



Министерство экономического развития  
Российской Федерации

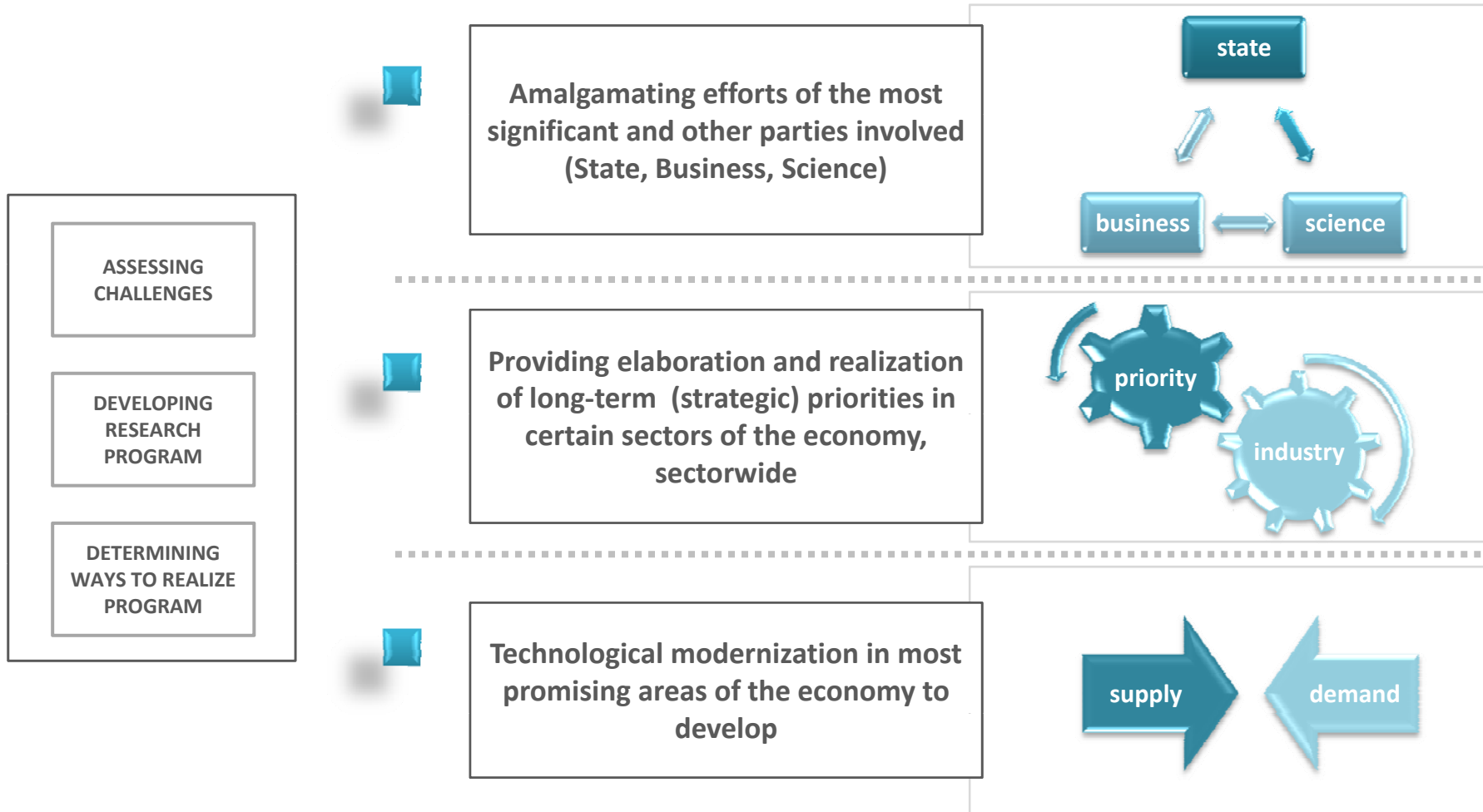
## Forming Technology Platforms

Department for Strategic Management (Programs)  
& Budgeting Director  
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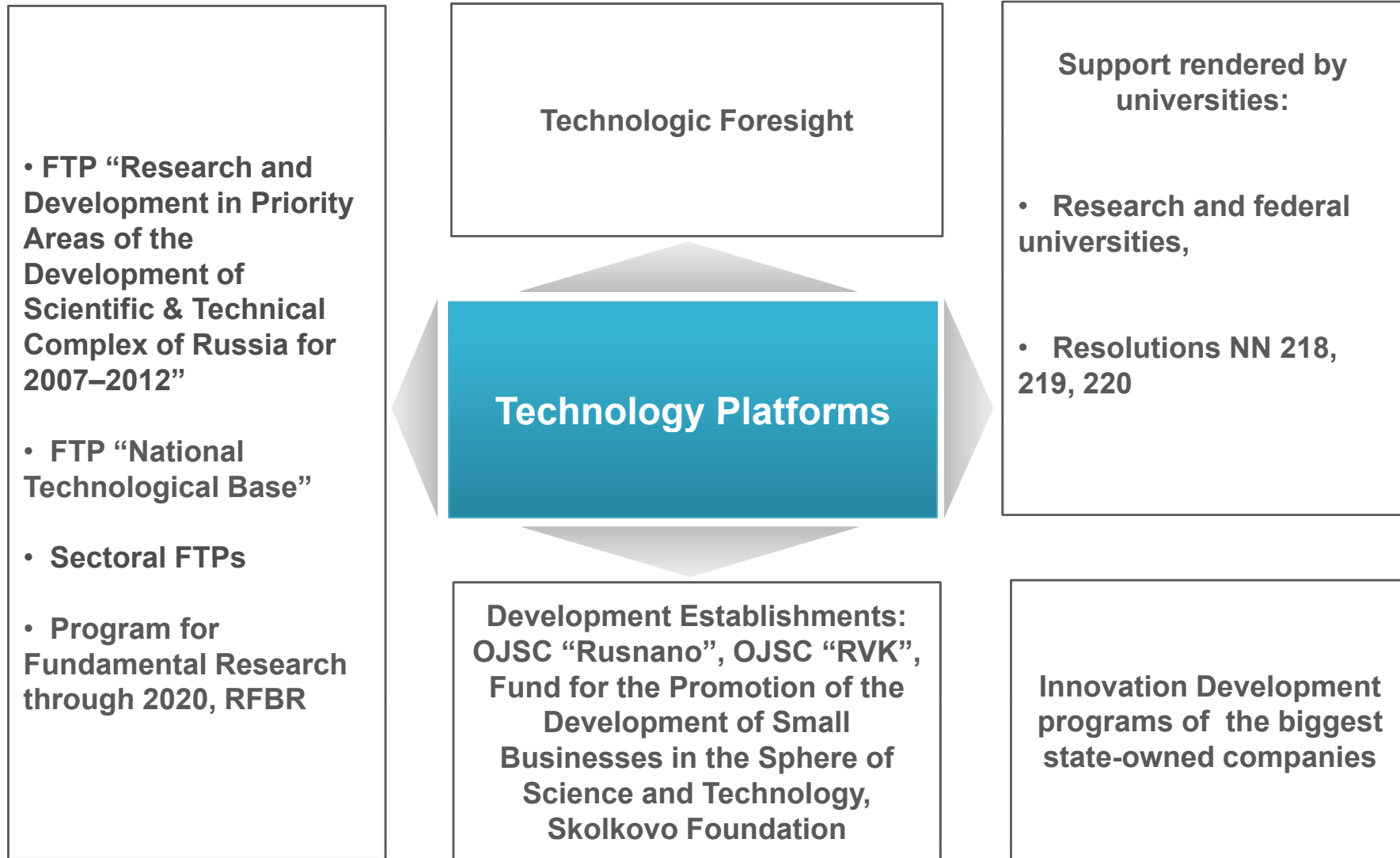
Moscow, 2011

# The Notion of Technology Platform

## Basic Principles



# Technology Platforms Place in Innovation Policy



## Regulatory Base

The Russian Federation  
President Assignment  
N22-pr dated 4 January  
2010

The requirement for participation of the biggest state-owned companies in the formation and performance of Technology Platforms was adopted  
*(as one of the directions in which Innovation Development programs are to be realized)*

The Government  
Commission for  
Advanced Technology  
and Innovation  
Proceeding N4 of 3  
August 2010

The procedure for the formation of Technology Platforms List was adopted

The Government  
Commission Presidium  
Proceeding of 3 March  
2011

The Technology Platforms List was adopted

The Government  
Commission  
Proceeding of 1 April  
2011

The Technology Platforms List was adopted



# Basic Stages of the Formation and Development of a Technology Platform

Projected profile of a Sector for the long term

Strategic Research Agenda

Plan for Implementation of Strategic Research Agenda

## STAGE 1

Assessing key challenges

Determining strategic goals and practicable ways of effecting technologic modernization

Timeframe

Assessing Science and Technology potential

Presumable 'agenda' for undertaking research and development

## STAGE 2

Determining priorities in R&D and basic potential participants

Building scientific co-operation, determining possible consortia

Determining the required directions of scientific infrastructure to develop

Forming educational/training programs

Determining the directions and principles to develop standards and certification system within

Determining the required financing

## STAGE 3

Determining a variety of possible sources of financing

Creating the organizational structure to monitor the progress and problems and to adjust the required directions of research and development

Identifying instruments of interaction in determining priorities and exchanging the obtained results

Determining the 'Road Map'

Generating the continuously adjusted 'projects portfolio', subordinate to accomplishment of strategic tasks and allowing for the resource frame



# Designation of Technology Platforms in Russia

## PROBLEMS

Interests pursued by business being obscure (having insufficient structuring)

'Planning horizon' of business being narrow and its susceptibility to innovation low

The influence brought by business to bear upon the themata of research and development and the training programs being insufficient

The fragmentarity of the research and development sector; problems of transformation of R&D results into commercial technologies

The inhomogeneity of research and development sector as a whole and throughout its subdivisions; the unclearness of competences

Parallelism in the R&D supported by state; insufficient dissemination of the obtained results

Instruments of determining priorities of scientific and technologic development being underdeveloped in respect of interaction with 'basic stakeholders'

Barriers are existent to dissemination of technologies, which are attributable to sectorial regulation

The multiplicity of instruments and channels of support by state to innovation projects, the necessity for their 'tuning'

The lack of the 'flow' of high-quality innovation projects

## GOALS

Embroiding of the 'planning horizon' and of possible directions of technological modernization, heightening of the efficiency of the modernization through promotion of scientific and production partnerships

Providing that the scope of potential 'beneficiaries' of the research and development supported by state becomes larger over the economy

Betterment of the conditions for advanced technologies to disseminate in the economy

Involvement of additional non-state resources in innovation area

Consolidation of resources by priority directions of innovative development

Selection of the best practices centres, formation of 'excellence ones' in research and development sector; development of communication system

Enlargement of the possibilities for ranking of different scientific and technological directions for socio-economic development



# Potential Mid-Term Gains for Active Participants in Technology Platforms

## BUSINESS

- Bettered environment for innovations, stimulated demand for innovative products
- Improved quality of staff training that takes into account the required technologic competences
- Innovative projects application supported financially
- New possibilities for technological modernization and planning horizon embroading
- Possibilities for production of fundamentally new products
- Embroading of possibilities for selection of partners; selection of the best counterparts
- Political support in the world markets, possibilities for creation of international alliances in the areas characterized by high risks and requiring consolidation of resources
- Support and attention from the general public, increase in consumer demand for innovative products (services)

## SCIENCE

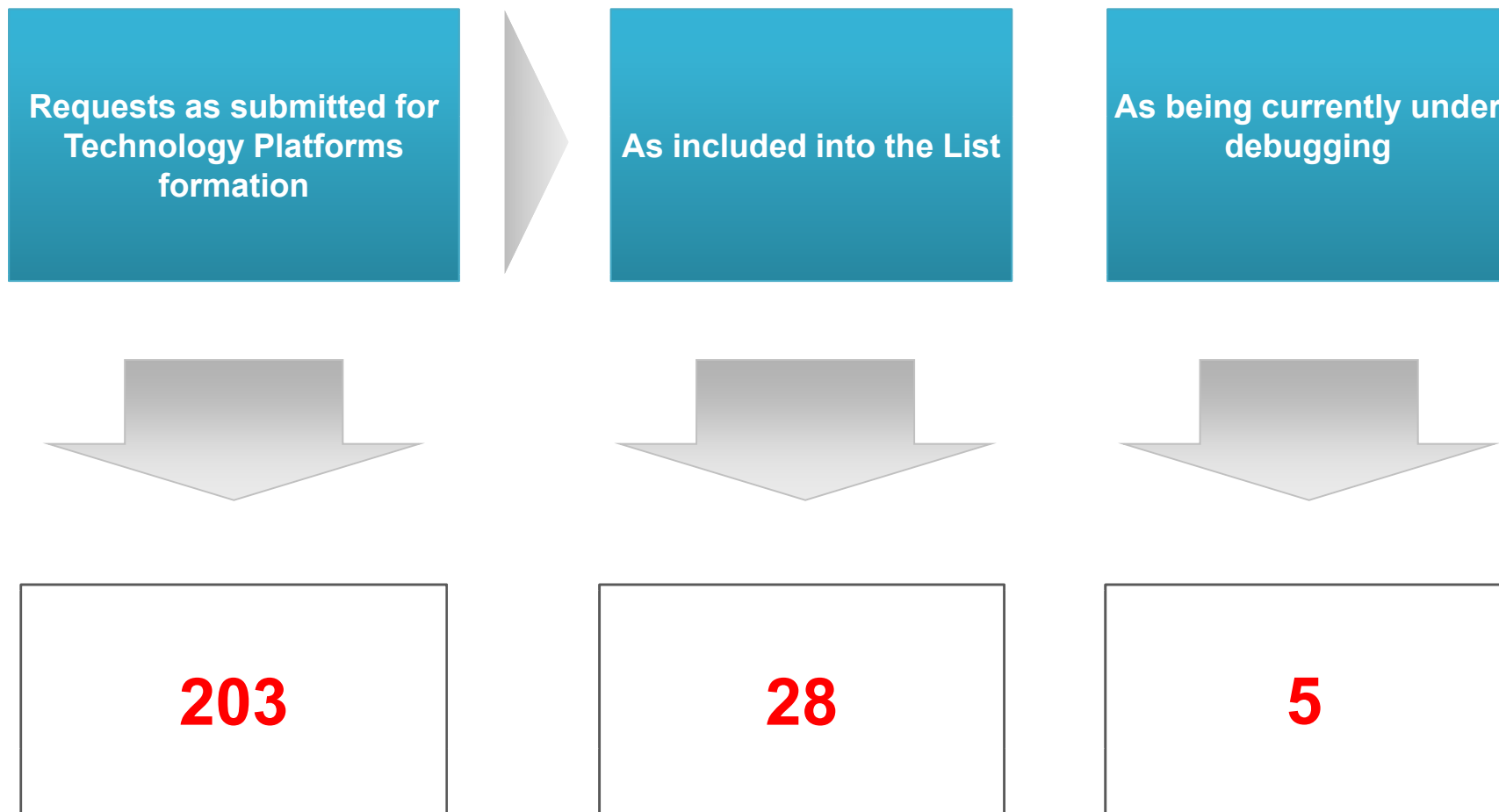
- Involvement of business in the partnership with academic organizations, the demonstration effect for business; increase in the demand for R&D on the part of business
- Enlargement of the competences that are of interest to business (training, engineering, design, long-term prognostics)
- Inclusion of the small firms established by academic educational institutions into subcontracting networks
- Filling of the 'gaps' in the applied sciences
- Formation of new types of co-operation in the sector of science
- Creation of competences centres, including ones at the level of structural units of scientific establishments and academic educational organizations
- Formation of the potential for realization of complicated projects with plenty of participants

## STATE

- Determination of middle- and long-term priorities of Science and Technology policy
- Concentration of private and state resources along the priority directions of the economy modernization
- Coordination of the R&D that are financed from the budgetary funds
- Identification of the regulation improvement directions, inclusive of sectorial regulation
- Betterment of the conditions for dissemination of advanced technologies
- Enhancement of the efficiency of big state-owned companies
- Achievement of greater gains in the performance of budgetary funds



# Technology Platforms Projects





# Technology Platforms Selection Criteria

- 1. The conformity of the ideology of a Technology Platform (a Platform, not project, to be submitted)**
- 2. Market outlook for the development of technologies**
- 3. The distinct and clear cut formulation of science and technology tasks and convincing substantiation of their significance for the development of related sectors of economy. The availability of sci-tech advance**
- 4. The representation of key units of the academic and educational establishments that work on the technology concerned**
- 5. The representation of key companies from both state-owned and private sectors**
- 6. The impossibility of accomplishment of the formulated tasks without the coordination across a broad scope of participants**
- 7. Top-priority actions to be thoroughly elaborated within a Technology Platform**



## Technology Platforms Realization Areas

Area	Number of Technology Platforms
1. Medical and Biotechnologies	3
2. Information and Communication technologies	2
3. Photonics	2
4. Aerospace technologies	3
5. Nuclear Energy-related and Radiation Processing Technologies	3
6. Power Engineering	4
7. Transport technologies	2
8. Metallurgical technologies and novel materials	2
9. Natural Resources Production and Oil and Gas Processing	3
10. Electronics and Machine-Building technologies	3
11. Ecological Development	1



# Technology Platforms Projects (1)

Area	Technology Platform	Coordinator
<b>Medical and Biotechnologies</b>	<b>Medicine of the Future</b>	The Siberian State Med. University, City of Tomsk
	<b>Bio-Industry and Bio-Resources – BioTech2030</b>	OJSC “RT-Biotechprom”, The M.V. Lomonosov MSU
	<b>Bioenergy</b>	National Research Center “Kurchatov Institute”
<b>Information and Communication technologies</b>	<b>National Software Platform</b>	OJSC “Sirius Concern” (SC “Rosstechnologies”)
	<b>National HPC Technology Platform</b>	The A.K.Ailamazian Institute of Programme Systems, RAS, The M.V.Lomonosov MSU
<b>Photonics</b>	<b>Innovative Laser, Optical and Optoelectronic Technology – Photonics</b>	Nonprofit Partnership ”Laser Association”
	<b>Russian LED Technology Development</b>	OJSC “Rosnano”
<b>Aerospace technologies</b>	<b>Air Mobility and Aviation Technologies</b>	FSUE “CIOAHD”, OJSC “OAK”, SC “Rosstechnologies”
	<b>National Space Technology Platform</b>	FSUE “CERI” (TsNIIMash), The Moscow Institute of Aviation
	<b>National Information Satellite System</b>	OJSC “The Academician M.F.Reshetnyov Information Satellite Systems”



## Technology Platforms Projects (2)

Direction	Technology Platform	Coordinator
<b>Nuclear Energy-related and Radiation Processing technologies</b>	<b>Closed Nuclear Fuel Cycle with Fast Reactors</b>	SC "Rossatom"
	<b>Controlled Fusion Technological Platform</b>	SC "Rossatom"
	<b>Radiation Technologies</b>	SC "Rossatom"
<b>Power Engineering</b>	<b>Intelligent Energy System of Russia</b>	FSU "The Russian Energy Agency" of the RF Ministry of Energy
	<b>Environmentally Safe Thermal Power of High Efficiency</b>	OJSC "All-Russia Heat Engineering Research Institute"
	<b>Advanced Technologies of Renewable Power Engineering</b>	OJSC "RussHydro"
	<b>Small-Scale Distributed Power Generation</b>	"Agency for Prognostication of Balances in E/Power Sector, "Inter RAO UES", NPO "The Russian Peat and Bioenergetic Society"
<b>Transport technologies</b>	<b>Application of Innovative Technologies to Improve Construction Efficiency, Maintenance and Safety of Roads and Railways</b>	OJSC "Rosnano"
	<b>High-Speed Intellectual Railway Transport</b>	OJSC "Russian Railways"



## Technology Platforms Projects (3)

Area	Technology Platform	Coordinator
<b>Metallurgy Technologies and Novel Materials</b>	<b>New Polymer Composite Materials and Technologies</b>	FSUE "VIAM", OJSC "Rosnano"
	<b>Materials and Technologies of the Metallurgy</b>	FSUE "VIAM", OJSC "RT-Metallurgy", Moscow Institute of Steel and Alloys
<b>Natural Resources Production and Oil and Gas Processing</b>	<b>Technology Platform on Solid Minerals</b>	OJSC "SUEK"
	<b>Production and Usage of Hydrocarbon Resources</b>	The I.M.Gubkin Russian State University of Oil and Gas
<b>Electronics and Machine-Building technologies</b>	<b>Deep Conversion of Hydrocarbon Resources</b>	National Research and Design Institute of Petroleum Industry (VNIPneft')
	<b>Technologies of Mechatronics, Embedded Control Systems, Radio-frequency Identification and Robot-building</b>	Moscow Institute of Physics and Technology, OJSC "Rosnano", SSI CRI for Robotics Technology and Engineering Cybernetics
	<b>Microwave Technologies</b>	OJSC "Rosselectronics" (SC "Rosstechnologies")
	<b>Ocean Development</b>	OJSC "Maritime Information Systems Concern 'Agat'", OJSC "OSK", OJSC "MPO-Hydropribor Concern"
<b>Ecological Development</b>	<b>Green technologies</b>	National Social Organization "Russian Geographical Society"



## Technology Platforms Correlation - Russia vis-à-vis EU

<b>Priority Technologies from the Concept 2020</b>	<b>Russian Technology Platforms</b>	<b>EU Technology Platforms</b>
<b>Software Development</b>	<b>National Software Platform</b>	<b>European Software and IT Services Initiative</b>
<b>Development of the New Architecture of Computing Facilities</b>	<b>National HPC Technology Platform</b>	<b>Computer Systems</b>
<b>Optoelectronics Development. Photonics and Laser Technology</b>	<b>Innovative Laser, Optical and Optoelectronic Technology – Photonics</b>	<b>Photonics-21</b>
<b>New Generations of Aviation Equipment Creation</b>	<b>Air Mobility and Aviation Technologies</b>	<b>Advisory Council for Aeronautics Research in Europe</b>
<b>New Generations of Aerospace Technology Creation</b>	<b>National Space Technology Platform</b>	<b>European Space Technology Platform</b>
<b>Creation of New Generations of Nuclear Reactors and Fuel Elements, Building of Nuclear Power Plants of Enhanced Security</b>	<b>Closed Nuclear Fuel Cycle with Fast Reactors</b>	<b>Sustainable Nuclear Energy Technology Platform</b>
<b>Development of Effective Direct-Current Long-Distance Power Transmission Systems</b>	<b>Intelligent Energy System of Russia</b>	<b>European Technology Platform for Electricity Networks of the Future (SmartGrids)</b>
<b>Modern Thermal Stations Technologies</b>	<b>Environmentally Safe Thermal Power of High Efficiency</b>	<b>Zero Emissions Thermal Power Plants</b>



## Technology Platforms Projects Currently under Debugging

Area	Technology Platform	Coordinator
<b>Electronics and Machine-Building technologies</b>	<b>Applied High-Temperature Superconductivity</b>	CJSC "SuperOx"
	<b>High Technologies for Mechanical Facilities</b>	SEI of HPE "The Moscow State 'Stankin' University of Technology", SEI of HPE "The Tula State University"
	<b>Textile and Light Industries</b>	SEI of HPE "The Kazan State University of Technology"
<b>Ecological Development</b>	<b>Integrated Safety and Security in Industry and Energy</b>	Safe Development of Nuclear Energy Institute (SDNEI, RAS)
	<b>Biological Safety: Innovative Technologies for Veterinary Medicine, Agriculture and Environmental Protection</b>	FSI "Federal Centre for Toxicological and Radiation Safety of Animals", RF Ministry of Agriculture



# Participants

## BUSINESS

## SCIENCE & EDUCATION

### State-Owned Companies

- SC “Rosatom”
- SC “Rosstechnologies”
- OJSC “Rosnano”
- OJSC “RZhd”
- OJSC “Russhydro”
- OAO “Inter-RAO UES”
- OJSC “OAK”
- OJSC “OSK”
- MSC “Energia”
- OJSC “Gasprom”
- OJSC “Rosneft”
- CJSC “ALROSA”
- OJSC “FSK”
- OJSC “MRSK Holding”
- OJSC “Aeroflot – Russian Airlines”
- FSUE “M.V.Khrunichev State Space Research and Production Centre”

### Private Business

- OJSC “Lukoil”
- OJSC “SUEK”
- OJSC “Zoloto Pole”,
- MMIW “Norilsk Nickel”
- OJSC “The Novolipetsk Metallurgy Combine”
- OJSC “Uralkalium”
- OJSC “Sylvinite”
- CJSC “SIBUR-Holding”
- The Ural Mining and Concentrating Metallurgical Company
- OJSC “Eurokhim MKhK”
- CJSC “FosAgro AG”
- JSFC “Sistema”
- “ABBY”
- “Kapersky’s Laboratory”
- “1C”

- RAS Institutes
- RAMS Institutes
- RAAS Institutes
- The Lomonosov MSU
- The Kurchatov Institute
- Institute of Physics and Technology (FizTekh)
- The Moscow Engineering and Physics Institute (MIFI)
- The Moscow Institute of Steel and Alloys (MISiS)
- The Moscow Aviation Institute (MAI)
- Central Institute of Aerohydrodynamics (TsAGI)
- VIAM
- TsNIIMash
- VNIPIneft’
- State Research Centres
- Federal and Research Universities





# State Support Measures

Consideration given to Technology Platforms priorities when determining the themata of works and projects and the scope of funding

Inclusion of Technology Platforms representatives into the membership of advisory boards of ministries and state development institutes

## Within state-run programmes:

- Federal Target Programmes, incl. “Research and Development in Priority Areas of the Development of Scientific and Technical Complex of Russia for 2007-2012”
- Federal Programme for Fundamental Research through 2020

- Projects run by the RAS, RAMS, RAAS
- Projects run by the RFBR
- support to national development institutes:
  - OJSC “Rosnano”
  - OJSC “RVK”
  - Fund for the Promotion of the Development of Small Businesses in the Sphere of Science and Technology
  - Skolkovo Foundation

Participation of representatives of federal bodies of executive power in the activities carried by supervisory and managerial bodies of Technology Platforms

Proposals coming from Technology Platforms are taken into account when preparing requirements to qualitative characteristics of innovative products where long-term public procurement plans are developed

