

Higher Education in Russia: How to Overcome the Soviet Heritage?



Boris Saltykov

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IFRI

27 RUE DE LA PROCESSION
75740 PARIS CEDEX 15 – FRANCE
TEL. : 33 (0)1 40 61 60 00
FAX : 33 (0)1 40 61 60 60
E-MAIL : ifri@ifri.org

IFRI-Bruxelles

RUE MARIE-THERESE, 21
1000 BRUXELLES
TEL. : 32(2) 238 51 10
FAX : 32 (2) 238 51 15
E-MAIL : info.eurifri@ifri.org

WEBSITE : www.ifri.org

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Author

Boris Saltykov is President of the non-profit association “Russian House for International Technological Cooperation” and a professor in the Department for the Management of Science and Innovations at the State University—Higher School of Economics (SU HSE). From 1991 to 1996, he was the Minister for Science and Technical Policy (from 1992 to 1993—with Deputy Prime Minister status). In his post as Minister, he took the lead in reforming Russian science, creating state science and innovation foundations. After leaving government, he was a member of the executive committee at the Open Society Institute (Soros Foundation) for several years, where he directed the program for constructing Internet centers in Russian universities. Since 2003, he has been a trustee of the British charitable foundation, the Oxford Russia Fund, which supports Russian humanitarian education.

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Summary

Russia's higher education (HE) reform, begun 15 years ago, was intended to provide a response to the challenges of the new post-industrial, high-tech economic development model. During the course of the reform, many of the negative features inherited from the Soviet period (ideologization, complete state-ownership of assets, excessive centralization of decision-making) were overcome. However, many characteristics of the Soviet system have turned out to be highly resilient, right up to today: the separation of science and education, the socio-humanitarian science sector remaining behind the natural and technical sciences, and the gap between the "elitist" and the "mass" segments. In the initial stages, the problems of reform were forced into the background, behind the much more acute problem of survival. The real window of opportunity did not appear until the start of Vladimir Putin's second term as president, when favorable economic (potential to increase budget financing) and political (consolidation of the team of reformers) conditions were created.

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Introduction

The problems of reforming the system of higher education (HE) in Russia have been debated by Russian experts and society for more than 15 years, since the collapse of the USSR and the beginning of the transition to a free market economy. Many people in Russia, including professionals, are still convinced that the USSR built the world's best system of education, which enabled the nuclear project to be implemented and achieved the first space flight.¹ Nevertheless, opponents protest that this system met the requirements of a traditional "industrialized" society and centralized, planned national economy, but did not satisfy the needs of an open and innovative market system.

The current system has, indeed, coped with many historical challenges. Since the Revolution of 1917, secondary education in Russia, where 70% of the population was illiterate, has been compulsory and free for all, regardless of the social position of the individual. It has formed a base for the human capital assets that are essential for creating a new fully-fledged system of higher education, for which a strong demand arose at the start of the 1930s. The conditions of a centrally-planned economy prompted the decision to pursue the forced industrialization of the country, essentially by means of importing foreign technology, by purchasing both licenses as well as off-the-shelf equipment and entire factories. To put such a strategy into practice, the country required a huge number of engineers capable of mastering and managing the new technological systems.

Aware of this demand, the government used the budget to ensure an unprecedented rate of expansion in higher education establishments (HEE), primarily technical institutes geared towards the industrial sectors new to Russia—automotive, chemical, machine-building and so on. As a result, the number of HEE in the USSR grew nearly five times by 1932. The student body experienced equally rapid growth, having expanded five times by 1940. During these years, the secondary technical education sector

Translated from Russian by Jennifer Northup.

¹ In 2007, one third of those questioned (1,500 people selected from 44 regions of Russia) believed that the level of higher education in Russia corresponded to the global standard (28%) or exceeded it (7%), but 41% were convinced that Russian education was below the international level (23% of respondents found it difficult to give an estimate). Survey by the Public Opinion Foundation (FOM), 25 January 2007, available in Russian at: <bd.fom.ru/report/cat/cult/edu_edu/high_education/d070421>.

grew almost as quickly, with the number of schools exceeding 3,000 in 1940.²

The final stage in forming a national system of education (NSE)³ in the USSR is to examine the “golden age” of Soviet science. The creation of its “modern face” began at the same time as the development of the atomic bomb project (late 40s and early 50s) and reached its peak during the 1960s when the USSR achieved the greatest success in the space race. Both of these huge projects, nuclear and space, required a transition from the traditional “industrial” economic models, in which the brand new, science-driven industrial sectors had to play a defining role. The development and operation of the fundamentally new technical and technological systems demanded a new class of scientists and engineers. They had to be specialists with extensive training in the field of natural sciences (physics, mathematics, and so on) as well as the ability to design effective technical and technological systems. At the start of the 1950s, a new type of HEE was founded by a group of scientists headed by a Nobel prizewinner, the physicist Peter Kapitza—the Moscow Physical Technical Institute (MPhTI, or Moscow “Phystech”), which served this purpose.

The 1960s saw a rapid growth in the science and higher education sectors. Some years, the rate of increase in the number of workers in scientific and pedagogical fields reached 10% per year, which caused their numbers to double within 7-8 years. As a result, the USSR was home to around 1.5 million scientists and teachers by the end of the Soviet period.⁴

In summarizing the first (pre-war) stage in forming the new NSE, it must be noted that, for a brief, historic period, the USSR succeeded in laying the foundations for an integral educational system which, under the conditions of very weak economic, social and territorial divides within society, ensured that HE was accessible and free for the large majority of the population. It is, however, important to point out that the Soviet system of HE was not homogeneous—two clear segments could be distinguished within it: “elitist” (or “qualitative”) and “for the masses.” This arose as a consequence of the excess militarization in the USSR and the formation of two economic sectors, entirely different in terms of their resources—the military and the civilian sectors. These were served in turn by different HE subsystems. Out of approximately 500 universities operating in the USSR at the end of the 1980s, only 60-70 provided high quality education. It was this group of universities (technical and classical) that brought about the myth of the Soviet system of education being the best in the world. The majority of Soviet HEE (in particular provincial) provided a sufficient but mediocre education, having lost ground to the best domestic and

² Great Soviet Encyclopaedia, 11th edition, vol. 50, Moscow, 1957, p. 406.

³ NSE is given to mean the sum-total of educational programs, all actors involved in them, and institutions regulating this process.

⁴ However, in view of methodological characteristics (inconsistencies in equivalents of full-time work), these figures could not be directly compared with Organization for Economic Cooperation and Development [OECD] statistics), therefore Soviet propaganda that one quarter of the world’s scientists worked in the USSR was incorrect.

international models. Nevertheless, there is no doubt that by the end of the 1970s, the Soviet Union had the second greatest scientific, technical, and educational potential, behind the United States (US). The fact that despite the huge economic losses of the 1990s, the “qualitative” group of Russia’s HEE continued and is continuing to train specialists at a very high level is proof of the stability and strength of the Soviet NSE.

This article aims to analyze three specific subjects: the basic principles upon which the Soviet system of education was based, and features of which still define Russia’s HE system to a large extent today; the stages, directions and results of the post-Soviet educational reforms; and, finally, the correlation between existing higher education systems and the country’s current economic needs.

Characteristics of the Soviet Education System

Among the most important characteristics of the NSE (and all national innovation systems [NIS])⁵ in the USSR, it is important to mention the separation of research and education, the state-ownership of all assets in the sphere of science and education, the over-centralized system of state planning, and the excessive standardization of teaching programs and methods. Many of these features became the subject of reforms in the post-Soviet period. However, certain aspects of the modern Russian HE system that were inherited from the Soviet era (some of which even pre-date the Revolution) remain in place up to the present day.

Separation of education from research

In the eighteenth century, when the first Russian universities were founded, the German education system was chosen as a model. Its foundation was the university as a scientific and educational institution built on the principles of self-organization and self-government. In the classical universities, teaching had to be accompanied by scientific research ("Humboldt's principle").

However, the Russian model had two significant differences from the German one. The first was connected with the fact that the Russian Academy of Sciences (RAS, as the "highest scientific establishment") was founded at almost the same time as the university, which resulted in the organizational separation between education and science. The second was due to the absolute domination of the state in all spheres of social life. Hence, even before the revolution, the level of real autonomy in Russian universities was significantly lower than in Europe.

⁵ The national innovation system (NIS) refers to all subjects participating in an innovation cycle, as well as institutions ("rules of the game") regulating relations between them. The knowledge generation sector is located at the very start of an innovation cycle (basic science), followed by a variety of subjects, who transform knowledge into new products, services or technologies, i.e. innovation.

In the 1930s, a hierarchical system for managing scientific, technical and educational bodies was created. In particular, the USSR Academy of Sciences, having been relocated from Leningrad (today's St. Petersburg) to Moscow, was directly subordinated to the government in 1934, and was, for all intents and purposes, given the rights of an independent "quasi-Ministry," responsible for all basic research.⁶ Higher education establishments were directed to concentrate on only the education of engineering and scientific personnel. They all remained under the authority of the People's Commissariat for Education ("Narcompros"). In this way, the separation between research and higher education was firmly consolidated by means of the corresponding structure in the national administration.

Nevertheless, there were some exceptions to this rule, such as "Phystech" mentioned above, which has become an elite establishment of world renown. Its students acquired a fundamental knowledge of basic natural science disciplines during their first three years. Every group of students was attached to one of the leading scientific research institutes (SRI) of the USSR Academy of Sciences or military-industrial complex (MIC), where "real" scientists and engineers from relevant SRI and engineering and design offices taught. The subject of research projects was, as a rule, part of the research plan for this SRI. In this manner, students at MPhTI gained hands-on experience and took part in real scientific research from the early years of their careers. In fact, Phystech is a research university (RU), where research was "externalized". In contrast to the classical European or American RU, at which students are involved in scientific work in laboratories at their university, at Phystech, all "research output" is conducted offsite, at the academic or military-industrial SRI and engineering and design offices. As such, the majority of MPhTI graduates have continued to work with the research scientists at their "base" institutes.

The "Phystech system" was reproduced at the Novosibirsk State University (NSU), which became a resource base for dozens of SRIs and engineering and design offices in the Siberian branch of the USSR Academy of Sciences and the Moscow Institute of Electronic Technology (MIET).⁷ These examples illustrate the attempts (successful as often as not) that were made in the USSR to solve the problem of integration of education, science and industrial production.

⁶ G. Khromov, "Nauka, kotoruyu my poteryali" [Science that We Have Lost], Moscow, Kosmosinform, 1995, 108 p.

⁷ This small university was founded in the 1960s at the same time as the "Electronic technopolis" in Zelenograd, just outside Moscow, at which organizations from all stages of the innovation cycle in the area of electronics are concentrated—from research institutes to several factories manufacturing microchips and products made of semiconductor materials. MIET also became the main supplier for their human resources.

Organizational and ideological rigidity

Two other features that characterized the Soviet NSE were complete state-ownership of all assets in the sphere of sciences and education—including the products of intellectual activities by individual scientists and inventors—and the excessively centralized system for state planning and management of all kinds of resources—including human resources. In the context of the HE system, this meant that the demand for specialists was formed on the basis of requests “from below” and balanced by the potential for HEE in the Gosplan (State Planning Committee). As a result, in line with the plan, graduates of HEE were “appointed” (i.e. forced) to work at their respective SRI, engineering and design offices or companies. Furthermore, young specialists were not allowed to change their place of work for a three-year period. The repressive role of the state and centralization caused uniformity and homogenization of teaching programs and methods. Naturally, in individual schools and universities, “teacher-innovators” occasionally took non-standard approaches, provoking discussion in particular in times of successive “thaws,” but as a rule homogenization was excessive.

One further characteristic concerns the inadequate profile of specialists, due to the Soviet economic paradigm. In a centrally-planned economy, there was no great demand for financiers, lawyers, economists, psychologists, etc., all of whom are needed by the independent subjects of a free market economy. In this regard, the USSR had, at times, between 7 and 10 times fewer specialists in these areas than, for instance, the US, while the number of specialists in natural and technical sciences was roughly equal between the two countries.

Finally, the prevailing ideology in society plays an important role in any NSE. It has a significant influence on the formation of values, standards and economic cultures, and, ultimately, on the upkeep of educational programs in universities.

In the 1930s, ideological control over the sciences and higher education became universal. Marxism-Leninism was declared the only true course, and any deviation from this course (dissent) was forbidden and punished.

Such an attitude by the authorities was at odds with the very essence of scientific research, which, by definition, demands open enquiry and the competition of ideas. This ideological pressure was the reason for the persecution and prohibitions even in natural sciences, genetics and cybernetics in the 1940s and 1950s ending in repression. This provoked retardation in Russian sciences that, to this day, has not been overcome in the areas of biotechnology, information and communication sectors in sciences and industry. But it was the socio-humanitarian sector of sciences that suffered particularly. This area was subject to degradation and marginalization at the periphery of world science.

The strong ideologization impeded any active development and modernization of the system. It is this very aspect—the need for quick structural maneuvers and increased flexibility—that has presented challenges for the post-industrialized society. The economy of the USSR, adapted only for an extensive type of development, began to stagnate dangerously by the mid-1980s. Together with the key issue of a new socio-political structure for the Soviet Union, discussions regarding reform in the education system resumed.

Stages of Post-Soviet Education Reform

As a result of the unending controversy, the original concept for reform of education system (in particular HE), was radically transformed. If during Perestroika and Glasnost (the Gorbachev era) a certain “Western” model (i.e. democratic, liberal, free of heavy state tutelage, reliant on market relations) acted as the Soviet system’s template, then during the Putin era, the state and Russian “national and historic traditions” once again formed the cornerstone of policy.

The origin of reform

The first reforms in the late 1980s were not based as much on professional analysis as on repudiation of everything Soviet, being associated with stagnation, isolation and conservatism. Reformers governed with the indisputable, but hardly operational, general formulae of the Glasnost era pursuing freedom, democracy and openness. With respect to the design for a new NSE, they conceived a new model, the main features of which were autonomy⁸ and state non-intervention. As far as individual educational establishments were concerned, here democracy manifested itself, on the whole, in the transition from assigning heads of HEE (Rectors in Russian) to their election by scientific and pedagogical bodies.

Despite a certain amount of naivety on the part of reformers, and their scant accomplishments, these initial reforms turned out to be necessary and useful in the formation of more important principles for reform, namely: de-ideologization, openness, accessibility, freedom, pluralism, and autonomy for establishments. All of these aspects were at the heart of the new “Education Law” passed in July 1992. This law guaranteed the right of citizens to free secondary and higher professional education, for the first time consolidating the right to create non-state (private) educational institutions and offer supplementary, paid educational

⁸ Even today, *rectors* understand the term “autonomy” highly unusually: the majority of them believe that the state is obliged to give a university all the resources it requires, but does not have the right to interfere in the management of the university.

services. This and many other developments in the law subsequently led to significant structural changes in the Russian NSE.

“Shock therapy”

After the collapse of the USSR in December 1991, radical economic reform began in Russia, this reform is commonly referred to as “shock therapy.” In connection with the transition to a market economy, the political and economic conditions, under which NSE reform and the reform of scientific bodies had to be developed, changed dramatically.

The majority of state-financed organizations, including educational and scientific organizations, proved unable to pay for communal services or the salaries of their employees. In this regard, during the first few years of Russia’s market era (1992-1995), problems in reforming the education system were forced into the background in light of the more acute problem of survival. It became apparent that the new “Education law” would allow the NSE to adapt to the new conditions. State higher education establishments, having received funding that sufficed only for the pitiful salaries of their employees, survived by leasing out their premises and admitting “commercial” (paying) students. Teaching staff made ends meet thanks to additional employment, as well as foreign and domestic grants,⁹ whereas students at new, commercial universities paid for their tuition with cash. The practice of for-profit admission, also in state universities, was finally legalized with the “Higher and Postgraduate Professional Education Law,” which was passed in August, 1996.

Once privatization began, the emergence of a large number of private banks and small and medium-sized businesses in the sphere of services and manufacturing created a huge demand for specialists in the fields of economics, finance, the law, information and communication technology (ICT), consulting, and so on. To meet this demand, every year dozens of new small, non-state (private) higher educational establishments and universities began to spring up, providing training in these specialties. As a rule the professors and lecturers teaching in the new HEE were

⁹ From the first years of reform, the Russian Foundation for Basic Research (RFBR) and the Russian Humanitarian Scientific Foundation (RHSF) were established, from which a scientific team at any higher education establishment could receive money for scientific research on a competitive basis. These new sources of funding appeared correspondingly in 1992 and 1994 as a result of the science system reforms concurrent with educational reform. It also ought to be noted that, from the start of the 1990s, many foreign charitable foundations began to operate in Russia. Among the most well known was the Soros foundation, which spent more than 100 million US dollars between 1993 and 1996 on supporting basic science in Russia and providing individual grants to teachers, lecturers and professors. The pan-European foundation, INTAS (international association formed by EU member states and others to promote East-West Scientific cooperation), also began to operate during these years.

employees of the state universities in search of a second (occasionally even third) source of employment. The quality of training offered at such institutions left a certain amount to be desired, but on regional markets even such graduates were in short supply.

Even at this stage of NSE reform, President Boris Yeltsin and the pro-reform government of Yegor Gaydar encountered twofold opposition: the pro-Communist Parliament, on the one hand, and the educational establishment, whose interests gave rise to the “Union of Russian Rectors,”¹⁰ on the other. The government attempted to build new relationships in line with the transition to a market economy and enable the NSE to meet the challenges of transition. Parliament, with its diametrically-opposed view of the country’s development strategy, blocked the government’s legislative initiatives, and a new institutional landscape was formed on the basis of Presidential decrees (*ukase*). A power struggle ensued over the volume of resources for the ministries and departments being recreated. This struggle also affected the management of sciences and higher education. The educational establishment, for its part, adhered to a strategy of maintaining the *status quo*, along the lines of “you aren’t changing anything, just give us money.” In these circumstances it is, naturally, inappropriate to talk of any great reform success, but some progress was evident.

Firstly, the de-ideologization and de-politicization of education systems were consolidated. The most significant problems were observed in the distorted social and humanitarian science sector. Neither teachers, textbooks, nor teaching methods in this sector were suitable for the new needs of Russian society. In response to the serious problem of a lack of specialists that fit this profile, a new state university—the Higher School of Economics (SU HSE)—and a small (120-140 student) non-state university, the New Economic School, were founded in 1992. In addition, between 1992 and 1993 approximately 200 textbooks and monographs were prepared or translated from foreign languages by Russian experts with financial support from the Soros Foundation, with a view to forming a new methodological basis for HE in social sciences.

The second outcome of the 1990s was the structural transformation of the NSE, as a result of which hundreds of non-state HEE came into existence, as well as a huge extra-budgetary education sector. The number of HEE grew from 762 in 1995 to 1068 in 2005. Moreover, the proportion of paying students had reached 34.4% by 1995, and grew to 47.1% by 2005.¹¹ Having allowed the educational community freedom, the government virtually abandoned the education system and did not intervene in setting the content of training programs. It also gave up the

¹⁰ The “Union of Russian Rectors” is a non-profit, non-governmental organization, founded in July 1992 on the initiative of heads of HEE, to protect common interests.

¹¹ *Indikatory obrazovaniya* [Education Indicators 2007], Collection of statistics, RF Ministry of Education and Science, Moscow, SU HSE, 174 p.

strict regulation of the labor market, i.e. the system of “appointment” of graduates to defined places of employment.

Against this background, and also due to the intensive “brain drain” from the spheres of science and education, the decline in the quality of education is clearly apparent. According to numerous expert appraisals, between 20 and 30% of programs in HEE do not even provide the minimum level of training for basic professional competence. This concerns many technical HEE that, in search of additional finances, have opened economics, law and similar faculties outside of their specialization; frequently these departments constitute one third to one half of all their admissions.¹²

Scientific-pedagogical cadres have aged rapidly. There is a “generation gap”—an absence of entire cohorts of teachers aged 30-45. Attempts in 1997-1998 to introduce a selective policy (“support only the best”) were unsuccessful, as implementing such a policy would have required require extensive additional resources that were not available at that time. Moreover, the Union of Russian Rectors and teachers’ unions once again opposed this policy.

New “window of opportunity”

In 2000, after the election of Vladimir Putin as Russia’s President, the program promoted by a group of liberal experts and headed by then Minister of Economic Development and Trade, German Gref,¹³ began to materialize. Unlike its previous variants, this program proposed to introduce an independent evaluation of knowledge among graduates of secondary schools, i.e. put in place a Unified State Exam (*Ediny gosudarstvenny examen*, EGE) and use it for enrolment in HEE. It also suggested introducing vocational courses in schools and a two-level system of HE. This stage of education reform coincided with a marked increase in budgetary provisions for education. What is more, at the end of 2003, Russia decided to join the Bologna Process (BP), with a view to increasing the flexibility and efficiency of its higher education system.¹⁴ However, the

¹² *Obrazovanie i obshchestvo: gotova li Rossiya investirovat v svoye budushchchee?* [Education and Society: Is Russia Ready to Invest in its Future?], Report, RF Public Chamber, Moscow, SU HSE, 2007, 78 p., available in Russian at: <www.oprf.ru/files/tcp_ip/doklad_s_oblozhkoi.pdf>.

¹³ Editor’s note: called the “Gref Program.”

¹⁴ For a detailed analysis of the problems connected with the Bologna Process with regard to the Russian system of HE, see the article by T. Kastueva-Jean “Rossiya v Bolonskom protsesse, otsenki chetyrekhletnego opyta i perspektivy [Russia in the Bologna Process, Appraisal of Four Years’ Experience and Perspectives], *Vestnik mezhdunarodnykh organizatsiy* (Bulletin of International Organizations), No. 7, 2007, p. 41-49, available in Russian at: <www.iori.hse.ru/es/materials/T.Kastueva-Jean.pdf>.

new attempt to resuscitate the reform once again became bogged down in discussions and struggles between the government and the conservative educational establishment.

The real “window of opportunity” only arose at the start of Putin’s second presidential term, i.e. 2005-2006, in completely new (in comparison to the 1990s) political and economic conditions, as a result of which a new stage of reform began:

- A single, consolidated team of reformers took shape in the executive branch and expert community. Legislative power also proved to be in the hands of supporters of reform (certain mass media coined the phrase “the Kremlin-controlled Duma”).
- In contrast to the 1990s, sustained economic growth over a long period allowed budgetary expenditure on education to be increased at a rapid pace. Large monetary reserves and a stabilization fund were created, guaranteeing economic stability. Over two or three years, funds allocated to education from the federal budget alone doubled: from 71.8 bn rubles¹⁵ in 2004 to 161.7 bn rubles in 2006. Education also received comparable means from other sources.¹⁶

The reform is taking place in several directions: changes to the structure of the NSE; renewal of the institutional environment, including implementation of effective funding methods, incentives etc.; improvements in the quality of teaching staff and material resources; changes in the content of educational programs. All measures in the new stage of the reform were harmonized in a priority-oriented, systematic National Education Project, the implementation of which began in 2005 under the direction of Dmitry Medvedev, then First Deputy Prime Minister—now President of Russia. As part of the modernization of the HE structure in 2006-2007, 57 innovative higher education establishments were selected competitively, and each of these received a lump sum from several hundred to 1 billion rubles. Spending on this project was 37 bn rubles. A decision was taken to create 5-7 “federal” (i.e. large-scale) research universities. Two of these have already been built: the Southern federal research university, founded on the base of Rostov State University, and the Siberian, on the base of Krasnoyarsk State University. They received one billion rubles and began radical upgrades of their teaching and research facilities.

One of the directions of the reform is to attempt to bring sciences and education closer together. Unfortunately, a decline in the percentage of HEE conducting research activities has been apparent in Russia for the past fifteen years: their numbers currently stand at only 37 percent. Over

¹⁵ Editor’s note : In April 2008 one euro is approximately equivalent to 35 rubles.

¹⁶ A. Fursenko, D. Livanov, A. Volkov, “Vyshee obrazovanie: povestka dnya 2008-2016” [Higher Education: Agenda for 2008-2016], *Ekspert* [Expert], No. 32, 2007, p. 88-94, available in Russian at: <www.expert.ru/printissues/expert/2007/32/vysshee_obrazovanie_2008/>.

the past 10 years, the proportion of teachers at HEE involved in research activities has dropped from 37 to 16 percent. The state of affairs with key assets and volume of expenditure on scientific research in the HE system is also poor. To a large extent, this can be accounted for by the "historic" separation of education and science, as a result of which a large percentage of resources for conducting research, including fundamental research, were traditionally directed towards RAS institutes.

To rectify this situation, new, large-scale investments were called for in order to build "Western style" research universities,¹⁷ promoted by the Ministry for Education and Science (MES), and in December 2007, the "Law on the Integration of Science and Education" was also passed. It lifts a series of legal restrictions on educational services in scientific institutes and scientific research at HEE.

In parallel to this, legislation was updated. It is important to mention the law adopted recently that finally establishes the EGE as a legitimate and binding tool to assess the knowledge of school pupils. The long fight to introduce a two-level HE system in Russia was over: in October 2007, the corresponding law was passed that will, from September 2009, introduce Bachelor's programs and two-year Master's programs. The final stage of HE remains a three-year PhD course (*aspirantura*). This law is a direct consequence of Russia's accession to the Bologna Process, and it is intended that from 2010, Russian graduates will receive degrees in line with the international standard. However, it must not be ignored that Russia and the EU have not yet harmonized their courses and compulsory standards. All this means that if Russian students are assessed abroad, it will not be against formal criteria (diplomas), but in relation to the weight of the "brand" of one or other Russian university.¹⁸

The "Law on Educational Standards" was also passed, although its scope was much broader. Above all, it is directed towards increasing the quality of education, which appears to be the most severe problem that Russian HE faces today. Over a ten year period (1995-2005), the number of students in higher education establishments almost tripled, from 2.79 million to 7.06 million. The number of postgraduates and doctoral candidates also doubled. In 2005, out of every 10,000 inhabitants of the Russian Federation, 495 were students (comparatively, in the US this figure was 445, in Germany—240, in Japan—233). By these criteria, Russia rose

¹⁷ The research universities where the function of research was "externalized," such as Phystech mentioned above, continue to operate, but their model is not adapted for the implementation of large scale scientific-educational regional clusters, which authorities consider to be an effective way in which Russian regions can make the transition to an innovative development path.

¹⁸ Today, 25-30 thousand Russian scientists are working permanently in dozens of countries—primarily the US, Europe and Israel—as well as a similar number with temporary contracts on the "shuttle schedule." These are mainly graduates of the "high-quality" higher education establishments mentioned above. Europe, needing highly-qualified specialists, is finding the means to assess the real potential of Russian scientists and employ them, regardless of Russia's implementation of its Bologna Process commitments.

to first place in the world. In fact, there is a demand in Russian society for generalized higher education. At the same time, this growth has led, inevitably, to a decrease in the quality of the education received. The results of the international university ratings and evaluations by Russian employers bear witness to this.¹⁹ That said, the students themselves draw an ever more tenuous link between receiving their degrees and their future careers, seeing a diploma as merely a mark of social status.

In part, this is accounted for by the weak links between businesses and HEE. Over the past three years, the percentage of companies collaborating with HEE dropped from 49 to 30 percent. This reflects a growing mistrust among employers in the formal HE system, in terms of its standards and teaching methods. They prefer to set up their own systems of professional training. Recent surveys show that the proportion of such enterprises is currently 20 percent.²⁰ They have chosen one of two directions: either setting up their own “corporate universities” (it is generally large companies that do this) or business participation in higher education programs to train senior students.²¹ In Russia, dozens of companies are already following these paths, however under the conditions of rapid economic growth, the shortfall in qualified personnel has reached an all-time high. Many people now acknowledge that “Russian regions are not competing as much for investment as for human potential.”²²

As for the quality of teachers, this does not meet the requirements of the modern HE system either. Firstly, 38.6 percent of the teaching staff consists of individuals over the age of 65, working with Soviet system concepts and methods. Secondly, mobility of the teaching staff is low—the current system does not encourage exchange programs to bring in “foreign” talent and does not inspire its young people to advance “upwards.” Moreover, paradoxically, the increased salaries for teaching staff perpetuate this situation: the higher the salary, the less desire there is to free up places on the teaching staff for young people.

The Ministry has prepared a special, goal-oriented federal program entitled “Scientific and Scientific-pedagogical Personnel for an Innovative Russia” for the years 2009-2013. Its main tasks are: creating stable conditions for training and attracting personnel in the fields of science and high technology as well as boosting the intake of young people into science and education. The main format for the program is to be the organization of

¹⁹ In 2007, none of Russia's universities were listed in the Times Higher Education Supplement (THES) Top-200 ratings.

²⁰ *Obrazovanie i obshchestvo: gotova li Rossiya investirovat v svoje budushchее?* op. cit. [12].

²¹ For example, IBS Russia's leading company in the ICT field, opened its Master's program at MPhTI (“Phystech”), where students will study new university programs in the specialist areas of systematic architecture, analytics, and implementation consulting. Students will take part in an internship at IBS.

²² See, for instance, the interview with the governor of Novosibirsk, V. Tolokonsky, in the Russian daily *Izvestiya*, 24 December 2007, available in Russian at: <www.izvestia.ru/politic/article3111592/>.

“leading science and education centers” (LSEC) at universities and scientific organizations. Small teams will form within these structures, around “leading professors” and their projects, selected competitively, and will include postgraduates and students. Each project will be issued a grant for 2-3 years. Another of the program’s measures will be a system for inviting “professor researchers” from foreign centers to Russia to organize new research teams. A further focus will be to establish “research faculties” as large blocks of research universities. All in all, the program will consist of 12 such assignments, with a budget of 65 billion rubles expected to be allocated to their implementation.

As far as the changes in the upkeep of education are concerned, the 57 innovative higher education establishments mentioned above were selected in line with these criteria. These establishments are attempting to change the system that was prevalent in the USSR of “pumping in” students with different amounts of knowledge in order to teach them basic skills—professional, managerial, technical and so on. That said, many experts believe that the upkeep of education should not be the remit of Ministry officials, but the result of agreements between the professional academic community, the authorities, businesses and parents.

The Future, Inertia or Acceleration?

In summing up the results of the HE system reforms over the last 2-3 years, it would be fair to say that the reforms have had two major impetuses—financial and institutional. The professional community felt that the authorities had finally made the transition from rhetoric to action. They succeeded in supporting the activities and initiatives of leaders, and aroused the hopes of teachers, students and employers.

But education reform is expected to provide a response to the calls for new post-industrial, high-tech models of economic development. These demand not only modernization of the system for training specialists, but also extensive structural reforms for all national innovative systems. Russia's current NIS, despite the fifty-year history of reform, is still inadequate in the face of new economic realities. The greater share of Russia's GDP is generated by branches exporting hydrocarbons, metals and timber; its share in the global markets for high-tech products is less than 1%.

In contrast to the Western NIS model, which was formed under the conditions of a stable economy (at least in an institutional sense), the Russian NIS is a system for a transitional period. The institutional field still has many gaps, real (not just declared) innovation policies are only starting to take shape and the creation of an innovation infrastructure is far from complete. For this reason, the Russian NIS today is a complicated "mixture" of structures and institutes inherited from the Soviet past, as well as new ones, molded under the conditions of an open market economy.

Unlike the American model, the research and pedagogical functions of science are, as before, separate in the Russian NIS. Cognitive functions are mainly implemented in the very large (around 450 research institutes) and heterogeneous sector of the Academy of Sciences, which is organized and operated in line with the old administrative economy. Instructional functions are "passed on" to the system of higher education. Such a scheme is characterized by high transaction costs, administrative blockages, relatively low efficiency, and slow responses to new challenges.

This being said, the main player in the Russian NIS remains the state and the state science sector.²³ In view of reasons that are well

²³ The state budget's contributions to Russia's general research and development expenses is approaching 70% (67-68% in 2006), whereas in the majority of developed countries, the ratio of private to state funding is almost opposite.

known—ageing cadres and scientific equipment, “brain drain” among young people, conservative and inadequate management, and so on—productivity and potential in basic sciences has been in continuous decline since the 1990s.²⁴ Not even the unprecedented growth in budget “injections” has helped: over the past six years, the RAS budget has increased approximately four times in real terms. Thanks to its lobbying capacity, the Academy of Sciences has succeeded in repelling systemic reforms and preserving the Soviet *status quo*.

This indicates that one of the main impediments to Russia’s NIS—the administrative separation of basic science and higher education—is persisting. By way of “compensation,” the government has succeeded in passing through the Duma the “Law on Integration of Science and Education,” but this is so “meek” and cautious that it will hardly, on its own basis, be capable of creating research universities using the mechanism of direct (administrative) integration of HEE and academic research institutes.

As an alternative, the Ministry of Education and Science has begun to create new federal research universities by consolidating existing assets in the HE system itself, namely through the merger of several HEE into one (along the lines of the Siberian and Southern mentioned above). There is, however, a significant danger of this project remaining just a pilot project, because in the event that the administrative and state NIS is reconstructed, the country will not have the resources required to establish 8-10 large federal universities capable of entering the top 200 in global rankings over the course of 5-10 years. Only in this context (that is, only with these “quality institutions”) is there hope that Russia will significantly increase its competitiveness on the international market for educational services and, at the same time, provide its innovation sphere with world-class specialists.

In order to lay down the foundations for Russia’s new university sector in basic (and, to some extent, applied) science, vast funding is required, for *both* research and teaching. By some assessments,²⁵ this requires funding in the education sector to increase by 2-2.5 times its existing levels (up to 110-130 million rubles) by 2010, and a five to seven fold increase in budget financing for university science—up to 25 billion rubles. This aside, budget resources from the Russian Basic Research Foundation will need to be doubled for competitive funding of scientific research at higher education establishments.

In principle, it would be possible to ensure this kind of increase, but considerable changes to the government’s current science policy would be required. Beginning in 2006-2007, the aim was the formation of a new innovation system, with State Corporations (SC) at its core. They are

²⁴ Russia’s share in the worldwide body of publications in reviewed journals fell from 3.5% to 2.4% over 15 years, as a result the country fell from eighth to eleventh place in the world on this index.

²⁵ *Obrazovanie i obshchestvo: gotova li Rossiya investirovat v svoje budushchее?* op. cit. [12].

created in priority sectors by means of consolidating both state and private assets in the hands of the government.²⁶ Their actions are regulated by specially-adopted laws, since some of them have the status of non-profit institutions with unique rights. The scale of budgetary resources allocated to them is extraordinarily large even by the standards of Russia's rapidly-growing economy. Thus, the "Russian nanotechnology" SC (Rosnanotekh), created in order to implement scientific and innovative projects in this high-priority sphere, received 130 billion rubles from the federal budget in 2007 (in comparison: in the same year RAS institutes received less than 40 billion rubles combined). This makes many experts uneasy about several factors: the excessive dominance of the state in business, the danger of it gaining a monopoly and creating further bureaucracy, the loss of stimulus for innovation, the potential growth of corruption, and so on.

The noticeable strengthening of the role of the state, which has been observed in recent years in all areas of society, has not bypassed education. In particular, many experts are concerned by control over both schools and HEE by various government services, which has been growing conspicuously in recent years.

In the context of problems with reforming HE, such an innovative policy signifies that an NIS is in the making in Russia, based, for the most part, on the existing state science sector (RAS, MIC), and the scientific potential of state corporations. The scale of resources already invested does not permit an equal investment in the research capacity of universities. This means that the system of HE in Russia will be forced to evolve according to an inertia scenario. The current rate of economic development (in 2007 GDP rose by over 7.5 percent) naturally allows decisions to be taken regarding HE's current tasks, but it would not be appropriate to discuss rapid or radical changes to the educational models in this instance.

Today, the Russian HE system is still searching for its own, effective model. In the meantime it, like the economy and NIS, is developing within the unstable framework of transition. In this transitional system institutions from the Soviet past are found side by side with elements copied from the best educational models from around the world. The situation must be clarified by spring-summer 2008 after the next election cycle is complete and the program of the new Russian President is presented to society. It is essential to make sure that the reform trajectory adopted in the early 1990s is not abandoned. To this end:

- 1) Russia's education system must be developed along the lines of greater openness and intensified involvement in the global education system. At the same time, it is important to use economic and cultural mechanisms to expand the "russophone zone" in educational services.

²⁶ At the start of 2008, several SC were founded: in aircraft, shipbuilding, nuclear industry, and a number of branches of the MIC.

2) Educational establishments must also become more open to their natural partners: businesses, non-governmental organizations, regional authorities, etc. At the same time, they must be more autonomous and free. A recently passed law regarding autonomous non-profit educational organizations is supposed to allow state HEE to expand their freedom in using resources gained on the market.

3) Finally, the state must not abdicate responsibility for the quality of human capital assets, which can only be developed through new, significant investment in the HE system. It is insufficient to remain within the limits of the rate of investments accepted within the past two or three years. It is essential to speed them up significantly. According to expert assessments, the share of education expenses within the GDP must be increased by 2-3 percentage points: from 3.5 to 5-6 percent of budget contributions, and from 2 to 3.5 percent of contributions by private individuals and enterprises.²⁷ As far as business contributions are concerned, the growing number of domestic charitable foundations (the Potanin Foundation, the "Dynasty" Zimin Foundation and so on) should be mentioned separately. The law passed in 2007 on specific capital (endowments) should help to reinforce this trend.

Hopes for acceleration in reforms of Russian HE have not entirely faded—they are encouraged by the announcement by then First Deputy Prime Minister and now President of Russia, Dmitry Medvedev, that the National Education Project will soon be converted into a federal program, slated for the next 3-5 years.

²⁷ *Obrazovanie i obshchestvo: gotova li Rossiya investirovat v svoye budushchhee?* op. cit. [12].