Brief historical overview

The Russian model of higher education went through an active phase of development in the 18-19th centuries. This process was significantly impacted by the German model of professional education, the optimal one to replicate at the time. Russia took on board not only the values but also the institutional solutions (division into disciplines, management and financing with active government involvement, entrance exams, educational process organization, etc.).[1]

At the core of the Russian higher education were public (governmental or state) universities. Their system was largely formed by the end of the 19th century. On the eve of the First World War, Russia had over one hundred universities, and 123,000 students. For comparison, France only had around 40,000 students at the time.[2]

After the 1917 revolution, the development of higher education was determined, on the one hand, by the industrialization common for all leading world states, and, on the other hand, by the specific political and economic rule of the new Soviet state. If we look at the Russian Soviet Federative Socialist Republic's accelerated industrialization goals, it becomes obvious that the trends towards an increased share of technical education, its massification and specialization were common for all educational systems going through the industrialization phase. At the same time, higher education became part of the Soviet planned economy: the amount of students, disciplines and programmes were planned for each higher education institution in accordance with the forecasted demand from the various industries; the development of the higher education system was subordinated to the national economy needs in labour force.

The rapid expansion of the higher education system in the Soviet period is evidenced by the fact that from 1917 to 1940, the amount of universities in the Russian Soviet Federative Socialist Republic grew from 150 to 481, accordingly.[3] The development of the system during this period was accompanied by multiple waves of reorganization and optimization. However, starting from the 1940-s, the structure of the university network and the tools that ensured the interaction between the higher education system, labour and the technology markets began to stabilize.

In 1950 – 1980, the changes to the territorial and industry structure of the higher education system did not make any radical alterations to the model that had come into shape by that time. Therefore, by the end of the 1980s, the USSR had a functioning machine of higher education, formed on the wave of industrialization and militarization of the national economy, in the context of isolation from the global economy. The backbone of this system were direct orders for personnel training from the state.

Given the fact that the educational system was imbedded into the planned economy, the collapse of the USSR led to an expected crisis of the Russian education in the 1990s. As it had often happened throughout the Russian history, the internal crisis became a driver for reevaluating the approach to reforming the system of higher education taking into account the global trend of transitioning to a post-industrial stage of development.

In the 1990s, on the background of economic challenges, the higher education system came up against the need to function in a market context, being totally unprepared for it. There was no new basis emerging in the 1990s to replace the ties to the needs of the Soviet planned economy and industry. In this context, the growing massification and commercialization of higher education were accompanied by a forced transformation (without any preliminary plan) and subsequent new disproportions on the labour market. For instance, this was manifested in the spike in the number of universities (from 1990 to 2000 the amount of universities almost doubled from 514 to 965, accordingly[4]), including private universities; and

in the shift of demand from technical disciplines to humanities. As a result, by the end of the 1990s, Russia had a segment of professional education that was not focused on production. In professional education institutionsinstitutions, fashion prevailed over employment.

Starting from 1992, Russian transitioned to a multi-level system of higher education and standardization. The Federal Law "On Education" that came into force in 1992 introduced the concept of an educational standard in Russia. Article 7 of the law was dedicated to state educational standards.

Starting from 2003, the system of higher education in Russia received an impetus to integrate with the European educational space as part of the Bologna process.[1]
The transition of the higher education system in Russia from the industrial to the post-industrial stage, as in the case of transitioning to the previous development stage, was initiated by the state. A conscious stage in the subsequent transformation of the higher education system in Russia became possible starting from the end of the 2000s. The main prerequisite was the financial stabilization in the country that ensured the basic possibility of financially supporting the new reforms, and more importantly, created a financially reliable basis for labour demand, reanimating the positive industrial production development trends and creating the foundation for economic growth.

Over the brief period from 2006 to 2013, Russia succeeded in performing an optimization of the university network, creating a nucleus of leading institutions (leading classical universities, national research universities, federal universities), as well as integrating the university network into the territorial and production complexes by setting up a sub-group of federal universities. This transformation stage was accompanied by a legal framework reform (a new Federal Law "On Education in the Russia Federation" from 29 December 2012 # 273-FZ); and a set trajectory for the further development of the country's education system. For instance, the state machine initiated a system of stare programmes and initiatives to support the development of higher education. The highlight of the system was project "5 to 100".[2] On the university level, the need to determine the trajectory for further development was manifested in the fact that strategic development programmes became the agenda of the day. By the end of 2013 any university aiming to receive state support, as a rule, had its own strategic development programme.
The key issue for the Russian system of higher education: how successful was the transition to the post-industrial stage of development?

Unprecedented student enrolment fostering growth in number of institutions, institutional shifts and increasingly complex public systems and organizational structures

As the authors of Strategy 2020 justly state: "The structure of professional education in Russia over the last 10-15 years was unjustifiably leaning towards higher education. The university enrolment coefficient calculated as the ratio of university enrolment to the number of 17-year-olds (this is the age most young people enroll in universities in Russia) in 2010 exceeded 90%."[5] The massification and subsequent commercialization of higher education in Russia has completely changed the structure of professional education. There was now an imbalance between the higher, middle and initial professional education sectors.

[1] On 19 September 2003 at a meeting of the ministers of education in Berlin, Russia joined the Bologna declaration on developing a single European higher education environment.
[2] "5-100" project – development of an action plan to develop leading universities in order to increase their competitiveness among leading international scientific and educational centres (2012). The goal of the 5-100 Project is to maximize the competitive position of a group of leading Russian universities on the global market of education services and research programmes.

This trends determined a number of initiatives in the state policy to promote middle and initial professional education, for instance, Russian participation in the WorldSkills championships[6] and the "Human Resources" programme[7].

Resource allocation and contribution of private sector

The system of higher education in the Russian Federation is primarily state. As OECD research shows, the share of private expenditure on tertiary education (middle and higher professional education) in Russia accounts for 37.8% of the total expenditure (as of 2010).[8] This is higher than the OECD median of 7.1%.

Currently, a significant share of private expenditure is accounted for by personal education expenditures. After the collapse of the USSR in the 1990s, these became the key drivers for the development of private institutions. Before the launch of the governmental initiative to monitor university efficiency in the 2010/2011 academic year, there were 446 private universities (41% of the total number of universities) and 599 of their branches (36% of the total number of university branches).

The key issue with the development of private higher education was in the initially opportunistic nature of its explosive growth, when in accordance with the 1992 "Education Law" private education institutionsinstitutions were given the right to provide education services on a paid basis.[9] Unfortunately, the trend towards the commercialization of higher education was not supported by ensuring the required quality of educational services. As a result of the increase in the amount of educational services provided by private institutions, the amount of students enrolled in full-time higher professional education programmes was only 15.5% (of the total amount of students) vs. 49.3% in public universities. That means that 84.5% of private university students were pursuing extra-mural studies.[10]

It is worth noting that at the end of 2011, a federal law was passed to guarantee, among other things, the right of citizens to receive higher professional education, using the funds from corresponding budgets, not only in public education institutions but also in private higher professional education institutionsinstitutions with state accreditation.[11] For these purposes, the given law envisioned the possibility of financially supporting the educational activities of the said private educational institutions through budget provisions from the Federal budget, the budgets of the subjects of the Russian Federation, and local budgets.

On the one hand, this was a positive sign of developing competition in higher education. On the other hand, this tool is currently rather used to optimize the network of private institutions. Reporting on the admission quotas[3] in 2013, A. Klimov, Deputy Minister of Education and Science, said that the share of admission quotas to private institutions is 0.5% of the total (1.03% in 2012), with the law (61%), economics and management (46%) suffering the most decrease.[12]

If we look at other growth drives for private higher education, we have to mention such tools as the private-state partnership in professional education (for instance, the creation of endowment funds in a number of institutions), the support and expansion of partnership experience between universities and companies (for instance, as part of the Decree of the Government of the Russian Federation #218 "On

[3] Admission quotas are the number of places available at an educational organization for a given discipline that are financed from the budget. Budget places are distributed among educational organizations accredited for the corresponding educational programmes based on a public competition. A part of the admission quotas could be given to target admissions that are based on requests from state authorities and local governments in order to help them prepare personnel of relevant education levels. Educational establishments don't have to, but have the right to allocate target places. As a rule, quotas are set for target admissions that determine the total number of places that could be allocated for target admissions.

measures of state support for cooperation of Russian higher education institutions and organizations, for implementation of complex projects of high-tech production").

It is also worth noting that in 2000-2010, there was a significant increase in the number of the so-called "corporate universities", training centers within large corporations that develop the professional skills of their employees: from 10 to 64. It is not surprising that 66% of employers prefer to train and re-train their employees using their in-house educational departments.[13]

However, given the lack of a comprehensive programme for the development of private higher education, all the above-mentioned drives will be complementary to the general policy line in the field of education and science, and will not significantly alter the situation with private investment into higher education.

Role of state, key reforms and trigger points for reforms over the last 30 years

The role of the state was instrumental throughout the entire establishment and development of higher education in Russia. It did not only form institutional and conceptual basis of the educational domain, but also provided legal regulation that in fact set the rules of the game and indirectly determined the rate at which the system would develop.

After the collapse of the USSR, starting from 1992, all measured aimed at reforming the system of higher education were essentially directed at refocusing it to function in the context of the transition economy and at searching for ways to develop a national innovative system.

From 1992 to 2013, we can identify the following key points in the process of reforming the system of Russian higher education:

1. Changes made in order to integrate into the international educational environment: transition to standardization and a multi-level higher education system (1992); as well as Russia's joining the Bologna process (2003). The system of higher education was supplemented with various educational and professional programmes of different levels in terms of nature and scope. It was meant to ensure the rights of Russian citizens to choose the content and level of their education, and create the conditions in which the higher education system could flexibly adapt to society demands in the context of market economy and humanization of the educational system. Essentially, the multi-level system was consequential to the emergence in Russia of a market for educational services, and was determined by the necessity to refocus universities from the state to prospective students and their parents in the context of increased demand for higher education.
2. A Unified State Exam was gradually introduced – a universal national exam, in the Russian Federation, conducted centrally in secondary educational institutions – schools, lyceums and gymnasiums (from 2001 to 2009). The Unified State Exam is both a final exam at school and an entrance exam to university. Until 2013, it was also an entrance exam to specialized secondary educational establishments, but the new law on education cancelled it. The Unified State Exam significantly increased the mobility of prospective students and university differentiation in terms of the quality of admission, decisively breaking down the previously prevailing ties between regional universities and local enrollee flows.[14]
3. The quality of education improved – higher education approaching real economy requirements; renewed material and technical basis at universities; introduction of the project approach and modern methods of management in the university environment. This was implemented as part of a top-priority national project, "Education" in the form of competitive selection and further support for the universities' innovative educational programmes (2006-2008).
4. "Growth points" were determined – a pool of leading universities was formed (from 2008 – national research universities; from 2009 – leading classical universities: Lomonosov Moscow State University, Saint Petersburg State University; from 2006 – federal universities).

5. A system of measures was launched to provide state support for research activities at universities – federal target programmes [15] were subsequently supplemented with new Decrees of the Government of the Russian Federation[16] (2007 – 2013). These support measures were aimed at reanimating universities as research centers – in the early days of the Soviet period this role had fully shifted to academic institutions.
6. The prestige of working professions was restored and the engineer training system was improved. For instance, a regular competition of engineer development programmes was organized in order to support and promote the best advanced training professional education programmes and internships for engineers in the priority areas of modernization and technological development of the Russian economy, developed by Russian education institutions in response to demand from and together with specialized companies and organizations operating in real economy sector. [17]
7. The university network was optimized – the Russian Ministry of Education and Science launched a regular monitoring of university efficiency in order to reorganize inefficient state institutions (starting from 2012).[18] This was a logical response to the discrepancy between the amount of universities and their branches (at the beginning of the 2011/2012 academic year, there were 634 public education institutions and 1045 branches in Russia) to the quality of their education. Relying on this mechanism, the Ministry of Education and Science is planning to reduce the number of public higher education institutions by 20%; and the number of their branches by 30% by 2013 – 2015. [19] According to the 2014 monitoring, recommendations to improve their efficiency were given to 238 higher education institutions and 772 branches, including 79 education institutions and 489 branches that are subordinate to government authorities.[20] Starting from 2014, the Ministry of Education and Science of Russia will no longer make the decision on which of the universities, academies or institutes needs to be reorganized, i.e. on the closures and mergers of higher education institutions with stronger ones. The Ministry of Education and Science will now only identify which higher education institutions need to improve their efficiency. However, the decision on whether to close them, merge them with others or do nothing will be solely in the hands of the founders. Previously, if a higher education institutionwas found inefficient and in need of restructuring, such decisions were mandatory.
8. The legal basis in the field of Russian education was reformed – with a new Federal Law "On Education in the Russian Federation" from 29.12.2012 # 273-FZ.[21] The goal of developing the bill was to ensure comprehensive modernization of Russia's laws on education aimed at aligning it with the new public relations in the field of education; to enhance the efficiency of the legal control mechanism; to create legal conditions for the renewal and development of the Russian education system in accordance with the modern requirements of people, the society and the state, the need to develop an innovative economy, and Russia's international obligations in the field of education.
9. The "5-100" project – creation of an action plan to develop leading universities in order to enhance their competitiveness among leading global scientific and educational centers (2012). The objective of the 5-100 Project is to maximize the competitive position of a group of leading Russian universities on the global market of educational services and research programmes.

National strategic priorities

The strategic objective of state policy in the field of education is to increase access to high-quality education that would correspond to the requirements of innovative economic development, modern needs of society and every citizen.[22] To achieve this objective, the following priority tasks need to be solved:

1. To ensure the innovative nature of basic education, including:
    - To renew the structure of the educational institutions network in accordance with the goals of innovative development, including the creation of federal universities, national research universities;

- To ensure a competency building approach, and interconnectivity of academic knowledge and practical skills;
- To increase the funds invested into scientific research in higher education institutions;
- To develop a variety of educational programmes, including the creation of an applied bachelor's system;
- To renew the financing mechanism for educational institutions in line with the goals of innovative development;
- To ensure an increase in compensation for educational institution employees depending on the quality and the results of their work, to a level comparable to that in the field of economics and above.

2. To modernize educational system institutions as instruments of social development, including:
   - To create a system of educational services to ensure the early education of children regardless of their place of residence, health and social situation;
   - To create an educational environment to ensure access to high-quality education and successful socialization for people with limited capabilities;
   - To create a system for identifying and supporting gifted children and talented youth;
   - To create an infrastructure for student social mobility;
   - To develop financial tools for social mobility, including educational loans.
3. To create a modern system of continuous education, training and retraining of professional personnel, including:
   - To create a system of external independent certification of professional qualifications;
   - To create a support system for the consumers of continuous professional education services; to support corporate programmes to train and retrain professional personnel;
   - To create a support system for organizations that provide high-quality services of continuous professional education;
   - To form a system of continuous education for military personnel, including retraining after retirement from military service.
4. To form mechanisms to evaluate the quality and relevance of educational services with the participation of their consumers; participation in international benchmarking studies by creating:
   - a transparent, open system of informing citizens about educational services, that would provide complete, accessible, up-to-date and accurate information;
   - conditions for attracting foreign students to Russian educational institutions;
   - a transparent, objective system for assessing individual educational achievements of the students as the basis for transitioning to the next education level;
   - mechanisms to involve consumers and public institutions in controlling and assessing the quality of education.

National strategic priorities in the field of education are integrated into other strategic documents. For instance, the National Security Strategy of the Russian Federation states that one of the strategic goals of ensuring national security in the field of science, technology and education is enhanced social mobility, general and professional education for the population, professional qualities of highly-qualified personnel through access to competitive education.[23]
The Innovative Development Strategy of the Russian Federation states that one of the key goals of innovative development is setting up the conditions for developing innovative competencies in citizens, including through professional education.[24]

It is common to intensify a number of set priorities through Presidential Decrees. For instance, Presidential Decree # 599 dated 7 May 2012, "On Measures for the Implementation of State Education and Science Policy" determined the following objectives:

- To increase the volume of financing for state scientific funds, as well as research and development done by leading universities on a competitive basis;
- By June 2013, to transition to normative per capita financing of higher professional education programmes, as well as to increase normative financing for leading universities that prepare engineering, medical and science specialists, with the amounts being calculated taking into account the specific nature of educational programmes;
- By 2020, for at least five Russian universities to be included into the Top 100 of leading global universities, as ranked by the global university rating;
- By2018, to increase the total amount of financing for state scientific funds to RUB 25 billion;
- By 2015, to increase internal research and development spending to 1.77% of GDP, raising the share of higher professional education institutions in this spending to 11.4%;
- By 2015, to increase the share of publications by Russian researchers in the total amount of publications in international scientific magazines, included in the WEB of Science database, to 2.44%.[25]

Identify strengths and weaknesses of governance and regulatory mechanisms

The role of state institutions in the system of higher education of the Russian Federation

At the federal level, the Ministry of Education and Science of the Russian Federation is the one responsible for developing and implementing the state policy and for the normative legal regulations in the field of education. The Ministry of Education and Science of Russia determines the enrollment procedures and the final end-of-study assessment; sets federal educational standards and educational activity procedures; ensures the development and keeps a register of model educational programmes. The Ministry of Education and Science of Russia is the founder of approximately a half of public universities in the country (around 48% of universities[26] - the founders of the remaining public universities are other state government bodies, federal subjects) and has the power to appoint the presidents of educational institutions within its jurisdiction.

In terms of financing higher education, the Ministry of Education and Science of Russia distributes the admission quotas and target enrollment figures for citizens using funds from the federal budget. It also acts as the state customer of federal target programmes[4] in the field of education. These two sources of financing ensure more than half of the financing for the higher education system in the country (55.3% in 2013)[27].

The Ministry of Education and Science supervises the Federal Education and Science Supervision Agency[28] that controls and monitors educational organizations in the field of science and education, for instance, licensing and accrediting educational institutions; monitoring and controlling the quality of education; certifying graduates; confirmation and nostrification of education documents.

Therefore, state institutions in the system of Russian higher education are the founders of public higher education institutions that distribute state orders for educational and scientific services, determine the framework of the educational process and control its quality. Nonetheless, despite this rather large amount of functions within the higher education system performed by state agencies, higher education institutions have a sufficient amount of autonomy.

Degrees of university autonomy and their ability to adapt to the changing demand in the educational service market

According to Article 3 of Federal Law "On Education in the Russian Federation"[29],
state policy and legal regulation of relations in education is based on, among other things, the principle of autonomy of educational organizations, and respect for and observance of the academic rights and freedoms of academic staff and students. Autonomy of educational organizations is understood as independence when carrying out educational, scientific, administrative, financial and economic activities. Educational organizations are responsible for their own staff schedule, and for hiring personnel. Moreover, educational organizations are free to define the educational content; to develop and approve educational programmes (when the latter do not contradict the federal state education standard); to select courseware and educational technologies for their educational programmes. Educational organizations independently determine their areas of scientific research, and can do research, including jointly with other organizations. An educational organization is free to conceive its own development programme (however, it has to be agreed by the founder).

[4] Federal target programmes are a widely used tool of programme and objective financing in the Russian federation. The majority of strategic educational projects that are going to be described below are implemented as part of federal target programmes.

An important initiative of the recent years aimed at enhancing the autonomy and flexibility of educational organizations, is the transition of leading Russian higher education institutions into a new legal organizational form – the form of autonomous institutions. This legal organizational form gives the university more flexibility in using and allocating funds, including funds from extra-budgetary activities; simplifies procurement procedures; and envisions the creation of a Supervisory Board with the number of state agency representatives not exceeding one third of the total number of Supervisory Board members. At the end of 2013, 43 universities in Russia (7.4% of the total amount of state universities) had the status of autonomous institutions[30].
Another positive innovation that increases the autonomy of universities is the possibility to independently determine a part of the content of educational programmes – up to 50% for bachelor's programmes, and up to 70% for master's programmes[31], set out in the new federal state educational standards.

Moreover, a new approach to distributing student places funded from the federal budget among universities was developed. The total annual amount of state-funded places was divided into federal and regional components (for each subject of the Russian Federation), in order to preserve personnel training in demand from the local economy in the regions. Applying for the budget place distribution, higher education institutions must take into account the needs of the regional labour markets and coordinate with the employers up to 70% of the total number of places for bachelor's and specialist programmes, and 30% for master's programmes. This system of budget place allocation forces the universities to interact with the employers more actively and to look for partners among them[32].

We can therefore say that the country's state education policy is focused on enhancing the autonomy of state universities and on reducing the normative barriers that prevent universities from flexibly responding to the changes in the educational service market. Nonetheless, a large group of universities that prepare personnel for the local labour market and does not have significant additional extra-budgetary sources of financing, continues to rely heavily on state financing and focus more on state orders than the actual needs of the local labour market.

The structure of higher education in the Russian Federation and the role strategic state projects play in its development

At the end of 2013, there were 965 higher education institutions and 1482 branches within the system of higher education of the Russian Federation. 389 (40.3% of the total) higher education institutions and 533 (36% of the total) branches are private. Private educational institutions accounted for approximately 15% of students at the end of 2013[33]. Therefore, despite the fact that state universities only slightly outnumber the private ones, that is where the prevalent majority of the students are. This has to do with the significantly higher quality of the education process at state universities.

According to Article 10 of the Federal Law "On Education in the Russian Federation"[34], there are three levels of higher professional education:

– higher education – bachelor's degree;
– higher education – specialist's, master's degree;
– higher education – training of top qualification experts.

Bachelor's and specialist's programmes are open to students after high school education; master's programmes and top qualification trainings are open to those who have completed higher education studies of other levels; and top qualification programmes are open to those who have specialist's and master's degrees.

In actual fact, the Russian Federation has already completed the transition to the multi-level organization of higher education recommended by the Bologna declaration. According to data from the Ministry of Education and Science, in the 2013-2014 academic year, students enrolled in bachelor's programmes

accounted for 79.8% of freshmen; and those enrolled in master's programmes accounted for 8.3%. Transition to new federal state education standards of the third generation, developed on the basis of the multi-level principles of organizing higher education, starting from 1 September 2011, played an important role in the successful transition. Prior to that, despite the legislative recognition of the new structure of higher education levels, the amount of students enrolled in bachelor's and master's programmes was relatively low. In 2010, only 14.3% of the students were enrolled in bachelor's programmes, and 4.3% in master's programmes.

However, despite the successful transition to the "bachelor's-master's-graduate school" system, master's degrees are clearly underestimated on the existing labour market in the Russian Federation. When selecting candidates, the majority of employers do not see any significant differences between graduates that studied under traditional programmes (specialists) and graduates with bachelor's and master's degrees. Moreover, employers don't see significant differences between those with bachelor's and master's degrees. That is why in the majority of cases (with 85% of employers[35]) graduates with degrees of different levels have equal chances when applying for the same position. On the one hand, these results could be explained by the objective lag between the academic formalization of the system and the graduates' securing their position on the labour market[36]), and on the other hand, by the not always refined content of the master's programmes.

Normatively, currently all educational institutions within the higher education system are classified as "educational organizations of higher education". There are several categories or types of educational organizations:

- Leading classical universities of the Russian Federation;
- Federal universities;
- National research universities.

Leading classical universities of Russia are Lomonosov Moscow State University and Saint-Petersburg State University. These two universities are at the forefront of Russian education. They are traditionally ranked the highest among the country's universities by international ratings (according to QS World University Rankings 2014/2015 – places 114 and 223, respectively[5]). They have maximum organizational autonomy, as well as autonomy in research and educational activities. Their activity is regulated by a separate law of the Russian Federation: these universities have the right to implement educational programmes based on their own standards; to organize additional admission exams; their presidents are appointed by the President of the Russian Federation himself. Each university was given RUB 5 billion to implement their development programmes (with a duration of 10 years). This category was formed in 2009.

Federal universities began appearing in 2006 by merging together several regional universities[6]. Each newly created federal university compiled a development programme that was then reviewed and approved by the Government of the Russian Federation. The main focus of the development programmes was placed on participating in the social and economic development of the regions where the federal university was located and the neighbouring regions; and on providing the labour markets of these regions with highly-qualified personnel. Additional financing in the amount of RUB 1 billion per year was allocated to implement these development programmes (the duration of the programme is 10 years, with the first five funded from the state budget). There are currently 9 federal universities, and another one, Vernadsky Crimea State University, is in the process of creation.

[5] Official site of the rating - http://www.topuniversities.com/university-rankings/world-university-rankings/2014

[6] Immanuel Kant Baltic Federal University was the only one created without a merger, on the basis of the Immanuel Kant Russian State University.

Federal universities were meant to become the intellectual centres at the level of Russia's federal districts (several regions united administratively – there are currently 9 federal districts in Russia), thus territorially diversifying the country's system of higher education that is largely concentrated in two cities, Moscow and Saint-Petersburg.

However, the state project on creating and supporting a network of federal universities as regional educational leaders, albeit objectively in demand within the country's educational system, was not flawless.

Firstly, the educational organizations that merged in the process of forming federal universities, were often at different stages of development, had significant differences in corporate culture, organizational processes at various levels of maturity, and incompatible personnel potential. Merging a strong university with several weak ones (especially if the latter were of comparable size) did not always result in a strong federal university.

Secondly, in the process of putting together the federal university development programmes, the state did not announce any specific long-term objectives and the role the federal universities were meant to play in the system of Russian education; there wasn't a sufficient amount of KPI's for federal universities; and the targets that were set were not ambitious enough and could have probably been achieved without state support. Despite the well-organized monitoring, its results were not always taken into account when making state decisions related to the functioning of federal universities.

That is why currently the group of federal universities is not homogeneous in terms of their level of development. It could be divided into regional and national leaders (with a part of the federal universities participating in the "5-100" project with the support of the best Russian universities – see below for details), and universities that have not been able to achieve significant progress, and that are not much different from the other universities in their federal district in terms of their research and teaching potential.

The "*National research university*" category was normatively consolidated in 2008. The majority[7] of the universities were given this category following a competitive selection of their development programmes. This ensured a relatively high quality level of the group right from the project launch. The main goal was to create a network of leading research universities at a national level on the basis of Russia's strongest universities (with the exception of Moscow State University and Saint-Petersburg State University that enjoyed additional support before).

The strategic mission of universities that are part of the national research university group is to support the dynamic development of the country's science and technology sector, and to provide it with the required human resources, balanced in terms of headcount, training areas, qualification and age structure taking into account the required renewal rate and the forecasted structural changes in science and economy. The project to support national research universities (hereinafter referred to as NRU) presupposed the provision of additional financing to implement the development programme elaborated to participate in the competitive selection. The duration of the programme is 10 years, with the first five presupposing financing from the state budget.

The average volume of annual financing is RUB 340 million. A total of 29 universities participated in the two stages of the project.

[7] During the pilot stage of the project, two universities were assigned the "National research university" category without competitive selection.

The competitive nature of the project, high university autonomy when implementing the development programmes, resulted in significant project results on a national level. For instance, over the period of programme implementation, the income from research activities across the network of research universities doubled: from RUB 611 million in 2010 to RUB 1,114 million in 2013; publication activity over the same period increased by 67%.

Nonetheless, insufficient annual financing during the period of project implementation compared to similar projects to develop research universities in other countries, as well as its short-term nature (there are currently no plans to continue financing the NRU support project) prevents us from perceiving the NRU support programme as a mechanism for developing world-class universities.

In 2013, the Ministry of Education and Science of Russia initiated the "5-100" project[37] in order to develop world-class universities. The goal of the project was to increase international competitiveness of leading Russian universities and have five of them included into the Top 100 of international ratings by 2020. Programmes to grow competitiveness from 15 universities were selected to participate in the project on a competitive basis. Of the 15 winners, 11 have the status of a NRU, and 3 are federal universities. Recommendations from the project's International Council played an important role in the competitive selection process.

Despite the fact that there were no special categories normatively established for the project winners, the project can also be viewed as strategic for the country's higher education. Conceptually, it continues and develops the ideas that were at the basis of the NRU support project, setting the participants more ambitious targets of increasing international competitiveness and attracting more resources to tackle the challenge. The average volume of additional financing for a university under the programme in 2014 is RUB 725 million. Moreover, this project presupposes a number of management innovations (for projects of the Ministry of Education and Science of Russia): for the first time, an International Council of experts plays an important role in a strategic project; for the first time, participating projects that failed to pass the intermediary assessment lose the financial support[8] of the state.

The "*Workforce for Regional Development*" project to support backbone regional higher education institutions is another strategic initiative launched by the Ministry of Education and Science of Russia in 2013. The "Workforce for Regional Development" project is aimed at supporting universities that focus on training personnel for the regions. The project presupposes two years of support for initiatives to create or renew educational programmes developed in the interest of leading regional companies. The amount of additional support is RUN 50 million per year. 14 action plans were supported on the first stage of the project.

Despite the more targeted nature of support, participants of this project also form a development programme for the university, aimed at satisfying the regional market demand for highly-qualified personnel to the best of their ability. Among the shortcomings of the project are the brief nature of support, and the lack of existing plans to continue and develop the project.

Therefore, despite the fact that normatively there are only three categories of higher education institutions, over the last few years the Ministry of Education and Science of Russia has initiated a number of comprehensive strategic projects to form and support different elements of the higher education structure:

[8] Based on the results of the first year, it was decided to stop financially supporting the development programme of one of the universities.

– educational leaders that have to be striving to compete with world-class universities (financial support for Moscow State University, Saint-Petersburg University, "5-100" project);
– leading research universities that work on solving scientific goals at the national level and can compete in individual research areas on a global level ("NRU" project);
– universities that are regional and industry leaders training highly-qualified personnel for the innovative economy (creation of federal universities, "Workforce Skills for Regional Development" project).

The only group of educational organizations that did not receive any support includes universities that offer applied bachelor degrees and train personnel for the local labour markets.
All these projects share is a brief nature of financial support and a lack of clear plans to continue financing. The Ministry of Education and Science of Russia sees them rather as an impetus for the development of an educational organization that allows it to reach a new level, improve its competitive position on the market of educational services and its institutional stability. We used the project to support federal universities as an example to show that this approach is not always successful. Nonetheless, we cannot deny the obvious positive impact of the project on the participating universities. Timely implementation of these projects has allowed the participating universities to renew their scientific and educational infrastructure and staff, and to set the foundation for further development and competitiveness on an international level.

Quality standards and assessment of the higher education system in the Russian Federation
Efficiency monitoring, performed annually by the Ministry of Education and Science of Russia among higher education organization, is one of the most topical initiatives in assessing the quality of higher education that has a direct impact on the structure of Russian higher education. Efficiency monitoring is performed every year. The first round of monitoring was done in 2012. It was compulsory only for state higher education institutions and their branches. Starting from 2013, monitoring is done for private universities as well.

The goal of the monitoring is to fight low-quality education in order to identify the weakest educational organizations and determine the ways of further optimizing the educational network. That is why university monitoring is based on a small set of quantitative efficiency indicators and does not use qualitative assessment. Efficiency indicators cover the main activities of a university (educational, research and development, international, financial and economic), as well as its infrastructure and graduate employment[38].

Minimal indicator values are set rather low (for instance, the minimum acceptable income from R&D activities of one educational research worker is only RUB 51,000 per year). Nonetheless, as current monitoring has revealed, about 1,000 universities and branches[39] with 1.5 million students failed to meet even such low threshold efficiency values. Based on the 2014 monitoring results, it was decided to reorganize 220 branches of state universities; over 300 licenses for the right to provide educational services were revoked from private universities starting from September 2013.

The state efficiency monitoring tool has been rather successful in purging the country's education system of educational organizations that provide low-quality educational services. The situation is trickier when it comes to assessing the efficiency of strong educational institutions that naturally pass the official quality monitoring successfully. In addition to the official efficiency monitoring, their activity is analyzed when monitoring strategic state projects briefly described above.

Unfortunately, there is no single officially accepted framework for qualitative and quantitative assessment of leading universities on a state level, which largely limits the possibility of benchmarking them against each other and assessing their internal efficiency.

In 2011-2012, the Ministry of Education and Science of Russia initiated an attempt to develop a single ranking system for Russian universities. Despite the high-quality results of the ranking and the fact that the methodology was certified by international higher education audit organizations[40], the Ministry of Education and Science of Russia did not support the initiative to organize the ranking on a constant basis (although some elements were used when developing the methodology of the state efficiency monitoring).

Moreover, the presence of Russian universities in leading international university ratings (THE, QS, ARWU) is being monitored on the highest political level. In 2013, Russian information agency Interfax together with QS formed a university rating for the BRICS countries[41].

Characteristics of the national financial structures

Financing and operational practices of higher education

Financial support for providing public education services in the Russian Federation is regulated by the law of the Russian Federation considering the specific features set out by Federal law "On Education in the Russian Federation".

There is currently a wide variety of ways financial resources are allocated to education. They are made up of budgetary and extra-budgetary funds, including the education institutions' own resources. Extra-budgetary resources, in their turn, are made up of extra-budgetary funds (employment, etc.), money from organizations, the population and foreign sources. Budget financing comes from all levels of the budget system.

Higher education is financed primarily by the state, but not limited to it. Households, companies and charities are also important sources of financing for higher education. As their role expands, the very mechanisms of higher education financing change.

According to Federal law "On Education in the Russian Federation", federal budget allocations are provided to support at least 800 students out of every 10,000 people aged 17 to 30 living in Russia and studying under higher educational progammes with state accreditation.
Budgetary expenses on higher education have been growing over the last few years.[42]

Table 1

Budgetary expenses on higher education and postgraduate professional studies in 2004-2011.

Indicator	2004	2005	2006	2007	2008	2009	2010	2011
Higher education and postgraduate professional studies, RUB billion	76.9	125.9	169.9	240.2	294.6	347.2	381.6	416.8
Share of expenses on higher education and postgraduate professional studies in the consolidated education budget, %	13.0	15.7	16.4	17.9	17.7	19.5	19.7	18.7
Share of higher professional education expenses in GDP, %	0.45	0.58	0.63	0.72	0.71	0.89	0.89	0.76
Growth rate of budgetary expenses on higher professional education,%	-	163.7	134.9	141.4	122.6	117.9	109.9	109.2

Source: Federal Treasury

Discovery Research Group estimated the market volume for higher education in Russia in 2011 at RUB 197.2 billion. The value of the public higher professional education market was 71%.[43] Total higher professional education expenditure in 2013 including private expenses was RUB 446 billion.

In 2005-2014, higher and postgraduate professional education accounted for the biggest proportion of federal budget education expenses (over 70% until 2013; and over 85% in 2014).[44]
Financial support procedures for educational institutions are regulated by the Budget Code of the Russian Federation, laws on the budget, normative documents of the Ministry of Finance of Russia and other federal executive authorities.

In the context of managing limited resources, the Government of the Russian Federation introduces a new principle of implementing state objectives: ensuring that the universities fulfil state assignments to prepare specialists based on competition results, regardless of the university's form of ownership (state,

private) and legal organizational form (budget, autonomous, public institution), as this result-oriented approach prevents the form of ownership from being the main prerequisite for state support.

Starting from 1 January 2009, the Budget Code of the Russian Federation (Article 69.2) introduced budget allocation planning based on assignments received from the founder. Assignments can be either state or municipal.

A state (municipal) assignment is a document that sets out the requirements for the content, quality, volume, terms and conditions, procedures and results of the state (municipal) services provided (Article 6 of the Budget Code of the Russian Federation). The purpose of developing and setting the assignments is to provide services (perform works) to execute the functions of the state as provided for in the law of the Russian Federation in the areas of science, education, health, culture, social protection, employment, physical culture and sport.

Using the assignment, the founder finances the provision of services to the population, increasing the assignments for those establishments that ensure the provision of higher quality services. Financial provision of the founder's assignment to render state (municipal) services must be done on a normative basis.

The procedure for placing state assignments to train specialists with higher professional education presupposes the assessment of a large amount of components that make up university activities: qualification of the research and teaching personnel, material and information support, the level of scientific research being conducted, employment opportunities for graduates, dorm availability, etc.

Financial provision of state assignment fulfilment by a state budget institutionis done in the form of subsidies for the recovery of standard costs related to providing state services (work delivery) to individuals and (or) legal entities. The subsidy amount has to be calculated based on standard costs of providing state services and standard costs of maintaining the relevant real assets and the most valuable movable assets secured to the state budget (autonomous) institution or acquired by the state budget (autonomous) out of funds allocated to it by the founder for the purchase of such assets (with the exception of leased assets), and tax expenses for which corresponding property is recognized as taxable, including land plots.

Financial provision standards for the fulfilment of state assignments to provide state services in terms of economic substance are related to current costs and do not cover capital expenses. Budget financing of development costs is done through subsidies to co-finance capital construction projects and other types of target subsidies.
Standard costs of rendering state education services are determined for each education level in accordance with federal state educational standards, for each type and line of educational programmes taking into account the mode of study, federal state requirements (where applicable), type of educational organization, network-based educational programmes, educational technologies, special conditions created for students with limited abilities, additional professional training for teaching employees, safe teaching and mentoring conditions, students' health and safety, as well as other special features of the organization and its educational activities (for different student categories), per one student.

Financing covers not only educational activities but also a number of social protection functions of the educational institutions: student scholarships, mentoring, support for orphans, etc.
Introduction of a new student scholarship system that includes both academic (based on performance) and social (students from low-income families) scholarships allows creating conditions in which higher

education is less dependent on family income, and facilitates access to education for students from remote regions.[45]

There are several types of state scholarships in the Russian Federation:

The state social scholarship is given to students in need (orphans and children deprived of parental care, I and II group invalids, etc.). The main difference between the social scholarship and all other scholarships is that it is not performance-based. The amount of the social scholarship in universities is from RUB 2,010.

The state academic scholarship is paid during a semester based on the student's performance in the previous semester. All first-year students receive the same scholarship during the first semester. Today, the amount of a scholarship in a Russian university is no less than RUB 1,340.
All graduate and post-graduate students that are doing full-time studies and that have passed the annual certification have the right to receive the state scholarship. Starting from 2014, the scholarship amount is set at RUB 6000 for graduate students and RUB 10,000 for post-graduate students that are working on their thesis in technical and scientific disciplines that have been included in the list compiled by the Ministry of Education and Science of Russia.

Scholarships of the President of the Russian Federation and special scholarships of the Government of the Russian Federation (Governors' scholarships, scholarships of the heads of the subjects of the Russian Federation) are awarded to students for exceptional academic and scientific achievements.

There are also private private scholarships. For instance, starting from 2014, the Potanin Charity Foundation awards scholarships to master's students and professors teaching master's programmes that have passed a competitive selection.

Of course, the scholarship amount will not make the student rich but if the student is entitled to several types of scholarships, his total income could come close to RUB 20,000 (for comparison, the average salary in Russia in 2013 was RUB 29,940[46]).

In Russia, there is state support for educational loans to citizens enrolled in key professional educational programmes. Education loans are given out by banks and other credit organizations to citizens enrolled in organizations that provide educational services for the purposes of studying under corresponding educational programmes, and are target loans.

Education loans can go towards tuition fees at an organization that provides education services, covering it fully or in part (basic education loan) and (or) living expenses, purchasing study and research materials and other daily needs during the study period (accompanying education loan). The terms and conditions, amount and procedure of receiving state support for an education loan are determined by the Government of the Russian Federation.

Significant state resources are allocated to the higher education system through specialized target (both federal and regional) projects and programmes that are directly or indirectly targeting the development of higher professional education. Such resources are normally allocated on a competitive basis and not only to state universities.

Plurality in funding mechanisms, flows of capital for investment and changes in budgetary priorities

In the recent years, programmes that ensure the integration of education and science, aimed at enhancing the efficiency of using resources in an integrated scientific and educational environment based on adjusting the exiting principles of financing scientific research at universities have received substantial support. Resources were shifted towards financing grant-based scientific research, granting scientific and educational organizations the right to participate in competitions regardless of their form of ownership and subordination.

Currently, the main forms of university income diversification include paid R&D[47], small business, lease and additional education. Alongside obtaining scientific results through contract-based research, other issues are being resolved, such as raising the income of professors, providing new equipment, and offering the opportunity to compensate the universities' institutional and administrative costs.

Business activity based on setting up small university businesses aimed at implementing new technologies has the potential to contribute not only to the university's income, but also the quality and flexibility of its educational programmes. Overall, business activity, even if it only covers accompanying areas (translation services, printing, consulting and editing) allows increasing staff salaries. Taking into account the role of the universities' research and innovation activities in the process of generating new knowledge and developing an intellectual environment, the state has made the decision to involve leading universities and technical platform coordinators to bring together science, education and the real sector of economy. In the years to come this will probably also help attract additional budgetary and extra-budgetary funds.

The diversification is most active in implementing additional educational programmes (teaching pre-entry courses, additional special courses and programmes popular among students and the population). The pay for such programmes could be rather high, because it is not limited legally or otherwise. When the Russian higher school fully transitions to the 4-year bachelor's programme, income from these activities could account for 15-20% of paid education under core programmes.

Russian educational institutions are trying out corporate asset management, a form that is new for them. Conditions have been lawfully set up to encourage an active development of this source of financing for the non-profit sector in Russia. In December 2006, Federal law #275-FZ "On the procedure for forming and use of the target capital of non-profit organizations" was passed. As soon as this law came into force, Russian universities and the scientific communities started showing interest in endowments as a new prospective instrument for higher education support; universities began to establish endowment funds that allow them to ensure their financial stability and reduce dependence on one-off donations and sponsor money. Having a transparent endowment fund allows the university management to develop long-term sources of financing, including for non-profit activities. At the end of 20112, the total amount of endowment funds was around 55.

In February 2014, the largest endowment funds at Russian universities were: $ 34 million (Moscow State Institute of International Relations (University) of the Ministry of Foreign Affairs of Russia, MGIMO), $ 27.7 million (Saint-Petersburg State University), $ 10 million (Financial University under the Government of the Russian Federation).

Low activity of universities, business and population in creating endowment funds is not only determined by the state of the economy but also by the organizational, administrative and legal barriers that hinder the active inflow of investment into education through the endowment mechanism. Federal law from 30 December 2006 #276-FZ "On the procedure for forming and use of the target capital of non-profit organizations" set a number of tax concessions for non-profit organizations (owners of the target capital). However, this did not serve as a sufficient impetus for the active creation of endowment funds. Another

factor hindering this process is the fact that due to low levels of income for the majority of the population, traditionally free education, and lack of trust for charities, there is currently no tradition of charitable activity, nor are there any efficient implementation mechanisms in place.

As practice shows, the rates at which endowment funds are being created by educational institutions are not high enough. This is partially explained by their novelty and the relative complexity of the mechanism the law offers. However, examples set by the Moscow State Institute of International Relations and Saint-Petersburg State University prove the necessity of creating such funds. One of their key advantages is the inflow of private investment into education.

Over the recent years, the issue of endowment funds received wide publicity, for instance, at the Civic Chamber of the Russian Federation, where the opinion that "target capital funds are the future" was voiced at many meetings.

Currently, all educational organizations, including state universities, pay taxes, including:

- income tax (on paid education; research and development paid by the client; all services provided);
- value-added tax (VAT) on paid accompanying services (most educational services and income from scientific research are exempt from VAT);
- property tax (starting from 2006);
- land tax;
- some other less significant taxes.

Despite the fact that the Tax Code of the Russian Federation in force contains articles that exempt some types of university income and property (primarily budget allocations as well as grants and donations) from property tax and VAT, the total current tax burden of universities including the necessity of tax administration, is very high.

When paying for education or when donating to an educational establishment, citizens have the right to a tax deduction. Income tax repayment (social tax deduction) related to payments for education (one's own or one's child aged under 24) is 13% of the amount actually spent on education in a year per student; income tax savings when donating to an educational institution amount to 13% of the actual donation but not more than 25% of the citizen's income per year. If a business entity is paying for the education of its employees, in order to get the tax deduction, it must prove a direct relation between the education received and the employee's job duties, as well as present the university's license to render educational services.

Tax concessions and deductions for businesses that support the development of education by way of grants and donations have been cancelled by the Russian tax law starting from 2002. Such expenses can be incurred by a business only from its net profit after all taxes.
Pro bono transfer of goods, works, services and property rights as part of charitable activities to support an educational institution is exempt from VAT.

Development of a modern public finance management system lead to changes in the existing system of supporting the functioning of public organizations. This was reflected in the conceptual efforts to modernize financial relations in the Russian system of higher professional education. Transformations in the system included: transition from budgeted financing of higher education institutions to financially supporting educational activities based on state assignments to implement budget services and the state contract; moving away from budgeting based on income and expenditure estimates and implementation of result-oriented budgeting; expanded autonomy and responsibility of higher educatioinstitutions in the

financial and economic domain that presupposes the active use of such financial methods as planning, forecasting, investment, loan services, leasing, factoring, insurance, and financial marketing; development of a system of tax incentives for universities at federal, regional and municipal level; implementation of modern financial reporting and financial management methodologies.

Implementation of result-oriented budgeting consists in improving the process of developing and implementing target programmes; developing models and mechanisms for financing universities that would incentivize them to improve the quality of their services and the efficiency of budget expenses; giving universities the right to designate their resources themselves; and improving the quality of financial management in the budget domain.

Selective investment in future growth areas and cost cutting

Higher educational institutions are managed through a comprehensive state policy based on the short- and long-term education development programmes.

Programme and objective mechanisms of planning and financing the system of professional education and educational institutions are used to resolve target objectives of developing the education system. They usually come in the form of state and departmental special-purpose programmes, as well as individual projects. Federal target programmes are approved by the Government of the Russian Federation with the annual financing volume within the framework of the federal budget law. Departmental programmes and the amount of their financing are approved by the budget planning entities.

The following expenses of educational institutions are financed based on programme and objective methods: purchase of equipment; capital repairs; reconstruction and new construction; personnel re-training and development; IT support; setting up quality management systems, etc.

Using the programme and objective financing method allows tying the achievement of planned indicators with the volume of allocated resources more closely. This method allows concentrating budget resources for resolving priority tasks.

Competitive approach to selecting educational institutions for implementing programme initiatives allows minimizing expenses on achieving set objective and resolving the task; and increasing the efficiency of using budget resources.

Over the last few years, higher professional education financing system has been characterized by a combination of the programme and objective method with university network optimization (new categorization of the subjects of higher education: leading classical universities, national research universities, federal universities, etc.).

Massification of higher education as a social phenomenon in Russia.

In Russia, the phenomenon of higher education massification is perceived in the public mind more as an expression of egalitarianism. Massification for Russians means the possibility of reaching a certain social status that would solidify their prestige and determine the fact that they will be perceived as successful; and only then does it impact financial well-being, supports career growth, and facilitates the accomplishment of life goals. Accessibility of higher education is used as a social mobility tool. Image characteristics prevail over pragmatic mindsets in the society. This impacts the development of higher education as a social institution.

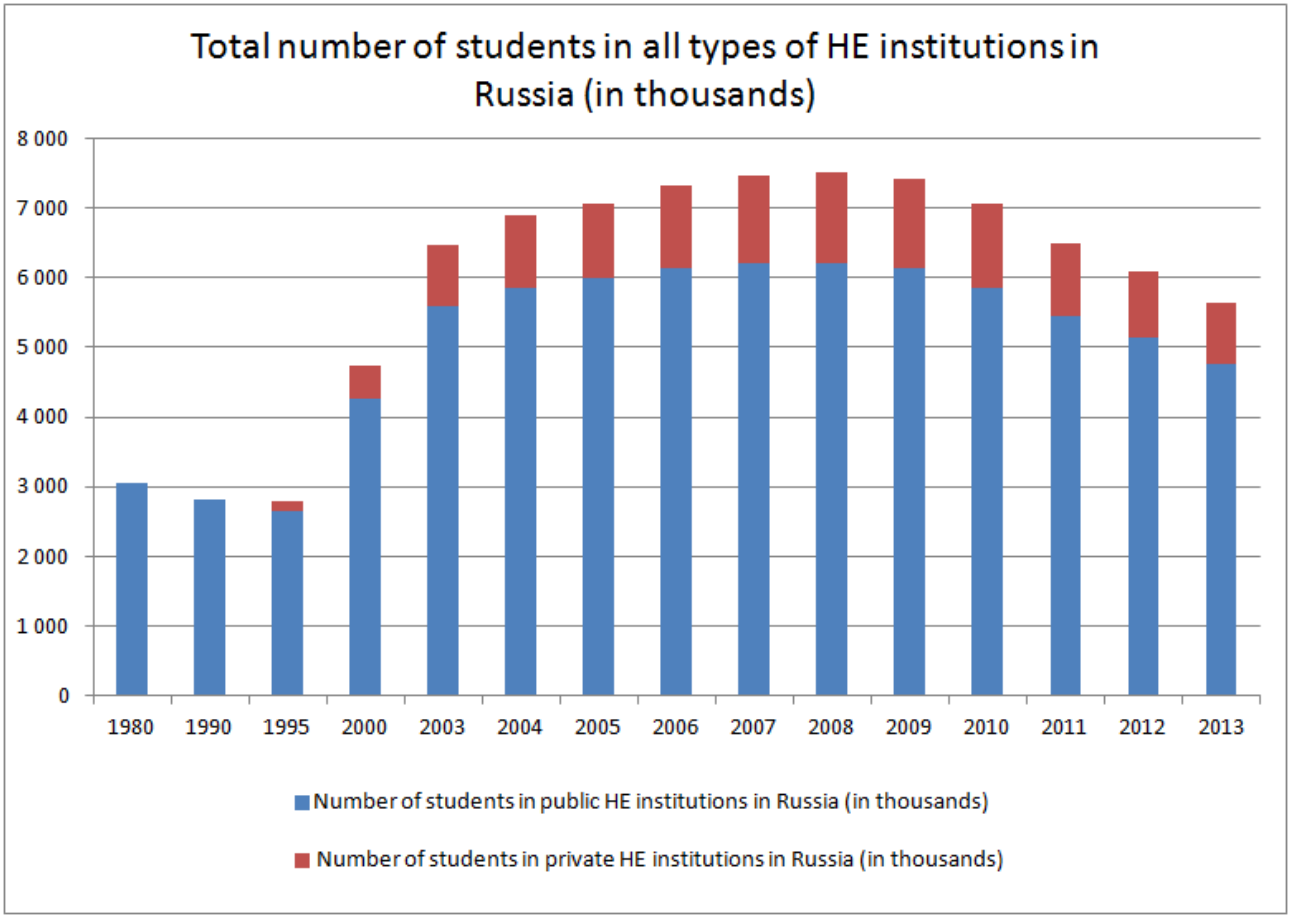
As in many countries that have felt the impact of massification, there have been significant changes in Russian higher education to the quantitative and qualitative characteristics of practically all elements of the system, starting from organizations. First of all, the amount of organizations that offer higher education programmes has more than doubled compared to 1980, peaking in 2008, when there was a total of 1134 higher education institutions. After that there was a decline, with the amount of universities gradually dropping. This had to do with the tightening forms of control over the quality of their activities (forms of control are described below). Secondly, mass access to higher education and growing social demand from the Russian population drove the emergence of private universities[9]. In 1995, there were 193 of them, growing to 474 in 2008, followed by a decline for the same reasons that were behind the decline in the number of state universities.

Growth in student numbers, changes in demographic characteristics, gender situation among students.

Massification of higher education in Russia had an impact of the quantitative and qualitative characteristics of the student community. The number of students enrolled in public and private higher professional education institutions grew by 1.85 times over the last 35 years: 3,046 million in 1980 vs. 5,647 million in 2013 (see Figure 2).

[9] Information on private universities appeared in official statistics on Russia's higher education for the first time in 1995.

Figure 2.



Source: Official statistics. Population. Education: Key education indicators: (last updated: 30.09.2013) / Federal State Statistics Service. M.: Rosstat, 2014. (http://www.gks.ru/free_doc/new_site/population/obraz/obr-svod1.htm)[48].

Intensive growth of the total number of students peaks in 2008, when the share of higher education students was 5.26% of the country's entire population. After 2008, there was a decline that lead to a decrease in the share of students in Russia's population to 2.94% in 2012. This process was driven by the changes in the demographic situation, the so-called "demographic pit of the 1990s" – the fall in the birth rate in Russia as the reaction of the population to the radical social and economic transformations in the country[10]. Starting from 2005, the number of 15-24 year-olds declined by an average of 3% a year. Russian demographers forecast that this period of active decline will continue until 2020[49].

Despite the challenging demographic situation, over the last 5 years Russia has been in the Top 5 countries with the highest share of the population receiving higher education within a certain demographic age-group (in 2012, this indicator was 76.14% of the population aged 19-25) and the highest share of employable population with higher education (55.5% in 2012)[50].

[10] In 1991, the USSR collapsed and the new state of Russia emerged.

82% of Russian students are enrolled in state universities, with private universities accounting for 18%. In absolute numbers, in 2013 these indicators were 4,762 million and 884.7 million, respectively.

Massification of higher education has practically no impact on the gender structure of the Russian student community. Over the last 20 years, women prevailed over men. Today, women account for 55% of all higher education students. This number remains practically unchanged for all higher education levels and programmes.

Growing demand for educational services forced Russian institutes to pay attention to people with disabilities. Quite a few Russian universities are taking measures to provide access to higher education for this population group, providing education services in core, on-site and off-site, off-site and distance-learning formats. If in 2000 students with various disabilities accounted for just 0.15% of the total number of students, in 2010 their amount grew 3 times to 0.49%[51].

Over the last 15 years, in the structure of education formats there was an intensive growth in the number of students enrolled in off-site and external studies programmes. But the increase in the number of students enrolled in external studies programmes did not have a significant impact on the distribution within the education format structure. At the same time, the number of off-site students more than doubled between 2000 and 2008, outstripping the amount of on-site students. From 2008 to 2012, the number of off-site students outstrips the amount of on-site students in relative terms from 1% to 7%; and starting from 2012, the share of off-site students in the total number of students, regardless of the mode of attendance, exceeds 50%[52].

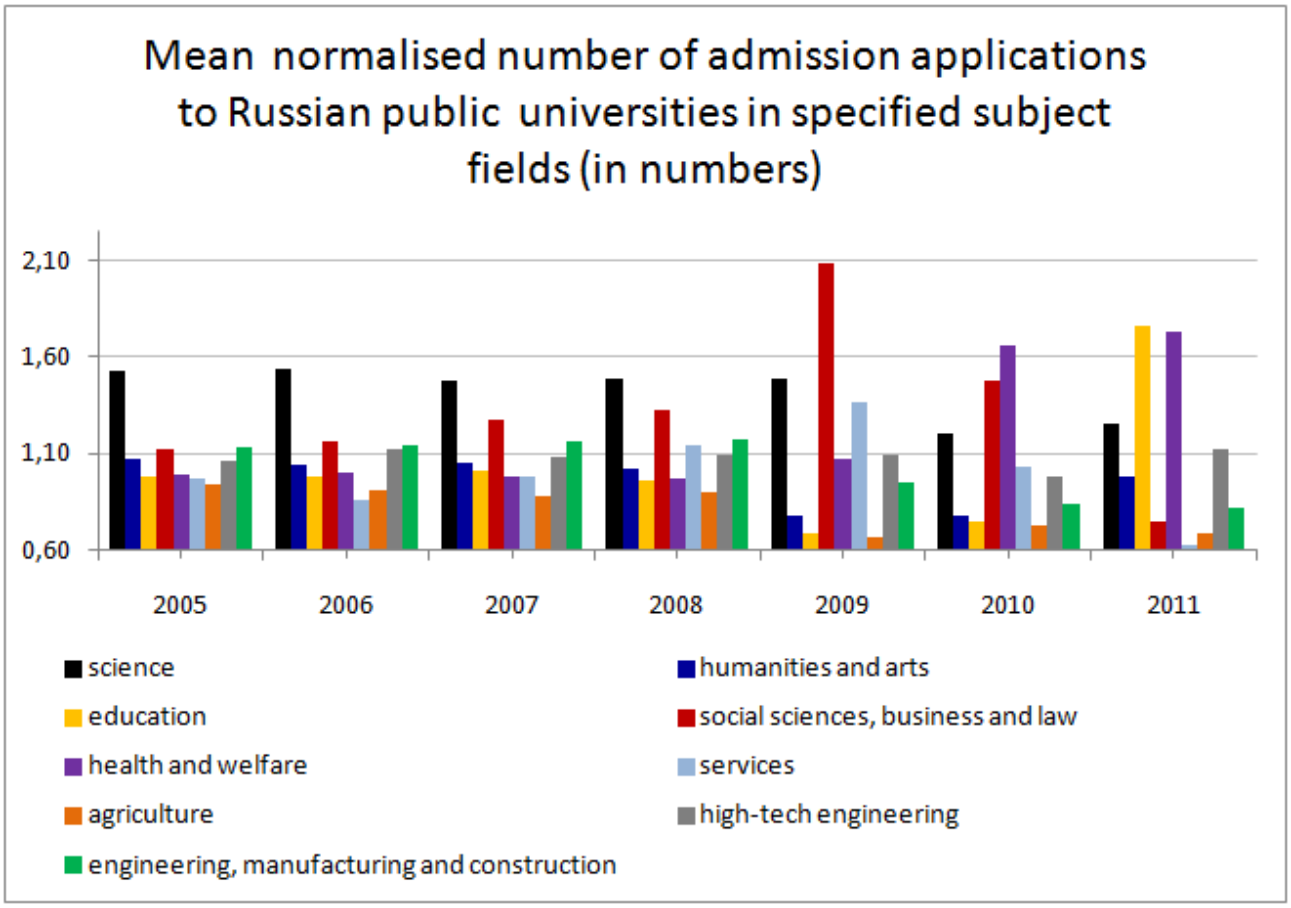
Starting from 2010, another phenomenon emerges, related to the consequences of education massification: there is a shift in the ratio between the number of those admitted to a university and the number of those graduating in favor of an increase in the number of graduates. In 2010, 1399 thousand students were admitted to a university, and 1468 thousand students graduated; in 2012, 1298 thousand students were admitted to a university, and 1397 thousand students graduated. This is reflective of the low quality of university education. A great number of people come to mass exclusively commercially-oriented universities, without the necessary qualifications otater motivation to learn and pursue higher education programmes. One way or another, through artificially stretching the length of studies, using academic leave, transferring from budget studies to paid studies, from on-site to off-site, as well as transferring from one university to another, these unmotivated students finally make it to the end and receive their longed-for graduation certificate. A grassroots university is willing to teach weak students for 6, and even 8 years, as long as they pay for it. In this case, the statistics only reflect this redistribution in the length of studies.

Educational preferences of the students.

Mass scale accessibility of higher education services in Russian and the general deterioration in the quality of educational products had a negative impact on the career guidance of the Russian youth. Sociological research and surveys revealed that high-school children and students have an ambivalent and demotivated perception of the value of higher education and professional career choices. Higher education is recognized as the social norm but achieving it does not presuppose any intellectual efforts. There has been a value shift: it's not the quality of the education that counts but whether or not one has a graduate certificate. Social disorientation can also be seen in the definition of what is considered to be a prestigious occupation. 12 years ago when naming the most important professions young people would mention: businessman, programmer, lawyer, economist, manager. Only the doctor remained of the "old" professions that were valued in the Soviet times, mentioned as a prestigious profession by 21% of the respondents (for comparison, businessman got 40%; IT specialist for 30%)[53]. Responding to the social demand, grassroots universities offered an enormous amount of educational programmes specializing in social sciences – management, law, economics, management, without investing into the development of new products, diversification, improving and renewing their educational programmes, or providing them with qualified professors and the necessary infrastructure. As a result, by mid-2000s the national market was oversaturated with lawyers, economists, and managers. At the same time, there was increased yet unsatisfied demand for engineers and technical experts for the energy and chemical sectors, electronics and other high-tech industries. Even managers were in demand, not only those that were trained in "limited editions" at Top 10 leading universities.

10 years later, similar research shows that a large number of young Russian people still leans towards economics, law and management but more and more often young people name the professions of a doctor, engineer, and IT-specialist as their choice. Survey results are indirectly supported by the actions of the students themselves, or rather prospective students that indicate their discipline of choice in their enrollment applications (see Figure 3).

Figure 3.

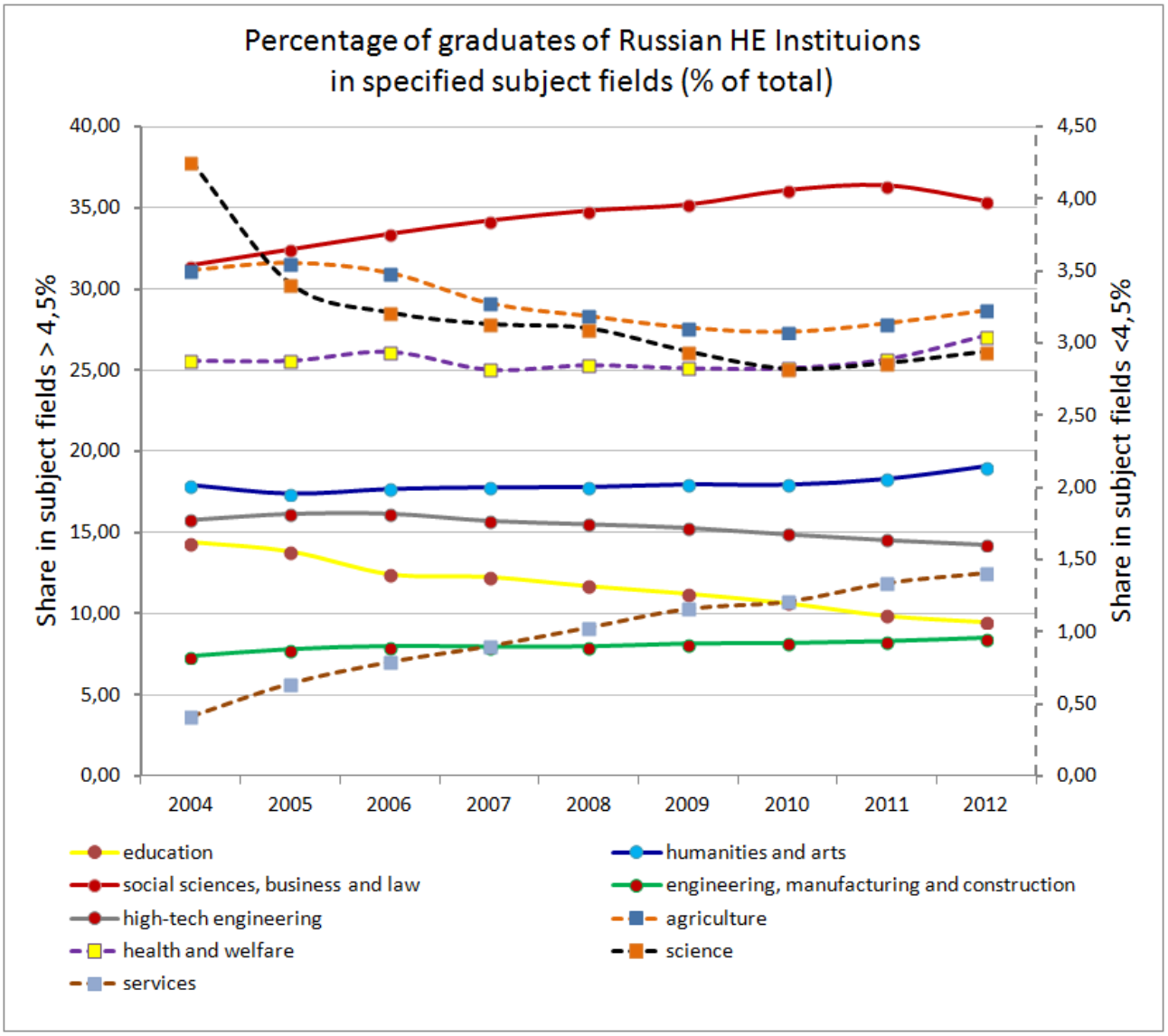


Source: based on data from: Table 7.57. Entrance exam competition at public higher professional education institutions by discipline and area of study // Statistical Yearbook of Russia. 2013: statistics digest / Rosstat. M., 2013[54].

Russian prospective students are beginning to choose complex disciplines or those that were previously unpopular, such as medicine or pedagogy. And whereas the choice of education and pedagogy programmes can be explained by the same reasons as the choice of management or economic disciplines (admission requirements, including Unified State Exam results, are not high; the programmes are not complicated to master; acceptable fees for paying students), the choice of medical professions can no longer be explained by the motivation of easily achieving the goal, i.e. a university diploma. Instead, intelligent and pragmatic factors come into play, it's a conscious choice and possibly family traditions. Prospective students are also looking at engineering and science disciplines, where the competition remains but there is no constantly growing demand. In a way, this lack of overwhelming interest in technical, scientific, and medical programmes, is a "blessing" for the Russian modern system of higher education. If prospective students and students were to rush towards these, their requirements could only be partially fulfilled: there is a lack of good programmes, highly qualified professors, and a smoothly running infrastructure, as well as financial resources to teach technologically complex disciplined. High-level programmes in such disciplines can be developed and implemented into the academic activity of a maximum of 10% of Russian universities – national and national research universities.

A grassroots university is no longer capable of satisfying such demand: of launching an academic programme on optoelectronics. All the more so that launching a medical department is far more difficult and expensive than making a cottage industry of an accounting or legal studies course. The gap between the actual economy demand for qualified labour force on the one hand, and what the universities can offer, on the other hand, is yet to be bridged. Universities continue to mechanically roll out programmes in social disciplines that provide graduate certificates to over 35% of all graduates (see Figure 4).

Figure 4.



Source: Based on data from: Statistical Yearbook of Russia. 2013: statistics digest / Rosstat. M., 2013[55].

Technical programme graduates consistently account for 23% of all university graduates: a stable position with no growth trends. Moreover, the group of engineering disciplines that is oriented at preparing specialists for high-tech production demonstrates the reverse – a small, yet consistent decrease.

The problem is that despite the fact that engineering and technological degrees are in demand on the labour market (even in construction institutions 60% of the students have job offers by the time they graduate), universities are not capable of fully meeting the demand of the labour market, and

consequently, the industrial sector. We have talked about this above: a grassroots university will not be able to offer such teaching programmes because it lacks the academic and scientific infrastructure, professors and financial resources. At the same time, there are not enough elite universities capable of offering teaching services for the nanotech industry or the living system industry in Russia, and their production capabilities are also limited.

Development of the academic profession and system for assessing the performance of academic staff in Russia.

The term "academic development" in the sense of professional and personal growth of academic staff started being used in Russia relatively recently, not more than 10 years ago. Professional activities of a professor or researcher of a Russian university in terms of its development, or, in other words, their academic career, used to be structured and regulated by performance reviews and competitions to fill a vacant position, controlled both by the universities themselves and by state authorities. Performance reviews (attestation) were held once every 5 years to confirm that the academic staff comply with the requirements of the positions they hold. Depending on the decision of the performance review board, an employee would be appointed to a position depending on the confirmed qualification. An employee could develop their professional qualification through an additional education system at relevant professional courses; or develop their scientific qualification by going to graduate school/graduate military courses with the subsequent thesis defense. After the thesis defense at a viva voce and getting a degree of a candidate of sciences (the Russian equivalent of PhD degree) or a degree of a doctor of sciences, the university employee could qualify for the position of assistant professor or professor with a change in their position and level of remuneration.

Assessment criteria for the performance of academic staff at universities include their academic indicators over the period prior to the review; their personal contribution to improving the quality of education in their respective disciplines, as well as to scientific development and to resolving scientific issues in their respective fields; participation in various education and mentoring methodologies and the mastering of new educational technologies; professional development, including degrees and titles. In order to successfully pass the performance review, an employee must provide information that would characterize their professional activities for the period since the previous review. The list includes, among other items, all scientific, academic and educational publications; information on the teaching load; a list of grants and contracts for research and development activities the employee had participated in; information on personal participation in scientific events; information on the employee's participation on editorial boards of academic periodic publications. Over half of the criteria list are indicators that characterize the employee's scientific and research work, even if he held or applied for a teaching position. The requirements are essentially a paradox for the staff of most universities: in the working time budget of a regular university assistant professor there is practically no time left for research and other activities, except teaching, as the total teaching load is sometimes 1000 or even more hours a year. Until all Russian universities were divided into mass and leading (elite) in 2009-2012, as was finally formalized by the Federal Law "On Education", this imbalanced educational load distribution persisted in the majority of Russian universities. A professor or an assistant professor was not motivated to self-develop, and no other forms of professional growth were offered to him. The only opportunity a professor had to improve their knowledge and skills were professional re-training programmes, that were implemented as part of the state additional education system, and that a professor had the right to participate in once every 5-7 years.

And of course, this disengagement of a professor from current knowledge and research, and the lack of up-to-date professional competencies and skills, had a negative impact on the quality of academic programmes and student training.

Another factor impacting the quality of the universities' educational product was the issue of the demographic structure of the academic and research staff. Academic and research staff at Russian universities were not particularly young. The root of the problem was in internal migration – the active outflow of young talent to other sectors of the national economy, as well as in external emigration – the large-scale "brain drain" of the 1990s, and work travels abroad in the 2000s. In 2012, the average age of researchers in universities was 49 years, with researchers in the age groups of "50-59" and "60 and over" accounting for 42.9% of the total number of university scientists. The average age of university lecturers exceeded 53 years, with lecturers in the age groups of "50-59" and "60 and over" together accounting for 46.2% of the total number of university lecturers.

The third and the most important factor that was directly tied to the first two is the low level of labour compensation for lecturers and researchers at universities. Even at the end of the 1990s, the nominal salary level in higher education in Russia was above the Russian average at 102-104%. But whereas a doctor of any clinical profession could find additional sources of income, for university staff these opportunities were very limited: it was either private lessons or additional teaching load, increasing the number of teaching hours, which lead to the deteriorating quality of educational programmes and the disqualification of academic staff.

The evolution of the higher education system in Russia came to the necessity to change the quality of the academic product that had to meet the demand of the modern economy and the system of social production. Principles borrowed from business were inherited by universities, that were now expected to comply with such indicators as efficiency and focus on the market and market mechanisms. Universities had to increase the level of external and internal reporting; to develop their entrepreneurial activity; and to improve the professional skills and competencies of their staff in the context of life-long education. Guidelines to efficiently reproduce highly qualified and competitive academic staff that were meant to support the country's innovative economic development were formulated for the first time in the Federal target programme "Scientific and academic staff of innovative Russia" for 2009-2013 (hereinafter referred to as FTP "2009-2013 Staff"), as well as the State programme of the Russian Federation "Development of science and technology in 2013-2020". FTP "2009-2013 Staff" initiated the emergence within the Russian system of higher education of a pool of "leading" universities (national research universities) from the bulk of universities, providing the first preferences in the form of additional financing.

These programmes formulate the new state policy to develop higher school academic staff. To have a breakthrough in their education and scientific activities Russian universities must resolve the following vital issues:

1. To improve the quality of their academic staff; to create an efficient system to incentivize academic labour, both teaching and research, and a system to stimulate the inflow of young talent into education and science.
2. To update educational programmes, and to develop new programmes that respond to the demands of the labour market and the employers.
3. To improve the quality of the universities' research and innovative activities; to develop a practice of research collaborations between professors and students; to develop universities' integration processes, research centres and hi-tech companies.
4. To develop international and intra-Russian collaboration and cooperation between universities and science centres.

In terms of academic development, in order to resolve these issues Russian universities have to ensure competitive income and to develop a system of material and creative incentives for their academic staff, including through the development of a system of grants to support initiative scientific and educational projects coming from young scientists and lecturers; to create the conditions for efficiently combining research and teaching activities; to develop a continuous cycle of reproducing and retaining scientific and academic staff; to develop and implement programmes of internal and external academic mobility; to actively develop interaction with high-tech industries; to collaborate efficiently with Russian and foreign science organizations and universities; to support high publishing activity of academic staff and their teams.

The state has allocated significant financing for its programmes. RUB 100,517.42 million was spent on the FTP "2009-2013 Staff" (in the prices of the corresponding years), including RUB 85,000.6 million from the state budget. RUB 1,484,279.830 million was spent from the state budget on the "Development of science and technology in 2013-2020" state programme (in the prices of the corresponding years).

What impact do these programmes and financial flows have on the quality of the academic staff development in Russian elite universities, whose participation in these programmes is more obvious than that of mass universities?

1) An increase in the university salary levels. In 2014, average salaries of academic staff at higher schools totaled RUB 45,400, or 144.2% of the Russian average (in 2005, university staff salaries were 102.6% of the Russian average). In 2014, average salaries of researchers totaled RUB 37,900, or 120.3% of the Russian average (101.4% in 2005)[56]. Salaries at higher schools were significantly raised following the Presidential Decree from 07.05.2012 N 597 "On actions to execute the state social policy". However, salaries increased due to the redistribution of financial funds within the universities, no additional funds to increase staff salaries were allocated from the state budget.
2) Changes to the demographic situation. The demography of young university lecturers changed ambivalently. In 2012, the share of young professors in the "under 29" age group decreased to 10.6% (16.1% in 2005), whereas in the "30-39" age group it increased to 24.8%[57] (18.9% in

2005)[58]. The number of young researchers at universities displayed a mild growth: the share of young researchers in the "under 29" and the "30-39" age groups in 2012 accounted for 20.7% and 20.8%[59], respectively, vs. 19.4% and 17.8% in 2005[60]. This reflects the interesting career path university graduates choose to pursue. They are not willing to accept the position of a department assistant (the entry position for a newcomer academic worker at a Russian university who does not hold a degree yet), because the salary is symbolic: it's 6-7 times less than that of a professor and 4-5 times less than that of an assistant professor. University graduates find jobs in industries with high financial potential, at the same time enrolling in graduate schools to pursue a degree. Over the next 3-5 years, they defend their thesis and come to work at the university having already earned a PhD and acquired professional experience, aiming for the position of assistant professor in the nearest future.

3) Redistribution of the lecturers' working time budget. Leading Russian universities got the right to redistribute their lecturers'' workloads between teaching and research themselves.
4) Improved quality of the universities' research activities; higher publishing activity. Leading Russian universities, a total of 40, together account for 38% of Russia's entire publishing flow reflected in the Web of Science system[61]. The authority level of the publications is also growing: on average, an article published by authors from elite universities is quoted at least once a year after its publication[62].
5) Development of cooperation with the industry. In 2013, the share of income of the country's leading technical universities, essentially, "business universities" from research and development in their total income accounted for 30 to 68%. The same indicator is several times lower for leading universities that have traditionally been classified as "classical universities" and are now aspiring to have the international status of research universities: 8-12%[63]. This indicator indirectly reflects not only the topicality of universities' business activities, but also the level of student involvement in research processes: significant volumes of research and development and reduced costs of research that all business universities are aiming for are impossible without active student involvement.
6) Higher internal and international academic mobility. At elite universities, the proportion of academic personnel that went through internships, professional trainings and other forms of academic mobility in 2013 reached 20% and more[64].

We can therefore say that over the last 4-5 years opportunities are starting to emerge within the Russian system of higher education to develop academically and to manage academic careers at universities. Moreover, leading Russian universities have set up departments and offices of academic development as independent structural units. With albeit small financing from the organization itself, elite universities have launched internal mechanisms to monitor the quality of their staff's academic activity; they are developing recommendations and academic career development paths. Given the lack of recommendations, practical guidelines and policies from state authorities that regulate the development of the Russian higher education system, Russian leaders are taking on the task of developing the principles,

methods and indicators for assessing the quality of staff academic development themselves, relying mostly on the experience of the Anglo-Saxon university model.

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