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ACTIVITY PLAN

for the Implementation of Kazan Federal University's
Program for Enhancing Its Competitive Ranking
among Leading World Centers of Higher Education and Research
2013-2020 (stage 3 - 2017):

Moscow, 2017

ACTIVITY PLAN for the Implementation of Kazan Federal University's Program for Enhancing Its Competitive Ranking among Leading World Centers of Higher Education and Research 2013-2020 (stage 3 - 2017):

- presented on March __, 2017 at the meeting of the Council for Enhancing Competitive Ranking of Top Russian Universities among Leading World Centers of Education and Research;
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ACTIVITY PLAN for the Implementation of Kazan Federal University's Program for Enhancing Its Competitive Ranking among Leading World Centers of Higher Education and Research 2013-2020 (stage 3 - 2017) («Roadmap») contains of 50 pages of the main text, 10 annexes of 104 pages .

The list of participants is attached in the Annex 4.

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PART 1. TARGET PERFORMANCE INDICATORS AND MEANS FOR ACHIEVING THEM

1.1. KFU's Objectives and Performance Indicators

The strategic objective of Kazan Federal University (KFU or the “University”) implies forming vibrant, leading and self-developing multicultural international research and academic institution participating in the founding and translation of global values of a number of priority areas among Top-100 leading world universities.

During the first stage of the Road Map implementation (2013–2014)¹ the major transformation vector was directed at the exposure of strategic development priorities:

- Biomedicine and Pharmaceuticals;
- Oil Production, Refining and Petrochemistry;
- Advanced Materials;
- Info-Communications and Aerospace Technologies.

Therefore, the process of forming the platform for future transformations, essential facilities, supporting structures and launch of core *points of growth* – the Centers of Excellence – was initiated in compliance with the priorities selected.

During the second stage (2015 – H1 2016)² the accumulated benefits were secured and large scale transformations were launched in the chosen priority areas employing all the capabilities of a university located in one of the fastest-developing innovative Russian regions. Transformations in social sciences and humanities were launched as well.

During the third stage (mid 2016 – 2017)³ new consolidated organizational development drivers – Strategic Academic Units (StrAUs) – have been introduced on the basis of the formed priorities⁴ by means of engaging all the structural subdivisions and strengthening the academic component. The StrAUs are as follows:

- “Translational 7P Medicine”;

¹ KFU's Program for Enhancing Its Competitive Ranking and the Road Map, stage I, are posted on the site of KFU: <http://kpfu.ru/portal/docs/F898561839/10..Programma.konkurentosposobnosti.KFU.rus.pdf>

² Road Map, stage II (2015-2016) is posted on the site of KFU:

http://kpfu.ru/portal/docs/F_204620435/PPK.plan.meropriyatij.2.etap.pdf

³ Amendments to the Road Map, stage II, containing, in particular, conceptual bases, principles and lines of StrAU forming and development, are posted on the site of KFU:

<http://kpfu.ru/portal/docs/F1189892998/Izmeneniya.v.DK.KFU.2016.g..pdf>

⁴ <http://kpfu.ru/prioritetnye-napravleniya>

- “Ecooil – Global Energy and Resources for the Materials of the Future”;
- “Astrochallenge: Cosmology, Monitoring, Navigation, Applications”;
- “Quadrature of the transformation of teacher education – 4T”.

Following the translational principle, each StrAU, along with academic and research components, embraces testing platforms for technology transfer and new development project promotion:

- “research breakthroughs”;
- University centers for innovation, technological and social development (Technopark, Business incubators, engineering and situation centers, Center for support of high-tech entrepreneurship);
- “belt” of the University small innovative enterprises;
- “belt” of small and medium business entities organised in partnership with the University;
- extension of the joint University departments with leading companies;
- transfer to the project oriented academic programs.

The fourth stage (2018-2020) is aimed at achieving major parameters of the strategic objective by means of large scale implementation of internationalization projects, organic integration of the Centers of Excellence and university development projects in international programs, research and academic networks, cooperation with Top-1000 leading companies, deployment of “research breakthroughs”, and commercialization of R&D, design and development work.

The university’s ascent in key rankings during the first three stages as well as improvement of KPI and efficiency indicators have demonstrated the accuracy of the chosen strategy, model, and development technology.

KFU’s trajectory for achieving the selected target state is described by a set of performance indicators listed in Annex 5.

1.2 Target University Model

1.2.1. *The University's Mission*

The mission of Kazan Federal University has been set forth as follows:

- **to generate, concentrate and spread** knowledge, competences and technologies in response to global challenges connected with healthcare service, climate change, environmental pollution, and energy security;
- **to preserve and multiply** spiritual values of the mankind, faster education of the intellectual elite of the society able to act in fast-paced world and ensure accelerated development of science and technologies based on educational process integration with fundamental research;
- **to facilitate innovative development** of priority areas in the Russian Federation⁵.

1.2.2. *Global Higher Educational Institutions Selected as KFU's Benchmarking Peer Group*

At the first stage substantiation of the reference target indicators and key performance indicators involved a follow-up analysis and proposals on external consultants⁶ as peer universities. 7 universities ranked top-100 by QS World University Ratings were selected as peer universities. The criteria determining the result were: classical orientation, matching number of students and staff members, as well as relation to research and academic profile.

At the second stage the list was specified. Taking the experts' proposals into consideration, we additionally studied universities similar to KFU in profile and demonstrating the largest increase in ranking indices over the last 5 years. Thus, a group of 4 "fast growing" universities was added to the remaining 5 peer universities.

⁵ Priority areas of development of the Russian Federation in science and technology, and education are in the data sheet of the priority project "Universities as centers for innovation creation space". <http://government.ru/media/files/OnTUmegFLNj5Uqtac57y1WG1EtMG9ABe.pdf> and Strategy of scientific and technological development of the Russian Federation <http://sntr-rf.ru/>

⁶ PricewaterhouseCoopers Russia B.V., QS Quacquarelli Symonds Ltd

In 2016 3 more higher education institutions were included in the target group. They have structural subdivisions and areas that help these universities achieve the leading positions in the global subject rankings in the same areas as KFU's StrAUs.

At the current stage the list was updated due to the key scientific breakthroughs specified. 2 universities were replaced with new ones.

The selected universities⁷ served as benchmarks for more precisely determining the growth dynamics of target performance indicators of KFU and its structural subdivisions included in subject rankings for 2017 – 2020.

1.2.3. Marketing Strategy for the Research and Education Market

By 2020, KFU will achieve globally recognized research results within StrAUs owing to:

- research efforts:
 - launching 20 Centers of Excellence and 150 world-class laboratories;
 - inviting 200 world renowned scholars;
 - publishing 4,000 articles in Scopus and WoS systems annually;
 - including of 8 KFU journals indexed in WoS and Scopus systems;
 - increasing the share of revenues from research and R&D to 20% of the general revenue structure;
- education development:
 - over 25 % of academic programs will be accredited in international agencies and recognized by international professional communities (FIBAA, ZEvA, ACQUIN, APQN, ASIIN, AMBA etc.);
 - over 50 Master and Postgraduate programs in English will be implemented in collaboration with foreign universities ranked Top-200;
 - 30 unique MOOC⁸ on-line courses will be organised on international educational platforms (Coursera, iTunes University, Oxademy etc.);

⁷Current characteristics of the peer university groups involved in all the stages are given in Annex 6. "Peer Universities. Substantiating Target Model Parameters".

⁸ KFU plans to start a brand new education format by 2020 that will feature personalized e-learning PMOOC (Per-

- 10% of students will be annually involved in international academic mobility;

- 15 % of international students taking basic academic programs;

- 8% of teachers and practicing specialists with work experience in the leading universities and research centers, involved in the educational process;

• **transfer of research and educational technologies:**

- opening 15 university translational centers and platforms for innovative, technological and social development;

- opening 100 joint laboratories with the leading international centers and companies;

- 100 specialized departments;

- 10 joint production facilities;

- 100 small innovative enterprises.

As a result, 85% of KFU research and teaching staff and 90% of KFU students will be involved in research and educational projects.

New interdisciplinary breakthrough areas of research are being developed based on analysis of global development trends in science, and global and regional markets, as well as on analysis of prospects of KFU's scientific schools. Successful researches within the formed breakthrough areas⁹ will convergently link core structural subdivisions of KFU and permit to produce a synergetic effect on efficiency and quality of researches conducted in interdisciplinary centers of excellence being organised.

sonalized Massive Online Open Courses) with a complicated system of error-checking for students. TV project Show room has been already launched to enable video production of lectures with presentations and viewers in the studio, as well as simultaneous interpretation into three languages.

⁹ <http://www.globaluni.ru/%d0%bd%d0%b0%d1%83%d1%87%d0%bd%d1%8b%d0%b5-%d0%bf%d1%80%d0%be%d0%b5%d0%ba%d1%82%d1%8b/#KFU>

1.2.3.1. StrAU "Translational 7P¹⁰ medicine"¹¹

StrAU's objective: to create and implement new solutions in human health protection through the development of personalized medicine based on an innovative model of transdisciplinary medical education and interdisciplinary research solutions.

To achieve this goal StrAU was created through transformation of the priority area "Biomedicine and pharmaceuticals"¹². The structure of research and academic consortium encloses 11 research and academic units, including three translational platforms – the University Clinic¹³ (multidisciplinary hospital with 840 beds and a center for clinical research), Engineering Center for development and production of medical simulators and new diagnostic systems, as well as testing production of medicines at KFU Research and Academic Center (RAC) *Pharmaceuticals*¹⁴ established in partnership with JSC "Tatchempharmpreparaty".

StrAU R&D are concentrated on five core complementary Centers of Excellence providing ground for research breakthroughs underpinning translation of basic developments and best world practices into education and practical healthcare: 1) Neurotechnologies¹⁵, 2) Personified Medicine¹⁶, 3) Regenerative Medicine¹⁷, 4) Chemistry of Living systems¹⁸, 5) Biomedical Physics¹⁹. Research knowledge translation is performed both on StrAU translation platforms and opening of joint biomedical start-ups with leading companies and business partners / venture foundations.

¹⁰ StrAU relies upon the concept of the medicine of the future featuring the medical principle of four "Ps (Personalized; Predictive; Preventive; Participative) extended with additional three "Ps" (Providing; Preemptive; Point of care).

¹¹ Curator – Rector of KFU, Ilshat Gafurov; Academic Leader – Director of the Institute of Fundamental Medicine and Biology, Andrey Kiassov; Research Supervisor – winner of the first wave of mega grants, Head of KFU Research Laboratory "Neurobiology" and Research Director of Inserm-U901 (Marseille, France) Rustem Khazipov. For more details - <http://7p-medicine.kpfu.ru/>

¹² <http://kpfu.ru/prioritetnye-napravleniya/biomedicina-i-farmaceutika>

¹³ <http://7p-medicine.kpfu.ru/struktura/organizatsionnyj-sostav-i-struktura-sae/universitetskaya-klinika/>

¹⁴ <http://7p-medicine.kpfu.ru/struktura/organizatsionnyj-sostav-i-struktura-sae/nots-farmatsevtiki/>

¹⁵ <http://7p-medicine.kpfu.ru/nauchnye-proekty/nejrobiologiya/>

¹⁶ <http://7p-medicine.kpfu.ru/nauchnye-proekty/regenerativnaya-medsina/>

¹⁷ <http://7p-medicine.kpfu.ru/nauchnye-proekty/genny-i-kletochnye-tehnologii/>

¹⁸ <http://7p-medicine.kpfu.ru/nauchnye-proekty/himiya-zhivyh-sistem/>

¹⁹ <http://7p-medicine.kpfu.ru/nauchnye-proekty/biomeditsinskaya-fizika/>

Major research breakthroughs attained in the framework of translational research are based on the principles of personalized medicine and ethnogenetic characteristics of multinational Russia and will be concentrated on the efforts to reduce the mortality level through development of new therapies, diagnostics and rehabilitation from the diseases of **cardiovascular system and malignant neoplasms**, the major mortality causes as of now.

The project titled **“Novel methods in the prevention and treatment of cerebrovascular diseases”**²⁰ will be designed to address the issues of hampered delivery of medicines to the affected brain areas that presents a major problem in the treatment of ischemic stroke²¹. The technologies developed will also be in demand for treatment of neurodegenerative diseases and myocardial infarction. Application of full potential of StrAU accounts for a key feature of the project. Along with the Center of translational medicine “KFU-RASA”²², RASA centers²³ established in universities of Tomsk and St. Petersburg will also participate in the project to achieve a synergistic result.

To achieve these ambitious research objectives, the plans are made to develop University-owned research and academic facilities abroad. Currently, a KFU laboratory on translational medicine²⁴ was established at RIKEN (Japan) under the terms of joint funding. The first in Russia IT-clinic for personalized genomics (focused on the problems of ethno-specific pharmacogenomics and RNA diagnostics) will be launched in the framework of a trilateral cooperation agreement between KFU, RIKEN (Japan) and the University of Juntendo (Japan); personalized surgical simulators²⁵ will also be introduced at KFU. A mirror genetic laboratory for RIKEN (Japan) was established at the Clinical Research Center of the University Clinic. Research efforts, focused on a break-

²⁰ <http://7p-medicine.kpfu.ru/en/research-breakthroughs-2/novel-therapeutics-in-the-prevention-and-treatment-of-cerebrovascular-diseases/>

²¹ Planned schedule for the implementation of the breakthrough project "Novel methods in the prevention and treatment of cerebrovascular diseases", amended based on recommendations of the Council for Enhancing Competitive Ranking of Top Russian Universities among Leading World Centers of Education and Research, is given in the Annex 7.

²² Supervisor: Prof. R. I. Litvinov, the University of Pennsylvania, USA

²³ Russian-speaking Academic Science Association

²⁴ http://www.riken.jp/en/research/labs/rinc/riken_kfu/

²⁵ <http://kpfu.ru/biology-medicine/struktura-instituta/centr-simulyacionnogo-i-imitacionnogo-obucheniya>

through project titled **“Diagnostic and therapeutic RNA technologies for the translational genomic medicine”**²⁶, will be concentrated around Russian and Japanese laboratories. Cooperation should be extended to joint research and educational programs²⁷ with the University of Kanazawa (Japan) and the University of Tsukuba (Japan). Extraordinary KFU competence in ethnogenomics is recognized overseas and Russia-wide. Since 2017 StrAU has become the main and the only platform of HLA genotyping within the Russian Bone Marrow Donor Registry project implemented jointly with Rusfond – a charity foundation for seriously ill children, orphans, and disabled individuals.

Such unique translational platforms as the University Hospital, Clinical Research Center, Biobank, GMP center of biomedical cell technologies, Research and Academic Center of Pharmaceuticals (and its pilot medicine production), will implement a new ambitious and breakthrough project titled **“Development of technology for overcoming multidrug resistance based on inhibition of cellular ABC efflux transporter”**²⁸. The project devoted to the development of innovative anticancer drug, transporter inhibitor of reverse cell multidrug resistance, has already been brought to clinical trials. By 2020 5 medicines are planned to be at the clinical research phase.

The breakthrough project titled **“Cognitive and neurolinguistic technologies for personalized learning and rehabilitation of children”**²⁹ is dedicated to interdisciplinary translational research. The project brings together linguists, doctors, and professionals in life sciences. Results will present unique principles of diagnosis and rehabilitation of patients with verbal disorders of various origins, and the acquired linguistic material will be used in clinical

²⁶ <http://7p-medicine.kpfu.ru/en/research-breakthroughs-2/diagnostic-and-therapeutic-rna-technologies-for-translational-genomic-medicine/>

²⁷ Project on fundamentals of living systems resistance to complete loss of water is implemented jointly with anhydrobiosis research group supervised by Professor Kikawada of the National Agriculture and Food Research Organisation (NARO). In 2014-2016 project implementation was carried out by the Japanese colleagues in KFU in the framework of the Russian Science Foundation grant for international groups (supervised by Prof. Kikawada). The obtained basic data underpin applied developments on targeted resistance of biomaterials to complete loss of water. In 2014-2016 researchers of “Extreme Biology” Laboratory together with the Japanese colleagues conducted a joint project on “Development of new approaches to storage of biomaterials for medical and agricultural use” under the Federal Target Program “R&D in priority development areas of the Russian research and technological complex for 2014-2020”.

²⁸ <http://7p-medicine.kpfu.ru/en/research-breakthroughs-2/overcoming-multidrug-resistance/>

²⁹ <http://7p-medicine.kpfu.ru/en/research-breakthroughs-2/synergetic-linguistics-for-the-new-generation/>

practice. The project will be implemented in close cooperation with StrAU “Quadrature of transformation of teacher education – 4T”.

Competence of the staff and facilities of StrAU “Translational 7P medicine” will synergistically reinforce potential of the project called “**Environmental biotechnologies: isotopic, organism-centered, omic and biogeocentric approaches**” initiated by StrAU “EcoOil – Global Energy and Resources for the Materials of the Future”.

Interdisciplinary approach underpins a unified transdisciplinary research and academic space being created to educate experts in public health. Apart from 6 traditional educational programs in health care, two of which are implemented in Russian and English languages, graduate and postgraduate students start programs on medical chemistry, medical physics, biotechnical systems and technologies, as well as biomedical engineering. By the recommendation of and in collaboration with RASA members, new programs on medical biochemistry, medical biophysics, and medical cybernetics are developed and implemented to progress in translational medicine.

1.2.3.2 Strategic Academic Unit “EcoOil – Global Energy and Resources for the Materials of the Future”³⁰

StrAU goal: to respond to challenges related to energy security and resource provision under the pressure of global issues such as climate change, environmental problems, and political instability in order to generate, concentrate, and globally distribute the knowledge and competencies in eco-friendly, economical and energy-efficient prospecting, extraction, refinery, and petroleum chemistry of non-traditional hydrocarbon reserves.

The StrAU is based on the «Oil Production, Refining and Petrochemistry»³¹ priority area. The StrAU unites 5 centers of excellence³², 3 centers of

³⁰ Curator – Rector of KFU Ilshat Gafurov; Academic Leader – Chairman of the Association of Young Scientists, Associate Professor of the Institute of Chemistry Mikhail Varfolomeev; Research Supervisor – Vice-Rector for Research Danis Nurgaliev. For more details <http://ecooil.kpfu.ru/>

³¹ <http://kpfu.ru/prioritetnye-napravleniya/nefterazbotka-neftepererabotka-neftehimiya>

³² “Center of Excellence in Catalyst Development for Oil Production, Refining and Petrochemistry”, supervised by Giuliano Giambastiani, Institute of Chemistry of Organometallic Compounds, Italy, h-index = 26; “Center of Excellence in Complex Technologies Development of Hard-To-Recover Deposits Based On Thermal and Thermo-Catalytic Methods”,

shared facilities³³, and 19 research laboratories at 7 KFU institutes. The technology transfer platforms are the Catalyst Plant³⁴ (managed jointly with JSC Nizhnekamskneftekhim, the biggest petrochemical company in Europe), shale oil and viscous oils polygons³⁵ (with JSC Tatneft), pilot projects with JSC Zarubezhneft, Lukoil³⁶, Haldor Topsoe³⁷, Kraton Polymers³⁸, and others. There are plans to create other technology transfer bases at oil and gas deposits in Colombia, China, Cuba, Canada, and Venezuela in 2017 - 2020. The StrAU has its own administrative units responsible for international networking and interdisciplinary cooperation.

The StrAU currently concentrates on four main intertwined priorities that will be based at their respective engineering centers and technoparks in 2020: 1) hydrocarbon deposit surveying, deposit modeling, IT resources for extraction control and management; 2) developing energy-efficient, economical and eco-friendly (EEE) technologies of in-situ refining of non-traditional hydrocarbons; 3) catalysts for petroleum extraction, refining, and petrochemistry, new EEE materials; 4) assessment and avoidance of environmental risks caused by extraction. Labs are being established for these purposes in cooperation with industry leaders.

KFU as a member of the National Committee for Cooperation with Latin American Countries (NCCLAC) will become the key university for research and technological cooperation between Russia and the countries of the region in 2017. The basis has been already formed by joint projects with Ecopetrol³⁹

Research Supervisor is Mustafa Versan Kok, Middle East Technical University, Turkey, h-index = 33; “Center of Excellence in Modeling of Hydrocarbon Deposits”, Research Supervisor is Stanislav Smirnov, Saint-Petersburg State University, Russia, Universite de Geneve, Switzerland, h-index = 16; “3D Center”, “Center of Excellence in Ecotechnologies”, Research Supervisor is Yakov Kuzyakov, Universitat Gottingen, Germany, h-index = 47

³³ International Center for Magnetic Resonance, Federal shared facilities center for physicochemical studies of substances and materials, Interdisciplinary center “Analytical Microscopy”

³⁴ <http://kpfu.ru/staff/kfu-i-nizhnekamskneftehim-vnesli-svoj-vklad-v.html>

³⁵ <http://kpfu.ru/news/minekologii-rf-sovmestno-s-tatarstanom-sozdast.html>

³⁶ <http://kpfu.ru/news/ritek-245192.html>

³⁷ <http://kpfu.ru/katalizatory-importozamescheniya-244552.html>

³⁸ <http://kpfu.ru/novost-240594.html>

³⁹ <http://kpfu.ru/kfu-budet-konsultirovat-glavnuju-neftyanuju-255226.html>

(the largest petroleum company of Colombia) and Cupet⁴⁰ (national petroleum company of Cuba).

2016 was marked by the establishment of an international consortium for the development and popularization of EEE extraction technologies. KFU serves as a standing international discussion platform for in-situ refining with the annual ThEOR conference⁴¹ (among the participants are Russia, China, the USA, Canada, France, Turkey, Denmark, Indonesia, and Latin American countries).

Two breakthrough research projects are currently underway within the StrAU.

“Oil source column, shale and deposits of hydrocarbons as an underappreciated source of greenhouse methane emission”⁴² is concentrated on determining potential hydrocarbon reserves and correcting global warming models by studying the volumes and dynamic of greenhouse gas emissions. Carrying out the projects together with StrAU “AstroChallenge”, partner universities and companies⁴³ will provide the global leadership in this area.

«Environmental biotechnology: isotop, organism, omics and ecosystem approaches»⁴⁴ is aimed at addressing environmental degradation and scarcity of resources, food, and fresh water. Carrying out the project together with StrAU “Translational 7P Medicine” and international partners⁴⁵ will provide the global leadership in waste treatment biotech, soil fertility, agricultural plant fertility, and fresh water restoration.

The StrAU's interdisciplinary activities will be coordinated by the **Center for Educational Programs in Earth Sciences, Natural Resources and Ecol-**

⁴⁰ <http://kpfu.ru/kfu-i-kuba-novye-gorizonty-sotrudnichestva-244757.html>

⁴¹ <http://kpfu.ru/v-kfu-zavershil-rabotu-pervyj-mezhdunarodnyj.html>

⁴² <http://ecooil.kpfu.ru/nauchnye-proryvy/>

⁴³ Partner organizations include: Institute of Geochemistry and Analytical Chemistry named after V. Vernadsky at the Russian Academy of Sciences, A.M. Obukhov Institute of Atmospheric Physics, Skolkovo Institute of Science and Technologies, Helmholtz Center Potsdam - GFZ German Research Center for Geosciences, Swiss Federal Institute of Technology Zurich, Texas A&M University, Shell, “Gazprom Neft”, Moscow Institute of Physics and Technology (state university), “National Research Tomsk Polytechnic University”, “Siberian Federal University”

⁴⁴ <http://ecooil.kpfu.ru/nauchnye-proryvy/>

⁴⁵ Partner organizations include: Georg-August-Universität Göttingen, The University of California, Berkeley, Eberhard Karls Universität Tübingen, Leiden University, University of Helsinki

ogy⁴⁶ (established in 2016 together with StrAU “Quadrature of transformation of teacher education – 4T”). The Center’s main objective is to transfer research to educational products (lectures, experimental courses, modules, etc.), 150 of which are planned to be implemented by 2020. As of 2017 there are over 60 modules for undergraduates, postgraduates, and additional education programs with international partners⁴⁷. Each module is tested at advanced training programs and only then included in postgraduate curricula.

An innovative system of project learning (called «Work in a team – pay for your tuition») is being implemented. Students work on their graduation theses in real professional teams with specific tasks, receive remuneration and acquire work experience, thus becoming well-trained and demanded professionals.

Another strategic development in education are master programs and advanced training programs for Russian and foreign companies. The motto here is “New knowledge and new competences for you and your company”. The concept allows us to attract experienced professionals to study at KFU. The pilot project was a master program for Cupet in heavy oil surveying and extraction.

By 2020 we plan to launch at least 18 unique educational programs, including 12 English-language ones, 6 double degree programs, and 5 programs with international accreditation. There will also be a minimum of 9 advanced training programs (unique on a global scale), and 30 additional education programs in the oil and gas industry will be provided annually.

1.2.3.3 StrAU “Astrochallenge: Cosmology, Monitoring, Navigation, Applications»⁴⁸

StrAU goal: to create a unique world-class research-and-technical complex providing system education in astrophysics, cosmic geodesy, radio phys-

⁴⁶ <http://ecooil.kpfu.ru/obrazovatelnye-programmy/geologiya/>

⁴⁷ IFP Energie Nouvelles – French Institute of Petroleum, Stanford University, USA, Schlumberger, USA

⁴⁸ Curator - Vice-Rector for Research of KFU, D.K. Nurgaliev; Director - Head of the Department of physics and information systems of KFU, O.N. Sherstyukov; Research Supervisor - academician of the Russian Academy of Sciences, A.A. Starobinsky, for more details <http://astrochallenge.kpfu.ru/>.

ics, starting from study at school to gaining competences in the university in space exploration and application of space activity results in national economy. StrAU was created as a response to global challenges related to space security, environmental and climate changes, as well as efficiency of space programs.

In order to achieve this purpose StrAU was established in the form of consortium bringing together laboratories of 6 basic structural units, 4 Centers of excellence⁴⁹, including 11 research laboratories, as well as innovative translational platforms: Planetarium named after pilot-cosmonaut, two times Hero of the Soviet Union Alexey Leonov⁵⁰, Engelhard⁵¹ Astronomical Observatory, Educational and Technological Center “Rostec-KFU”, Academic and Research Facility "Radiophysical Polygon", North-Caucasian astronomical station, PTT-150 1.5-meter KFU telescope based in Turkey.

International collaboration is actively developing due to StrAU's equal participation in international cooperation with the major space orbital observatories INTEGRAL, SWIFT, PLANCK, Spektr-RG.

Results of the core areas of StrAU activities organically form the breakthrough project **“Distributed reconfigurable interferometric system for comprehensive studies of cosmic radiation”**⁵², aimed at studying the fundamental properties of the Universe based on a developed breakthrough technology for building sensors network placed on the space base and airborne platforms designed for monitoring of the near space. Core objective implies development of technology for axion-induced effects detection based on correlation signals analysis in parallel components of electric and magnetic fields at different points of space, that in its turn, enables the progress in understanding the nature of dark matter.

⁴⁹Center for Astrophysics and Cosmology, Center for the near space monitoring, Center for space technologies, Center for space technology transfer

⁵⁰ <http://kpfu.ru/news/planetarij-kfu-stal-blizhe-83472.html>

⁵¹ <http://kpfu.ru/physics/struktura/kafedry/otdelenie-astrofiziki-i-kosmicheskoy-geodezii/astro-nom-observ-engelgardta>

⁵² <http://astrochallenge.kpfu.ru/en/research-breakthroughs/>

Center of Excellence in Physics Education is being actively developed together with StrAU “Quadrature transformation of teacher education-4T”⁵³ ensuring leading positions in the level and technologies of education in profile disciplines. Methodological foundation of this Center will feature an innovative and unparalleled set of electronic educational resources “Educational Environment 21+” currently under construction for high schoolers and bachelors majoring in Physics, Mathematics, and Natural Sciences. By 2020, the Center of Excellence will significantly increase its capacities by opening a few new study laboratories for photonics, medical physics, and chemistry of new materials.

The Federal Educational Center in Astrophysics and Natural Sciences on the territory of Engelgardt Astronomical Observatory is being developed. This Center will provide practical training facilities for students majoring in astronomy and geodesy (including students from other HEIs), as well as premises for classes in astronomy, physics, chemistry, etc., organized for middle schoolers. The Center will become a basis for research efforts of secondary school students in natural sciences. The full-dome educational films for the school astronomy course are to be made in KFU Planetarium.

Technological and Academic Center providing training and personnel retraining in 9 programs and 18 programs of additional education is under formation. It is to be launched in cooperation with the leading international company Rohde and Schwarz (Germany) and State Company “Rostech”.

1.2.3.4 StrAU «Quadrature of Transformation of Teacher Education – 4T»⁵⁴

StrAU goal: to establish KFU as a global multicultural and multilingual RAC (research and educational center) for high qualified teachers of the future to work in primary and tertiary education. The Center is designed to provide a

⁵³ The project is being implemented jointly with the University of Innsbruck, Austria, and one of the leading manufacturers of educational laboratory equipment - LD Didactic (Germany). Professor R. Grimm (University of Innsbruck, Scientific Director of the Institute for quantum optics and quantum information of the Austrian Academy of Sciences) coordinates the research.

⁵⁴ Curator – Vice-Rector for Education Dmitry Tayursky; Academic Leader – Director of the Institute of Psychology and Education; Research Supervisor – Emeritus Professor of Teacher Education, Department of Education and Emeritus Fellow, Kellogg College, University of Oxford Ian James Menter. For more details <http://teacher21.kpfu.ru/>.

life-learning support. StrAU is aimed to address the challenges of the ongoing 4th industrial revolution and to adapt the educational system to the fast changes of today. The StrAU forms a system where new educational technologies, best practices are quickly developed and implemented in the teaching process at all the institutes.

StrAU's R&D is carried out in four centers of excellence.

The Federal Center of Excellence in Mathematical Education⁵⁵ (one of the four in Russia), **the Center of Excellence in Physical and Astronomical Education**⁵⁶, and **the Center for Educational Programs in Earth Sciences, Natural Resources and Ecology** are tasked with transferring best Russian and global practices of secondary and tertiary education in their respective fields⁵⁷.

The Center for Designing the Multilevel Pedagogical Education (Edu-Agile Center)⁵⁸ works on the following projects:

“Development and Testing of a Complex Translational Model of Pedagogical Educational at a Classical University”⁵⁹ (together with the University of Oxford, University of Glasgow, University of Jyvaskyla, Michigan State University, Arizona State University, Texas State University, Beijing Normal University, University College Dublin, and others). The project includes the annual International Forum on Teacher Education⁶⁰. The “Education and Self-Development”⁶¹ journal of KFU serves as the primary discussion platform and is currently co-edited by an overseas contributor⁶². “e-Teacher Education” is a software currently under development for iTunes University.

⁵⁵ <http://kpfu.ru/mathcenter/o-center>

⁵⁶ <http://kpfu.ru/eng/academic-units/physics-mathematics-and-it/institute-of-physics/the-center-of-excellence-for-education-in-physics>

⁵⁷ Academic Leader – Ye. I. Zelmanov, Fields Medal winner, Professor of the University of California in San Diego.

⁵⁸ <http://teacher21.kpfu.ru/nauchno-issledovatel'skie-proekty/>

⁵⁹ Academic Leader – Emeritus Professor of Teacher Education, Department of Education and Emeritus Fellow, Kellogg College, University of Oxford Ian James Menter.

⁶⁰ International Forum of Teacher Education. <http://ifte.kpfu.ru/ru/glavnaya/>

⁶¹ «Education and Self Development» <http://kpfu.ru/eng/academic-units/humanities/institute-of-psychology-and-education/education-and-self-development-journal>

⁶² Nick Rushby, Professor, Editor of British journal of educational technology, 1994-2016.

«**Multicultural Teacher Training**»⁶³ is aimed at developing multicultural, multilingual and interconfessional education⁶⁴ based on preserving ethnic identities in a multiethnic nation.

«**Migrant Policy and National Education**»⁶⁵ works on new models migrant children adaptation in a multicultural and tolerant environment in cooperation with University of Miami, University of Glasgow, University of Antalya, and TU Dresden. The research in this area will be further enhanced by a breakthrough project “**Muslim Migrants of Eurasia**”⁶⁶ aimed at developing new methods of psychological and social diagnostics of migration-related conflicts.

The other breakthrough project is «**Cyber Education**»⁶⁷ concentrated on new IT platforms and robotics for education. A prototype of educational gamification system is under construction as well as a system of psychological diagnostics of actors of the educational process through distant and contact methods.

StrAU's translational grounds:

- in-house secondary schools for gifted children⁶⁸;
- Center for the Advanced Training of Teachers⁶⁹ (over 7,000 trainees a year);
- Educational Technopark with model classrooms for secondary school subjects.

The University also serves as a testing ground for the Russian Academy of Education.

⁶³ Head – Professor Dina Birman, Professor of the University of Miami, Editor at International Journal of Intercultural Relations.

⁶⁴ Ana Tele, an online language teaching software based on the EnglishLife platform (developed by Education First).

⁶⁵ <http://teacher21.kpfu.ru/nauchno-issledovatel'skie-proekty/>

⁶⁶ <http://teacher21.kpfu.ru/content/uploads/2017/02/annotatsiya-nauchnogo-proryva-IMOiv.pdf>

⁶⁷ http://teacher21.kpfu.ru/content/uploads/2017/02/Cyber-Education-Inzh_inst.pdf

⁶⁸ Nikolay Lobachevsky Lyceum and IT Lyceum

⁶⁹ <http://kpfu.ru/psychology/struktura/privolzhskij-centr-povysheniya-kvalifikacii-i>

1.2.4 Marketing Strategy for Prospective Students

This marketing strategy is focused on the two main components: attracting talented young people and bringing in the best international students.

The set of activities focused **on attracting talented young people** is based on the following initiatives:

– **“Children’s University”**⁷⁰ (for children aged 8 – 11) and **“Small University”**⁷¹ (for children aged 11 – 17), aimed to form research and creative approach, and motivate entering KFU. It is planned to increase the percentage of the first-year students graduating from “Children’s University” and “Small University” to 10% of the total number of enrolled full-time students by 2020. We are also planning to involve up to 30% of students of regional comprehensive secondary schools in various forms of university partnership.

– **“KFU Lyceums”**, IT-Lyceum⁷² and N. Lobachevsky Lyceum⁷³, pursue search, competitive nationwide selection and advanced training of talented youth in mathematics, informatics, natural sciences, and foreign languages, with involvement from the leading KFU faculty. The Lyceums serve as grounds for transferring educational technologies within the StrAU “Quadrature of teacher education transformation – 4T”. The plan is to bring the Lyceums into top-25 Russian schools by 2020.

– **“Olympiads”**⁷⁴. International and Russian Olympiads for pupils and students are regarded as key tools for selecting talented young people. The University is a center of training and hosting regional and Russian Olympiads in subject areas. Thanks to Internet-tours, the geography and quantity of participants will be significantly increased (up to 100,000 people by 2020).

– **Social educational network “I’ll become a student!”**⁷⁵. It is planned to increase the number of active users up to 300,000 by 2020.

⁷⁰ <http://kpfu.ru/imoiiv/uznat-bolshe-ob-institute/tekuschie-sobytiya-proekty/detskij-universitet>

⁷¹ <http://kpfu.ru/edu/dovuzovskoe-obrazovanie-v-kfu/centr-dovuzovskogo-obrazovaniya/malyj-universitet>

⁷² <http://kpfu.ru/liceum>

⁷³ <http://kpfu.ru/it-liceum>

⁷⁴ http://abiturient.kpfu.ru/entrant/is_start?p_news=632

⁷⁵ <http://abiturient.kpfu.ru/>

Annual scientific conferences, as well as summer and winter subject-oriented schools will be further developed as successful methods of recruiting prospective students.

Owing to comprehensive work with prospective students conducted by KFU, it is planned to improve qualitative indicators of the first-year students: growth of the average score and increase up to 10-20% in the percentage of contest winners of different levels entering the University.

An integral and efficient **system of international student recruitment** has been gradually developing in the University. A comfortable living environment has been created here, as well. As a result, the number of international students has tripled since the Program start.

Kazan Federal University is positioned as the leading university at the junction of the Oriental and Occidental cultures and a point of attraction for the Turkic-speaking world. Therefore, long-term relationships with key universities in Turkic-speaking countries, and primarily with higher education institutions of Kazakhstan, Turkey, Uzbekistan, Kyrgyzstan and Turkmenistan, are especially important in working with international applicants. We have various national grant programs for academic mobility support, as well as agreements between the Republic of Tatarstan and the aforesaid countries in this area.

KFU has selected these markets resting upon the rapid development of Russia's relationships with countries of BRICS, the Middle East (Iran, Iraq, Lebanon), the Asia-Pacific region (Vietnam, Indonesia, Malaysia), and Central and South America (Brazil, Cuba, Argentina, Colombia, Venezuela). At the same time, KFU is interested in continuing and maintaining stable and mutually beneficial cooperation with Western countries. Furthermore, KFU will intensify its activities in budding applicant markets, such as: China, Mongolia and South-East Asia, Latin America, the Middle East, and Africa.

Among the activities planned in the targeted markets is establishing direct links with the leading secondary schools abroad, including implementation of

the Russian language teaching program “School Force”⁷⁶. China, India, and Africa will be the key recruitment markets within this program.

In 2020 the breakdown of international applicants for the University’s major educational programs by the targeted markets (groups of countries) is anticipated to be as follows (%):

Table 1. Breakdown of international applicants

Countries	International applicant share, %
Turkic-speaking CIS and foreign countries, CIS countries as a whole (Turkey, Uzbekistan, Kazakhstan, Turkmenistan, Azerbaijan, Kyrgyzstan)	50%
BRICS (China, India, South Africa, Brazil)	30%
Middle East, South Asia and North Africa (Iraq, Iran, Lebanon, Syria, Morocco, Egypt, Israel, Algeria)	10%
Asia-Pacific region (Vietnam, Indonesia, Malaysia)	5%
Central and South America (Cuba, Venezuela, Argentina, Columbia)	3%
Other regions, countries	2%

Cooperation with Russian and foreign organisations engaged in international recruiting will be significantly expanded. Active efforts made by the Republic of Tatarstan in establishing and fostering economic and innovation-focused partnerships with other regions and countries, involving, in particular, its 15 representative offices⁷⁷ and 29 trading houses authorized to act as KFU representatives, will be among the most effective tools for promoting KFU to new educational markets.

The University will intensify and expand its work with Russian and international programs and foundations, such as: the German Academic Exchange Service (DAAD), the EU Erasmus+ program; *Algarysh*, the republican grant program; national programs *Bolashak* (Kazakhstan), *Ayacucho Foundation* (Venezuela), *Fulbright* (USA), *Russia Pilot* (Finland), *Generation Study Abroad* (USA) etc., as well as scholarships sponsored by employers and international graduates.

⁷⁶ <http://kpfu.ru/news/afrika-131128.html>

⁷⁷ http://prav.tatarstan.ru/representative_offices.htm

The project “**Study in Kazan: attraction of international students to the Republic of Tatarstan and transformation of Kazan into the leading international student center**”, involving the Ministry of Education and Science of the Republic of Tatarstan, will become one of the new areas of international student recruitment activity.

The project is definitely innovative because it permits to:

- establish efficient cooperation between the core groups of regional stakeholders – regional authorities, companies, and the University;
- form a positive image of the regional higher education system in the international market of educational services (create the Internet resource *Study in Kazan*, organise joint advertising and exhibition campaigns abroad, hold high-profile international activities in Kazan aimed at familiarization with scientific and academic potential and infrastructure of international student admission);
- create favourable conditions for international student staying in the Republic of Tatarstan through developing a full spectrum of information, consulting and other services in all the stages of recruitment and staying.*1.2.5 Marketing Strategy for Employers’ Market*

List of the world leading companies⁷⁸ relevant for the University in terms of new research breakthroughs and StrAUs was compiled and specified with help of external consultants to strengthen translational component of transformations, modernization and re-formatting in the educational process under changing requirements, to develop relations with prospective KFU partners. Consistent process of implementing the program on formulating proposals and presenting the University promising projects to prospective partners is under way.

Key Account Managers assigned to the key partners will play an important role in organizing effective cooperation with the major employers. The “one window” mechanism will be implemented for the business community in order to establish stable contacts with KFU: all information about the opportu-

⁷⁸ Extended List is given in the Annex 9

nities of joint research, joint ventures, and creation of special educational programs can be obtained by clients in one place and at the same time.

In order to get over the innovation process gap between research and the economy KFU plans to continue to develop its own technopark, business incubator and inter-university center for high tech entrepreneurship support.

An unparalleled educational project “**Entrepreneurs Factory**”⁷⁹ is implemented to invite successful entrepreneurs and employers to practice-oriented and project-oriented education by the example of case studies, to assist prospective partners, faculty members, and students with their start-ups. The project includes: author workshops “*Three steps for a successful start*”, START-Factory for first-time entrepreneurs, Factory-PRO for acting entrepreneurs, workshops with acting entrepreneurs’ participation, an alumni club, a *Business plans* project, and a TV reality show. Over 17,000 people attended the activities; over 2,000 have participated in the project and completed training; over 200 companies have been launched during the project.

Tasks 4.1 and 8.2 in the framework of the Strategic Initiatives 4 and 8 of the Roadmap are devoted to the interaction with key employers.

1.2.6 KFU’s information infrastructure

The main areas of KFU’s information infrastructure development include:

- upgrade and doubling of high efficiency computing cluster capacities to meet the increasing needs of resource-intensive computations of research projects, processing of lots of non-structured data, and cloud computations;
- development of the University social network in terms of the increasing capacities for joint work of prospective students, Bachelor, Master students, faculty and administrative staff, as well as graduates and employers through creating a unified communication environment where users will be given an opportunity to organize a unified workspace of distributed groups⁸⁰, as well as

⁷⁹ <http://bizfabrika.ru/>

⁸⁰ Contact information, documents, task management, events calendar, minutes of the meetings with task assignment and execution control, holding of on-line meetings, video and audio conferences

permanent feedback thanks to the possibilities of interactive communication based on active work with employers - profilisation of education;

- further improvement of the unified corporate information system “Electron University” under which functionality of control units of KFU educational and maintaining process will expand, a unit of KPI analysis and implementation monitoring will be set up to control the activities of institutes and other structural departments, as well as to assess quality of the University performance;

- integration of researchers’ personal accounts with Elsevier resources, Scopus, SciVal Spotlight, WoS, Researcher ID;

- introduction of “the campus ID” combining a student ID, a bank card, a library card, an electronic medical record, ID card to pass on the university facilities, access to information resources and voting tool;

- set-up of information-analytical asset management system to control costs on the University property maintenance, its use and expenditure cover, which should increase efficiency of classrooms use by 30%, provide an opportunity to respond quickly to detected violations and assessment of cost-effectiveness, as well as procurement planning;

- transition to a single accounting system aimed at 100% automation, unification of business processes and reduction of exploitation expenditures by 2020;

- transfer of 80% of administrative personnel jobs to VDI technology to ensure the reduction in equipment owning cost, increase the level of security and effective use of workplaces, which, in its turn, will reduce exploitation costs by 10-15%.

- disk space extension of equipment server park by 4 times by 2020 ensuring space reservation of all the volumes of data stored.

The separate Strategic Initiative 9 is solely dedicated to the development of an online platform concept.

1.2.7 KFU’s Human Resources Potential, Including Top Management, Research and Teaching Staff

Establishing target human resources model involves changes in the following areas: development of personnel potential, competitive principles, system of attracting the best outside human resources, as well as formation of high-quality personnel pool.

I. Research and teaching staff. Achieving the objective of creating an international core of highly skilled KFU faculty implies the simultaneous resolution of several tasks.

Increasing the share of international scholars invited for research and teaching purposes, as well as supervising doctoral students and providing expertise on curricula and academic programs, will be achieved by special programs of inviting leading foreign experts.

Solving this task the main emphasis will be placed on the plans of StrAU development. Share of international Research and teaching staff in the basic institutions of StrAU should thrice exceed the average University performance indicators by 2020.

Special Rector's wage premium bonus for young postdocs from leading universities (from Top-200) has been recently introduced. It is aimed at arranging conditions to “return” Kazan University graduates who went abroad to enter postgraduate school and later received PhD. To solve these problems, it is planned to use more actively potential of mega grants and the national program “Algarysh”⁸¹.

Increase in the percentage of young faculty members will happen through the recruitment of young scholars’ with experience of international cooperation, as well as postdocs from international and leading Russian universities, research institutions, including the Russian citizens - holders of PhD. Measures to increase the involvement of young scholars in the working process on large and ambitious projects, grant support of young Research and teaching staff, planned under the Strategic Initiative 2, will induce a "new wave" of talented researchers’ - performance peak by 2019-2020. The share of postdocs in

⁸¹ <http://alga.tatarstan.ru/>

the body of research and teaching staff during the program implementation will grow by about 50 times.

Change in the personnel balance in accordance with changes in the structure of the student body and research subjects will be related to fast development of StrAU. Percentage of research and teaching staff pursuing research in mentioned areas will increase from 30% to 50% of the total number of research and teaching staff.

Growth of international qualification of research and teaching staff will be attained not only due to the inflow of the abovementioned competencies from the “outside”. We plan to facilitate an international component within activities of the University research and teaching staff through their active participation in internships (with a focus on medium and long duration programs), as well as initiatives on the exchange of researchers with key international partners. The number of participants in the events will increase to 1300 people by 2020.

II. Administrative staff. It is planned to invite specialists having working experience in leading Russian and international universities and research institutions, as well as managers who have received qualifications in leading Russian and international educational centers, including graduates of business schools with MBA degree.

The development of the best management practices and the growth of administrative staff competency levels will be supported by the creation of a special structure, responsible for the training of staff in the sphere of science, education and management, and the maintenance of training programs at leading universities, research institutions and companies. It is planned to involve up to 20% of staff in this process annually.

The element of the target model, equally important for all categories of KFU staff, will be the changed corporate culture. The values of co-operation, partnership, and the "entrepreneurial approach" will become prevalent in the work. To develop these elements of organizational culture, we have planned institutional arrangements (such as “Entrepreneurship Factory” – specialized

training on management competencies with the participation of leading international experts in management), as well as new activities within the framework of the Roadmap (included in the Strategic Initiative 5).

In support of the "effective contract" system for extra motivation of research and teaching university staff the automated employees ranking that reflects their contribution to the achievement of KPI Program for Enhancing KFU's Competitive Ranking has been developed and implemented. The rating is compiled on a quarterly basis in the context of socio-humanitarian and natural science units; its results are available for each of the Research and academic staff member on the KFU portal. On this basis, there is distribution of premiums; promotion on competitive position, recommendations to award.

As well as "personal", a quarterly ranking of the main structural units of the University (Institutes and a Faculty) has been implemented. It is based on an assessment of a unit's contribution to the achievement of the basic indicators of the Program for Enhancing KFU's Competitive Ranking. Based on the ranking results, the formation and distribution of the prize fund of units is carried out.

1.2.8 Promising research and academic facilities

Currently, facilities and resources of the University comply with all international standards and requirements⁸².

Parameters of facilities and resources over the last 6 years increased by 4.3 times⁸³ up to 732 real estate items (from 205 000 sq.m. to 890 000 sq.m.). Social infrastructure at the same time expanded by more than 14.6 times (from

⁸² The property complex has been forming during more than 210-year development of the University.

⁸³ The main impulse for the development of facilities and resources of the University was hosting of the World Summer Universiade in 2013. Afterwards the University was handed over 20 comfortable dormitories for 7450 beds (with the total area of 212 thousand sq.m.), which together with the 17 previously functioning dormitories completely satisfied the needs of international student accommodation, in accordance with the highest international standards. Sports infrastructure has significantly improved: three more sporting venues were added to the existing 9, high-level international competitions have been held there.

34 000 sq.m. to 498 000 sq.m.). All students are provided with comfortable accommodation.

During the period of implementation of the program more than 450 university employees have improved their living conditions. 170 visiting scholars have been accommodated. A joint project with the Federal Housing Construction Fund on construction of a housing estate of 180 houses is being implemented.

The improvement of facilities and resources as a part of the Strategic Development Program is fast-paced: in recent years 415 laboratories have been established in the priority areas of research and technology (including 175 scientific laboratories and 240 university laboratories), equipment costing over 7 billion roubles has been purchased⁸⁴. Much of this equipment is unique, which creates a great potential for the development of fundamental science, innovative developments, and transfer of technologies.

Further modernization and expansion of educational, scientific and research infrastructure, as well as of translational strategic academic unit (StrAU) platforms are required to achieve the target model parameters by 2020.

StrAU “Translational 7P medicine”⁸⁵. Large-scale modernization of the University Clinic started in 2016 and will be completed in 2017. The result will be a completely renovated outpatient polyclinic department. The wards of emergency aid and intensive care are being reconstructed in two medical buildings of the clinic, and two surgery blocks (9 surgery rooms) for cardiovascular and abdominal surgery are being organized along with the Center for Organ Transplantation. The reconstruction area exceeds 6000 sq.m.

⁸⁴ The buildings of 11 structural divisions of KFU were modernized. In 2014 construction of the laboratory building of the Institute of Geology and Petroleum Technology with the total area of 2400 sq.m. was completed, in September 2015 a new campus of the Institute of Chemistry with the total area over 7 thousand sq.m. was put into service.

⁸⁵ At the end of 2015 a multi-field University Clinic for 840 beds with the total area of 43 thousand sq.m. was established on the basis of three large health care institutions. In 2016 it became a structural division of the University.

Planned are overhaul of three buildings of the Institute of Fundamental Medicine and Biology with the total area of 4900 sq.m.⁸⁶, followed by the placement of key divisions of the StrAU⁸⁷ therein.

StrAU “Astrochallenge: Cosmology, Monitoring, Navigation, Applications”: To create facilities and resources for formation and further development of the Federal educational centre in astrophysics and natural sciences we are planning construction of multifunctional campus⁸⁸.

StrAU “Quadrature of transformation of teacher education – 4T”:

With the support of the regional budget and funds of partner companies we are planning to implement a number of projects on modernization and commissioning of new academic campuses⁸⁹.

The total area of buildings planned for construction in 2017 – 2019 exceeds 100 thousand sq. m.

1.2.9. Economic and financial model

Joining a group of world-class research universities involves the transformation of economic policy and the University's financial model. The general strategy of the University is a gradual transition from the model of a large educational institution with significant social and regional functions to a more dynamic organization, which will strengthen the functions of research and innovation. Pursuing of this strategy will be accompanied by change and diversification of funding sources, which means the increase in the share of revenues from research and development in cooperation with business, research grants from international foundations and organizations, as well as in receipts from

⁸⁶ Assigned in 2016 by the Ministry of Health of the Russian Federation

⁸⁷ The Centre for accreditation of doctors and pharmacists with the university pharmacy; the entire scientific and educational unit of the Centre of Excellence "Neurotechnology"; International Centre "Cochrane-KFU". In addition, there are WetLab for operations on large animals being created as a translational platform of the engineering centre, which includes a simulation medicine centre. Situational Analysis Centre for risk factors and disease development, jointly established with Semashko Institute of Public Health, RAS, will also be located there.

⁸⁸ Premises for 350 beds with the total area of 5,1 sq.m. for accommodation of students and teachers, a dining room, lecture rooms stuffed with required equipment, exhibition halls demonstrating achievements of KFU's scientists in natural sciences and so forth.

⁸⁹ Construction of a four-storeyed building for the Higher School of Business of KFU with the total area of 7000 sq.m. in 3a, Podluzhnaya street is planned along with modernization of the existing campus in 34, Levobulachnaya street with the total area of 830 sq.m. for developing infrastructure of the Advanced Training and Teacher Retraining Centre for more than 11000 regional teachers.

special-purpose funds, and sponsorship of alumni and other stakeholders. The new financial model is based on the financial and economic independence, partially provided by the status of an autonomous institution; transparency of financial policy; operating flexibility and transfer of key powers, including those relating to financial decisions, to the StrAU level.

Roadmap of the StrAU is based on parameters of the University Roadmap and roadmaps of structural divisions. After approvals by the International Academic Council of the University and Directorate of the Program for Enhancing KFU's Competitive Ranking within the fulfilment of the StrAU Roadmap, its academic leader and a collegial body get exceptional financial and organizational powers in key decision-making.

Investments in the StrAU development will increase in the expenditure budget of the University. Investments will be made on a competitive basis according to the results of professional examination of projects aimed to create and equip laboratories, attract foreign scientists, teachers and students, as well as to position the University in the international space, promote publication activities and participation in international events.

The Supervisory Board and the Board of Trustees of Kazan Federal University will play an important part in forming and updating the economic policy. External consulting teams, experienced in forming economic programs and introducing financial models of the leading universities with the help of modern technical tools of financial management, will be involved in developing and updating the University economic model.

Table 2. Enlarged financial plan

Data	2017	2018	2019	2020
Revenues, mln RUB., including:	9 660	10 880	13 490	16 010
Education	5 600	6 100	7 300	8 300
R&D and RTD	1 400	1 600	2 000	2 500
Alternative sources of funding	160	180	190	210

Program for Enhancing KFU's Competitive Ranking	900	1 000	1 500	2 000
Other	1 600	2 000	2 500	3 000
Expenses, mln RUB, including:	9 660	10 880	13 490	16 010
Operating expenses	7 500	8 050	8 700	9 550
Capital expenses	2 160	2 830	4 790	6 460

A detailed interpretation of revenues and expenses of the financial plan to the Roadmap is given in the Annex 1.

1.2.10. Management and Structural Transformations

Modernization of the University management system and formation of a new organizational culture are the key factors that ensure the long-term sustainability of transformations conducted.

To ensure the high-quality of execution and control of the modernization process it is planned to introduce a modern flexible management Scrum⁹⁰ technique, permitting to provide results in the fields of the highest priority within fixed intervals.

Backlog of organizational transformations:

- forming an "effective contract" for any and all of the University employees with a high degree of individualization of KPIs;
- improving the University organizational structure by merging subdivisions and reducing the number of management levels (formation of StrAUs, optimization of the number of institutes in the current structure of the University). In particular, it is planned to reduce the number of KFU institutes from 19 in 2015 to 12 in 2020;
- scaling the best organization and management practices applied in the priority areas, which will be projected to other University subdivisions;

⁹⁰ Scrum technique is a set of principles and rules, on which the project management process is built, as formed by J. Sutherland. The technique focuses on qualitative control of the product design and implementation process. The basis of Scrum is a sprint during which the work is performed. Moreover, a strictly fixed short duration of the sprint ensures predictability and flexibility. A flexible technology implies planning sprints, which are used for the content rating (backlog), and forming tasks for a specific planning period (sprint backlog).

- optimizing management business processes, introducing "service model" for auxiliary functions of the University (primarily, such as finance, personnel accounting, procurements etc.), and "one window" mechanism for interactions with key external partners;
- creating a project and process management centre;
- expanding powers of the International Academic Council in strategic decision-making;
- enhancing the role of collegial bodies and academic leader of the StrAU in the implementation of financial and personnel-related initiatives.

One of the areas of the project management development at the University is creation of a Situational Centre for Project and Process Management⁹¹. The Centre's functionality will provide methodological support for implemented projects and arrangement of joint programs and scientific researches in the StrAUs.

The target model of the University will also be notable for changes in the organizational culture. We see KFU-2020 as a university with a well-developed business and collaboration environment. It implies an increase in autonomy of decision-making and responsibility for results of such decisions at all the University management levels. The used Scrum techniques will ensure maximum use of the staff potential through their involvement in continuous discussion of on-going projects and future actions, which will also enable collecting information on the work done, choosing the best methods of motivation and identifying bottlenecks and weak points.

We are planning to use proven change management mechanisms in order to ensure involvement of the maximum number of employees in the transformation processes.

⁹¹ Certified according to international standards in the field of process and project management (PMI, IPMA, PRINCE2, ISO 10006:2003)

A more detailed description of initiatives on KFU's management system and organizational culture transformation can be found in the Strategic Initiative 5.

1.3.Strategic Initiatives

1.3.1. SI 1. Development of the Program Portfolio and Intellectual Products Ensuring the University's International Competitiveness

Development of new programs is initiated by collegial bodies and academic leaders of StrAUs and defended in created expert job groups under the International Academic Council of KFU.

Programs are created with the assistance of teams of scientists conducting successful research in priority multidisciplinary areas of the StrAUs' majors.

Within the framework of the priority areas of development of the Russian Federation 21 new academic programs have been launched. The total number of new academic programs in the framework of StrAUs will reach 80 by 2020. KFU will use a number of mechanisms to improve the quality of programs and interest of prospective students in entering the University. It is planned to introduce internal rankings of academic programs by comparing them with Russian and international counterparts to eliminate inefficient ones. 13 programs will have international accreditation as early as in 2017.

The format of "double diploma" programs is considered by us not only as an additional element to improve the quality of education, but also as one of the key elements of building a flexible educational trajectory. Currently there have been more than 20 agreements signed to develop and implement similar programs in partnership with the leading foreign universities, research organizations and companies. We plan that by 2020 KFU will operate at least 30 double degree programs in cooperation with world leading international universities of their respective scientific fields.

Together with the leading enterprises of the country it is supposed to implement dual education programs, in which the practical part of student educa-

tion will take place at enterprises, and the theoretical part – on the basis of relevant institutions.

The introduction of modern educational technologies of distance e-learning in the international online platforms (Coursera, iTunes U, and others) is intensified in order to improve access to education and increase awareness about KFU in the global information space.

1.3.2. SI 2. Invitation of External Experts and Development of Key University Staff, Improving the Qualification of Research and Teaching Staff

For the coming years, the target model provides a significant increase in the percentage of international employees and experts with international experience. To achieve the goal, a -comprehensive job offer model is being prepared for potential candidates, and the hiring process is arranged.

In 2017, plans call for completing the formation of specialized employment committees within each StrAU (with participation of international experts) and unifying the recruitment processes on the basis of regulations.

The key elements in the strategy of attraction of the leading international experts will be the following: setup of an OpenLab or a “personalized” Center focused on the research interest of the visiting scholar and compliant with the StrAU’s research priorities; investments in the equipment of the Centre or the OpenLab at the request of the visiting scholar; option from a “Menu of contracts”: template contract (including *tenure* elements in individual priority areas), contract for a fixed period, contract for a lecturing job, contract for off-site work; setup of Centres for Shared Facilities with unique research equipment.

Meanwhile, the University is determining the best approach for recruiting young researchers and faculty. KFU’s Programs for recruiting young researchers, teaching staff, and postdocs are extensively supported by grants, whereas the University uses several types of grants, and the funding may be “linked” to both the anticipated personal achievements of the young scholar and to the top-

ic of his/her research project. Each year, the support will be offered to more than 300 postdocs and young researchers⁹².

Academic mobility initiatives are at the intersection of “internationalization” and “young employee recruitment” missions. Development of the academic travel-grants system supporting international mobility of KFU staff is underway, along with the active use of external programs and funds (the republican program "Algarysh", as well as intergovernmental agreements within the framework of national scholarship programs).

1.3.3. SI 3. Attracting Talented Students, Doctoral Candidates, and Young Researchers

Activities within this strategic initiative are aimed at improving the quality and diversity of the student body and staff.

The target model envisages an increase up to 15% in the percentage of international students enrolled in major educational programs of the University by 2020. To achieve this goal, the following areas will be further developed:

- expansion of cooperation with international recruiting agencies and associations (Jin Jie (China), ALAR (Russian-Latin American Association of Higher Education), ICC (South Korea), Russian Resources (Indonesia), and Learning Vision (UK);

- regular participation in international fairs of educational programs in those foreign countries which are considered as the main target markets for international applicants. A special program is annually approved;

- expansion of the range of information-promotional and advertising materials about KFU’s academic services and products translated into foreign languages (English, Turkish, Chinese, Arabic, Spanish, and Portuguese), taking into account the main target markets of prospective international university students; active involvement of foreign professors and students therein as na-

⁹² The way to solve this problem is in inviting postgraduate students from abroad on a grant basis with their concurrent or subsequent employment at the University.

tive speakers; and an active participation in social media networks of the relevant countries.

Due to the extensive KFU's experience of participation in network projects of academic mobility within consortiums of European and Russian universities (Integration, Interaction and Institutions – Triple I, Towards Modern and Innovative Higher Education – AURORA), more effective mechanisms of cooperation with partner universities have been developed.

To achieve the target indicators by 2020 - that is 6 % of KFU students involved in academic mobility programs - we are planning to introduce a system of grant support for participation of Russian and international students in academic mobility programs in collaboration with the world's leading universities.

1.3.4. SI 4. Development of Key Breakthrough Research Areas Coupled with Phasing Out Inefficient Activities

In the development of key breakthrough areas of research and development, the University will continue creating generation points for the world-class scientific results and their applications, and rely on the proven solutions: Personalized Research Centres under the supervision of the leading foreign and domestic scholars (by creating “most favorable” conditions for them), the OpenLabs system, large-scale projects and collaboration with the leading world research centres, and departments organised in collaboration with the RAS institutes and companies leading in the StrAUs' priority areas.

In the development of the StrAUs we are going to move forward from the stage of tailoring the facilities and platforms of the Centres of Excellence to further development and consolidation of the advantages in their specific niches⁹³. Research management efficiency will be enhanced through implementation of a unified policy of research, education, and translation of technologies and developments. We shall open at least three new Centres of Excellence, us-

⁹³ Major quantitative and qualitative parameters of the development of Centers of Excellence for 2017-2020 are given in the Annex 10.

ing competences of the University in Humanities and experience accumulated in efficient organizing of interdisciplinary research.

The efficiency of research laboratories will be determined by means of regular assessment of their activities, including with the involvement of external experts. The assessment purpose is to optimize the number of research units and eliminate inefficient ones.

The selection of promising research topics, R&D projects and phasing out of inefficient areas of activities will be carried out on the basis of professional expertise with the assistance of external experts. We shall strengthen the role of the International Academic Council in making strategic decisions with respect to research agenda elaboration for the University StrAUs.

1.3.5. SI 5. Enhancement of the University's Management and Financial System

To solve the task of continuous up-building of managing competences the following levers will be used:

- introducing an advanced international expertise into the management system due to hiring of management staff with professional experience in the leading field-specific organizations abroad. We plan to employ at least 7 experts of this type in KFU within the next 3 years;
- unlocking current management staff's potential, developing their competences in the course of specialized international internships;
- creating meritocratic culture by forming a skill pool from among talented managers with a high career potential.

A package of measures for the optimization of business processes of the University will be implemented using the method of continuous improvement. The criteria of optimization of the University's business processes will be: the reduction of bureaucratic procedures; growth of speed and efficiency of decision making; and transparency and high quality of services from the point of view of a potential user (student, employee).

Similar approach will be applied to "effective contract" quality improvement. The developed IT system planned for launching in 2017 is suggested as a supporting mean for this improvement.

Strategic academic units (StrAU) act as pilot projects for change of the management system at the level of structural divisions.

Further enhancement of the University's financial system will be conducted in the following directions:

- Increase by 180% in the share of KFU's revenues from non-budgetary sources during the period from 2016 to 2020;

- Growth in the degree of the University's financial autonomy by means of developing alternative financing sources. Among these sources we can name: the Fund of KFU's Trustees and a pool of funds for target financing of key research areas; grant and scholarship funds, personal scholarships, etc. It is planned that the growth of funds of alternative financing will reach 250 million roubles within the next 6 years.

1.3.6. SI 6. Development of the University's Infrastructure and Services

To form an attractive infrastructure of the academic environment we implement specific programs for purchasing state-of-the-art equipment and creating workplaces complying with international standards in laboratories for researchers and postdocs.

There is a publication activities support service functioning in N. I. Lobachevsky Scientific Library (translations, technical correspondence with publishing houses, maintenance of the publications database).

Within the development of server and telecommunication network, ensuring high availability of KFU services, the coverage of the University campus with a wireless network will be increased by 70%. Moreover, the broadband access to the global Internet with a speed of minimum 10 GB/s will be organised. Due to the growing need for broad high-speed access to information resources of the University, the building of optic lines connecting 11 main buildings of KFU will be provided. It will allow improving joint work of prospec-

tive and current students, lecturers and administrative personnel, as well as alumni and potential employers. Realization of the switch to IPTEL (uniform IP-telephony) will allow optimizing the telephony expenses and provide every University's employee with a connection to it.

An extensive growth of the amount of international students (to 15 %) and international staff (to 12 %) in KFU by 2020 implies development of the Adaptation Service for international students and staff members through the expansion of the range of services provided by it, such as: information, social and housing, cultural and linguistic services. Besides traditional services aimed at social adaptation of international students and staff members, other means of support are planned:

- information services – creating specialized webpages on the English version of the University website, containing all the necessary practical information; publishing special guides for particular groups of foreign citizens; posting information about the everyday life of the international students and staff members on the University's site, newspaper and UNIVER-TV channel;
- Linguistic services – organisation of the Russian language courses for international specialists coming to the University for work;
- Cultural services – formation of a discussion club Professor Club, facilitating integration and adaptation of international specialists to the academic community of KFU.

Evaluation of performance of the Adaptation Service for foreign citizens is performed in the form of regular pollings (at least twice within the period of staying in KFU).

1.3.7. SI7. Strategic Positioning of KFU in Global Academic Community to Improve KFU's Academic Reputation

KFU is consistently working on improvement of its academic reputation in the following directions:

1. Increase in international publication activities.

We set a goal to increase the quantity and quality of publications in highly cited journals (in Q1 and Q2 top quartiles of the corresponding scientific field) with the respective motivation system. Conferences and world-class symposiums held at KFU also facilitate completion of the set goal. At the same time, a system of measures was developed and is implemented in order to prevent high rate of self-citation and to reduce the number of publications in journals showing signs of unfair editorial policy:

1. The expansion of the functionality of the Publication activities support service, which provides not only consultation services for authors, but also controls the appearance of the matching content (plagiarism and self-citation) and carries out an expertise of the journals (primarily, Open Access) chosen by the authors to submit their research results.

2. The introduction of a system of work coordination in preparation and submitting of articles. The unit-level coordination councils in the corresponding subject areas will be established for that purpose. The councils will be responsible for internal peer review and selection process of works submitted for publication in international journals. The councils will be mainly focused on the publication activities of the staff of social and humanitarian subject areas.

3. The program for enhancement of analytical and information competences of authors required for publishing in international journals has been developed. Prospective authors of all levels, including master's students, doctoral candidates and academic staff, are involved in this program. The program provides courses on academic writing, specialised seminars with participation of foreign editors, and a course "Analytical and information competences and increase in the modern university professor publication activities" (72 hours) conducted at the KFU Center of advanced training and professional retraining.

- 2. Providing correspondence of KFU's scientific journals to requirements of international reference databases.** This work will result in increase in the number of scientific journals included in Web of Science/Scopus (up to 8 journals by 2020).

3. Entering new communication level in the international academic environment will be focused on:

- creation of councils for awarding PhD degrees in the priority areas and majors of the StrAUs' Centres of Excellence;
- university-based organizations of Russian branches and representative offices of the leading international professional communities.

4. Larger openness for the international academic community. Respecting the independence principles in the university's reputation evaluation according to the international rankings, efforts are being made to bring forward KFU representatives to participate in the university reputation level studies.

The percentage of publications and thesis abstracts translated into English and available for open access will be significantly increased. In order to improve the level of English language proficiency among research and teaching staff, courses are organized and financial support offered when getting international certificates confirming the language proficiency level.

The projects connected with activation of scientific communication of StrAU representatives on specialized channels (conferences and scientific collaborations) will get special development: we shall strengthen the work on interaction with international scientific and public mass media in order to increase the number of important KFU news published, and promote opinions of experts from among scientists and teachers.

In order to improve the quality of scientific and popular science materials about KFU's achievements and developments, we shall regularly conduct the educational project "The School on Scientific Journalism". The educational activities within this project will result in elaboration of general standards of information exchange between the university scientific community, mass media and wide public.

1.3.8. SI 8. Developing and Implementing the Marketing Strategy and University Promotion in the Global Information Space

The main mission of the marketing policy is providing the unique content and information about the University, StrAU development, scientific breakthroughs and Centres of Excellence in Anglophone media and Internet space.

Each StrAU will be strengthened by a marketing platform that will suggest the wide range of the targeted recommendations, based on results of the relevant researches into budding markets, benchmarking and referent structure monitoring.

A unique project of the university television **UNIVER TV**⁹⁴ has been launched and successfully developed. 24-hour broadcasting of the television channel with educational content in Full HD format is provided on the Internet and on the University's website⁹⁵, cable television networks of the Republic of Tatarstan, IPTV networks of Russia, on YouTube⁹⁶, Facebook⁹⁷, and VK⁹⁸. The channel carries out direct broadcasting of the most large-scaled university events important at the public and scientific levels, as well as movies and journalistic stories in Russian and English, lectures in Russian and English, scientific programmes, etc. The channel has amassed more than 34 thousand subscribers and more than 8 million views.

In order to develop interaction with graduates as one of the key community groups the two projects have been launched: *Alma Mater*, the community of Russian language speaking graduates, and *KFU Ambassadors*, the organisation of foreign graduates.

We shall strengthen the development of KFU accounts in English in Facebook and Instagram social networks. Due to the creation of high quality content-plan, launch of contests and polls, we shall increase the audience involvement level, which will allow doubling of the number of social network subscribers.

⁹⁴ <http://tv.kpfu.ru/>

⁹⁵ <http://tv.kpfu.ru/index.php/uncategorised/on-air.html>

⁹⁶ <https://www.youtube.com/channel/UCQK0rO0nktq5Hq1DiBouX5Q?spfreload=10>

⁹⁷ <https://www.facebook.com/universmotri>

⁹⁸ <https://vk.com/universmotri>

In order to implement the strategy effectively it is important that the whole staff be involved in the reorganisation process. That is why in order to increase the efficiency of inner communication, “Kazan University” newspaper will be rebranded and approaches to blogging on KFU website redesigned.

1.3.9. SI 9. KFU Portal-Based Implementation of “Supersite” Concept

The objective of the Strategic Initiative (SI) 9 is to bring KFU’s Internet - portal and Intranet in concordance with the best international standards taking into account recommendations of QS and Webometrics experts, as well as examples of best-in-class universities. 36 websites will be developed, each of them will be aimed at the target audience, or address specific functions. This decision will enable better identification of target audience’s needs and quick response to them.

The “Supersite” implies a transition from a unified information page to a personalized service, encourages users to place available content and compile a unique one:

Development of the portal will be implemented within four key areas:

1. Improving the functionality of KFU’s website and intranet. The architecture and design of the site will be significantly updated based on the current requirements for web portals; personal pages will be improved in terms of functionality and usability. It is expected that by the end of 2020, the level of convenience of the website and intranet use will reach 70% (among faculty and students).
2. Content increase. It is planned that by the end of 2020, the number of pages that contain unique content on the web portal of KFU will reach 2,000,000.
3. Promotional activities. It is planned that by 2020, Internet traffic of KFU web portal will be doubled.

PART2. ACTIVITY PLAN FOR THE IMPLEMENTATION OF KAZAN FEDERAL UNIVERSITY'S PROGRAM FOR ENHANCING ITS COMPETITIVE RANKING AMONG LEADING WORLD CENTERS OF HIGHER EDUCATION AND RESEARCH («ROAD MAP»)

II.I Indicators of Activity Plan for development of leading universities aimed at enhancing their competitive ranking among world-class leading research and academic centers approved by the decree of the Russian Federation Government of October 29, 2012 No 2006-p

o.	Indicator	Unit of measurement	Indicator value						
			Real value			Real value			
			2014	2015	2016	2017	2018	2019	2020
1	Number of specialists with professional experience in leading Russian and international universities and/or research centers, invited for managerial positions	persons	10	28,2	28,5	29	30	32	35
2	Number of KFU scientific journals in Web of Science or Scopus databases	items	3	3	4	5	6	7	8
3	Number of employees included in personnel pool for top managerial positions	persons	36	40	66	68	70	72	75
4	Young research and teaching staff with professional experience in leading Russian and international universities and research centers, as percentage of total young research and teaching staff	%	1,7	8,8	10,3	10,5	11	12	15
5	Research and teaching staff participated in academic mobility programs, as percentage of total of research and teaching staff	%	22	22,8	23,2	40	47	54	60
6	Number of KFU academic mobility programs for KFU and non – KFU research and teaching staff	items	585	687	2 070	2 176	2 304	2 442	2 589
7	Young research and teaching staff, as percentage of total research and teaching staff	%	37	41,9	39,8	41	42	43	45
8	Degree-seeking full-time students receiving financial support, as percentage of total of degree-seeking full-time students	%	11,6	12,02	13,42	14	16	18	20
9	Research trainees and young research and teaching staff receiving financial support, as percentage of total research trainees and young research and teaching staff	%	18,8	31,96	32,6	32,7	32,7	32,8	32,9
10	Number of joint degree programs and joint professional training pro-	items	15	28	68	69	70	75	80

o.	Indicator	Unit of measurement	Indicator value						
			Real value			Real value			
			2014	2015	2016	2017	2018	2019	2020
	grams, with leading Russian and international higher educational and research centers								
11	International students from leading world universities, as percentage of total number of students	%	0,5	0,62	0,62	2,5	3,5	4,5	5,5
12	Number of R&D projects, implemented under joint supervision of leading international and Russian scholars and/or research centers granting an opportunity to establish structural subdivisions in the University	items	47	100	107	110	114	117	125
13	Number of joint research and R&D projects, implemented with Russian and international high-technology companies granting an possibility to establish structural subdivisions in the University	items	26	35	44	45	46	48	50

II.2 Activity plan for the implementation of KFU’s Program for enhancing its competitive ranking (“Roadmap”) for 2017 – 2020

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
SI 1. Development of program portfolio and intellectual products ensuring the University’s international competitiveness						
Task 1.1 Introduction of efficient tools of cooperation with leading universities, research centers and companies for designing competitive educational resources and programs						
Activity 1.1.1 Development and implementation of joint academic programs with leading international universities, as well as academic programs in English	Number of joint degree programs and joint professional training programs with leading Russian and international higher educational and research centers, items, cumulatively (PI 10)	65	70	75	80	f
Activity 1.1.2. Development and implementation of academic programs on priority areas of country development (energetics, medicine, life sciences, information and communication technologies)	Number of new academic programs, items	8	8	10	12	f
Activity 1.1.3 International accreditation of KFU academic programs	Number of programs with international accreditation	14	22	30	40	f, g
Activity 1.1.4. Refusal from academic programs with low ranking. Development and stimulation of academic programs with high ranking.	Percentage of structural subdivisions having optimized the package of academic programs in accordance with profile rankings, %	60	65	70	100	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 1.1.5 Implementation of double-degree programs	Number of double-degree program graduates, persons.	20	25	28	30	f
Activity 1.1.6 Invitation of leading international and Russian researchers and specialists to lecture at KFU	Number of international academic staff members including Russian citizens with PhD degree from international universities, persons	80	90	125	150	f
Activity 1.1.7 Development and implementation of e-learning programs including MOOCs on EdX, Coursera etc.	Number of developed e-learning programs, MOOC courses	18	21	23	30	f
Activity 1.1.8 Development of professional training programs in cooperation with leading international and Russian companies	Number of professional training programs in cooperation with leading international and Russian companies, items, cumulatively	46	47	48	50	-
Activity 1.1.9. Development of project-oriented programs	Percentage of project-oriented areas of study, %	10	20	35	50	-
Task 1.2 Development of doctoral programs						
Activity 1.2.1 Involvement of leading researchers and experts in doctoral theses defense	Number of researchers and scholars involved, persons	80	90	100	100	d
Activity 1.2.2 Grant program for support of doctoral students	Number of grants awarded, items	220	240	250	250	e
Activity 1.2.3 Development of new international Doctoral programs in English	Number of implemented international Doctoral programs in English. Items, cumulatively	11	15	19	23	d, f
Activity 1.2.4 Development of integrated programs of academic Master's Degree and PhD	Number of developed programs, items	6	8	4	4	d, f

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
SI 2. Invitation of external experts and development of key University staff, improving the qualifications of research and teaching staff						
Task 2.1 Implementation of programs for professional involvement of researchers from leading universities and research centers						
Activity 2.1.1 Implementation of grant program for recruiting post-docs from Russian and international higher educational and research centers on the basis of competition results	Percentage of young research and teaching staff with professional experience in leading Russian and international higher educational and research centers, % (PI 4)	10,5	11	12	15	b
Activity 2.1.2 Grant program for young researchers based on competition results	Research trainees and young research and teaching staff receiving financial support, as percent in total research trainees and young research and teaching staff, % (PI 9)	22	23	24	25	e
Activity 2.1.3 Organization of regular international scientific student conferences in KFU priority areas	Number of international scientific student conferences in KFU priority areas, persons	14	15	16	17	c
Activity 2.1.4 Implementation of programs for professional involvement of highly-cited researchers from leading universities and research centers	Number of highly-cited researchers from leading universities and research centers , persons	130	135	140	150	h
Task 2.2 Participation in international, Russian, regional and university programs of academic mobility						
Activity 2.2.1 KFU research and teaching staff participation in programs of international academic mobility	Research and teaching staff participated in academic mobility programs, as percent in total of research and teaching staff, % (PI 5)	40	47	54	60	c

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
	Number of KFU academic mobility programs for research and teaching staff, items. (PI 6)	2 176	2 304	2 442	2 589	c
Activity 2.2.2 Update of training programs for KFU research and teaching staff; organization of internships in leading universities and research centers (defined in accordance with the methodology proposed by the ministry of Education and Science of RF)	Number of KFU research and teaching staff, participated in training and internship programs, persons	60	70	80	90	c
Activity 2.2.3 Development and joint implementation of researchers exchange programs with leading universities and research centers	Research and teaching staff participated in academic mobility programs, as percent in total of research and teaching staff, % (PI 5)	40	47	54	60	c
	Number of international researchers participated in KFU academic mobility programs, items	600	630	660	700	c
SI 3. Attracting talented students, doctoral candidates and young researchers						
Task 3.1 Financial support to promising students, doctoral candidates, research trainees and young researchers						
Activity 3.1.1 Grant program for long-run support of students	Degree-seeking full-time students receiving financial support, as percent in total of degree-seeking full-time students, % (PI 8)	14	16	18	20	e
Activity 3.1.2 Development of system of academic competitions for students, doctoral candidates, and research trainees	Number of participants, persons	1 700	1 900	2 100	2 400	e

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 3.1.3 Development of student exchange programs with leading world universities	International students from world universities, as percent in total number of students, %	2,5	3,5	4,5	5,5	g
Activity 3.1.4 Grant support for students in KFU academic mobility programs, including joint academic programs	Number of grants awarded to students participating in academic mobility programs, items	300	310	320	330	g
Task 3.2 Attracting prospective international students						
Activity 3.2.1 Cooperation with international recruiting agencies, associations and career centers, participation in international education fairs	Number of international students recruited for study in priority areas, persons	450	500	600	700	g
Activity 3.2.2 Grant program for international graduate and post-graduate students	Number of grants awarded to international students for study in Master and Doctoral programs (number of attracted students), persons	175	200	225	250	e
Activity 3.2.3 "School Force" program for secondary schools in China, India, South Africa and Cuba by KFU teaching staff	Number of schoolchildren participating in the program, persons	3 500	5 000	7 000	10 000	g
Activity 3.2.4 Information, communication and advertising support of KFU international admission process	Implementation of the plan for Information, communication and advertising support of KFU international admission process (yes/no)	yes	yes	yes	yes	-
Task 3.3 Attracting prospective Russian students						

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 3.3.1 Development of KFU lyceum system with full-time and part-time education for promising schoolchildren	Number of schoolchildren studying in KFU lyceums within the reporting period, persons	1 700	1 700	2 000	2 000	-
Activity 3.3.2 Organization of international academic competitions among schoolchildren	Number of academic competitions held, items	1	1	1	2	-
Activity 3.3.3 Development of «Junior university» and other activities involving schoolchildren and their parents	Number of participants, persons	7 000	8 000	9 000	10 000	-
Activity 3.3.4 “School site” on KFU web-portal	Number of registered users of the site, persons	220	240	270	300	-
Activity 3.3.5 Advertisement in Russian printed and e-publications	Implementation of the plan of promotional events (yes/no)	yes	yes	yes	yes	-
Task 3.4 Development of Bachelor Programs						
Activity 3.4.1. Development of elite Bachelor Programs	Numbers of students in the reporting period, persons	1 300	1 500	1 700	2 000	f
Activity 3.4.2. Development of elite Bachelor academic programs in English	Number of developed programs, items	2	2	2	2	f
Activity 3.4.3. Development of groups with academic tracks and profiles based on mechanisms of course election	Percent of profiles with course election option, %	100	100	100	100	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 3.4.4. Development of tutor support for individual academic trajectories	Developed system of tutor support for individual academic trajectories (yes/no)	yes	yes	yes	yes	-
Activity 3.4.5. Implementation of system for course grading completed in the framework of international and pilot Russian platforms of distant learning	Implemented system for course grading completed in the framework of international and pilot Russian platforms of distant learning (yes/no)	yes	yes	yes	yes	-
SI 4. Development of priority research areas, phasing out of inefficient activities						
Task 4.1. Development of the world class R&D platform in KFU. Establishing international research centers in collaboration with leading international and Russian universities and international companies						
Activity 4.1.1 International expertise of large-scale projects implemented in KFU	Number of positively evaluated projects, items	20	20	20	20	h
Activity 4.1.2 KFU participation in international collaborations, implementation of large-scale international R&D projects. Cooperation with Russian and international research centers in brand new priority research areas	Number of implemented projects, items	12	13	14	15	-
Activity 4.1.3. Forming the list of priority partners based on “TOP-120 key potential KFU partners” including leading world companies and research centers, conclusion of cooperation agreements	Number of cooperation agreements with leading research centers and companies, items	72	78	92	100	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 4.1.4 “Key account management” and “single entry point” approaches for interaction with key partners from business and industry	Number of key partners from business and industry taking advantage of “key account management” and “single-entry point” approaches, items	43	45	50	55	-
Activity 4.1.5 Formation of the KFU centers of innovation, technological and social development	Number of KFU translational centers and departments of innovation, technological and social development, items	7	10	12	15	-
	Volume of investments attracted to the development of KFU translational platforms and technology transfer centers and development, mln. rubles	1 000	1 200	1 300	1 500	-
Task 4.2. Establishing research centers (laboratories) for outstanding world class scientists in priority research areas						
Activity 4.2.1 Implementation of “Eminent Scientist Research Center” program (large-scale projects led by outstanding international and Russian scientists)	Number of outstanding scientists in “Eminent Scientist Research Centers”, persons.	67	70	75	80	h

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 4.2.2 Establishment of new, including joint research laboratories and academic centers by leading scientists in KFU priority areas (Energetics, Medicine and Life Sciences, Info-Communications). Cooperation with Russian and international research centers with strong research areas not available at KFU	Number of R&D projects, implemented under joint supervision of leading international and Russian scholars and/or academic centers, items (PI 12)	110	112	117	125	h
Activity 4.2.3 Establishment of joint academic departments with RAS institutes and leading companies in national research priority areas	Number of joint R&D projects, implemented with Russian and international high-technology companies at KFU with possibility of setting up structural subdivisions, items (PI 13)	45	46	48	50	h
Activity 4.2.4 Expertise of conducted research, laboratories and R&D projects	Number of evaluations made by external international experts, items	30	40	45	50	h
SI 5. Enhancement of the university management and financial systems						
Task 5.1 Development of the personnel pool for top management positions and recruitment of external specialists with professional experience in leading Russian and international higher educational and research centers						
Activity 5.1.1 Training programs for university managers and project leaders in advanced higher educational and research centers and companies	Number of managers trained, persons	25	20	20	20	a

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 5.1.2 Recruitment of external specialists with professional experience in leading Russian and international HEIs and/or academic centers, invited for managerial positions, persons (PI 1)	Number of specialists with professional experience in leading Russian and international HEIs and/or academic centers, invited for managerial positions, persons (PI 1)	57	60	65	70	a
Activity 5.1.3 Development of the university personnel pool for managerial positions	Number of employees included in personnel pool for top managerial positions (PI 3)	48	52	56	60	a
Activity 5.1.4 Establishment of recruiting service; cooperation with recruiting consultant having international experience	Number of employees recruited by the recruiting service, persons	15	15	15	20	a
Activity 5.1.5 Development the interuniversity training system	Percentage of trained employees, %	5	10	15	20	-
Task 5.2 Continuous improvement of the Program management processes						
Activity 5.2.1 Project management structure optimization. Design, regulation and optimization of the project management processes	Percentage of project management processes regulated and improved, %	100	100	100	100	-
Activity 5.2.2 Skills Enhancement Program for university personnel involved in project management	Number of employees participated in Skills Enhancement Program, persons	40	50	50	90	a

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 5.2.3 KFU organizational culture assessment. Implementation of measures for organizational culture transformation	Number of measures taken for organizational culture transformation, items	4	4	4	4	-
Activity 5.2.4 Change management strategy development. Activities for change management process support (seminars, strategic sessions)	Number of activities for change management process support, items	4	4	4	4	-
Task 5.3 KFU management system improvement according to best practices						
Activity 5.3.1 Effective performance of KFU International Academic Council	Number of International Academic Council activities, items	3	3	3	3	-
Activity 5.3.2 Improvement of effective (performance-oriented) contract system	Percentage of academic and managerial staff under effective performance-oriented contracts, %	90	100	100	100	-
Activity 5.3.3 Development of automated IT- system for administering effective (performance-oriented) contracts	Percentage of employment contracts administered by the IT-system, %	50	70	100	100	-
Activity 5.3.4 Identification of main trends for modifications in the current University management, improvement organizational structure	Percentage of organizational units (including department, units, etc.) analysed and improved, %	50	70	90	100	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 5.3.5 Regular audit and optimization of university business processes. Incorporation of service-oriented approach for supporting units	Percentage of supporting units implementing service-oriented model, %	30	40	50	60	-
Task 5.4 Development of KFU strategic planning system						
Activity 5.4.1 Development and implementation of university units functional strategies	Updated functional strategies, items	0	0	10	0	-
Activity 5.4.2 Development of the department for science, technologies and educational markets foresight	Number of reports, items	1	1	1	1	-
Activity 5.4.3 Regular foresight and rectification of university priority areas	Number of foresight research projects and sessions, items	2	2	2	2	-
Task 5.5 Enhancement of university financial sustainability and development of new financial sources						
Activity 5.5.1 Rising up university revenues from alternative financial sources	Revenues from alternative sources, mln. rubles	180	185	190	210	-
Activity 5.5.2 Development of external funding system	External funds volume, mln. rubles	160	190	220	250	-
SI 6. Development of the University's infrastructure and services						
Task 6.1 Facilities for comfortable academic environment						
Activity 6.1.1 Equipping laboratory workplaces for researchers and post-docs	Number of employees with upgraded workplaces, persons	800	1 000	1 100	1 200	h

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 6.1.2 Upgrading KFU telecommunication infrastructure	Percentage of lecture rooms, research laboratories and other academic premises with high speed broadband Internet access, including KFU intranet, %	100	100	100	100	h
Activity 6.1.3 Unification and development of IT systems. Incorporation of LMS (Learning Management System) and KMS (Knowledge Management System). KFU e-library development	IS maturity level according to COBIT classification	4	5	5	5	h
Activity 6.1.4 Supporting services for international staff and students	Percentage of users satisfied with service quality, %	75	80	85	90	h
Activity 6.1.5. Development of mentoring and tutoring system, including international partners	Number of employees trained through the tutoring system, persons	86	127	192	256	e
Activity 6.1.6. Development the personnel pool data-base by creating on-line platform for post-docs and young researches registration	Percentage of applicants registered through on-line platform, %	65	80	100	100	a, b
Activity 6.1.7. Implementation the OpenScience concept	Percentage of KFU laboratories placed the research materials and articles in professional networks (ResearchGate etc.), %	30	50	75	90	h
Task 6.2 Development of housing premises for international professors and promising KFU staff and students						

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 6.2.1 Construction and renovation of housing premises for promising international students, research trainees and young academic staff	Total area of new or renovated buildings, square meters	0	3 000	4 000	0	b
Activity 6.2.2 Construction of housing premises for international and KFU promising domestic academic staff	Total area of new buildings, square meters	2 000	0	3 000	3 000	b
SI 7. Strategic positioning in global academic community to improve KFU academic reputation						
Task 7.1 Enhancement of KFU international publication activity						
Activity 7.1.1 Inclusion of KFU scientific journals in Web of Science or Scopus databases	Number of KFU scientific journals in Web of Science or Scopus databases, cumulatively, items (PI 2)	5	6	7	8	h
Activity 7.1.2 Incentivizing KFU publication activity	Number of publications in WoS within reporting period, items	1 400	1 700	2 300	3 000	h
	Number of publications in Scopus within reporting period, items	1 800	2 400	3 200	3 600	h
Activity 7.1.3 KFU publications' quality improvement	Number of publications in top-quartile of WoS journals in terms of Impact-factor for relevant research area within reporting period, items	400	500	600	700	h
	Percentage of publications in WoS Q1 and WoS Q2, %	34	36	38	40	h
Activity 7.1.4 Development of publication activity support ser-	Number of requests to support services within reporting period, items	600	900	1 200	1 500	h

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
vice	Number of articles passed the verification procedure for borrowing (plagiarism, self-citation), items	1 500	1 800	2 200	2 600	h
	Number of issued opinions (consultations) by the support service for the examination of journals (verification of indexation in world citation indexes, impact factors, compliance with publication ethics), as well as compliance of the prepared articles with the selected journal design standards, items	100	120	140	160	h
Activity 7.1.5. Development the mechanisms of publication activity coordination in selected research areas and introduction the system of preliminary publication review	Number of coordination councils in selected research areas, items	2	3	4	4	h
	Number of articles received the reviews of coordination councils and included in the WoS and Scopus databases, items	270	350	450	600	h
Activity 7.1.6. Implementation the training program for increasing KFU students and academic staff competencies in preparation of the international publications	Number of training workshops for the preparation of the international publications with participation of international experts, items	4	4	4	4	h
	Number of employees passed the training program "Analytical and information competencies for increasing the publication activity of modern university teaching staff", persons	50	100	150	200	e

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
	Number of master and doctoral students involved at the KFU Academic Writing program, persons	1 731	1 987	2 318	2 702	e
	Number of publications in Web of Science per 1 master and doctoral student within reporting period, items	0,2	0,4	0,7	1,0	d
Activity 7.1.7. Organizing international research conferences in KFU with publishing thesis indexed by Web of Science	Number of international conferences within reporting period, items	5	8	11	14	c, h
Task 7.2 Development of communications within international academic environment						
Activity 7.2.1 Organizing world level conferences in KFU priority areas	Number of conferences with the participation of highly - cited scientists (top-50 H-index in WoS and Scopus), items	3	5	7	10	c
Activity 7.2.2 Organizational and financial support for KFU researchers' participation in international conferences and other scientific events abroad	Number of KFU researchers participated in international conference, with publications in top-quartile WoS and Scopus subject lists, persons	150	180	210	250	c
Activity 7.2.3 Membership in international academic associations	Number of memberships in international academic associations, items, cumulatively	10	10	10	10	c
Activity 7.2.4 Establishment integrated database of active contacts (CRM system); development of academic staff networking by means of online and offline activities	Number of active international contacts per staff member, items	2	3	4	5	c

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 7.2.5 Participation of KFU academic staff in editorial boards of international scientific journals	Number of KFU academic staff participating in editorial boards of international journals indexed in WoS and Scopus, persons	65	70	75	80	c
Activity 7.2.6 Organization of open lectures of world class scientists, social leaders and international award holders at KFU	Number of open lectures at KFU with the involvement of leading scientists, social leaders and international award holders, items in the reporting period	2	3	4	4	c
Task 7.3 Promoting KFU transparency for international academic community						
Activity 7.3.1 Cooperation with Russian and international university ranking agencies for promoting KFU visibility in academic environment	KFU position in QS World University Ranking	250–300	200–250	150–200	150	-
Activity 7.3.2 Expanding KFU academic staff participation in international professional networks (Researcher ID, ORCID and other)	Percentage of academic staff with personal accounts in three and more professional networks (including ORCID), %	50	60	65	70	-
Activity 7.3.3 Promoting expert opinions of KFU representatives, including international ones, in mass media.	Number of expert opinions of KFU staff covered in Russian mass media, items	600	700	800	1 000	-
	Number of expert opinions of KFU staff covered in international mass media, items	15	25	35	50	-
Activity 7.3.4 Translating into English and publishing KFU conference proceedings, monographs etc.; with open access to above-mentioned materials	Number of KFU scientific publications translated into English available in open access as percent in total KFU publications, %	40	60	80	90	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 7.3.5 Translating into English and publishing abstracts of dissertations theses; with open access to them	Number of abstracts of dissertations theses translated into English available in open access as percent in total abstracts of dissertations theses, %	55	60	65	70	d
Activity 7.3.6 English language courses for KFU research and teaching staff	Number of lectures, man-hours	30 000	35 000	40 000	50 000	c
Activity 7.3.7 International language proficiency certification of KFU research and teaching staff	Research and teaching staff certified at least as Intermediate users as percent in total research and teaching staff, %	20	30	40	50	c
Activity 7.3.8 Mass-media monitoring, developing sustainable relations with media	Number of positive articles in mass media, including international, items	30 000	34 000	38 000	45 000	-
Activity 7.3.9 Promotion KFU in the global information space by university TV channel «Univer-TV»	Activity 7.3.9 Promotion KFU in the global information space by university TV channel «Univer-TV»	650	950	1 300	1 600	-
SI 8. Development and implementation of marketing strategy						
Task 8.1 Development of marketing strategy and KFU brand promotion						
Activity 8.1.1 Development, approval and actualization of marketing strategy, including communication plan	Developed/ updated strategy (yes/no)	yes	yes	yes	yes	-
Activity 8.1.2 Development and approval of University logos, slogans and brandbook, setting logo design rules for KFU institutes	Approved logo, slogan, brandbook	yes	yes	yes	yes	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 8.1.3 Preparation of promo materials, issuing annual general and scientific reports	Annual material issuing plan is outturned (yes/no)	yes	yes	yes	yes	-
Task 8.2 Cooperation with key external stakeholders (employers, business-partners, authorities and alumni)						
Activity 8.2.1 Regular organization of Career days at KFU	Number of events held, items	1	2	2	2	-
Activity 8.2.2 Development of KFU Alumni club and organization of events on a regular basis.	Number of contacts in alumni database, persons	30 000	40 000	50 000	60 000	-
	Number of events per year, items	1	1	1	1	-
Activity 8.2.3 Advertising in printed and e-media	Annual promotional plan is outturned (yes/no)	yes	yes	yes	yes	-
Task 8.3 Communication with internal stakeholders						
Activity 8.3.1 Creating official KFU profiles in social networks. Social Media Marketing	Number of followers in social networks, items	75 000	80 000	85 000	90 000	-
Activity 8.3.2 Regular student and academic staff opinion polls	Number of polls per year, items	4	4	4	4	-
SI 9. KFU portal-based implementation of "Supersite" concept						
Task 9.1 Organizational changes for sustainable support of the web-site						
Activity 9.1.1 Establishing the department for web-site maintenance (according to the single entry point approach)	Department established, items.	yes	yes	yes	yes	-
Activity 9.1.2 Issue Regulations on posting and updating information on the web-site	Regulations issued / updated (yes/no)	yes	yes	yes	yes	-
Task 9.2 Extending functionality of KFU web-site						

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 9.2.1 Development of the Supersite design plan, approval of the specifications and budget	Specification and budget approved (yes/no)	yes	yes	yes	yes	-
Activity 9.2.2 Improvement of the personal accounts' functionality on KFU web-site	Percentage of functions mentioned in specifications realized in personal account (%)	25	50	85	100	-
Activity 9.2.3 Developing and maintaining tool for receiving feedback from the portal's users	Web-site usability level, average evaluation grade by faculty, %	50	60	70	80	-
	Web-site usability level, average evaluation grade by student, %	50	60	65	70	-
Activity 9.2.4 Increasing the number of profile sites on the Internet portal	Number of Web-sites designed for KFU Internet portal, items	6	14	24	36	-
Activity 9.2.5 Developing mobile applications with intranet functions (personal account)	Number of applications developed for all three platforms (IOS operating system, Android, Windows Phone), items	2	6	10	16	-
Task 9.3 Maintaining and uploading content to the web-site						
Activity 9.3.1 Maintaining and uploading pages of institutes and laboratories (structures units and departments separately from laboratories (in 2015 - creation only)	Percentage of laboratories having their own pages on the website, %	30	50	70	90	-
	Percentage of institutes supporting their own pages on the website (minimum 10 postings per month), %	90	100	100	100	-
Activity 9.3.2 Encouraging academic staff to create and support their personal pages in KFU website	Percentage of academic staff actively running their own webpages (filling level min 90%, two or more postings per month, %	30	50	70	90	-

Strategic Initiative / Task / Activity	Performance Indicator (name and measurement unit)	Performance Indicator Value				Activities as per paragraph 1 of the Decree of the RF Government No. 211 of March 16, 2013
		2017	2018	2019	2020	
Activity 9.3.3 Aligning the English website version with the Russian version	Percentage of the Russian website content presented in the English version, %	40	75	100	100	-
Task 9.4 Promotion of KFU web-portal						
Activity 9.4.1 Offline promotion of the web-portal	Number of offline communication vehicles, regularly placing links to KFU web-portal, items	12	13	14	15	-
Activity 9.4.2 Website Search Engine Optimization	Increase in website traffic in the sections devoted to priority areas, as percentage of 2015 value, %	300	350	400	450	-
Activity 9.4.3 Increasing the attendance of KFU internet - portal	Increase the number of visitors to the KFU sites with respect to the 2016 results, %	5	15	30	50	-

PART III. ANNEXES

III.I. Annex 1. Funding of the Activity Plan for the implementation of Kazan Federal University's Program for Enhancing its Competitive Ranking among Leading World Centers of Higher Education and Research 2013 – 2017 (hereinafter – “Road Map”) from the subsidy for state support to top Russian universities aiming at enhancing their competitive ranking among leading world centers of higher education and research, and co-financing

		2015 fact		2016 fact		2017 plan	
		Subsidised amount	Amounts from non-budgetary sources	Subsidised amount	Amounts from non-budgetary sources	Subsidised amount	Amounts from non-budgetary sources
1.	Road Map-related expenses for activities specified in the Decree of the RF Government No. 211 of March 16, 2013, paid out of the subsidy and non-budgetary sources, including	849 955 748,32	6 416 378,00	707 527 219,54	201 913 981,53	1 129 249 224,68	180 000 000,00
	a) development of the personnel pool for top management positions and recruitment of external specialists with professional experience in leading Russian and international higher educational and research centers	14 223 800,00	0,00	3 770 751,61	385667,78	13 729 598,39	874 600,00
	b) implementation of measures on attracting and recruiting to KFU young researchers and staff with working experience at leading international and Russian universities and research centers	68 467 914,24	799 328,00	29 617 075,47	850 433,54	80 118 270,33	5 444 000,00
	c) implementation of the program of international and all-Russian academic mobility of the staff for internships, professional training and retraining and in other forms	45 907 593,50	1 253 478,00	39 497 419,84	9 816 625,84	57 103 022,76	10 605 000,00
	d) implementation of measures improving doctoral program	0,00	1 197 771,00	0,00	421929,32	0,00	0,00
	e) implementation of measures, supporting students, interns, young researchers and professors	57 037 754,66	2 076 490,00	50 329 749,92	5 186 300,00	75 901 848,38	9 180 000,00
	f) implementation of new academic programs in cooperation with leading Russian and international universities and research organizations	27 672 930,19	0,00	8 277 643,45	1 009 000,00	85 937 518,83	9 760 000,00

	g) implementation of measures on recruiting students from leading international universities to study in Russian universities, including partnership educational programs with international universities and university associations, attracting prospective students who have demonstrated the creative and research ability and interest	4 425 400,04	351 417,00	8 184 634,68	5 032 992,87	10 992 405,32	1 100 000,00
	h) implementation of the following activities in the framework of scientific and research measures in accordance with the Russian basic long-term research program for universities, taking into account priority international fundamental areas and applied research	632 220 355,69	737 894,00	567 849 944,57	179 211 032,18	805 466 560,67	143 036 400,00
	research and development projects, involving leading Russian and international researchers as managers, and (or) in cooperation with promising scientific organizations, including the opportunity to create departments in universities;	632 220 355,69	737 894,00	567 849 944,57	179 211 032,18	805 466 560,67	143 036 400,00
	research and development projects, in cooperation with local and international high-tech organizations, including the opportunity to create departments in universities	0,00	0,00	0,00	0,00	0,00	0,00
2.	Road Map-related expenses for activities other than that specified in the Decree of the RF Government No. 211 of March 16, 2013, paid out of non-budgetary sources	0,00		0,00		78 500 000,00	
3.	Road Map-related expenses paid out of sources other than the subsidy and non-budgetary sources	77 785 260,15		78 491 514,01		0,00	
4.	The subsidy amount allocated	378 000 000,00		900 000 000,00		849 247 700,00	
5.	Remaining subsidy balance as of the end of the year	87 528 744,22		280 001 524,68		-	

Planned subsidized amount for system - wide activities in 2017 is 150, 000, 000 rubles

III.2. Annex 2. Methodology of calculating supplementary performance indicators

Performance indicator number	Performance indicator title	Method for calculating	Formula for calculating	Calculation example (as for 2014)	Data source
8	Master's and doctoral degree students (full-time and part-time) as percentage of total student population	Percentage ratio of the number of master's and doctoral degree students to the total number of students (main campus only considered)	$PI8 = \frac{A1+A2}{B1+A2} * 100\%$ where A1 = Master's degree students A2 = Doctoral degree students B1 = Bachelor's and master's degree student population	$PI8 = \frac{(1492.1 + 810.2)}{(23520.0 + 810.2)} * 100\% = 9.5$	Form № HE-1 of the Federal statistics monitoring KFU internal reporting system
9	Doctoral degree, including PhD, holders as percentage of total teaching staff	Percentage ratio of the number of teaching staff members with doctoral degrees (including PhD) to the total number of teaching staff members (including external part-time staff)	$PI9 = \frac{A3}{B2} * 100\%$ where A3= Number of teaching staff members with doctoral degrees (including PhD holders and external part-time staff) B2= Total number of teaching staff members (including external part-time staff)	$PI9 = \frac{419}{2357} * 100\% = 18.0\%$	Form № HE-1 of the Federal statistics monitoring KFU internal reporting system
10	Percentage of faculty members with work experience or long-term internships at leading world universities and research centers	Percentage ratio of the number of staff referred to the specified category to the total number of faculty members	$P10 = \frac{A10}{B1} * 100\%$ where A10 = Number of faculty members with work experience or long-term internships at leading world higher educational and research centers B1 = Total number of faculty	$P10 = \frac{230}{2331} * 100\% = 9,8$	KFU internal reporting system. Form No. 5-100-1, Table 4.1

Performance indicator number	Performance indicator title	Method for calculating	Formula for calculating	Calculation example (as for 2014)	Data source
			members		
11	Revenues from R&D, as percentage of total revenues	Percentage ratio of the amount of revenues from R&D to the total amount of KFU revenues	$P11 = A4/B3 * 100\%$, where A4 = Amount of revenues from R&D; B3 = Total amount of KFU revenues	$P11 = 849050/7342582 * 100\% = 11,6$	Form № HE-2 of the Federal statistics monitoring KFU internal reporting system

Annex №2a. Individual methodology of calculating performance indicators

Performance indicator number	Performance indicator title	Method for calculating	Formula for calculating	Calculation example (as for 2012)	Data source
2	Number of publications in Web of Science and Scopus databases per faculty member (excluding repetitions)	Ratio of number of Web of Science and Scopus articles for past three years to the number of faculty members.	$\Pi 2 = A1/B1$, where A1 = Number of Web of Science and Scopus publications for past three years B1 = Number of faculty members (The number of faculty members refers to the average number of KFU researchers and instructors (professors and lecturers) over the reporting year, including part-time faculty members and not counting individuals working on a contract basis)	$P2 = 1177 / 2331 = 0,5$	Web of Science and Scopus data bases. Form № 5-100-1 Table 4.1
3	Average citation index in Web of Science and Scopus da-	Ratio of total number of citations in Web of Science and	$P3 = A2/B1$, where A2 = Total number of citations in Web of Science and	$P3 = 13349 / 2331 = 5,73$	

	tabases per 1 faculty member (excluding repetitions)	Scopus for the past five years to the number of faculty members.	Scopus for the past five years B1 = Number of faculty members		
4	Percentage of professors, faculty members and researchers in the number of teaching and research staff, including Russian citizens with PhD degree conferred by international universities	Percentage ratio of average number of international professors, lecturers and researchers (excluding CIS citizens) to the number of faculty members	$P4 = A3/B1 * 100\%$, where A3 = Average number of professors, faculty members and researchers for the reporting period including full-time (external part-time) employees without taking account civil law contracts – international (excluding CIS) citizens B1 = Number of faculty members	$P4 = 45 / 2331 * 100\% = 1,9$	Form № 5-100-1 Table 4.1
5	Percentage of international students enrolled in major academic programs (including students from CIS countries)	Percentage ratio of international students to the number of students studying in major academic programs	$P5 = A4/B2 * 100\%$, where A4 = Number of international students (including students from CIS countries) B2 = Number of students enrolled in major academic programs	$P5 = 628,6 / 22237,5 * 100\% = 2,8$	Form № 5-100-1 Tables 2.1.2; 2.1.3; 2.1.4
6	Average Unified State Examination (hereinafter - USE) scores of students admitted for full-time Bachelor's and Specialist degree programs (funded by the Russian Federal Government)	Ratio of the sum of average USE scores of students admitted to KFU for full-time bachelor's and specialist programs financed by the federal government multiplied by the number of students admitted to KFU for full-time bachelor's and spe-	$P6 = (\sum A5n * B5n) / B6$, where A5n = Average USE scores of students admitted to KFU for full-time bachelor's and specialist programs financed by the federal government B5n = Number of students admitted to KFU for full-time bachelor's and specialist programs financed by the federal government	$P6 = 152659 / 2139 = 71,37$	Form № 5-100-1 Table 2.1.5

		cialist programs financed by the federal government to the total number of students admitted to KFU for full-time bachelor's and specialist programs financed by the federal government	B6 = The total number of students admitted to KFU for full-time bachelor's and specialist programs financed by the federal government		
7	Revenues from non-budgetary sources, as percentage of total revenues	Percentage ratio of revenues from non-budgetary sources to the total amount of university revenues	$P7 = A6/B7*100\%$, where A6 = Amount of revenues from non-budgetary sources B7 = Total amount of university revenues	$P7 = 1804923,9 / 6069436,4 * 100\% = 29,7$	Form № HE-2 Table 3.1
8	Percentage of the full-time graduate and doctoral students in the total number of full-time students	Percentage ratio of the number of full-time graduate and doctoral students to the total number of full-time students	$P8 = (A7+A8)/(B2+A8)*100\%$, where A7 = Full-time graduate students A8 = Full-time doctoral students B2 = Total number of full-time students	$P8 = 1811 / 22947,5 *100\% = 7,9$	Form № 5-100-1 Tables 2.1.2; 2.1.3; 2.1.4; 2.2.1
9	Percentage of faculty members with work experience or long-term internships at leading universities and research centers	Ratio of mentioned category of staff to the number of faculty members	$P9 = A9/B1*100\%$, where A9 = Number of faculty members with work experience or long-term internships at leading universities and research centers B1 = Total number of faculty members	$P9 = 230 / 2331 *100\% = 9,8$	KFU External report. Form № 5-100-1 Table 4.1

10	Amount of R&D revenues from the total amount of university revenues	Revenue from all the funding sources of R&D projects	-	P10 = 0,7	KFU External report
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III.3. Annex №3. Planned schedule for development of KFU Strategic Academic Units (StrAU)

No	Name of activity	Implementation form (quarterly)				Results	Responsible authorities	«Road map» activities
		2017	2018	2019	2020			
	1. University-wide events for formation and development of StrAU							
1.1.	Consideration by Supervisory Board, International Advisory Board and Scientific Council of the University (subject to approval) prepared by university 3-year development plans of educational activities and research activities of each StrAU, including, information on the development and implementation of new academic programs (including cooperation with leading Russian and international R&D centers and other partners), trends and research projects designed to obtain unique results within the framework of solving global challenges of research and technological development and long-term scientific and technological challenges, including the needs of the Russian Economics (in cooperation with leading Russian and international scientific and educational centers and other partners)	IV qtr.	IV qtr.	IV qtr.	IV qtr.	R&D reports on STRAU for the reported period, activities plan and budget for the planned period, minutes of meetings of Supervisory, Academic and International Boards	Vice-Rector for Research D. Nurgaliev, Heads of StrAUs, Director of the Center for Prospective Development, I. Kuzmishin	5.2.1 5.3.1
1.2.	Determination of principles of staff formation of each particular StrAU to implement functions assigned to them and the planned performance indicators of planned values, the formation of staffing of each specific university StrAU	I-II qtr.	I-II qtr.	I-II qtr.	I-IIqtr.	Orders, staffing register, job instructions, efficient contracts	Heads of StrAUs	5.1.2 5.1.3 5.3.2
1.3.	Identification of main sources of financing and formation of planned revenue targets of every StrAU, to ensure its development, tak-	I-II qtr.	I-II qtr.	I-II qtr.	I-II qtr.	Approved plan of financial and economic activities, calendar	Heads of StrAUs, Project office, Vice-Rector for Fi-	5.2.1 5.5.1

	ing into account formed plans for educational and research activities, definition of financial models and parameters of financial support of StrAU university system and of separate StrAU					plan	nance Mullakaeva R.R.	
1.4.	Determination of main indicators of StrAU effectiveness and planned values for the purposes of internal control by institution of its development and performance and management decisions, including terms of resource support for its activities	I-II qtr.	I-II qtr.	I-IIqtr.	I-II qtr.	StrAU approved performance indicators	Heads of StrAUs	5.2.1 5.3.2
1.5.	Conclusion of agreements on cooperation between university and its major international and Russian partners for the implementation of the relevant sub-schedule and ensure the effective development of each particular university StrAU	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Agreements, cooperation agreements, memorandums, etc	Heads of StrAUs, Vice-Rector for International Affairs, Latypov L.N.	1.1.1 1.1.8 2.2.3 4.1.3 4.2.3
1.6.	Implementation of subsections measures on the development of educational activities and sub-sections for research work sections schedule for each specific StrAU university as a part of approved three-year plans for the development of educational activities and research and development activities (development of educational programs, organization of conferences, consultations etc.)	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Reports on academic and R&D according to StrAU p;anned schedule	Heads of StrAUs	SI1 – SI4 activities
1.7.	Operation of each particular university StrAU for allocation of necessary resources and work organization	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Maintenance and coordination of StrAU projects	Heads of StrAUs, Center for Prospective Development	5.2.1 5.5.1
1.8.	Conducting information activities of StrAU system of university and of each specific StrAU	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Information support for StrAU project implementation	Heads of StrAUs, Director of Media Relations Department, Mukhtarova L.M., Director of UNIVER	5.2.4 9.3.1 9.3.3 8.3.1

							Media Center, Karimov I.A.	
1.9.	Consideration of StrAU calendar plan results at the end of the year at the meeting of supervisory board of university within the framework of general report on “road map” implementation results	I qtr.	I qtr.	I qtr.	I qtr.	Supervisory Board protocols of meetings	Heads of StrAUs, Director of the Center for Prospective Development, Kuzmishin I.A.	5.2.1 5.3.1
	2. Formation and development of StrAU «Translational 7P medicine»	<p><i>StrAU Mission:</i> New solutions in the area of human health by developing personal translational medicine on the basis of innovative model of transdisciplinary medical education and interdisciplinary scientific solutions. In the basis of StrAU is lied the concept of the medicine of future in which the principle of 4 “P” (Personalized; Predictive; Preventive; Participative) is extended by an additional three “P” (Providing; Preemptive; Point of care).</p> <p><i>StrAU goals:</i> – construction of infrastructure and implementation of scientific and educational programs transfer and application of innovative developments in the area of translational 7P medicine; – transdisciplinary transformations of academic programs at all levels in biology, physics, chemistry and medicine and creation of common scientific and educational space for the industry training, "Health", the development of translational medicine, internationalization of education and improving competitiveness of the university; – conducting breakthrough research in the area of translational 7P medicine in close cooperation with the world's leading research centers and universities and creation of co-financed R & D units (KFU-RIKEN "Functional genomics", Center for Translational Medicine KFU-RASA Center "Cochrane-Russia")</p> <p><i>Positions in the subject ratings on the basis of formation and development STRAU:</i> Position in QS ranking, by subject area - Medicine – 151–200 to 2020 Position in QS ranking, by subject area - Biological Science – 51–100 to 2020</p>						
2.1.	Organizational-economic and regulatory support	I–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	Normative documentation elaborating	Head of the StrAU, Vice-Rector for Economic and Strategic Development Safiullin M.R.	5.2.1
2.1.1	Determination of StrAU internal structure	II qtr.	II qtr.	II qtr.	II qtr.	Internal structure of StrAU determined	Head of the StrAU	4.2.2 5.2.1 5.3.4

2.1.2	Formation StrAU staffing	II qtr.	IIqtr.	II qtr.	II qtr.	Formed staffing register	Head of the StrAU	5.2.1 5.3.4
2.1.3	Defining parameters of financial model and financial support of StrAU	II qtr.	II qtr.	II qtr.	II qtr.	Formed financial model	Head of the StrAU, Vice-Rector for Economic and Strategic Development Safiullin M.R.	5.2.1 5.5.1
2.1.4	Conclusion of agreements of cooperation between university and its leading international and Russian partners for implementation of relevant sub-schedules and ensure effective development of StrAU	I–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	Signing of agreement with minimum 26 universities and 12 companies	Head of the StrAU	1.1.1 1.1.8 2.2.3 4.1.3 4.2.3
2.1.5	Formation of quality management system, assessment and monitoring of key performance indicators of StrAU	I–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	Formed quality management system	Head of the StrAU, Deputy Director of the Institute of Fundamental Medicine and Biology for Research Fai-zullin R.I.	5.2.1 5.3.2
2.2.	Development of educational activities						Deputy Director of the Institute of Fundamental Medicine and Biology for Medical Education Gumerova A.A., Deputy Director of the Institute of Fundamental Medicine and Biology for Biological Education Sabirov R.M.	
2.2.1	Admission plan on the 1st year of education (number of people): – bachelor programs	III qtr. 140	III qtr. 130	III qtr. 120	III qtr. 110	1-year students enrolment	Deputy Director of the Institute of Fundamental Medicine and Biol-	3.1.1 3.2.2

	– specialist programs – master programs	260 80	260 90	260 100	260 110		ogy for Medical Education Gumerova A.A., Deputy Director of the Institute of Fundamental Medicine and Biology for Biological Education Sabirov R.M., Head of the Department of Botany and Plant Physiology Timofeeva O.A., Associate Professor Baltina T.V.	
2.2.2	Development of master networking programs (number of programs)	III qtr. 1	III qtr. 2	III qtr. 2	III qtr. 3	minimum 8	Deputy Director of the Institute of Fundamental Medicine and Biology for Medical Education Gumerova A.A., Deputy Director of the Institute of Fundamental Medicine and Biology for Biological Education Sabirov R.M., Head of the Department of Botany and Plant Physiology Timofeeva O.A., Associate Professor Baltina T.V.	1.1.1 1.1.5 1.2.4
2.2.3	Increasing amount of academic programs taught in English language, the amount of in-	IV qtr. 6	IV qtr. 8	IV qtr. 10	IVqtr. 12	Minimum number of general academic programs in	Deputy Director of the Institute of Fundamen-	1.1.1 1.1.2

	<p>international students on PhD double degree programs with partner universities and amount of basic academic programs having international professional and social accreditation:</p> <ul style="list-style-type: none"> – basic education program in English – amount of international students – double-degree doctoral programs - programs with international accreditation 	12 % 2 2	14 % 2 2	15% 3 3	16% 4 4	<p>English is 36, Minimum number of PhD double degree programs is 11, Minimum number of general academic programs with international accreditation is 11</p>	<p>tal Medicine and Biology for Medical Education Gumerova A.A., Deputy Director of the Institute of Fundamental Medicine and Biology for Biological Education Sabirov R.M., Head of the Department of Botany and Plant Physiology Timofeeva O.A., Associate Professor Baltina T.V.</p>	1.1.3 1.1.5 1.2.3 1.2.4
2.2.4	<p>Training of highly qualified personnel in the internship, graduate school (the number of new programs)</p>	IIIqtr. 16	III qtr. 4	III qtr. 6	III qtr. 10	<p>Minimum number of new programs is 36</p>	<p>Deputy Director of the Institute of Fundamental Medicine and Biology for Medical Education Gumerova A.A., Deputy Director of the Institute of Fundamental Medicine and Biology for Research R. Faizullin.</p>	1.2.2 1.2.3 1.2.4
2.2.5	<p>Advanced training /internships and programs of academic mobility and StrAU R&D employees in the area of organization and teaching methods of medical-biological, chemical, physical and humanity subjects in leading international partner university (the amount of employees completed training programs/internships and academic mobility</p>	I-IV qtr. 6	I-IV qtr. 10	I-IV qtr. 10	I-IV qtr. 10	<p>Minimum 32 employees having taken advanced training programs/ internships and academic mobility programs</p>	<p>Deputy Director of the Institute of Fundamental Medicine and Biology for Medical Education Gumerova A.A., Director of Alexander Butlerov Institute of</p>	2.2.1 2.2.2 5.1.1 5.2.2

	programs)						Chemistry Galkin V.I., Director of the Institute of Physics Nikitin S.I., Director of the Institute of Social Sciences, Philosophy and Mass Communications, Shchelkunov M.D., Director of the Institute of International Relations, History and Oriental Studies Khairutdinov R.R.	
2.3.	R&D for the ensuing year and planned period	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.		Chief researcher of the Institute of Fundamental Medicine and Biology Rizvanov A.A.	
2.3.1	Research and development in the areas: (1) Neuroscience, (2) Personalized medicine, (3) Regenerative medicine, (4) Chemistry of living systems, (5) Biomedical physics	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Increased total number of publications and citation index per one faculty member per year	Chief researcher of the Institute of Fundamental Medicine and Biology Rizvanov A.A. , Vice-Rector for Education Tayurskyi D.A., Director of Alexander Butlerov Institute of Chemistry Galkin V.I., Chief researcher Khazipov R.N., leading researcher Gusev O.A.	4.2.1 4.2.2 4.2.3
2.3.2	Establishing of Centers of Excellence (amount of centers)	IV qtr. 1	III qtr. 1	III qtr. 2	III qtr. 2	minimum 6 centers	Chief Researcher of the Institute of Fundamental Medicine and Biology Rizvanov	4.1.5 4.2.1 4.2.2 4.2.3

							A.A. , Vice-Rector for Education Tayurskiy D.A., Director of Alexander Butlerov Institute of Chemistry Galkin V.I., Chief researcher Kha- zipov R.N., leading researcher Gusev O.A.	
2.3.3	Carrying out R&D within the Center "CFI-the RIKEN Functional and Applied Genomics"	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Increased total number of publications and citation index per one research and teaching staff per year . Involvement new Japanese partners in the implementation of the projects	Leading researcher Gusev O.A.	4.1.5 4.2.1 4.2.3
2.3.4	Clinical studies of new methods of diagnostics, prevention, rehabilitation and disease treatment (amount of studies)	III-IV qtr. 20	III-IV qtr. 40	III-IV qtr. 50	III-IV qtr. 60	Minimum 170	Senior researcher Abdulkhakov S.R.	4.2.2 4.2.3
2.4.	Planned events for implementing research breakthroughs within StrAU	1) Diagnostic and therapeutic RNA-technologies in translational genomic medicine <i>Project goal:</i> Creating safe and reliable methods of genetic diagnostics and gene therapy. <i>Objectives:</i> - creating an atlas of full genome expression activities of a genome's regulatory elements (Cap analysis) in 50+ types of skeletal muscles and heart muscles in humans and model mammals in standard and pathological conditions; - integration of genome sections relating to resistance to full dehydration of anhydrobitic Chironomidae into Drosophila genome and full genomic analysis of genome editing effects on the dynamics of promoter expression and phenotype; - analysis of the effect of CRISPR/Cas9-mediated deletion of tumor resistance-related genes on the transcription activity of promoter networks; finding the factor of direct reprogramming of somatic differentiated, stem, and tumor cells;						

- research of safety and mechanisms of genetic therapy approaches; research of the effectiveness of tissue-specific vector systems (including the use of nanostructural stimulus-sensitive carriers, conjugates of polyaspartic acid with bio-specific ligands) in carrying therapeutic trans genes in vivo and in vitro.

2) New ways of preventing cerebrovascular diseases

Project goal:

solving the problem of impeded drug delivery to disease sites in the brain.

Objectives:

- development and analysis of multifunctional microcapsules and nanocapsules containing medications; research of address delivery in vivo and in vitro; production of microcapsules with thrombotic vectors filled with active t-PA; analysis of cerebral blood flow during experimental ischemic strokes before and after t-PA-containing microcapsule infusion;
- research of cell transcriptome in combination with phenotype markers for the definition of signal pathways that take part in damage and restoration; finding new therapeutic directions;
- research of the neuroprotective role and mechanism of action of CGRP and PACAP on ischemic stroke models and cultures of sensitive and cortical neurons; development of methods of gene, cell and gene-cell therapy of ischemic brain damage;
- development of artificial micro vesicles from human cells possessing high proangiogenic and neurotrophic properties; estimation of their regenerative potential on in vivo and in vitro models.

3) Development of technologies of overcoming multidrug resistance based on inhibition of reverse cell transporters

Project goal:

introduction of new chiral supramolecular conjugators capable of inhibiting reverse transportation of pathological cells (the key mechanism of drug resistance) into clinical practice.

Objectives:

- research of mechanisms of inhibition of ATP-dependent reverse transporters by chemical resistant composition medications on different cell cultures and in vivo models;
- development and standardization of the finished dosage form of CRC medications;
- research of the possibility of creating innovative combinations of CRC medications and pharmaceutical substances with enhanced therapeutic effects.

4) Cognitive and neurolinguistic technologies of children's education and rehabilitation personalization

Project goal:

scientific explanation, development and implementation of cognitive and neurolinguistic technologies of

		<p>children's education and rehabilitation personalization</p> <p><i>Objectives:</i></p> <ul style="list-style-type: none"> - development of the scientific component and implementation of a computerized model of neurolinguistic testing aimed at the diagnostics and differential diagnostics of speech impairments in children and adolescents with different speech pathologies; - study of the dynamics of cognitive functions (including speech) in children with speech disorders of various genesis during therapy including a number of brain activity research methods; development of new paradigms of the research of the initiated brain response during the recognition of speech and other sound stimuli; - conducting a population survey aimed at estimating the influence different socio-demographic factors and parent-child interaction specifics on speech, psycho-emotional, cognitive, and social development; - development of the scientific component and implementation of a computerized “pain questionnaire” of Kazan Federal University for individual pain reaction diagnostics in children and adolescents; - formalization and clusterization of lecture and exam discourse texts; - finding and ranking cognitive-functional model of modern lecture and exam discourses according to ethnocultural and age specifics of communication actors; - formalization of cognitive discourse models and identification of text complexity of contemporary Russian lecture and exam discourses; - development and implementation of linguistic-didactical methods of personalized education of children with regards to their ethnocultural and linguistic specifics and cognitive abilities. <p><i>Target positions in subject rankings by 2020:</i></p> <p>Position in QS ranking, by subject area - Medicine – 151–200</p> <p>Position in QS ranking, by subject areas - Biological Science – 51–100</p> <p>Position in QS ranking, by subject areas - Linguistics – 51–100</p>						
2.4.1	International conferences, symposiums, schools, and seminar on breakthrough areas of StrAU	I–IV qtr.3	I–IV qtr. 3	I–IV qtr. 4	I–IV qtr. 4	International conferences, symposiums, schools, and seminar on breakthrough areas of StrAU	Head of StrAU, Deputy Director for Research of the Institute of Fundamental Medicine and Biology R. Fayzullin, CRA of IFMB A. Rizvanov, CRA R. Khazipov,	7.2.1

							LRA O. Gusev, CRA R. Litvinov, Director of the RAC Pharmaceutics Y. Shtyrlin, Director of the Insti- tute of Chemistry V. Galkin, Director of the Insti- tute of Philology and intercultural commu- nication Zamaletdinov R.R.	
2.4.2	Publication activities in 1st quartile journals in relevant subjects (Journal Citation Reports, Web of Science Core Collection, SJR Scimago Journal & Country Rank, SCOPUS)	I-IV qtr. 60	I-IV qtr. 80	I-IV qtr. 100	I-IV qtr. 120	Publications in 1st quar- tile	Head of StrAU, Deputy Director for Research of the Insti- tute of Fundamental Medicine and Biology R. Fayzullin, CRA of IFMB A. Rizvanov, CRA R. Khazipov, LRA O. Gusev, CRA R. Litvinov, Director of the RAC Pharmaceutics Y. Shtyrlin, Director of the Insti- tute of Chemistry V. Galkin	7.1.2 7.1.3
2.4.3	Globally significant and commercially viable results in StrAU breakthroughs	I-IV qtr. 0	I-IV qtr. 0	I-IV qtr. 1	I-IV qtr. 2	Overseas patent applica- tions	Head of StrAU, Deputy Director for Research of the Insti- tute of Fundamental	4.1.5 4.2.1 4.2.2

		I-IV qtr. 2	I-IV qtr. 4	I-IV qtr. 6	I-IV qtr. 8	Russian patent applica- tions	Medicine and Biology R. Fayzullin, CRA of IFMB A. Rizvanov, CRA R. Khazipov, LRA O. Gusev, CRA R. Litvinov, Director of the RAC Pharmaceutics Y. Shtyrlin, Director of the Insti- tute of Chemistry V. Galkin	
2.4.4	Preclinical and clinical trials of new methods of diagnostics, prevention, rehabilitation, and treatment of diseases within StrAU break- throughs	I-IV qtr. 3	I-IV qtr. 4	I-IV qtr. 5	I-IV qtr. 6	Preclinical trials	Head of StrAU, Deputy Director for Research of the Insti- tute of Fundamental Medicine and Biology R. Fayzullin, CRA of IFMB A. Rizvanov, CRA R. Khazipov, LRA O. Gusev, CRA R. Litvinov, Director of the RAC Pharmaceutics Y. Shtyrlin, Director of the Insti- tute of Chemistry V. Galkin	4.1.5 4.2.1 4.2.2
		I-IV qtr. 0	I-IV qtr. 1	I-IV qtr. 3	I-IV qtr. 5	Clinical trials		
2.5.	Miscellaneous							
2.5.1	Diversification of the University's revenue model, increase of non-budget financing from StrAU education, research and clinical activi-	I-IV qtr. 115 %	I-IV qtr. 136 %	I-IV qtr. 168 %	I-IV qtr. 194 %	Increase of non-budget financing from StrAU ed- ucation, research and clin-	Head of StrAU	5.5.1

	ties (% , in relation to 2015)					ical activities		
	3. Formation and development of StrAU “Ecooil – global energy and resource for materials of the future”	<p><i>Mission of StrAU:</i> Leadership in generation, concentration and global expansion of knowledge and technology in the area of energy saving, environmentally friendly and efficient of fuel technologies (EEE-technologies) exploration, production, refining, oil and gas chemistry unconventional hydrocarbon reserves in response to the challenges of global energy security and resourcing in terms of climate change and environmental problems on the planet.</p> <p><i>StrAU goals:</i></p> <ul style="list-style-type: none"> – creation of global network educational system in area “Ecooil” (information and competence “at first hand” – from laboratories and test-industries); – formation of new generations of professionals, researchers and engineers, who work in oil and gas industry and related areas who are willing continuously develop skills and creative thinking within the concept of lifelong learning; – creation of experimental and technological basis in the area of exploration competencies, production and deep processing of hydrocarbons; – creation of energy saving, environmentally friendly and efficient materials for oil and gas and energy industries; – development of transfer technologies in oil and gas industry by creating new services and start-ups, high-tech jobs for university graduates (motivation of talents, innovations); – StrAU budget diversification by attracting additional extra-budgetary funding from oil and oil service companies. <p><i>Positions in the subject ratings on the basis of formation and development of StrAU:</i> Position in QS ranking, by subject area - Chemistry – 51–100 by 2020; Position in QS ranking, by subject areas - Earth & Marine Sciences – 101–150 by 2020; Position in QS ranking, by subject areas - Engineering-Mineral & Mining – 51–100 by 2020 Position in QS ranking, by subject areas - Mathematics – 51–100 by 2020</p>						
3.1.	Organizational, economic and regulatory support						Head of StrAU, Vice-Rector for Economic and Strategic Development Safiullin M.R.	
3.1.1	Determination of internal structure of StrAU	II qtr.	II qtr.	II qtr.	II qtr.	Internal structure of	Head of StrAU	4.2.1

						StrAU determined		4.2.2 4.2.3 5.2.1 5.3.4
3.1.2	Formation of StrAU staffing register	II qtr.	II qtr.	IIqtr.	II qtr.	Formed staffing register	Head of StrAU	1.1.6 2.1.1 2.1.2 2.1.4 5.2.1 5.3.4
3.1.3	Defining parameters of financial model and financial support of StrAU	II qtr.	II qtr.	II qtr.	II qtr.	Determined financial model	Head of StrAU, Vice-Rector for Economic and Strategic Development Safiullin M.R.	5.2.1 5.5.1
3.1.5	Conclusion of agreements of cooperation between university and its leading international and Russian partners for implementation of relevant sub-schedules and ensure effective development of StrAU	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Signing agreements with minimum 26 universities and 12 companies	Head of StrAU	1.1.1 1.1.8 2.2.3 4.1.3 4.2.3
3.1.6	Formation of quality management system, assessment and monitoring of key performance indicators of StrAU	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Formed quality management system (certification)	Head of StrAU, Research Supervisor, Director of the Center of Additional Education, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I.A.	5.2.1 5.3.2
3.2.	Development of education activities						Head of StrAU, Research Supervisor, Director of the Center of Additional Education, Quality Man-	

							agement and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I.A., Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F.A., Director of Alexander Butlerov Institute of Chemistry Galkin V.I., Director of Nikolai Lobachevsky Institute of Mathematics and Mechanics Khramchenkov M.G., Director of the Institute of Computing Mathematics and Information Technologies Mosin S.G., Director of the Institute of Environmental Sciences Selivanovskaya S.Yu.	
3.2.1	Establishment of StrAU Center of academic programs in the field of earth sciences, natural resources and ecology	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	18 new unique academic programs	Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F. A.	1.1.1 1.1.2 1.1.5
3.2.2	Development academic programs in English (number of programs)	IV qtr. 1	IV qtr. 1	IV qtr. 4	IV qtr. 4	10 new academic programs	Deputy Director for Education of the Institute of Geology and	1.1.1 1.1.5 1.2.3

							Petroleum Technologies Fazlyeva F. A., Deputy Director of the Center for Advanced Training, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Platov B. V.	
3.2.3	Development double-degree academic programs with world-class research centers and universities (number of programs)	III qtr. 1	III qtr. 1	III qtr. 2	III qtr. 1	5 new academic programs	Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F. A.	1.1.5
3.2.4	International accreditation of academic programs (number of programs)		III qtr. 1	II–IV qtr. 2	II–IV qtr. 1	4 new academic programs	Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F. A.	1.1.3
3.2.5	Development unique online MOOC courses (number of courses)	I–IV qtr. 1	I–IV qtr. 1	I–IV qtr. 1	I–IV qtr. 1	4 new MOOCs courses	Director of the Center for Advanced Training, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I. A.	1.1.7
3.2.6	Development unique training professional programs (number of programs)	I–IV qtr. 3	I–IV qtr. 3	I–IV qtr. 2	I–IV qtr. 2	10 new training professional programs	Director of the Center for Advanced Training, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies	1.1.8

							Chukmarov I. A.	
3.2.7	Implementation the system of annual summer schools (number of schools)	II–III qtr. 3	II–III qtr. 2	II–III qtr. 4	II–III qtr. 2	11 new summer schools	Director of the Center for Advanced Training, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I. A. Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F. A. Head of the Department of Paleontology and Stratigraphy of the Institute of Geology and Petroleum Technologies Silantiev V.V. Deputy Director for Innovation of the Institute of Geology and Petroleum Technologies Sudakov V.A. Deputy Director for Research of the Institute of Geology and Petroleum Technologies Kolchugin A.N.	2.1.3
3.2.8	Implementation the system of grant support for attracting talented students to the master's and doctoral programs	II-III qtr.	II-III qtr.	II-III qtr.	II-III qtr.	Enrolment of up to 30 students per year	Deputy Director for Education of the Institute of Geology and Petroleum Technolo-	3.1.1 3.1.4

							gies Fazlyeva F. A.	
3.2.9	Implementation the system of grant support for short-term internships of talented students in the world-class research centers and universities	II-IV qtr.	II-IV qtr.	II-IV qtr.	II-IV qtr.	Internships of up to 80 undergraduate and post-graduate students	Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F. A.	3.1.3 3.1.4
3.2.10	Creation the network incubator of additional education in the area of global energy and materials			III qtr.	I-IV qtr.	Recruitment of min 1500 international students and course participants by 2020	Director of the Center for Advanced Training, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I. A.	1.1.8
3.2.11	Implementation regional, national and international competitions for students and pupils	II-III qtr.	II-III qtr.	II-III qtr.	II-III qtr.	Participation of over 600 school students in Olympiads by 2020, increase in the average USE score of university applicants to 77,5	Deputy Director for internships and interaction with employers of the Institute of Geology and Petroleum Studies Tereokhin A.A.	3.3.2
3.2.12	Establishment of dissertation councils for awarding PhD degrees in the area of oil production, oil refining and petrochemistry	III qtr.	III qtr.	III qtr.	III qtr.	Increase in the percentage of international doctoral students by min 40 %	Vice-Rector for Research Nurgaliev D. K.	1.2.1
3.2.13	Organization of educational and industrial training programs abroad	III-IV qtr.	III-IV qtr.	III-IV qtr.	III-IV qtr.	Increase in the number of gifted students, increase in the average USE score of university applicants to 77,5	Deputy Director for internships and interaction with employers of the Institute of Geology and Petroleum Studies Tereokhin A.A., Director of the Center for Advanced Train-	3.1.3 3.1.4

							ing, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I. A.	
3.3.	R&D for the ensuing year and planned period	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.		Head of StrAU, Deputy Director for Research of the Institute of Geology and Petroleum Technologies Kolchugin A.N., Director of Alexander Butlerov Institute of Chemistry Galkin V.I., Director of Nikolai Lobachevsky Institute of Mathematics and Mechanics Khamchenkov M.G., Director of the Institute of Computing Mathematics and Information Technologies Mosin S.G., Director of the Institute of Environmental Sciences Selivanovskaya S.Yu.	
3.3.1	Conducting R&D	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Increase in the total number of publications to 870 articles per year and citation index to 32,1 per	Deputy Director for Innovation of the Institute of Geology and Petroleum Technolo-	4.2.1 4.2.2 4.2.3

						faculty per annum	gies Sudakov V.A., Deputy Director for Research of the Insti- tute of Geology and Petroleum Technolo- gies Kolchugin A.N., Director of the Insti- tute of Environmental Sciences Se- livanovskaya S.Yu., Associate Professor of the Institute of Envi- ronmental Sciences Galitskaya P. U., Deputy Director for Industry Relations and Commercialization of Alexander Butlerov Institute of Chemistry Lamberov A.A.	
3.3.2	Organisation regional, national and interna- tional conferences, symposia and seminars on StrAU priority research areas	II–IV qtr. 5	II–IV qtr. 5	II–IV qtr. 5	II–IV qtr. 5	20 regional, national and international conferences, symposia and seminars	Head of StrAU, Deputy Director for Research of the Insti- tute of Geology and Petroleum Technolo- gies Kolchugin A.N.	7.2.1
3.3.3	Establishment of international consortiums in StrAU priority research areas	II qtr.	II–III qtr.	II–IV qtr.	II–IV qtr.	Minimum 2 international consortiums	Head of StrAU, Deputy Director for Innovation of the Insti- tute of Geology and Petroleum Technolo- gies Sudakov V.A., Deputy Director for Research of the Insti-	4.1.2 4.2.2

							tute of Geology and Petroleum Technologies Kolchugin A.N.	
3.3.4	Implementation of grant support to attract young research and academic staff with experience in scientific research and educational areas in the leading Russian and international universities and research centers	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Increase in the percentage of staff with work experience in the leading Russian and international universities and companies to 42 % in 2020	Head of StrAU, Deputy Director for Education of the Institute of Geology and Petroleum Technologies Fazlyeva F. A., Deputy Director for Research of the Institute of Geology and Petroleum Technologies Kolchugin A.N.	2.1.1 2.1.2
3.3.5	Implementation the programs of international and domestic academic mobility in the form of internships, advanced training and retraining	I-IV qtr. 10	I-IV qtr. 8	I-IV qtr. 6	I-IV qtr. 6	30 staff members participating in internship, advanced training and professional retraining programs	Director of the Center for Advanced Training, Quality Management and Marketing of the Institute of Geology and Petroleum Technologies Chukmarov I. A., Deputy Director for Research of the Institute of Geology and Petroleum Technologies Kolchugin A.N.	2.2.1 2.2.2 5.1.1
3.3.6	Implementation travel-grant program to participate in top international conferences on StrAU priority research areas	I-IV qtr. 30	I-IV qtr. 30	I-IV qtr. 30	I-IV qtr. 30	120 travel grants	Head of StrAU, Deputy Director for Research of the Institute of Geology and Petroleum Technologies Kolchugin A.N.	2.2.1 3.1.4

<p>3.4</p>	<p>Planned events for implementing research breakthroughs within StrAU</p>	<p>1) Evolution of source beds: influence on global climate and planetary hydrocarbon reserve estimations</p> <p><i>Project goal:</i> Determining the quantity and dynamics of methane emissions from petroleum and gas deposits, source beds and shale reservoirs in the geological past and present; near future forecasts for correct global warming models.</p> <p><i>Objectives:</i></p> <ul style="list-style-type: none"> — reconstruction of methane emissions from hard ground in the past through carbon isotope ratio data in various natural environments in four temporal scales – 10s to 100s mya, 10s to 100s tya, thousands to 10s years ago, hundreds of years to present; — creation of source bed databases, their contemporary properties, evolution and hypothesized hydrocarbon emission in geological scales and in the nearest future; estimates of planetary resources and reservoirs of dissipated organic matter and hydrocarbons in sedimentary rocks; obtaining new data on the source beds of hydrocarbon basins; — estimates of contemporary methane emissions by satellite and ground-based systems; — reconstruction of the thermal history of the upper mantle and the Earth crust on hydrocarbon basins; discovery of potential high-methane emission eons in the history of Earth; — estimates of the influence of methane emissions from source beds and of disruption and extraction of hydrocarbon reserves on the climate in the past, present, and future. <p>2) Ecobiotech: isotopic, organism-based, omics, and biogeocenotic approaches</p> <p><i>Project goal:</i> Development and implementation of environmental preservation technologies for anthropogenic load conditions.</p> <p><i>Objectives:</i></p> <ul style="list-style-type: none"> — development of technologies of organic waste treatment with the use of microorganisms and production of pharmacologically active compounds, nutraceuticals, fodder products, and lipids; — analysis of the mechanisms of suppressive properties of composts produced from household and agricultural waste; — estimating the influence of various factors on the ways of organic compound transformations in soils; searching the ways to sequester carbon in soils to increase fertility; — discovery of biopesticides, analysis of the mechanisms of their activity and biocompatibility; development of relevant implementation technologies; — analysis of the ways of antibiotic resistance spread in soils and of the technologies of its prevention; — development of express diagnostics of water quality;
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		— development of the ways of the prevention of consequences of eutrophication of water bodies and of the ways of their restoration.						
		<i>Target positions in subject rankings by 2020:</i> Position in QS ranking, by subject areas - Earth & Marine Sciences – 101–150 THE Subject rankings or QS Subject rankings (Environmental Sciences) – 151–200						
3.4.1	International conferences, symposiums, schools, and seminar on breakthrough areas of StrAU	I–IV qtr. 2	I–IV qtr. 2	I–IV qtr. 2	I–IV qtr. 2	International conferences, symposiums, schools, and seminars	Head of StrAU, Director of the Institute of Environmental Sciences S. Selivanovskaya	7.2.1
3.4.2	Publication activities in 1st quartile journals in relevant subjects (Journal Citation Reports, Web of Science Core Collection, SJR Scimago Journal & Country Rank, SCOPUS)	I–IV qtr. 10	I–IV qtr. 15	I–IV qtr. 20	I–IV qtr. 30	Papers in the 1st quartile	Head of StrAU, Director of the Institute of Environmental Sciences S. Selivanovskaya	7.1.2 7.1.3
3.4.3	Globally significant and commercially viable results in StrAU breakthroughs	I–IV qtr. 0	I–IV qtr. 0	I–IV qtr. 1	I–IV qtr. 2	No less than 3 applications for overseas patents	Head of StrAU, Director of the Institute of Environmental Sciences S. Selivanovskaya	4.1.5 4.2.1 4.2.2
		I–IV qtr. 1	I–IV qtr. 2	I–IV qtr. 4	I–IV qtr. 4	No less than 11 applications for Russian patents		
3.4.4	Agreements on research and technological cooperation between the University and its overseas and Russian partners within StrAU	I–IV qtr. 5	I–IV qtr. 5	I–IV qtr. 2	I–IV qtr. 2	No less than 14 agreements with universities and companies	Head of StrAU, Director of the Institute of Environmental Sciences S. Selivanovskaya	4.1.3 4.1.5 4.2.3
3.5.	Miscellaneous							
3.5.1	Issue of peer-reviewed international scientific journal				III qtr.	Increase in the total number of publications to 870 articles per year and citation index to 32,1 per faculty per annum	Head of StrAU, Director of the Institute of Environmental Sciences S. Selivanovskaya , Head of the Depart-	7.1.1

							ment of Paleontology and Stratigraphy of the Institute of Geology and Petroleum Technologies Silantiev V.V.	
3.5.2	Establishment of small innovative enterprises and scaling centers for developed technologies (number of SIE and centers)	I-IV qtr. 1	I-IV qtr. 1	I-IV qtr. 3	I-IV qtr. 4	Number of new Small innovative companies and centers	Deputy Director for Innovation of the Institute of Geology and Petroleum Technologies Sudakov V.A., Deputy Director for Industry Relations and Commercialization of Alexander Butlerov Institute of Chemistry Lamberov A.A., Chief engineering officer of the department of Innovative and Educational Technologies Vakhin A.V.,	4.1.5 4.2.3
	4. Formation and development of StrAU «Quadrature of transformation of teacher education – 4T»	<p><i>Mission of StrAU:</i> Formation of KFU as an world multicultural and multilingual educational center for training highly qualified teaching staff ("Teachers of the Future") and their support during entire professional career (life-long learning). StrAU is created as a response to the threats and challenges of the coming of the fourth industrial revolution to meet modern educational system of rapidly changing realities. A system where new educational technologies, best practices are quickly adapted and organically broadcast on transdisciplinary principle in the teaching process of all structural units.</p> <p><i>StrAU goals:</i> - development and testing of an integrated translational model of teachers training in the university, which allows KFU to become a unique federal university to carry out continuously teachers training during the entire professional career (life-long learning) and forming them the flexibility to transfor-</p>						

		<p>mations;</p> <ul style="list-style-type: none"> - creation of cooperation with Russian and international partners to develop on-line training courses on the platform iTunes University. Creating a on-line learning environment «e-Teacher Education»; - providing research in the educational Centers of excellence, aimed at integration of science and practice, involvement of future teachers, as well as faculty members into the joint research activities in the fields of mathematics, physics, and earth sciences, which will promote the effective substantive preparation and implementation the idea of research-based teacher education; - development and testing methods of socio-psychological diagnosis of conflicts arising due to increased migration; -development the new methods and technologies of education based on advanced intelligent information communication robotic systems; - development the new content of teacher training to work in the conditions of a transformed world and development the new technologies for adaptation of children of migrants in a multicultural and tolerant environment; – conducting research and development work in the areas of gamification of educational process, tracking individual educational trajectories, Big Data analysis of educational results, to improve the quality of educational process in the KFU. <p><i>Positions in the subject ratings on the basis of formation and development StrAU:</i> Position in QS ranking, by subject area - Education – 101 – 150 by 2020</p>						
4.1.	Organizational, economic and regulatory support							
4.1.1	Determination of StrAU internal structure	II qtr.	II qtr.	II qtr.	II qtr.	New organised structure	Head of StrAU	4.2.1 4.2.2 4.2.3 5.2.1 5.3.4
4.1.2	Formation StrAU staffing	II qtr.	II qtr.	II qtr.	II qtr.	Formed staffing register	Head of StrAU	1.1.6 2.1.1 2.1.2 2.1.4 5.2.1 5.3.4

4.1.3	Defining parameters of financial model and financial support of StrAU	II qtr.	II qtr.	II qtr.	IIqtr.	Formed financial model	Head of StrAU, Vice-Rector for Economic and Strategic Development M. Safiullin	5.2.1 5.5.1
4.2.	Development of educational activities							
4.2.1	Development of educational standard on teachers training in a federal university including development and rationale of variating trajectories for pedagogical education and implementation of a model of unique reflexive and research-oriented pedagogical education	III–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	introduction in educational process of variative educational trajectories	Head of StrAU Head of the Department of Pedagogy and Preschool Education Gabdulkhakov V.F.,	1.1.1 1.1.2 1.2.4
4.2.2	Development and implementation of cross-university academic programs: Bachelor's programs on all school education	I–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	23 new academic programs	Deputy Director for Research of the Institute of Psychology and Education Sibgatullina T.V.	1.1.1 1.1.5 1.2.4 3.4.1
4.2.3	Implementation of academic programs for additional education (advanced training) “Psycho-pedagogical support to children of Muslim migrants” and “Learning children with different background knowledge Russian language. Migration processes in the system of education” with orientation towards international market (number of programs)	III–IV qtr. 1	I–II qtr. 2			3 new academic programs	Head of the Department of Preschool and Elementary Education Zakirova V.G., Associate Professor of the Institute of Psychology and Education Chirkina S.E., Associate Professor of the Institute of Psychology and Education Khusainova R.M., Director of the Institute of Philology and Intercultural Communications Zamaletdi-	1.1.8

							nov R.R.	
4.2.4	Performance of works on implementation of individual educational trajectories in KFU institutes as well as design and experimental works for individual educational trajectories support	I-IV qtr.	I-IV qtr.			Introduced trajectory mechanism, developed support system	Head of StrAU, Director of the Higher Institute for Information Technology and Information Systems Khasianov A.F.,	1.1.1 3.4.3
4.3	R&D for the ensuing year and planned period							
4.3.1	Setup of research groups supervised by leading international scientists (number of groups)	I-IV qtr. 1	I-IV qtr. 1	I-IV qtr. 1	I-IV qtr. 1	4 research groups	Deputy Director for Research of the Institute of Psychology and Education Sibgatullina T.V.	4.2.1 4.2.2
4.3.2	Preparation of international comparative projects in the field of multicultural teacher training. Conducting R&D on gamification of the educational process. Conducting joint international comparative research on Engineering, Mathematical and Physical Education	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Improved quality of educational process at KFU, increased publication activity of KFU in Education, joining Top-100 QS Education in 2020	Head of StrAU, Head of the Department of Preschool and Elementary Education Zakirova V.G., Director of the Higher Institute for Information Technology and Information Systems Khasianov A.F., Director of the Institute of Mathematics and Mechanics Khamchenkov M.G., Director of the Institute of Philology and Intercultural Communications Zamaletdinov R.R.	4.2.1 4.2.2 4.2.3

4.3.3	Advanced training/ internships and mobility programs for managers and research and teaching staff of the StrAU on organization and methodology of teaching humanitarian, medico-biological, chemical and physical disciplines in leading international partner universities (number of internships)	I-IV qtr. 6	I-IV qtr. 10	I-IV qtr. 10	I-IV qtr. 10	Advanced training of key personnel, 36 internships	Head of StrAU, Deputy Director of the Institute of Fundamental Medicine and Biology for Medical Education Gumerova A.A., Director of Alexander Butlerov Institute of Chemistry Galkin V.I. Director of the Institute of Physics Nikitin S.I., Director of the Institute of Social Sciences, Philosophy and Mass Communications, Shchelkunov M.D., Director of the Institute of International Relations, History and Oriental Studies Khairutdinov R.R., Director of the Institute of Philology and Intercultural Communications Zamaletdinov R.R.	2.2.1 2.2.2 5.1.1 5.2.2
4.3.4	Publication the results of research activities in highly ranked journals included in Web of Science and Scopus data bases	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Increased publication activity of KFU in Education, joining Top-100 QS Education in 2020, percentage	Head of StrAU	7.1.2 7.1.3

						of articles per StrAU member: 3,2 (WoS), 7,0 (Scopus)	
4.4	Planned events for implementing research breakthroughs within StrAU	<p>1) Muslim migrants of Eurasia <i>Project goal:</i> Development of a new migration policy architecture for Muslim migrants of Eurasia that will be able to provide transnational regulation of migration processes and maintain personal, social, and national security. <i>Objectives:</i></p> <ul style="list-style-type: none"> - development of a psychosocial method of estimating interethnic and interconfessional conflict genesis within Muslim migrant communities; - conducting empirical research of the risks of conflict escalation in the context of contemporary migration processes; - preparation and implementation of a number of adaptation programs for various Muslim migrant groups; - forming the Russian citizen identity in Muslim migrants from neighbouring countries. <p>2) CyberEducation: androids and information intelligence systems in modern teaching <i>Project goal:</i> Development of a modern technology and methodology of educational process management in an integrated, distributed, interactive, robotized, infocommunication, intelligent environment based on a combination of individualization and uninterrupted control and correction of curricula with the use of informational, physical, and emotional feedback. <i>Objectives:</i></p> <ul style="list-style-type: none"> - development of new methods of teaching science to different age groups: elementary school, middle school, engineering students and others, based on robotized infocommunication systems with AI elements; - development of a system of decision-making process modelling by an intellectual subject based on associative identification and knowledge databases (for robotized teaching complexes); - development of basic guidelines for robotic systems, intelligent information systems (IIS) based on a comprehensive research of pedagogical and psychological aspects and specifics of robotized teaching for different age groups; - development of algorithms for robot teachers, robot assistants, exercise robots and teaching methods with the use of teaching robots-constructors, systems of automated teaching with AI elements: 					

		<p>- development of different scenarios of robotized systems' (RS) behavior in their interactions with teachers; compilation of basic RS recommendations for teachers after analyzing teaching process patterns;</p> <p>- creating software for planning and implementing teaching processes, systems of individual teaching, systems of psychological support and psychological consulting; testing and preliminary use of RS and IIS teaching systems.</p> <p><i>Target positions in subject rankings by 2020:</i> Position in QS ranking, by subject areas - Education – 101–150</p>						
4.4.1	International conferences, symposiums, schools, and seminars on breakthrough areas of StrAU	I-IV qtr. 2	I-IV qtr. 2	I-IV qtr. 2	I-IV qtr. 2	International conferences, symposiums, schools, and seminars	Head of StrAU, Director of the Institute of International Relations, History and Oriental Studies R. Khayrutdinov, Director of the Institute of Engineering N. Kashapov, Director of the Institute of Philology and Intercultural Communications Zamaletdinov R.R.	7.2.1
4.4.2	Publication activities in 1st quartile journals in relevant subjects (Journal Citation Reports, Web of Science Core Collection, SJR Scimago Journal & Country Rank, SCOPUS)	I-IV qtr. 4	I-IV qtr. 8	I-IV qtr. 10	I-IV qtr. 12	Papers in 1st quartile journals	Head of StrAU, Director of the Institute of International Relations, History and Oriental Studies R. Khayrutdinov, Director of the Institute of Engineering N. Kashapov	7.1.2 7.1.3
4.4.3	Globally significant and commercially viable results in StrAU breakthroughs	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Number of Russian patent applications	Head of StrAU, Director of the Insti-	4.1.5 4.2.1

		2	3	4	5		tute of International Relations, History and Oriental Studies R. Khayrutdinov, Director of the Institute of Engineering N. Kashapov	4.2.2
4.4.4	Translation of results in breakthrough StrUA research areas in the educational environment of primary, secondary, higher and postgraduate education	I-IV qtr. 3	I-IV qtr. 4	I-IV qtr. 5	I-IV qtr. 6	Number of technology adoptions	Head of StrAU, Director of the Institute of International Relations, History and Oriental Studies R. Khayrutdinov, Director of the Institute of Engineering N. Kashapov	4.1.5
4.5.	Miscellaneous							
4.5.1.	Setup of Centers of Excellence	I-IV qtr. 4	I-IV qtr.	I-IV qtr.	I-IV qtr.	4 Centers of Excellence: Federal Center of Excellence in Mathematical Education, Center of Excellence in Physical and Astronomical Education, Center for Educational Programs in Earth Sciences, Center for Multi-level Pedagogical Education (edu-Agile-center)	Head of StrAU, Vice-Rector for Education Tayurskii D.A., Vice-Rector for Research Nurgaliev D.K., Director of the Institute of Physics Nikitin S.I., Director of the Institute of Mathematics and Mechanics Khranchenkov M.G.	4.1.5 4.2.1 4.2.2
4.5.2.	Organization of International Forum for Pedagogical Education (IFTE – 2017, 2018, 2019, 2020)	II qtr. 1	II qtr. 1	II qtr. 1	II qtr. 1	Improved KFU visibility in the global academic environment	Deputy Director For International Relations of the Intitute of Psychology and Education Valeeva R.A.	7.2.1

4.5.3	Setup of resource centers “Pedagogical education in federal university”, “Migration policy and cross-cultural psychology” and “Support center for young teachers” (number of centers)	II qtr. 1	II qtr. 1	II qtr. 1		3 resource centers	Head of StrAU	4.1.5 4.2.1 4.2.2
4.5.4	<i>Education and Self-development</i> journal joining Scopus database		IV qtr. 1			Journal inclusion in Scopus peer-review database	Deputy Director For International Relations of the Institute of Psychology and Education Valeeva R.A.	7.1.1
5. Formation and development of StrAU «Astrochallenge: Cosmology, Monitoring, Navigation, Applications»		<p><i>StrAU mission:</i> The objective includes introduction of unique academic-research as well as research-technological world class complex providing systematic education on Astrophysics, Space Geodesy, Radiophysics starting from school education up to obtaining University competence on space research and application of space activities results in national economy; increase of KFU’s academic reputation via its promotion in the subject ranking Physics and Astronomy.</p> <p><i>StrAU goals:</i></p> <ul style="list-style-type: none"> – education of a new generation of young scientists actively engaged with global research infrastructure supervised by research community leaders creating new types of research groups and thanks to the concept of continuous education from a school students to a young scientists. Better engagement with the process is facilitated with practice oriented approach based on experience gained at KFU practical grounds and during internships at partner universities laboratories. A young researcher evolves during continuous work in creative groups participating in international projects supervised by world leading scientists (e.g. KFU’s participation in Spectrum-X-Ray-Gamma project); – development of world class research laboratories with modern experimental equipment for executing advanced projects (new cosmological and astrophysical modelling, selenocentric navigation network, exposure and research of various non-stationary optical objects); – formation of interdisciplinary groups for generating the application technologies of space activities results in Ecology, Nature Resources Management and Territorial Management; – launch of new academic programs taught in English and their international accreditation based on brand new research and developments in Astronomy, Astrophysics, Radiophysics, Geodesy, Ecology and Territorial Management. <p><i>Positions in subject rankings as per results of StrAU formation and development:</i> Position in QS ranking, by subject areas - Physics & Astronomy – 51 – 100 by 2020</p>						

5.1.	Organizational, economic and regulatory support							
5.1.1	Determination of internal structure of StrAU	II qtr.	II qtr.	II qtr.	II qtr.	Approved StrAU structure	Head of the StrAU	4.2.1 4.2.2 4.2.3 5.2.1 5.3.4
5.1.2	Establishment new research and academic centers, laboratories and other subdivisions within StrAU	I–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	2 new Research and Education Centers and 10 laboratories	Head of the StrAU	4.2.1 4.2.2 4.2.3 5.2.1 5.3.4
5.1.3	Formation StrAU staffing	II qtr.	II qtr.	II qtr.	II qtr.	Formed staff register	Head of the StrAU	1.1.6 2.1.1 2.1.2 2.1.4 5.2.1 5.3.4
5.1.4	Defining parameters of financial model and financial support of StrAU	II qtr.	II qtr.	II qtr.	II qtr.	Formed financial model	Head of the StrAU , Vice-Rector for Economic and Strategic Development Sa-fiullin M.S.	5.2.1 5.5.1
5.1.5	Conclusion of agreements of cooperation between university and its leading international and Russian partners for implementation of relevant sub-schedules and ensure effective development of StrAU	I–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	Signing agreements with min 6 universities and 8 companies	Head of the StrAU	1.1.1 1.1.8 2.2.3 4.1.3 4.2.3
5.1.6	Establishment of international training center “RosTech-KFU”	II-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	International training center	Head of the StrAU	4.1.5 4.2.2

5.2.	Development of educational activities							
5.2.1	Upgrade of master's programs, specialties and profiles, launch of new master's programs (number of programs, specialties and profiles)	I-IV qtr. 2	I-IV qtr. 2	I-IV qtr. 3	I-IV qtr. 3	6 Master's programs; 4 educational areas and majors	Head of the Department of Relativity Theory and Gravity Sushkov S.V., Head of the Department of Astronomy and Cosmic Geodesy Bikmaev I.F.	1.1.1 1.1.2 1.1.5 1.2.4
5.2.2	Implementation of new educational standards (number of standards)	I-IV qtr. 1	I-IV qtr. 1	I-IV qtr. 1		2 new educational standards	Senior lecturer of the Department of Radiophysics of the Institute of Physics Korchagin P.A.	1.1.1 1.1.2 1.2.4 3.4.1
5.2.3	Development of additional training programs (number of programs)	I-IV qtr. 17	I-IV qtr. 8	I-IV qtr. 5	I-IV qtr. 5	35 new additional training programs	Senior lecturer of the Department of Radiophysics of the Institute of Physics Korchagin P.A.	1.1.8
5.2.4	Development unique on-line MOOC (massive open online courses) courses on international educational platforms (number of courses)	I-IV qtr. 1	I-IV qtr. 1	I-IV qtr. 1	I-IV qtr. 2	5 new MOOCs	Senior lecturer of the Department of Radiophysics of the Institute of Physics Korchagin P.A.	1.1.7
5.2.5	International accreditation of academic programs (number of programs)			IV qtr. 1	IV qtr. 1	2 new academic programs	Head of the Department of Relativity Theory and Gravity Sushkov S.V.	1.1.3
5.2.6	Organisation of a series of annual summer conference schools for young participants (number of summer schools)	II-III qtr. 2	II-III qtr. 2	II-III qtr. 3	II-III qtr. 2	9 summer schools	Head of the Department of Relativity Theory and Gravity Sushkov S.V., Director of Engelhard Astronomical Obser-	2.1.3

							vatory Nefedyev Y.A.	
5.2.7	Implementation of programs on space activities in subordinate schools (number of cooperation agreements)	I-IV qtr. 1	I-IV qtr.	I-IV qtr. 2	I-IV qtr.	3 agreements of cooperation and collaboration with sponsored schools	Assistant lecturer of the Department of Radiophysics of the Institute of Physics Gayazutdinov A.R.	3.3.1 3.3.3
5.2.8	Establishment and development of the Astrophysics and Natural Science Education Center	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	No less than 5 full-dome films, audience of 1000+ school students a year	Director of the Institute of Physics S. Nikitin	3.1.1 3.2.2
5.2.9	Implementation of grant systems for short term internships of talented undergraduate and postgraduate students as well as young scientists in world leading research centers and universities on developing specialties	II qtr.	II qtr.	II qtr.	II qtr.	Internship for up to 20 undergraduate and postgraduate students	Head of the Department of Relativity Theory and Gravity Sushkov S.V., Head of the Department of Astronomy and Cosmic Geodesy Bikmaev I.F.	3.1.3 3.1.4
5.2.10	Implementation of grant program and exchange program of teaching and research staff with world leading research centers and universities (number of employees having taken internships)	I-IV qtr. 4	I-IV qtr. 4	I-IV qtr. 6	I-IV qtr. 10	Internship taken by 24 faculty members of StrAU	Head of the StrAU, Director of Engelhard Astronomical Observatory Nefedyev Y.A	2.1.1 2.1.2 2.2.3
5.2.11	Implementation of young research and teaching staff recruitment program for Russians and internationals on competitive basis (number of recruited employees)	I-IV qtr. 12	I-IV qtr. 15	I-IV qtr. 17	I-IV qtr. 20	Recruitment of 64 young faculty members	Head of the Department of Astronomy and Cosmic Geodesy Bikmaev I.F., Director of Engelhard Astronomical Observatory Nefedyev Y.A.	2.1.1 2.1.2 2.1.4 2.2.3
5.2.12	Development of student design engineering laboratory (number of participating students)	I-IV qtr. 15	I-IV qtr. 20	I-IV qtr. 25	I-IV qtr. 30	Minimum 30 students per year by 2020	Assistant lecturer of the Department of Radiophysics of the Institute of Physics Smoly-	3.1.2

							akov A.D.	
5.3.	R&D for ensuing year and planned period							
5.3.1	R&D and designing projects on the following areas: <ul style="list-style-type: none"> • Study of astrophysical objects of high energy and evolutionary processes in the Universe. • Complex monitoring of space processes and Moon for ensuring life safety and secure functioning of equipment on Earth and in the space. • Development and generation of distributed monitoring systems for near and far space including elements of microsatellite locations platforms. • Application of space activities results. 	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Increasing the total number of publications and citation index per one faculty member per year	Head of StrAU	4.2.1 4.2.2 4.2.3
5.3.2	Invitation of world leading scientists with high h-index to participate in joint R&D of StrAU (number of invited scientists)	I-IV qtr. 10	I-IV qtr. 10	I-IV qtr. 17	I-IV qtr. 13	Minimum 30 scientists with h>20 and minimum 20 scientists with h>30 invited	Head of the Department of Relativity Theory and Gravity Sushkov S.V., Director of Engelhard Astronomical Observatory Nefedyev Y.A.	2.1.4
5.3.3	Organisation of international research conferences (number of events)	I-IV qtr. 2	I-IV qtr. 3	I-IV qtr. 3	I-IV qtr. 3	11 international symposia and conferences	Head of the Department of Relativity Theory and Gravity Sushkov S.V., Director of Engelhard Astronomical Observatory Nefedyev Y.A.	7.2.1
5.3.4	Establishment of a joint research and educational center with National Observatory of Japan focused on Russian-Japanese projects on space research	I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Research and education center in collaboration with National Astronomical Observatory of Japan	Director of Engelhard Astronomical Observatory Nefedyev Y.A.	4.2.2

5.3.5	Enlargement of KFU interaction with Russian Academy of Sciences: organization of specialized departments		I-IV qtr.	I-IV qtr.	I-IV qtr.	Collaboration expanding between KFU and RAS: joint new University departments	Associate Professor of the Department of Radiophysics of the Institute of Physics Latspov R.R.	4.2.3
5.4	Planned events for implementing research breakthroughs within StrAU	<p>Distributed reconfigurable interferometer system for complex space radiation research</p> <p><i>Project goal:</i> Development of a distributed reconfigurable interferometer system for complex space radiation research</p> <p><i>Objectives:</i></p> <ul style="list-style-type: none"> - detecting traces of the influence of relic axions of the dark matter by detecting lateral magnetic-electrical clusters in near-Earth space that were formed by the interaction between relic axions with the Earth's magnetic and electrical fields; - creating a platform of radiophysical and radioastronomical airborne observation with drone swarms; providing useful load for a distributed radiophysical and radioastronomical space-based observation platform of microsattellites; - precision broadband distance surveying of the Earth with sub-meter resolution and high refresh rate (dozens of Hz) across the whole observation area in cm-mm range of frequencies; - developing a blueprint for a microwave receiver and a microwave-optical interface based on a multi-resonator system for the monitoring of space radio wave emissions and specifying spectral contents of microwave radiation. <p><i>Target positions in subject rankings by 2020:</i> Position in QS ranking, by subject areas - Physics & Astronomy – 51 – 100</p>						
5.4.1	International conferences, symposiums, schools, and seminars on breakthrough areas of StrAU	I-IV qtr. 2	I-IV qtr. 2	I-IV qtr. 3	I-IV qtr. 2	International conferences, symposiums, schools, and seminars		7.2.1
5.4.2	Publication activities in 1st quartile journals in relevant subjects (Journal Citation Reports, Web of Science Core Collection, SJR Scimago Journal & Country Rank, SCOPUS)	I-IV qtr. 50	I-IV qtr. 60	I-IV qtr. 70	I-IV qtr. 80	Papers in 1st quartile journals		7.1.2 7.1.3
5.4.3	Globally significant and commercially viable results in StrAU breakthroughs	I-IV qtr.	I-IV qtr.	I-IV qtr. 1	I-IV qtr. 1	Applications for overseas patents		4.1.5 4.2.1 4.2.2
		I-IV qtr.	I-IV qtr.	I-IV qtr.	I-IV qtr.	Applications for Russian patents		

		2	3	4	4			
5.4.4	Development of a distributed system of detectors for the research of electromagnetic effects induced by axion fields			I–IV qtr.	I–IV qtr.	Distributed system of detectors for the research of electromagnetic effects induced by axion fields	Head of StrAU, Chair of the Department of Relativity Theory and Gravity of the Institute of Physics S. Sushkov, Professor of the Department of RT&G A. Balakin	4.1.5 4.2.1 4.2.2
5.4.5	Creating a technology of reconfigurable network of sensors for airborne platforms			II–IV qtr.	I–IV qtr.	Technology of reconfigurable network of sensors for airborne platforms	Head of StrAU, Chair of the Department of Relativity Theory and Gravity of the Institute of Physics S. Sushkov, Professor of the Department of RT&G A. Balakin	4.1.5 4.2.1 4.2.2
5.4.6	Creating a spectrometer complex for the monitoring of weak space signals			III–IV qtr.	I–IV qtr.	Spectrometer complex for the monitoring of weak space signals	Head of StrAU, Chair of the Department of Relativity Theory and Gravity of the Institute of Physics S. Sushkov, Associate Professor of the Department of Radio Physics R. Latypov	4.1.5 4.2.1 4.2.2
5.5.	Miscellaneous							
5.5.1	Establishment of outsourcing center on development and creation of radiophysical systems	II–IV qtr.	I–IV qtr.	I–IV qtr.	I–IV qtr.	Outsourcing center: increased shares of non-budgetary funds	Associate professor of the Department of Radiophysics of the Institute of Physics Chikrin D.E.	4.2.2
5.5.2	Establishment of small innovative businesses	I–IV	I–IV	I–IV	I–IV	Number of companies and	Head of StrAU	4.1.5

	and centers of technology upscaling (quantity)	qtr. 1	qtr. 1	qtr. 1	qtr. 1	centers			4.2.3
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III.4. Annex 4. List of participants

1. Ilshat Gafurov – Rector, Professor, Kazan Federal University (KFU); Doctor of Science in Economics
2. Marat Safiullin – Vice Rector for Economic and Strategic Development, Professor, KFU; Doctor of Science in Economics
3. Marat Ovchinnikov – Head of the Department of Radioelectronics at the Institute of Physics, Head of the Group for Prospective Development, Professor, KFU; Doctor of Science in Mathematics and Physics
4. Danis Nurgaliev – Vice Rector for Research, Professor, Head of StrAU “EcoOil – Global Energy and Resources for the Materials of the Future”, KFU; Doctor of Science in Geology and Mineralogy
5. Andrey Kiyasov – Director of the Institute of Fundamental Medicine and Biology, Professor, Head of StrAU "Translational 7P Medicine", KFU; Doctor of Science in Medicine
6. Aidar Kalimullin – Director of the Institute of Psychology and Education, Professor, Head of StrAU «Quadrature of Transformation of Teacher Education – 4T», KFU; Doctor of Science in History
7. Mikhail Varfolomeev – Associated Professor of the A.M. Butlerov Institute of Chemistry, Head of StrAU “EcoOil – Global Energy and Resources for the Materials of the Future”, KFU; PhD in Chemistry
8. Oleg Sherstyukov – Head of the Department of Radiophysics, Head of StrAU "Astrochallenge: Cosmology, Monitoring, Navigation, Applications", KFU; Doctor of Science in Mathematics and Physics,
9. Ayrat Khasyanov – Director of the Higher School of Information Technologies and Information Sciences, KFU
10. Dmitry Tayurskiy – Vice-Rector for Education, Head of the Department of General Physics, Professor, KFU; Doctor of Science in Mathematics and Physics
11. Ilya Kuzmishin – Director of the Center for Prospective Development, KFU
12. Elena Smolnikova – Deputy Director and Head of the Monitoring Unit of the Center for Prospective Development, KFU

13. Yury Pukha – Partner, PricewaterhouseCoopers Advisory
14. Vladimir Bulat – Director, PricewaterhouseCoopers Advisory
15. Ilya Zharov – Manager, PricewaterhouseCoopers Advisory
16. Alexey Ganin – Manager, PricewaterhouseCoopers Russia B.V.
17. Oleg Voronkov – Senior Consultant, PricewaterhouseCoopers Russia B.V.
18. Timur Rzaev – Senior Consultant, PricewaterhouseCoopers Advisory

III.5. Annex 5. Corrected performance indicators of the Activities plan on the implementation of the Program for Enhancing Competitive Ranking of Kazan Federal University (“the Roadmap”) for 2013-2020 (3nd stage - 2017)

No	Indicator	Measurement unit	Indicator value											
			2013		2014		2015		2016		Planned value			
			plan	fact	plan	fact	plan	fact	plan	fact	2017	2018	2019	2020
Compulsory performance indicators														
1.	Position (accurate within 50) in global leading rankings (overall and by subject areas)													
1.1.	Position in THE ranking, overall	position					-	301-350	301-350	401-500	301-350	251-300	226-250	175
1.2.	Position in QS ranking, overall	position	601+	601-650	530	551-600	475	551-600	440	501-550	390	310	180	99
1.3.	Position in QS ranking, by subject areas - Physics & Astronomy	position					-	-	151-200	301-400	151-200	101-150	101-150	51-100
1.4.	Position in QS ranking, by subject area - Chemistry	position					-	-	151-200	-	151-200	101-150	101-150	51-100
1.5.	Position in QS ranking, by subject area - Medicine	position					-	-	-	-	-	151-200	101-150	51-100
1.6.	Position in QS ranking, by subject area - Biological Science	position					-	-	-	-	-	151-200	101-150	51-100
1.7.	Position in QS ranking, by subject areas - Earth & Marine Sciences	position					-	-	-	-	-	-	151-200	101-150
1.8.	Position in QS ranking, by subject area - Mathematics	position					-	-	301-400	301-400	201-300	151-200	101-150	51-100
1.9.	Position in QS ranking, by subject area - Linguistics	position					-	-	151-200	151-200	151-200	101-150	101-150	51-100
1.10.	Position in QS ranking, by subject areas - Engineering-Mineral & Mining	position						-	-	-	-	-	-	51-100
1.11.	Position in QS ranking, by subject area - Education	position						-	-	-	-	201-300	151-200	101-150

2.	Number of articles in Web of Science and Scopus databases per faculty without duplication													
2.1.	Number of publications in Web of Science per faculty member (within past 5 years)	items			-	0,91	1,18	1,18	1,53	1,69	1,98	2,56	3,32	4,30
2.2.	Number of publications in Scopus per faculty member (within past 5 years)	items			-	1,57	1,95	2,12	2,41	3,09	3,35	3,71	4,60	5,70
3.	Average citation indicator per faculty member calculated based on aggregate of articles indexed in Web of Science and Scopus databases, without duplication													
3.1.	Average citation indicator per faculty member calculated based on aggregate of articles indexed in Web of Science database (within past 5 years)	items			-	2,15	3,15	3,16	4,79	4,28	7,30	11,12	16,94	25,80
3.2.	Average citation indicator per faculty member calculated based on aggregate of articles indexed in Scopus database (within past 5 years)	items			-	2,96	3,69	4,09	5,61	6,87	8,55	13,02	19,84	30,21
4.	Percentage of professors, faculty members and researchers in the number of teaching and research staff, including Russian citizens with PhD degree conferred by international universities	%			2,5	2,6	3,3	3,30	4,3	4,5	5,7	7,5	9,8	12,0
5.	Percentage of international students enrolled in major academic programs (including students from CIS countries)	%			3,4	5,6	6,0	8,20	8,4	10,9	11	11,5	12,0	15,0
6.	Average Unified State Examination (hereinafter - USE) scores of students admitted for full-time Bachelor's and Specialist degree programs (funded by the Russian	балл	71,4	76,8	71,9	76,0	76,0	76,40	76,4	77,0	77,0	77,0	77,0	77,0

	Federal Government)													
7.	Revenues from non-budgetary sources, as percentage of total revenues	%	34,0	34,0	30,0	37,3	38,0	42,70	43,0	43,3	45,0	48,0	51,0	53,0
8.	Percentage of students enrolled in master's degree programs, postgraduate programs having bachelor's diploma, specialist's diploma or master's diploma from other organizations in the total number of students by master's degree programs and postgraduate programs	%						23,1	24,0	24,2	25,0	26,0	27,0	28,0
9.	Scope of R&D work per one faculty member	tsd rubles						471,2	600	782	800	1 000	1 200	1 400
Additional performance indicators set by the University														
10.	Graduate and postgraduate students of all study forms, as percentage of total student number	%	7,1	10,2	8,5	9,5	11,0	14,07	15,0	17,45	20,0	25,0	29,0	35,0
11.	Doctors of Sciences and PhD, as percentage of total academic staff	%					19,0	19,2	22,0	22,1	25,0	28,0	31,0	35,0
12.	Faculty members with work experience and long-term internships in world leading research and educational centers, as percentage of total academic staff	%	10,0	10,0	15,0	15,0	20,0	20,0	25,0	25,0	30,0	35,0	40,0	50,0
13.	Revenues from research work and R&D as percentage in total University revenues	%	13,4	13,4	11,6	13,8	12,1	18,0	18,2	19,3	19,3	19,4	19,6	20
According to Individual University's Methodology														
1.	Position (accurate within 50) in the world's leading rankings (overall and by subject areas)													
1.1.	QS ranking, overall	position	601+	601-650	530	551-600	475	551-600	440	501-550	390	310	180	99

1.2.	QS ranking, by subject areas - Mathematics	position						-	-	301-400	301-400	201-300	151-200	101-150	51-100
1.3.	QS ranking, by subject areas - Physics & Astronomy	position						-	-	151-200	301-400	151-200	101-150	101-150	51-100
1.4.	QS ranking, by subject areas - Chemistry	position						-	-	151-200	-	151-200	101-150	101-150	51-100
1.5.	QS ranking, by subject areas - Linguistics	position						-	-	151-200	151-200	151-200	101-150	101-150	51-100
1.6.	QS ranking, by subject areas - Earth & Marine Sciences	position						-	-	-	-	-	-	151-200	101-150
2.	Number of articles in Web of Science and Scopus databases, per faculty member without du- plication	items	0,5	0,5	0,65	1,3	1,4	1,88	1,9	2,84	2,9	3,1	3,3	4,3	
3.	Average citation index per facul- ty member, calculated based on aggregate of articles indexed in Web of Science and Scopus da- tabases, without duplication	items	5,7	5,7	8,2	8,5	11,8	11,9	16,9	17,2	24,3	34,9	40,1	50	
4.	International professors, teachers and researchers in total faculty, including Russian citizens with PhD of international university, as percentage of total academic staff	%	1,9	1,9	2,5	2,6	3,8	3,80	5,0	5,1	6,6	8,7	11,4	14,0	
5.	International students taking basic educational programs in the university (including students from the CIS), as percentage of total student number	%	2,8	3,4	3,4	5,6	6,0	8,20	8,4	10,9	11,0	11,5	12,0	15,0	
6.	Average Unified State Examina- tion (hereinafter - USE) scores of students admitted for full-time Bachelor's and Specialist degree	балл	71,4	76,8	71,9	76	76,0	76,40	76,4	77,0	77,0	77,0	77,0	77,0	77,0

	programs (funded by the Russian Federal Government)													
7.	Revenues from non-budgetary sources, as percentage of total revenues	%	34,0	34,0	30,0	37,3	38	42,70	43,0	43,3	45,0	48,0	51,0	53,0

III.6. Annex 6. Peer Universities: Substantiated Target Model Parameters

KFU Road Map 2013-2020 (1nd stage – 2013-2014)

University	Position in QS ranking in 2017	Articles in WoS database within 5 years per faculty member	Articles in Scopus database within 5 years per faculty member	Article citations in WoS database within 5 years per faculty member	Article citations in Scopus database within 5 years per faculty member	Total students / faculty members, thousand people
Seoul National University (SNU), South Korea	35	11,2	11,4	65,9	66,3	28/4
Peking University (Beida), China	39	8,6	10,9	59,4	65,5	40/5
Lund University, Sweden	73	9,2	9,5	74,1	74,3	29/3
The University of Helsinki, Finland	91	6,8	6,9	57,5	54,7	22,5/4
Freie Universität Berlin, Germany	123	27,1	9,2	181,7	50,7	32/1,3
Radboud University Nijmegen, Netherlands	190	13,2	12,8	116,4	115,1	20,3/2
Cardiff University, United Kingdom	140	6,4	5,8	45,9	41,8	24,6/3
Reference values for KFU by 2020	99	4,3	5,7	25,8	30,21	17\2

KFU Road Map 2013-2020 (2nd stage – 2015-2016)

Radboud University, Netherlands and Cardiff University, United Kingdom were excluded and 4 “fast growing” universities were added.

University	Position in QS ranking in 2017	Articles in WoS database within 5 years per faculty member	Articles in Scopus database within 5 years per faculty member	Article citations in WoS database within 5 years per faculty member	Article citations in Scopus database within 5 years per faculty member	Total students / faculty members, thousand people
Universidad de Chile, Chile	200	5,7	6,2	26,3	25,2	38/2
Zhejiang University, China	110	12,0	14,9	63,5	64,4	47/4
Hokkaido University, Japan	130	7,4	8,0	36,9	34,7	18/2,6
Universidade Estadual de Campinas (UNICAMP), Brazil	191	9,1	10,5	37,5	36,1	26/2

Changes at the KFU Road Map 2013-2020 (2nd stage – 2016)

3 new universities were added in connection with StrAU formation.

University	Position in QS ranking in 2017	Articles in WoS database within 5 years per faculty member	Articles in Scopus database within 5 years per faculty member	Article citations in WoS database within 5 years per faculty member	Article citations in Scopus database within 5 years per faculty member	Total students / faculty members, thousand people
University of Calgary, Canada	196	9,9	9,4	61,1	60,9	27/2,5
University of Texas at Austin, U.S.A.	67	10,1	12,5	80,6	89,2	48/3
Imperial College London, United Kingdom	21	14,8	14,6	72,2	127,6	23/3,5

KFU Road Map 2013-2020 (3rd stage – 2017)

Freie Universität Berlin, Germany and Hokkaido University, Japan were excluded, 2 new universities were added.

University	Position in QS ranking in 2017	Articles in WoS database within 5 years per faculty member	Articles in Scopus database within 5 years per faculty member	Article citations in WoS database within 5 years per faculty member	Article citations in Scopus database within 5 years per faculty member	Total students / faculty members, thousand people
Swiss Federal Institute of Technology in Zurich, Switzerland	8	12,5	13,7	118,7	113,3	19/2,5
University of Nottingham, United Kingdom	75	7,8	7,0	50,0	45,7	29/3,3

III.7. Annex №7. Planned schedule for the breakthrough project “Novel Therapeutics in the Prevention and Treatment of Cerebrovascular Diseases”

Cerebrovascular diseases are one of the major biomedical problems, with much effort spared all over the world to solve it. Research in this field enjoys significant state support in many countries, because economic and social losses from cerebrovascular diseases are extremely high and trend to steadily grow. This fact provokes a high degree of competition between research teams, but at the same time paves the way to high level research conducted in this area. It is obvious that only interdisciplinary approach and broad international cooperation can provide the basis for solving the problem of cerebrovascular diseases. For the foregoing reason the offered project features a number of innovations, making it globally competitive and entitling us to believe that scheduled studies will lead to scientific and technological breakthrough in fundamental and application-related facets of cerebrovascular pathology.

1. Not only doctors and biologists, but also chemists, physicists and engineers are involved in solving the problem of apoplectic stroke. The latter fact permits to use state-of-the-art technologies and knowledge in biomedicine, where they have never been used before.

2. It is commonly known that the key problems of curing brain diseases are the tissue barrier between blood and brain, which precludes drugs from being transported to the site of lesion, as well as reduction of blood flow in ischemic areas, which limits drug transport to these areas. The project mission is to develop radically new approaches to overcoming these barriers and transporting drugs directly into the brain.

3. One of the most original ideas of the project is the use of natural blood cells (leucocytes) as drug carriers. Leucocytes will be “charged” with microcapsules containing the required bioactive substance, which will be transported by a living cell to the brain damage area. The core idea is that leucocytes always migrate from blood to the inflammation area. All that is left to do is to use this ability of leucocytes to ensure the targeted drug delivery to the focus of inflammation.

4. For the first time damaged brain cells will be studied at the level of their genotype to determine which genes are involved in activation or suppression of neuron functions. The determined genes can become a new therapeutic target for restoring normal functioning of neurons and eliminating effects of brain damage. This new field of medicine is gene-cell therapy of central nervous system diseases.

5. For the first time DNA minicircles, the synthetic structures with in-built genes will be used to correct damaged neuron genotype.

6. Not only whole cells, but also membrane microvesicles released by them, or microbubbles characterized by high biological activity, will be used to deliver drugs to the brain damage area. Their regenerative potential has never been a subject of stroke model studies.

This project is unprecedented in biology and medicine of the Russian Federation by the quantity of innovative ideas and solutions, as well as by the spectrum of professions and high qualification of scientists involved in its implementation.

№ п/п	2017	2018	2019	2020	2021
1	<p>Elaborate an encapsulation recipe for selected drugs and other biologically active compounds</p> <p>Make multifunctional micro- and nano-capsules and particles containing drugs with required encapsulation efficiency (TPU)</p> <p>Joint project of KFU – TPU – Queen Mary University of London</p>				
	2017	2018	2019	2020	2021
2	<p>Determine mechanistic interconnections to comprehend the gene regulation dynamics in case of medial cerebral artery occlusion</p> <p>Identify transcription modules, having causal relationship with neurovascular abnormalities (SPbSU, KFU)</p> <p>Compile a list of genes involved in function activation and suppression, which can serve as a therapeutic target for restoring their normal expression with a view to remedy effects of the brain damage (SPbSU)</p> <p>Joint project of KFU – SPbSU – Technical University of Munich</p> <p>Bioinformatics group (SPbSU – Technical University of Munich) will systematically analyse OMIX data, obtained in the course of the project from KFU</p>				
	2017	2018	2019	2020	2021
3	<p>Study endogenous neuropeptides as neuroprotectors</p> <p>Study neuroprotective function and mechanisms of action of CGRP and PACAP using ischemic stroke models and cultures of sensory and cortical neurons (KFU)</p> <p>The plan is to enrich data about neuroprotective properties of CGRP and make new in vivo model experiments with PACAP, which act through similar signaling cascades in the ischemic zone. The role of transcription factors (Nrf2 and NR4A) and kinases (PKA, PKC, CaMKII, MAPK) in neuroprotection will be established.</p> <p>These experiments will form the basis for a new approach to neuroprotection and can be used for targeted (drug) deliv-</p>				

	ery to brain damage areas with the help of microcapsules in collaboration with the above mentioned laboratories (and all other project participants).				
	Joint project of KFU – SPbSU – Harvard University – the University of East Finland				
	2017	2018	2019	2020	2021
4		<p>Design and optimize capsules and particles for absorption by leucocytes</p> <p>Optimize capsule absorption by cells and evaluate cell viability during this process (TPU)</p> <p>Joint project of TPU – Queen Mary University of London – University of Pennsylvania</p>			
5		<p>Evaluate inflammatory response inside the lesional tissue</p> <p>Develop a cell segregation method for preparing enriched-population inflammatory cells of lesional tissues (TPU)</p> <p>Hypothesis: use of the stroke model will lead to increased accumulation of monocytes and granulocytes in vessels of the damaged area. Later on this will lead to increased accumulation of microglia cells on the neuronal side of blood-brain barrier</p> <p>Joint project of TPU – Harvard University – Rutgers University (USA)</p>			
	2017	2018	2019	2020	2021
6		<p>Develop a new approach to gene therapy of post-stroke abnormalities using safe and efficient DNA minicircles</p> <p>Describe the damaged brain recovery after application of new DNA minicircles coding therapeutic genes (Peter the Great St. Petersburg polytechnic University, SPbPU)</p> <p>Various molecular interactions will be modulated with the help of DNA minicircles</p>			

		<p>coding antiapoptotic, anti-inflammatory therapeutic genes. In addition, new candidate genes will be tested based on RNA-sequencing results.</p> <p>If we solve this problem we shall be able to directly move to preclinical studies of a new therapeutic approach for targeted treatment of ischemic brain damage.</p> <p>Joint project of SPbPU – Gustave Roussy Institute (France) – Harvard University</p>			
	2017	2018	2019	2020	2021
7			<p>Monitor drug delivery by cells to the site of damage and activate the drug release in the desired area</p> <p>Develop methods for monitoring cell delivery in vivo (TPU, KFU)</p> <p>Activate drug release with the help of external actions after its delivery to particular tissue segments (TPU)</p> <p>Develop a method for drug release with the help of external actions (electromagnetic field or ultra sound) after the cell delivery to the damaged area (TPU)</p> <p>Elaborate a protocol for cell visualization and in vivo viability assessment (KFU)</p> <p>Joint project of KFU – TPU – Queen Mary University of London – University of Pennsylvania – Harvard University</p>		
	2017	2018	2019	2020	2021
8		<p>Describe inflammatory phenotype using cutting-edge technologies to segregate cells of a certain phenotype and study their accumulation.</p> <p>Use flow cytometry and PCR to identify phenotypical activation of inflammatory cells in response to damage and study medicinal effect on inflammatory and recovery processes (KFU)</p> <p>It is expected that classically activated inflammatory cells will accumulate in the lesional tissue. In course of time apoptosis of these cells will be decisive for improvement of the recovery processes. It is expected that effective</p>			

	<p>treatment will lead to reduction of cell activation rate. This fact will play a pivotal role in assessing efficiency of the offered therapeutic agents.</p> <p>Joint project of KFU in KFU – RIKEN (Japan) joint laboratory</p>
	<p>Bioinformatical analysis of cell signal.</p> <p>Achievement of this goal will be decisive both for better comprehension of signal conduction mechanisms in case of damage and reparation, and for assessment of drug delivery efficiency, especially for those drugs which are connected with micro-circle DNAs, which are of particular importance as pronounced end points of exposure (therapy).</p> <p>Develop a modern method for RNA sequencing and analysis in combination with phenotypic markers for description of signaling pathways involved in damage and recovery, and thus determine new therapeutic areas (SPbPU).</p> <p>According to estimates, signaling pathways associated with acute activation will be activated in segregated recruited cells of the vascular system. Reparation initiation will be connected with alternative activation mechanisms, especially with resident microglia. It is expected that this approach will help to identify new signaling mechanisms, which can be used in designing therapeutic regimens.</p> <p>Joint project of SPbPU – Technical University of Munich – KFU</p>
9	<p>Study efficacy of local thrombolytic therapy of experimental ischemic stroke involving targeted delivery of encapsulated tissue plasminogen activator (t-PA)</p> <p>Make microcapsules with thrombotic vector filled with active t-PA. Assess cerebral blood flow during experimental ischemic stroke before and after infusion of microcapsules containing t-PA (KFU, TPU)</p> <p>It is expected that targeted delivery of t-PA to a cerebral thrombus or thrombotic embolus will improve blood flow and viability of cerebral tissues damaged by ischemia.</p> <p>There is a risk of side effects connected with reperfusion and possible local hemorrhage; so, we shall try to create microcarriers ensuring gradual release of thrombolytic ferment from them into blood.</p> <p>Joint project of KFU – TPU – Queen Mary University of London – Harvard University – University of Pennsylvania</p>

10		<p>Neurophysiological efficiency control of new therapeutic methods for curing ischemic brain damage Describe functional recovery of neural functions at cellular, network and system levels in case of new methods used for curing ischemic brain damage (KFU)</p> <p>Estimate efficiency of new methods for curing ischemic brain damage on the models of transient local and global ischemia, and describe necrotic and penumbral mismatch, neurophysiological properties of neurons and neuronal networks in the areas of ischemic damage, and behavioral functions (KFU)</p> <p>Solving of this problem is a part of preclinical studies of efficiency of new methods offered in the course of the project for curing ischemic brain damage.</p> <p>Joint project of KFU – Inmed* – Harvard University *Mediterranean Institute of Neurobiology (INSERM-901), Marseilles, France</p>
11		<p>Make a local perfusion in order to deliver neuroprotectors to the center of ischemia.</p> <p>Estimate efficiency of new methods of curing ischemic brain damage, which imply neuroprotector delivery to the center of ischemia using the local perfusion method (KFU).</p> <p>Local perfusion of the center of ischemia using a cannula inserted into the blocked vessel will ensure direct neuroprotector delivery to the ischemic damage area.</p> <p>Joint project of KFU – Inmed – Harvard University</p>
12		<p>Design a technique for getting artificial microvesicles of human cells for therapy of neurovascular diseases. Get artificial microvesicles of human cells, possessing improved proangiogenic and neurotrophic properties. Estimate their restorative capacity on models in vitro and in vivo (KFU).</p> <p>It is expected to elaborate a guideline for generation of artificial microvesicles – candidates for drugs used for angiogenesis and neuroregeneration stimulation.</p> <p>Methods devised for artificial microvesicle generation of human cells will underlie a new class of drugs free from living cells, which will permit to improve biosafety and feasibility of the technique.</p> <p>Joint project of KFU – RIKEN (Japan) – Lund University (Sweden)</p>
13		<p>Develop methods for gene-cell therapy of ischemic diseases of the central nervous system.</p>

		<p>Study ability of different human cells to act as vectors for viral and non-viral genetic drug delivery. Estimate migration, survivability, ability to differentiate and simulate regeneration processes in ischemic tissues (SPbPU).</p> <p>Guidelines for segregation, cultivation/expansion and genetic modification of primary stem and progenitor cells of humans and animals will be elaborated. Assessment of therapeutic potential of gene-cell drugs has been made on models in vitro and in vivo.</p> <p>It is common knowledge that stem and progenitor cells are actively involved in regeneration processes taking place in the organism. These cells have the ability to migrate to focuses of degeneration, where they give trophic support and also differentiate into cells to make up for lost cells. Genetic modification of cells will ensure targeted delivery of genetic drugs, as well as increase of restorative capacity of modified cells.</p> <p>Joint project of SPbPU – KFU – TPU – Queen Mary University of London</p>				
	2017	2018	2019	2020	2021	
14			<p>Study efficiency of new methods for prevention of nerve tissue lesion in case of the repeated stroke</p> <p>Describe the degree of brain damage in case of the repeated stroke and new secondary prevention methods used (TPU, KFU)</p> <p>Estimate efficiency of new preventive neuroprotection methods in case of the repeated stroke: in vivo – on the models of local and global transient ischemia, and in vitro – on brain sections (TPU, KFU)</p> <p>The repeated stroke frequently observed after transient circulatory disturbances is a typical dramatic scenario in case of cerebral ischemia. Introduction of new neuroprotection techniques will permit to alleviate effects of repeated strokes.</p> <p>Joint project of KFU – Inmed – TPU – Harvard University</p>			

III.8. Annex 8. Cooperation with the Russian Academy of Sciences (RAS)

Institute	Research areas	Contacts at the RAS
Institute of Physics	Research of objects of high-temperature atmosphere and ionosphere of Earth	Institute of Solar-Terrestrial Physics, Siberian Branch
Institute of Physics	Development of physical-chemical and biological applications of NMR in fundamental medicine	Tomography Center, Siberian Branch (Academician Renad Sagdeev)
Institute of Physics Mini-mega TORTORA	Research of near and far space. Space technologies. New informational space technologies. Research of rapid process technologies in near and far space.	Special astrophysical observatory
Institute of Physics	Optic authentication of new emission sources (supermassive black holes, neutron stars, galactic clusters) identified by orbiting astronomical observatories (INTEGRAL, SWIFT, CHANDRA, XMM-Newton, PLANCK, GAIA, SRG) by means of PTT-150 telescope.	Space Research Institute, The Scientific and Technological Research Council of Turkey (TUBITAK)
N.I. Lobachevsky Institute of Mathematics and Mechanics, Institute of Physics	Theoretical cosmology. Space kinetics. Axion.	Institute for Theoretical Physics (Academician Alexey Starobinsky)
Institute of Environmental Sciences	Mathematic modelling of mist flows as a challenge for environmental protection	Institute of Mechanics and Engineering
Institute of Environmental Sciences	Global and regional changes of modern climate. Climatic conditions and resources of Russian Federation constituent regions. Circulation and energetics of atmosphere. Climate and air basin of Kazan, Tatarstan.	A.M. Obukhov Institute of Atmospheric Physics (Director – Corresponding Member Igor Mokhov). V. Zuev Institute of Atmospheric Optics. Institute of Numerical Mathematics. Institute of Global Climate and Ecology. Institute of Geography.
Institute of Environmental Sciences	Evaluation of natural resources potential for Russian lakes, forecasting of its changes with due account for regional social and economic development	Institute of Limnology (Shamil Pozdnyakov)
Institute of Environmental Sciences	Ecotoxic properties of new compounds	Institute of General and Physical Chemistry
Institute of Environmental Sciences	Biodiversity of the Volga River basin	Institute of Ecology of the Volga River Basin

Institute	Research areas	Contacts at the RAS
Institute of Environmental Sciences	Phytcenology and vegetation protection	Institute of Biology, Urals Branch
Institute of Fundamental Medicine and Biology	Searching for expression patterns – Huntington’s disease	Institute of Cytology and Genetics, Siberian Branch
Institute of Fundamental Medicine and Biology	Genome and predictive medicine, methods of early pathology diagnostics	Institute of Chemical Biology and Fundamental Medicine, Siberian Branch
Institute of Fundamental Medicine and Biology	Neurophysiology of motor systems. Molecular biology, Molecular Genetics, Microbiology, Neuropharmacology, Neurobiology, Phytochemistry	Kazan Institute of Biochemistry and Biophysics
Institute of Fundamental Medicine and Biology	Molecular biology, molecular genetics. Joint research of ferments-ribonuclease.	Engelhardt Institute of Molecular Biology
Institute of Fundamental Medicine and Biology	Microbiology. Joint research of microbial autoregulators	Institute of Microbiology
Institute of Fundamental Medicine and Biology	Joint academic programs for students majoring in molecular biology	Bioengineering Center
Institute of Fundamental Medicine and Biology	Molecular biology, microbiology	Skryabin Institute of Biochemistry and Physiology of Microorganisms
Institute of Fundamental Medicine and Biology	Molecular biology, molecular genetics, microbiology	Bioengineering Center
Institute of Fundamental Medicine and Biology	Cell biology	Institute of General Genetics
Institute of Fundamental Medicine and Biology	Combinatorial chemistry and neurobiology	M.M. Shemyakin and Yu.A. Ovchinnikov Institute of Biorganic Chemistry
Research and Educational Center of Pharmaceutics	Development of anticholinesterase drugs on pyridoxine base	A.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Scientific Center
Institute of Geology and Petroleum Technologies	Oil-and-gas reservoir modelling	Trofimuk Institute of Petroleum Geology and Geophysics, Siberian Branch
Institute of Geology and Petroleum Technologies	Paleoclimate and paleomagnetism	Institute of Physics of the Earth Institute of Geology
Institute of Geology and Petroleum Technologies	Stratigraphy of oil-and-gas basins	Institute of Geology Institute of Paleontology
Institute of Geology and Petroleum Technologies	Enhanced oil recovery, petrochemistry	A.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Scientific

Institute	Research areas	Contacts at the RAS
um Technologies		Center
Institute of Geology and Petroleum Technologies	Enhanced oil recovery	A.V. Topchiev Institute of Petrochemical Synthesis
Institute of Geology and Petroleum Technologies	Development of methods and tools for high-precision determination of the amount of produced oil, associated gas and water wells.	Federal State Unitary Enterprise "All-Russian Research Institute of Flow Metering" VNIIR
Institute of Geology and Petroleum Technologies	Paleoclimate and paleomagnetism	Institute of Earth Physics Institute of Geology
Institute of Geology and Petroleum Technologies	Mineralogical and lithological strata oil and gas research	Komi Republic Institute of Geology A.N. Zavaritsky Institute of Geology and Geochemistry
Institute of Computer Mathematics and Information Technologies	Solution methods for nonlinear boundary equations	Keldysh Institute of Applied Mathematics
Institute of Computer Mathematics and Information Technologies	Grid methods for boundary equations	Institute of Computational Mathematics and Mathematical Geophysics, Siberian Branch
Institute of Computer Mathematics and Information Technologies	Development of parallel algorithms	Institute of Applied Mechanics, Urals Branch
Institute of Computer Mathematics and Information Technologies	Research on programs' computational capabilities	Dorodnicyn Computing Center
Institute of Computer Mathematics and Information Technologies	Artificial intelligence	Institute of Control Sciences
Alexander Butlerov Institute of Chemistry	Dehydration of hydrocarbons Nonwoven fabric-based catalysts Synthesis of oxide carriers and catalysts	Boreskov Institute of Catalysis
Alexander Butlerov Institute of Chemistry	Chemistry of heterorganic compounds Functional nanomaterials Homogeneous catalysts for petrochemistry	A.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Scientific Center
Alexander Butlerov Institute of Chemistry	Electroanalytical chemistry	Institute of Geology and Analytical Chemistry

Institute	Research areas	Contacts at the RAS
Alexander Butlerov Institute of Chemistry	Advanced polymer composites	Institute of Macromolecular Compounds, St Petersburg N.S. Yenikolopov Institute of Synthetic Polymer Materials, Moscow
Alexander Butlerov Institute of Chemistry	Functional nanomaterials	Kazan E.K. Zavoisky Physical-Technical Institute
Institute of International Relations, History and Oriental Studies	Project Bolgar	Institute of Archaeology
Institute of International Relations, History and Oriental Studies	Establishing material culture of suburban population of the Russian state in the XVII-XVIII centuries.	Institute of Archaeology and Ethnography, Siberian Branch
Institute of International Relations, History and Oriental Studies	Interaction of human beings and environment. Arche-zoology	Institute of Archaeology
Institute of International Relations, History and Oriental Studies	Interaction of human beings and environment. Paleopedology	Institute of Physicochemical and Biological Problems of Soil Science
Institute of International Relations, History and Oriental Studies	Experimental archaeological studies	Institute of Archaeology Institute of Ethnology and Anthropology
Institute of International Relations, History and Oriental Studies	Development of policy of interethnic and inter-confessional cooperation in the Volga Federal District The role of Tatars in civilizational processes in the Volga River region, Trans-Urals and Central Asia in XIX – beginning of XXI centuries.	Institute of Russian History, Sh. Marjani Institute of History, the Academy of Sciences of the Republic of Tatarstan
Leo Tolstoy Institute of Philology and Intercultural communication	Data-base “World languages”	Institute of Linguistics
Leo Tolstoy Institute of Philology and Intercultural communication	Data-base “Russian Language dialects”	V. Vinogradov Institute of Russian Language
Leo Tolstoy Institute of Philology and Intercultural communication	E-fund “Russian language dictionaries of XVIII-XIX centuries»	Institute for Linguistic Studies (Saint-Petersburg)
Leo Tolstoy Institute of Philology and Intercultural communication	E-fund “Dictionary of Russian language poetry at the beginning of XIX century”	V. Vinogradov Institute of Russian Language

Institute	Research areas	Contacts at the RAS
communication		
Leo Tolstoy Institute of Philology and Intercultural communication	Old Russian verb: functioning and evolution	V. Vinogradov Institute of Russian Language
Leo Tolstoy Institute of Philology and Intercultural communication	Old Russian verb: functioning and evolution	Institute for Linguistic Studies (Saint-Petersburg)

III.9. Annex 9. Extended list of initiatives and companies for implementing marketing strategy and employers' market-places

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
1	Biomerieux	French company, one of leaders in the production of reagents, equipment and software for <i>in vitro</i> diagnostics	Chemistry, New Materials, IT	www.biomerieux-russia.com/
2	Armstrong Building Products	Global leader in the production of floating ceilings and floor coverings. Founded in 1860, includes 44 plants in 12 countries.	Chemistry, New Materials	www.armstrong.ru/
3	Aksalta – Russian paints	One of the leading Russian paint and coating companies.	Chemistry, New Materials	www.ruskraski.ru/
4	SCA	International company that produces consumer goods and paper products.	Chemistry, New Materials	www.sca.com/ru/
5	Procter & Gamble	One of global leaders in consumer goods production	Chemistry, New Materials	https://www.pg.com/ru_RU/
6	AkzoNobel	One of global leaders in the production of paints and coatings	Chemistry, New Materials	https://www.akzonobel.com/ru/
7	Eni-nefto	Subdivision of the Italian energy provider Eni producing and marketing engine oils in Russia	Chemistry, New Materials	www.eninefto.com/
8	Evonik	One of the leading companies producing special chemicals	Chemistry, New Materials	http://corporate.evonik.com/
9	Clariant	Global leader in producing chemicals for textile, printed, mining and metallurgic industries	Chemistry, New Materials	www.clariant.com/
10	Omya	Leading producer of industrial minerals - calcium carbonate-based and dolomite-based filling agents and pigments- and major distributor of various chemicals.	Chemistry, New Materials	www.omya.ru/
11	Albis	Russian office of Swiss company focusing on thermoplastic production in Europe	Chemistry, New Materials	www.albis.com/
12	Firmenich	Global leader in the development and production of aromatic substances for perfumery and food indus-	Chemistry, New Materials	www.firmenich.com/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
		tries		
13	Kalekim	Russian office of Kale group, manufacturer of materials for construction and decoration	Chemistry, New Materials	www.kalekim.ru/
14	Ashland	Branch of international chemical company Ashland, first Russian manufacturer of polyacrylamide	Chemistry, New Materials	www.ashland.com/
15	Forbo	Subsidiary of Forbo group, large manufacturer of floor coverings, constructive chemicals and industrial glues	Chemistry, New Materials	www.forbo-stroitech.ru/
16	Ferro	Large international manufacturer of coatings and paints for ceramics and other polymers	Chemistry, New Materials	www.ferro.com/
17	Styrolution	German manufacturer of styrol-based materials	Chemistry, New Materials	https://www.styrolution.com/
18	Karpov Chemical Plant	Manufacturer of inorganic chemistry products, technical, food and reagent's qualification, medical preparations, substances and constructive materials	Chemistry, New Materials	www.karpovchem.ru/
19	Nizhnekamskneftekhim	Major petrochemical company leading in the production of synthetic resins and plastics in the Russian Federation. Member of Taif Group.	Chemistry, New Materials	www.nknh.ru/
20	Kazanorgsintez	Large chemical company that produces more than 38% of the whole Russian polyethylene and extensively exports its production	Chemistry, New Materials	www.kazanorgsintez.ru/
21	Akrikhin	Pharmaceutical company is included in TOP-10 large manufacturers of medicines in Russia	Medicine, Biology, Pharmaceuticals, Chemistry	http://akrikhin.ru/
22	Bayer	One of major global chemical and pharmaceutical companies	Medicine, Biology, Pharmaceuticals, Chemistry	http://bayer.ru/
23	GlaxoSmithKline	One of leading international pharmaceutical companies	Medicine, Biology, Pharmaceuticals, Chemistry	www.glaxosmithkline.ru/
24	Intervet	Merck office in Russia dealing with the production	Medicine, Biology,	www.msd-animal-health.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
		of medicines and vaccines for pets	Pharmaceutics, Chemistry	
25	SmithKline Beecham-Biomed	Subdivision of GlaxoSmithKline producing vaccines in Russia	Medicine, Biology, Pharmaceutics, Chemistry	www.glaxosmithkline.ru/
26	MSD (Merck)	MSD are subdivisions of Merck, a large pharmaceutical company outside the USA and Canada	Medicine, Biology, Pharmaceutics, Chemistry	www.msd.ru/
27	Synthes	Swiss manufacturer of medical equipment recently introduced to Johnson&Johnson Group	Medicine, Biology, Pharmaceutics, Chemistry	www.synthes.com/sites/intl/RU/
28	Teva	Israel pharmacological company producing more than 1400 medicines and chemical substances	Medicine, Biology, Pharmaceutics, Chemistry	www.teva.ru/
29	Roche	One of world leading companies in pharmaceutics, leader in <i>in vitro</i> diagnostics and histodiagnosis of cancer	Medicine, Biology, Pharmaceutics, Chemistry	www.roche.ru/
30	Royal Dutch Shell	One of world major oil and gas companies	Medicine, Biology, Pharmaceutics, Chemistry	www.shell.com.ru/
31	Baxter	American healthcare company with focus on of haemophilia, kidney and immune diseases treatment	Medicine, Biology, Pharmaceutics, Chemistry	www.baxter.com.ru/
32	Berlin-Chemie	Russian office of Menarini Group, developer and manufacturer of medicines	Medicine, Biology, Pharmaceutics, Chemistry	http://berlin-chemie.ru/
33	Bio-rad	International pharmacological company specializing in clinical diagnostics	Medicine, Biology, Pharmaceutics, Chemistry	www.bio-rad.com/
34	Omega-Bittner	Manufacturer of medicines and biological supplements	Medicine, Biology, Pharmaceutics, Chemistry	www.omega-bittner.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
35	Hematek	Manufacturer of infusion solutions, member of B. Braun Group	Medicine, Biology, Pharmaceuticals, Chemistry	www.gematek.ru/
36	Berlin-pharma	Berlin-Hemi/ Menarini plant in Kaluga Region	Medicine, Biology, Pharmaceuticals, Chemistry	www.berlin-chemie.ru/
37	Akvion	Russian manufacturer of vitamin supplements and preventive drugs	Medicine, Biology, Pharmaceuticals, Chemistry	www.akvion.ru/
38	Serdix	Pharmaceutical enterprise of Servier Group in Russia	Medicine, Biology, Pharmaceuticals, Chemistry	www.servier.ru/
39	Abbott	One of the world's leading pharmaceutical companies	Medicine, Biology, Pharmaceuticals, Chemistry	http://abbott-russia.ru/
40	Actelion	Russian office of Swiss company focused on medical research and medicines development	Medicine, Biology, Pharmaceuticals, Chemistry	www.actelion.com/
41	Nearmedic	Manufacturer of medicines and distributor of medical equipment. Group includes a network of clinics	Medicine, Biology, Pharmaceuticals, Chemistry	www.nearmedic.ru/
42	Orion Pharma	Finnish R&D pharmaceutical company focused on the development and production of ready-made medicines and substances	Medicine, Biology, Pharmaceuticals, Chemistry	http://orionpharma.ru/
43	Actavis	International company developing medicines in gastroenterology, gynecology, urology, cardio-vascular and respiratory systems for patients with central nervous system diseases	Medicine, Biology, Pharmaceuticals, Chemistry	www.actavis.ru/
44	Alfa Wassermann	Russian office of the Italian pharmaceutical company	Medicine, Biology, Pharmaceuticals, Chemistry	http://alfawassermann.ru/
45	Gedeon-Richter	Hungarian pharmaceutical company, major manufac-	Medicine, Biology,	www.rg-rus.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
		turer of medicines in the Eastern Europe	Pharmaceutics, Chemistry	
46	R-Farm	Major Russian developer and manufacturer of medicines	Medicine, Biology, Pharmaceutics, Chemistry	www.r-farm.com/
47	Biocodex	International pharmaceutical company, medicines and probiotics manufacturer	Medicine, Biology, Pharmaceutics, Chemistry	http://ru.biocodex.com/ru/
48	Sotex	One of the leading manufacturers of medicines, member of Protek Group	Medicine, Biology, Pharmaceutics, Chemistry	www.sotex.ru/
49	Valenta	Russian producer of medicines. Member of Otechestvennye Lekarstva Group.	Medicine, Biology, Pharmaceutics, Chemistry	www.valentapharm.com/
50	Zambon	Office of the Italian pharmaceutical company specializing in pain killers and medicines for respiratory diseases	Medicine, Biology, Pharmaceutics, Chemistry	http://zambon.ru/
51	Tatkhimfarmpreparaty	Governmental company with two plants for medicines production	Medicine, Biology, Pharmaceutics, Chemistry	www.tatpharm.ru/
52	SIA	One of the leading Russian pharmaceutical distributors	Medicine, Biology, Pharmaceutics, Chemistry	www.siamed.ru/
53	F-Sintez	Pharmaceutical enterprise located in Krasnogorskiy district, Moscow region	Medicine, Biology, Pharmaceutics, Chemistry	http://f-sintez.ru/
54	Ford-Sollers Elabuga	Ford and Sollers joint enterprise focused on the automobile production, plant in Special Economic Zone <i>Alabuga</i>	IT and Technologies, New Materials	www.sollers-auto.com/ru
55	ThyssenKrupp Materials	Russian subdivision of a large metallurgic and machine building company dealing with production and marketing of rolled steel	IT and Technologies, New Materials	www.tkmr.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
56	ABB	One of the world leaders in electric and power engineering equipment and production automation	IT and Technologies, New Materials	http://new.abb.com/ru/
57	Denso	Japanese machine building company specializing in car parts and equipment	IT and Technologies, New Materials	www.denso.ru/
58	Draeger	Russian office of the German company Draeger, manufacturer of medical technics and individual protection equipment	IT and Technologies, New Materials	www.draeger.com/sites/ru_ru/
59	Marcegaglia	International metallurgic company producing rolled metal products, pipes and metal constructions	IT and Technologies, New Materials	www.marcegaglia.ru/site/
60	Kazan Optic-Mechanical Zavod (KOMZ-Baigish)	Factory producing optic equipment in Kazan	IT and Technologies, New Materials	www.komz.su/
61	Radiopribor	Leading Russian defence complex developer and manufacturer of airborne electronic equipment for civil and military aviation	IT and Technologies, New Materials	www.rp-kzn.ru/
62	State Research Center Concern CSRI Elektropribor	Manufacturing unit for aviation industry	IT and Technologies, New Materials	www.priborist.net/
63	Nvidia	World leader in producing graphics processing units and computer graphics equipment	IT and Technologies, New Materials	www.nvidia.ru/
64	Toyota	World leader in automobile industry, owner of R&D network	IT and Technologies, New Materials	www.toyota.ru/
65	BMW	World leader in automobile production	IT and Technologies, New Materials	www.bmw.ru/
66	Gazprom Promgaz	Research and project institute of JSC «Gazprom»	IT and Technologies, Oil Extraction, Petrochemistry	http://promgaz.gazprom.ru/
67	Alnas	Pipeline equipment (electric-centrifugal pumps for oil companies) producing factory located in Almet'yevsk, a member of Rimera group	IT and Technologies, Oil Extraction, Petrochemistry	www.alnas.ru/
68	Tatneft	One of the largest Russian oil companies	IT and Technologies, Oil Extraction, Petrochemistry	www.tatneft.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
69	Neftepromhim	Research institute specialized in technologies for oil industry	IT and Technologies, Oil Extraction, Petro-chemistry	www.neftpx.ru/
70	GE Healthcare	Subdivision of General Electric specialized in medical equipment	IT and Technologies, Medicine	www3.gehealthcare.ru/
71	Johnson&Johnson	A large manufacturer of cosmetic, sanitary and hygiene goods, medical equipment	IT and Technologies, Medicine	www.jnj.ru/
72	B. Braun	German medical and pharmaceuticals device company	IT and Technologies, Medicine	www.bbraun.ru/
73	B. Braun Avitum	Subdivision of B.Braun specialized in equipment supply for hemodialysis and dialysis services	IT and Technologies, Medicine	www.bbraun-avitum.ru/
74	Thermo Fisher	Producer and supplier of equipment for clinic laboratory diagnostics and research in biology and medicine	IT and Technologies, Medicine	www.thermo.com.ru/
75	3M	Multi-profile century-old international corporation annually investing approximately \$1.4 bln to R&D	IT and Communication Technologies	www.3m.com/
76	Cisco Systems	World leader in network technologies	IT and Communication Technologies	www.cisco.com/
77	Microsoft Corporation	One of the leaders in software development	IT and Communication Technologies	www.microsoft.ru/
78	IBM	One of the world leaders in IT	IT and Communication Technologies	www.ibm.com/ru/ru/
79	Schneider Electric	International engineering company, one of the leaders in the field of energy management	IT and Communication Technologies	http://schneider-electric.com/
80	General Electric	Global multi-industry company with subdivisions in machine building, energetics, transport, health care and finance	IT and Communication Technologies	www.ge.com/ru/
81	E.ON	Group of five GRES (regional power stations) acquired by E.ON, German energetics company	IT and Communication Technologies	http://eon-russia.ru/
82	Google	One of the world leaders in IT	IT and Communication Technologies	www.google.com/
83	Eni	Russian subdivision of one of the large Italian ener-	IT and Communica-	www.eni.com/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
		getic companies	tion Technologies	
84	Robert Bosch	One of the leaders in automobile and industrial technologies, producer of household appliances	IT and Communication Technologies	www.bosch.ru/
85	Alstom	French machine-building company, one of the world leading producers of power-engineering equipment and railway transport	IT and Communication Technologies	www.alstom.com/
86	Hitachi	Japanese conglomerate producing industrial, medical, construction, household appliances	IT and Communication Technologies	www.hitachi.ru/
87	Intel	World leading producer of microprocessors	IT and Communication Technologies	www.intel.ru/
88	Valiant	International company specialized in solutions for heating, ventilation and air conditioning	IT and Communication Technologies	www.vaillant.ru/
89	Yandex	One of the Russian leaders in IT	IT and Communication Technologies	www.yandex.ru/
90	Kazan Helicopter Factory	Producer of military and civil helicopters	IT and Communication Technologies	www.russianhelicopters.aero/ru/kvz/
91	Tattelecom	The largest operator of wire telecommunications in Tatarstan	IT and Communication Technologies	www.tattelecom.ru/
92	JSC Generating Company	Regional generating company in Tatarstan, one the largest in Russia	IT and Communication Technologies	http://tatgencom.ru/
93	Mail.ru Group	One of the largest Russian Internet-companies, owner of social networks Vkontakte and Odnoklassniki	IT and Communication Technologies	http://mail.ru/
94	OpenWay	International company, developer of software for payment systems	IT and Communication Technologies	www.openwaygroup.com/
95	Acronis	Developer of software for data back-up and information security	IT and Communication Technologies	http://acronis.ru/
96	ABBYY	Developer of software for image recognition and translation into international languages	IT and Communication Technologies	www.abbyy.ru/
97	Hewlett Packard	One of the largest producers of computers servers and software	IT and Communication Technologies	www.hp.ru/
98	Energy Consulting	Russian company with focus on IT consulting, audit, evaluation and management consulting	IT and Communication Technologies	www.ec-group.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
99	IBS Group	One of the leaders in system integration and software development on the Russian market	IT and Communication Technologies	www.ibs.ru/
100	Megafon	One of the three largest Russian mobile networks providers	IT and Communication Technologies	www.megafon.ru/
101	JSC Vypelkom	One of the three largest Russian mobile networks providers	IT and Communication Technologies	http://beeline.ru/
102	MTS	One of the three largest Russian mobile networks providers	IT and Communication Technologies	www.company.mts.ru/
103	Rushydro	One of the largest Russian power holdings, a leader in power production on the basis of renewable sources	IT and Communication Technologies	www.rushydro.ru/
104	Oracle	Large developer and integrator of ERP-systems	IT and Communication Technologies	www.oracle.com/ru/
105	Rostelecom	One of the largest Russian and European telecommunication companies, the leading Russian provider of broadband services access and toll-TV	IT and Communication Technologies	www.rostelecom.ru/
106	Dell	Producer of consumer electronics	IT and Communication Technologies	www.dell.ru/
107	LG	Producer of consumer electronics	IT and Communication Technologies	www.lg.ru/
108	Canon	Producer of consumer electronics	IT and Communication Technologies	www.canon.ru/
109	Siemens	Transnational concern: electronics, electrical technologies, power equipment, transport, medical appliances and lighting technologies	IT and Communication Technologies	http://siemens.ru/
110	Lenovo	Producer of consumer electronics	IT and Communication Technologies	www.lenovo.com/ru/ru/
111	Panasonic	Producer of consumer electronics	IT and Communication Technologies	www.panasonic.com/ru/
112	Philips	Producer of consumer electronics	IT and Communication Technologies	http://philips.com/
113	Fujitsu	Japanese leader of ICT market	IT and Communica-	www.fujitsu.com/ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
			tion Technologies	
114	Sony	Producer of consumer electronics	IT and Communication Technologies	www.sony.ru/
115	McAfee	Large producer of anti-virus solutions	IT and Communication Technologies	www.mcafee.com/ru/
116	PayPal	The largest electronic payment system	IT and Communication Technologies	https://www.paypal.com/
117	Dr.Web	Large Russian software developer in information security	IT and Communication Technologies	http://drweb.com/
118	Symantec	Large international software developer in information security	IT and Communication Technologies,	www.symantec.com/
119	Gasprom	World energy producer	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.gazprom.ru/
120	Rosneft	Leader of the Russian petroleum industry and one of the world's largest publicly-held oil companies.	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.rosneft.ru
121	Lukoil	One of the world's largest vertically integrated petroleum companies.	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.lukoil.ru
122	Surgutneftegas	Oil and gas producing company Surgutneftegas is one of the largest Russian petroleum industry company	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.surgutneftegas.ru
123	Gazprom Neft	Vertically-integrated oil company	Exploration and development of oil and gas fields, oil refining,	http://www.gazprom-neft.ru/
124	Oil and gas company Slavneft	Among TOP 10 largest Russian oil companies	IT and Communication Technologies, Oil	http://www.slavneft.ru/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
			Production and Petrochemistry	
125	Oil company Bashneft	Vertically-integrated oil company	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.bashneft.ru/
126	TNG-GROUP	Oilfield services company	Geological Exploration	http://www.tng.ru/
127	Kogalymneftegeophyzika	Oilfield services company	Geological Exploration	http://www.kngf.org/
128	GAZPROMNEFT-NNGGF	Oilfield services company	Geological Exploration	http://ofs.gazprom-neft.ru/
129	British Petroleum	British petroleum company	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.bp.com/
130	Exxon Mobil Corporation	American based company, world's largest publicly-held oil company	IT and Communication Technologies, Oil Production and Petrochemistry	http://corporate.exxonmobil.com/
131	Total	French petroleum company, featuring 4th largest production and extraction output	IT and Communication Technologies, Oil Production and Petrochemistry	http://www.total.com/
132	Repsol	Largest petroleum company in Spain and Latin America	IT and Communication Technologies, Oil Production and Petrochemistry	https://www.repsol.com
133	Schlumberger	World's largest oilfield services	Geological Exploration	http://www.slb.ru/
134	Weatherford	Oilfield services company	Geological Exploration	http://www.weatherford.com/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
135	Halliburton	One of the world's leading oilfield services company	Geological Exploration	http://www.halliburton.com/
136	MIRRIKO	Group of engineering and service companies	Oil Exploration and Extraction	http://www.mirrico.ru/
137	ALROSA	Leader in world diamond industry	Geological Exploration	http://www.alrosa.ru/
138	Baker Hughes	One of world's leading oilfield services company	Geological Exploration	https://www.bakerhughes.com/
139	CUPET	Major Cuban oil producing company	Oil Production and Petrochemistry	http://www.cupet.cu/
140	Rosgeologiya	Russian oil exploration company with the largest geography footprint	Geological Exploration	http://www.rosgeo.com/
141	Izvarino - Pharma	Being in the Russian market since 2007 company is specialized in the manufacturing, marketing and distribution of pharmaceuticals	Medicine, Biology, Pharmaceutics, Chemistry	http://www.izvarino-pharma.ru
142	Philip Morris International	Leading international tobacco company, with products sold in more than 180 countries worldwide. Joint projects in the field of comprehensive regulation of production and turnover of tobacco products based on the principle of reducing the harm from smoking.	Medicine, Biology, Pharmaceutics, Chemistry	www.pmi.com/ru_ru/
143	Human Stem Cells Institute	Development, commercialization, and promotion of innovative medicines and high-tech services in the field of regenerative medicine, medical genetics (including reproductive), gene therapy and biopharmaceuticals bioinsurance	Medicine, Biology, Pharmaceutics, Chemistry	http://hsci.ru/
144	Samsung	Producer of consumer electronics	IT and Communication Technologies	http://www.samsung.com/ru/
145	Novartis	One of the world's premier pharmaceutical companies	Medicine, Biology, Pharmaceutics, Chemistry	https://www.novartis.com/
146	Pfizer	One of the world's premier pharmaceutical compa-	Medicine, Biology,	http://www.pfizer.com/

No	Company's name	Description of initiatives	Areas for cooperation	Web-site
		nies	Pharmaceutics, Chemistry	
147	NovoNordisk	One of the world's premier pharmaceutical companies	Medicine, Biology, Pharmaceutics, Chemistry	http://www.novonordisk.com/

III.10. Annex 10. Key quantitative and qualitative development parameters for KFU Centers of Excellence in 2017-2020.

Indicator	2016 fact	2017	2018	2019	2020
StrAU “7P Translational Medicine”					
<i>Center of Excellence for Regenerative Medicine</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	6	6	7	7	8
Number of projects implemented within international collaborations, items	6	8	10	12	14
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	1	2	3
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	3	4	5	6	7
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	2	2	3	3	4
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	25	32	42	54	64
Value of commercial contracts with industrial partners, mln. rub.	25	30	35	40	45
<i>Center of Excellence for Personalized Medicine</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	13	13	14	14	16
Number of projects implemented within international collaborations, items	6	8	10	13	15
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	1	2	3
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	5	5	6	8	9
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	2	2	3	3	4
Number of publications in Nature and Science journals, items	0	0	0	1	1

Number of publications in Q1 journals, items	28	35	44	56	69
Value of commercial contracts with industrial partners, mln. rub.	25	30	35	40	45
<i>Center of Excellence for Neurobiology</i>					
Number of world-class laboratories in the Centee of Excellence, items, cumulatively	5	5	6	6	7
Number of projects implemented within international collaborations, items	4	5	6	6	7
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	1	2	2
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	7	8	9	10	11
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	2	2	3	3	4
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	24	38	50	59	73
Value of commercial contracts with industrial partners, mln. rub.	0	8	16	24	32
<i>Center of Excellence for Chemistry of Living Systems</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	4	4	5	5	6
Number of projects implemented within international collaborations, items	2	4	4	5	6
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	1	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	5	7	9	12	15
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	0	1	2	3
Number of publications in Nature and Science journals, items			1	1	1
Number of publications in Q1 journals, items	15	20	25	30	35
Value of commercial contracts with industrial partners, mln. rub.	5	7	9	11	13
<i>Center of Excellence for Biomedical Physics</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	5	5	6	6	7
Number of projects implemented within international collaborations, items	0	1	2	3	4

Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	1	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	1	1	2	3	3
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	2	3	4	5	5
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	10	15	20	25	30
Value of commercial contracts with industrial partners, mln. rub.	1	2	3	3,5	4
<i>Center of Excellence for Medical Robotics</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	2	2	3	3
Number of projects implemented within international collaborations, items	0	1	2	3	4
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	0	1	2	3	3
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	0	2	3	4
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	0	6	12	20	22
Value of commercial contracts with industrial partners, mln. rub.	1	10	15	25	40
StrAU “Eco-oil” – global energy and resources for materials of the future”					
<i>Center of Excellence for Catalyst Development for Oil Production, Refining and Petrochemistry</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	2	2	3	5
Number of projects implemented within international collaborations, items	4	4	5	6	7
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	0
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	2	3	4	4	5

Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	1	2	3	4
Number of publications in Nature and Science journals, items	0	0	0	0	1
Number of publications in Q1 journals, items	13	20	28	36	45
Value of commercial contracts with industrial partners, mln. rub.	25.7	30	35	40	45
<i>Center of Excellence for Methane Emission Assessment and Climate Change, Palaeoclimatology and Stratigraphy</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	2	2	3	4	6
Number of projects implemented within international collaborations, items	4	5	6	7	8
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	4	5	6	7	8
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	1	2	3	4	5
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	48	58	70	80	90
Value of commercial contracts with industrial partners, mln. rub.	60	65	70	75	80
<i>Center of Excellence for Hydrocarbon Deposit Development Simulation in Oil and Gas Industry</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	2	3	3	6
Number of projects implemented within international collaborations, items	2	3	4	5	6
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	2	3	4	5	6
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	1	2	3	4
Number of publications in Nature and Science journals, items	0	0	0	0	0
Number of publications in Q1 journals, items	4	15	25	35	45

Value of commercial contracts with industrial partners, mln. rub.	23.8	28	32	36	40
<i>Center of Excellence for Ecobiotechnologies in Oil and Gas Industry</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	1	2	3	4
Number of projects implemented within international collaborations, items	3	4	5	6	7
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	3	4	4	5	6
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	1	2	3	3	4
Number of publications in Nature and Science journals, items	0	0	0	0	1
Number of publications in Q1 journals, items	23	28	33	38	45
Value of commercial contracts with industrial partners, mln. rub.	22	25	28	30	34
<i>Center of Excellence for Study and Development of Energy-saving, Environment-friendly, and Economically efficient Technologies (EEE-technologies) for Hydrocarbon Production and Processing</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	3	3	4	6	7
Number of projects implemented within international collaborations, items	6	7	8	9	10
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	5	7	9	10	12
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	1	2	3	4	5
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	33	40	50	65	80
Value of commercial contracts with industrial partners, mln. rub.	25.5	30	35	40	45
StrAU “Astrochallenge: cosmology, monitoring, navigation, applications”					
<i>Center for Astrophysics and Cosmology</i>					

Number of world-class laboratories in the Center of Excellence, items, cumulatively	2	3	3	4	5
Number of projects implemented within international collaborations, items	2	2	3	3	4
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	7	8	8	9	9
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	1	2	3	4
Number of publications in Nature and Science journals, items	0	1	1	1	1
Number of publications in Q1 journals, items	34	37	41	47	52
Value of commercial contracts with industrial partners, mln. rub.	15,3	16,8	18	20	22
<i>Center for Near Space Monitoring</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	3	3	4	5	6
Number of projects implemented within international collaborations, items	2	2	2	3	3
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	9	10	12	13	15
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	1	2	3	4
Number of publications in Nature and Science journals, items	0	1	1	1	1
Number of publications in Q1 journals, items	48	52	58	63	70
Value of commercial contracts with industrial partners, mln. rub.	22,4	24,6	27	30	32
<i>Center for Space Technology</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	1	2	3	4
Number of projects implemented within international collaborations, items	1	1	1	2	2
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1

Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	0	1	2	2	3
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	0	1	2	3
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	2	4	7	10	15
Value of commercial contracts with industrial partners, mln. rub.	24,7	30	33	36	43
<i>Center for Space Technology Transfer</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	2	3	4	5
Number of projects implemented within international collaborations, items	1	1	1	1	2
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	0	1	2	4	6
Number of post-docs from the top-200 international universities, employed by the Center of Excellence, persons, cumulatively	0	1	2	3	4
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	2	4	7	10	15
Value of commercial contracts with industrial partners, mln. rub.	32	35	38	42	46
Interdisciplinary research areas					
<i>Center of Excellence for Laser and Plasma Additive Technologies</i>					
Number of world-class laboratories in the Center of Excellence, items, cumulatively	1	2	3	4	4
Number of projects implemented within international collaborations, items	0	1	2	4	4
Number of highly cited researchers from Clarivate Analytics, employed by the Center of Excellence, persons, cumulatively	0	0	0	0	1
Number of leading researchers (h-index > 20), employed by the Center of Excellence, persons, cumulatively	0	2	3	4	4
Number of post-docs from the top-200 international universities, employed by the Center	0	0	3	4	4

of Excellence, persons, cumulatively					
Number of publications in Nature and Science journals, items	0	0	0	1	1
Number of publications in Q1 journals, items	0	12	25	45	50
Value of commercial contracts with industrial partners, mln. rub.	5	10	30	40	60