

From Russia with Software

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Overview

For me, as for the one who spent over 10 years in the industry and now manages one of the most known Russian software R&D outsourcing companies, the high level of the Russian software industry, all its specifics, up- and downsides – all that look obvious and natural. However, when given the opportunity to convey some part of this insider's knowledge to the readers of 'Programmer' I realized that it is not a simple task. In this article I'll do my best to give some basic idea of what the Russian software industry is, how it started, how it is structured internally, how it differs from other regions of the world, and what's its place in the global software development process.

The way, in which something starts, often defines its future for many generations ahead. The Russian software tradition started long ago – back in the years of the Soviet Union – with science-intensive tasks. The first computing center in the USSR was established in 1955 on the basis of the largest Russian university – the Lomonosov Moscow State University – and for long remained the leading national computing research institution. The first software systems were developed for such areas as meteorology, unmanned and manned space programs, aerodynamics, electrodynamic, structural analysis, mathematical economics, etc. There were significant achievements in the theory of numerical analysis and programming. Later, special 'science towns' were founded in different parts of the country (for example, Zelenograd near Moscow, or Akademgorodok – the "academic town" near Novosibirsk); with elaborate scientific campuses, serving as outposts for the most advanced technologies and ideas of that age.

As the USSR ceased to exist, the leading role in the IT arena was inherited by the first commercial software companies. They often had scientific roots, though. A good example of that direct inheritance is the company I manage – Auriga, which became the first private company that started providing software R&D services to the customers from the U.S. and Western Europe. It was founded in 1990 by Dr.

Alexis Sukharev, professor of Moscow State University, and has gathered many graduates of that famous Russian college to work on developing new software products for its customers. Due to his contribution to the development of the Russian IT services industry, Dr. Sukharev has been called a "Godfather of the Russian outsourcing" by The New York Times.

A bit later – in early 1990-s – the Russian IT and software industry experienced intensive growth, when a number of young product and IT services companies has been started. Nowadays, many vendors started at that period, are well known to the users of computer software. To name a few, such Russian brands as ABBYY, Kaspersky Labs, Paragon Software has been launched in early 90-s.

The second part of the software industry – software services – has its specifics, and, in a number of ways, differs from what is typical for, say, India or China. The first thing to mention is that Russian companies that now provide software-related IT services mainly fall into the two major categories based on their origin.

The first category consists of large system integrators that started as IT hardware resellers focused on the internal market. And it was not until they had established stable hardware distribution channels, after many years of doing business in Russia, that they gradually started offering IT services, and then at some point software development, to their clients. Even with the R&D outsourcing boom of the 21st century, such IT services majors use their newly created software R&D daughter companies (usually operating under a differing brand, not associated with the parent company) only as a way to diversify their business, being primarily focused on system integration, consulting, and hardware distribution.

The second category consists of the companies that decided to focus on the software development services for Western clients from the very start. This group also includes a number of 'old-timers' dating back to the 1990s: Auriga, EPAM Systems, Mera Networks, Rekssoft, Starsoft Development Labs (by now acquired by Exigen Services), VDI (by now acquired by EPAM), etc. Such service companies targeted USA and Western Europe, with Germany (and German speaking countries) and Scandinavia as the primary focus.

Not surprisingly, by the end of 1990-s the leaders of the quickly maturing software community formed a core for several industry associations. One example is RUSSOFT – an association of leading companies working in the field of software development, with members from Russia and some former USSR republics. Established in St-Petersburg on September 9th 1999 as the consortium "Fort-Ross", the organization changed its name to RUSSOFT in September 2004, after having merged successfully with the National Software Development Association (NSDA). At present the association unites more than 80 companies with 7000+ of highly qualified software engineers and positions itself as a voice of the Russian IT outsourcing industry.

The Russian software industry has been growing together with the overall Russian economy. Prior to the ongoing global economic crisis, the Russian economy as a whole had nine straight years of growth, averaging 7% annually, with a 7.7% GDP growth in 2007. The IT sector in the same period was growing at a much higher rate of over 20% achieving 27%, while the software segment grew 63% in 2007. This process of increasing the importance of the software sector has been definitely affected in 2008 by the crisis. But that's only a stop on the road to making the software industry one of the most important sectors in the Russian economy.

The current high priority of the Russian government to promote diversification, develop competitive industries outside the resource sectors, and cultivate a knowledge-based or "innovation" economy is therefore both understandable and commendable. The government has been developing a series of programs and policies aimed at achieving competitive high-tech industries and igniting the innovation economy. This strategy consists primarily of selective interventions by the government to promote particular sectors of the economy or geographical areas, including special economic zones, IT parks, state venture funds, a state development bank, tax incentives, training programs, export promotion, and direct government

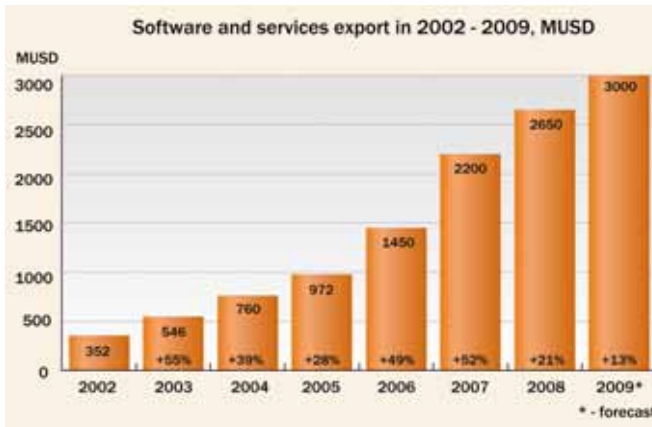
participation in some sectors of the economy

Building a new knowledge economy was declared #1 priority by both former President Putin and President Medvedev. Supported by huge state financial resources of over \$600 billion, a number of programs have been initiated in recent years. A good example is a hi-tech parks initiative launched by President Putin in 2005. Federal Task Force was established in 2006; construction began in 2007 and is to be completed in 2010. The initiative involves \$1.1 billion of public and estimated \$7 billion of private funding. Each of hi-tech parks is 40 to 100 hectares of land, 100,000 to 200,000 square meters of office space and 250,000 to 350,000 square meters of residential space, production facilities, social infrastructure, and a major education or R&D center. Success of such programs will be the best way to promote Russia as an outsourcing destination for knowledge based high-end tasks

The major roadblock to Russia becoming a leader in IT is the lack of tax and customs incentives for the IT industry. Even though there were many attempts to introduce new laws, most of them proved to be insufficient, flawed, or simply failed. The major problem is the so called Unified Social Tax, which imposes equally high salary taxes on the employers in the oil industry, where salaries are only a fraction of the production costs, and IT, where salaries account for more than 50% of the costs. We expect the situation to improve in 2010 due to the new law that recently passed the first reading in the State Duma that gives additional preferences to the software companies.

In the structure of the Russian software industry, export of services and products plays an important role. Since the most part of my personal career and experience has been devoted to software R&D outsourcing, I'll give the export segment a closer look.

From 2002 to nowadays the turnover from exporting the software grew almost 10 times, and in 2008 constituted \$2.65 Bln, or about of 50% of the total Russian IT industry. Unfortunately, due to the ongoing global crisis the growth of the software export in 2008 was only 21% compared to the compound annual growth rate of over 44% experienced between 2002 and 2007. Nevertheless, the industry continues to climb up, expecting some growth even in the tough 2009 and then restoration to the pre-crisis growth rate after 2010.



Of course, this is far from making Russia a dominant player on the global software market. The expenses on software in 2009 are estimated to be in the range from \$222.6 billion (Gartner) to \$388 billion (Forrester Research). The estimated Russian share, including both the domestic and export markets, is only 1.5-2.5%. The real potential of Russian software development companies and the professional level of software engineers should lead to a much better global position. To see how the specifics of the Russian software industry can help or prevent Russia from increasing its market share let's dig deeper into the structure of the export segment of the industry.



This segment is based on the three main pillars. The smallest of them – giving about 15% of the software export – is the development centers of international companies, scientific and research institutions. Several dozen of the largest Western companies have already founded their own software development centers in Russia. Among them Alcatel, Borland, Chrysler, Dell, Ericsson, Google, Hewlett-Packard, Huawei, Intel, LG Softlab, Motorola, Samsung Research Center, Siemens, Sun Microsystems, Teleca, T-Systems and others. They found in Russia the qualities that Rod Adkins, VP of Worldwide Development of IBM, summarized in the following way: "The Russian Federation

offers a favorable economic environment, highly trained technical workers and excellent educational institutions." Shane Robison, Executive VP, CSO and CTO of HP shares the same opinion: "Russia's high growth and depth of technology talent make it an exciting location to expand HP's global research capabilities."

And thus, despite of the global economy problems, recent surveys show that the investment prospects of Russian IT industry continue to remain relatively high. According to the reports of the leading newspapers and magazines, at least 50 per cent of the world's largest companies outsource software development to Russia. Over the recent 9 months, the intention to invest in the Russian software development industry has been announced by Microsoft, Cisco (in alliance with UFG), Sun Microsystems and others. The proposed investing volume ranges from 10 million USD to 300 million USD.

The second pillar of the Russian software export is the product vendors. Their share in the overall export of software from Russia is about 30%. There are a number of very strong global niche players in this segment, including Parallels with their virtualization software, ABBYY with electronic dictionaries and text recognition products, Kaspersky Labs with antivirus products, Speech Technology Center with voice recognition, Transas with ship control and navigation systems, and many others. As clearly seen even from this short list, Russian software products get worldwide recognition in the areas that require certain mathematical and scientific background and algorithms optimization.

The third pillar is the providers of the software services, which bring more than 50% of Russian software export. Their success on the global market is largely based on the qualities captured in the famous saying of Steve Chase, President of Intel/Russia: "If you have something tough, give it to the Americans. If you have something difficult, give it to the Indians. If you have something impossible, give it to the Russians." Following the general trend of focusing on complex computations and scientific-intensive software, supported by the entire history of Russian software industry, for many of the service providers the high-tech customers – producers of proprietary sophisticated technologies and software products – are among traditional favorites and strategic priorities.

Back in 2003, Aberdeen Group research discovered that 67% of the customers of Russian IT service providers are

themselves companies from the IT industry, including 41% of ISVs. According to that research, Russian “engineers and software developers are most often involved in core application development projects, project planning, requirements gathering & analysis and specification design activities, which is particularly noteworthy given that these life cycle activities are not typically associated with software offshore outsourcing”. In two words, if you have a high-tech product of your own and consider outsourcing some product development tasks the best thing you can do is outsourcing to Russia.

To understand that phenomenon, one should remember that Russian IT potential is rooted in world-class R&D traditions, supported by the large number of scientists, mathematicians, engineers, and other IT specialists. These people have ‘genetic memory’ of handling complicated R&D projects and have inherited creativity and ability for engineering innovations from the Soviet-era educational system. Russia’s competitive advantage is its high quality education and training, with focus on deep fundamental knowledge, which prepares our IT graduates for technological change and learning new technical skills when needed, rather than just being proficient in the “skill of the day”.

At present, the development of intellectual potential to support that superior position in product development capabilities is among top-priority tasks for Russia. IT experts worldwide conclude that “despite the high level of scientific education in Russia” it is essential “to bring together theory and cutting-edge technologies, as sometimes conventional teaching methods get in the way”. Education is the foundation of the economic development and prosperous community. Improving quality of Russian IT education, bringing national standards in accordance with the global benchmarks, improving teaching, and increasing access to technology in education are the directions in which Russia applies its forces. And this is a very difficult task.

And despite all the difficulties, Russia continues to be a pool of superb talented specialists with superior engineering and scientific skills, capable of and enjoying solving complex problems. This fact is supported by the results of the ACM International Collegiate Programming Contest (ICPC) - a global tournament among programming teams from leading universities that we are also proud to co-sponsor.

ACM International Collegiate Programming Contest



- This year: **7,109** teams representing **1,838** universities from **88** countries on **6** continents
- **2009**: world champion, **3** of **4** gold medals, **4** of **13** total medals
- **2008**: world champion, **2** of **4** gold medals, **5** of **12** total medals
- **2000-2007**: **4** times world champion, multiple other medals

And thus, despite of the global economy problems, recent Regarding ICPC, 2009 became yet another triumph year for Russian university students - the St. Petersburg Institute of Fine Mechanics and Optics defended their title and won their third world championship. And in total, Russia won three out of four gold medals, and one silver medal.

The results of this year follow the trend set by the Russian colleges over the several previous years. For example, in 2008, Russian teams brought home from the ICPC World Finals five out of twelve medals (2 gold, 1 silver and 2 bronze). In 2007, the Russian teams won four medals. In total, in 2000-2007, Russia became the world champion four times. Among the medalists for the last 3 years we see 8 different student teams from Moscow, St. Petersburg, Saratov, Izhevsk, Petrozavodsk, Altai, and Novosibirsk.

It is good to realize that in this aspect China and Russia go hand-in-hand. The majority of winners of such competitions are either from Russia or from China, and the competition from the Chinese participants grows every year.

Russian programmers also participate and win prizes in other global programming contests. It is worth noting the Imagine Cup, - organized by Microsoft, - that encourages young people to apply their imagination, their passion and their creativity to technology innovations that can make a difference in the world today. In 2009 the Russian team took the second place in the category with most competition –Software Design; in 2008 the Russian teams won The Engineering Excellence Achievement Award and the first prize in the Project Hoshimi Programming Battle. Various Russian teams became the Imagine Cup World Champions in the previous years in the Software Design

Invitational category. As another example, programmers from Russia are ranked high, including winning 1st and 3rd places in Google Code Jam – a coding competition in which professional and student programmers are asked to solve complex algorithmic challenges in a limited amount of time.

Constantly fueled by the talented students, Russian labor pool has significant potential. According to Frost & Sullivan, Russia occupies the first place in the world in the number software analysts and developers per 1000 people, and the 3rd place in the world in the number of scientists and engineers, far ahead of India and China. Russia has the largest amount of science students among the total number of students according to UNESCO and Federal Statistical Office of Germany.

And still – one of the key challenges of the Russian software industry is the growing competition for IT talent. In 2007 the IT labor pool in Russia was about 1 million vs. 1.5 million needed. During the economic crisis the tension in the Russian labor pool has significantly decreased. As many CEOs have noted, the crisis consolidated and balanced the labor pool that is now driven by the demand, not the supply. However, there are reasons to predict that the lack of the IT specialists will be a problem again, once the IT industry starts to recuperate and grow after the crisis. This is especially likely if the Russian industry starts increasing its share in the world software market.

Returning to the place and potential of Russia on the global market, there is one area where Russia is naturally very strong – software R&D and software product development, especially for the products that require complex computation and science-intensive software development on the basis of deep academic knowledge.

Thanks to that, Russia has an excellent chance of becoming a global software R&D hub of excellence. Tom Kilroy, General Manager of Intel Digital Enterprise Group, speaking in Hyderabad at a conference entitled ‘Intel Innovation: China, Russia and India’, emphasized Russia’s ‘software development innovation’, as compared with China’s ‘marketing innovation’ and India’s ‘silicon design excellence’. He described Russian engineers as ‘exceptional problem solvers and software developers, extremely strong on the fundamentals (mathematics and sciences), who want a problem to solve, not a spec’. He said they were ‘unmatched in the industry’. And this understanding is shared by many researches of the IT industry.

Some believe that this orientation on software R&D is a limitation of Russia in the competition with the global IT outsourcing superpowers, such as India. But in my opinion, this naturally focused strength is rather a good seed for the growth, since it would be hard to take this niche away from Russia, and further development can be based on this firm base. The question is how to use this strength properly.

First, the national industry clearly needs a more aggressive and systematic approach to distributing the knowledge about the huge experience and potential of the country in its niche. There is a lot of interest in outsourcing product development and R&D. But the fact, that Russia is, probably, the best destination for such tasks, is not well-known to all potential customers yet. For example, the recent worldwide list of top 20 ‘Global R&D Service Providers’ by Zinnov Management Consulting contained only one company from Russia. It was Auriga, and while I’m proud of such recognition of our 20 years of experience in that field, getting only a single company in that list is not an adequate representation of the Russia’s actual strength.

Another important thing is exploiting some secondary strong points of the Russian industry. In 2007, differentiating Russia from other offshore locations, IDC stressed a number of “soft skills” that make it a good destination for offshore outsourcing. Among the strong points for the US and EU customers, IDC named such things as closer cultural fit, similar work ethic, clear understanding of business issues and proficiency in English and European languages. Benefitting from the longest experience of our company, we have realized the importance of these “soft skills” and made the cultivation of those skills a strategic priority long ago. Nowadays, as the overall Russian industry rapidly matures, more and more companies start turning this natural advantage into a winning strategy. Service providers look beyond the technological experience, concentrating on flexibility in engagement and delivery approaches, integrity, cultural proximity, orientation on customer business goals rather than blindly following the specs, and other similar things. If played wisely, these “soft skills” may become the winning card for the Russian software services industry.

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