Skoltech Strategy 2021//2025

Skolkovo
Institute of Science
and Technology

Skoltech

# Excellence making impact

## Strategy 2021 2025

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# Preface

Skoltech was founded in October 2011 in collaboration with MIT, as a new model graduate university in Russia, to educate leaders, advance knowledge, and foster innovation to address technological challenges facing Russia and world.

Starting from the absolute zero – in the absence of faculty, students, and campus – today, Skoltech is a top top-world young university recognized in the Nature Index and Research.com rankings. The unique development path towards the leadership was split into several stages.

During the ramp-up phase (2011 – 2015), Skoltech successfully brought into operations the first CREIs[1], Center for Entrepreneurship and Innovation, faculty and student recruitment, and educational model. In 2016 – 2020, the strategy targeted a rapid expansion in all dimensions. Skoltech shaped excellent research groups and a solid educational portfolio, attracting thousands of applicants from Russia and the world. Rich learning experiences formed a pipeline of skilled graduates employed in high-tech companies or continuing for PhD in top universities. Sponsored research expanded significantly along with network of collaborators in academia and high-tech business.

Connecting with the previous success, the Strategy 2021 – 2025 outlines the vision for sustainable development and commitments to excellence. Strong aspirations are stated for the leadership – reputation of a world-class research and education center, status of a preferred and reliable partner for government and high-tech companies in technology development. These aspirations could not be achieved without internal commitment of Skoltech community to excellence and environment, supportive for performance and growth.

The strategy was approved in 2020 with minor adjustments in 2021. Challenging years of 2022 and 2023 brought geopolitical and economic tensions, raising the need to revise the intended timeline and strategic initiatives. Still, although the present edition is developed against considerable uncertainties and ongoing geopolitical instability, it clearly articulates Skoltech commitments to the initial vision and strategic intention.

The revision covers the composition of strategic initiatives, making a stronger focus on measures for advancing the educational offer and student digital experiences, personnel support, and development. We also target new technology excellence areas, aligned with the national priorities. Additional measures are introduced in the entrepreneurship and innovation domain, to evolve a pipeline of deep-tech startups and value of IP portfolio. The campus development program is extended, both in organizing new spaces and services to make the environment favorable. From the point of strategy organization, each initiative is specified as a set of programs with target indicators for measuring success.

[1] Center for Research, Education and Innovation.

# Mission

## Our Mission – Why We Are

Skoltech facilitates economy and society development by academic excellence, technology design, and entrepreneurial spirit.



# Vision

## Our Vision – What are Our Aspirations

Skoltech is a new model international graduate university with the vision to be one of the best science and technology universities in Russia and the world, renowned for excellence and impact. This vision is grounded on a fusion of aspirations.

Skoltech pursues research and in-demand technology development in advanced areas of crucial importance for Russia and the world. The organizational model supports both curiosity-driven and problem-driven research that brings excellent scientific results, novelty and impact to the economy and society.

Skoltech is a pioneering forward-looking university. Our professors, researchers, engineers, and staff constantly search and pilot new approaches, models and practices. This requires high qualification, commitment to professional development, speed and willingness to work at frontiers, taking new opportunities and new challenges.

Skoltech distinguishing feature is entrepreneurship and innovation. Born as a Triple Helix university, Skoltech weaves innovation into research and education, supporting entrepreneurial spirit and problem solvers, willing to explore, launch and develop new solutions.

Skoltech is open to the world, attracting international students and scholars, exploring supporting and launching partnerships globally.

# Context





Twelve years after foundation, Skoltech is well-positioned in the national and international landscape, staying committed to the mission and vision.

Skoltech is an intellectual core of the national system of institutes of development coordinated by the VEB.RF. As a research and technology 'task force', the Institute brings together strong teams to pursue both problem-driven and curiosity-driven research, develop and implement new technologies.

Skoltech encompasses a broad span of topics in Artificial Intelligence, Life Sciences and Agro, Advanced Engineering and Materials, Energy Efficiency and Energy Transition, Photonics, Quantum Technologies and Telecommunications, Advanced Studies. Keeping leadership in the Nature Index and Research.com rankings for several years in a row, Skoltech has gained the international reputation.

Offering a high-quality education, Skoltech is attractive for thousands of students from Russia and abroad. The holistic educational model proved success in training leaders capable to think and act globally – and make difference. Today, two thousand alumni are advancing career in top high-tech companies and research institutions.

Leveraging excellent expertise, strong connections have been established to high-tech industry and government policy makers. Being a trusted advanced knowledge partner, Skoltech provides technological expertise on national science and technology concepts and roadmaps.

As the central part of the Skolkovo Innovation Center, Skoltech continues to contribute to its development. Besides being a pipeline of startups, Skoltech is committed to beneficial partnership with Skolkovo Gymnasium, where faculty and researchers share knowledge on global trends, also bringing their kids to community. New partnership is evolving with Skolka.

On top of research and technology results, Skoltech delivers a program for wider community through open lectures and programs, hands-on classes, and site tours.

Today, Skoltech has all capacities to go further in all avenues. In strategy implementation, Skoltech relies on engagement and commitment of the community, teams, and individuals, as well as stakeholders – governmental authorities, Founders, Trustees, business, and academia partners.

In planning the strategy in 2020, the SWOT-analysis was made to set strategic questions and define the strategy sketch. Today, Skoltech keeps the strengths, addresses opportunities and weaknesses, while the threats are becoming much more challenging.

# SWOT

## Strengths

Highly qualified personnel, multi-cultural English-speaking environment

Strong publication record, international recognition[2]

Favorable teaching and learning environment, strong students

Solid technology expertise and reputation in certain areas

Excellent campus recognized with international award

## Weaknesses

SDN sanctions

Disunity of purpose and commitment

Thin faculty in certain areas, weak focus on entrepreneurship and engineering projects, limited capacities for task forces

Business processes, bureaucracy

Absence of own dormitory and comprehensive sports facilities

## Opportunities

Growing state and business demand for technology development

Growing need for development of universities in RF regions and regions at large, programs of institutes of development

Wider involvement of Founders and Trustees in capacity building

Contribution of time, talent, and treasure of alumni

Digital trends

## Threats

Growing capabilities of competitors for attracting talents

Limited employment in Russia for certain specializations, brain drain

Changes in state regulations, economy, decrease of federal funding

Geopolitical tensions

[2] Rankings of Nature Index (2019, 2021), Research.com (2021, 2022).



In the complex and volatile environment, several trends are considered as influencers on the context and scope of strategic initiatives.

### Volatility of Human Capital

A high human capital volatility is ongoing and the outlook for positive changes remains vague. The HR agenda will be further dominated with personnel retention along with building capacities to respond, change and adapt. Limited recruitment is in place, especially in attracting students and specialists from the EU and USA.

### Fragmented International Cooperation

Growing fragmentation in the international agenda is influencing governmental and institutional levels, raising necessity to revisit vectors of cooperation.
Alternatives to the losses of channels with international research equipment manufacturers should be found.

### National Technology Agenda

Federal funding is allocated predominantly for projects in areas of the national technology sovereignty: Artificial Intelligence, Advanced Materials, and other directions.
Large companies continue revisiting investment budgets, highlighting projects ending up with products, or targeting high technology readiness level (TRL), to fill the gaps in technologies, materials, and equipment under sanctions. Participation in such projects will require a solid expertise, at the same time in certain areas Skoltech has just started capacity building.

### Educational Landscape

The educational landscape is becoming more competitive. Universities conduct aggressive recruitment campaigns, providing students and scholars attractive offers along with well-set research infrastructure. The pool of competitors is expanded with IT and engineering companies, targeting tech talents with short-term programs and job offers.
New opportunities are observed in professional education, being traditionally strong in executive programs. National high-tech companies demonstrate a steady demand for programs in Engineering and technology intense areas to advance skills and knowledge demanded today.

### Funding

In the current standing of the national economy, there is a risk of decrease in funding from all sources. The strategy implementation and aspirations to expand the campus infrastructure require to broaden and diversify the financial base.  Skoltech plans raising additional funding from high-tech companies and projects in RF regions. At the same time, Skoltech relies on stability of the federal subsidy, which remains the primary source of funding.

# Strategy
# 2021 – 2025

# Goals and Outcome

The core principle of Skoltech strategy is Excellence making impact. Four overarching strategic goals define the overall scope of activities and serve to further structure initiatives, put enablers in place, define priority actions, allocate resources, and measure success.

01 / Push knowledge frontiers in six target domains

02 / Impact on national economy with research, new technologies and enterprises

03 / Educate leaders, being the 1st choice international university in Russia

04 / Cultivate supportive environment for excellent performance and growth of talents

The outcome of the strategy is associated with strategic goals.
Below is the summary of accumulative results to be achieved.

## World-class research

First, as **a world-class academic institute**, Skoltech will advance knowledge in the chosen target domains. Being embedded in frontier research collaborations, both with international and national partners, Skoltech will ensure presence in the most reputable scientific journals (top-10% Scimago journal rank respective subject categories) and top conferences in the Artificial Intelligence (A*). In total, at least 1500 papers are expected during five years. It is also important to keep presence in top-100 young world universities ranking of Nature Index. On the national level, the system for awarding Skoltech degrees (Doctor of Philosophy / Doctor of Science) will be established: at least 100 of young career scholars will be awarded with well-respected and recognized degrees.

## Technology design

Second, as a **technology focused institute**, Skoltech will enlarge the presence in the national agenda, playing a key role in at least five governmental technology programs in the priority technology areas, while the portfolio of R&D projects will reach 10 Bln Rub in total. The five years impact on the national economy[3] will reach 100 Bln Rub, including contribution of 95 new enterprises, and thus new products, services, and jobs, created by Skoltech scholars, engineers, students, and alumni.

## 1st choice university in Russia

Third, as **the 1st choice university in Russia**, Skoltech will offer a distinct and highly competitive educational offer in most promising areas, reaching the 95% ratio of accepted offers. The offer will be enriched with at least two BSc programs, 'startup as diploma' and '2+3 PhD' tracks. 1700 top level graduates will be educated, showing high employment rate after graduation (at least 95% in 4 months after graduation). At least 70% will be employed in the national R&D sector, including employment in such demanded areas as AI, Advanced Materials and Engineering, Photonics, Energy, Oil and Gas. On top, Skoltech will become a key provider of tailored programs for middle and top management of Russian high-tech companies, raising up to 100 mln. Rub annually.

## Supportive environment

Forth, as **the university providing supportive environment** for excellent performance and talent development, Skoltech will shape the employer's brand, which is a must for strong positioning among professionals and ambitious talents. Growing retention rate and personnel satisfaction index, as well as a growing interest to open calls will indicate success of the people strategy.

Last but not least, success of the strategy is also seen in stakeholders and government support to secure funding and other resources for development. Skoltech results and open communication channels are prerequisites and commitments of the executive management, so that stakeholders become the ambassadors of Skoltech brand.

[3] Measured based on the methodology developed by the New Economic School.

# Key Indicators

| Indicator | Target (cumulative result 2021–2025) |
|---|---|
| Papers in prestigious international journals and conferences | 1500 |
| Skoltech economy, Bln Rub | >100 |
| Skoltech affiliated startups | 95 |
| Graduates | 1700 ± 5% |
| Graduates, employed in national R&D sector | 70% |





## KPI Methodology

| | |
|---|---|
| **Papers in prestigious international journals and conferences** | Skoltech affiliated papers published in top-10% of journals in respective subject categories (SJR) and conference papers in AI conferences of A* class. |
| **Skoltech economy**[4] | **Core impact**<br>• Direct effect (Income minus expenditure on suppliers)<br>• Suppliers effect (Including value chains in industries - multiplier effect)<br>• Staff spending effect (Consumption plus its effects on adjacent industries) Students spending effect (Consumption plus its effects on adjacent industries)<br><br>**Graduate premium**<br>Increase in earnings due to Skoltech degree for all graduates currently working in Russia<br><br>**Commercialization**<br>• Licenses<br>• Research contracts<br>• Professional programs<br><br>**Startups**<br>Value added by startups |
| **Skoltech affiliated startups** | Startups founded by Skoltech personnel, students, or alumni (1) with a status of Skolkovo residency, or (2) startups received support from national institutes for development. |
| **Graduates** | Number of MSc and PhD graduates |
| **Graduates employed in national R&D sector** | % of graduates, (i) employed in high tech companies or research institutions in Russia, (ii) established startups in Russia, or (iii) continue for PhD at Skoltech or other Russian universities (priority fields of science and technology), to the total number graduates in the reporting year |

[4] Methodology developed by the New Economic School, Skoltech Founder, and a long-lasting partner.

# Target Size and Shape

The size and shape parameters define a profile of academic personnel, students and graduates, research and technology structure, as well as basic concepts of Skoltech model – centers, and educational programs.
Skoltech is a small university by design, so the target size and shape for 2025 support this model. In light of global uncertainties and challenges emerged with sanctions, a moderate growth is foreseen to concentrate on keeping quality and filling gaps due to losses in 2022.

| Parameter | 2023 | 2025 |
|---|---|---|
| Target Domains | 6 | 6 |
| CREIs | 10 | 10 |
| Project Centers | 5 | 5 |
| BSc, MSc, PhD programs | 23 | 28 |
| Professional programs | 20 | 30 |

| Parameter | 2023 | 2025 |
|---|---|---|
| Faculty | 130 | 150 |
| Researchers and engineers | 700 | 800 |
| Students | 1100 | 1200 |
| Annual graduation | 340 | 340 |
| MSc and PhD alumni (all years, 2015 – 2025) | 2000 | 2700 |

## Target Domains

Skoltech will continue to strengthen the academic and technology profile in six target domains, which are strategic areas for research, technology, innovation, and education. In light of the revision of research and technology agenda[5], the mix of target domains will be kept.

| | | |
|---|---|---|
| Artificial Intelligence | Advanced Materials and Engineering | Telecommunications, Photonics and Quantum Technologies |
| Life Sciences, Agro | Energy Efficiency and Energy Transition | Advanced Studies |

[5] In 2021 Skoltech completed transformation inside domains resulted in the new mix of CREIs and Project Centers.

# Target Domains and Centers

## Artificial Intelligence

**AI CENTER**

- Computational Intelligence
- Tensor Networks & Deep Learning
- Mobile Robotics
- Computer Vision
- Natural Language Processing
- Computational Imaging
- Intelligent Signal and Image Processing
- Multiscale Neurodynamics for Intelligent Systems
- Mathematical Foundations of AI
- AI & Supercomputing
- Quantum algorithms for machine learning and optimisation
- AI for Materials Design

**APPLIED AI CENTER**

- Generative Artificial Intelligence and Probabilistic Modeling
- Topological Data Analysis and Manifold Learning
- Multi-modal Transformers (MMT) and MMT based agent systems
- Physics-informed machine learning (PIML)
- DS in remote sensing and data fusion
- Geometric and Visual Computing, 3D shape modeling and reconstruction
- AI and DS in biomedicine and neuroscience
- Financial risks caused by climate changes

## Life Sciences & Health, Agro

**BIO CENTER**

- Microbiology
- Metagenomics
- Functional and evolutionary virology, antiviral drugs
- Transcriptomics
- Cell Biology
- Genetically encoded fluorescent probes: engineering and application in biomedical models
- Immunology — Adaptive immunity
- Plant biology
- Genetics and Evolution

**NEURO CENTER**

- Brain-computer interfaces
- Brain metabolism
- Biomaterials
- Small molecules
- Computational neurobiology
- Computational neuroimaging
- Cognitive Neuroscience

**AGRO CENTER**

- Envirotyping and Digitalization of Agriculture
- Crop improvement
- Livestock improvement
- Agrotransformation: aerobic and anaerobic fermentation for the feed and food industry

## Advanced Engineering, Materials

**DIGITAL ENGINEERING CENTER**

- Product Development and Systems engineering
- Systems Modeling
- Robotics
- Space Systems

**PETROLEUM CENTER**

- Unconventional and hard-to-recover reservoir characterization (geophysics, petrophysics, geochemistry, digital core, geothermics and other)
- Geomechanics (experiment and mathematical modeling)
- Enhanced hydrocarbon recovery (gas, chemical, thermal methods)
- Geological, hydrodynamics, geomechanics and coupled reservoir modeling
- Applied Artificial Intelligence
- Geocryology (permafrost and gas hydrate bearing reservoirs)
- Environmental science, geological risks, climate changes and energy transition

**MATERIALS CENTER**

- Large-sized structures of polymer composite materials for the transport infrastructure of the Arctic zone
- Coating technology for nuclear waste management
- Additive manufacturing of implants for translation into clinical practice

## Energy Efficiency and Energy Transition

**ENERGY CENTER**

- Electrochemical Energy Storage Electrochemical Energy Conversion
- Smart Energy Grids: Systems and Devices
- Sustainable Low-Carbon Energy Systems
- Artificial Intelligence in Energy

**ENERGY TRANSITION CENTER**

- Carbon Capture, Utilization and Storage
- Decarbonization of industry
- ESG Risks Assessment in Economy
- AI for ESG applications

## Telecom-munications, Photonics and Quantum Technologies

**PHOTONIC SCIENCE AND ENGINEERING**

- Biophotonics
- Liquid Light Computing
- Nanomaterials

**PHYSICS CENTER**

- Plasmonics and nanophotonics
- Superconducting Materials for Quantum Metrology
- Advanced electronics devices

**APPLIED PHOTONICS CENTER**

- Photonic Integration Research Lab
- Time and Frequency Lab
- Advanced Instrumental Technologies

**WIRELESS CENTER**

- 5G development
- Advances wireless technology perspective studies for 5GA/6G

## Advanced Studies

**KRICHEVER CENTER**

- Algebraic and complex geometry
- Lie theory and generalizations
- Dynamical systems and differential equations
- Mathematical physics
- Probability and statistics
- Combinatorics and discrete mathematics
- Integrable Models
- Topology

**Center for Research, Education and Innovation**

**Project Center**

**Center**

## Center for Research, Education and Innovation (CREI)

The CREI is the core driver to lead a strategic five years program in research, education, and innovation. The basic CREI concept defined at Skoltech establishment will be maintained. The CREI has a ‘critical mass’ and sufficient size of faculty and researchers to attain leadership in the chosen field(s). The CREI has a broad agenda to deliver own BSc, MSc, or PhD program. CREI faculty are united by the educational program(s), while research interests can vary significantly. The CREI transfers knowledge and solutions to high-tech companies and society.

## Project Center

The Project Center is established to address a specific technology task in the area(s) of potential breakthrough and technology scaling. Faculty and staff are united by the applied task(s), while involvement in education is an option. The Project Center targets technology solutions with high TRL (6 and more), impacting on the national economy.

## Educational Program

Aligned with the target domains, programs blend fundamental knowledge with hands-on research, applications, and entrepreneurship, both hard- and soft-skills. The strategic priority is to ensure continuous improvement of programs, accounting for expectations of students, industry, trends on the market and global science and technology. New tracks and programs will be launched considering relevance, resources availability, demand for graduates, strong partners, involved in program design and delivery.





## Faculty and Researchers

The highest international standards in faculty recruitment and appointment allowed to shape the core personnel in many centers. In light of the strategic goal to concentrate on applied tasks and technology design, faculty appointment will be more focused. While in 2021 – 2023 Skoltech had limited recruitment, starting from 2024 wider calls for faculty and researchers will be in place.
The baseline share of international faculty is ~20%, while a share for full-time faculty is 90%. In terms of research personnel, 65% of junior personnel is foreseen. New positions will be opened through calls, also financed from external grants.

## Students, Graduates, Alumni

Given projections for state funding, annual student intake will not grow (450 MSc and PhD students). The pilot BSc cohort joins Skoltech in 2023 and 2024 under programs with partner universities. Skoltech faculty will serve a key role in sharing cutting-edge knowledge and immersing students into real life projects.
The cohort is kept as 1100-1200 students to maintain a favorable student-to-faculty ratio, which is in turn, contributes to high quality research, teaching and learning.
The baseline share of internationals is ~20%, while PhD students will compose 45% of the cohort.
Annual graduation is expected as 340 MSc and PhD students. Although Skoltech graduates, irrespective of the chosen career track, demonstrate 95% success in employment right after graduation, more efforts will be invested to grow a share of entrepreneurs, targeting 15%.

# Implementation

The strategy is structured per initiatives, while each initiative is composed of programs, which are specific actions to choices and decisions made. We also describe enablers which are prerequisites to achieve the strategic goals.

The basic timeline has two phases. Phase one (2021 – 2023) is a significant advancement of lab construction, relocation of the centers to the permanent campus, reconfiguration of research and technology agenda, piloting a baccalaureate. In phase two (2024 – 2025) Skoltech expands the baccalaureate, gains a reputation of the best STEM university for talents in Russia, while the impact on the national economy reaches 100 Bln Rub.

The strategy is managed by the governing bodies, President, strategy working group, and leads, assigned to each initiative and program. The Board of Trustees oversees the overall progress and KPIs, while the Academic Council addresses progress of the centers' programs. The President ensures control of core activities, while the strategy working group sets annual targets and priorities for budgeting. The leads will be responsible for operational targets and actions inside strategic initiatives, involving respective teams.

People and, specifically, teams have crucial importance for the strategy and Skoltech successful standing at large. Project teams or 'task forces' drive technology development, while research teams address problems influencing global challenges. Startup teams of students, faculty and researchers are driving entrepreneurial spirit. Cross-functional teams of administration lead design and implementation of solutions on improving organizational and operational capacities.

Considering 'lessons learned' from the previous experience as well as recent context that showed how dramatically the initial targets can be changed, more attention is paid to planning. Annual targets, responsibilities and resources will be in place for each strategic initiative. Simultaneously, more inclusive management culture will be nurtured through cross-functional sessions and 'heads up' meetings.

# Strategic Initiatives

Position Skoltech globally as a world-class academic institution by pushing knowledge boundaries in the target domains

# 1 World-class Research


| | | |
|---|---|---|
| 1.1 | Centers' Research Programs | 35 |
| 1.2 | Visiting Scholars Program | 35 |
| 1.3 | Internal Grant Program | 37 |
| 1.4 | Skoltech Scientific Degree | 37 |
| 1.5 | Strategic Academic Partnerships | 38 |
| 1.6 | Sponsored Research Support | 38 |
| 1.7 | Research Facilities | 39 |

A world-class research center means impact and excellence on the global scale. This requires a critical mass of outstanding scholars, brightest and motivated students, state-of-the-art facilities, supportive governance, and financial sustainability. A significant progress was made over last years for setting world-class centers and a rich network of academic partners which played an important role in Skoltech accomplishments. Skoltech research excellence is reflected in top positions in international rankings, and reputable awards of scholars.

Our ambition is to further grow a strong research profile and reputation of a world-class center. In the context of restrictions and sanctions, which influenced partnerships, faculty leaves and recruitment, operations of research facilities, our primary goal is not only compensate losses, but further advance the intellectual international environment which is Skoltech distinct feature.



| Metrics of progress | Target set for year 2025 |
|---|---|
| Nature Index, A* papers | 150 |
| Papers in Q1 journals | 65% |
| Papers with international co-authors | 60% |
| Visiting scholars | 10 |
| New Skoltech internal grants awarded in a year | 10 |
| Active portfolio of academic partnerships | 20 |
| Scholars awarded with Skoltech Scientific Degree (cum.) | 100 |
| External grants (active portfolio sum) (Bln. Rub) | > 1.0 |

/ 1.1 /

## Centers' Research Programs

Objective: maintain a distinctive research portfolio to position Skoltech as a world-class academic institution

Skoltech research agenda is structured around six target domains, defined collectively, and considered as important frontiers for advancement. The mix of domains is designed to build a critical mass around the chosen topics, position and showcase Skoltech to external audience.

Research aspirations of the centers are formulated in respective programs. In 2023, the centers completed a revision of programs for 2023 – 2025, presenting proposals to the Academic Council. Each program defines research priorities, core laboratories or groups involved, target contribution reflected in impactful papers, sponsored research commitments, international collaborations, and research projects. The assessment of programs is made annually by the Academic Council. The comprehensive review of the domains and research agenda is made once per 4 years, and is planned for 2025.

**Metrics**

metrics set in programs (grant funding, publication output).

/ 1.2 /

## Visiting Scholars Program

Objective: enrich research environment through a visiting program targeting scholars from top universities and research centers

Considering geopolitical tensions and restrictions in the global market, investments will be made in a visiting program for faculty and researchers. The program is viewed as a source of high-quality scholars, coming to Skoltech to strengthen R&D groups, bring new topics and lay a basis for joint projects and new partnerships in the fields of centers' specialization. Visiting scholars will also enrich educational programs with new courses and projects. On top, visitors will contribute to Skoltech brand development making it more attractive for scholars and students.

**Metrics**

visiting scholars per year, joint papers, contribution to education programs, participation in R&D projects.

## / 1.3 /

### Internal Grant Program

Objective: stimulate impactful research through new projects and collaborative initiatives both inside Skoltech and with external partners

The internal grant program will be in place as a comprehensive portfolio of opportunities for individual researchers, collaborative groups, support for early career scholars, as well as support for publications in prestigious journals and participation in high level conferences. The selection of proposals will be made through internal review, also involving the Research and Innovation Committee. Relevant guidelines will be designed and approved in 2023 to bring the program into operations in 2024.

Open calls and research excellence programs will be organized to shape and nurture initiatives with national and international partners. The targeted scope of partnerships is viewed in projects, where each party provides funding for a respective team, nurturing academic exchange among researchers and students. Selection of projects will be made through open calls and a peer-review, involving experts representing partners.

**Metrics**

grant funding, grants awarded, research metrics (publications), interdisciplinary projects and problem-driven projects supported.

## / 1.4 /

### Skoltech Scientific Degree

Objective: advance research reputation through awarding the highest academic degrees of Skoltech (Doctor of Philosophy / Doctor of Science). Expand the number of early career researchers awarded with Degree

Research reputation is measured not only with quality of publications, grant support and a network of partners, but also prestige of scientific degree awarded for impactful research. Skoltech right to autonomously award academic degrees of Doctor of Philosophy / Doctor of Science, granted recently, will be piloted in 2023. These degrees will be recognized in Russia, that, in turn, will allow young researchers who get Skoltech academic degree to compete in calls of the national grant agencies. Relevant policies and procedures have been designed and will start working in 2023, along with forming award committees in respective fields. The degree will be promoted to Skoltech PhD students and external candidates to form a pipeline of early career researchers. Doctor of Science Degree will be promoted to Skoltech junior faculty.

**Metrics**

degrees awarded in 2023–2025, scientific fields for which Skoltech may awards academic degrees, external applicants for Skoltech degree.

/ 1.5 /

## Strategic Academic Partnerships

Objective: expand strategic partnerships, nationally and internationally, focusing on mutually beneficial formats and new regions

As the university open to the world, Skoltech values partnerships and collaborations that enhance impactful research, which in turn, broadens knowledge and capacities. Skoltech will continue to be selective and purposeful in setting collaborations. The scale and impact of partnerships will be prioritized by joint laboratories and research initiatives, joint grant applications, academic exchange, co-organization of prestigious conferences, opportunities for students' co-supervision. New international vectors are foreseen in China, India, United Arabic Emirates, regions of BRICS and MENA, Southeast Asia. The other beneficial line of collaborations will include promotion of opportunities to participate in national large programs, e.g. mega grants, to international peers.

**Metrics**

active portfolio of strategic partners, joint papers, joint projects.

/ 1.6 /

## Sponsored Research Support

Objective: ensure quality and efficient support for organizing participation of scholars in external and internal grants

Skoltech research is supported with substantial grant funding, which is presented with more than 100 projects with >1.0 bln Rub funding. Further expansion of grants, also through participation in large programs (e.g. megagrants) will stay on the agenda along with targeting a higher success rate for proposals awards.
The training program for young scholars on grant proposals will be organized involving faculty experienced in both, grant awards and peer review. Continuous operational support will be improved towards a service-oriented approach, which will include reducing administrative burden so that PIs can concentrate more on research. Grant administration processes will be reviewed to identify areas for improvement. Information support with advance notices on future calls, both external and internal, will be circulated to academic community on a regular basis along with individual consultations provided by the Research Initiatives Support team.

**Metrics**

active portfolio of grants, % of applications awarded, effective administration of large grant projects with funding of >25 mln Rub per year.

/ 1.7 /

## Research Facilities

Objective: evolve research infrastructure to support programs across domains, ensuring quality and efficiency of facilities operations

Research excellence requires exceptional facilities. As of today, Skoltech has many top-notch facilities and equipment items. The primary focus lies in maintaining facilities running at the highest standards in spite of international restrictions. To achieve this, facilities' core personnel – shall be retained and supported. To ensure smooth operations of equipment, the Service Facility is established to diagnose, maintain, and repair equipment, provide support to Skoltech engineering personnel.

The research infrastructure will be further developed. New markets of high-tech equipment shall be discovered providing alternatives to solutions, no longer available due to restrictions. Activities on establishing joint laboratories with national and international partners shall incorporate the concept of distributed shared facilities, providing transparent access to services for all partners.

The completion of the multi-year research infrastructure program remains the highest priority. Extension of the program is planned in strategic areas and will be financed mainly from the federal subsidy. At the same time, to ensure equipment acquisition for new laboratory spaces, a program of equipment purchase reflecting priorities across the strategic areas shall be developed. This will include a set of cases with required equipment list, corresponding portfolio of projects, budget estimates and expected outcomes. Examples of such cases are Photonics, Bio and Agro technologies, Advanced Materials. These shall evolve in line with the strategy.

**Metrics**

load of equipment, external contract funding, total equipment in management, new equipment brought into operations.

Generate economic impact
through leadership
in technology initiatives and
industrial projects

# 2 Impact on Technologies Development


| | | |
|---|---|---|
| 2.1 | Centers' Technology Programs | 43 |
| 2.2 | 'Seed' Program for Technology Projects | 45 |
| 2.3 | Science and Technology Advising | 45 |

Skoltech has established a strong position in certain intense technology areas, contributing to national research, education, and innovation capacities. The examples of such areas include Artificial Intelligence, 4G / 5G technologies, Hydrocarbon Recovery, New Materials, Photonics, Energy Storage, Agro.

The research and technology expertise will be delivered through R&D projects and technology transfer, advising on strategic national concepts, membership in working groups, analytical reviews, and reports to the governmental policy makers.

| Metrics of progress | Target set for year 2025 |
|---|---|
| Annual R&D funding (Bln Rub) | 2.0 |
| New technology programs launched with Skoltech participation (unit) | 2 |





/ 2.1 /

## Centers' Technology Programs

Objective: conduct programs aiming at technology design and implementation, a strong role in governmental initiatives and industry funded programs

Areas of technology excellence are defined where Skoltech will become the best in Russia source of technology expertise:

The centers' technology programs will shape Skoltech a 'partner of choice' reputation, leading positions in the chosen technology areas, involvement in setting and conducting large programs, also in support of the government and industry, nurturing engineering culture along with research.

| Energy Storage Technologies | Photonics-related Technologies | AI and emerging Digital Technologies | Arctic-related Technologies |
|---|---|---|---|
| New Construction Materials | Hydrocarbon Recovery | Technologies for civil space / unmanned aircraft systems | Agro Technologies |

**Metrics**

indicators in Centers' programs (technology design, testing and scaling, technology transfer, R&D funding).

/ 2.2 /

## ‘Seed’ Program for Technology Projects

Objective: establish a mechanism to support new technology driven initiatives

The ‘Seed’ funding program will be launched as the institute wide mechanism to invest in promising projects or initiatives with high potential to the national economy. The program will address target technology areas (refer to 2.1.), providing funding for R&D projects (TRL >4), new R&D laboratories, also with industry partners, as well as for kick-off of new project centers. The decisions on allocating funding will be made by the strategy working group, considering recommendations of the Research and Innovation Committee. The baseline criteria for allocating funding will reflect targeted TRL, novelty of technology, evidences for potential commercialization, confirmed interest from stakeholders.

**Metrics**

number of projects supported.

/ 2.3 /

## Science and Technology Advising

Objective: become a trusted source of expertise for government and industry in areas that address priorities of national technology development

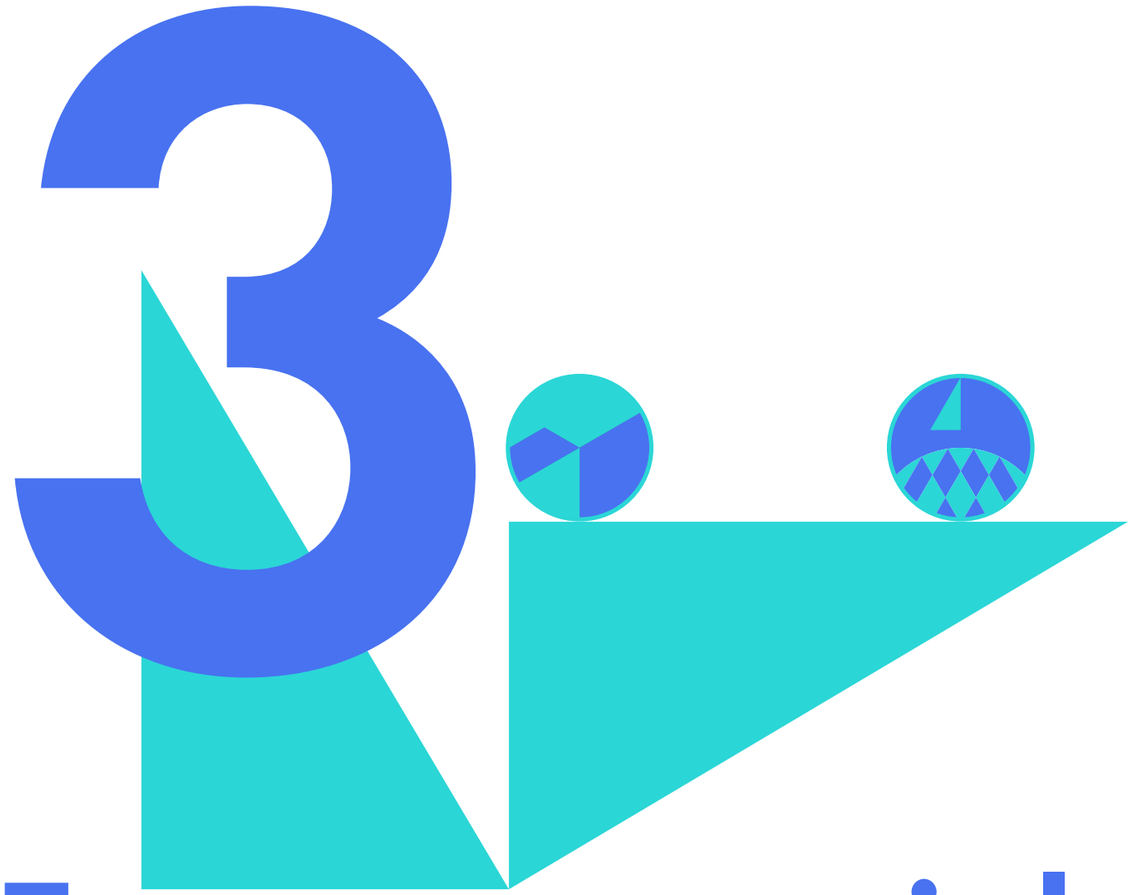
Skoltech will continue to support development of governmental initiatives (programs, projects, roadmaps, etc.), first of all, in the fields of technology sovereignty. This involvement will be conducted through the following formats:

- analytical support in development and implementation of federal initiatives in science and technology area based on analysis of global trends and national standing in the field,
- direct involvement in the initiatives, e.g. defining and attracting R&D teams, including for complex nature projects, e.g. addressing cross-cut technologies,
- leading technological cooperation with universities and high-tech companies, to develop and implement initiatives, including industry-specific ones.

Also, Skoltech will advise high-tech companies, peer universities and RF regions in developing and implementing complex initiatives involving technology rich components.

**Metrics**

advisory boards / working groups involved in planning large science and technology programs (federal projects) with Skoltech presence.



# Entrepreneurial Readiness and Spirit

**Nurture Skoltech innovation ecosystem through programs and incentives that evolve a pipeline of deep-tech startups, increase value of IP portfolio, expand business development opportunities**


| | | |
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| 3.1 | Education for Future Entrepreneurs | 50 |
| 3.2 | Skoltech startup-club | 51 |
| 3.3 | Translational Research Program | 51 |
| 3.4 | IP Portfolio Management | 52 |
| 3.5 | Skoltech Startups | 53 |

Entrepreneurship and innovation are embedded in Skoltech mission and model. As of today, the portfolio of startups is comprised of hundreds of enterprises, the majority of which are the so called 'core startups'[6], while IP portfolio exceeds 150 patents, copyrights, and trademarks. Both core startups and IP are treated as independent projects with defined valuation, approved commercialization approach, and the strategy to create a complex product and develop a new market niche.

Cultivation of entrepreneurship culture and spirit, on top of research and education, requires a comprehensive and operational portfolio of tools and activities. Thus, Skoltech will maintain entrepreneurship scholarships, incubation and mentoring programs, translational research grants, generous royalty/proceeds-sharing policy for inventors, clearance of a Skoltech affiliate conflict of interest towards founding startups and investing work time into development.

The preferred commercialization model will be grounded on licensing IP to core startups that are expected to develop business while increasing royalties to Skoltech from IP licensed. Upon reaching maturity and achieving market success, such a startup will provide ample fair distribution of monetary incentives/compensation to both Skoltech and its affiliates.

To make the model viable, three strategic choices are made:

- IP licensing is heavily preferred to the outright sale of IP. Outright sale will be avoided at any cost, because it does not allow fair valuation of IP asset, as well as stonewall Skoltech from fair profit sharing.

a) The key model of Skoltech IP licensing will comprise modest cost-based upfront payments followed up by fair royalty payments. The higher is affiliation of the startup to Skoltech, the more lenient will be licensing conditions. The best deals will be given to core startups, founded by Skoltech affiliates and earned residence in Skolkovo. Less favorable deals will be given to startups founded by Skoltech affiliates, but have chosen not to become Skolkovo residents.

b) Outright sale of IP will be done only based on ambitious valuation that accounts optimistic future cash flow. Alternatively, swap (exchange) of IP for the startup equity share may be considered to ensure fair long-term profit sharing. The deal conditions leniency will depend on the level of startup affiliation to Skoltech. The most complicated cases will be resolved by the Valuation Committee.

- Skoltech makes the choice towards participation in startups through IP licensing, rather than owning equity shares due to potential conflicts of interest for Skoltech affiliates and employees. Still, owning and purchasing equity in startups is not fully excluded and will become beneficial in rare cases of financially sound offers from startups that would like to swap equity shares in exchange of either use of Skoltech assets (e.g. equipment or lab spaces), or would license valued IP.

- Skoltech will provide clearance of conflict of interest to affiliates who decide to found core startups. This decision is tricky, because a Skoltech affiliate who starts working for own startup, obviously will decrease involvement in research and development. Still, clearances will be given after a careful analysis of all related covenants that will make sure that only IP created by the independent startup team is filed at the startup, while IP created at Skoltech is filed at Skoltech.

| Metrics of progress | Target set for year 2025 |
|---|---|
| 'Startup' as diploma: theses defended | 15 |
| IW projects to go to next stage of funnel | 20 |
| core Skoltech startups (cum.) | 150 |
| IP portfolio active | >150 |
| Translational research grants awarded | 10 |
| Revenue from licensing (mln Rub) | 50 |
| Revenue of all Skoltech affiliated startups (Bln Rub) | 2.0 |

[6] Technology-based business enterprises founded by Skoltech affiliates (faculty, students, alumni, researchers) and successfully passed independent expertise for technological commercialization potential (two most applicable expertise bodies are Skolkovo Foundation and FASIE (Bortnik Foundation).

## / 3.1 /

### Education for Future Entrepreneurs

Objective: evolve the entrepreneurship educational program with new elements to develop skills and attitudes to lead innovation, launch 'startup as diploma' track

The entrepreneurship curriculum is based on the principles installed by the MIT founding team:

- curriculum is less about knowledge, and more about skills and attitudes to lead innovation. This is about 'can-do' attitude to cultivate capabilities of prototyping quickly, under pressure, in teams, and based on resources available here and now.
- the main teaching method lies in experiential inquiry-based learning actualized through project-based courses that lead the whole technology innovation cycle: (i) Impact (Problem + Feedback), (ii) Novelty of solution (Science + Prototype), and (iii) Vision for subsequent iterations (Next Steps + Picture of Success).
- curriculum starts with foundational courses and culminates with project-based courses in areas aligned with target domains.

The program will be expanded in two dimensions: the 'startup as diploma' track and scaling E&I teaching to BSc and professional education programs.

| | | |
|---|---|---|
| Current courses | **Kick-off** | Flagship Innovation Workshop to unite incoming MSc class in September |
| | **Follow up** | Courses on technology entrepreneurship, commercialization, business subjects, advanced prototypes in technological areas |
| | **Advancement** | Subject-specific E&I trainings (e.g. Nanomaterials, Blockchain, Biomedicine) |
| New elements | **Startup-as-diploma** | Track will expand the E&I component in MSc curriculum to facilitate establishment of student-faculty startups, and enrich Skoltech ecosystem |
| | **Scaling E&I teaching** | Project-based approaches in BSc programs, professional training, external and internal educational activities |

**Metrics**

new educational elements, 'startup as diploma' projects, projects to go from IW (next stages of funnel), anonymous students' feedback on E&I courses.

## / 3.2 /

### Skoltech startup-club

Objective: provide thrust, place and tools for Skoltech startup ecosystem development

Startup Club is an integral and must-have part of any innovation hub. Startup Club serves both as an ideation and inspiration engine, marketplace from ideas to services, also a pitch polishing tool, and as a business plan competition venue. Startup Club must boil with endless stream of presentations, discussions, networking events, competitions. Startup Club will supply Skoltech community with a deep and wide network of experts, mentors, investors, and professionals. The Triple Point competition of student projects is a solid foundation for Startup Club, but more works and angles will be added to create and maintain a truly turbulent and illustrious space.

**Metrics**

events with attendance >30 participants, startups affiliated with Club, students and external guests affiliated with Club, investors affiliated with Club.

## / 3.3 /

### Translational Research Program

Objective: expand portfolio of Skoltech startups that license Skoltech IP

Skoltech translational research and innovation program (STRIP) is crucial to bridge the gap between lab research and practical application in products or processes of interest to the industry. The compulsory requirement for STRIP projects is to reach a technology with TRL >4. Historically STRIP projects focused only on producing Skoltech IP. Later the emphasis shifted to producing startups based on technologies developed with STRIP support. Currently the emphasis shifts even further – to licensing STRIP-generated Skoltech IP by the STRIP-generated startup.

**Metrics**

patent applications, projects with TRL >4, patents licensed by Skoltech affiliated startups.

/ 3.4 /

## IP Portfolio Management

Objective: manage IP with emphasis on licensing IP to core startups

IP is the core tool of commercialization of deep-tech ideas and projects of Skoltech affiliates, allowing to protect inventor rights, providing a balanced system of monetary compensation, and actualizing early-stage projects in Skoltech ecosystem. The principal tool of Skoltech IP protection is a patent due to applicability towards most deep-tech inventions and flexibility in most business setups. Copyrights, trademarks, and commercial secrets are processed accordingly.

Along with regular processing of invention disclosures, management of assessment, valuation, filing, documenting, maintenance, and licensing, efforts will be made to support the target commercialization model: licensing IP to core startups that further move through the Startup Funnel.

**Metrics**

IP assets value total, growth of IP assets value per year, patents issued, IP licensed (mln Rub).



/ 3.5 /

## Skoltech Startups

Objective: evolve a pipeline of core startups through incubation and acceleration programs, expansion of business development support

Startups remain the core agent of Skoltech innovation ecosystem, because patents cannot be fairly valued without being embedded into the business model, while corporate R&D stonewalls Skoltech affiliates from both end users and business models. Startups provide optimal vehicles for financial Skoltech affiliates and Skoltech itself, as well as the engine of increasing licensed IP valuation.

Support and emphasis will be made for core startups, especially those that chose to license Skoltech IP. Still, Skoltech is proud of and finds itself to be affiliated with two more types of startups that cannot be defined as the core ones, but still demonstrate Skoltech achievements in startupping. The first type would be startups founded by Skoltech affiliates, but have chosen not to become Skolkovo residents. The second type would be startups not affiliated with Skoltech, but chose to license Skoltech IP.

Startup incubation will be made on faculty-student cross-functional and cross-disciplinary teams with embedded synergies. To support this process, a database of faculty research competences and innovation proposals will be designed. Proposals will be offered to students and external experts to establish cross-disciplinary / cross-functional teams.

Business development opportunities will be extended through partnerships with techno parks and innovation incubators along with setting collaborations in the new regions. The comprehensive Skoltech startups portfolio will be made as a marketing tool to showcase investment possibilities for potential stakeholders.

**Metrics**

core startups, investments attracted with support of business development.

# 4

# Graduate and Professional Education

## Evolve the educational offer of MSc, PhD, and professional programs into the best in Russia


| | | |
|---|---|---|
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| 4.2 | Program Delivery | 58 |
| 4.3 | Outreach and Recruitment | 60 |
| 4.4 | Professional Education for Technology Leaders | 61 |

The centerpiece of Skoltech unique educational offer is the integration of a broad variety of courses into coherent programs in cutting-edge areas of science and technology. This comes along with advanced training in entrepreneurship and innovation, industrial immersion program, participation in R&D projects in the centers.

Significant progress has been made towards design of a globally competitive program portfolio. Three PhD programs received international accreditation. At the same time, we evidence a strong advancement of the national universities, many of which increased quality of offers by attracting top faculty, delivery courses and programs in English, strong collaborations with key industry players, new campus facilities. The other trend is observed in a growing number of school students decide to choose college education rather than go to universities. This context requires to have a strong response to maintain the educational portfolio distinctive and competitive.

The pilot launch of professional training programs showed a high demand and further potential to grow. Efforts will be invested in further deployment of corporate and open program portfolio in the areas of Skoltech technology excellence.

| Metrics of progress | Target set for year 2025 |
|---|---|
| % of drop-offs per program (offers for admission) | <8% |
| quality of intake (e.g. diploma with honors) | 50% |
| Acceptance rate (per program) | <10% |
| CSI (quality of learning experiences) | 70% |
| Retention rate | 85% |
| Funding from professional programs (mln Rub) | 80-100 |
| Diplomas for professional programs issued | >200 |





## / 4.1 /

## Program Development

Objective: deliver attractive and distinctive MSc and PhD program portfolio which meets expectations of industry and brightest talents

To maintain the program portfolio competitive, Skoltech will conduct regular reviews of the program portfolio in addition to programs in terms of feasibility, market competitiveness, trends, resources, graduates' employment, and relevance to industry expectations.

Strategic management of the portfolio will be in place through a stronger role of the Educational Committee and introducing industrial 'accreditation'[7]: active involvement of industry in the strategic management of the program. The full-scale revision of the portfolio is scheduled for 2023.

New programs / tracks will be launched in emerging directions of Skoltech excellence, based on transparent procedures and criteria. The course catalogue will grow in parts of the entrepreneurship and innovation, applied courses and research seminars.

The new PhD framework '2+3' will be piloted to set individual study paths, allowing students to mix the best of MSc programs with exceptional opportunities for top level PhD research. Transition to Skoltech own educational standards is also planned, so that Skoltech could introduce new opportunities, such as 'startup project' as MSc thesis.

**Metrics**

industry partners, CSI (quality of learning experiences).

[7] For technology and engineering programs, industry partnership will include involvement in program design, review of curricula and learning outcomes, commitment to scholarships, industry immersion, placement. For more academic scope program, partnerships with top universities and research centers is expected.

/ 4.2 /

## Program Delivery

Objective: provide students and faculty with high quality teaching and learning experiences and support

Since Skoltech mission lies in educating future leaders in science, technology and business leaders, excellent experiences through all student learning journey is absolute priority. This requires knowing expectations of students and faculty, proactive advising and guidance on program delivery, methodological support. Regular program quality assurance process and reviews of respective policies will be in place to ensure that programs respond the highest standards. Other development areas include extension of supporting materials and guides for students.

The pool of partners for Industrial Immersion Program will be continuously diversified both with companies and with Skolkovo residents, including Skoltech startups, to contribute to shaping innovation culture. To align industry needs with a particular educational program and internship target outcomes, companies and projects will be selected in tight collaboration with the Centers.

The capacities of the library will be enriched, both in electronic databases, which becomes challenging due to restricted access to international sources, as well as spaces, to make them more welcoming and appealing for the community. A video production studio will be organized for students to allow creating professional content, while the exhibition area will showcase literature, textiles and art representing students' cultures. Also, a café is planned in response to community request.

**Metrics**

students pursuing startup project thesis, students pursuing integrated 2+3 PhD program, % graduates recommended to PhD/Candidate defense, CSI (quality of learning experiences), accumulative number of active companies in industrial immersion program, annual graduation.

/ 4.3 /

## Outreach and Recruitment

Objective: attract talents with strong background and potential to advance knowledge, motivation to succeed and commitment to studies at Skoltech

Skoltech strategic goal is to educate leaders who will demonstrate excellence and make impact in advanced fields of science and technology. Thus, quality of intake is the strategic priority.

The outreach and recruitment campaign will be expanded in audience coverage and a variety of digital and non-digital promotion channels. As a part of the value proposition, English preparatory courses will be available for applicants, considering a different level of language proficiency.

To enter the new regions (BRICS, ASEAN, MENA), wide outreach along with targeted fellowships and Global partners program will be launched, mostly in the peer model universities. Such approach will be piloted in at least three countries of interest, depending on the geopolitical context. Short-term visiting opportunities will be promoted to attract students from top international universities.

**Metrics**

indicators in the recruitment funnel, outreach events, % of international intake, % of last-minute drop-offs.



/ 4.4 /

## Professional Education for Technology Leaders

Objective: become a key provider of professional programs in advanced areas of science and technology

Recent shift to the economy of knowledge requires new competencies and skills in the science intense areas. Skoltech has all opportunities to convert advanced competencies accumulated in the centers, along with the world-class campus and applied educational technologies into a highly competitive product.

The portfolio of programs will be designed in the areas of AI and Telecommunications, Wireless Communication Technologies and Internet of Things, Photonics, New Materials, Electric Power Industry, Energy Transition and Energy Storage. Compared to national universities, which target audiences with a very diversified offer, starting from open lectures to specialized programs, Skoltech will focus on occupying a market niche, with a further market growth – both of product portfolio and income.

The pilot results in 2022 showed a steady demand to Skoltech product. Further growth on the market will require extra investments. The target business model will be designed based on the principles of operational sustainability and income diversification. In terms of organization, the Professional and Executive Education Center will be established to lead the market strategy, search, and support clients, provide a product approach in shaping programs, as well as define ways to go to market. The Center will also design quality standards, providing methodological support and guidance on content production.

**Metrics**

programs in portfolio, clients (individuals and companies), CSI (learning experiences), funding receivedt.

# 5

Become a full-fledged university through the launch of baccalaureate for most talented STEM students

# Distinctive Baccalaureate


| | | |
|---|---|---|
| 5.1 | BSc Program Portfolio | 65 |
| 5.2 | ‘Pre-university’ Outreach Program | 67 |

Skoltech was established as a graduate research and entrepreneurship university. Although ideas to open a baccalaureate appeared at the early stages, they were not viable due to the limited number of faculty and absence of the campus.

Today, Skoltech is well mature for shifting towards the solid educational offer with all three levels of education – BSc, MSc, PhD. The STEM baccalaureate will give birth to Skoltechians – students who will grow up in Skoltech culture and environment from the very beginning. In a broader context, the launch of the baccalaureate will also enrich the whole Skolkovo ecosystem, which will deliver a comprehensive STEM education of all levels – starting from Skolkovo Gymnasium, towards baccalaureate, MSc and PhD levels at Skoltech, and further professional trainings.



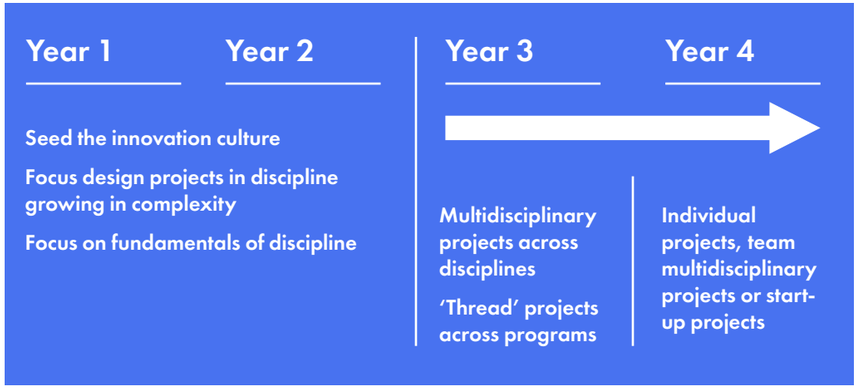
| Metrics of progress | Target set for year 2025 |
|---|---|
| BSc programs in portfolio | 5 |
| Quality of incoming students (% with high national test scores) | 80% |
| CSI: learning experiences | 70% |

/ 5.1 /

## BSc Program Portfolio

Objective: design the distinct pilot portfolio of programs in collaboration with top Russian universities

Skoltech baccalaureate is not viewed as a monodiscipline one, so the choice lies in areas of Internet of Things and Wireless Technologies, Artificial Intelligence, Material Science, Engineering, Neurobiology. The baseline program concept is strongly focused on project-based approaches and multidisciplinarity.




To develop advanced bachelor programs, Skoltech learning framework will be updated with CDIO Syllabus 3.0, which puts more emphasis on the content for Sustainability, Digitalization, Acceleration and Experience. In addition, Skoltech will establish partnerships with top national schools, and involve R&D companies. Skoltech baccalaureate will be distinguished by the unique learning environment – research intense curriculum in English, small classes supervised by top faculty, excellent campus spaces. Advanced learning facilities are planned in the new West Ring.

| Metrics |
|---|
| number of BSc programs, number of partners in BSc programs. |

/ 5.2 /

## ‘Pre-university’ Outreach Program

Objective: design and launch a comprehensive outreach framework to set and evolve a pipeline of talented kids for Skoltech BSc programs

Considering a very high competition among top national universities for bachelor applicants, Skoltech will set a ‘pre-university’ frame to have a pipeline of motivated and talented school kids willing to study on Skoltech BSc programs. ‘Skoltech Schools’ partnership program will be offered to top STEM schools in Moscow and beyond to have a ‘fast track’ enrollment for the strongest kids. On top, a wide outreach program of trainings, courses, open lectures, summer, and winter schools will be organized in the fields of BSc specialization. Promotion efforts will be made through on-site events, and digital channels.

**Metrics**

metrics of recruitment funnel, quality of intake (winners of olympiads, scores in the national test).

# 6

# Digital University

## Rapidly level up Skoltech digital capacities to enhance student experiences with innovative solutions


| | | |
|---|---|---|
| 6.1 | Educational IT- landscape | 71 |
| 6.2 | Digital Experience and Services | 72 |

In the context of global trends towards digitalization, expectations of students, as well as digital capacities formed in recruitment, teaching and learning, services, Skoltech strongly believes in the urgency and absolute necessity to make a greater step towards enhancing the digital landscape. Since the strategic initiative is new and introduced in 2023, the main steps will be made to forming a solid IT landscape and expertise required for starting large scale initiatives, such as development of more digital curriculum. The target outcomes are viewed in advanced and technology-rich environment for studies and extracurricular experiences, strong digital capacities and analytics which will be available for faculty, staff, and students.

| Metrics of progress | Target set for year 2025 |
|---|---|
| CSI (customer satisfaction index) with digital services | 80% |
| FCR (first call resolution, measures client's requests resolved on the first inquiry call or enquiry sent) | 70% |
| Active digital services users (MAU), % from cohort | 95% |

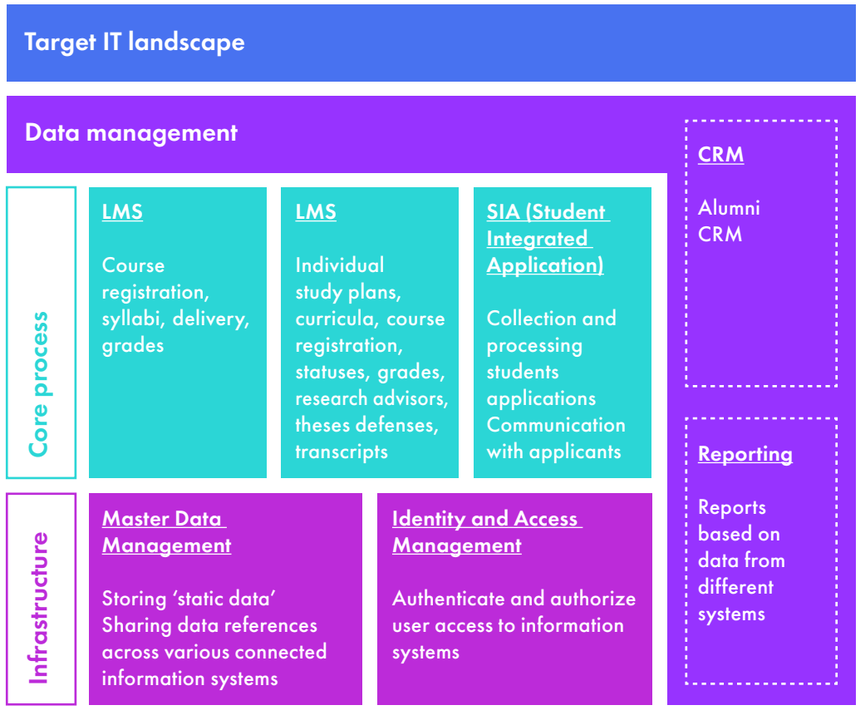


## / 6.1 /

## Educational IT- landscape

Objective: design the architecture for IT educational landscape based on a student journey map

The program will include collection of all processes embedded in student journey to assess most important areas for digital improvement or introducing new digital tools. Based on the review and market analysis of solutions available, functionality, expectations of students, faculty and staff, budget forecast, the roadmap 2023 – 2028 will be designed. The IT Committee will be involved in review of the roadmap and monitoring overall progress of implementing functional IT-systems.




**Metrics**

indicated for the strategic initiative.

/ 6.2 /

## Digital Experience and Services

Objective: enrich student digital experience with new services and improved usability of current services

The integrated approach to student support services is a top priority. The database for keeping student records will be set as a base for design of new digital services, while the multifunctional service center will be opened to process requests for registrar, visa and migration support, accommodation, travel, medical and life insurance. The center will function on a ticket-based system, allowing to track efficiency of requests completion.

The development and improvement of digital services will be prioritized towards principles of fast and easy to use tools, functionality, beauty, and ergonomics. The first steps will include development of MDM (master data management) based and microservices-oriented digital platform to host student records. Digital student profile will be introduced, to provide access to services available both through mobile app and the portal.

**Metrics**

indicated for the strategic initiative.

# 7

# Fostering Student and Graduate Success

**Expand development and placement program to provide students and graduates greater skills, mentorship, careers advice, and startup opportunities**


| | | |
|---|---|---|
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| 7.2 | Academic Mobility | 77 |
| 7.3 | Career Development and Placement | 78 |
| 7.4 | Student and Alumni Community | 79 |

To educate future generation of leaders in science, technology and business, the holistic system for fostering success is in place with elements contributing to professional, entrepreneurial, and personal skills. As Skoltech recruits best talents, the supportive environment that helps to improve student employability, develop professional networks and succeed in the chosen fields, is crucial. The comprehensive support and development program is designed based on the best international practices and students' expectations.

| Metrics of progress | Target set for year 2025 |
|---|---|
| CSI (development opportunities) | 80% |
| % of graduates' employment success (4 months after graduation) | 90% |
| % of graduates employed in R&D Russia | 70% |
| International graduates employed in Russia, % from intl. graduates | 10% |
| Portfolio of active programs for alumni | 5 |



## / 7.1 /

## Scholarships Portfolio

Objective: extend the portfolio of scholarships in academia, R&D and entrepreneurship tracks

The scholarship model includes a basic stipend and extra stipends which are incentives for outstanding results as well as sort of 'seed' support for students' projects. Piloted in 2021, the model confirmed its efficiency.

The same approach for assigning basic stipends will be continued: the brightest students will be the first to receive offers with basic stipends after successful completion of selection, while other students will be eligible for basic scholarships after all selection waves, if available. Main efforts will be made towards growing the portfolio of development stipends, both from Skoltech sources and external programs (e.g. national fellowships, target programs of companies, private foundations).

| Metrics |
|---|
| number of scholarships awarded, number of development scholarships, number of scholarships received from external foundations or companies. |

## / 7.2 /

## Academic Mobility

Objective: expand the offering of academic mobility, also with opportunities for research internships at new Skoltech partners

The academic mobility program is offered to students on a competitive basis with a goal to enrich research experiences through possibilities of research in international universities or centers. Skoltech institutional partners and faculty international peers will be prioritized for hosting students' research internships.

The incoming mobility program will be conducted to maintain Skoltech international profile, and multi-cultural student cohort. Tailored 'offering' will be designed for new student recruitment markets – BRICS, MENA, and ASEAN, along with offering for students from faculty-to-faculty international collaborations.

| Metrics |
|---|
| students in academic mobility, international partners involved, students' papers resulted in academic mobility. |

/ 7.3 /

## Career Development and Placement

Objective: extend career opportunities of various scale and scope, focusing on placement support in the national technology sector

The Career Center will facilitate activities related to graduates' employment counselling and placement support. First, the Center will organize regular advising on job markets trends, insights sessions with high-tech companies.

The job placement program in cooperation with high-tech companies, R&D centers, including Skolkovo companies, will be further ongoing. Special focus is a placement support for international students, which will require additional organizational, informational, and financial resources.

The Center will also involve alumni for career counselling. Regular communications on market trends, vacancies, internships will be maintained.

**Metrics**

partners for placement, % of graduates employed in R&D sector in Russia, CSI (career services), % of graduates employed with support of the Career Office.

/ 7.4 /

## Student and Alumni Community

Objective: deliver a wide portfolio of extracurricular student experiences, reinforce interactions with alumni to provide opportunities for engagement and shape a culture of community belonging

The comprehensive program supporting student success will be designed and implemented in coordination with Student Council. This will include various activities and services, starting from orientation to graduation. Special focus lies in improving student spaces and shaping new spaces, also extension of accommodation support.

The alumni engagement will be facilitated by Alumni Association and Career Center, to promote opportunities for career advising, mentoring, internships, job placement. At the same time, alumni will be offered opportunities for networking with each other, faculty, academia, and business partners as well as alumni of professional programs.

Nurturing the culture of giving back is important for growing up future generations of engaged alumni. To do so, joint student-alumni events will be organized.

Effective communication is a starting point for building relations. Considering a global spread of alumni, digital communication will be a primary channel, while offline events will be organized to get our community even closer. The first in Skoltech history all-alumni reunion is planned for 2024 to celebrate ten graduation classes milestone.

**Metrics**

community events, CSI (student life), alumni events per year, alumni engaged.

# 8

# University for People Level Up

**Ensure systems, processes, and organizational resources for enabling people professional and personal growth**


| | | |
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The success of the strategy, and Skoltech at large, is mainly attributable to people and teams in place – faculty, researchers, engineers, and administration.

The people strategy introduced in 2021 was significantly influenced with challenges of 2022 and 2023. These are high volatility of human capital, limited access to international recruitment, brain drain and increasing competition for talents, and SDN sanctions. Still, in this period Skoltech managed to keep commitments, making no layoffs or reduction in compensation, keeping headcount, and investing in personnel training. On top, HR ensured the mobilization deferral.

The revision of people strategy today is required not only to remain a credible employer, but advance this standing, providing unique value for academic and non-academic staff and making Skoltech a place for professional and personal level-up. This is a challenging task, considering current and mid-term context.

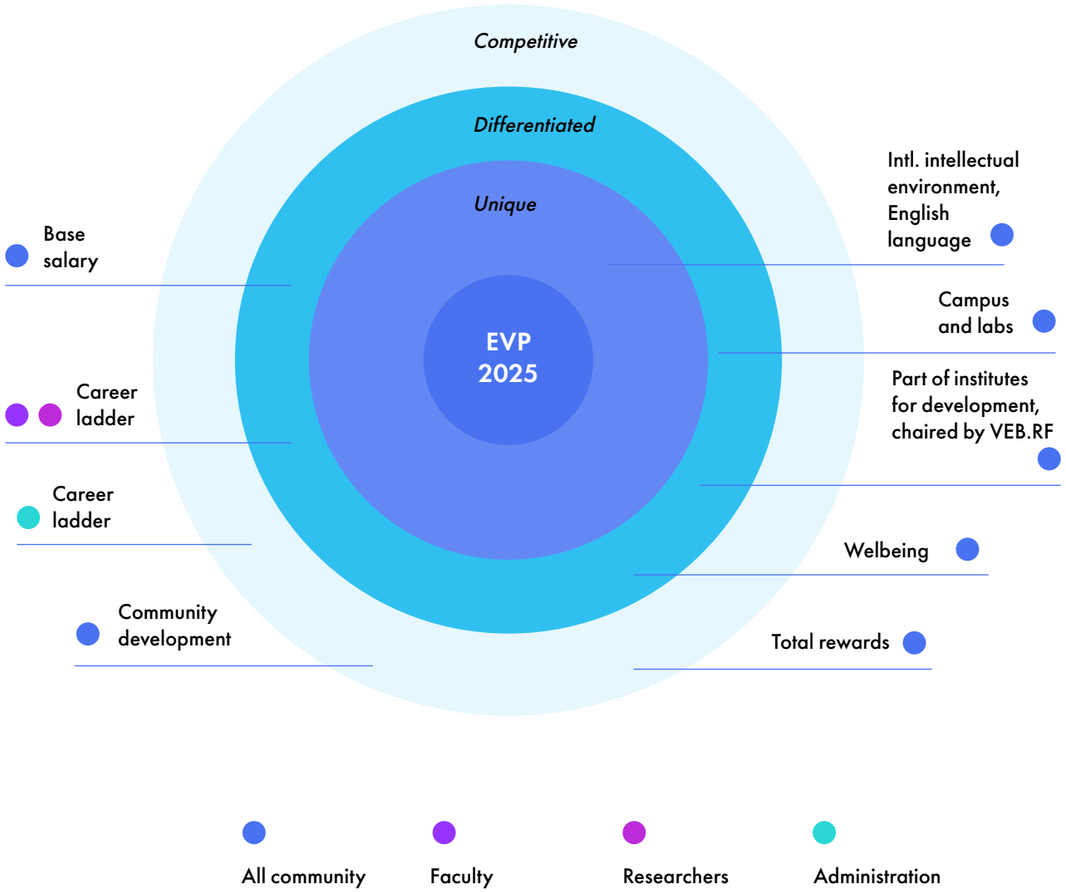
Starting from the very beginning and through all the years of existence, unique feature of Skoltech employee value proposition (EVP) is the intellectual community shaped thanks to model openness and English-speaking environment welcoming talents from the East and the West. The reputation of a top-100 young world-class university in Nature Index is a factor of attractiveness for both senior professionals and early-career staff.

Designed by Herzog & de Meuron and awarded by Prix Versailles, the campus clearly differentiates Skoltech in Russia and among international peers. Select laboratories are on par with 'tier one' universities, providing excellent opportunities for top-class science, prototyping, and ultimate career success. Another important differentiator is that Skoltech is a part of the Skolkovo ecosystem and a broader system of the institutes of development under the VEB.RF chair, bridging the government and business.

To level up the EVP and make Skoltech a place with opportunities and supportive environment for all personnel groups, we are committed to expand investments in people's growth, integrated well-being program, and community development.

We will also challenge ourselves with the task to make noticeable improvement of HR cycle processes, from recruitment and onboarding to performance evaluation and total reward, to have them client-oriented, clear, fast, and efficient.

| Metrics of progress | Target set for year 2025 |
|---|---|
| % of core personnel participated in development program | 30% |
| faculty retention rate | >90% |
| open calls for faculty and researchers (annually) | 4 |
| CSI (HR business processes) | 70% |
| % IT systems coverage of HR processes | >50% |




/ 8.1 /

## Career Level Up

Objective: deliver a comprehensive career development program to grow a professional, responsive, and inclusive team

Skoltech will invest in people and teams to 'level up' the hard and soft skills, as well as skills required to respond to changing context and meet organizational needs, today and tomorrow. The program will be designed in a way to balance Skoltech priorities, on the one hand, and personal development aspirations, on the other.

The 'hard skills' track will include systems (IT) skills and competencies, project management, professional training and certification, EHS. The 'soft skills' track will be primary focused on raising four Skoltech target competences – commitment, integrity, team work, and drive. Leadership capacities, change management, effective communications remain on agenda: a tailored program will be in place.

Faculty development will specifically target young scholars to build up teaching skills required for maintaining a high-quality educational offer. Junior faculty will be supported with mentorship programs to advance teaching skills, and raise competencies to design programs that address complex interdisciplinary problems and requirements of industry.

Clear career paths, both academic and non-academic, will be designed and communicated by HR to all personnel, based on international practices in academia and business. The other important task is to fix transparent and structured approaches for promotions, that will cover eligibility and criteria.

**Metrics**

% core personnel[8] participated in development program, % of academic and non-academic promotions.

[8] Long-term contracts, mainly covered from Skolkovo grant.

## / 8.2 /

## Recruitment Model Redesign

Objective: redesign academic personnel recruitment model to account for specifics and scope of CREIs and Project Centers

The initial recruitment model strongly relied on Skoltech presence and visibility in the international academic market that was supported with promoting the Institute as a brand-new model university established in collaboration with MIT. In today's context this model is limited with the tensions in geopolitics, loss of MIT partnership, decrease of offering competitiveness and Skoltech SDN status.

The recruitment model will be redesigned to (1) extend the pool of strong applicants and level of candidates' competitiveness, (2) tailor recruitment processes to the needs of CREIs and Project Centers. The planned measures include arranging a strong internal search expertise through the Academic Council Advisory Panels and faculty professional networks, launching open calls for researchers, as well as support faculty calls wide outreach and marketing.

No less important is to reconsider the value proposition for each faculty position ensuring a higher competitiveness among top national universities and a comparable competitiveness with EU universities. The value proposition to young researchers will position Skoltech as a solid base for exemplary and pioneering research and young team growth allowing a fast advancement in academic career.

Building 'task forces' in Project Centers will be addressed through setting a 'fast track' appointment scheme. Simultaneously, HR will design a revised business model for supporting long-term contracts of core academic personnel.

**Metrics**

number of new vacancies, applications to academic positions, number of open calls completed, offer acceptance rate, time to hire.

## / 8.3 /

## Total reward

Objective: ensure a comprehensive total reward package that is competitive to attract, motivate and retain personnel

The reward system will be maintained on the principles of fairness, transparency, competitiveness. The baseline of the system will be strongly aligned with performance recognition approach. The pay-for-performance framework will be further improved to recognize different kind of contribution of academic and non-academic staff, in particular, differentiating CREIs and Project Centers, functions directly influencing on the strategy implementation results and supporting functions. Performance expectations for all categories of personnel will be formalized and communicated, also addressing direct links to career paths.

**Metrics**

% turnover of core personnel.

## / 8.4 /

## Health, safety, and well-being

Objective: design and implement the Institute wide approach with services and environment to enable all community to maintain well-being

The COVID pandemic and highly challenging environment of the 2022, raise the necessity to systemize ongoing offering in well-being as well as expand the package available to all staff. The well-being program will be designed in accordance with international benchmarks covering extensive medical and health insurance, check-ups and vaccination available on campus, mental health services. The culture of sports will be intensively promoted through corporate offering and expansion of Skoltech sports events. Safety policies, especially related to working in laboratories, will be continuously improved. The EHS team will also expand the number of safety trainings available to research and engineering personnel.

**Metrics**

number of wellbeing services (sport events included), % of personnel covered by wellbeing program.

## / 8.5 /

### Internal communication

Objective: redesign the internal communication towards a systematic and strategic tool, foster collaborative interactions on vertical and horizontal levels, increase organizational efficiency, and strengthen internal brand and culture

Strong efforts will be made towards improving internal communication and setting a systematic approach. As of today, certain gaps are evidenced in clear messaging, cross-functional communication, as well as sharing consistently messages on Skoltech values and priorities.

The target internal communication is about thinking strategically, how Skoltech communicates with personnel, what is the chosen mix of messages and what impact these messages have. New formats will be in place to promote cross-functional cooperation, building community of personnel, as beyond – students and alumni. Regular surveys will be in place to account for feedback and community requests in planning communication.

**Metrics**

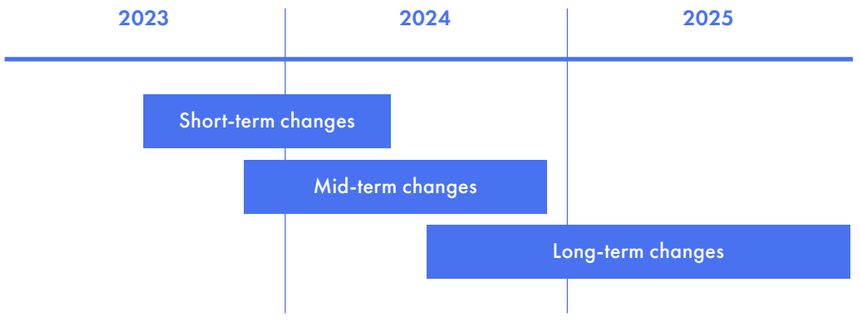
CSI for communication channels and community events.

## / 8.6 /

### HR services and Operations

Objective: enhance employee experience by increasing efficiency of HR processes towards more functionality and less administrative workload and time

Moving to HR service model will be made mainly through introducing digital tools to improve certain processes as well as enrich personnel experiences. In addition to online HR forms, electronic document flow will allow to streamline transfer of documents for digital signature (e.g. personnel requisition forms, employment contracts etc.) and shorten time for processing.
The 'Employee service center' is the other measure to optimize services quality and time processing.
The HR Business Partners model will be designed and piloted as a measure to support Centers' management in all processes related to personnel recruitment, development, and retention.




**Short-term changes:** automation of performance appraisal and goal setting, IT solution for academic recruitment (application system), HR web portal

**Mid-term changes:** Employee Service Center, Employee's personal account, HR business partners model

**Long-term changes:** core HR services are digital and connected to employee's personal account

**Metrics**

CSI for HR services, % IT systems coverage of HR business processes, % completed HR services guides.

Annual Faculty Excellence Award

Skoltech New Year event for families

Photonics Laboratory

Training
on change
management

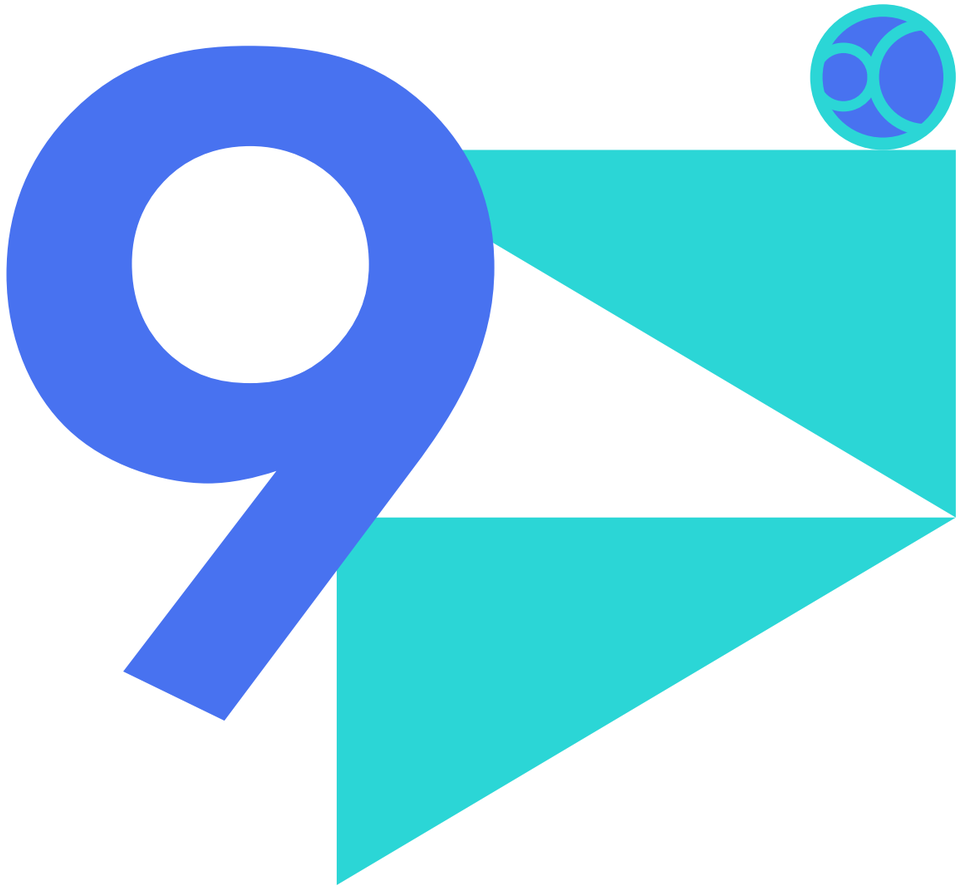
Fablab team

All Hands meeting

Annual Project Management Awards

Kolmogorov
Open Cup

All Hands meeting



# Global Campus in Skolkovo

**Cultivate campus as the best-in-class space for research, education, innovation and community building, enhance quality of campus experiences for staff and visitors**


| | | |
|---|---|---|
| 9.1 | Campus Development Program | 93 |
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| 9.4 | East Ring: Laboratory Construction Plan | 94 |
| 9.5 | West Ring: New Construction | 98 |
| 9.6 | Student Dormitory | 98 |
| 9.7 | Campus ‘Laboratory’ Project | 99 |

The campus is instrumental to deliver the mission. Skoltech is fortunate to have the international award-winning campus at the heart of the Skolkovo Innovation Center with state-of-the art facilities for research and education. Since the launch of the Strategy in 2021, significant progress was made to deployment of research infrastructure, student learning spaces, spaces for community building. Modern laboratory facilities were completed for several Centers along with relocation of majority of Centers to campus.
Still, a further growth and development of Skoltech both in research and educational domains, means that there is significant extra space needed. The current strategy considers expansion of the laboratory construction plan, construction of the West Ring, initially planned as a part of the whole design concept.

| Metrics of progress | Target set for year 2025 |
|---|---|
| CSI (client services) | 70% |
| % of construction schedule delivered on time | 90% |
| % of dormitory places from student cohort ensured | 80% |
| Funding received for advisory services for ‘campus lab’, mln Rub | 100 |



/ 9.1 /

## Campus Development Program

Objective: expand the campus infrastructure through completion of development of existing ‘shell-and-core’ spaces for education, research, and innovation domains

To support the strategy aspirations, the program targets a completion of development of campus spaces, currently being in ‘shell and core’ status. The development area is estimated as 24.000 sq.m. The program is focused on extension of teaching and learning spaces in support of the plans to ramp-up the baccalaureate, and grow further a portfolio of professional training, as well as organize spaces for project-based activities.

| Metrics |
|---|
| spaces developed. |

/ 9.2 /

## Campus environment

Objective: develop campus environment and spaces towards functionality, visual appeal, and comfort of community

The campus is a reflection of Skoltech aspirations towards innovative approaches and creativity, and community culture. Campus space, its cosy nature and visual appeal, functionality create the atmosphere of where people want to be and feel welcomed. In this regard, the program for evolving spaces is crucial. Continuous efforts will be in place for improving public and community building spaces for students and staff. The activities will also include organization of various installations and art exhibitions, which makes the campus inspiring and creative.

| Metrics |
|---|
| CSI. |

## / 9.3 /

### Services

Objective: provide quality client services contributing to shaping favorable and supportive environment for study, work and network

The services will be continuously expanded and improved, targeting first class experiences of community on campus. Digital system for campus management will be gradually implemented (navigation panels etc.). Food services, shops, medical services, sports facilities – this is a baseline package for maintenance.

**Metrics**

CSI (campus services and facilities)

## / 9.4 /

### East Ring: Laboratory Construction Plan

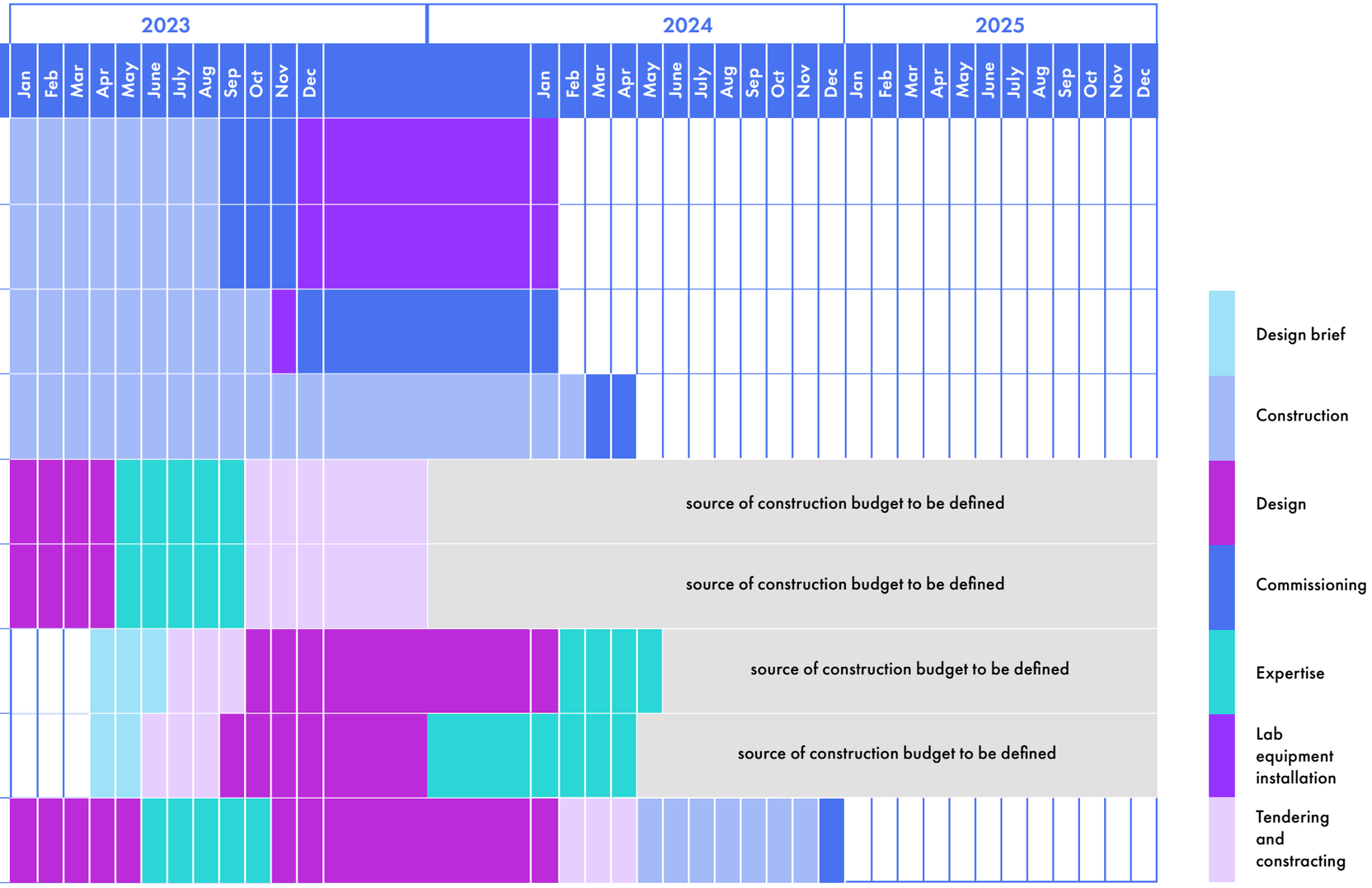
Objective: complete the laboratory construction plan on time

The implementation of the laboratory construction plan specifies deployment of research and office spaces for the Centers as presented on the plan further. The construction plan is approved by the Board of Trustees, recent updates were made in April 2023 with the justification to extend the infrastructure in Target Domains.

## Construstion plan

### Skoltech laboratory construstion schedule

| N | Reconstruction projects | Area, m² |
|---|---|---|
| 1 | Center for Molecular and Cellular Biology _ Teaching lab (G3_L2) | 1 940 |
| 2 | Center for Petroleum Science and Engineering _ lab expansion (Renova) | 750 |
| 3 | Shared facility _ Advanced Imaging expansion | 183 |
| 4 | Center for Energy Science and Technology _ lab space (G4_L1) | 1 932 |
| 5 | Center for Photonic Science and Engineering _ Hybrid Photonics lab (G9_L2) | 702 |
| 6 | Center for Photonic Science and Engineering _ Nanomaterials lab (G9_L2) | 1 423 |
| 7 | Domain of life sciences and health (G3_L1) _ design works | 1 810 |
| 8 | Center for Energy Science and Technology _ High-temperature annealing laboratory (G5_L1) _ design works | 564 |
| 9 | Tecnhological gas supply system (stage 1) | – |



/ 9.5 /

## West Ring: New Construction

Objective: extend campus with the West Ring (Agora) premises to accommodate needs of full-scale baccalaureate and further growth of research and education domains

According to the initial architectural concept, Skoltech campus is a complex of buildings of East Ring (delivered in 2018), Agora and West Ring, which are currently on hold.

The urgency of construction is justified with the need to expand teaching and learning spaces for full-scale BSc programs launch, as well as expand premises for research, community building and office spaces. The project start requires allocation of construction budget, finding a contractor. The project is estimated as 30 Bln Rub, implementation period is about 5 years.

**Metrics**

plan completion as per confirmed schedule.

/ 9.6 /

## Student Dormitory

Objective: complete the construction project of student dormitory expanding accommodation capacities aligned with Skoltech needs

Skoltech dormitory is located in Palisade Quarter (Skolkovo) providing accommodation only to foreign students. The Skolkovo Foundation jointly with DOM.RF is implementing a project for construction of apartments in the immediate vicinity to Skoltech campus. This complex was designed as dormitory with all necessary infrastructure, including a gym, public and household premises. The complex can accommodate 640 people. Skoltech current request is estimated as 300-400 places with the estimated costs for maintenance as 165 mln Rub/year. The planned completion date for construction and arrangements is Q1, 2024.

**Metrics**

plan completion, % of student places from the total cohort.

/ 9.7 /

## Campus 'Laboratory' Project

Objective: set the function for sharing Skoltech unique expertise on organizing world-class campus to national universities

The special unit, campus laboratory, will be set to lead external projects for sharing unique expertise on organizing world-class campus. This will include advising on concept design, including sharing best practices for planning research and educational premises, performing functions of a technical customer in high-tech projects. Campus Laboratory will support national universities participating in the federal program for construction of campuses of international level.

**Metrics**

external funding received for advisory services, number of projects completed.

Strategy
Enablers

1

Maintain a well-functioning governance and management system based on principles of transparent decisions, responsiveness, regular communication

# Governance and Management


| | | |
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As established in the Charter, Skoltech governance is based on the principles of collegiality and transparency. The governance is maintained by the General Founders Assembly, Board of Trustees, Academic Council, and the President.

The General Founders is the highest body which approves the Charter, appoints the Board of Trustees and the President, Skoltech participation in legal entities and membership in professional associations.

Strategic development issues are overseen by the Board of Trustees and Academic Council within the authorities delegated. While the Board monitors strategic plans and results, financial standing, the Academic Council oversees the academic domain, to ensure highest level of research and education. The President is responsible for overall management of the Institute. The executive leadership oversee particular functions, is assigned directly by the President.





## / 1.1 /

## Governance and Management

Objective: maintain a well-functioning governance and management system based on principles of transparent decisions, responsiveness, regular communication

The governance framework will be maintained through efficiency of decision making, authorities and membership, processes that are revised and improved. To achieve the strategy goals, no less important to have effective communication with the governing bodies, built on the principles of transparency and consistency. The authorities of the Academic Council Advisory Groups and Educational Committee will be revised to increase a role and capacities in strategic initiatives related to education and academic personnel.

The priority agenda in management includes targeting stronger collegiality and balanced decision-making, along with efforts to build a culture of team responsibility and accountability. This will be reached through adjusting policies and introducing KPI scorecards with 'shared' goals. In the middle management, it is important to increase cross-functional cooperation through joint projects and regular sessions. Overall management communication will be improved through proactive sharing results and plans.

In terms of the Centers' management, more autonomy will be provided through delegating extended authorities to Directors to improve approval chains.

## / 1.2 /

## Report and Planning

Objective: introduce the integrated report and planning process on strategic and operational levels

The current system of institutional report and planning lacks synchronization between the core elements, which are strategy goals, functional strategies and annual operational targets, budgeting cycle, individual targets, including KPIs scorecards.

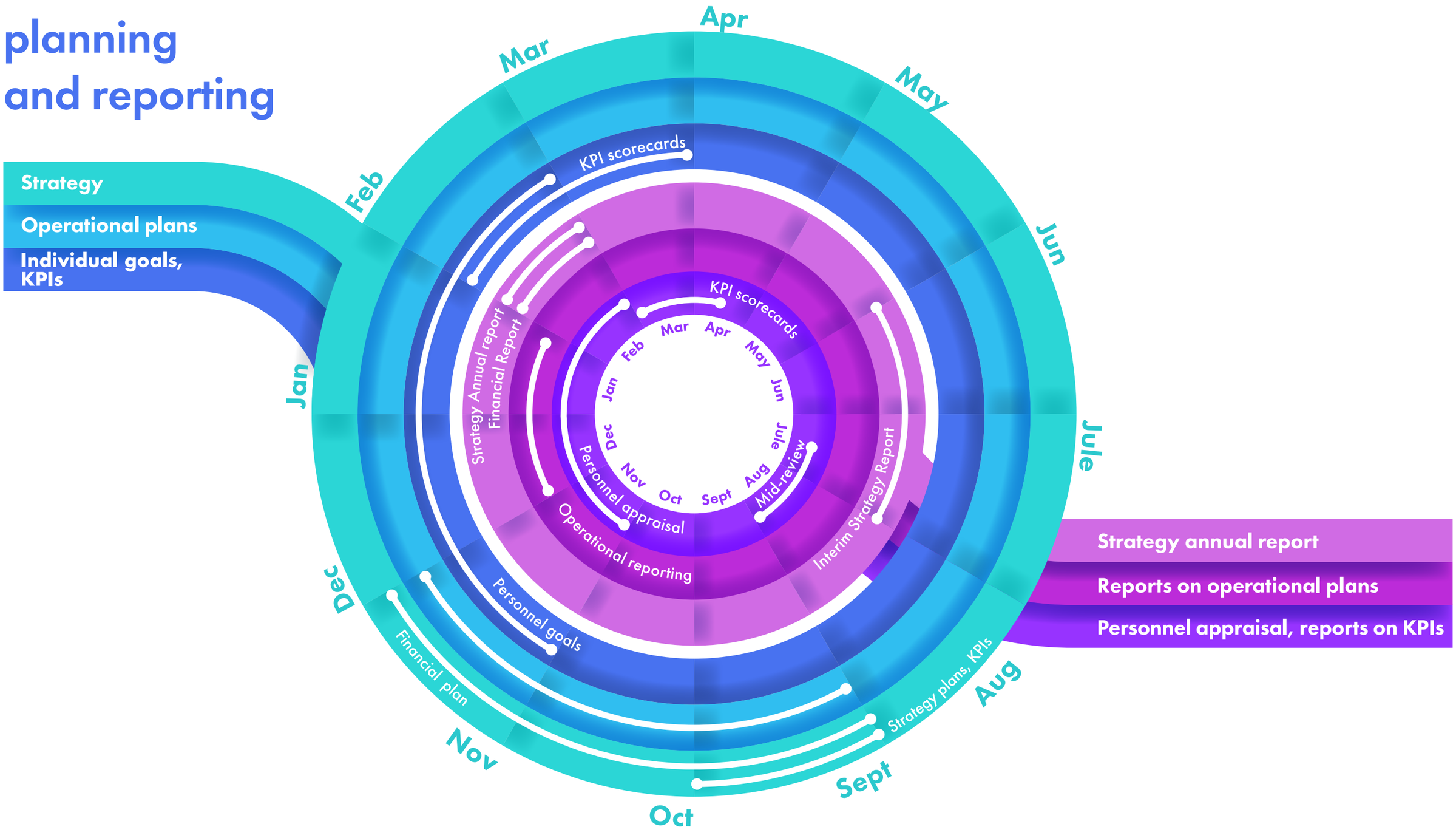
Measures will be implemented to introduce the integrated approach based on the transparency, predictability, accountability, and effectiveness along with linking long-term planning with operational planning. The baseline approach includes development of the roadmap 2023 – 2025 and revision of certain mechanisms for planning and reporting.

The reporting be improved with further development and automation of data collection, analysis, and visualization. Interactive dashboards will be available for tracking targets of Skoltech, Centers and Departments. In addition, revised criteria for assessing impact of Centers will be introduced for having more representative snapshots.

**Metrics**

on time delivery of institutional plans and reports, absence of critical remarks for the strategic reports and plans from stakeholders.

# Institutional planning and reporting



/ 1.3 /

## Policy Making

Objective: review, assess and improve institutional policies to align with the Institute's goals of development

Transparent, efficient, and streamlined institutional policies serve to foster enabling environment for all processes. To be more focused in policy making, and make more efficient policies, the revised framework will be in place. In particular, the policy making function will move towards centralization to ensure unified quality and standards, on one hand, and service-oriented approach for policy initiators, on the other. Regular reviews and monitoring will be in place to assess efficiency as well as identify areas require improvement.

**Metrics**

% of policies updated, CSI.

/ 1.4 /

## Internal Control and Risk Management

Objective: implement a system of risk management and internal control comprised with policies, procedures, and activities to ensure reliability of institutional financial reporting

Activities of the Internal Control and Audit Department will include further development of the internal control system, ensuring regular monitoring of its efficiency. Internal audits will be in place to reduce operational risks and ensure target and efficient use of resources allocated to Skoltech. Facilitation support will be provided on integrating controls and risk management into day-to-day business activities and processes. Advising on all aspects related to risk management and controls will be provided considering organizational needs and expectations. The culture of continuous improvement, self-assessment and adherence to the institutional polices and regulations will be promoted among Skoltech staff.

**Metrics**

% of return of Skolkovo grant.

/ 1.5 /

## Change Management

Objective: develop capacities in change management through efficient and transparent processes covering change management planning, consultation, control, and communication

In times of uncertainties, change management capacities are becoming more important than ever. To be adaptive and effective, the Institute will define the change strategy to set a systematic approach for adjustments / full revisions of plans that impact significantly both processes and employees.

The baseline will include setting a mechanism that facilitates change initiation, planning and testing, communication, scheduling and implementing, documenting and evaluating the target outcomes. Formalization of business process will be in place, not only to maintain historical records, but also ensure compliance with internal and external controls and compliance, and ensuring their automatization.

**Metrics**

% of business processes formalized.

# 2

# Brand Promotion

## Strengthen Skoltech distinct profile and reputation through increasing awareness of accomplishments and plans among stakeholders and wider audience


| | | |
|---|---|---|
| 2.1 | Presence in Media and Top Forums | 113 |
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| 2.5 | Science Outreach | 116 |

The brand promotion supports the strategy and serves positioning Skoltech excellence in all domains. Target and effective communication meeting stakeholders' expectations to Skoltech is our everyday task. The communication strategy will cover the following basic target audiences:

- prospective students,
- academic community,
- high tech national companies,
- authorities and decision-makers,
- partners and competitors,
- internal stakeholders – personnel, students, and alumni,
- wider community.

| Metrics of progress | Target set for year 2025 |
|---|---|
| Features on Skoltech in Russian media | >100 |
| New countries of strong media presence | >2 |
| Large national forums with Skoltech presence | >5 |
| Media projects (cum. 2023 – 2025) | 3 |
| Channels promoting Skoltech internationally | >5 |
| Channels promoting Skoltech in Russia | >10 |
| Participants of sci-pop events | 10 000 |
| CSI (marketing service) | 70% |
| CSI (events services) | 70% |
| External income for events services (mln Rub) | 20 |



/ 2.1 /

## Presence in Media and Top Forums

Objective: reinforce Skoltech visibility in top national and international media, national and international forums, and high-profile business events

Keeping media presence is fundamental. Priority opportunities are seen in target campaigns, presence in 'tier one' national media, and establishment of media presence in new target countries, considering limitations of international coverage due to the global context and SDN status. New opportunities and channels will be found for positioning Skoltech in the new regions of interest: Asia Pacific, Middle East, Latin America, and Africa.

To ensure consistency in messaging Skoltech 'story', the communication policy and relevant procedures will be developed to coordinate information flow. Target media trainings will be available to speakers on demand. The content strategy for the website will be designed to ensure a systematic, well balanced messaging to each group of target stakeholders.

Work for Skoltech participation in top forums will be continued. The main focus lies in highly visible presence at Saint Petersburg and Far East Economic Forums, Congress of Young Scientists, Innoprom, Forum 'Future Technnologies' and other similar level events with participation of high-profile officials.

The efforts for widening participation of both leadership, and scholars will be made in the context to promote Skoltech technology profile and a role in the national economy. Along with the common formats, such as keynote sessions, status of official partner will be also targeted.

| Metrics |
|---|
| mentions in 'tier one' media, % of growth in social media followers, growth in website metrics, position in national media ranking, Skoltech speakers in top forums, mentions of Skoltech speakers in 'tier one' media. |

/ 2.2 /

## Campaigns in New Points of Presence

Objective: establish Skoltech presence and brand recognition in new regions of international agenda

Considering new vectors in the international agenda, Skoltech presence and brand recognition should be established in the counties of Asia Pacific, Middle East, Latin America, and Africa. The program will be mainly focused on promotion of Skoltech educational offer, including professional programs. Setting and forging educational partnerships with local universities and companies is planned in support of the brand advancement. To increase visibility, Skoltech will also join partnership initiatives and programs in the respective regions, conducted by business entities, national institutes for development, governmental authorities, including the Agency for Strategic Initiatives, Rossotrudnichestvo, Ministry for Science and Higher Education, Ministry of Foreign Affairs, Federal Agency for Youth.

**Metrics**

number of active programs, number of international partners in the new regions.

/ 2.3 /

## Marketing

Objective: expand portfolio of marketing tools and channels to highlight Skoltech distinct profile

Given the strategy aspirations, the ultimate goal is to attract committed people and ensure that Skoltech is the best place for them. The Institute should be perceived as most promising opportunity for target audiences. Marketing efforts will support the brand promotion through variety of channels, which include digital channels, targeted ads, email marketing, offline events (fairs, festivals, conferences, open doors). Targeted campaigns will be in place for student outreach and recruitment, faculty and researchers open calls, public events.

**Metrics**

reach/views, traffic (monthly, yearly), total contacts/new contacts, subscribers (e-mail, smm), engagement rate.

/ 2.4 /

## Events

Objective: provide high quality and efficient package of event services for both internal and external clients, making campus the distinct and visible site for scientific, educational, business and community events

Thanks to location in the center of Skolkovo Innovation Center and unique campus, which is an internationally recognized space, Skoltech hosts more than a hundred of events each year. The portfolio of events represents international conferences, seminars and schools, large national level forums, business events for long lasting partners and external companies. The events program will be extended along with continuous improvement of services and strong client-oriented approach for internal and external clients. The commercial program will be expanded with new customers, predominantly in industry and business sectors, through a wide promotion of campus in digital channels. A ‘loyalty’ program for repeating external clients will be also designed.

**Metrics**

events, external income received for events services, new external clients.

## / 2.5 /

## Science Outreach

Objective: promote science and technology achievements to the wider community

The principal purpose of a university is to serve society by producing educational, scholar and economic impact. Leveraging resources, committed to giving back to society, Skoltech scholars, staff and students are engaged in a variety of activities for Skolkovo Innovation Center and wider community – open lectures, research intense programs, scientific workshops, master classes, laboratory visits.

Program of Lecture Hub and similar formats will be expanded to establish presence in top national projects. Simultaneously, efforts will be invested in public events on campus and key national platforms (e.g. science festivals etc.).

The program for Skolkovo Gymnasium will be expanded with new formats, that will include E&I activities, support in professional orientation. The partnership program with Skolca in Skolkovo will include curriculum design, sharing practices of innovative teaching and learning, professional orientation for kids, expertise for arranging laboratory spaces. Outreach activities for STEM oriented schools in Moscow and beyond will be also expanded in terms of topics and formats.

The portfolio of media projects will be expanded to strengthen Skoltech profile as advanced research center with a wide network of top experts in respective fields. New projects will include books in areas of Mathematics, Physics, Life Sciences, and AI, as well as creative digital formats similar to “VR Kolmogorov” museum. Several products are planned for young talented scholars and entrepreneurs. The online and printed almanac will be dedicated to Skoltech ten graduation classes (2024), while the creative comics project showcasing Skoltech startups will be designed to promote entrepreneurial spirit.

**Metrics**

new media projects, media partners for projects, science outreach events, events on campus, participants.

3

Increase quality of project portfolio through implementing standards of project management, as well as building competencies of administrative staff through a training program

# Project Management

Annual portfolio of Skoltech projects (grants, contracts, services) exceeds 150 units, while the total external funding received for projects for several years exceeds 1.6 bln Rub. The project portfolio is diverse, starting from fundamental research to complex technology programs subsidies from the state sources. Considering a diverse portfolio as well as external trends, the priority agenda will include the following directions:

- development of the project management system with stronger organizational capacities for projects that contribute to and cross-cutting technologies of technological sovereignty (TRL 5-6),
- implementation of resource project management which will include methodology, IT solutions, personnel training, infrastructure,
- development of project management competencies through internal PM. Science program,
- project monitoring – risk management and evaluation of projects (contribution of projects to the strategy and KPIs).

**Metrics**

managers completed PM.Science training,
% of projects completed in accordance with contract obligations.

4

Ensure quality, accountability and transparency of operational processes and a strong client-oriented approach

# Operational Services and Support


| | | |
|---|---|---|
| 4.1 | Business Processes Management | 125 |
| 4.2 | Operational Services | 125 |

| Metrics of progress | Target set for year 2025 |
|---|---|
| % on time service requests resolved | >90% |
| CSI index for services | 70% |





/ 4.1 /

## Business Processes Management

Objective: improve select business processes in terms of usability, speed and efficiency

The program on business processes is implemented first of all, to design the overall landscape of Skoltech processes, defining immediate tasks for improvement. The activities will include formalizing processes currently not formalized, conducting audit of processes.

Based on the outcomes, the roadmap for improvements will be designed, also connecting to IT solutions required. For core processes, KPIs will be fixed. The other line of development includes a further step towards services operational efficiency through implementing digital solutions and automatization tools.

**Metrics**

CSI, SLA metrics.

/ 4.2 /

## Operational Services

Objective: provide Skoltech community with seamless and efficient operational support

After the year of stabilizing operations and budget in the fast-happening changes and new operational context, support functions related to finance, accounting, treasury, legal, procurement, administration and IT will continue adjustments along with continual improvement of services towards a more client approach. Among the priority tasks are import substitution for IT software, streamline of procurement considering sanctions, development of adaptable and tailored package of administrative services, working in a “live strategy” and changing conditions.

To measure employees’ satisfaction with quality and efficiency of services, surveys will be made. Regular sessions with service owners and other formats which will navigate users will be launched.

**Metrics**

CSI, SLA metrics.

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Implement IT strategy that drives digital solutions, improve cybersecurity, develop infrastructure, and improve efficiency of services

# IT Infrastructure and Services

The IT agenda is developed in the context of increased cybersecurity risks that require taking measures to mitigate risks to business processes, uncertainty in financial markets and difficulties in logistics, leave of international software and hardware vendors from Russian market.

With regards to IT landscape and business applications, the main goal lies in transition to solutions of domestic vendors to reduce risks associated with lack of expertise and licenses cancellation. To minimize costs related to complexity of supporting and developing “monolithic” business systems (e.g. ERP), a transition to a microservices implementation model is planned during 2024-2025. Also, it is planned to enhance the in-house expertise in fields of master data management, technical support for core business systems, and integration architecture.

The cyber security is high on the agenda. This will include regular assessments and analyzing potential threats, trainings for staff on basic cybersecurity, implementation of a multi-layered security system (2023-2024), enhancing of monitoring systems.

The IT infrastructure will be developed for network upgrades, creation and testing of a robust disaster recovery plan to minimize IT failures, launch of new and upgrade existing monitoring tools.

| Metrics of progress | Target set for year 2025 |
|---|---|
| CSI with IT services | 70% |
| Security incident rate | 0% |
| Av. time for IT Department to respond to requests | 12 hours |

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Ensure the institutional financial framework that supports efficient use of resources, supports the strategy in reaching its goals and builds the basis for financial sustainability

# Financial Resources

Skoltech strategy sets ambitious goals, targeting growing impact on the national economy and education of new generation of leaders. The strategy today is implemented in context of unstable environment, restrictions on state finding, increasing cost pressures versus Skoltech need to further invest in development and infrastructure. In light of these factors, Skoltech financial model is adjusted, following the baseline principles:

- growth and diversification of external income,
- continuing capital investments in infrastructure,
- efficiency of activities and resource utilization,
- transparency of financial management and institutional policies.

## Income growth and diversification

Increase and diversification of revenue stay on the agenda, targeting growth in grants, industry funded R&D, professional education, as well as other lines, which will include:

- IP commercialization,
- commercialization of campus through commercial events and renting facilities,
- broadening consulting services, e.g. in 2023 Skoltech started a project for supporting national universities in organizing world-class campus,
- gradual move to tuition fee for education started from 2024/2025. The financial effect is expected to be visible starting from 2026/2027 academic year,
- managing cash reserve to increase the rate of return,
- fundraising and managing the endowment portfolio,
- attract and manage bank loans to finance project activities.

## Capital Investments in infrastructure

The current capital plan for laboratory construction provides potential commitments of about 1 bln Rub over the next three years, accounting for changes in scale and inflationary pressures. The Institute allocates funding of 400 mln Rub from the federal subsidy for 2024-2026 to enable execution of the liabilities for construction in progress. At the same time, the funding of 1 bln Rub is not covered and is an issue, to ensure the following lab spaces completion:

- Hybrid Photonics Laboratory, Laboratory of Nanomaterials Cathode Materials Laboratory expansion
- Expansion of the Biological Laboratory

Full utilization of Campus and infrastructure requires the completion of 24 000 m2 shell and core space of the East Ring. This will allow to launch full scale bachelor programs, expand professional education, and consider new program of Entrepreneurs' University. These initiatives will benefit Skoltech in following ways: further development of Skoltech educations offerings, efficient space usage and income generation from new tuition-fee programs. The additional funding for the construction is 3 mln Rub. The initial architectural concept of Skoltech Campus included the West Ring, which are currently in hold, waiting for construction funding.

## Efficiency of activities and resource utilization

In support of the strategy, the financial policy will be based on the baseline principle: to operate efficiently and effectively, managing costs, strictly prioritizing investments decisions and supporting prioritized areas, expanding opportunities with potential returns for Skoltech. Several specific measures are designed and mapped out across select initiatives.

**Research and Technology Impact**

- set priorities, giving clarity about the financial consequences of investment decisions;
- encourage full economic costing to support funding for research;

**Entrepreneurial Readiness and Spirit**

- implementation of the optimal model of commercialization and maximization of income from IP
- developing methodologies for disposal of assets, including IP, valuation of their disposal
- organize a portfolio asset management (IP, shares in authorized companies) through investing in startups;
- prioritize investment to stimulate a rolling entrepreneurial startup programs;

**Education**

- development of standard price and margin calculation for professional education programs to support new areas of income/surplus generation.
- attracting investments for STEM baccalaureate

**Global Campus**

- negotiations on Moscow Government support to support construction completion
- develop internal/external standard price calculation for utilization spaces to support new areas of income/surplus generation.
- financial model for new dormitory to increase income

**Operations**

- import substitution and transition to the local ERP system
- improving of project management system for more efficient project execution

## Transparency of financial policy and institutional policies

The financial management culture is a key element to pro-actively take opportunities as they arise. The financial policy will be reviewed regularly to support the strategy in a transparent and efficient way.

Skoltech