



Russian innovative economy: is it real?



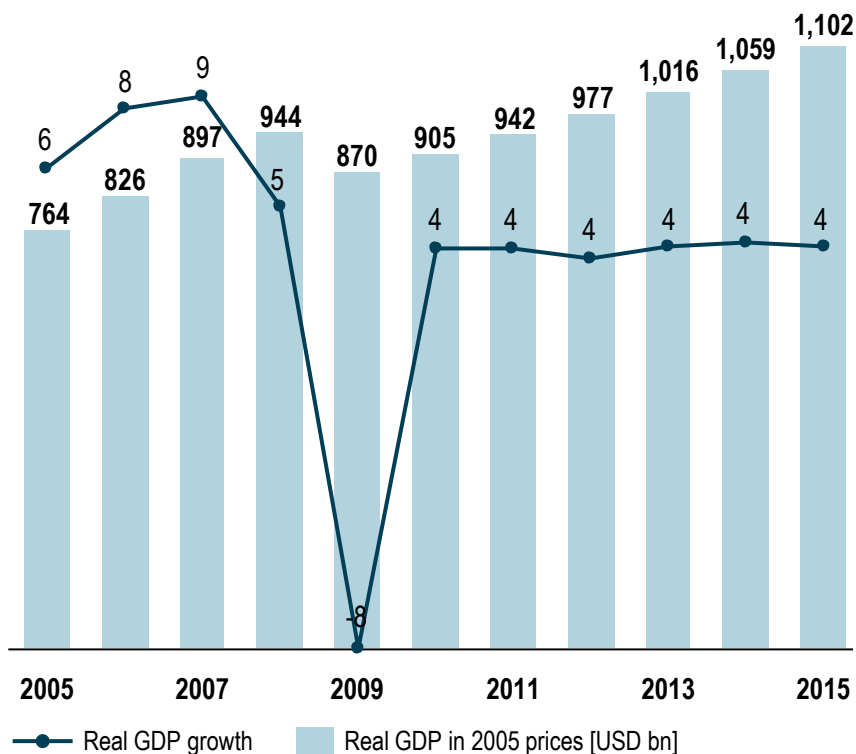
Dmitry Akhanov, CEO and President of RUSNANO USA
September 5, 2012

Macroeconomic conditions in Russia

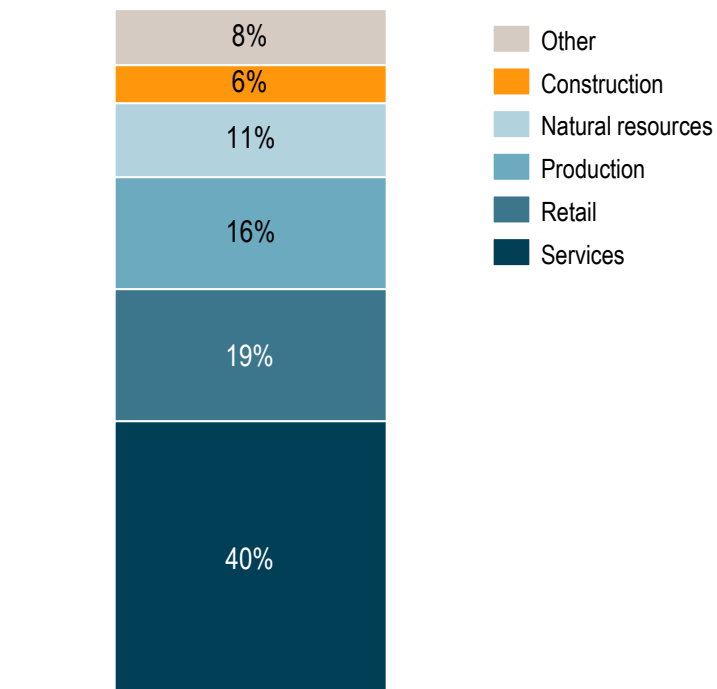
After a sharp drop in 2009, Russian GDP has recovered and is now expected to continue growing

GDP development and structure

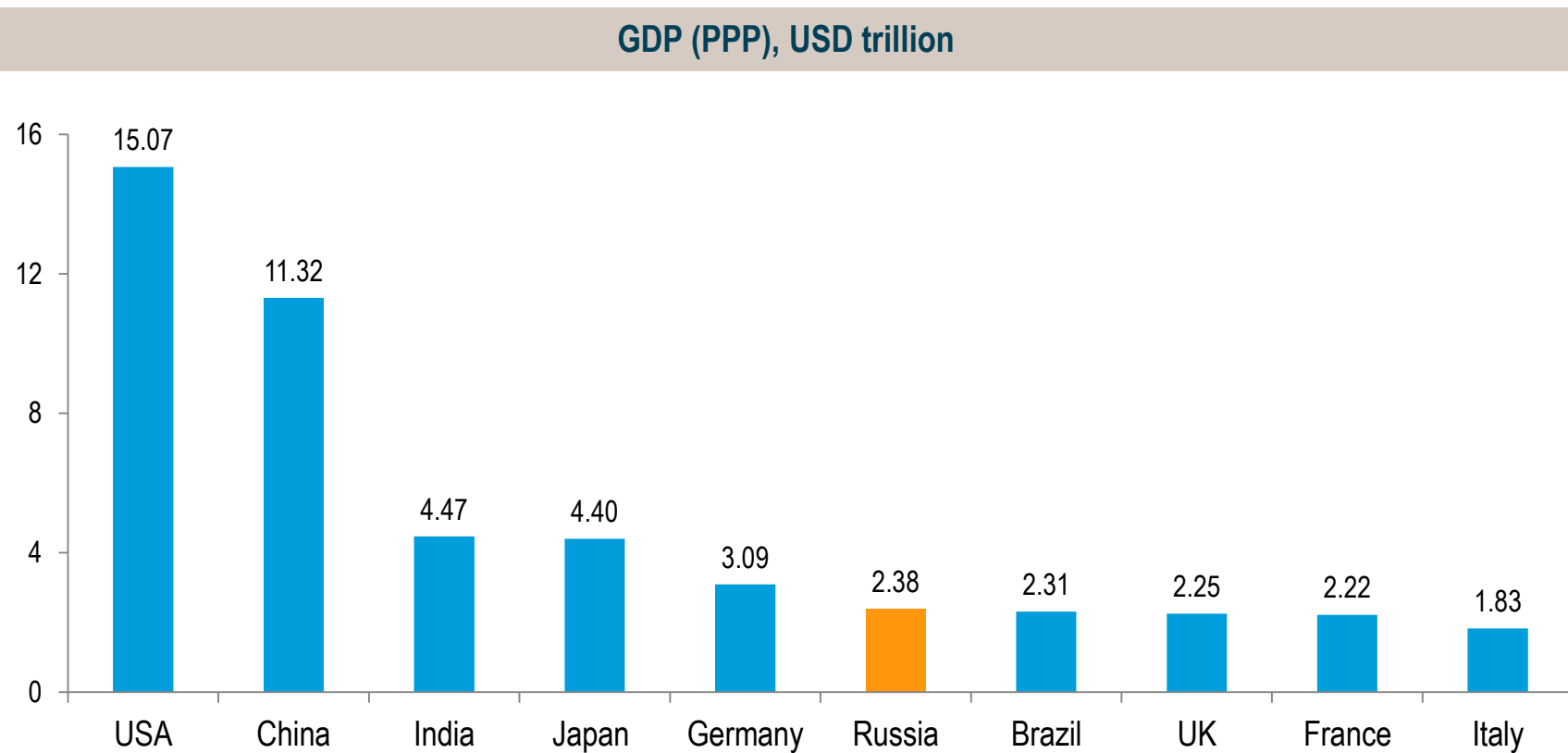
GDP DEVELOPMENT [USD bn]



GDP STRUCTURE, RUSSIA, 2010 [%]

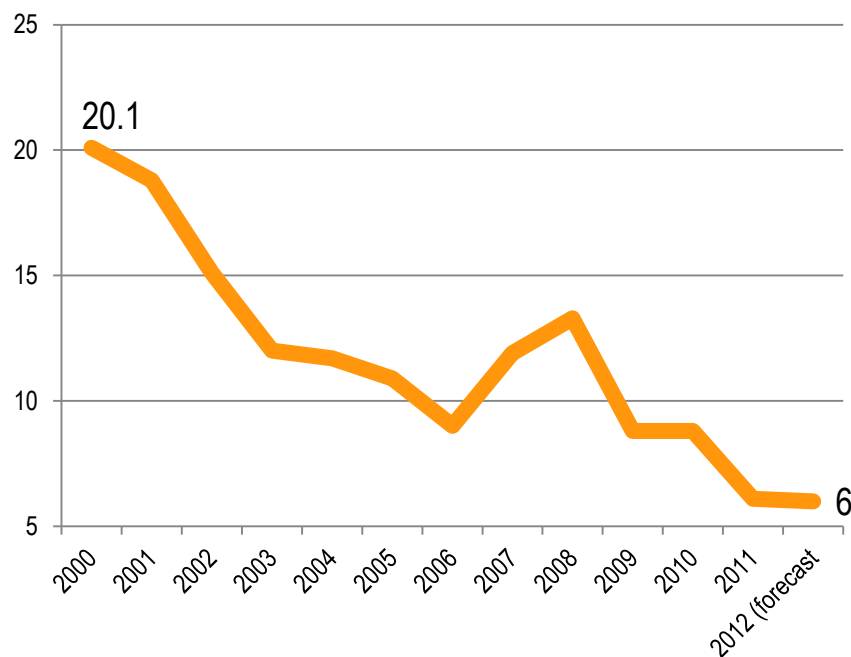


Russian GDP (PPP): 6th in the world



Economic indicators: facts and forecasts

INFLATION [%]



FINANCE AND DEBT




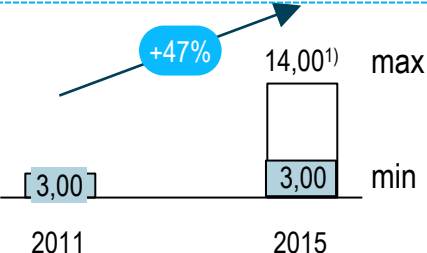
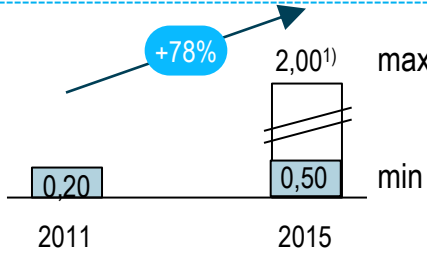
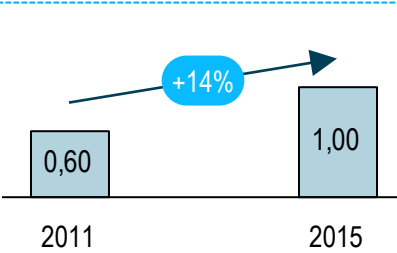
International reserves (as of 16.03.2012): **\$505.4 bn**

National Wealth Fund and Reserve Fund, aggregate amount (as of 01.03.2012): **\$152.2 bn**

Gross government debt, % of GDP (2012, forecast): **14.1%**





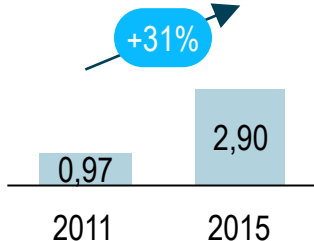
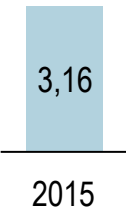
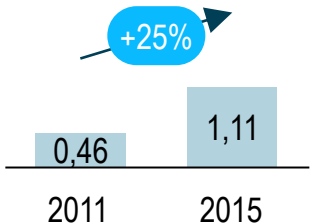
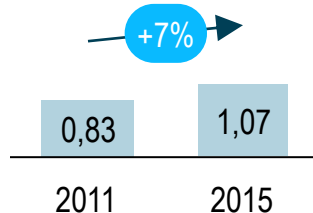
Trends in nanotechnology enabled market niches

Pharma and Biotech: high growing 4.5 bn USD market

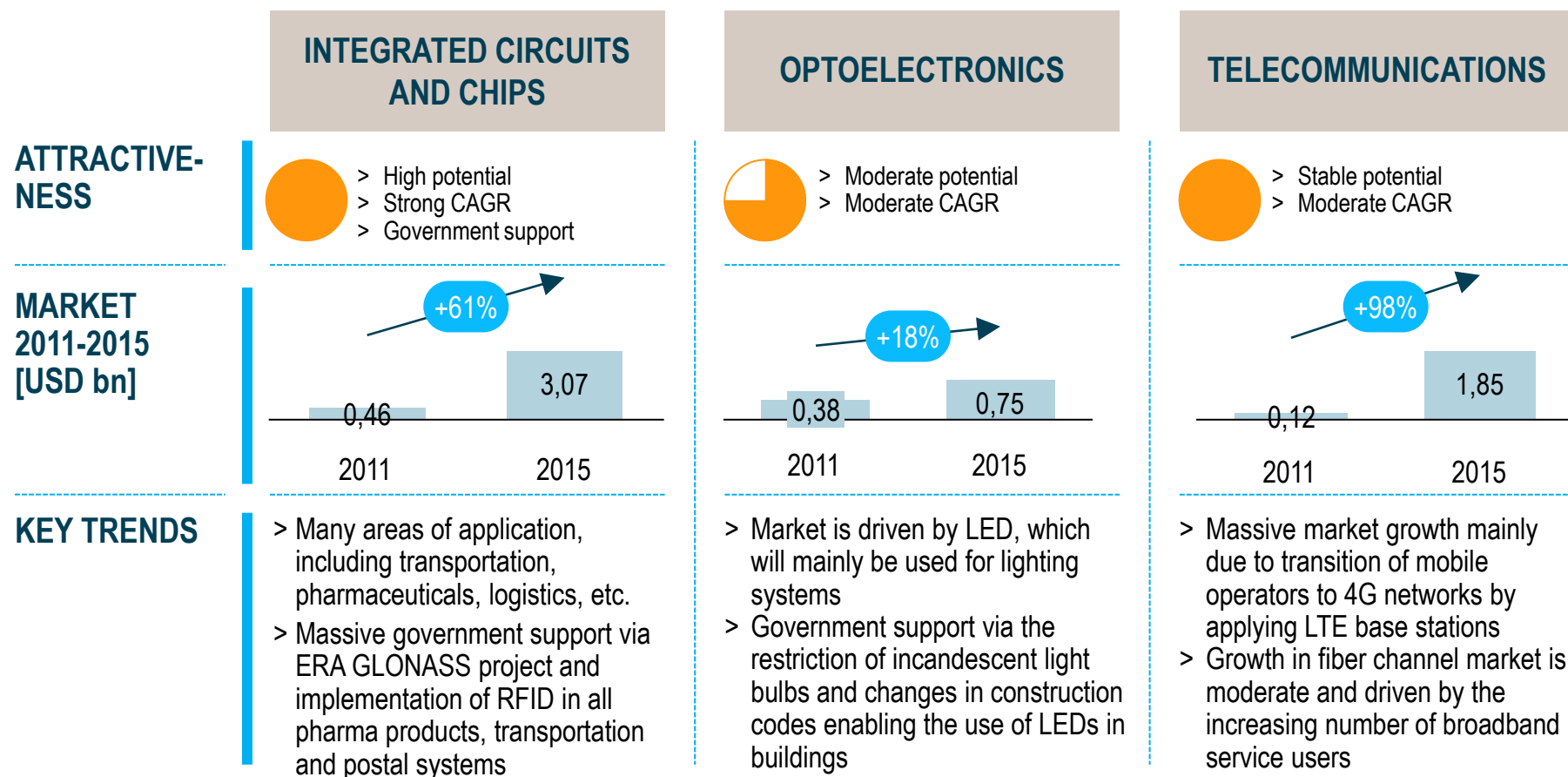
	(BIO)PHARMACEUTICALS (excl. vaccines)	VACCINES	MEDICAL SERVICES
ATTRACTIVE- NESS	 <ul style="list-style-type: none"> > Upside potential > Strong CAGR > Government support 	 <ul style="list-style-type: none"> > Upside potential > Strong CAGR > Government support 	 <ul style="list-style-type: none"> > Moderate potential > Demand from commercial segment
MARKET 2011-2015 [USD bn]	 <p>2011: 3,00 (min), 14,00¹⁾ (max) 2015: 3,00 (min), 2,00¹⁾ (max) Growth: +47%</p>	 <p>2011: 0,20 (min), 2,00 (max) 2015: 0,50 (min), 2,00 (max) Growth: +78%</p>	 <p>2011: 0,60 (min), 1,00 (max) 2015: 0,60 (min), 1,00 (max) Growth: +14%</p>
KEY TRENDS	<ul style="list-style-type: none"> > Strong medical need, especially in cardiovascular and oncology treatments > Government aims to localize manufacturing due to currently high share of imported drugs (77%) 	<ul style="list-style-type: none"> > Growth of vaccines market depends mainly on government plans for including new vaccines in National Immunization Calendar > Unclear how many and what type of vaccines will be included 	<ul style="list-style-type: none"> > Demand for IVD services is mainly driven by the commercial sector > Significant R&D base, experienced scientific teams > Clinical trials in Russia are high quality and less expensive and quicker than in the EU/US

1) window of opportunity (potential)

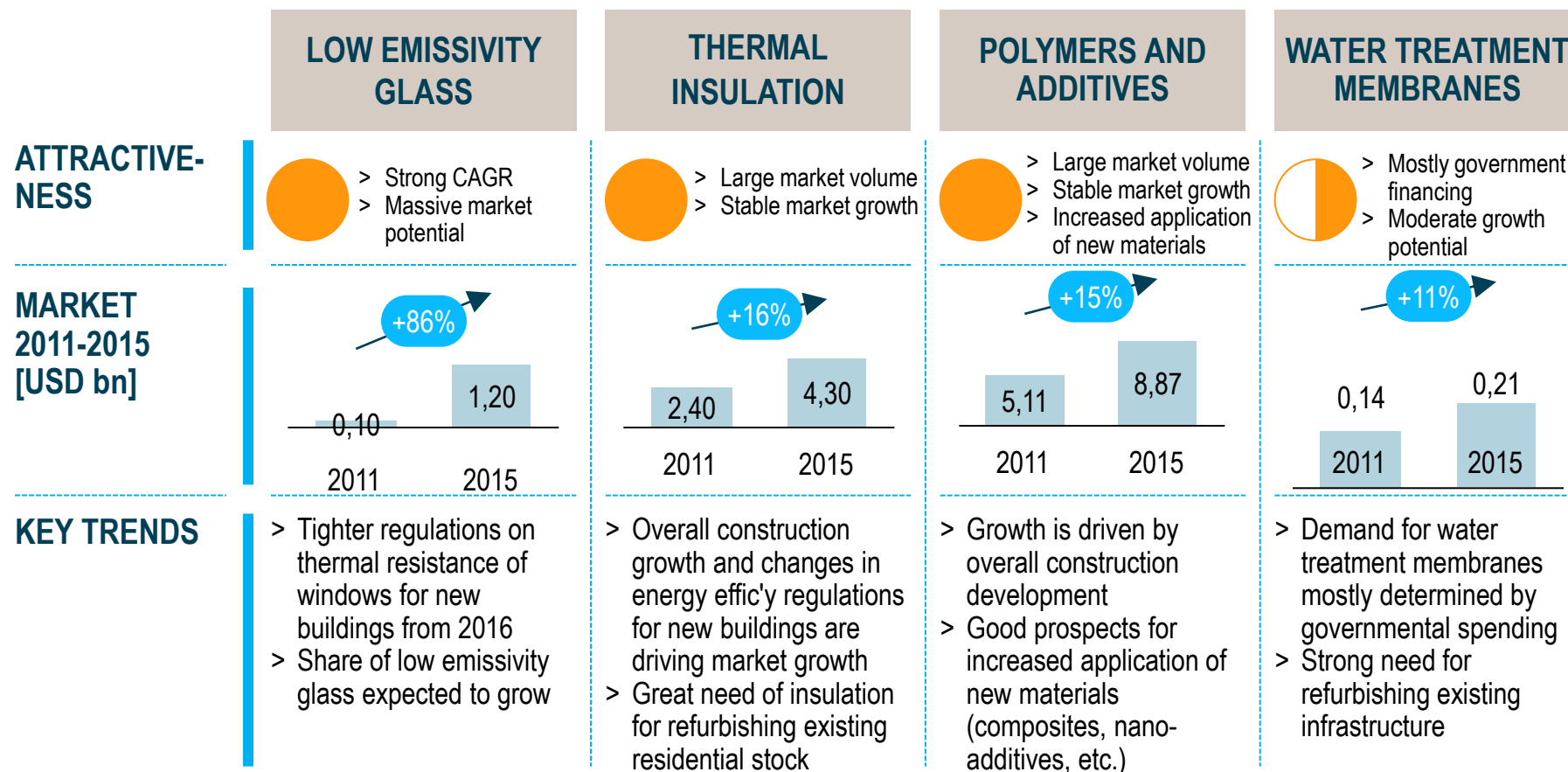
Energy: new segments of up to 8 bn USD worth

	ENERGY STORAGE	POWER GENERATION	ENERGY HARVESTING AND CONVERSION	ENERGY DISTRIBUTION
ATTRACTIVE-NESS	 <ul style="list-style-type: none"> > High potential > Strong CAGR > Government support 	 <ul style="list-style-type: none"> > Upside potential > Huge future market share 	 <ul style="list-style-type: none"> > Moderate potential > Strong CAGR > Government support 	 <ul style="list-style-type: none"> > Stable potential > Moderate CAGR
MARKET 2011-2015 [USD bn]	 <p>0,97 2,90</p> <p>2011 2015</p>	 <p>3,16</p> <p>2015</p>	 <p>0,46 1,11</p> <p>2011 2015</p>	 <p>0,83 1,07</p> <p>2011 2015</p>
KEY TRENDS	<ul style="list-style-type: none"> > Opening up of the electric vehicles market > Growing demand on grid storage demand from power distribution companies 	<ul style="list-style-type: none"> > USC technology power stations will be built in Russia starting from 2015 > Technology will account for more than 30% of total power capacity installed 	<ul style="list-style-type: none"> > Growth driven by overall growth of advertising and construction markets > Growth rate of non-residential property market 2011-2015 is 18.6% 	<ul style="list-style-type: none"> > Segment is driven by import substitution for power transformers and high level of overall investment in energy > Industry leaders plan to localize transformer production in Russia

Electronics and Photonics Sectors: Estimated market potential of USD 5.7 bn USD in 2015

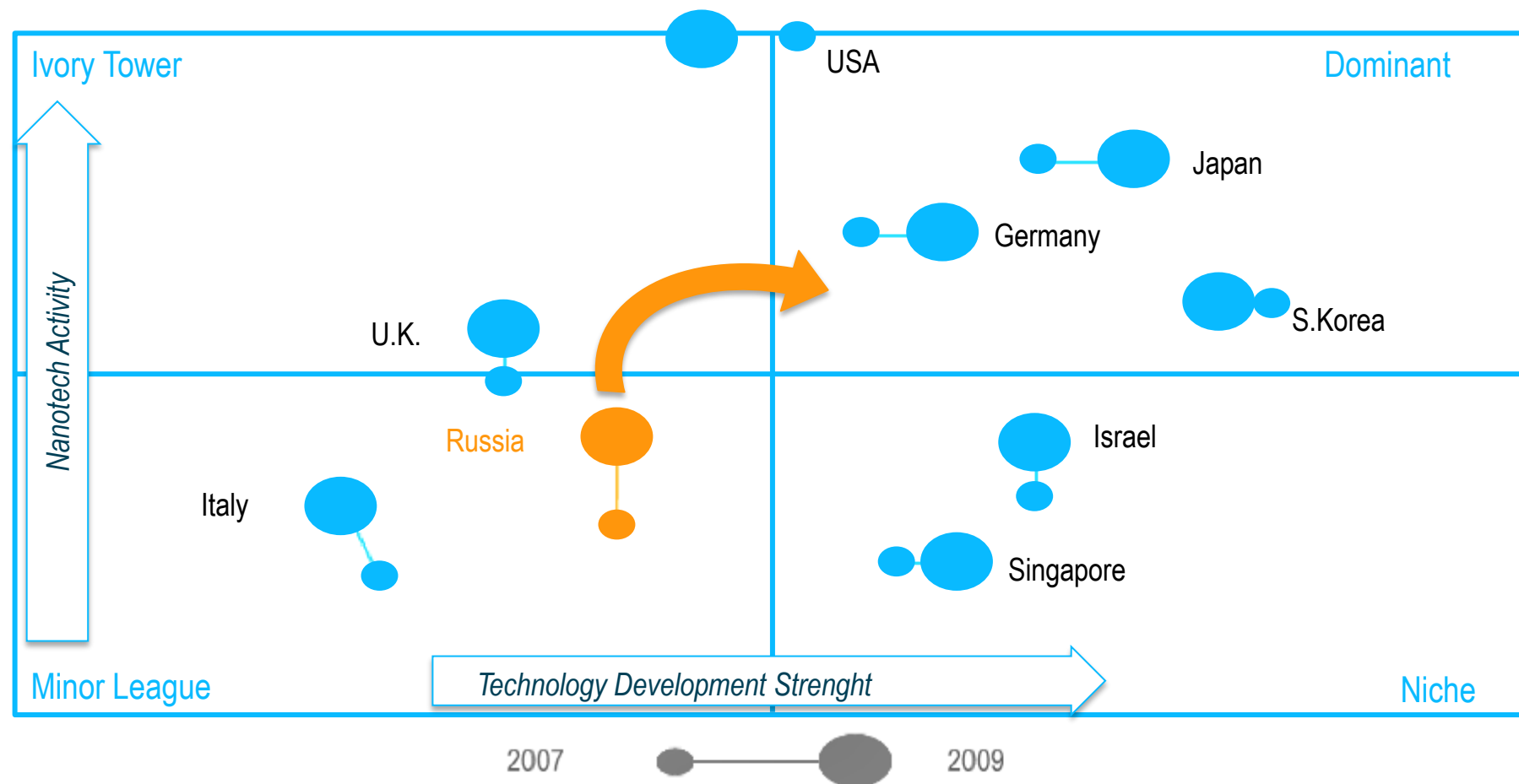


Construction Materials: 14.6 bn USD opportunity in polymers and additives



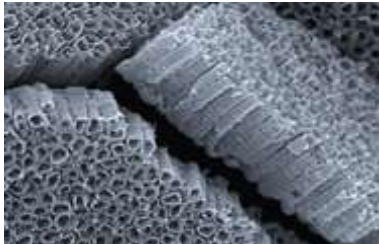
RUSNANO: goals and outlook

Russian nanotech industry 2010-2015: late start, but huge potential

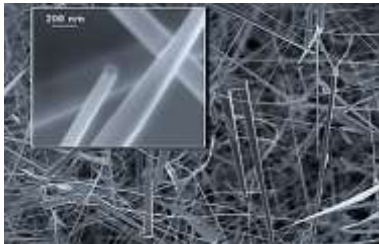


Goal for Russia: move into the “major league” by 2015

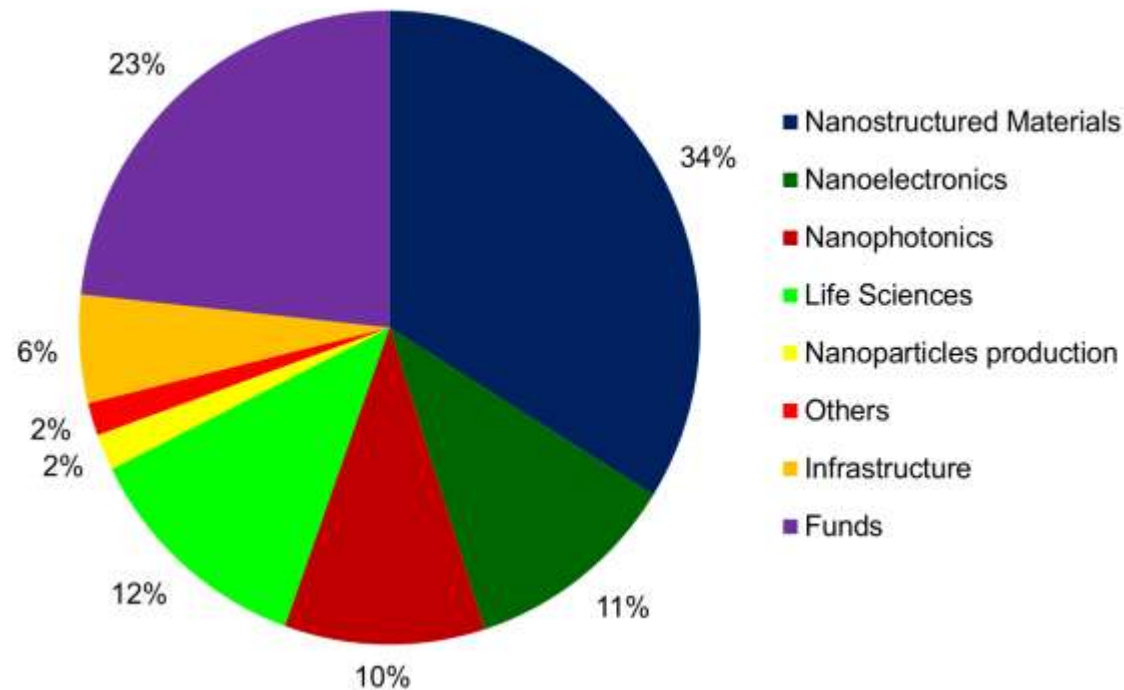
5 Years Progress



- 100 projects invested
- RUSNANO's commitments - 6.2 bn USD
- Total investments - 18.6 bn USD



Portfolio Breakdown Structure (committed, mn USD)



as of Sep, 2012

RUSNANO's key results and plans: Production

- 2011: 13 new factories in 10 Russian regions
- 2012: 16 new factories in 9 Russian regions



US-based VCs Co-Investors



NanoDimension

SEQUOIA CAPITAL



SIGMA+
PARTNERS

SOFINNOVA VENTURES



Siemens Venture Capital



North America – Russia Venture Funds

4

funds

\$1.4 bn

(incl. \$0.65 bn of RUSNANO's investments)



DRAPER FISHER JURVETSON



DOMAIN
ASSOCIATES

BURRILL & COMPANY

North America – Russia Industrial Projects

14

Investments of

\$2.5 bn

(\$0.6 bn of RUSNANO's investments)





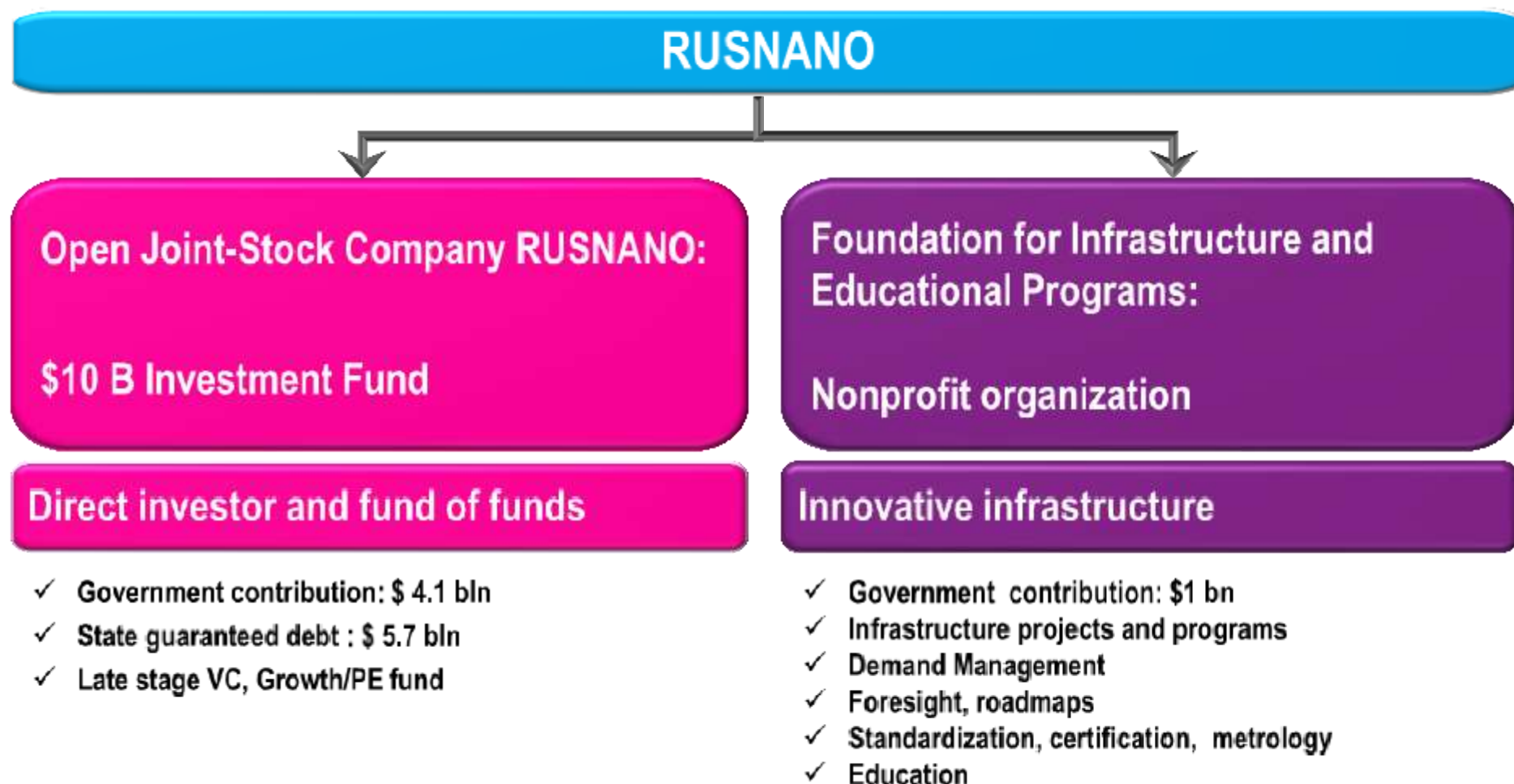
1st US Investment Exit – 27% IRR



- In 2010 RUSNANO signed an investment agreement with IPG Photonics, the world's leading developer and producer of high-performance fiber lasers for materials processing, telecommunications, medical and other advanced applications. RUSNANO's investment was about \$45 mln
- RUSNANO's primary role was not only to provide financial capital for scaling up the manufacturing, but also to share all the risks related to doing business in Russia.
- Another of RUSNANO's contributions to this project was supporting the company in negotiating with local potential customers
- Only in 2 years IRE Polyus, a subsidiary of IPG Photonics, has increased its production capacity by 5 times and enlarged its customer base in Russia across oil and gas, electronics, telecommunications, automotive and transportation industries
- In June 2012 IPG Photonics decided to purchase RUSNANO's stake in IRE Polyus equity. The exit generated an IRR of 27% (in Russian currency) on RUSNANO's investment.

Nanotechnology Ecosystem Development

RUSNANO: Investment Division & Development Arm



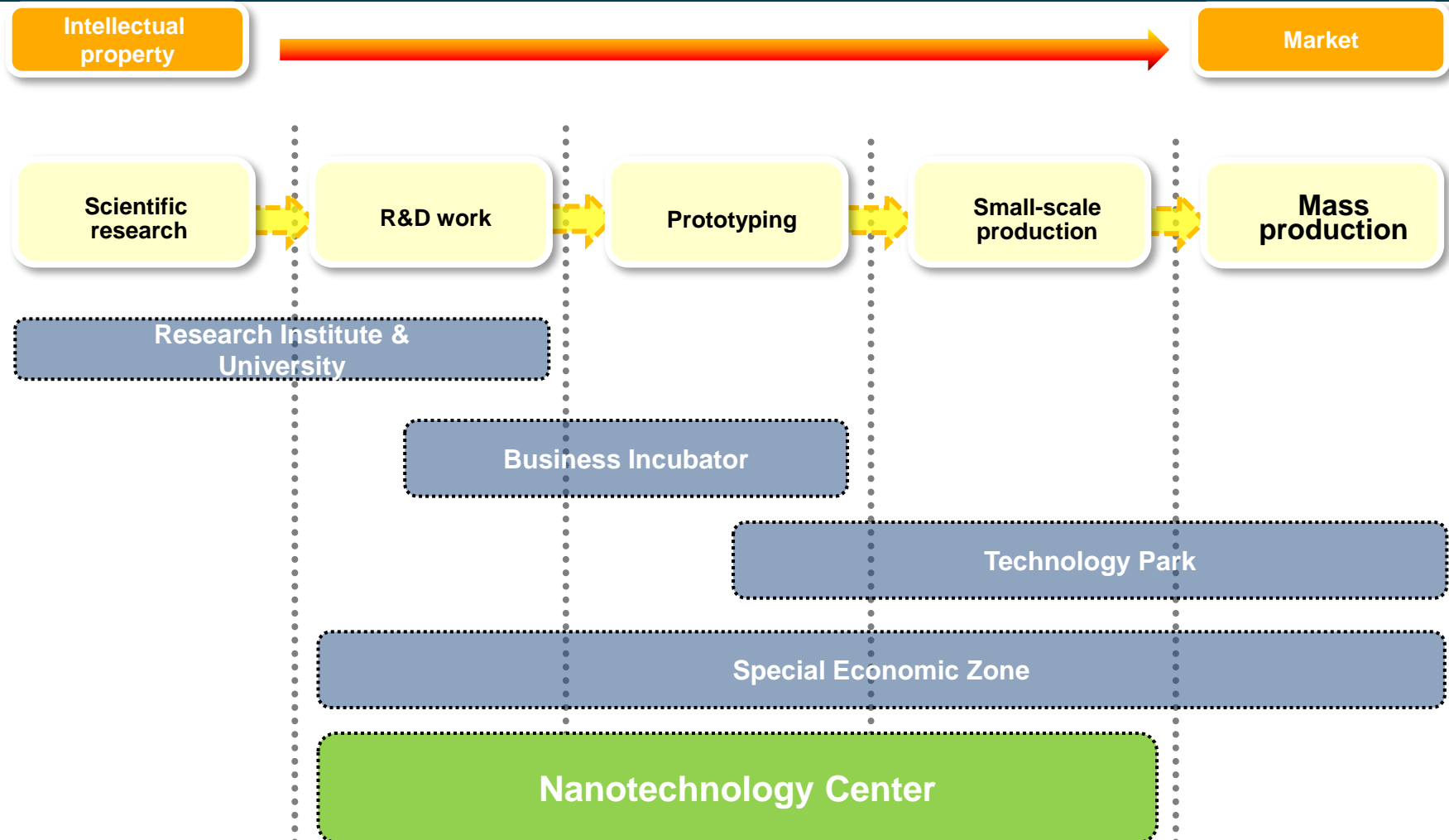
Setting up Nanotechnology Centers: 12-15 Nanotechnology Centers to create 400 new tech start-ups

Average financing amounts for a Nanotechnology Center:

- Investments in equipment — \$37 mn
- Investments in operation budget (3-5 years) — \$9 mn
- Number of start-up created (5 years) — 50



Nanotechnology Centers: essential part of innovative ecosystem



Collaboration with Nanocenters

What we offer:

- Technology co-development together with the US technology incubators and acceleration centers
- Sharing our pipeline of high-technology projects
- Opening Russian market opportunities

What we are looking for:

- Technology partners for start-ups and R&D projects
- Expertise in business incubation
- Seed financing for early stage startup companies
- Marketing analysis for Nanocenters' technologies
- International development opportunities for Nanocenters' companies

Demand Management in Nanotechnology Industry: changing and setting up regulations

RUSNANO plays vital role in setting up policies to enable nanotechnology products:

- Supporting international collaborations: changing customs regulations
- Removing regulatory obstacles: changing construction code to enable usage of LED lights in buildings
- Collaborating with federal authorities to expand R&D expenses in government controlled companies: - *1% of revenue to be spent on modernization in state controlled companies, creating 30 bn USD market for innovative products*
- Collaborating with regional authorities: Introduction of nanotech products for local manufacturing and municipal needs, enabling significant demand on new technologies: Moscow, Tatarstan, Krasnoyarsk, Perm and many other regions of Russia
- Popularization of nanotechnology enabled solutions

Demand Management in Nanotechnology Industry: collaboration with leading industrial companies

RZD:

- Designing smart railway station enabling the use of energy efficient technology and scaling up this design among RZD's stations

Gazprom:

- Wear, abrasion and Vibration resistant materials to increase properties of certain equipment
- Detectors for explosive gases
- Catalysts to remove Sulfur from hydrocarbons

Avtodor:

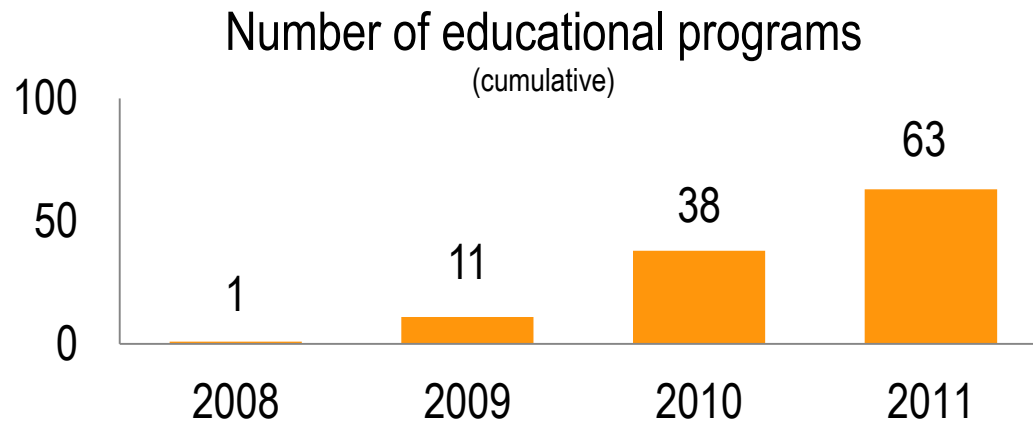
- LED lights for highways and city roads to improve the quality of lights and increase power efficiency
- Composite materials for external reinforcement of road infrastructure objects
- Solar modules: to provide energy sources for road infrastructure systems

AvtoVaz:

- Supplying AvtoVaz production capacities with LFP batteries to manufacture EI-Lada – Russian EV

...and many others, including Rostelecom, Federal Grid Company, Lukoil, etc

Education: Human Capital is one of the key components to success



Specialized programs for certain companies' needs:

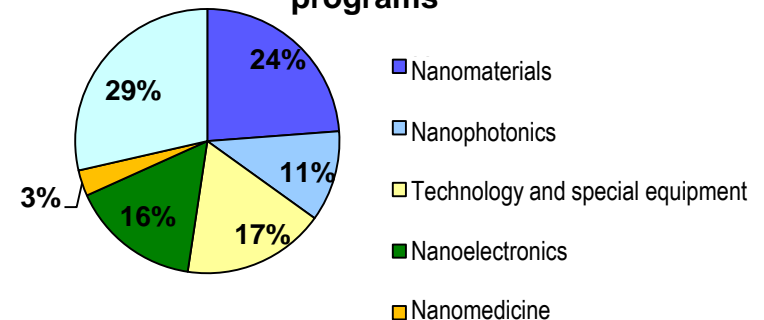
- Nanotechnology in construction
- Metrology of products in nanophotonics
- New research methods in bionanomedicine and bionanopharmacology
- Innovation Management in an enterprise
- VC funding nanotechnology projects
- Corporate communications, brand management
- Stimulating demand for nanotech products;
- Formation of an effective sales system for nanotechnology products

1. Training personnel to launch production

2. Training personnel to scale up manufacturing

3. Training personnel in a particular field by requests from nanotechnology companies

Technological structure of educational programs



Contact Information



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Russian innovative economy: it is real!



On your way to a great deal

Appendix: Several Russian Nanotechnology Enabled Projects

Pharma and Biotech:

FINANCING:

- > **RUSNANO** committed capital - 1.1 bn USD (as of Jan, 2012)
- > **Private investors** - 1.6 bn USD (as of Jan, 2012)

	COMPANY	PRODUCT	TECHNOLOGY
PHARMACEUTICALS	SinBio	BioBetter class of pharmaceuticals	Biodegradable nanocomposite materials
VACCINES	NT Pharma	Flu nanovaccines	Technology based on pseudo-adenoviral nanofractions and special nanostructures
DIAGNOSTICS	PET-Technology	National chain of PET diagnostic centers in Russia	Nuclear medicine, new diagnostic methods
TECHNOLOGY TRANSFER	Domain Associates	Therapeutic products for the treatment of viral infections, cardiovascular diseases, cancer	GMP-standard manufacturing
TECHNOLOGY TRANSFER	Celtic Pharma	Innovative medications in hematology, endocrinology, cardiology, oncology	GMP-standard manufacturing

Energy Storage

FINANCING:

- > **RUSNANO** committed capital – 0,9 bn USD
- > **Private investors** – 1,3 bn USD

	COMPANY	PRODUCT	TECHNOLOGY
ACCUMULATORS	Liotech	Accumulators for electric vehicles and power sector	High capacity lithium-ion batteries
SUPERCAPACITORS	Nesscap Energy Inc	High-capacity energy supercaps	Carbon microwave steam activation of nanopore electrode structures
TRANSDUCERS	Profotech	Fiber optic metering systems for power grids	Nanostructured fiber-based optic current and voltage measurement and monitoring sensors
PHOTOVOLTAICS	Hevel	Solar modules	Thin film tandem a-Si and u-Si structure

Microelectronics and Photonics

FINANCING:

- > **RUSNANO** committed capital – 1.1 bn USD
- > **Private investors** – 2.0 bn USD

	COMPANY	PRODUCT	TECHNOLOGY
PHOTONICS	NTO IRE-Polus	Fiber lasers and telecommunications equipment in Russia	Fiber lasers
OPTOELECTRONICS	Optogan	Light emission diodes	High-brightness light-emitting diodes for a large variety of applications
ELECTRONICS	Crocus Technology SA	Magnetoresistive memory	Innovative memory production technology

Construction

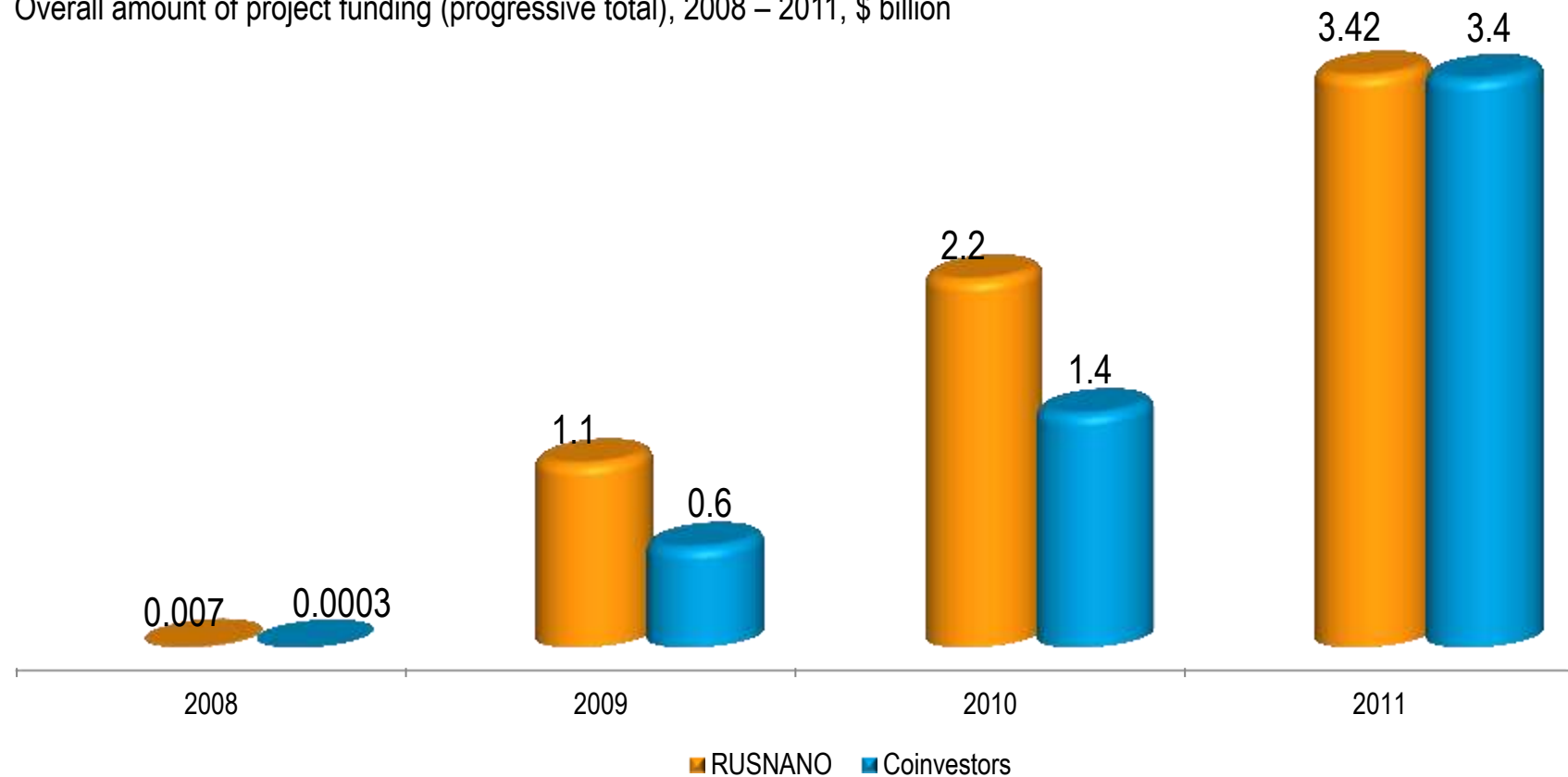
FINANCING:

- > **RUSNANO** committed capital – 0,5 bn USD
- > **Private investors** – 1,0 bn USD

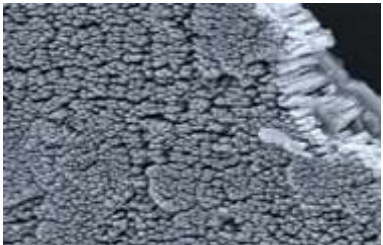
	COMPANY	PRODUCT	TECHNOLOGY
LOW EMISSIVITY GLASS	STiS	Low emissivity glass	Glass magnetron sputtering in metal-oxide nanofilm vacuum
COMPOSITES	Galen	Composite reinforcement and fittings	Reinforcement of polymer with basalt fibers
ADDITIVES	Unicom	Additives for bituminous concrete and asphalt	Devulcanized rubber nanoparticles for bituminous concrete and asphalt additives production

Our Funding Activity

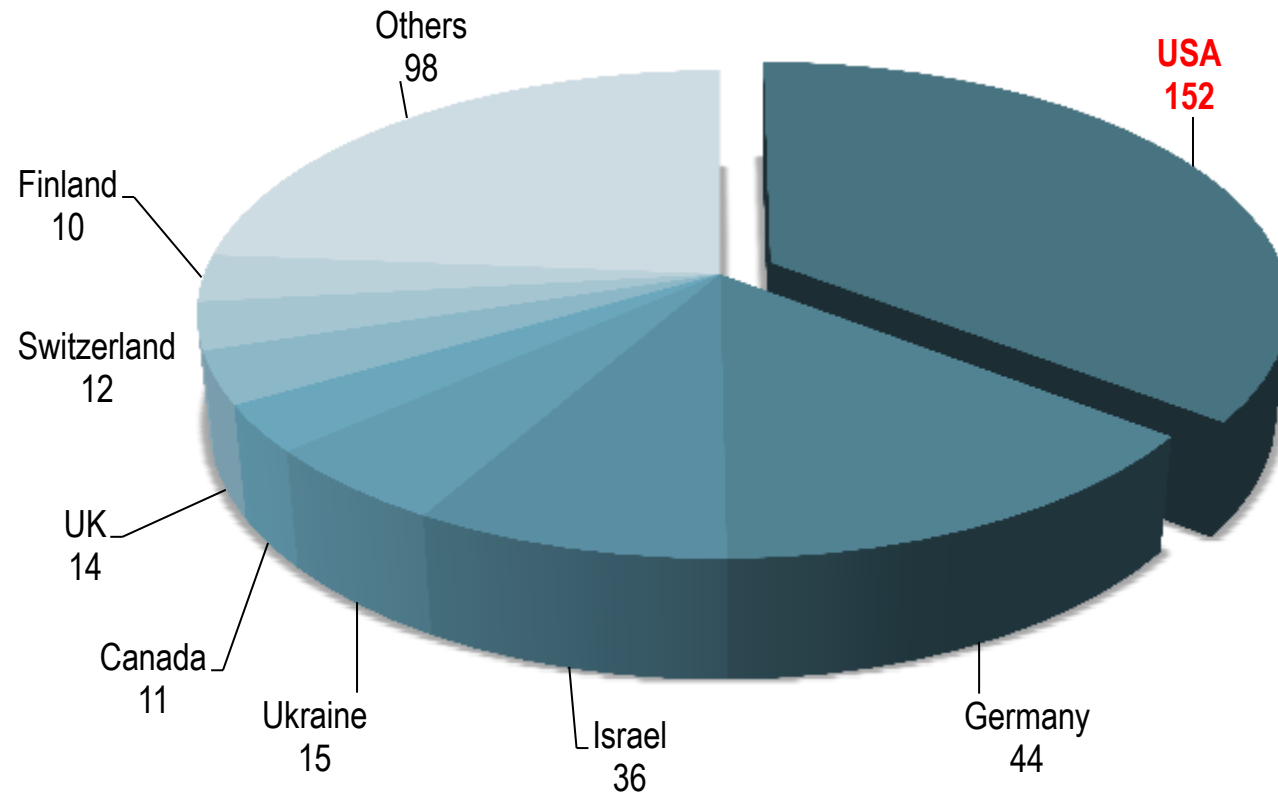
Overall amount of project funding (progressive total), 2008 – 2011, \$ billion



Global Project Sourcing

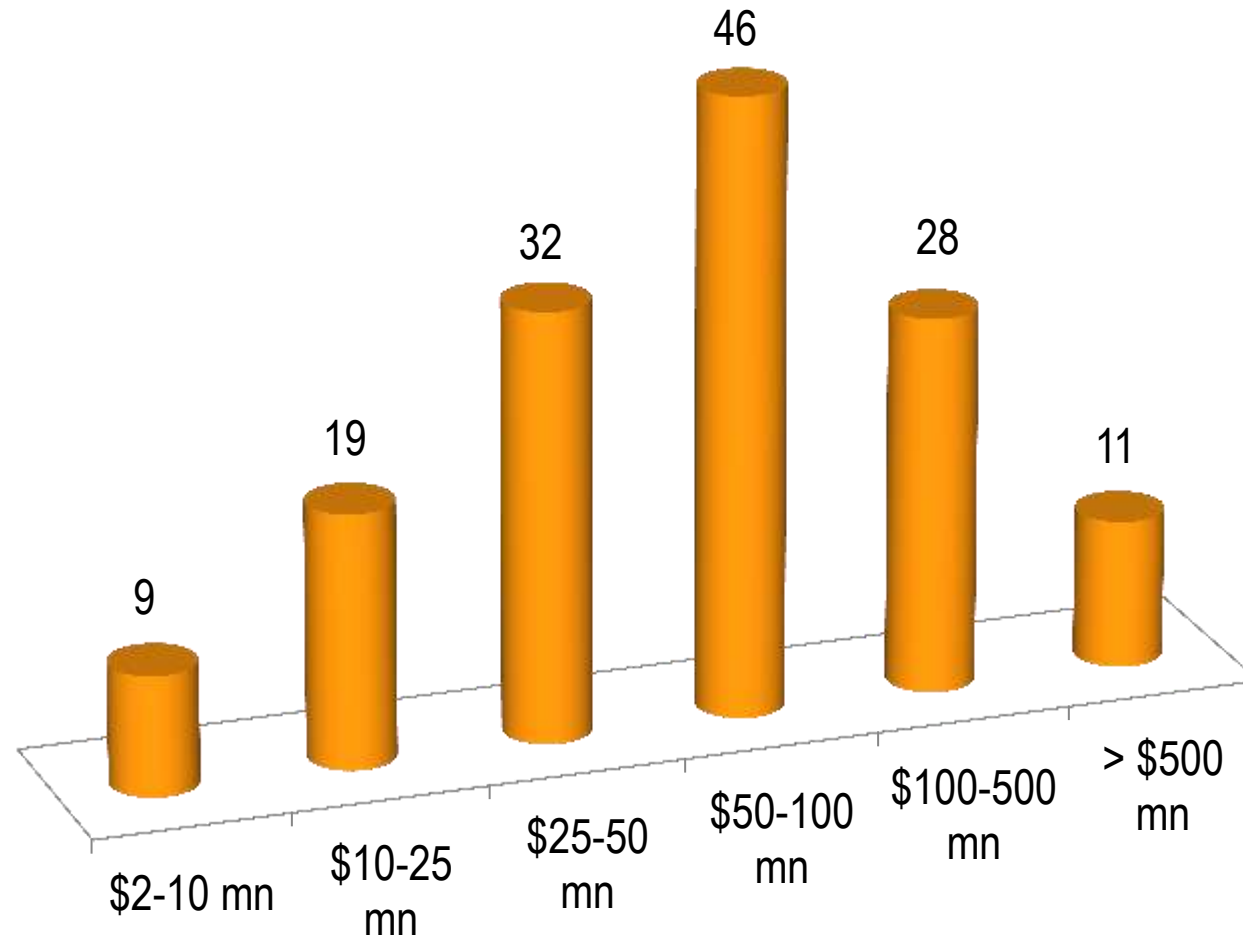
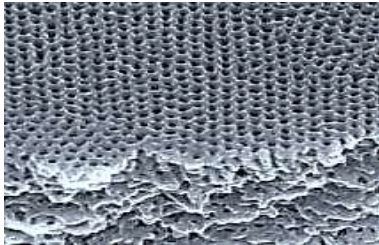


392 applications from 37 countries



as of Sep, 2012

Focusing on 25-100 mn USD projects



as of Sep, 2012

RUSNANO USA, Inc.



Mission

- **RUSNANO USA, a subsidiary of RUSNANO, was founded in December, 2010 in CA, USA to represent the interests of RUSNANO in North America**



Goals

- **Bridging ideas, technologies, capital, and expertise overseas by leveraging opportunities that are not available separately**
- **Originate projects in North America**
 - Search for ideas, technologies or projects that might be interesting to bring to the Russian market
 - Attract venture capital / private equity firms to co-invest in projects
 - Negotiate with stakeholders of target companies
- **Support RUSNANO's project companies in the US and Canada**
 - Negotiate with partners / suppliers / co-investors
 - Promote project company products and assist with entry into North American markets
 - Look for investors and M&A opportunities at the exit stages

