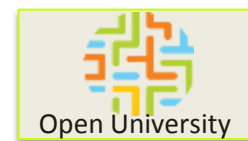




Skolkovo

INNOVATION CENTRE OVERVIEW



Russia has high potential for innovations and R&D

14

2013

Global Innovation Quotient

Calculated for 200 countries. They are rated by rate of patent registration, concentration of researches, intensity of R&D, volume of investment in R&D etc.

Bloomberg

4

in Europe 2012

Dow Jones VentureSource

Evaluates venture markets by a number of criteria.

Wall Street Journal, Heritage Foundation

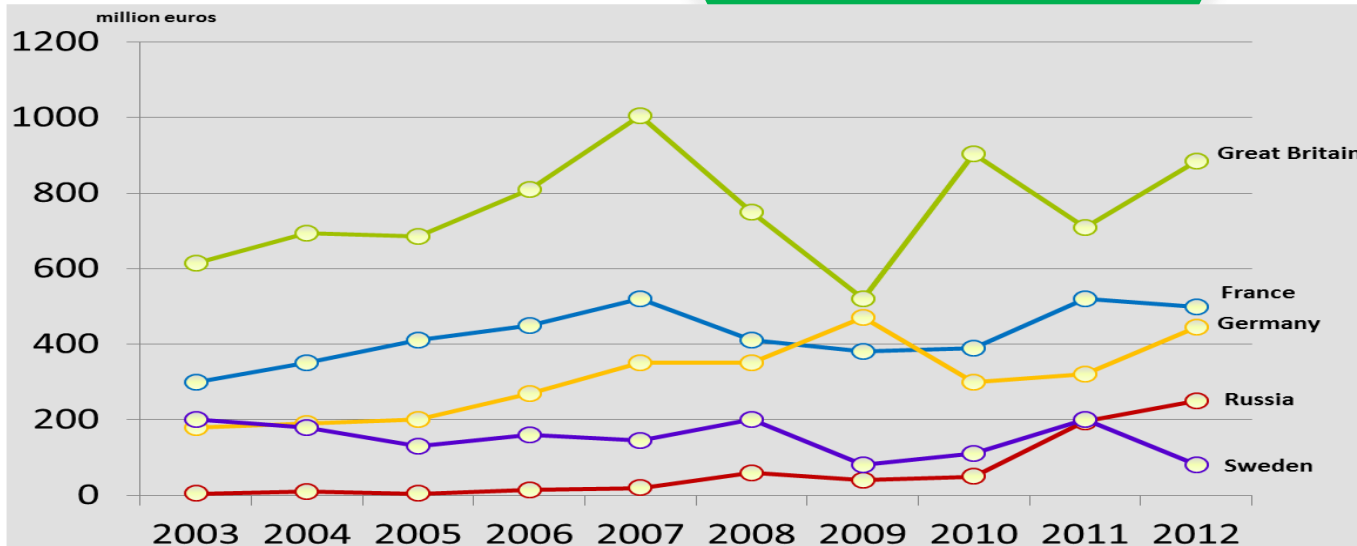
3000

Research institutions

60

Scientific towns

Venture investments in Russia are growing



Note: without semi-conductors.
Source: Dow Jones VentureSource 2012.

Enable diversification and growth of
Russia's economy through
innovation and technology
commercialization

Russian and International Innovation ecosystem

1065 startups

Biomedical Space
Energy Nuclear
It

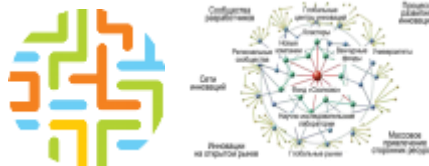
Ideas

Technological University

Skoltech

Knowledge

Virtual Skolkovo



People

71 VCs: \$710M commitments



Funding

30+ global corporations



Technologies and market access

Office and R&D infrastructure



Infrastructure & community

Skolkovo ecosystem

Number of innovative startups
October 11 2014

1065

Sk
Energy

Energy Efficiency
&
Cleantech

Sk
It

Hardware,
Software
& Distributed
Computation

Sk
Biomedical

Pharmaceuticals,
Biotechnology,
Medical Devices
&
BioIT

Sk
Space

Space
Technologies,
Telecomm
&
Navigation
Systems

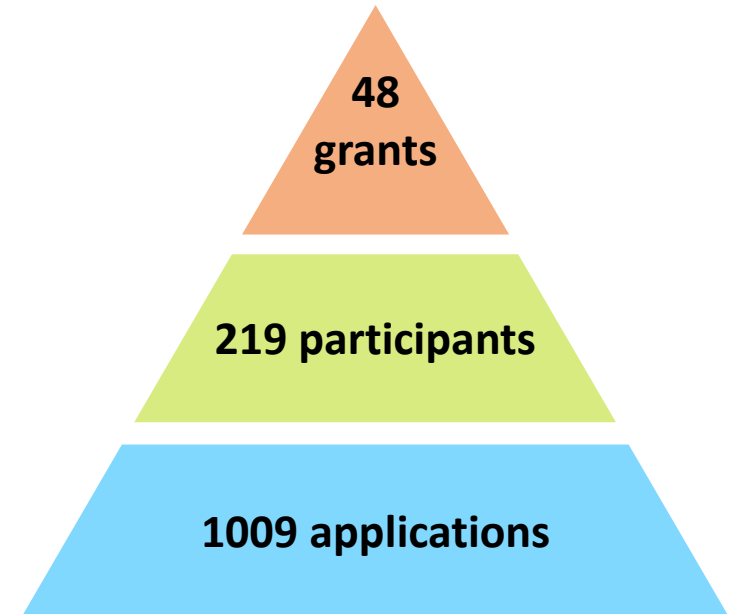
Sk
Nuclear

Nuclear &
Radiation
Technologies,
Materials
&
Engineering

900 IP RIGHTS REGISTRATION APPLICATIONS IN 2013

Cluster priorities

- Medical devices and clinical IT
- Major killer diseases in Russia and neurological diseases
 - anti-microbial and anti-viral drugs
 - cancer drugs & diagnostics
 - cardio-vascular drugs & diagnostics
 - endocrine drugs & diagnostics
- Cellular and molecular techniques for diagnostics and therapies
- Immunity, inflammation and auto-immunity
- Bioinformatics and systems biology

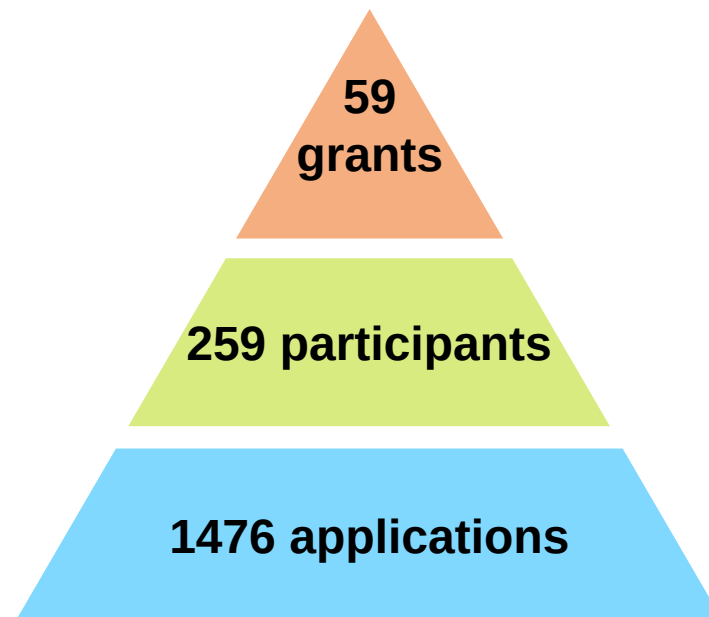


Industrial partners:

EMC² **SHIMADZU**
Solutions for Science
since 1875 **INVITRO**
PEHOBA

Cluster priorities

- Power and heat generation from fossil fuels
- Power and heat generation from renewables
- Energy accumulation
- Power transmission and distribution
- Oil and Gas production and transportation
- Chemistry and petrochemistry
- Communal sector including district heating, lighting etc.
- Other energy efficient technologies

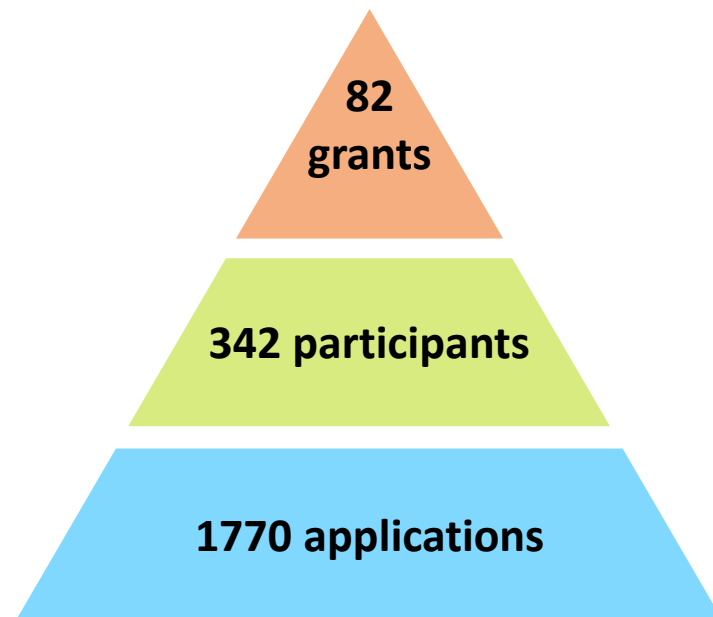


Industrial partners:



Cluster priorities

- New search and recognition technology
- New data storage, processing and transmission methods (More than Moore)
- Processing of large data arrays (Big Data problem)
- New development and testing tools
- Development of new high performance computing and data storage systems
- Ubiquitous and Cloud Computing
- Development of communication and navigation technologies
- Secure information technologies
- New human-machine interfaces for any applications



Industrial partners:

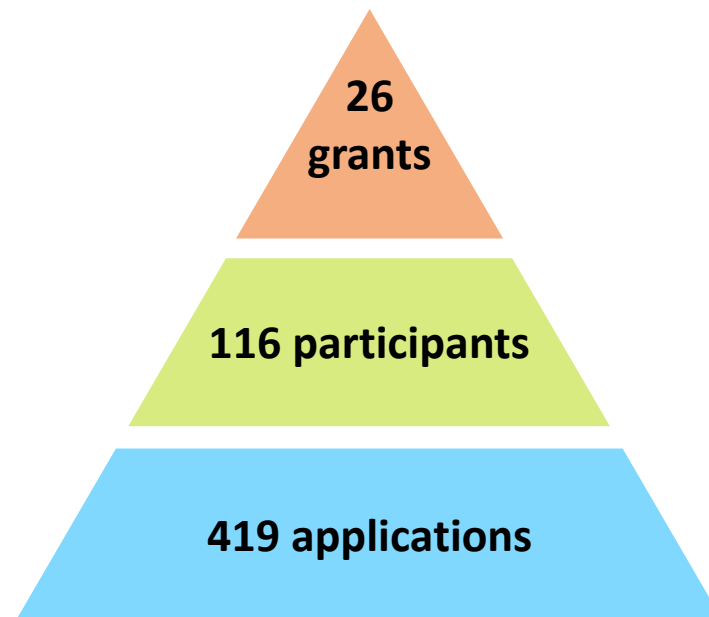


Cluster priorities

- Space
- Telecommunications

Strategic Directions and Priority Areas of Development

- Earth to Space
- Earth - Space
- The new space economy

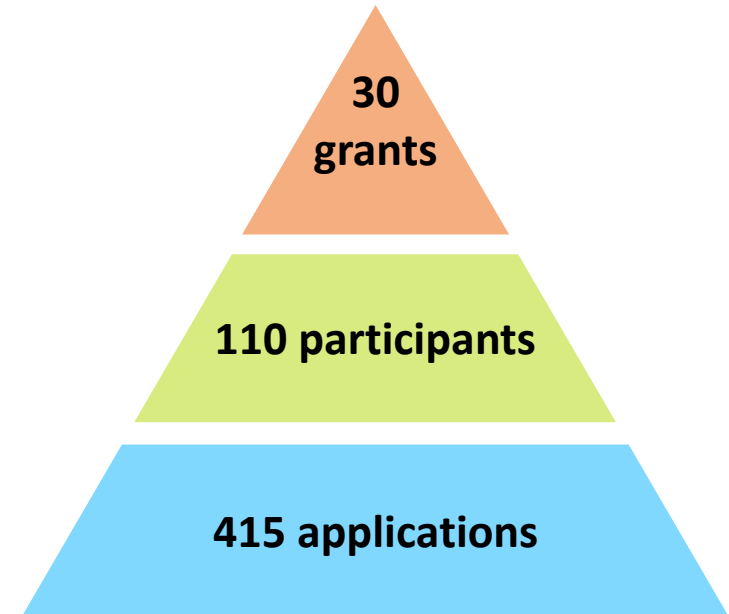


Industrial partners:



Cluster priorities

- Radiation technologies
- Development of new properties of materials
- Mechanical engineering, instrument making and new microelectronics technologies
- Technologies of designing, constructing, modeling and engineering of complicated technological objects and systems
- Spin-offs from nuclear science



Industrial partners:



SIEMENS

COMPOSITE
HOLDING COMPANY

LIMO
Инженерно-Механика

BOZLUholding

ASML

APPLIED
MATERIALS

VARIAN
medical systems

Консультационный
центр



Кадровый сервис

Аренда офисных
помещений

Юридические
услуги

Бухгалтерские
услуги



Технологические
сервисы

Защита
интеллектуальной
собственности

Визово-
миграционная
поддержка

Зал для
видеоконференций

Специальные
предложения
от партнеров

Почтовый сервис

Жилищный сервис

Таможенно-
финансовая
компания

Маркетинговый
сервис

Cluster-specific CUCs (12)

IT



-Virtual modeling

NT



-Laser systems
-Lasers and their applications

STT



-Space instrumentation
-Microsatellite technology

EE



-Universal measuring assembly
-Battery testing
-Fuel element testing

BMT



-Preclinical drug discovery
-Genomics, Omics of biology and bioinformatics
-Molecular and cellular biology; genetic engineering

Industrial technologies (6)

-Hydraulic and pneumatic testing - Gas apparatus assembly
-Testing electro-technical equipment -Heat and mass transfer lab
-Testing materials and surfaces -Nanostructured surfaces, coating

Cross-discipline CUCs (6)

-Material science: organic and inorganic zones
-Prototyping:
 --industrial design
 --machining
 --electronics and embedded software
-Workshop lab
-Circuitry lab
-Electrics testing lab

ENABLING ACCESS TO PRIVATE FUNDING



- **Startup funding:** 200+ start-ups supported with non-dilutive financing for the total of \$206M and \$259M equity investment from independent investors
- **50+ Accredited Funds** and commitments of some **\$710M** to be spent as investments into Skolkovo 'Start-ups'
- **101 Skolkovo residents** are backed by accredited Skolkovo investors

INDUSTRIAL PARTNERS ARE THE CRITICAL ELEMENT PROVIDING TECHNOLOGY AND MARKET ACCESS TO ECOSYSTEM



30

corporate R&D centers

~\$1.0 bln.

estimated total budget of R&D centers by the end of 2015

3 511

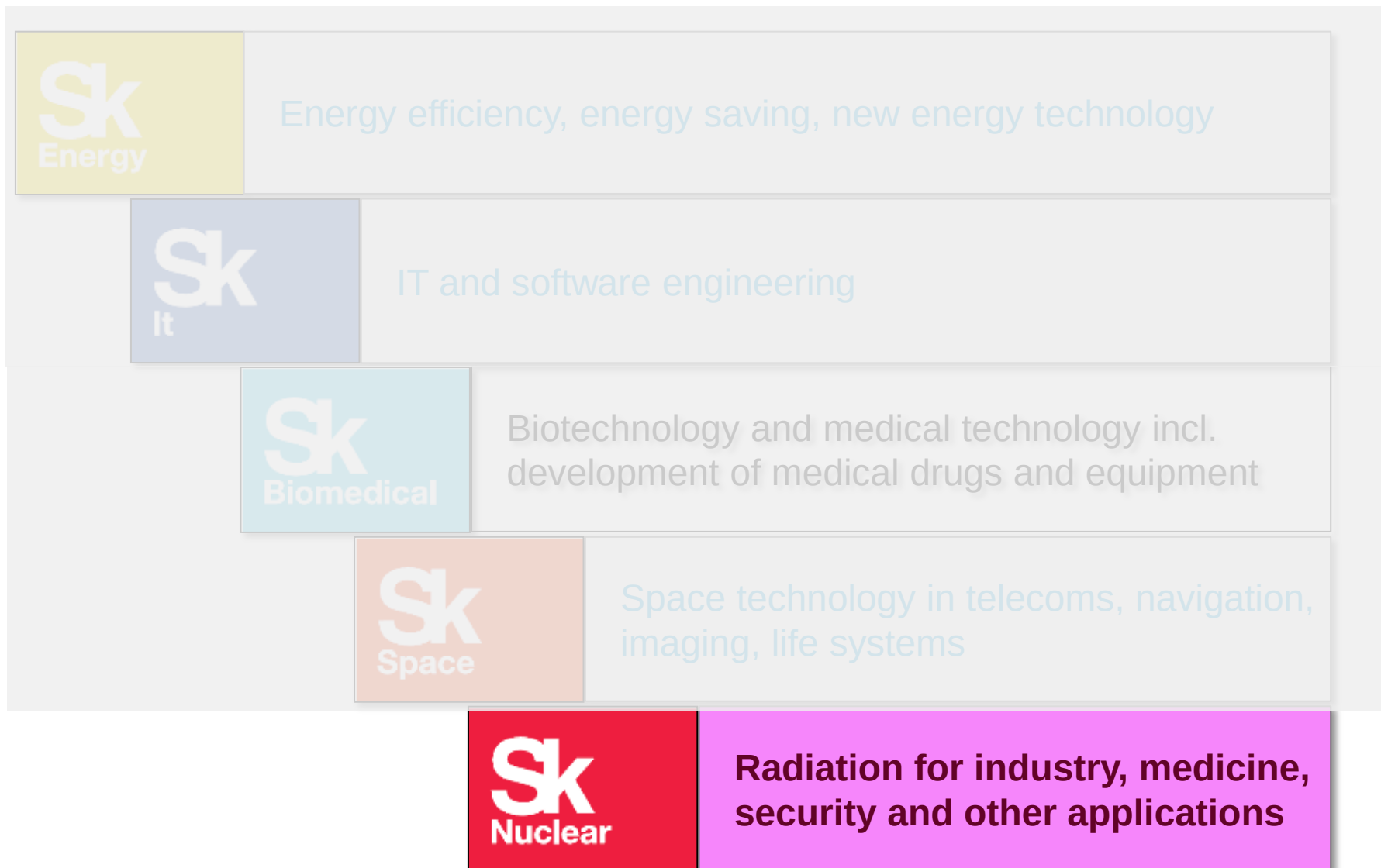


estimated number of employees in R&D centers by the end of 2015

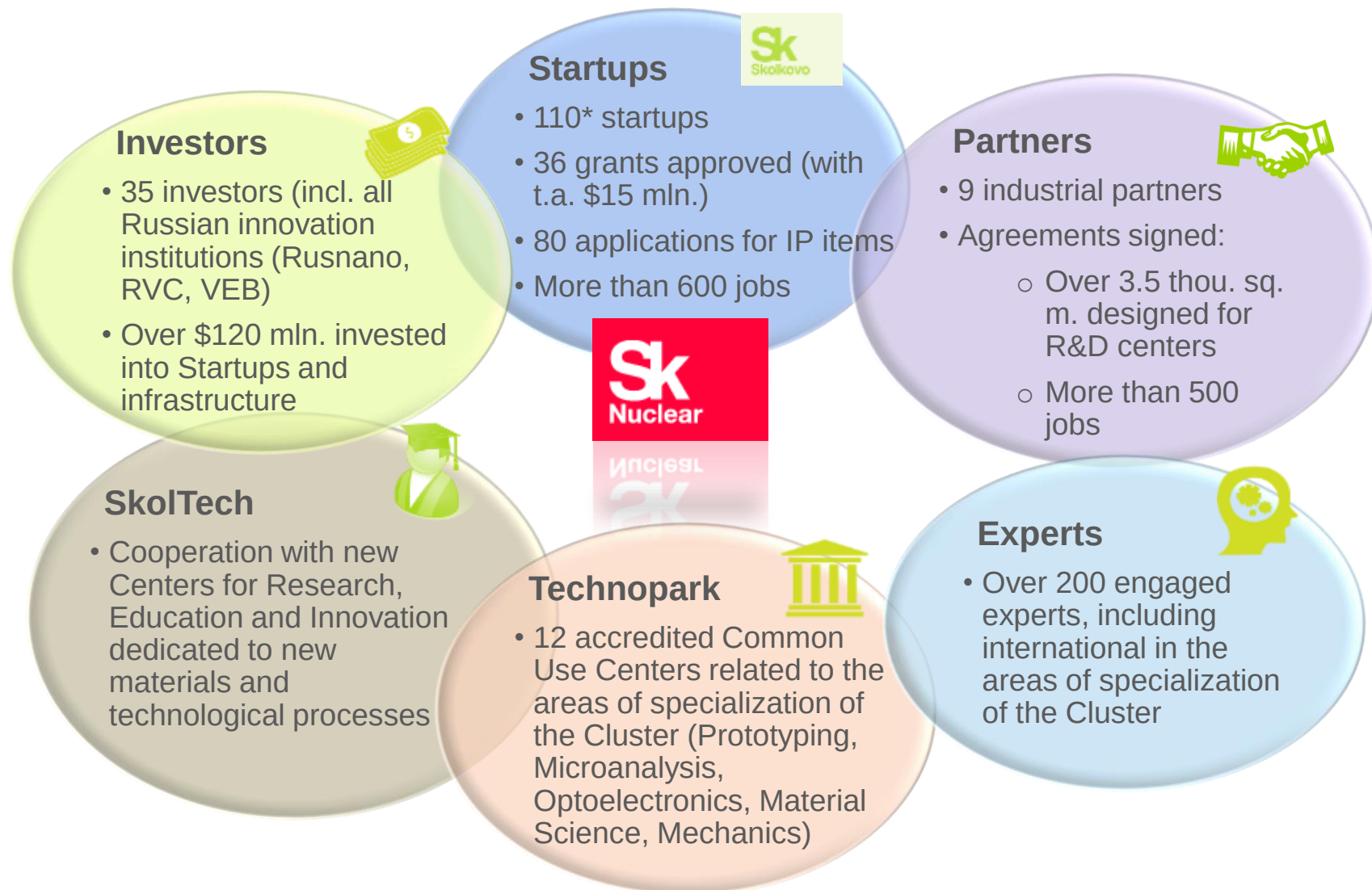
planned

>40

companies - partners



NUCLEAR & RADIATION TECHNOLOGIES CLUSTER IS ONE OF THE WORLD LEADERS IN TERMS OF NUMBER OF STARTUPS IN NUCLEAR & RADIATION FIELD



PRIORITIES OF NT CLUSTER OF SKOLKOVO FOUNDATION.

TECHNOLOGICAL STRUCTURE

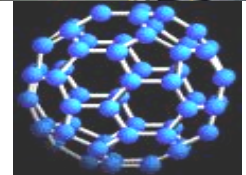
2.1. Industrial technologies based on nuclear science developments



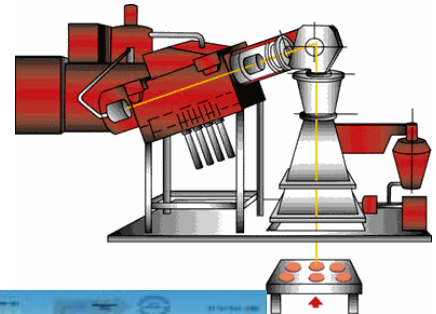
2.2. Application of radiation and electromagnetic fields



2.3. Technologies of properties' modification and characterization of materials



2.4. Technologies supplied to mechanical systems, instruments and new microelectronics

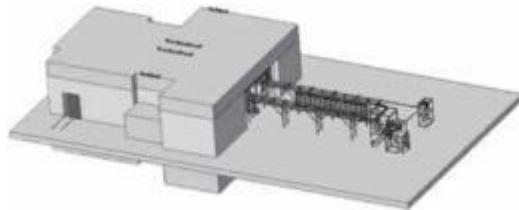
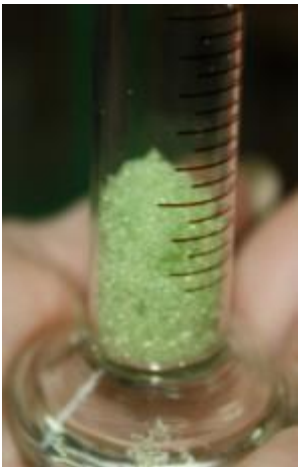
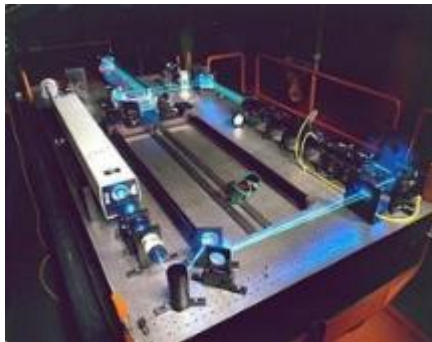
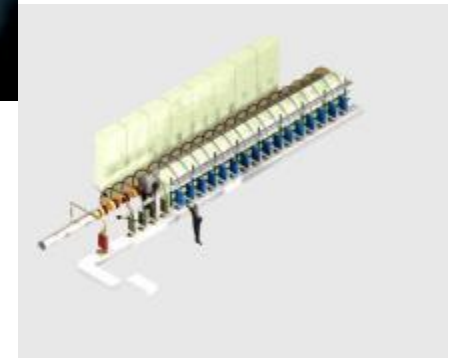
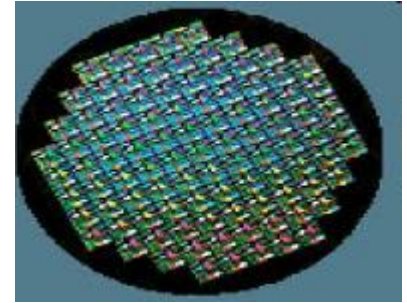


2.5. Technologies of designing, constructing, modeling and engineering of complicated technological objects and systems



MARKET PRIORITIES FOR IMPLEMENTATION OF NUCLEAR AND RADIATION TECHNOLOGIES

- Nuclear industry
- Medicine and biotechnologies
- Micro- and nano- electronics
- Manufacturing and processing industries



- Security and safety
- Food and water markets
- Ecological sustainability
- Scientific market

ATTRACTION AND SUPPORT OF STARTUPS IS OUR KEY ACTIVITY IN FRAME OF CREATION OF SKOLKOVO ECOSYSTEM



- On October 26, 110 startups participated in Skolkovo project and developing their technology business in the innovation segment Nuclear technologies; 13 projects got positive response from Cluster expert panel.

- Support of Cluster participants in development business and technology partnership with industrial leaders and governmental relations (SC Rostech, Siemens, Saint-Gobain, Festo, Varian MS, OMZ, KUKA Systems, MinEc, Min of Industry, RRW,

- Developing relationship with professional associations working in NT Cluster priority areas. Agreement with Back –End association AVERO signed in June, with Laser Association and Partnership in Radiation Technologies will signed in 2014 – they will support start-ups initiation and development, and provide support in R&D expertise and commercialization.

- Resident companies supported by NT cluster presented their achievements on International exhibitions in Russia and abroad: SPIE Photonics West 2014, International Waste Management Symposia, Photonics Russia, Atomexpo et al.



THE CLUSTER CLOSELY COLLABORATES WITH UNIVERSITIES AND RESEARCH INSTITUTES

Interaction with



- 25% of the Cluster projects are founded by graduates of RAS institutes
- 8 RAS projects raised grant financing
- At least 10% of the Foundation experts are RAS employees
- 2014 год: Presentation of Skolkovo opportunities in PI RAS, IoS RAS, FEFU, MEPhI, Joint Seminar of RFBR and Helmholtz society et al.

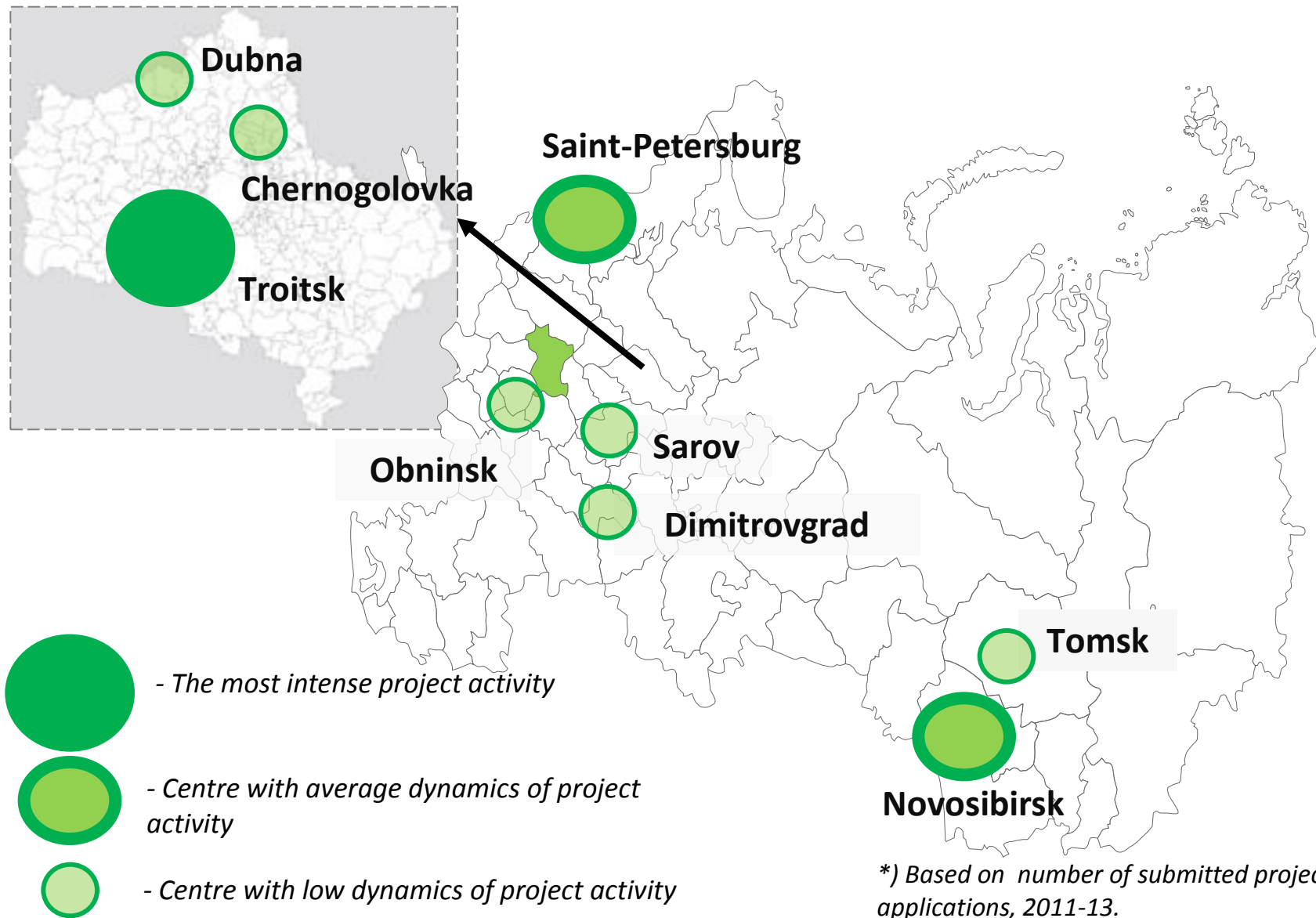
Interaction with
universities

- Interaction with universities: Lomonosov Moscow State University, Bauman Moscow State Technical University, MEPhI, MIPT, UrFU etc.
- 20% of the Cluster companies are founded by university graduates
- Cluster employees participate in project contests; regular meetings are held with students and teachers of the main universities to attract new projects.

19

Round tables
Conferences
Seminars

- l'AUEG (Alliance Université Entreprise de Grenoble)
- Technoprom – 2014 BEST AVAILABLE TECHNOLOGIES FOR THE INDUSTRY
- DEMAND FOR NEW TECHNOLOGIES: PRIVATE INITIATIVE AND PUBLIC POLICY
- STARTUP VILLAGE Potential of Engineering companies for speed up commercialization of new technologies and products
- Experience of industrial applications of additive technologies
- OPEN INNOVATIONS. Creative Disruption. In Science and Research
- Opportunities for start ups in Russian engineering industry. Instrument for support commercialization.



PRESENTATION OF THE SKOLKOVO AND NT CLUSTER IN PROFESSIONAL COMMUNITY

International conferences and seminars



ATOMEXPO 2011 – 2014, ND-EXPO - 2014

German-Russian Workshop Helmholtz Association and RFBR : Experience, Solutions, Prospects

TRAM - Trends in Advanced Machining, Manufacturing and Materials

Photonics West 2014

l'AUEG (Alliance Université Entreprise de Grenoble) Skolkovo Stminar

11 Ionizing Radiation and Polymers symposium– 2014

4th Asian Forum for Accelerators and Detectors 2013 (invited to AFAD 2015)

Russian actions, including regional seminars of SC Rosatom

Екатеринбург: Иннопром 2011 -2014, Совет Главных Конструкторов Свердловской области

Томск: International Congress on Energy Fluxes and Radiation Effects (EFRE-2014), Инновус

Новосибирск, Технопром 2013 – 2014, Школа Академпарка

Дубна: Всероссийской научно-практической конференции «Принципы и механизмы формирования национальной инновационной системы в РФ» 2012 -2014

Конференция «Радиационные технологии», Ялта 2014 (организована ГК Росатом)

Железногорск: 2, 3й Железногорский Инновационный Форум (4й – 11-13.12.2014)

Ульяновск – Проектная сессия для стартапов и представителей университетов (25.11.14)

INTERNATIONAL PARTNERSHIPS

International commercialization

1. A range of projects are being developed by means of international partnerships (R&D contracts, procurement of inventions, potential purchase of technologies or start-ups themselves)



Plasma screens



2. The mechanism of competitions involving international partners – Varian Startup Challenge 2013 (we are continuing this in 2014)



International acceleration

1. Getting companies from the Cluster involved in successful commercialization projects for innovation centres and partners - HighTechXL Eindhoven, Acceleration Pathway at Houston Technology Centre



2. Presentation of NT Cluste projects :
 - ✓ In the field of radiation technologies – in Grenoble (France) in March 2014
 - ✓ In the field of back-end – in Japan, October 2014
3. Work is ongoing to attract entrepreneurs to projects involving teams with predominantly scientific and research-based skill-sets

ALONG WITH STARTUPS AND INVESTORS INDUSTRIAL PARTNERS ARE THE CRITICAL ELEMENT FOR THE EFFICIENT ECOSYSTEM



SIEMENS

LIMO
Lissotschenko Mikrooptik



NT-MDT

COMPOSITE
HOLDING COMPANY



ENERGOPROM GROUP

- Determination and development of operations as a part of innovation priorities of the Cluster and improved integration of the foresight together with the partners by means of market vision transfer by the partners with regard to the participants and their involvement to the value chains and R&D of the partners;
- Development of partners' R&D centers in Skolkovo Innovation Center premises, creation of research infrastructure, new jobs and engagement of highly qualified professionals;
- Emergence of new participants engaged in business development based on the technological solutions of the partners.

FESTO
KUKA

SHIMADZU
Excellence in Science

EMAG

VARIAN
medical systems



PHILIPS FEI

KRASTSVETMET

NEW TECHNOLOGY POLICY AND COOPERATION ACTIVITY



- The activities on formulating proposals for the Presidential Council for Economic Modernization in the area of Photonics and New Production technologies were carried out as a part of the ongoing activities to maintain compliance with the innovative priorities of the Cluster to market and technology trends. The analysis of the international situation and discussions with the representatives of the scientific, engineering and business community (in collaboration with Skoltech) was carried out.

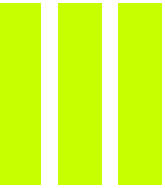


- In the area of Photonics the current Innovation priorities cover a large part of development trends in the world and in Russia (except Telecommunications sector, related to the priorities of IT and The Space Technology and Telecommunications Cluster)



Analysis of New industrial technology area revealed the necessity for expanding the list of innovative priorities with the specification of the perspective directions.





TOP PRIORITIES OF THE CLUSTER IN NEXT 3 YEARS

- The main challenge for the Cluster in next three years will be creating the “ecosystem” around the technology core of residents and industrial partners that can allow more than 50% of Cluster’s companies achieve significant commercial success in the next 5 to 7 years.
- The focus in the next 2-3 years will be on further development in the areas of industrial applications including beam, laser, plasma technologies and new materials’ and coatings’ development with broad involvement of Russian and international industrial partners and active acceleration of the most perspective participants
- **As part of ecosystem development, expert leadership from the market and technology point of view in nuclear and radiation technologies, photonics, advanced manufacturing and material science technologies have to be demonstrated by being a key potential partner for the best innovation start-up projects, industrial leaders and investors in their field, .**

POSSIBLE AREAS OF COOPERATION

1. Cooperate within the international technology foresight – representatives of RASA – RAMA expert board;
2. Share technical flow charts within sectors: industrial components, engineering, R&D, personnel;
3. Elaborate a joint regulatory framework development program;
4. Projects of international teams in Skolkovo, through setting up of Russian companies



THANK YOU!

Contacts:

Dr. Alexander Fertman

Scientific Director

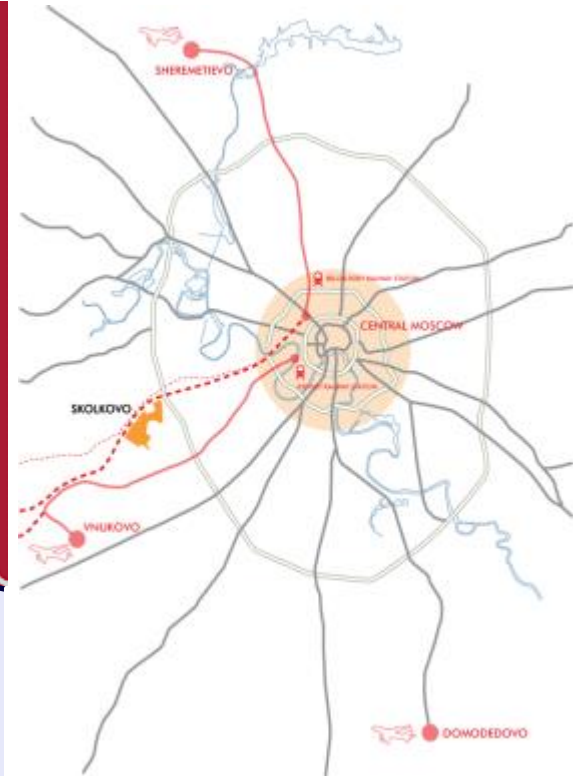
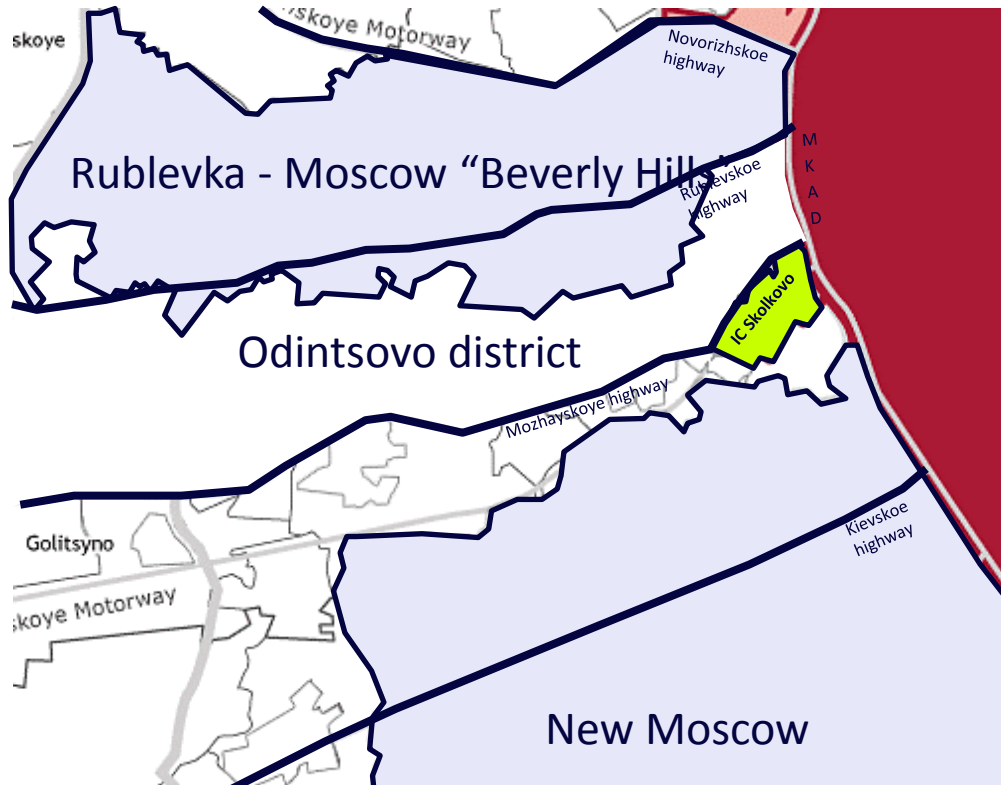
Afertman@sk.ru

+7 (916) 9170672

NEW CITY – UNIQUE LOCATION



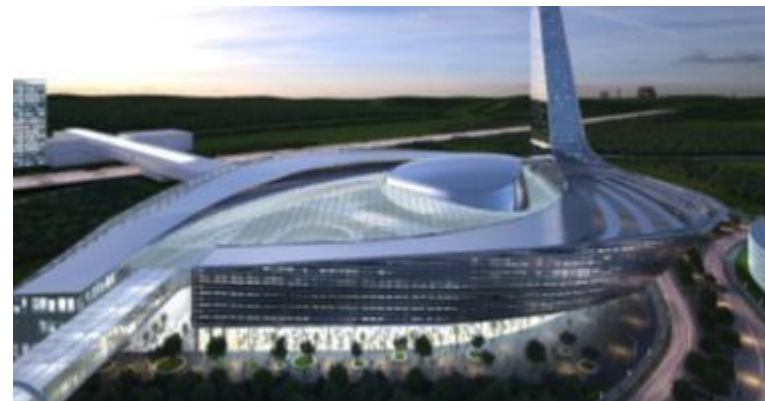
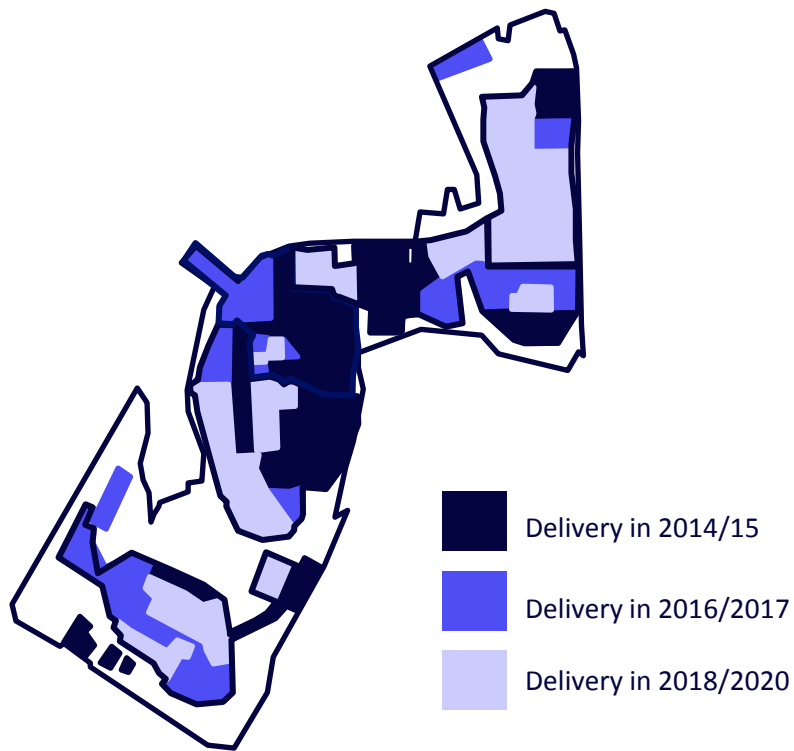
LOCATION, LOCATION, LOCATION – JUST NEXT TO MOSCOW RING ROAD (MKAD) IN A PRESTIGIOUS WESTERN DIRECTION



IC "SKOLKOVO" - PHASING OF DEVELOPMENT



Volume of construction at the end of period, sqm (commulative)			
Year	Foundation	Investors	Total
2015	419 349	344 339	763 688
2016	419 349	838 607	1 257 956
2017	419 349	1 253 916	1 673 265
2018-2020	419 349	2 249 894	2 669 243



FULLY DEVELOPED CITY WITH COMPLEX INFRASTRUCTURE

SUMMARY



DEVELOPED NEIGHBORHOOD CLOSE TO THE OFFICE

- **30 R&D Agreements signed** on the territory of IC Skolkovo
 - International and Russian companies – leaders in different sectors of the economy and research areas

COMFORTABLE LIVING FOR R&D CENTER EMPLOYEES

- 300K sqm of different residential units to be developed **by the end of 2017**
 - Apartments
 - Townhouses
 - Individual houses

DEVELOPED SOCIAL INFRASTRUCTURE

- Key social infrastructure projects to be developed by the end of 2017 to create a comfortable living space for residents and their families in IC “Skolkovo”
 - Kindergarten and primary school
 - High school
 - Skoltech University
 - MFC “Kvadrat”

DEVELOPED INTERNAL AND EXTERNAL TRANSPORT INFRASTRUCTURE

- **Excellent transport accessibility**
 - Individual and public automobile transport – 20 min by car
 - Railway express - 20 min from Belorussyi railway station
 - Comfortable access to Moscow airports
- **Parking**, fully covering the demand of Skolkovo residents and Skolkovo guests - not less than 9 000 parking lots



IC “SKOLKOVO” – CONSTRUCTION PROGRESS

D1-DISTRICT



Sberbank data center

Total area: 37K sqm

Y-o-C: 2016-2020

At the design stage



1

Sberbank Technoark

Total area: 122K sqm

Y-o-C: 2017-2018

At the design stage



2

Office center “Technopark”

Total area: 44K sqm

Y-o-C: 2014

Delivered



3

Boeing

Total area: 9K sqm

Y-o-C: 2015-2017

At the design stage



4

Renova Lab

Total area: 27K sqm

Y-o-C: 2015

Under construction



5

Tatneft

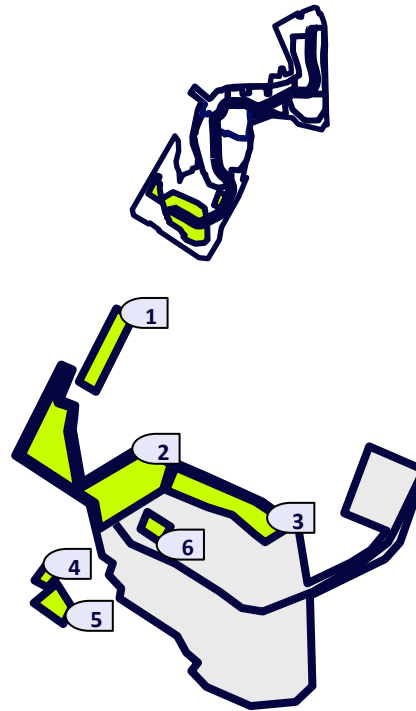
Total area: 10K sqm

Y-o-C: 2016

At the design stage



6



IC "SKOLKOVO" – CONSTRUCTION PROGRESS

D2-DISTRICT



Key Partners Zone

Total area: 126K sqm
TMX-Alstom 42,5K sqm
CISCO 46K sqm
IT-Cluster 37,5K sqm
Y-o-C: 2016
Under construction



1

Gallery BC

Total area: 78K sqm
Y-o-C: 2015
Under construction



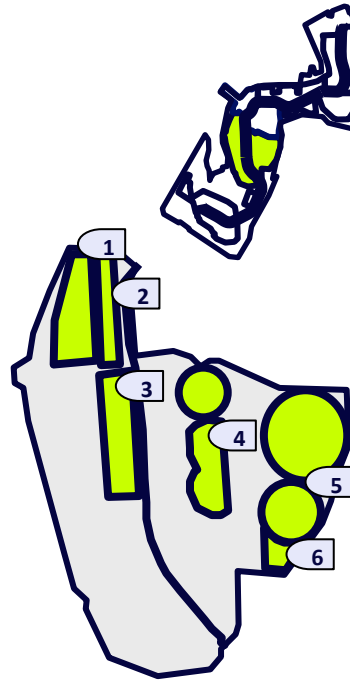
2

Technopark (buildings 3 a,b,c)

Total area: 92K sqm
Y-o-C: 2014
Under construction



3



Family Campus

Total area: 22K sqm
Y-o-C: 2015
Under construction



4

Apartments (quarters 9-11 D2)

Total area: 50K sqm
Y-o-C: 2014
Under construction



5

Fitness Center

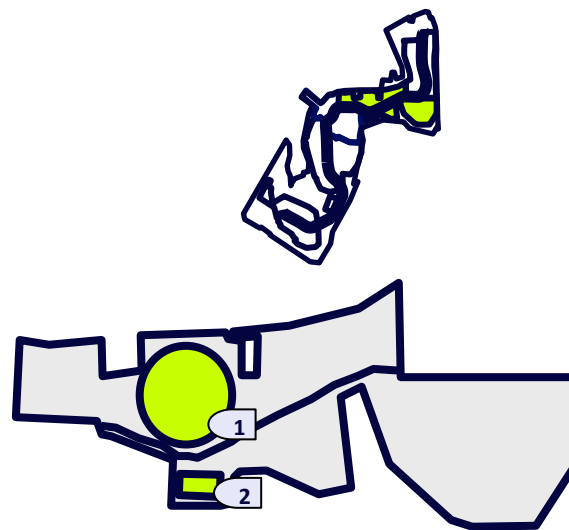
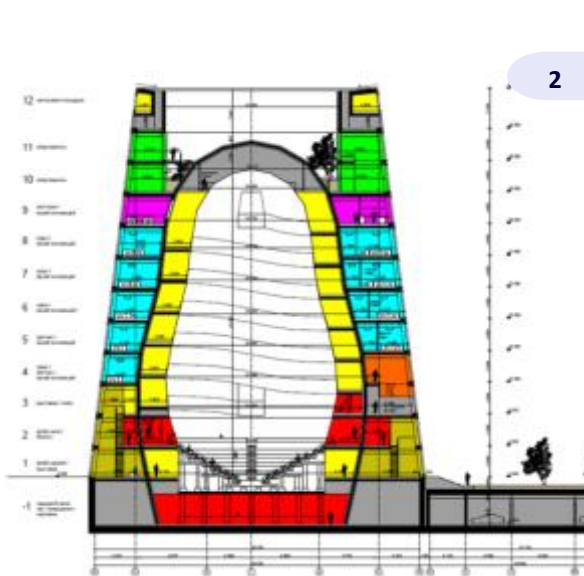
Total area: 3,5K sqm
Y-o-C: 2016
At the design stage



6

IC “SKOLKOVO” – CONSTRUCTION PROGRESS

D3-DISTRICT

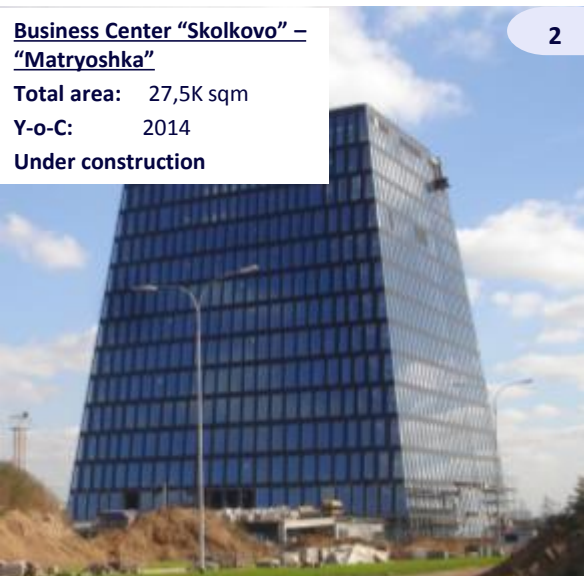


Business Center “Skolkovo” – “Matryoshka”

Total area: 27,5K sqm

Y-o-C: 2014

Under construction



Main SkolTech building – Eastern ring

Total area: 137K sqm

Y-o-C: 2015

Under construction

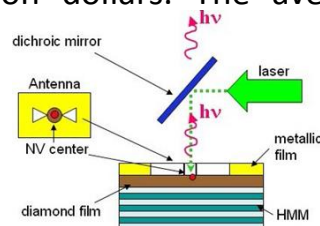




PHOTON NANO-META TECHNOLOGY LLC ISOLATED PHOTON GENERATOR



- An isolated photon generator for use in scientific research into the creation of quantum computers
- The basic q-bit element of a computer generator
- Global market: the aggregate volume of potential markets in 2016 is 20 billion dollars. The average annual growth rate is 10 %.
- First-phase grant and co-investment from the Q-wave foundation

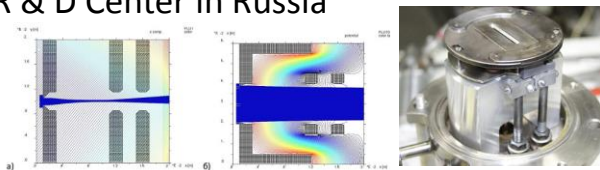


Плазменные ИСТОЧНИКИ PLASMA SOURCES

Equipment for the semiconductor industry



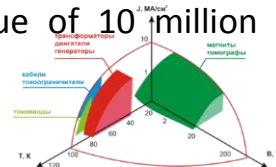
- Ion sources and plasma generators of phosphorus and boron, allowing several times to increase the speed and quality of the key technological processes
- Now solutions are tested on the request of market leaders - Applied Materials and Axcelis
- The ultimate goal - selling the company and on its base business as an R & D Center in Russia



SUPEROX-INNOVATIONS LLC 2ND GENERATION OF SUPER-CONDUCTORS



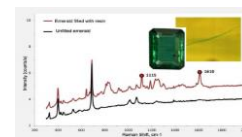
- A unique technology is used to manufacture the core of the HTS ribbon as a separate market product
- A collaboration has been organized with SC Rosatom in order to develop and release a line of end devices using HTS-2; support is required in order to obtain the optimum conditions.
- Licensing of the technology for manufacturing the core of the HTS ribbons, potential revenue of 10 million dollars within three years.



RAMMICS LLC - Compact Raman fluorescence microscope for rapid analysis



- Reducing the cost of the analysis 10 times due to the original design of the spectral sensitivity at a similar comparison with analogues
- Designing instruments performed on the request from pharmaceutical and chemical companies
- Cluster support in promoting the company to foreign markets

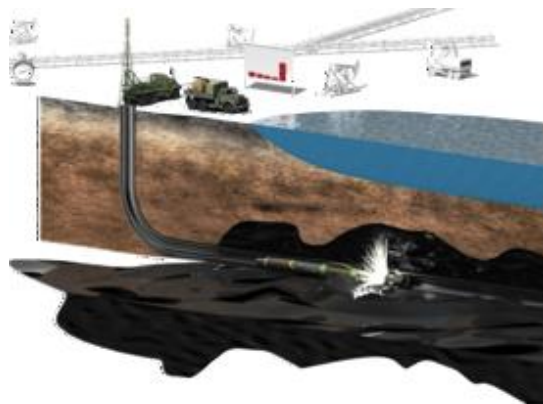


Novas

Plasma-pulse technology for increasing oil and gas recovery

100-300%
increase in
output from
treated wells

Opened office in
the U.S. in
Feb.2013



VERT Labs

Innovative technology to convert energy of sea waves into electric power



Power
generation on
waves <1.5 m,
efficiency up
to 60%

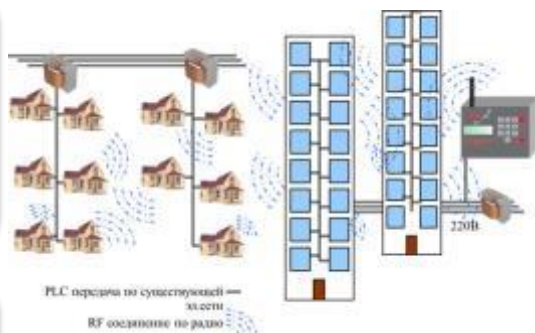
One of Top-30
cleantech co's
in Europe
(2011)

Mobix Chip

Microchip for wireless smart metering systems

New microchip
based on hybrid
data transfer
technology using
radio channels
and power lines

\$6 mn investment
from Tamir
Fishman GIC fund



UNIHEAT Project

Increasing energy efficiency and reducing heat loss in oil refining

- Center of Applied Research
- Research Program
- Industry Engagement Program
- 3 years
- 400 mln RUB

Attracted
£3 mn in
co-funding
from BP

Dauria Aerospace

Budget satellites for commercial applications

Russia's first private
DX-1 satellite to be
launched in Q3
2013

Won a \$10 mn
Roscosmos
tender for
development of
CubeSat nano



Aerob

Intellectual control system for next-generation UAV



High precision of
received data and
adaptive system of
flight control

First trials
successfully
completed
in May 2012

New Energy Technologies

Small size atomic clock

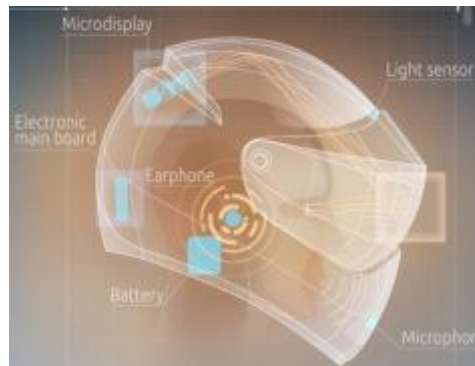
Original technical
solutions make the
unit 2x cheaper
and more stable

Created and tested
3 prototypes



Art Biznes

*LiveMap - motorbike helmet with built-in
navigation system and voice controlled interface*



First ever
motorbike helmet
with augmented
reality

First product sale in
June 2013

Skolkovo project participant: Requirement and benefits

PARTICIPANT STATUS REQUIREMENTS

- ✓ Alignment with the technological priorities
- ✓ Innovation – a product has no analogs or exceeds the existing ones
- ✓ Team – IP rights, motivation and entrepreneurship
- ✓ International exposure of the project
- ✓ Readiness to physically move to Skolkovo territory starting from 2016
- ✓ Focus on R&D and commercialization activities (trade, mass sales over 1 bln rub and similar are prohibited,)

PARTICIPANT STATUS BENEFITS

- ✓ Tax and custom duties incentives
 - Payroll-related social tax reduction (30% to 14%)
 - Zero income tax, property tax and VAT
 - Reimbursement of the custom duties and import VAT
- ✓ Access to financial resources and business development expertise
 - Venture capital and business angels network
 - Infrastructure and technologies of the industrial partners
- ✓ Infrastructure access and consulting services
 - Technopark infrastructure and offices
 - Accounting, tax issues and IP consulting
 - Personnel center, simplified visa procedures
 - International and national events
 - Education, mentoring, etc. (Clusters, Open University, Skoltech, Technopark)
- ✓ Opportunity to receive grant financing (see further)*

** Applicable only for start-ups and industrial partners spin-offs*