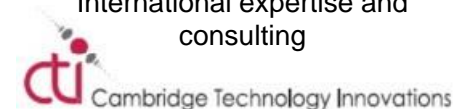




Independent consultants



International expertise and consulting

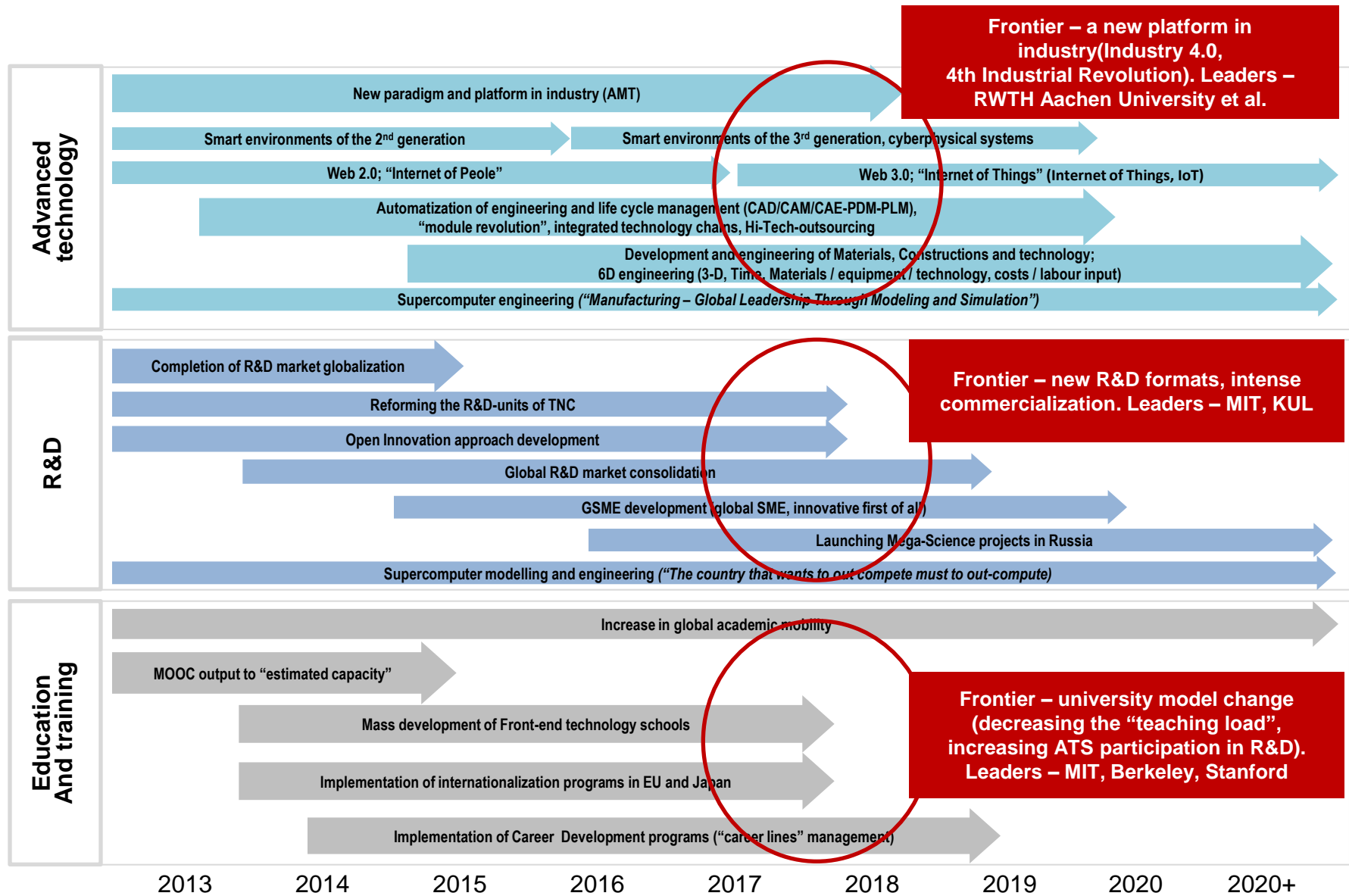


ACTION PLAN ("Roadmap") on implementation of the SPbSPU Competitiveness Improvement program for 2013-2020

Rector A.I. Rudskoy

October 25, 2013

Development of the universities is determined by a set of long-term trends in technology, R&D, education



Reacting to these trends, SPbSPU improves its model of development and promotion on target markets

2012

R&D:

- 100 leading researchers;
- 300 articles;
- R&D ~ 1 200 mln RUR.

▪ **Education & Training:**

- ATS – 2 400 pers.;
- Budget ~ 3 500 mln RUR;
- Non-budget – 2 400 mln RUR.



2020

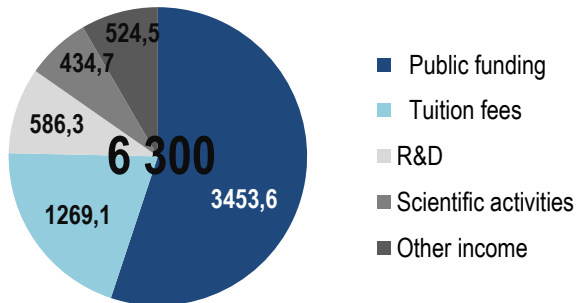
R&D:

- 300 leading researchers (×3);
- 1 000 articles (×3,3);
- R&D ~ 6 000 mln RUR (×5).

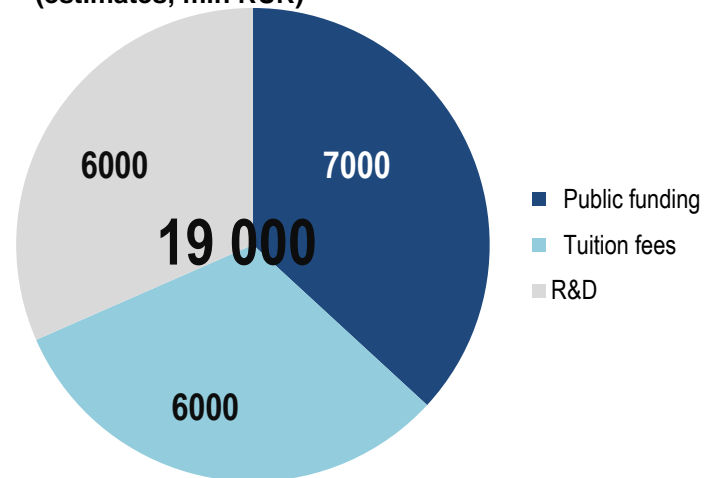
▪ **Education and training:**

- ATS – 1 800 pers. (- 25%);
- Budget ~ 7 000 mln RUR. (×2);
- Non-budget ~ 6 000 mln RUR. (×2,5).

Revenues of SPbSPU in 2012
(mln RUR)

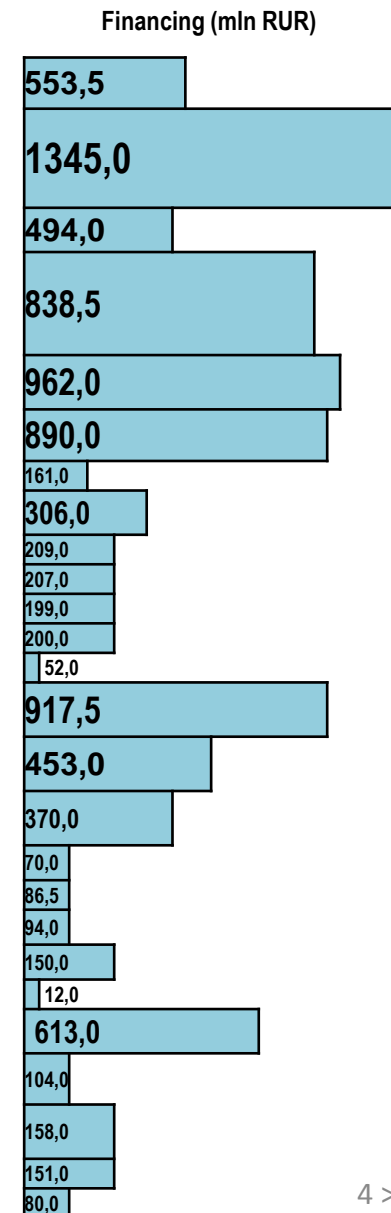


Revenues of SPbSPU in 2020
(estimates; mln RUR)



Adjustment of the development model aims to overcome key strategic gaps

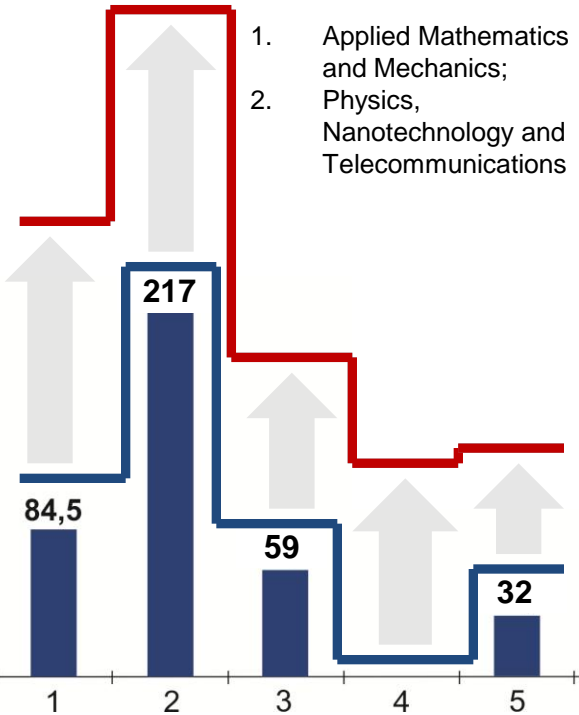
Strategic Initiatives	Gaps	Tasks
Elaboration of competitive R&D	Foreign ATS (Academic Teaching Staff) proportion Publication activity, R&D Citation index	1.1. Support of operation and development of effective competitive research groups (RG), research laboratories (RL) and R&D centers
		1.2. Intensification of ATS (Academic Teaching Staff) publication activity
Development of internationalization through establishment of competitive IEP	Foreign ATS proportion	2.1. Development and implementation of a new International Educational Programs (IEP) portfolio
	Foreign students proportion	2.2. Developing mechanisms for competitiveness improvement at implementation of IEP and Continuing Professional Development (CPD) programs
Development of the University's intellectual capacity	Publication activity, R&D	3.1. Attracting young ATS to scientific, educational and innovation activity
	Foreign ATS proportion	3.2. Attracting foreign ATS to SPbSPU under long-term contracts
	Citation index	3.3. Development of system for evolving and improving key ATSs
Student-Postgraduate-Researcher	Number of foreign students	4.1. Professional and personal success of students and establishment of their social security
		4.2. Reorganization of graduate school
		4.3. Development of effective marketing mechanisms for internationalization and attracting foreign students
New educational technologies	Number of foreign students	5.1. Creating of innovative educational environment in SPbSPU
		5.2. Development of targeted advanced training of masters with the help of high-tech companies
		5.3. Implementation of new educational technologies
Cutting-edge research and development	Publication activity, R&D	6.1. Creation of new research laboratories (RL), competence centers, engineering centers, centers of technological excellence in current scientific and technical fields
	Foreign ATS proportion	6.2. Development and implementation of strategic partnerships and academic mobility programs with leading universities (TOP-500 QS and TOP-400 THE)
	Publication activity, R&D	6.3. Creating joint international research and education centers (IREC) with leading international high-tech companies
Effective management system leads to innovation breakthrough and organization of "quick victories"	Publication activity, R&D	7.1. Development and training of senior management of the University and formation of personnel reserve
		7.2. Change management (Project management Office(Project Office), Information and analytics foresight center, Media-center)
		7.3. Introduction of modern management system for the portfolio of programs and projects
		7.4. Optimization and improvement of the information and technology landscape of SPbSPU
	Citation index	7.5. Development of the corporate portal of new generation
		7.6. Search, organization and support of "quick victories"
		7.7. Development of the national strategic initiative "Professional community of practices "Materials - Engineering - Industrial Design" project
	Publication activity, R&D	7.8. Targeted support and development of research laboratories (RL) and engineering, competence and excellence centers of SPbSPU in the fields of supercomputer technology
		7.9. Developing and implementation of the method for continuous MC improvement
		7.10. Creation and development of the Alumni Association of SPbSPU



Bridging the gaps will be conducted on the basis of leading institutions and teams of SPbSPU

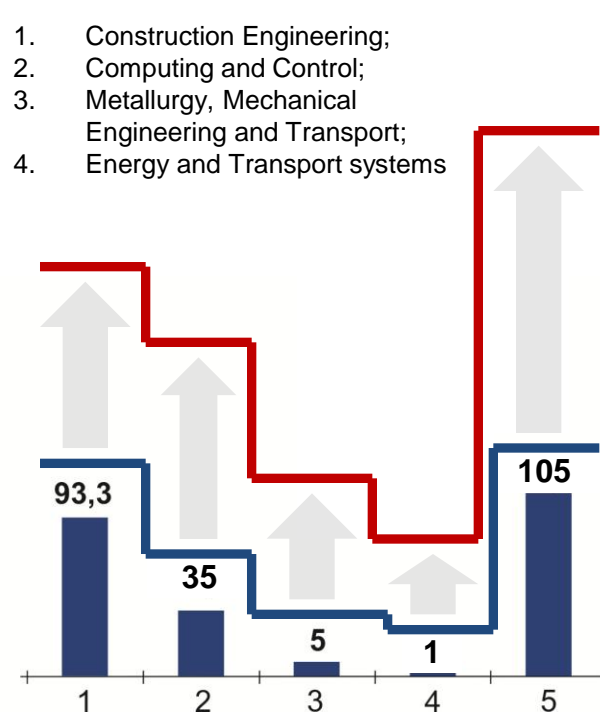
Group I (2 institutes):

1. Applied Mathematics and Mechanics;
2. Physics, Nanotechnology and Telecommunications



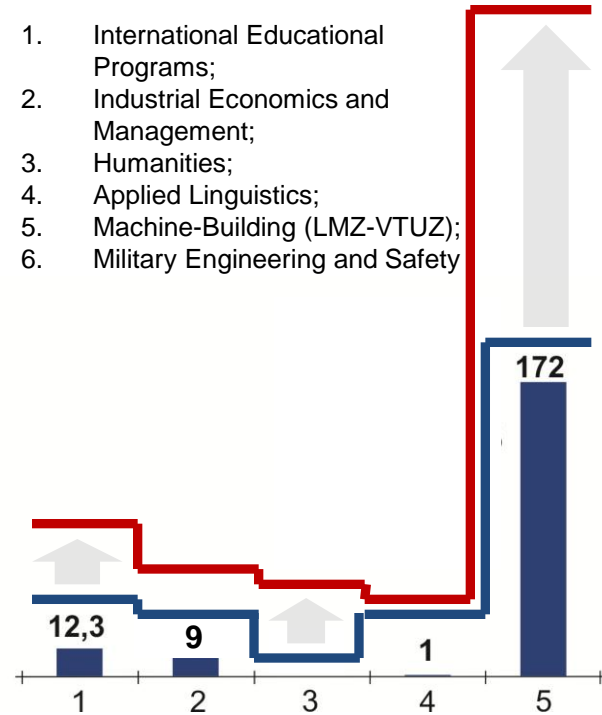
Group II (4 institutes):

1. Construction Engineering;
2. Computing and Control;
3. Metallurgy, Mechanical Engineering and Transport;
4. Energy and Transport systems



Group III (6 institutes):

1. International Educational Programs;
2. Industrial Economics and Management;
3. Humanities;
4. Applied Linguistics;
5. Machine-Building (LMZ-VTUZ);
6. Military Engineering and Safety



— 2013 level (group's average)

— 2020 level (group's average)

Average values for groups of institutions:

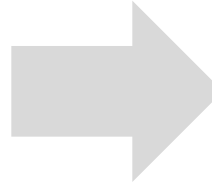
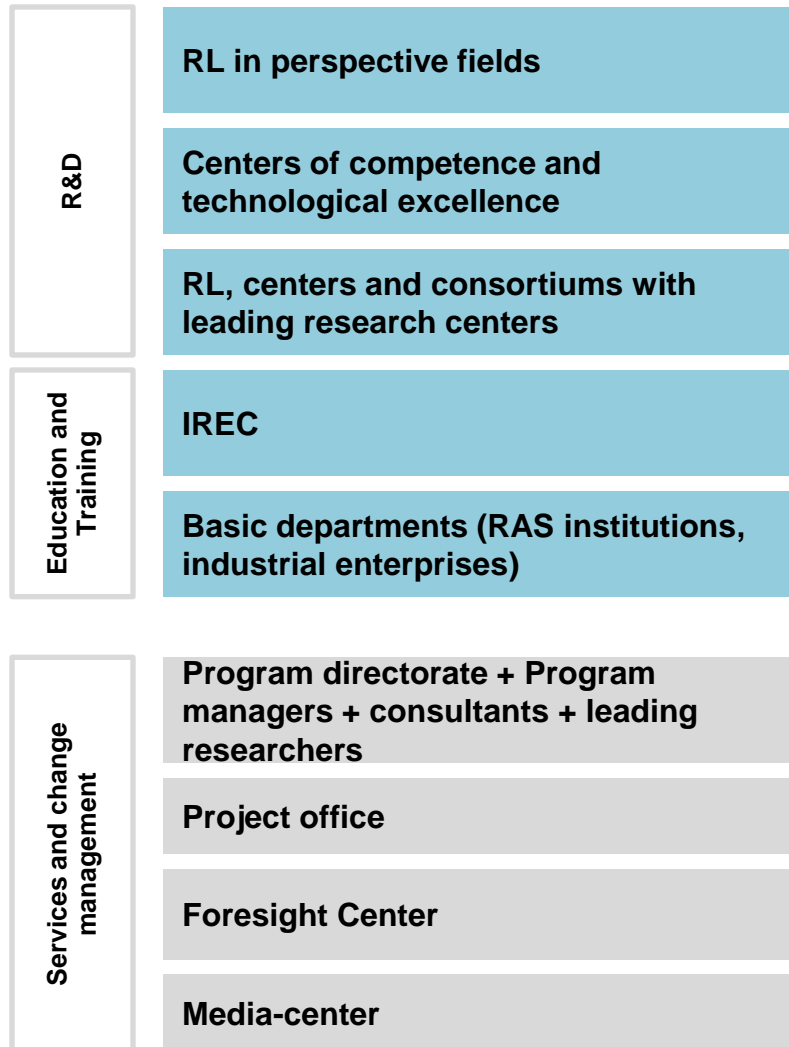
1. R&D volume (mln RUR, 2012);
2. Number of ATS publications for 5 yrs, 2009-2013 (indexed by SCOPUS and WoS);
3. Number of institute's employees with h-index >5;
4. Number of foreign lecturers, 2012;
5. Number of foreign students, 2012.

2020 – new institutes:

- + Advanced materials;
- + Supercomputer modeling and engineering;
- + Advanced manufacturing technology (robotics, laser, machining and additive etc.);
- + Life sciences (medicine & biology);
- + Cyberphysical systems.

Adjustment of the development model involves organizational changes and introduction of a new management model (primarily for the Program)

New structures

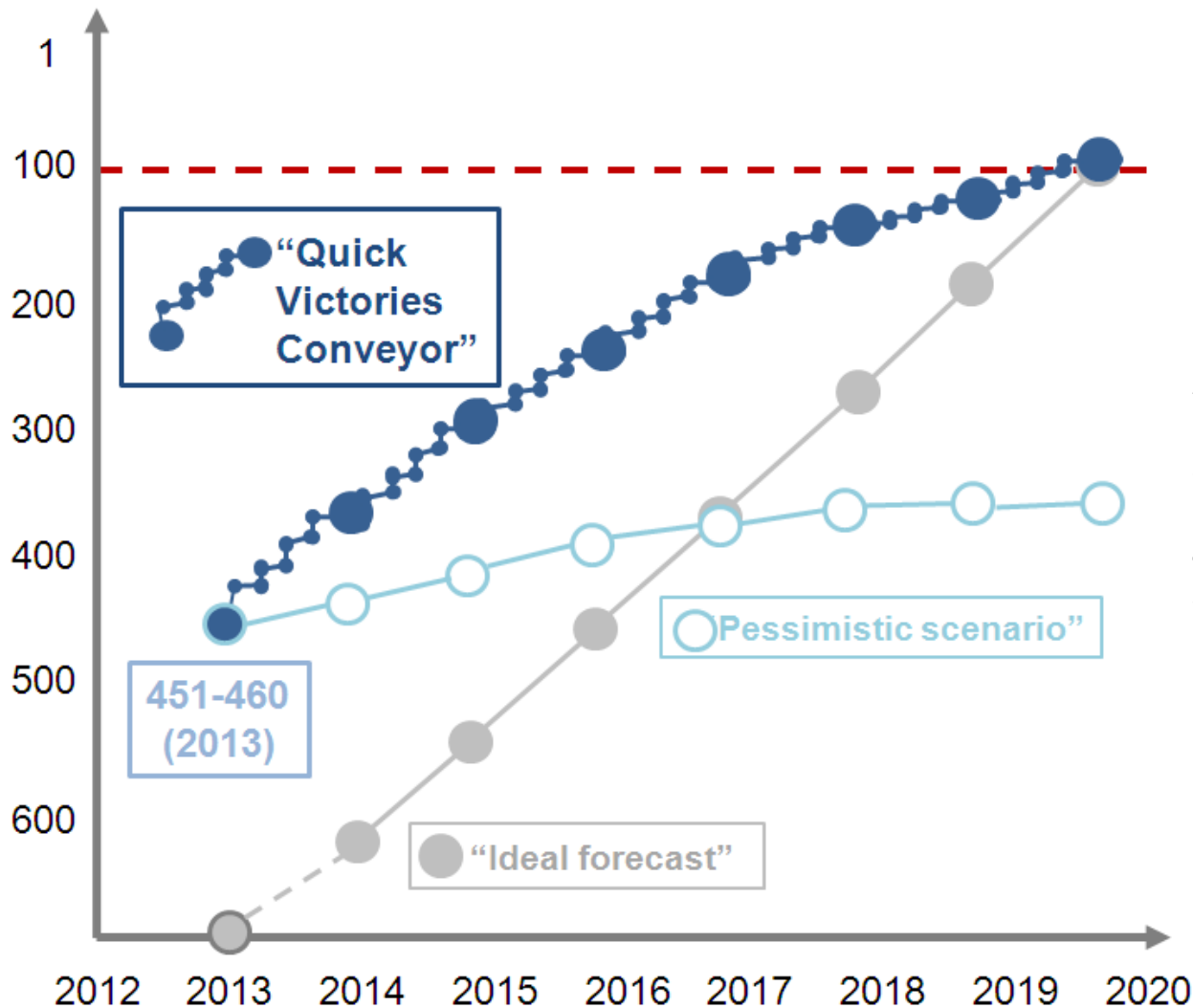


New functions

- **Conducting complex R&D on the orders of industry** (“Materials & Constructions, Processes & technologies”)
 - **Developing professional communities** (including The Professional Community of Practices “Materials - Engineering - Industrial Design”)
 - **Publication** of the research results in refereed journals (Scopus, WoS);
 - **Attracting leading scientists** (CI > 2 000; HI > 20) и (CI₃ > 500; HI > 40);
 - **Mega-Science projects interaction support.**
-
- Testing of **new management principles** and methods (technology of **sliding-scale planning** as part of the Program);
 - Implementation of **unified informational and PR policy**;
 - Development & support of the “**Quick victories conveyor**” model (as a modification management model at SPbSPU).



Program management model and modification management model is “Quick Victories Conveyor”



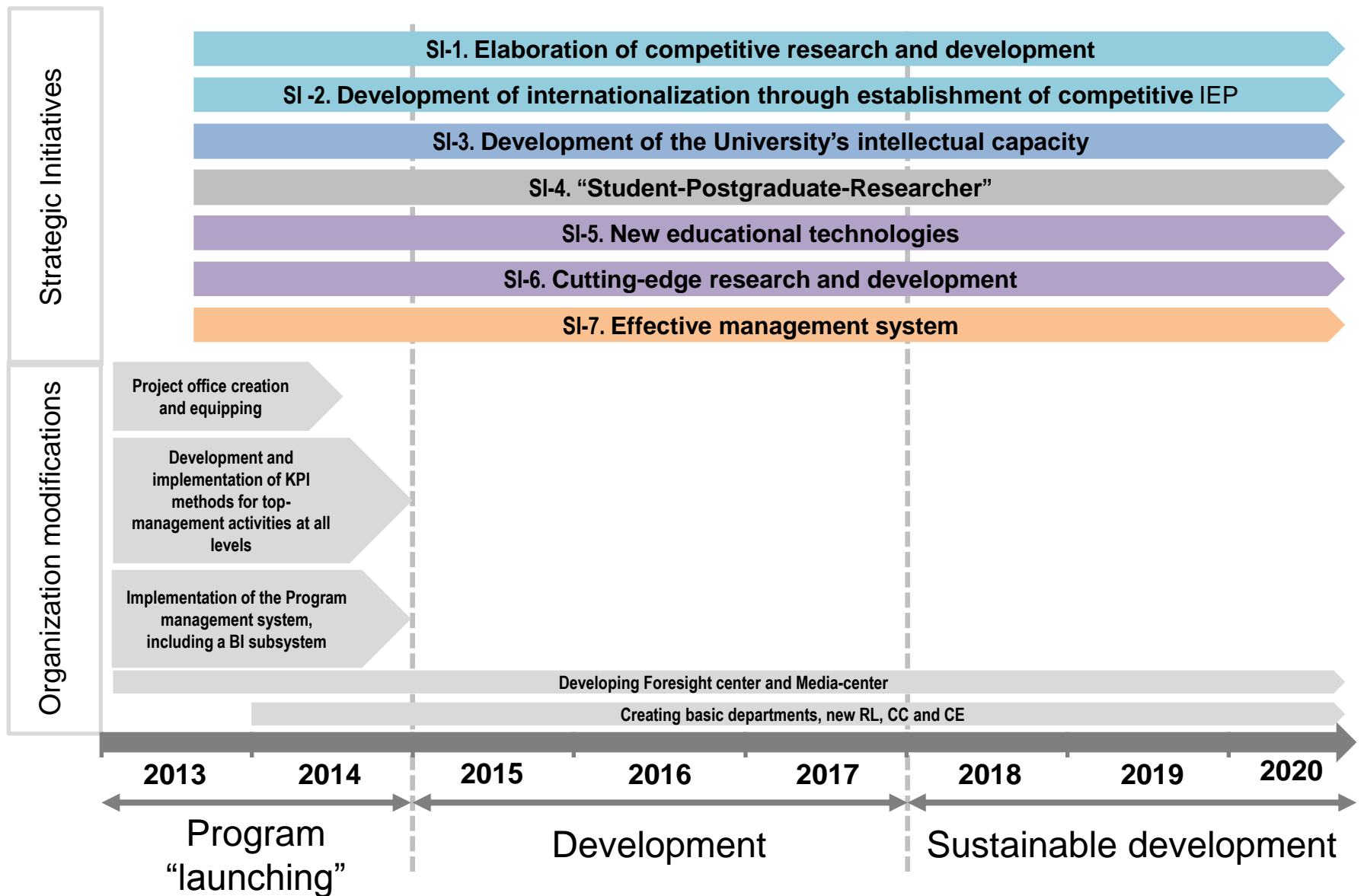
“Quick Victories”:

1. New Research Lab. (RL), Competence centers (CC), Centers of excellence (CE) (WoS , Scopus, R&D);
2. New International research and education centers (IREC);
3. New RL, CC, CE (CI > 2 000, HI > 20);
4. New RL (CI₃ > 500, HI > 40);
5. Foreign professors, ATS, students

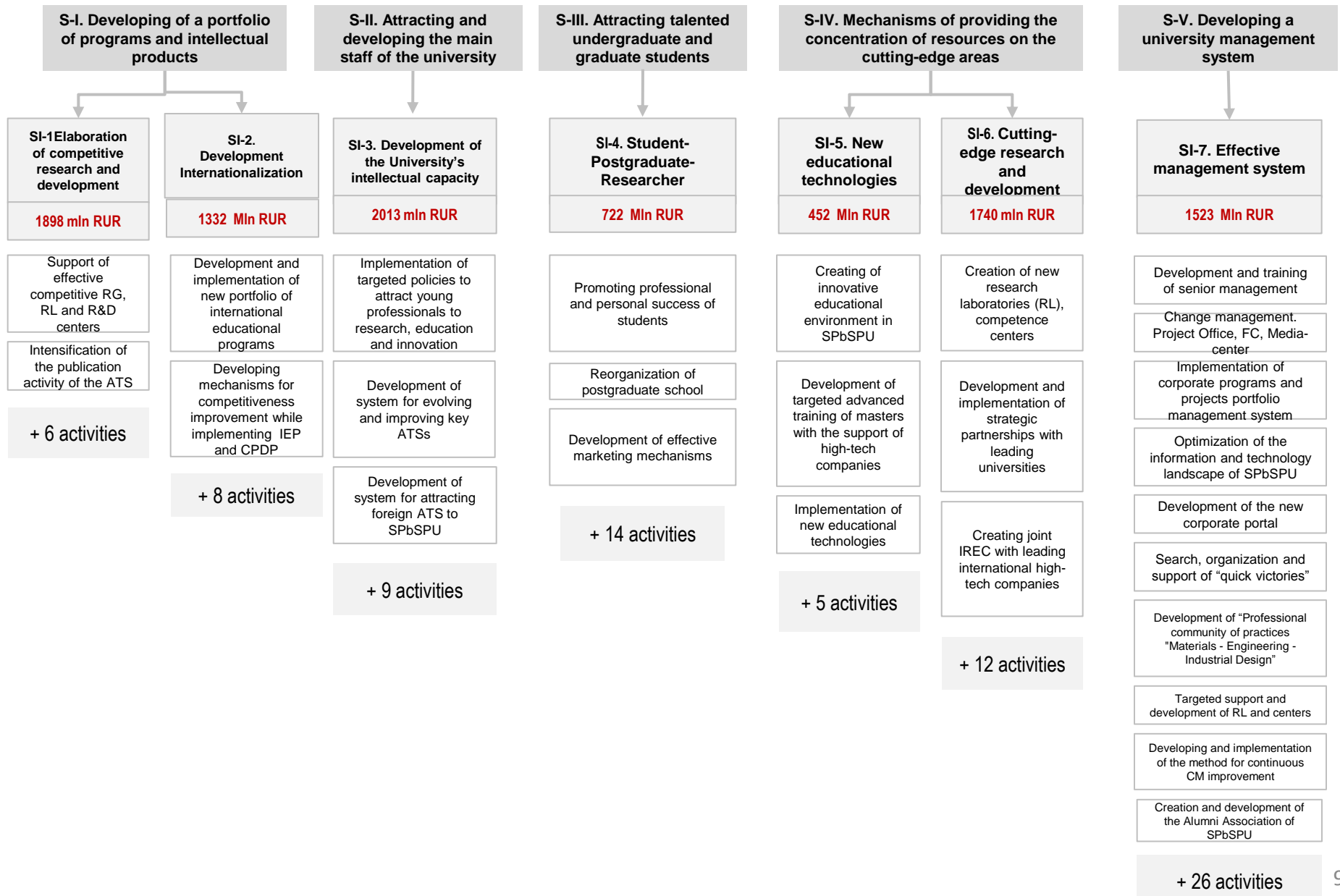
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The more often “Quick Victories” happen, forming the “Quick Victories Conveyor”, the higher the “success curve” is

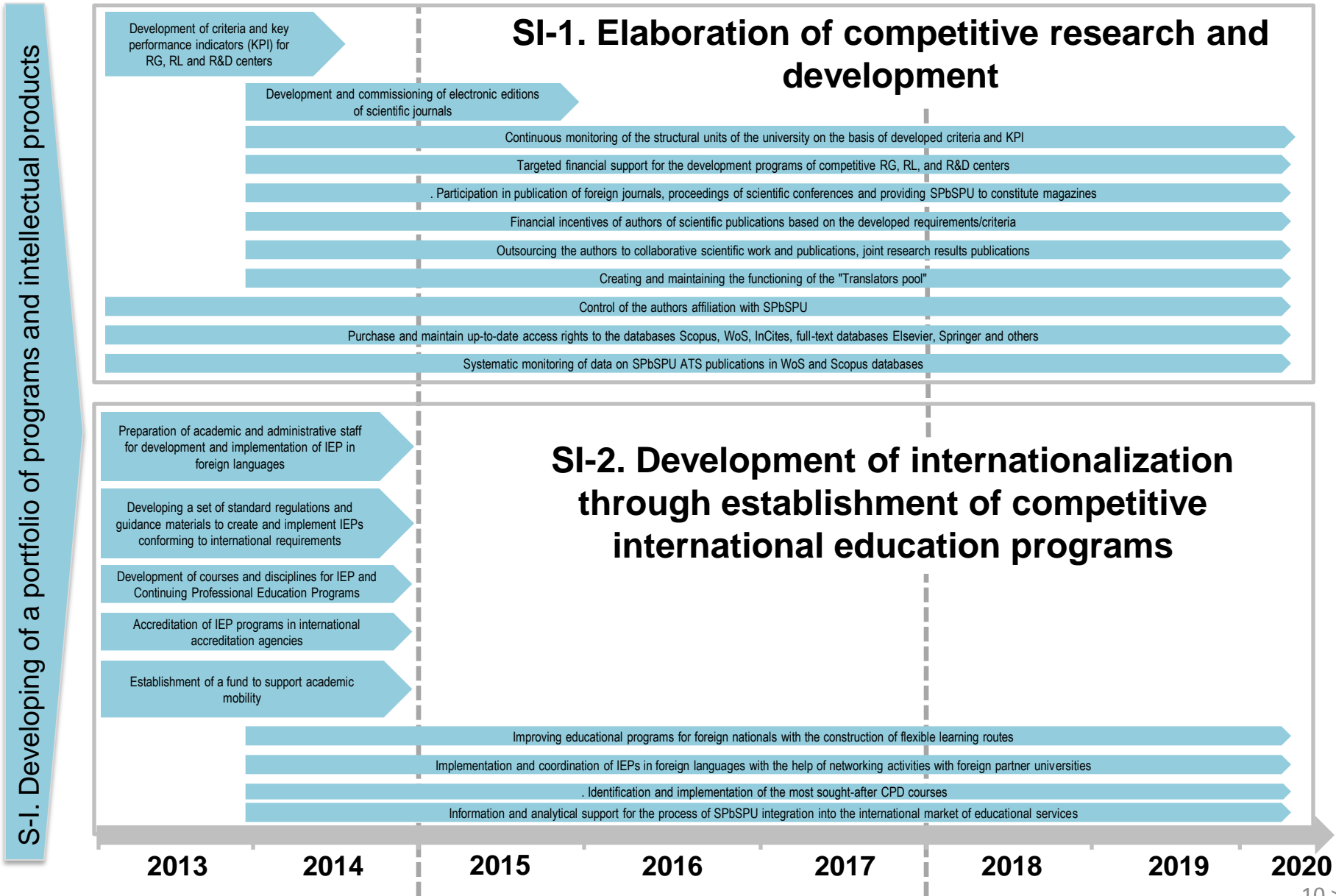
The Program / Roadmap will be implemented through the following basic stages



All of the Roadmap activities are aligned by objectives, tasks, deadlines and resources (1)



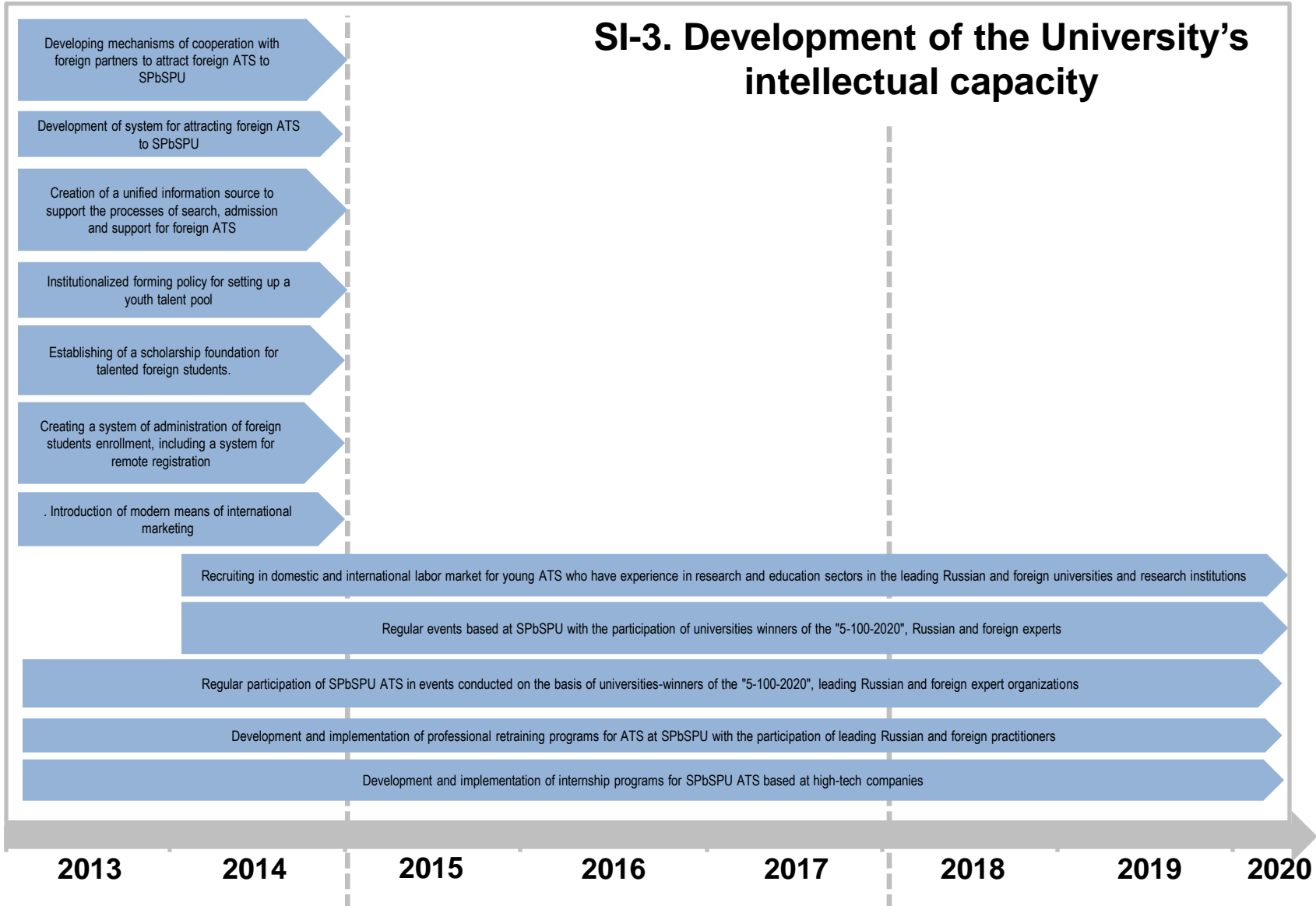
All of the Roadmap activities are aligned by objectives, tasks, deadlines and resources(2)



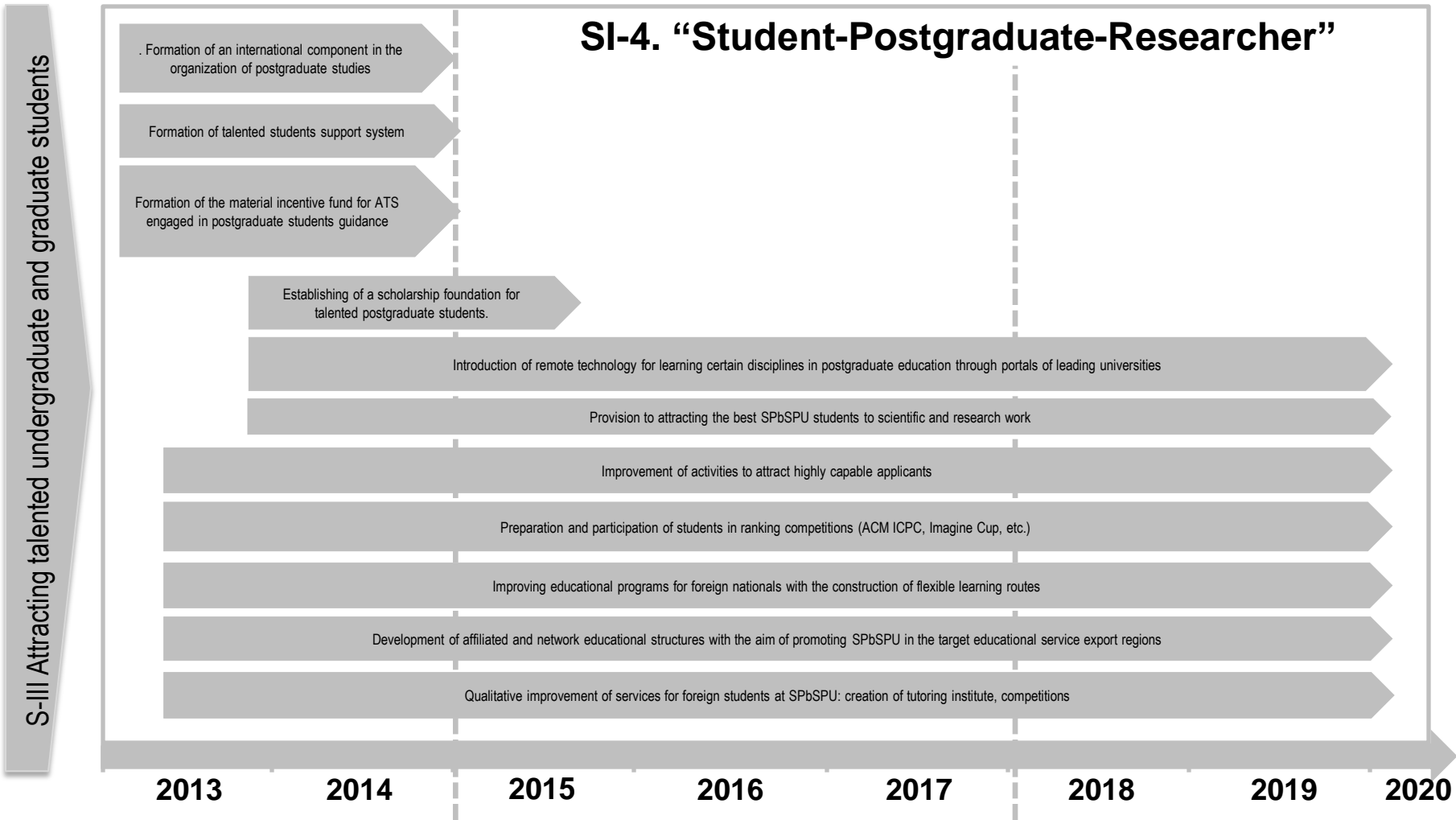
All of the Roadmap activities are aligned by objectives, tasks, deadlines and resources(3)

S-II. Attracting and developing the main staff of the university

SI-3. Development of the University's intellectual capacity

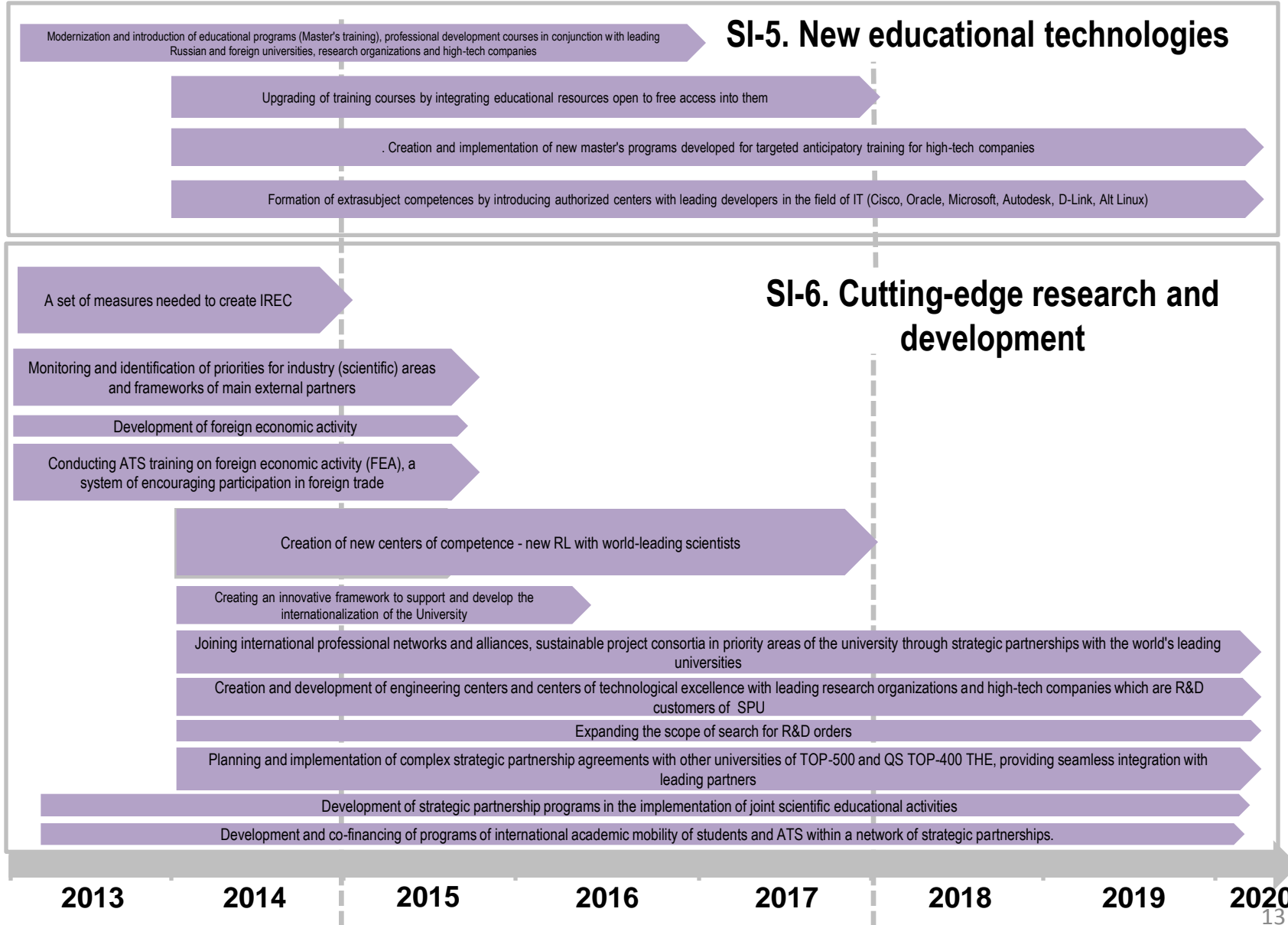


All of the Roadmap activities are aligned by objectives, tasks, deadlines and resources(4)

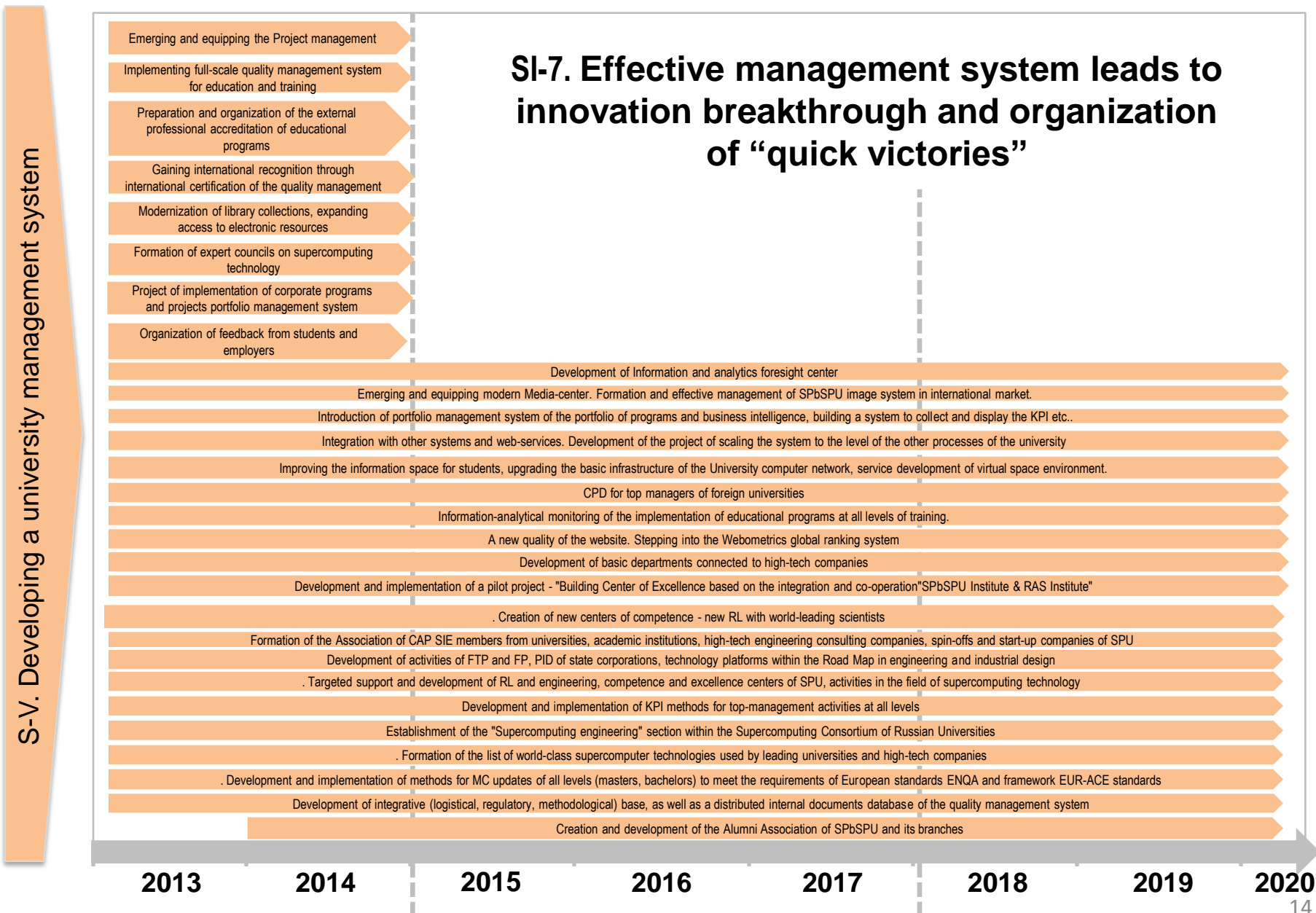


All of the Roadmap activities are aligned by objectives, tasks, deadlines and resources(5)

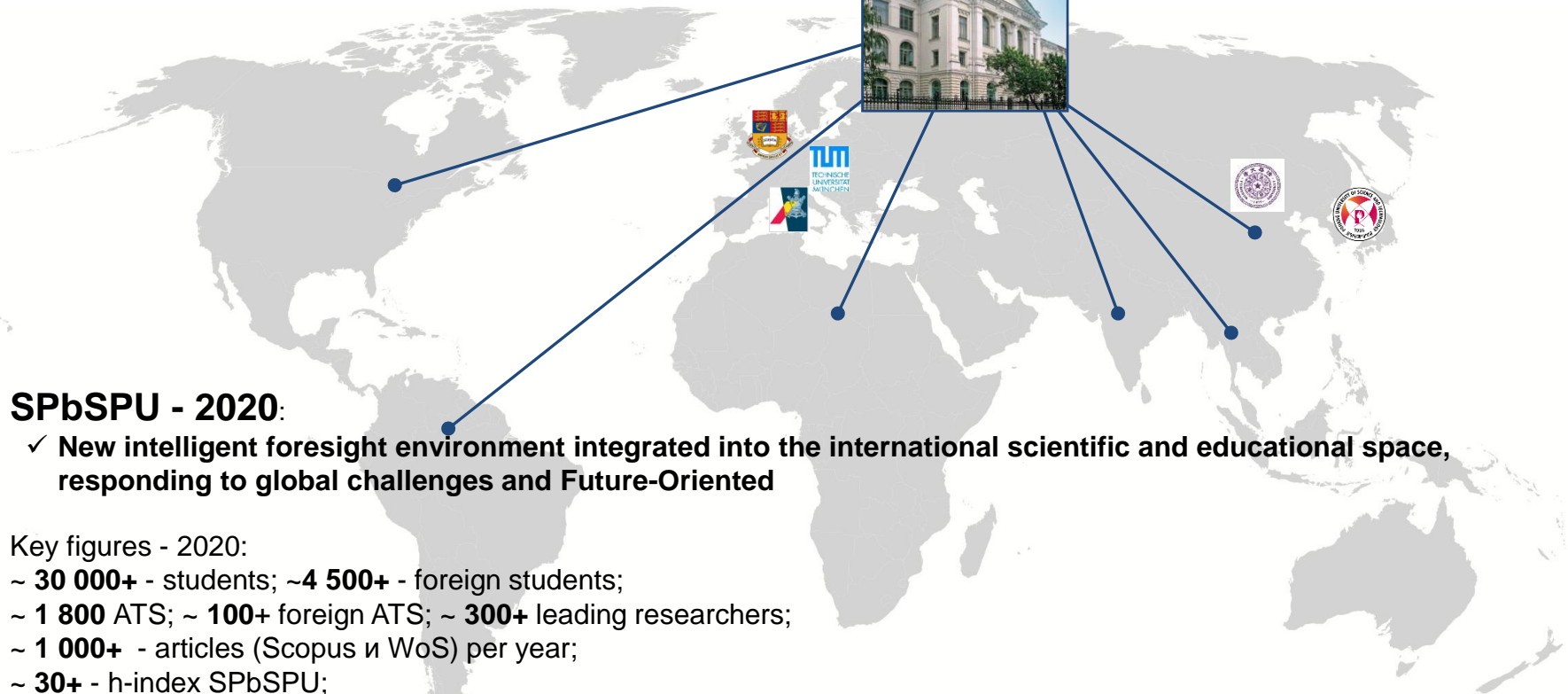
S-IV Mechanisms of providing the concentration of resources on the cutting-edge areas



All of the Roadmap activities are aligned by objectives, tasks, deadlines and resources(6)



SPbSTU-2020 - a globally competitive world-class scientific and educational center



SPbSPU - 2020:

- ✓ **New intelligent foresight environment integrated into the international scientific and educational space, responding to global challenges and Future-Oriented**

Key figures - 2020:

- ~ **30 000+** - students; ~**4 500+** - foreign students;
- ~ **1 800** ATS; ~ **100+** foreign ATS; ~ **300+** leading researchers;
- ~ **1 000+** - articles (Scopus и WoS) per year;
- ~ **30+** - h-index SPbSPU;
- ~ **40+** - leading researchers h-index HI > 20;
- ~ **3+** - highly cited researchers CI3 ~ 500, HI > 40 participants of Mega-Science projects;
- ~ **15** Basic departments;
- ~ **30+** new structures: Research Lab. (RL), Competence centers (CC), Centers of excellence (CE);
- ~ **19** bln (mlrd) RUR – consolidated budget, including:
 - ~ **6** bln (mlrd) RUR – Education and ~ **6** bln (mlrd) RUR – R&D

- ✓ **modern Campus and innovative infrastructure.**