

EXECUTIVE SUMMARY
of the Action Plan of the
Saint Petersburg National Research University of
Information Technologies, Mechanics and Optics (hereafter ‘NRU ITMO’)

The aim of implementing the Program for enhancing NRU ITMO’s competitiveness (hereafter called ‘the Program’) is to achieve a leading position for the University amongst the global research and educational elite universities by conducting cutting-edge research and development in the field of convergent technologies (ICT-, nano-, bio-, cognitive technologies) within the Sixth Cycle of Economic Development.

This aim can be achieved only on the basis of a radical transformation of the University, the reformation of its structure and management system and the construction of internationalized environment unique for Russian HE institutions. At the heart of NRU ITMO’s Target Model are the primary principles (and focuses) for the University: a **Research-led, International and Entrepreneurial University**, which are developed within the Program.

The **Research** focus in NRU ITMO’s Model is the main driver for guaranteeing a respectable place for the University among the world’s leading research and educational centers in general, as well as the route to achieving its KPIs in particular. The development of this particular focus within the Program is based on the diversification of the University’s science-based R&D activity into **interdisciplinary research**, bringing NRU ITMO’s core competencies (Photonics, ICT, Nano-technologies), into new fields for the University of Natural, Human and Social Sciences and Biochemistry and Medicine.

The International focus requires NRU ITMO to undertake a *comprehensive internationalization* of all the fields of its activity developed within the Program with the successful positioning of the University in the international research and educational market, as well as in the innovative-entrepreneurial and consulting service markets.

The **Entrepreneurial** focus in the NRU ITMO model requires the re-organization of activity across the whole University into that of a "business-entity" with an emphasis on

ensuring its financial stability and its cost-effectiveness, for this purpose a KPI has been introduced for each staff member and for all academic and administrative units.

The gap between what NRU ITMO will be in 2020, according to the Target Model, and its current state is due to both objective and subjective factors. In particular, NRU ITMO was for a long time a technical HE institution designed to meet the particular needs of certain branches of the Soviet economy, including the defense industry.

In the '**Road Map**', the process of achieving the Program's target indicators will be implemented by addressing the *Tasks* and *Measures* for each of them, which are structured around six *Strategic Initiatives* in the main fields of the University's activity: Research, Education, Human Resources, Communications, Innovation & Entrepreneurship and Management.

The development of **Research**: The achievement of this *Strategic Initiative* involves substantially restructuring the organization of research and educational activity, and is aimed at meeting most of the Program's target indicators. Already in the first year of the Program, International Research Laboratories (or 'IRLs'), co-led by leading foreign researchers, are being set up: 20 IRLs in 2013, 17 IRLs in 2014, 20s IRL in 2015 and so on. The keen interest and timely engagement of these international researchers in IRL activity will enable NRU ITMO staff to define and solve important research problems much sooner, which will lead to meeting the 2020 target indicators for publication activity (2.0 per academic in 2020) and the citation ratio (3.0 in 2020), as well as to the establishment of partnership with leading world academic consortia; increasing orders and raising the share of income returned from R&D activity to 48% of total University revenue.

In the course of developing interdisciplinary research, IRLs will form groups merging into **Centers of Excellence**, in principle in line with their particular type of 'product'. Examples of planned Centers of Excellence are: 'Advanced Manufacturing & Robotics', "Health and Life Sciences", "Information Technology in the Economy, Society and Art", 'Smart Materials', 'Photonics and Natural Sciences'.

The development of **Education**: In accordance with the concept of the "research-led university", educational processes in NRU ITMO are based on the application of research outcomes, produced under the leadership of outstanding academics, as well as involving

the vital participation of students, in educational planning and implementation. The main emphasis in the structure is on developing Master's degrees and Postgraduate programs, so that the ratio of the number of Master's degree graduates and those completing postgraduate studies to the number of Bachelor's degree and the Specialist program graduates will be 105% by 2020. Three different profiles of Master's degree programs will be developed and introduced during the course of the Program: Research, Technological and Entrepreneurial.

Special attention will be given to **the internationalization of education**, in particular through introduction of joint and dual educational programs with world-leading universities (the number of these programs will amount to 100 by 2020) and through increasing the number of foreign students studying at NRU ITMO (the percentage of foreign students relative to the student body will amount to 21.9% of by 2020).

Innovative learning technologies will be further developed. In particular, individualized learning pathways will be extensively introduced, in particular with the use of distance-learning modules; project-oriented learning and problem-based learning methods will be implemented across all educational programs.

Human Resource Activity. Staff and students recognize there are new paradigms of working with employees which are core values of the University and which will determine its further development. At the same time, the reform of the human resources management system is designed to involve all target groups (high school applicants, students and staff members; academics from other HE institutions; successful business-people, sponsors etc.) in University activities and decision making and to introduce the 'efficient' (or performance-related) contracts for University staff members. Special attention will be given to NRU ITMO's collaboration with gifted and talented young people, outstanding foreign academics and lecturers, including repatriates. The percentage of researchers and academics from abroad will amount to 5% of staff in 2020.

The development of *Communications*. Communications activity within the Program, including PR, will focus on emphasizing NRU ITMO strengths in the fields of research, education and innovation in order to create a positive image for the University in the world, and in this way to facilitate fulfillment of the Program tasks on international brand-

ing, its openness on information, promotion in the international rankings and the enhancement of NRU ITMO's visibility at the international level.

The development of communications will proceed from the University's marketing strategy designed to launch the University's research and educational and innovation-entrepreneurial services on the international market in cooperation with foreign companies.

This work will be carried out both by the University's in-house teams (for example, through websites, social networks, publications in the media, distribution of activity reports etc.) and by hiring the services of leading Russian and foreign agencies.

It is expected that, as a result of this work, the University would enter the QS Top 250 and Times Higher Education Top 300.

The development of **Innovation Activity**. The development of the University's innovation activity is aimed at positioning itself as a driver of the knowledge based economy. One primary focus of the Program is the organization of the tech-transfer of the results of R&D activity into the economy and facilitating the development and exploitation of IP, in particular through the existing relationships with development agencies (first of all, with JSC Rosnano and JSC Russian Venture Company) or through partnerships with world leaders in high-technology and R&D industries, in particular the Fraunhofer Institute (Germany). At the same time, much effort will be directed towards enhancing the internal entrepreneurial culture of the University (*i.e. 25% of staff members and students will be involved in innovative activity in 2020*), as well as creating the motivation, and easing conditions at work for staff members and students already engaged in developing the University's startup 'accelerators', engineering centers, business incubators and the 'FabLab' (Fabrication laboratory).

The Management System. There will be a radical shift in the Program from the paradigm of a management system that "directs" and "coordinates" to a system that "supports" and "facilitates". This paradigm change will be managed, on the one hand, by the extensive management and administrative decentralization and the involvement of staff members and students in the decision-making process, and, on the other hand, by the formation of administrative units focused on providing optimal assistance to staff members

and students in the achievement of the targets. NRU ITMO is going to actively draw on the experience of leading foreign Universities, for example, UCLA (USA) and Warwick University (England), in this process.

The educational and academic structure of the University will undergo fundamental changes. In addition to its traditional Faculties, **Academies** will be created, also undertaking research-based and educational activities. The distinction between *Academies* and *Faculties* is that the former will focus on higher level work with Master's degree students and above (postgraduates, doctoral candidates, postdocs). Each *Academy* will include within its structure a *Center of Excellence* and a range of Master's degree programs.

A key instrument for solving the *Tasks* of the **Strategic Initiatives** will be a unified information system for running the University, which, by 2015, will incorporate all University workflows from accounting and the personnel inventory to generating proposals for strategic development.

By these means, the essence of the Program for accelerating the competitiveness of NRU ITMO consists in a radical transformation of the University which will deliver the quality characteristics of its activity across all fields and will ensure, by the year 2020, and years beyond a secure position for the University among the leading academic centers of the world.