economic crisis influence government's innovation policies?

It brought a sense of urgency. Unemployment is high. And in demorcracies in particular, the people hold the government responsible to some degree. So, many places are desperate to find ways to help their economy grow and the crisis has only strengthened those feelings.

What examples of economic policies in the world you think are the most and the least successful?

I'm a co-author of the innovation report of the New York Academy of Science presented at Yaroslavl. In the report specifically we illuminated several examples, such as Taiwan, Finland, US, India and Israel. But of course, there are other shining examples such as Singapore and Korea. It hasn't attracted as much attention recently but the transformation of Japan for the past 60 years has also been phenomenal. They had some challenges for the past ten years but they are still one of the wealthiest countries in the world. But mostly - Asian countries are good examples with some exception. Most of them have invested heavily in human capital through math, science, and engineering-based applied education. Then they've also been very targeted about the research and development investments. And of course the overall growth and specialization of the world economy created the opportunity for them to find market niches and play a role.

Why are they successful?

Fundamentally, it's about talented people, empowering them and then allowing them to reach their potential. I don't think this is really dependent on nationality, many of these countries such as the U.S. and Singapore are nations of people from many different nations. So, I think it is less about your origin and more about about education. For example, Israel, Finland and every successful Asian country has had two common elements. The other piece is taking that energy and talent created through that education and unleashing it for the economy. And the latter happens primarily through entrepreneurship and the creation and realization of new ideas and products.

How does this relate to Russia?

I've lived in Czech Republic, and I'm familiar with the economies of Eastern Europe in general. Like in Russia, there were communist governments but for a shorter period of time. In Russia the revolution was in 1917 but in many these places communism didn't take hold until much later. Change has been hard there but perhaps not as challenging as it will be in Russia. While Russia must chart its own course, institutions such as universities, standard-setting entities, and laboratories are important. In Eastern Europe (and many of the places we studied), institutional change (or creating new ones) was a critical element of their rapid growth. Russia may face similar challenges.

During the conference many people said, for example, that Russia must do what's in Russian interest. And I think these things like education and entrepreneurship are critical, but these are very general statements. There are at least 120 countries attempting to reform their innovation system. But the real question is whether it will be effective? And I think effectiveness is only dependent on whether it's proper for the context.

There are indeed many talks about innovation. Let's say, there are good ideas, and there is a proper context, what else do we need?

There should be a healthy, entrepreneurial culture. By culture I mean the relationships that are among people. Even in the US, the culture when it comes to innovation differs among regions. For entrepreneurship to flourish, the culture often needs to embrace the new, which is often difficult and seen as bad. For example, if you worked for a company for ten years and made a good salary, you may be very comfortable and your family and your employer would look upon you as a loyal individual. If you left the company to start a new company, you may be looked down upon and certainly there is a risk of failure for your new company but this phenomenon is critical to economic dynamism.

Many people talk about entrepreneurship in California. But the Bay Area of California is special for entrepreneurship not only because a lot of intelligent individuals live there, but also because there is an environment where failure is tolerated, where smart risk is appreciated, and entrepreneurship is seen as a normal thing. And though many, many companies fail, the ones that do succeed become very important, the high-tech U.S. companies that you know today.

What is your general opinion about the Global Policy Forum in Yaroslavl?

The Forum was very good. I really liked the second day. It was an honor to see and hear President Medvedev. But I also thought the discussions were very rich and interesting. It is also interesting that so much change is possible in Russia. It's a very exciting time to be here. Most of all, I enjoyed meeting the people both from Russia and from all over the world who attended the conference. The hospitality was wonderful and it made for a truly memorable experience.

There Are Hundreds of Companies that are Capable of Making a Leap



Alexander Galitsky – Co-Founder of Almaz Capital Partners, member of «Skolkovo» Foundation Council, member of the Board of Directors of Runa Park.

Are you aware of any latest policy developments regarding innovations worldwide?

The most recent world economic crisis, a genuinely global one, which emerged on the crest of the Internet technological revolution, made almost all of the G20 countries take a careful look at the innovative path of their development. For some, this is a way to retain their leadership of many years, for others a way to join the elite Ten or Twenty countries. Production implementation of alternative sources of energy, cloud computing and web 3.0, bio- and nanotechnologies will become the basis of this innovation race for the next fifteen to twenty years.

Living now is extremely interesting. We will witness great changes, including changes in the Top List. However, being a participant is far more exciting. Therefore, we'd like Russia to be more than just another participant, but rather one of the leaders of these processes. To do so, we need to have a clear assessment of our potential, our place in the global innovative system, remain consistent and, most importantly, create an atmosphere and environment for innovations, and practice tolerance with regard to our mistakes and shortcomings.

What can you say about the policy pursued by governments of the countries, whose experiences you are familiar with?

Everybody is looking for their own way. Certainly, the United States is a major benchmark. I'm sure everyone is aware of the road to success followed by the Silicon Valley. However, numerous attempts to copy it directly never resulted in anything even remotely successful. Similar to Singapore, there's no way to use existing recipes for turning any fishing village into an economically and technically thriving city state. Thorough analysis of other countries' experiences allows building proprietary models. For instance, Israel is second only to California in the number of yearly high-tech startups. However, their production implementation takes place in the USA. India is making huge strides toward innovation policy having followed the path of a service Mecca for economically developed countries. China follows in the wake of its Asian neighbors and quickly advances to the leadership position by way of organizing the cutting-edge high-tech and low-tech production.

One thing shared by all these models and approaches is battle for talent. The success of the Silicon Valley itself for the past twenty years, too, is mostly due to talent inflowing from all over the planet.

How is Russia's innovation system different?

During the 1980's I had a chance to oversee the development of major defense projects. During the 1990's, being an independent entrepreneur, I built five successful high-tech companies on both shores of the Atlantic and, over the past ten years, I funded and nurtured about ten start-ups acting as private investor and partner of the Almaz Foundation. Talented Russian engineers and researches provide the link between my past and my present. Often, we think nostalgically about our past, but it's time to get over it. The USSR pursued "innovative policy" geared toward defending its "socialist achievements". There were leading enterprises, indeed. They used to commission jobs for applied research for academies and universities. They had an understanding of industrial needs and accumulated knowledge for innovations, and also provided training to world class specialists.

Things have changed drastically over the past twenty years. World-class companies in Russia can be counted on fingers. Normally, technical capacities are built for the next 15-20 years; however, no new capacity is currently being built in Russia. Science, as a process of knowledge accumulation, fails to perform as expected, although higher schools continually train talented experts in fundamental knowledge. Russia should "re-boot" and Skolkovo may well become such a rebooting tool.

As is known, great ideas, gifted people and developed infrastructure are building blocks of a successful business. To me, science is all about accumulation of knowledge, whereas innovation is a process of turning this knowledge into something useful, which can be measured in money. In addition, modern Russia has unfortunately lost expertise in the first process, and has so far failed to acquire expertise in the second one.

The university and academic science should be oriented toward industrial needs rather than engage in autonomous sailing as it did over the past few decades. This situation can be overcome using the R&D commissioning by industrial leaders as it used to be during the Soviet period and just like it's done in the rest of the world. Instead, universities and academies provide knowledge to society and become the source of innovative ideas, products and services. Most importantly, they train requisite personnel. Those who worked or studied during the Soviet times remember this system quite well. The second issue is harder to tackle, since Russia lacks expertise in building innovation company processes, and there are only isolated instances of success based on enthusiasm of individual entrepreneurs. For example, in the software industry, process engineering and software account for as little as 25%-30% of all expenses involved in building a company and taking it to the breakeven level. The remaining 70%-75% of expenses go into product development and building of business per se. Russia doesn't have enough entrepreneurs who are well-versed in building high-tech companies or specialist with keen understanding of the venture investment mechanisms.

Russia has much money, but little capital. A venture fund with 3 billion rubles normally makes two to three deals a year. Admittedly, even if you add up all the funds managed by the Russian Venture Company, the total will be around 20 -30 companies a year.

On a brighter note, according to our experience, the Russian companies may at least foray the global IT market. The Parallels and Acronis companies, with which Almaz and I are directly related, are a case in point. In 2003, these companies' sales amounted to several million US dollars. Currently, these companies have become leaders on the global market in their respective niches with sales running into hundreds of millions dollars.

During the 1990's, we were effectively building R&D companies and acted as technology suppliers. Today, I'm aware of existence of hundreds of software companies alone that are capable of making the same leap as Parallels did in its own time.

Fast-paced growth of mobile and Internet market and, most importantly, its sheer size, make Russia appealing for European businessmen, since, if provided with decent business environment, they will think twice before venturing overseas. Living away from the loved ones isn't so good, I know it firsthand. Therefore, every effort should be made to make Russia attractive for any high-tech entrepreneur from Russia or Europe.

The availability of industry leaders provides good environment facilitating the implementation of efficient business hatching model during early stages around core business of the leading company. The model is unique in a way that the hatched companies gain access to product knowledge, as well as to marketing channels using those of the leading company. The idea of the RunaPark Hatching Facility and Runa Seed Financing Foundation advanced by Sergey Beloussov, CEO at Parralels, and was backed by the Modernization Commission. Therefore, it will hopefully become a thriving Skolkovo project.

What do you think about the practice of building innovation parks in general and the Skolkovo Project in particular?

Success and faith in the Skolkovo Project is determined by how fast it will be launched. Therefore, its virtual start takes on a special meaning.

Given the current phase of the Internet technology development, the project should be viewed as a cross between physical and virtual models. The physical Skolkovo should become the heart of R&D global corporations, unique labs, target hatching facilities and infrastructure for innovations and commercialization of new ideas, the Russian answer to Sand Hill Road.

Already now, virtual Skolkovo can become the focal point

of joint efforts by university and academic labs operating in Russia's technology parks and hatching facilities, as well as the efforts of individual researchers and engineers both in Russia and abroad. The right conditions and proper motivation come first. It's important to include in the Skolkovo effort the research already underway at the universities conducted with the participation of transnational companies.

Large companies often lack flexibility, and not all talented people are willing to work for major corporations. That's why large companies prefer to work with smaller start-ups. There is need to tie together smart ideas and talent and provide them an opportunity to get a start on new Skolkovo terms. You know, every third company I look at was initiated by people residing in different cities who at times haven't even met each other in real life. That's what the modern world is all about.

Which projects do you see as a basis for the next technological breakthrough? Do you expect such a breakthrough at all?

I am not in a position to cover all areas, however in what goes for the information technologies, I believe that a great technological breakthrough will continue in the area of cloud computing. This will affect hardware, including servers, PCs, telecommunication equipment and information storage devices and, certainly, software, such as operating environment and platform solutions, as well as applications. Above all, it will affect all areas of our everyday life.

I expect significant progress in biotechnologies, especially in biomedicine. Certainly, I believe that nanotechnologies, providing technical basis for all of the above, will undergo transition from the "alchemy" status to real molecular-level control in the near future.

What's your general impression of the Global Policy Forum?

Overall, the impression is good. However, generally speaking this forum isn't for me, I'm not a politician. Nevertheless, the session on modernization left a rather positive impression. It brought together interesting people, mostly politicians, who stood on opposing grounds. We heard the right words about areas of modernization, which sends a message that they know what they were talking about, indeed.

One other thing I'd like to mention is convergence of different thinking and political views on modernization and principles underlying its implementation, as well as on the paths of transformation per se. Well, this covers my main impressions and I believe that yesterday was a day well spent.

Whose speeches did you find particularly relevant and interesting?

I liked in-depth analytical speeches by foreign participants. Obviously, they are analysts and they came with existing materials covering experiences of their respective countries. I can quote many names, but I was particularly impressed by what Anatoly Chubais had to say, his thorough understanding of the issue, and Aneesh Chopra. Arguably, these were two most outstanding men, one of whom was emotional and the other insightful.

Investing in and Building up Research and Innovation Capabilities are Long-term Efforts



Philip Yeo – Special Advisor for Economic Development in the Prime Minister's office, Chairman of Spring Singapore, Former Chairman of A*STAR, a government agency in Singapore focused on conducting scientific research.

What are the most recent changes to innovation policy in Singapore?

Since 2001, Singapore has invested significantly in building up basic and applied research capacities. Starting with embryonic R&D capabilities residing in basic and applied research institutes and the two national universities, Singapore now has a good R&D spectrum of public sector research institutions in the biomedical and physical sciences and engineering institutes of our Agency for Science, Technology and Research (A*STAR), university-based institutes and laboratories, hospitals and academic medical centres, and corporate R&D laboratories.

How efficient Economic Strategies Committee is?

Our joint (public and private sectors) Economic Strategy Committee (ESC) established in 2009 identified four strategies, namely (i) to sustain knowledge creation, (ii) to grow innovation capital, (iii) to attract and develop talent and (iv) to increase GERD (Gross Expenditure in Research & Development) from 3% to 3.5% of GDP.

These underscore the awareness that investing in and building up research and innovation capabilities are long-term efforts. The emphasis on innovation to commercialise research and development is crucial to economic development.

Attracting and developing talent is a key success factor for building a knowledge-based economy. In terms of the number of PhDs (full time establishment, FTE) per 1000 labour force, Singapore lags other R&D intensive economies such as Finland and Sweden. (Finland – 3.6 (2006), Sweden – 3.0 (2005), Singapore – 1.5 (2007)). Today only about 35 percent of the PhDs in our universities are Singaporeans and Permanent Residents. Singapore intends to ensure that a fair share of the nation's talent pool will be in the science and engineering disciplines to address this issue.

The ESC has also focused attention on Productivity and Innovation. Incentive schemes have been introduced, the

most recent being the Productivity and Innovation Credit (PIC). The PIC provides 250% tax deductions for investments in a broad range of activities, including purchase of automation equipment, training, R&D expenditure, intellectual property acquisition and registration and design expenditure.

Initiatives to help Small and Medium Enterprises (SMEs) include the Innovation Voucher Scheme (IVS). SMEs are encouraged to test out their ideas by collaborating with public research institutes. Innovation vouchers support SME innovation projects and for SMEs to secure services from public research laboratories. SMEs can adopt technology to either enhance or develop new products, processes, applications, practices or operations, or result in new technology innovation capabilities being developed e.g. acquiring new technology / upgrading staff through customised training & development courses.

A Technology Enterprise Commercialisation Scheme (TECS) catalyses the formation and growth of technologically innovative start-ups with intellectual property (IP) and scalable business models. By addressing early-stage funding gaps, TECS helps technology start-ups and entrepreneurs in Singapore grow past their embryonic phase, secure third-party funding and achieve growing revenues. It has encouraged commercialisation of public sector R&D, with a significant proportion of supported projects, some 40%, directly involving Intellectual Property developed in the public sector.

What do you think about Russian innovation policy and the Skolkovo project particularly?

Skolkovo should develop its own model, based on the unique strengths of the Russian research and innovation capabilities. The most sustainable competitive advantage that Russia can build is not in bricks and mortars but investing in its own human capital and attracting global talent.

To your mind, what research or technological developments may assure a technological breakthrough in the years to come? Do you think that such a breakthrough will happen?

Bright people are carrying out research globally in many diverse areas. In the biomedical sciences, there are potential areas of breakthrough here, including new treatments for hitherto incurable diseases like cancer and personalised healthcare for people with different genetic makeup. The search for alternative energy sources is another area where a lot of resources have been committed.

There is significant time-lag between the scientific discoveries and development of applied technologies. The existing petroleum-based infrastructure, the ability to find new exploitable sources of petroleum, and the existence of more established alternative energy sources such as nuclear energy, all mean that a new technological breakthrough in energy source will face multiple hurdles before it will become accepted. Similarly in biomedical sciences, the amount of regulatory hurdles for new treatments and drugs is well known. Scientific and technological breakthroughs do not guarantee immediate economic benefit

There is no Such a Thing as a Single Unique National Innovation System for the Whole World



Jomo Sundaram – Assistant Secretary-General for Economic Development in the United Nations, Department of Economic and Social Affairs (DESA).

What are the latest changes to innovation policy in the world?

Firstly, there is no such a thing as a single unique national innovation system for the whole world. For policy purposes, innovations are organized at national level. Sometimes, it is organized at the regional level, especially for big countries, sometimes even at the local level, for example, for major cities. So, there is no single system, and technology development and innovations have been taking place in very different circumstances. There is no single way, there is no single method, there is no single approach, there is no single best practice.

What has to be decided is to develop a system, institutions and policies which are appropriate for a particular country's conditions. For example, Russia has the advantage of having many highly educated people, especially in engineering, mathematics and so on. But many of these people are now of the older generation. As far as the younger generation is concerned, that kind of emphasis seems to have been weakened. All this has to be taken into consideration in developing an appropriate national innovation and technology policy.

Of course, innovation is not just about support for technology development and innovation. It also involves the way people are organized – human resources. It is not just question of education and training, but also involves methods of organization and management of people. And again, you have in Russia many different experiences of how to organize people from the period before and during the Soviet time, and for the last twenty years as well there have also been many different types of experiments. This vast experience of experimentation is very valuable, because in many countries, you don't have this variety of experiences.

This is basically what I'm trying to say: innovation policy ultimately has to be pragmatic, and in order to be

pragmatic, it has to be appropriate. In other words, it has to take into consideration the current situation as well as past experience. But, of course, we want to expand opportunities for the future. That is the major challenge we all face.

What would you call the best and the worst example of innovation policies in the world?

As I said, there is no single best or worst example. For instance, many people don't realize that there has been any innovation policy in the United States or in the United Kingdom. But this is not true. If we look at what governments do, the governments are doing a lot in trying to facilitate innovation. They themselves are also innovating, and it's not true to think that these things are happening spontaneously.

The worst type of innovation policy is to deny the need for innovation policy and to pretend as if these things happen spontaneously, and you don't have to do anything to make it happen. And especially for Russia, which has experienced a huge economic collapse during the 1990s, you have the experience of a shock. Shocks can involve creative destruction but can also result in catastrophic destruction. Unfortunately, what happened in 1990s is closer to catastrophic destruction, not creative destruction. You need to be creative; you have to create the conditions

The worst type of innovation policy is to deny the need for innovation policy and to pretend as if these things happen spontaneously, and you don't have to do

for creativity and innovation. I would say that is dangerous to be dogmatic; in other words, you are inflexible and you presume you know how to do things, and you don't change strategy or course according to the facts. Another danger is to be completely arbitrary; in other words, you let different people do different things without any sense of coordination, without any sense of the need to support successful innovators.

So, these are some bad things. Now, some good things. Innovation is not developed by government in isolation, but is developed after a very careful consideration of the situation and close consultation with the private sector, with private corporations, and with all other actors involved, from the government side as well. You cannot ask government officials to do something which they do not have the resources or the capacity for. A successful innovation policy has to be realistic.

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In what countries do you think cooperation exists?

For example, if you look at the level of investment which is taking place in research and development in countries such as Sweden, Republic of Korea, and Singapore, these are very successful example. It doesn't mean that everything these countries are doing should be done by Russia, because Russian conditions are world. But, ultimately, Russia can only move forward on the basis of what exists in Russia.

To your mind, what exactly exists in Russia?

Vivek Wadhwa from Duke University was talking about how he was so impressed by Russian engineers and mathematicians. He had this stereotyped image, a

nnovation is not developed by government in isolation, but is developed after very careful consideration of the situation and close consultation with the private sector, with private corporations, and with all other actors involved, from the government side as well. You cannot ask government officials to do something which they do not

different, but you can always learn. You don't only learn from success, you also learn from failures. You must learn from failures, not only from your own, but from others' failures, to avoid making those mistakes.

What is your general impression of the Forum? What ideas you think are important?

I was very impressed by the debate and the openness. It was interesting to see Mr. Zuganov and Mr. Chubais sitting at the same table. To me, it is very healthy. It means that there is a hope for the future of Russia to have such healthy discussions. In many countries, such people will not even seat at the same table, and will not talk respectfully to each other, which is essential for building the necessary national consensus for successful national development of modernization strategies.

What ideas you think are crucial for understanding for the officials in Russia?

As I said, there are a lot of things Russia can learn from the rest of the prejudice of the Soviet Union, that Russians are incapable of thinking for themselves, that they are dogmatic, as this is what he presumed about a supposedly totalitarian society. What he found instead was that these engineers and scientists were very intelligent, thinking of many different things, and very innovative. What they couldn't do, according to him, was because they were not familiar with certain practical things such as business practices, management practices, raising finance, etc. But it was not because of lack of ideas, or willingness to explore and openness to new ideas.

<u>INNONEWS</u>

Russian-Kazakhstan Nanotechnology Venture Fund Moves Closer to Founding

RUSNANO, Kazyna Capital Management (Republic of Kazakhstan), VTB Capital, and I2BF Holdings have signed a memorandum of intent to establish the Russian-Kazakhstan Nanotechnology Venture Fund. The fund's target size is \$100 million. RUSNANO and Kazyna Capital Management, anchor investors for the fund, will each contribute \$25 million. VTB Captial and I2BF Holdings will manage the fund's resources. The latter are expected to attract private investments of \$50 million to \$100 million.

The fund, which is being established for ten years, will draw investment resources for promising projects in nanotechnology and the use of nanoindustry products in the Republic of Kazakhstan and the Russian Federation. The projects are expected to involve a broad range of economic sectors. Focus of the fund will be on transferring cuttingedge technology, creating new forms of international collaboration, and stimulating development of financial infrastructure for nanotechnology markets.

Abay Alpamyssov, chairman of the Management Board of Kazyna Capital Management, remarked that developing venture infrastructure is critical to supporting and advancing an innovative environment in Kazakhstan. "The attraction of two highly professional companies in the establishment of the venture fund is an excellent signal for other investors. Fusing different management approaches and technologies will help the management team attract additional investment to achieve targeted capitalization and ensure effective leadership for the fund.

"We have chose management companies that can work effectively in selecting and supporting promising nanotechnology projects in Russia and Kazakhstan. Moreover, they will apply their experience in developing venture projects at the pre-industrial stage to maximize earnings for the fund's investors," said RUSNANO managing director Dmitry Pimkin. "Criteria for choosing projects for investment will be scientific and technical validity and forecasted return on investment."

"VTB Capital is a leader in the Russian venture industry. Our experience in venture financing is considerable. There are currently five venture funds with aggregate value of 5.8 billion rubles under VTB Capital's direction. This year Russian Navigation Technologies, a VTB Capital portfolio company, made the first ever IPO offering in Russia. We believe that VTB Capital's global platform and experience will enable us to realize the potential of the Russian-Kazakh fund," said Aidar Kaliev, head of Venture Investments at VTB Capital.

http://www.rusnano.com/

Copy and They Will Admire You



Dr. Julien Flack – Chief Technology Officer, Dynamic Digital Depth

What are the peculiarities of the innovation system in Australia?

The innovation systems in Australia are largely based on successful programs from the US and the UK. Tried and tested mechanisms such as R&D Tax credits, cooperative research centers and investment funds for new technology form the back bone of the Australian innovation system.

In formulating its innovation policies the government has been mindful of Australia's distinct characteristics. Its population is focused in major coastal cities with a rural population spread over large distances. Historically Australia has been politically aligned with the UK and to a lesser extent, the US. It is now forging strong economic ties with its Asian neighbors whose demand for natural resources continues to grow. Australia is known for its strong minerals and petroleum industries which are both technologically advanced and highly innovative.

Environmental issues such as climate change, food security, water and marine management are increasingly high priorities for Australian innovation policy. The environment also provides unique opportunities. For example, vast unpopulated areas which are relatively free of radio-interference are suitable for innovative space research. The government is supporting the bid to host the world's biggest radio telescope - the Square Kilometer Array (SKA) - on the western coast of Australia.

What are the latest changes to innovation policy in your country?

The Australian Government recently released a policy framework, called "Powering Ideas", to guide the development of Australia's innovation system over the next ten years. The policies cover a wide range of funded initiatives in both the government and business sectors. As a result of these changes Australia now has the most attractive R&D tax environment in the world, according to a recent KPMG report. The government has also committed itself to building an ambitious high speed fibre network that will provide 93% of the population with access speeds of up to 1Gbit/sec. This project, which will be the biggest single infrastructure project ever undertaken in Australia, is estimated to cost AUD \$43B (USD \$39B) and scheduled to take 8 years.

The government looked at all the innovations that happen in Australia and tried to define, first of all, the number of priorities in terms of what innovations should focus on, and, of course, where the government funding should be focused in terms of innovation. During this process they considered all the research and development innovation ideas in other countries, particularly in the UK and the US but also looked at specific environmental, geographic and economic factors that affect Australia in setting those priorities.

So, they looked at a number of different areas and one of the most significant things that came out of this Review is R&D tax credit, which is a mechanism that my company has used quite effectively over the years. A company receives a tax credit in terms of real dollar for R&D activities. For a small R&D company like DDD this have been very effective because let's say if we spend a million dollars on research, then we get 300000 dollars back as a tax credit. The government encourages even small companies invest in research and innovation.

Also, there is an initiative called Clean Business Australia and Green Car Innovation Fund. The first is targeted at companies that have innovations that can save energy, waste, water. The latter invests money in environmentally friendly car technologies. The innovation framework also included funding support to these kind of sectors.

In my opinion the proposed innovation policy framework along with the substantial investments in infrastructure is a significant and positive step forward for innovation in Australia. These initiatives, if successfully implemented, will not only bolster the traditional government R&D organizations but also allow innovative small enterprises to emerge. There is recognition within Australia that the economy is too heavily dependent on the mining sector and initiatives such as the National Broadband Network are a decisive effort to diversify the base of the economy.

Overall, the recent innovation review has been very thorough. There are two areas of policy that may benefit from more investigation: innovation clusters and patent system reform. Innovation clusters are globally recognized as productive environments to incubate and foster new technology. Increasingly policy makers are looking at means to encourage clusters to emerge. For example, South Korea is specifically targeting clusters, in the form of science parks, as a central focus of their innovation policy.

The Australian government perhaps has not focused as much on the concept of innovation clustering and putting new technology in the same place. I think what they are doing is trying to improve individual firms abilities to communicate with each other. There is an initiative they call Enterprise Connect which is about allowing individual firms to work together at elaborating business and academic networks and also bring together technology companies with universities and other technological institutes so that they can share information. Perhaps, what has not happened as much in Australia and happened in countries like South Korea, China and Japan is that particular geographic areas there were assigned to innovation parks or regions where technology companies can base operations. And in these areas companies can have tax breaks or other incentives to move to that area. I think the Australian government is not so much focused on this area but more look at the communication side of cluster in enabling companies to work together by forming networks, virtual networks rather than physically locating businesses next to each other.

The Australian innovation framework does include a commitment to review the patent system and Australia is already involved in assessing the Peer-to-patent process along with other countries such as the US, UK and Japan. Patents have been described as the currency of innovation and it is important to make sure the system is efficient, and effective for small to medium sized enterprises as well as multi-national companies.

What do you think about innovation policy in Russia?

Russia is similar to Australia in respect to the predominance of large companies focused on mining and heavy industry with less focus on high tech and consumer goods. Like Australia, Russian government R&D expenditure is much larger than private R&D investment. Generating a vibrant environment for small innovative companies through intellectual property protection and favorable tax policies are some of the challenges that both Russia and Australia face. Increasingly large venture capitalists are recognizing the significant potential for innovation and growth in Russia and investing in its technology companies.

How does Australian government stimulate traditional resource industries so that they innovate?

There certainly are some parallels between Russia and Australia in terms of dominance of mining technology companies and heavy industries. Obviously, there are a lot of differences as well. But I think there are some parallels. These R&D spending are made more by the government than by the private sector in both countries. The resource industry in Australia is actually very technologically advanced. But as the resources such as, for example, mining stocks in a country continue to be exploited you need new technology to access certain minerals economically viable. A good example is deep oil drilling that happen in the Gulf of Mexico. Now it is more difficult to extract these resources from the environment and we have to use technology. So, innovation is a part of companies' development here in Australia.

In terms of government funding the primary mechanism

is probably the R&D tax concession. Large companies that invests in development of new technologies can claim against this fund and get tax credits for what they do in R&D. There is a number of ways that large mining companies can access funds and they are encouraged to innovative work in terms of the way they operate.

What researches and developments may assure a technological breakthrough in the nearest future? Do you think that such a breakthrough will happen?

The ever increasing computational power of display devices enables more sophisticated video processing algorithms. This evolution is driving the development of a new generation of smart analysis algorithms using techniques like motion analysis and machine learning. This industry is characterized by a steady evolution that will inevitably lead to breakthroughs in the way we perceive and process visual information.

What ideas expressed at the Forum you think are the most important?

The first one was the concept of diversity versus specialization. In the business world, the mantra is to focus on your core business. You have to make sure you do one thing very well. Once you have done it, you may diversify. At the forum we have heard two different viewpoints: one indicating that diversity is the key to a strong economy while other people pointed at building confidence by focusing on areas of natural strength.

The second interesting idea was about copying versus leapfroging. Should you take advice from Israel? Should you look at Finnish system? What strikes me is the evolution of technology innovation in the Asian region. As Japan, Korea and China developed they started by absorbing overseas technologies and building strong foundations before becoming more innovative. The discussion surrounding copying versus leapfrogging and doing something new is interesting. I think you do have, to some extent, copy good ideas from other people before moving beyond that.

The third area of interest related to infrastructure and modernisation. It is important that the infrastructure is closely looked at. I have mentioned before that in terms of infrastructure Australia is constructing a national broad band network for a very high speed fibre communication. Networks are the equivalent of roads for a modern digital economy and I think this is an important challenge for Russia, given its size

Afast internet backbone is a key thing for all nations looking at innovation these days. Not only new technologies but existing technology supply chains in a business process need fast exchange of information. So, having a solid backbone for communication is essential.

I also believe that intellectual property protection is a vital part of technology infrastructure. That was recurring theme at the Forum and is clearly an important area for modernisation. The Forum provided me with a fascinating insight into the challenges and opportunities that Russia faces.

Many People Criticize Skolkovo for Nothing



Piotr Dutkiewicz – Professor at Carleton Univarsity, Director of the Institute of European and Russian Studies, Honorary Professor of Russian Academy of Public Administration.

What are the latest developments regarding innovations worldwide?

The countries that win in the global competition are the ones that think about technologies, which have not so far been implemented. They think about technologies, which will be implemented 15 to 20 years from now. To do so, there's need to establish connections between academic institutions, research and implementation. There is a very close correlation between what is called R&D and the firms and companies that implement new technologies. I have lately been at the Canadian Parameter Institute established by Blackberry. This is the third or maybe fourth, according to certain information, firm engaging in data transmission. Blackberry phone is among their products. This institute hires the best international talent from the area of physics and cutting-edge technologies on a competitive basis and asks them just one question: What is your technology dream? Don't think about the possibilities for implementation. They pay very well, and the researchers think about the best ways to describe and word their technological dreams in such a way as to be able to put them into practice, not today and maybe not even tomorrow. In addition, the Company provides a possibility to develop such concepts and apply the technologies it likes to industry.

Which worldwide innovation policies you believe are the most and the least successful?

If we speak about innovations then most likely it's the United States, Singapore, Finland and Israel where large corporations have close business ties with small firms using what is referred to as venture capital. This is also China, where the role of the government is much greater in introducing innovations. This is India where innovation policy is implemented in part with the help of the government and in part with assistance from business entities. Israel is also a good example, because the role of the government is very balanced. The government provides sponsorship to innovations only if private capital provides its fair share of backing. I believe these six examples are quite interesting for further studying.

In this regard, how would you describe Russia's innovation system? Is there such a system in Russia?

I believe it's in progress. Currently, I don't see such system. There are very good ideas. The Yaroslavl Forum is one of the sites where such ideas are being generated. At least, I can see serious interest on behalf of the state and on behalf of certain industries in adopting such a system. Such innovation system should combine elements of technical innovations, education, institutions, which can provide help and boost the development of such innovations. This system should be supported by banking system, government and special taxation arrangements. All of that should be supported by the bureaucratic system. If these elements are in place and tied together with a certain government policy, then we can talk about a system. What I see in Russia now are isolated elements of such system. They are not connected. Therefore, it's premature to speak of a system.

Skolkovo is also part of this system. For some reason, many people criticize Skolkovo. I don't think we should be so critical about it. Skolkovo is a good example of a site, which can be used for collaborative effort by Russian and foreign talent using Russian and foreign capitals to develop new

Crisis is sometimes a boon, because it changes the way of thinking and forces to be more efficient. Deep crisis

technologies. I don't see anything wrong with it. The problem is with the end use. Who would buy these technologies? How will they be implemented? There is real danger that even if they are developed in Skolkovo, most of the new products might well go outside of Russia, because Russian industry is in a state where cutting-edge technologies can only be used in very narrow economic sectors. The Russians will invent them, and then they will be used by other people who can put them into practice.

Companies spend fortunes on technological innovations and establish research institutes at their production facilities. In its turn, the government provides tax havens for such companies. In your opinion, which countries have implemented this system with particular success?

That'd be China, Taiwan and Singapore, Finland, Israel i.e. countries, which provide tax breaks to all firms engaged in development of cutting-edge technologies. Unfortunately, some other countries lack such arrangements. Sometimes technological developments are being paid for by private

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entrepreneurs. However there are instances when research is supported with government grants rather than tax preferences. Canada is a very good example of such policy. There are different systems. You can help by cutting taxes or do the same thing by providing target grants for such research.

What is more efficient from your point of view?

It's hard to tell. Things work where they work. National context is very cultural specific. That depends on traditions, relationships between private sector and the government, trust level shown by private sector with regard to the government and vice versa.

There are historical examples when an inefficient system became efficient after some time, like Estonia.

This has to do with the innovative nature of a system as a whole. The innovation system enjoys success if the government, science and people wish to become part of this innovation system, because they don't see any alternative to it. There is no alternative for Estonia other than be innovative. In other countries, such as Russia, there is a tempting idea to believe that exports of oil, gas and lumber will take care of everything. Therefore, crisis is sometimes a boon, because it changes the way of thinking and forces to be more efficient. Deep crisis is bad, but a medium-level crisis is quite useful in this sense.

What is your impression of the Global Policy Forum in general and of the modernization panel, in particular?

It was an extremely interesting panel for several reasons. First off, we found out that Mr. Chubais agrees with Mr. Zyuganov on issues of economic development in Russia. I've never thought I'd ever witness such a fundamental agreement between these two men. That tells me that ideology isn't all that important in the development of government economic policy. The conversation between Chubais and Zyuganov demonstrated one important thing: There is a fundamental agreement in that Russia needs modernization. There are differences with regard to the pace and depth of it; there are differences with regard to opening the Russian economy, etc. Certainly, there are differences. But there is a fundamental agreement that we won't be able to get by tomorrow using our proceeds from oil and gas exports.

Secondly, I think that this panel was useful in that it showed that there was need to develop innovation system rather than think about modernization as bringing the latest technologies into Russia.

Thirdly, it was very interesting to listen to what the President had to say and compare it with what was said during the panel. For instance, he emphasized that a free man can think free. This is also part of modernization, also part of innovation and part of new thinking about technologies. This means that political changes are needed for establishing an environment whereby entrepreneurs feel confident and undisturbed, so that they can invest in something that will pay back not today, but much, much later.

Finally, panel participants agreed that government plays a very important role in the national economy. What shape it will take, direct or indirect, in the form of grants or in the form of government purchases, is another issue. The fundamental idea that the government should play a substantial role was supported by Russian and foreign participants. Importantly, Jomo Sundaram, Assistant Secretary-General for Economic Development in the United Nations Department of Economic and Social Affairs, participated in the discussion. This is a man of knowledge who is in a position to run a comparison between several countries and speak from the point of view of comparative analysis regarding Russia's capability or incapability to modernize. There was a very important discussion covering this issue, too.

INNONEWS

RUSNANO, EDB and 360ip to Launch Asian Nanotechnology Fund

Singapore and Moscow, September 28, 2010 – The Russian Corporation of Nanotechnology (RUSNANO), Singapore Economic Development Board (EDB) and 360ip, an international intellectual property investment and fund management firm headquartered in Singapore, announced plans to collaborate in the development of nanotechnology projects.

A memorandum of understanding for the establishment of the Asian Nanotechnology Fund was signed by RUSNANO CEO Anatoly Chubais, EDB Deputy Managing Director Tan Choon Sian and 360ip President and CEO Glenn Kline.

The fund will have a target capitalization of US\$100 million of which RUSNANO and 360ip will each raise US\$50 million. EDB will additionally support Singaporebased business of the fund's portfolio companies with grants aggregating to US\$20 million. No less than 50 percent of the fund will be invested in the Fund's Russia-based projects.

The fund will concentrate on innovative investment opportunities that can leverage the strengths of Russia and Singapore. The fund will help its portfolio companies grow and be more competitive in the areas of nanotechnology research, commercialization and production.

"By establishing the Asian Nanotechnology Fund, we are creating a bilateral mechanism for more rapid commercialization of advanced products and solutions developed across Russia, Singapore and Asia. Our strategic partnership with 360ip and the Singapore Economic Development Board will also grow the research and development of nanotechnology in Russia and promote Russian technology in the international market," said RUSNANO Managing Director Georgy Kolpachev.

"Nanotechnology is a major growth sector worldwide and a key driver for creating significant market impact. In close cooperation with RUSNANO and the EDB, 360ip looks forward to taking an active role in developing high growth nanotechnology companies that can generate strong returns for the fund's investors," said 360ip President and CEO Glenn Kline.

www.edb.gov.sg

It's Just Several Years Ago that Innovations Became so Popular



Samuel Guimaraes – Minister of Strategic Affairs of Brazil

What are the latest changes to innovation policy in the world?

Unlike several years ago, today, there is a consciousness that innovation is a real basis for economic growth of developing countries and developed countries. There is a consciousness that the role of the state has to be performed in very advanced areas, and very risky areas. And it has been performed by the state traditionally.

This consciousness is very strong in developed countries like the US, Great Britain, France. But countries like China, Russia, Brazil and other countries are latecomers. They have to have this consciousness and have to make a big effort in the field of science, technology, and innovation. And this depends very much on the role of the state. Like in the case of science, it depends on what the state does in relation to the universities, technological institutes and laboratories. Business isn't interested in these things because research and pure science are not profitable. I think the role of the state is quite big in the field of nanotechnology, information technology, biotechnology, space research, etc.

What are the best and the worst examples of innovation policies in the world?

The United States has been very successful in attracting people from all over the world. They had very important policy in relation to immigration of highly qualified people. Like in the past, I will give you two examples. In the end of the WWII, they would recruit German scientists to work in the US, and didn't pay much attention to the ideological issues. They just knew that those people were highly qualified. And after the collapse of the Soviet Union many Russian scientists went to the US. So, they have an environment that attracts highly qualified people, while other countries are less successful.

How successful Brazil is in the sphere of innovation?

We have a very interesting experience because Brazil have important role of the state in many fields such as oil,

mining, transportation, agriculture, etc. We have second largest company in the world in the field of mining, and we have large food exports, which is due to a research in the agriculture field and biotechnology.

Are there any new initiatives of the Brazilian governments in the sphere of innovations?

We are linking in terms of new projects the obligation of the companies. For instance, there is a new project to build a high speed train between Rio and San Paulo which is around six hundred kilometers. One of the requirements for the companies to participate is that they have to transfer technology. They have to build a research center and transfer technology effectively, to develop local production and local markets.

We are going to need a large number of platforms to exploit new oil reserves that have been discovered recently. We are going to have built around 240 large platforms in Brazil, and have to have a certain percentage of Brazilian companies. This forces the transfer of technology, and the companies have to know how to do it. Technology is not in the air, it is embedded in the machines. It is like as if you have a novel in your mind – until you write it down, it exists only for you and doesn't exist for the society.

Also, you need investments, because if you don't have the investments, all the efforts in the sphere of education and training of the engineers are useless. If you don't have investments, those engineers don't have work.

Yet, there is a difference between technological invention and innovation.

Technology is knowledge, while innovation is a knowledge transformed into something in the productive process. Innovation is physical; it is embedded into the production.

What is your general impression of this Forum? What thoughts and ideas expressed during the Forum seem important to you?

I think this is a very interesting exchange of ideas, bringing people from all over the world to present their opinions. I think that's very important.

There were people that emphasized the question of culture environment. If you want to increase production, increase efficiency, you have to have more engineers, not diplomats. For instance, I don't know how to do a machine. You have to value this culturally, in society. If you emphasize the value hockey players and models, this won't take you far. You have to have a certain balance, and stimulate young children to move in certain direction.

For the First Time Ever Things are Being Done the Right Way



Ilya Ponomarev – Deputy of the State Duma of the Russian Federation, Chairman of Hi-Tech Development Subcommittee.

What are the latest developments in the government policy regarding innovations worldwide?

The way I see it we are witnessing an absolutely obvious venture financing crisis: the investors are moved closer to increasingly later phases. Therefore, raising money for the start-ups is becoming more of a hassle. It's not that much pronounced in IT industry as it is in biotechnological projects and other capital-intensive technologies.

On the other hand, I believe, the innovation process will become more democratic and more people will become involved in it. A great number of the world's regions engage in innovative development today. Many universities participate in it in such countries with established innovation traditions as the United States. Such schools as MIT or Stanford University, where many students engage in innovative research, are the leaders of the innovation process there. In other words, the democratization in underway, but eventually it exacerbates the problem of start-up capital.

What is the investment crisis due to? Is it related to the global financial crisis or are there any other reasons for it?

The global financial crisis gave it a spur, but this is also an objective process due to low investment payback of the venture funds over the past few years. There's a lot of scum on this market generated by the bubbles formed during 2000's. The market is flooded by insufficiently qualified managing companies, which reduced profitability of the venture business. Lower returns caused investors come up with higher requirements toward managing companies and they retaliated by switching financing to less risky projects, including projects at more mature phases. When investors ran out of money due to financial crisis then, accordingly, the investment risk assessment guidelines tightened even more.

At the turn of the century we had an Internet technology crisis, and we saw it again during 2007 – 2008. It was secondary in comparison with the real estate market boom, but it was there.

How is the innovation policy different in Russia?

It's different, because there's no such thing as innovation policy in Russia. Russia hasn't made up its mind yet. They are making an attempt to flood the market with money, but I think it will only cause destruction. Lack of money is not Russia's main problem. Yes, we do have insufficient funding of research, but we do not run short of funds for innovation. We have a problem with lack of good ways to invest money. We should work with innovators and help them see projects to a phase when they are ready for investment. We need investors who would be fully aware of what venture financing is all about. So far, we don't have any. Personally, I think that the amount of funds invested in development of innovations is excessive. The issue is about how to spend them?

Are you aware of the latest government initiatives regarding tax regulations of innovation activities?

The Skolkovo Project is based on a territorial principle, which allows solving tax issues of most Russian hitech companies at the expense of their accreditation with Skolkovo regardless of their location. In addition to that, there is an initiative by Fedorov in pursuance of the presidential instruction to introduce a special taxation regime for innovation companies. The Finance Ministry took a while to consider it, but things have made good progress since then. Overall, the Skolkovo initiative addressed this issue to a great extent.

With regard to this initiative, when will this law be adopted?

Approximately, on the first of January. Today, September 23, the law will go through its third reading, and will become enacted on January 1.

What do you think about Skolkovo Project?

I am an active participant in this project, so my thoughts are quite positive. I think that for the first time ever things are being done the right way. Certainly, there are shortcomings. But overall things are done well. I have rather great expectations for it.

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Which areas in Russia are most promising for development in your view?

Speaking of Russia, I would bet on energy sources in the widest sense of the term. I'm referring to conventional power engineering industry, oil and gas industry and all possible things going in geophysics, geology, mineralogy, as well as alternate sources of energy and energy saving, and thermonuclear power engineering. Russia has an established market for all these areas as opposed to other ones. There is technological know-how in place. This is one of the most talked-about topics in the world. Therefore, foreign investment can be drawn without much effort. However, Russia is trying to use energy resources as a geopolitical weapon rather than

kickoff impulse. From my standpoint, Russia's main task is to nurture the start-ups with global perspective and use them for increasing the volume of Russia's domestic orders.

How can the number of start-ups be increased?

People are the biggest issue. The goal is to develop the human capacity. We need to set up various on-site training arrangements, work with the Russian diaspora, develop education and invest in training people.

What is your impression of the Global Policy Forum at Yaroslavl?

The Global Policy Forum held in Yaroslavl addressed two main

However, Russia is trying to use energy resources as a geopolitical weapon rather than focus on innovations. We cannot forget about our math schools, either. We have great numbers of quality programmers. This area has already been developed quite well, and it will

focus on innovations. We cannot forget about our math schools, either. We have great numbers of quality programmers. This area has already been developed quite well, and it will continue developing.

However, I think that the problem is not about technology. Demand will be for things that'll be in demand. The question is about what's driving the innovation development. Is it large companies or small ones? Is it major companies or the government? Is it domestic or foreign demand? Is it investment funds or government orders? I am deeply convinced that domestic demand in Russia on behalf of industrial enterprises is not sufficient. There are objective reasons for that. This cannot be dealt with overnight. This is typical of all countries, which engaged in innovative activities at all times. Government orders rather than big business would provide the

issues: innovations, and politics, and democracy. I have an ambiguous feeling. I think that the innovation part was very successful, whereas the results of political discussions are quite uncertain to me.

What ideas regarding innovations did you find particularly important and interesting?

I can't say that I heard anything novel. It's a rare occasion when you hear revolutionary ideas during the forums. Rather, we need forums to get us on the same page. I was really happy when I saw that positions got closer during the discussions. From all sides, people were saying the same things, including people who adhere to different economic ideologies. This is very important.

<u>INNONEWS</u>

Russian Venture Company (OJSC) became an official partner of the annual MassChallenge Global Startup Competition, taking place in Boston (USA) from April to October 2010.

The aim of the competition is to accelerate the development and success of highgrowth, high-impact new businesses, while stimulating job creation and economic growth around the world. The awards, totaling \$1 million will be distributed between the winners after the final stage on October 15 in Boston. The key goal of the Russian Venture Company during MassChallenge is to form a steady positive attitude towards Russian innovativetechnology companies on the global market.

"Our official partnership with MassChallenge is of key importance as such initiatives have great social value" – comments Igor Agamirzyan, CEO of the Russian Venture Company, - For RVC, as a development institution, social activity aimed at creating and developing a class of successful technological entrepreneurs in the sphere of innovation is a direct responsibility.

"Massachusetts is excited to be working in collaboration with international partners to increase opportunities here in the Commonwealth," said Greg Bialecki, the Massachusetts Secretary of Housing and Economic Development. "The MassChallenge competition is a great place to be strengthening these relationships and we are excited to be working on this initiative with partners like the Russian Venture Company to support entrepreneurship and job growth here in Massachusetts."

A total of 446 startups entered the MassChallenge competition, with a diverse set of ideas from across the world. The competition is currently conducting activities across Massachusetts where innovation resources are most concentrated. MassChallenge is now in its accelerator phase with 110 finalist teams working from luxury office space on Boston's waterfront to maximize networking and mentorship opportunities.

Awards totaling \$1 million will be allocated to the winning teams at the end of October 2010. MassChallenge will continue to raise additional funds throughout the competition, and in mid-October, an expert panel will identify a dozen or more teams as winners. The Commonwealth has already pledged over \$500,000 to MassChallenge via the collaboration of various quasigovernmental organizations dedicated to bolstering entrepreneurship and innovation. Additional funding and support have been secured from multiple sources including Microsoft, the Blackstone Charitable Foundation, the Deshpande Foundation, Mass Tech Collaborative, The Fallon Company and the Winvest Group.

INNOVATION TRENDS

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