

Address by the Rector of SPbPU: New Five Years, New Goals



Dear Polytechnics!

By decision of the Ministry of Science and Higher Education, I was delegated to head our own Peter the Great St. Petersburg Polytechnic University, the foremost polytechnical university in Russia for the next five years.

The results of 2016 – 2020

Over the past five years, we have undoubtedly had many accomplishments. Despite unprecedented challenges, Polytechnic University has succeeded in many things, primarily thanks to its wonderful team and our reliable partners.

Continuing its legendary 122-year history, in recent years, Polytechnic University's credibility and reputation have reached a new level. This is evidenced by significant visits and meetings, breakthrough scientific and technological achievements, and highly sought-after educational projects and programs. Thus, largely due to our achievements, we hosted Russian President Vladimir Putin at the university in 2018, Russian Prime Minister Dmitry Medvedev in 2016, the Presidium of the Russian Presidential Council for Economic Modernization and Innovative

Development of Russia, ministers of science and higher education, industry and trade, regional leaders and major high-tech companies, prominent scientists and statesmen. We organized the prestigious conference of the scientific journal Nature and many other international conferences.

We have made a tremendous breakthrough in the rankings. In the Times Higher Education institutional rankings, we moved from the 601-800 group in 2016 to the 301-350 group in 2020; in the QS international rankings, we ranked 401.

In the subject world rankings, the university has increased its presence from 4 to 18 subject areas, consistently ranking in the Top 200 in five of them.

We rank 151-200 in the QS Engineering — Mechanic Engineering, Aviation and Industry subject area and 180th in the QS Engineering and Technology subject area. Undoubtedly, this is recognition of our engineering school, but I am sure our potential is much higher, as demonstrated by our success with the Russian industry.

We rank 4th in Russia, 301-350th in the world by TNE, we are in the top 125 in «Physical Sciences», in the top 150 in «Engineering», in the top 175 in «Computer Science». SPbPU moved from 11th to 8th in the national rating «RAEX-100 best universities of Russia».

Undoubtedly, these are our achievements, which we have to significantly improve in the next five years!

Today, we have about 35,000 students, and we are the largest technical university in Russia. This places special demands on us. First and foremost, we must not lose the momentum of sustainable development. That is why we are the only university in Russia that has established two structures focused on scientific and technological breakthrough and digital transformation, whose status has been officially recognized by the Government of the Russian Federation:

— «New Production Technologies» Competence Center of the National Technological Initiative;

— «Advanced Digital Technologies» World-class Scientific Center.

I would like to emphasize that these are the outstanding achievements of the last five years, which have greatly contributed to the formation of the new brand of Polytechnic University of the 21st century!

Polytechnic University successfully carries out the mission of a leader in training engineers, leading the scientific and methodological work in this field, first of all heading the largest in the country Coordinating Council of the Ministry of Education and Science of Russia «Engineering, Technology, and Technical Sciences» and acting as a developer of engineering education model — University 4.0, including the network of mirror engineering centers, which give us grounds to claim the status of «advanced engineering school» in Russia. This priority project has been

successfully presented to the Prime Minister and, along with the well-known «Priority 2030», should be included in the «National Innovation System» section (responsible person: Deputy Prime Minister D. N. Chernyshenko) of the Strategy of socio-economic development of Russia, being formed by the Russian Government.

In the pandemic year of 2020, the SPbPU team took the lead in the development, mastering, and implementation of online learning. An audit by the international ranking agency QS rated SPbPU's online learning potential with a 5-star rating. Polytechnic University is one of the founders of the National Platform for Open Education. Our leading position was confirmed by winning the contest of the Russian Ministry of Education and Science in the framework of the priority project «Modern Digital Learning Environment in Russia.»

With the support of the Government of St. Petersburg, SPbPU successfully operates the North-West Regional Center of Competence in Online Learning (NWRCOL) and the creation of online courses, as well as a number of laboratories and centers in this area, thanks to which we have made an impressive contribution to the development of distance education. And we certainly plan to continue to equip and support these centers.

At the moment, there are already 81 courses posted on the Open Education national platform, with 900,000 students enrolled in them, and 20 courses on the Coursera international platform, with 135,616 students from more than ten countries.

We have achieved significant success in the export of educational services and international activities. The University has the largest number of international students among technical universities — 8,500 people from 120 countries. In five years, this figure has doubled. Polytechnic University was the first university in Russia to open representative offices in China (Shanghai) and Spain (Madrid). Now we have 26 international programs in English, 48 double-degree programs, and the largest international summer polytechnic school.

If we talk about scientific achievements, in five years, the volume of R&D amounted to more than 10 billion rubles, the number of our publications in Scopus exceeded 10 thousand, the average citation rate per 1 RPS has increased sixfold, more than 75 international conferences were held, 435 results of intellectual activity (RIA) were created, our dissertation councils were established.

Polytechnic University performs breakthrough scientific and technological projects and implements advanced training programs for leading high-tech enterprises of Russia — leaders of the national economy — based on the unique technology of development and application of digital twins, the only digital platform in Russia registered in the Unified Register and protected by dozens of IPRs.

Our industrial partners are the largest corporations: Rostec, Roscosmos, Gazprom and Gazpromneft, TVEL, Russian Helicopters, Almaz-Antey, Kirov Plant, Rubin, Malakhit, Power Machines, Severstal, as well as KAMAZ, with whom we developed

Russia's first electric car, KAMA-1, based on digital twin technology and unique platform solutions in just two years, without an ICE precursor. It was the results of this project that served as the basis for the beacon project «Highly Automated Electric Transportation in Russian Cities» in the «High-Tech Economy» section (responsible person: A. R. Belousov, First Deputy Prime Minister) in terms of forming the «New Technological Environment».

Also among our partners are the United Engine Corporation: ODK-Klimov, PAO Kuznetsov, Lulka Design Bureau, ODK-Saturn — with these leading high-tech enterprises of Russia we (NTI Competence Center) have just signed a contract for the development of the national importance: «Marine GTE — Gas-Turbine Engine» (first stage — 8 months, 407 million rubles by the end of 2021, our total R&D part is about 800 million rubles). Such a large R&D project has never been done before in the history of Polytechnic University; it is on such R&D that we put our hopes for the revival of power machine building at a new level of development.

An important reputational mega-grant of SC Rosatom for the creation of new materials with annual funding of more than 200 million rubles was a great achievement. And here we are counting on the development of the potential of this cooperation. In 2017, we created a joint «Additive Technologies» research center with the ENV Company (Beijing, China), equipped with the latest semi-industrial and experimental equipment for the production of products by methods of additive technologies.

We have put into operation a new «Technopolis Polytech» research building with an area of 23 thousand square meters. It houses NTI Competence Center; Supercomputer Center; scientific and educational centers of Gazpromneft, Gazprom, Kawasaki, Siemens, LG, and other well-known companies, unique laboratories for powder production, friction welding, additive technologies, biotechnology, and others.

We actively involve students in R&D, including through our cutting-edge Youth Project Activity Center and Technical Project Center, Fablab, and Boiling Point. The achievements of our young and promising students can without exaggeration be called outstanding. Among them are BUK-600, Storm-600, and Cadet-M robotic multipurpose platforms, and CyberBoat-330 unmanned training modules for marine robotics competitions.

Our university is also active in the life of society. SPbPU students have won numerous prizes in city, all-Russian and international sports competitions (European gold and world records in swimming, victory in the international student hockey tournament, prizes and medals in various types of wrestling, basketball, badminton, cybersports, races of the automotive engineering community SAE Formula Student and other sports). Culture isn't far behind either. The Poligymnia student choir is a winner of international festivals. The symphony pops Polytech Orchestra gathers full houses. SPbPU groups regularly win song and dance competitions. Our White Hall has hosted unique guests, including the Yale Symphony Orchestra.

Our university has a television studio, which is one of the few studios in the Northwestern Federal District that meets high-definition television standards. We implement federal and regional television projects, popularize Russian science by telling about current topics and promoting polytechnic scientists and their achievements.

Polytechnic University is one of the few technical universities in the country that are included in most federal programs of the Ministry of Education and Science of Russia: «5 — 100» Project, NTI Competence Centers, Engineering Centers, World-class science centers, programs under Resolutions 118 and 220 of the Government and several other significant programs.

I sincerely want to thank all of you — employees, students, and partners of Polytechnic University who were hardworking, engaged, and sincerely supported our common cause. This is what allowed us to achieve such [outstanding results](#) over the past five years.

Plans for 2021-2025

Today we need to maintain the set pace, to respond to the rapid changes in the world that we are constantly observing, to successfully enter the new Priority 2030 Program to support universities. To this end, we have developed the concept of our Development Strategy until 2030 and will complete it as early as this June.

As part of the Strategy, we plan to maintain and develop our best aspects: scale, leadership in the line of «Advanced Manufacturing Technologies» and the field of advanced digital technologies, breakthrough research and development in the field of sustainable development, willingness to create new markets, commitment to digitalization, the formation of the digital industry and solving the tasks-call of the digital economy.

Responding to the challenges of the times, the university will inevitably change.

We will change our approach to shaping the scientific and technological agenda by making our science and developments proactive, not just focused on new markets, but shaping them, capable of offering the economy the solutions it needs in key areas.

We will create new technological solutions for sustainable development, resource conservation, and economic growth, new approaches to the treatment and prevention of socially significant diseases, connectivity and security technologies, and other solutions in the interests of society and the economy.

In accordance with the priorities of the scientific development of the country, outlined in the [Address of the President of Russia V. V. Putin's Message of April 21, 2021](#), we believe that the main strategic goal of our scientific activity is to improve the quality of life.

We will increase Polytechnic University's active participation in the development

of St. Petersburg industry clusters in the areas of electric transport and automotive engineering, power engineering, artificial intelligence, translational medicine, as well as in regional world-class scientific and educational centers (Tyumen Region, Khanty-Mansi Autonomous Area, Samara Region, Tula Region, Komi Republic, and other regions) and complex projects (Ob-Irtysh basin, the Arctic, in particular, the «Northern Sea Transit Corridor», Republic of Tatarstan, Republic of Mordovia and others).

One of the key places in the development of science and technology will be the development and promotion of the results of the «Advanced Digital Technologies» World-class Scientific Center, interaction with industrial partners to create digital factories and form the digital industry, training engineers with world-class competencies for the future Russian high-tech economy.

New approaches to research and development will allow us to increase R&D income, conduct relevant research and create scientific publications, expanding the representation of scientific results in international scientific journals with a high reputation.

Along with strengthening our contribution to the country's social and economic development, we will build a financially sustainable model for our university, focusing on significantly increasing revenues from R&D, continuing professional education programs, and short-term educational programs, including online.

We will review the organization of our education. Customization and quality will be key features while maintaining mass appeal. We will launch new types of graduate programs in conjunction with industry and research organizations, strengthen student involvement in R&D, expand the range of digital competencies, and increase the scale of real-sector involvement in teaching and shaping program content to ensure that our graduates are in demand in the labor market.

From September 1, the legendary Phis-Mekh will start working on the platform principles, and we will train system engineers both at IPPT and NTI Competence Center and at all other SPbPU institutes, implementing the «education and training in the process of custom high-tech R&D» principle, forming effective engineering teams for Russian industry leaders and constantly supporting their advanced knowledge level through Lifelong Learning through high-class additional professional education programs, including in the online format.

We are transforming the university's system of management and interaction, in particular by expanding the representation of young employees and students in collegial decision-making bodies and establishing a system for collecting feedback from each university stakeholder through special events and surveys. This will allow us to respond more quickly to change, to accommodate diverse opinions, and to remain resilient even in difficult situations. Recognizing the importance of «digits» and being pioneers of digital education, we will introduce data analytics-based solutions into as many areas of university activity as possible.

We will take a new approach to understand the values of the university, the fundamental principles on which the university builds its relations with the outside world. We will take responsibility for the communities around the university, for the state of the environment, and the treatment of resources.

We will radically enhance Polytechnic University's reputation as a world-class research, science and technology, innovation, and educational center; we will create a strong, internationally recognizable brand, contributing to the «soft power» and positive image of Russian higher technical education abroad.

All these changes are impossible without new tools and a new qualitative approach to the development of the human capital of the university.

We will create digital systems to help make decisions and ensure basic business processes, and form an integrated, open infrastructure for partners and employees.

The development and implementation of the Technopolis Polytechnic project, approved by the President of the Russian Federation, will be central to infrastructure development. The Technopolis includes a scientific and educational complex and a scientific, teaching, and student campus — it is a 21st-century university project in terms of conditions, organization, and results.

A new approach to the assessment of employees' contribution to the development of our university will allow us to form strong relationships, including through contracts permanently. We will expand the system of incentives and rewards for employees' contributions to the development of our Polytechnic University. We will encourage the formation of new young teams and separately support young and talented scientists at the University through new motivation systems and individual academic trajectories, with ample opportunities for self-development.

Friends, adhering to our strategy and focusing on breakthroughs is exactly what will allow us to maintain sustainable development. Our colleagues, partners, and competitors are running very fast, and we need not just keep up with them, but outrun them on tight curves. This will undoubtedly require a great deal of effort, and it is the work of all of us — faculty members, researchers, engineers, graduate students and graduates, and the administrative and economic staff of the university. And this work should undoubtedly be appreciated. Every brick you put into the grandiose structure called Polytechnic University will be noticed and appreciated.

Polytech-2030 is a sustainable, open, dynamic, high-tech, and accessible university with world-class education, research, and development, forming an engineering elite and noticeably influencing the economy and quality of life of society.

Of course, it is difficult to predict and control what will happen in the world around us in the next five years. We did not and could not foresee COVID-19, which caused a weakening of the world economy, which radically affected our plans. Difficulties cannot be avoided, but it is possible to resist them and find new growth

opportunities. Our DNA, the DNA of polytechnics, includes a focus on breakthroughs, sustainability, initiative, and entrepreneurship in the broadest sense of the word. We've proven this in more than 120 years of great history. When faced with a problem, we don't get lost and don't despair — we plan, we strategize, we win, and become even stronger.

With high hopes and confidence, we all begin a new stage of work for the good of Polytechnic University!

Great To Be!

P. S. Take care of yourself and your loved ones, [get vaccinated against COVID-19](#).

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