VTB Capital
INVESTMENT MANAGEMENT

Venture Capital

Breakthrough Ideas, Long-term Strategies, Success Stories

Vladimir Sakovich
February 28, 2013

Venture Capital business of VTB Capital

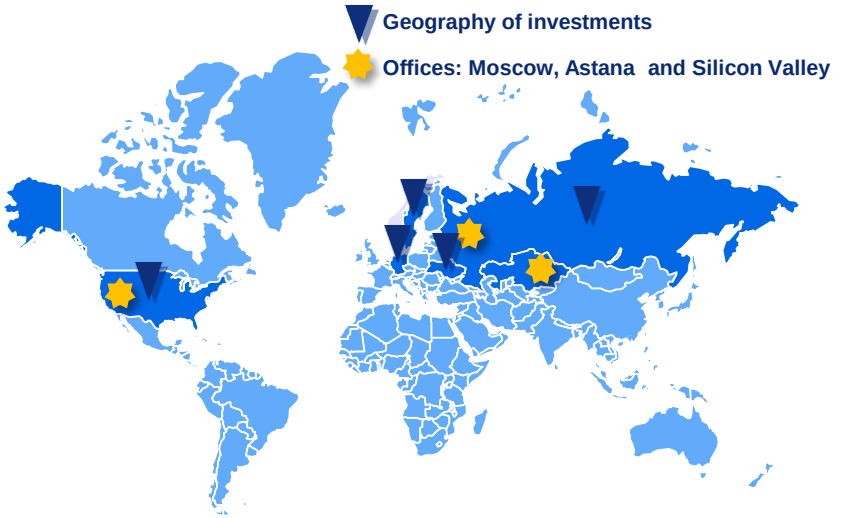
Market leader of venture capital industry in Russia & CIS

- Established in 2006
- US$330 million in AuM
- 10 investment professionals
- 7 full-time finance, legal and administrative professionals
- First venture-backed IPO in Russia (MICEX:RNAV)
- Partnership with Draper Fisher Jurvetson (DFJ)
- 33 portfolio companies in IT, Internet, e-commerce, material science, clean tech and other industries
- Co-investments with Sequoia Capital, Bessemer Venture Partners, Andreessen Horowitz, Qualcomm Ventures, Atomico, Menlo Ventures, Asahi Glass, Amadeus, eVenture, Mangrove and Ventech
- 60%+ CAGR of portfolio revenue in 2008-2011

Co-investments with top-tier venture capital firms

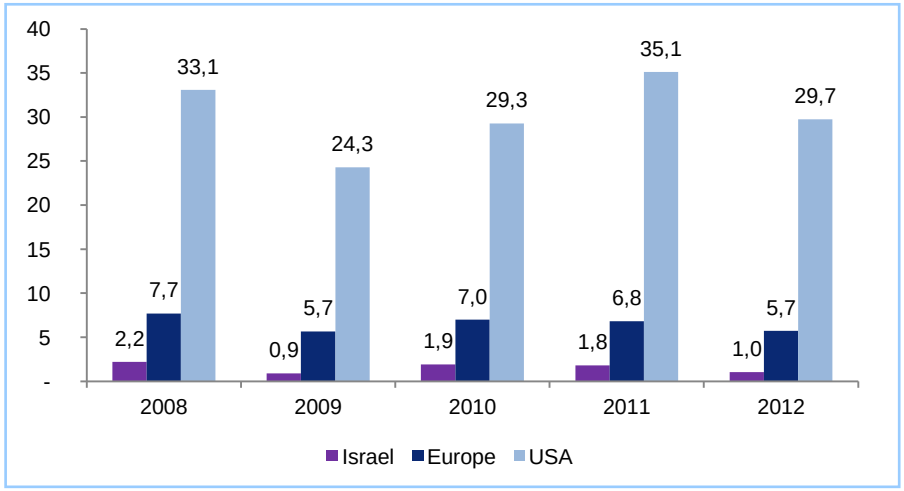
BESSEMER VENTURE PARTNERS
SEQUOIA CAPITAL
ANDREESSEN HOROWITZ
MENLO VENTURES
MANGROVE CAPITAL PARTNERS
AGC
amadeus
ATOMICO
QUALCOMM Ventures
DRAPER FISHER JURVETSON

Global geographic coverage

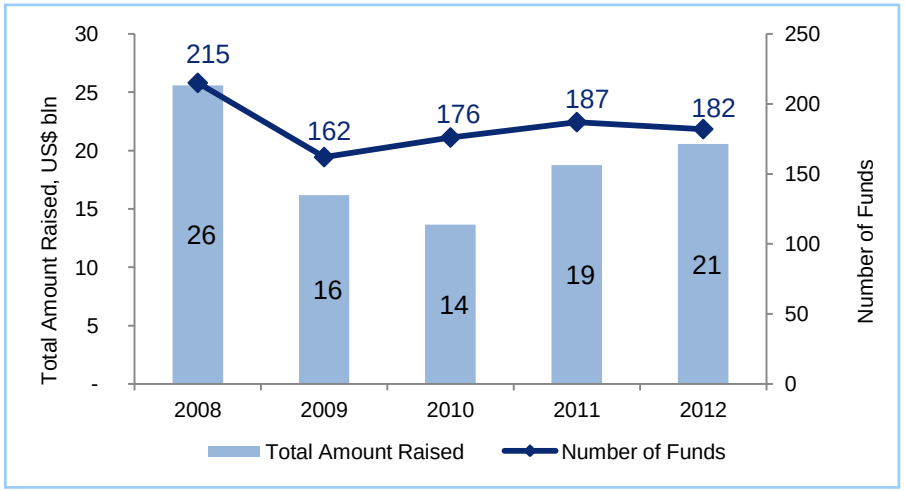


Venture Capital: global highlights

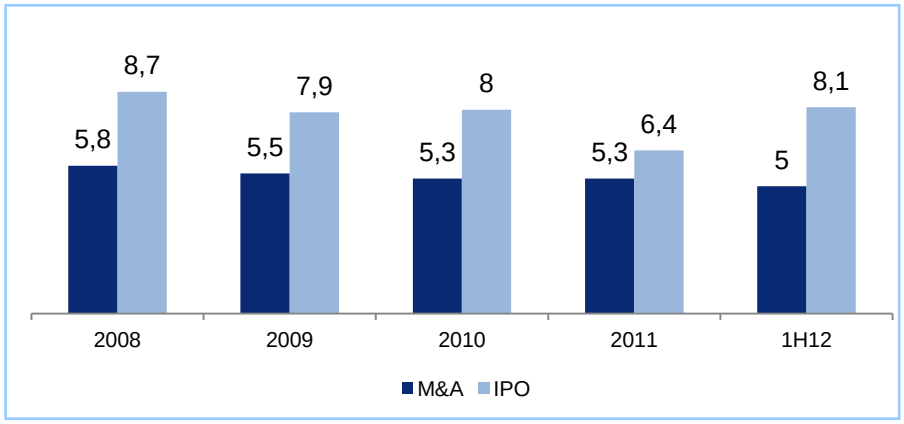
Total investments in venture-backed companies, US$ bln



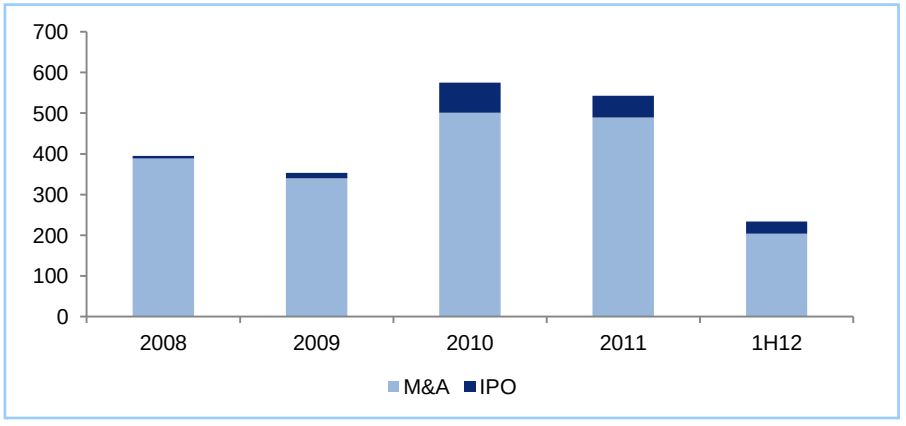
USA VC Fundraising



Median time from initial equity funding to liquidity, years



Total number of M&A and IPO



Source: Dow Jones Venture Source, National Venture Capital Association, PwC, Thomson Reuters

Investment Strategies

Macroeconomic trends in Russia

Large fast growing economy

- With a population of 143.3 mln, Russia is the most populated country in Europe
- 6th largest economy in the world by GDP (measured in PPP terms)
- In 2011, Russia's economy reached US$1.85 trln or approximately 3.0% of world GDP
- WTO member as of 2012
- CPI of 6.1% YoY in 2011

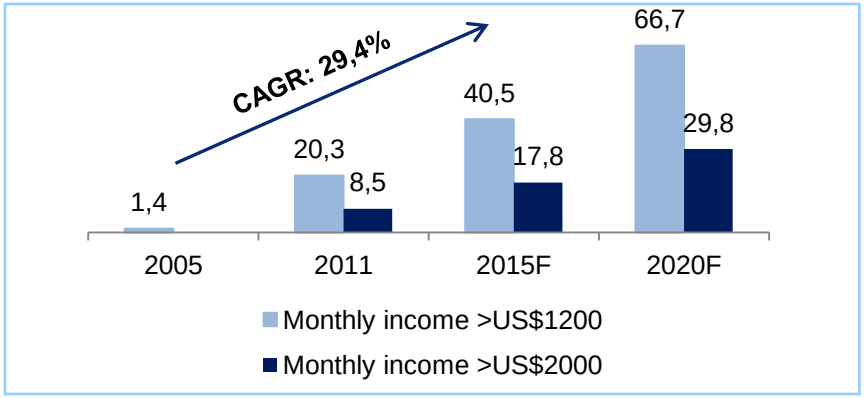
Extremely fast growing consumption

- The largest GDP per capita among all BRIC countries: Russia (US$13,089), Brazil (US$12,594), China (US$5,430) and India (US$1,489)
- Since 2005, the country has witnessed a sharp rise in its middle class population
- On the back of positive macro changes, Russia has experienced a significant consumer boom
- Over the next decade, sectors such as IT, Internet, consumer and retail are expected to be the biggest beneficiaries

Russia vs. peers: GDP growth, %

Country	2010	2011	2012F	% of World Total
China	10.4%	9.2%	7.8%	11.6%
India	10.1%	6.8%	4.9%	2.7%
Russia	**4.3%**	**4.3%**	**3.7%**	**2.7%**
Japan	4.5%	(0.8)%	2.2%	8.4%
United States	2.4%	1.8%	2.2%	22.0%
Brazil	7.5%	2.7%	1.5%	3.4%
Germany	4.0%	3.1%	0.9%	4.7%
France	1.7%	1.7%	0.1%	3.6%
United Kingdom	1.8%	0.8%	(0.4%)	3.4%
Euro Area	2.0%	1.4%	(0.4%)	16.9%
Italy	1.8	0.4%	(2.3%)	2.8%
World	5.1%	3.8%	3.3%	100.0%

Number of affluent people in Russia, mln



Source: Federal Statistics Service, IMF World Economic Outlook , World Bank

Russian Internet: opportunity impossible to ignore

One of the biggest Internet markets in the world

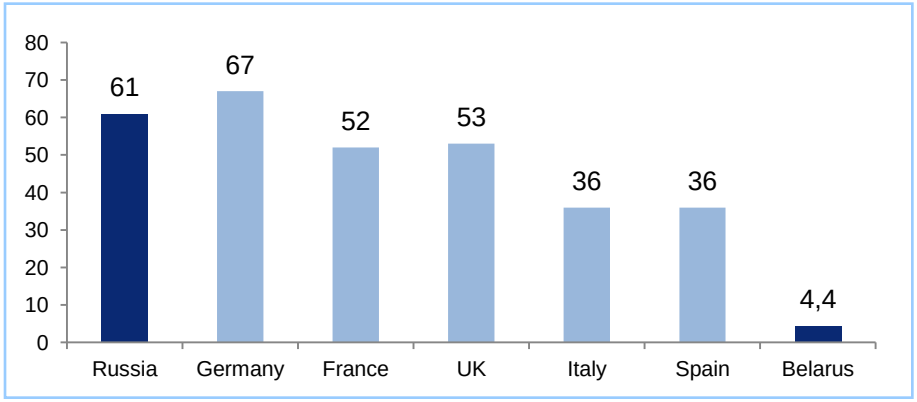
- Russian internet audience is one of the largest in Europe, having approached Germany's level in 2012
- A total of **80 million Russian language internet users** worldwide constitutes the 5th largest language group (after English, Chinese, Japanese and Spanish)

Room to grow

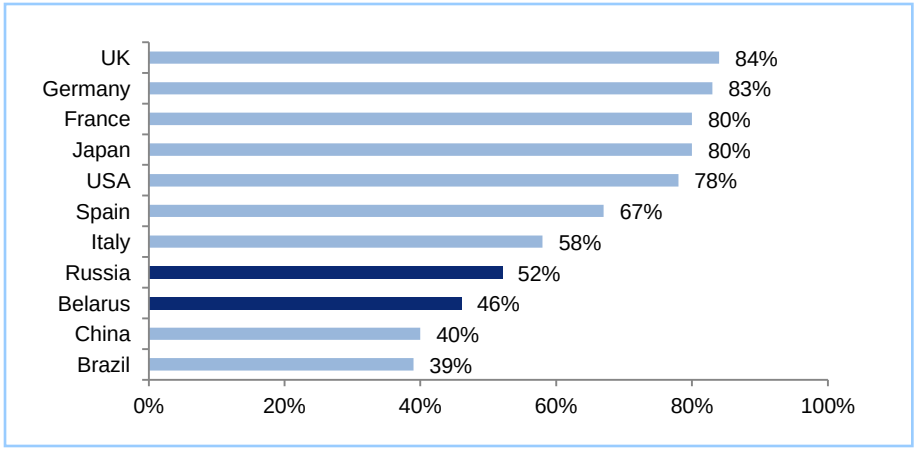
- Russia's current Internet penetration level (52%) is still behind developed countries and it is projected **to grow up to 82%** in the long run (2018)

Source: FOM, TNS Gallup, BofA Merill Lynch

European online audience (mln) – June 2012

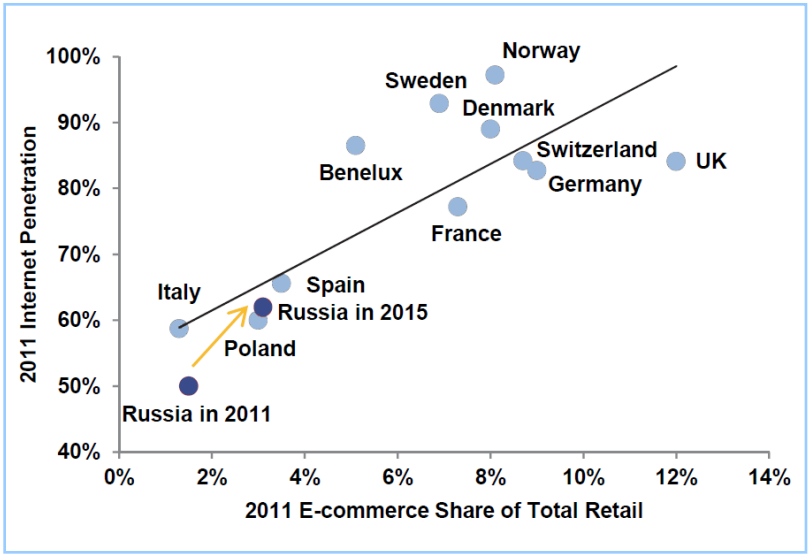


Internet users as % of population: Russia vs. World – June 2012

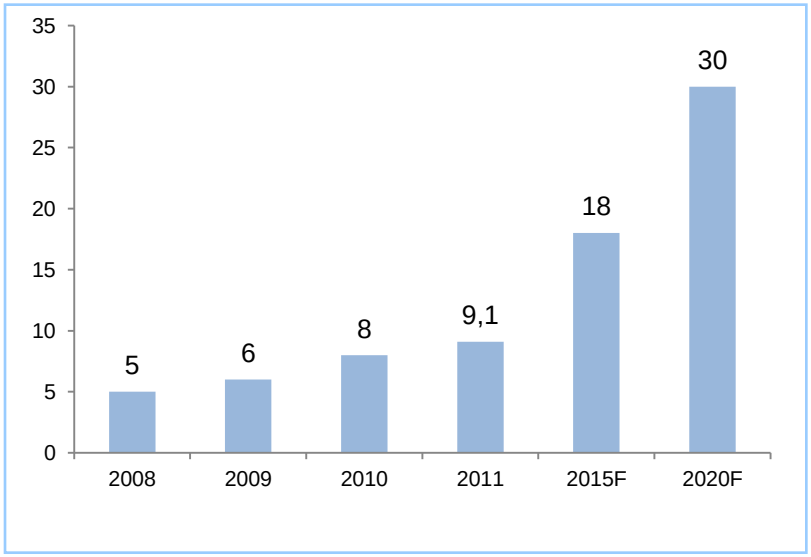


Russian e-commerce: The Next Big Thing

E-commerce share of total retail in Europe



E-commerce market in Russia (2008-2015F), US$ bln



Key facts

- In 2011, the e-commerce sector reached **US$9.1 billion** a year
- According to Morgan Stanley Research, Russian e-commerce is expected to grow at 44% CAGR in 2012-2014
- E-trade represents **only 1.6% of total retail turnover**, which leaves huge room to grow compared to USA (4.4%) and China (3.7%), while it is similar to the US and Chinese ratios in 2000 and 2007, respectively

Source: Data Insight 2012, GP Bullhound, June 2012

Russian Internet: local leaders dominate the market

Category	Global Leader	Russian Leader
Search engine	Google	Яндекс
Online portal	msn	@mail.ru
Social network	facebook	ВКонтакте
Online classifieds	craigslist	AVITO.RU
Online auctions	eBay	molotok.ru мегамолл в интернете
Electronics retail	amazon	OZON интернет-магазин

Russian Internet market

remains largely dominated by local players

Russian companies are leaders in their respective categories

Language complexities

Similar to China, Japan and South Korea, language is one of the key barriers to entry in the Russian Internet market

Marketing specifics

Effective marketing campaigns require a specific understanding of consumer preferences and behavioral habits

Logistics Impacting Profitability

The vast size of the country and shortage of fast, cheap and reliable logistical systems is a natural barrier for many global e-tailers. Local players like Ozon and KupiVIP have been able to successfully solve this problem by building their own logistics.

Local start-ups have substantial advantages in winning and retaining market share over global leaders. To conquer the market companies need to be local.

International companies are likely to acquire successful local start-ups rather than build from scratch, creating exit opportunities for start-ups.

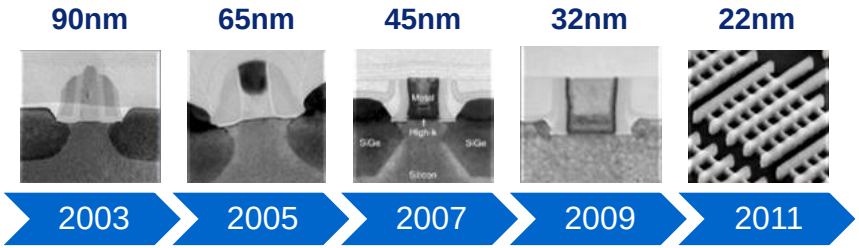
Nanotechnologies: the only way of continuous evolution

Nanoscale – new physics, new opportunities

- New phenomena arise when the size of the system decreases from micro to nano
- Molecule level manipulation enables *the* creation of absolutely new materials – stronger, lighter, waterproof and more durable

Moore's Law* makes nanoscale inevitable

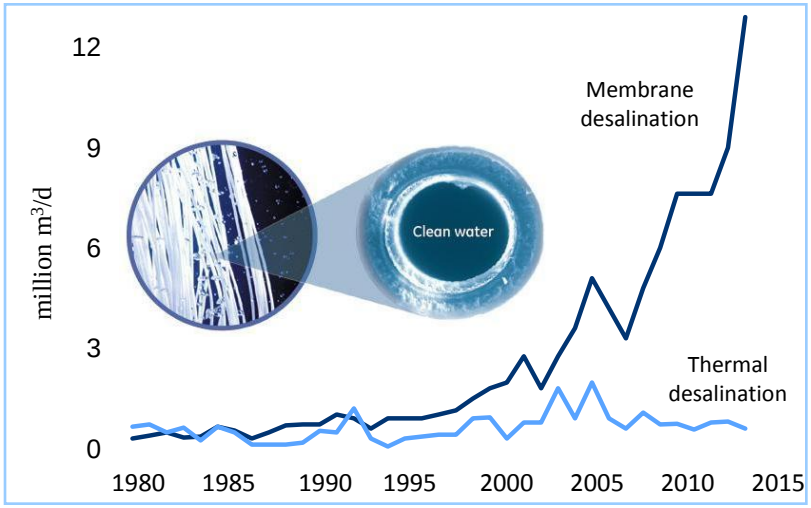
- Moore's law describes a driving force of technological and social change since early 20th century
- Transistors, the main building blocks of electronics, are already produced in nanoscale



Nanotechnologies can solve key humanity problems

- Production and storage of clean renewable energy
- Inefficiency of conventional engines and fuels
- Water desalination and purification

Annual new contracted capacity of water desalination



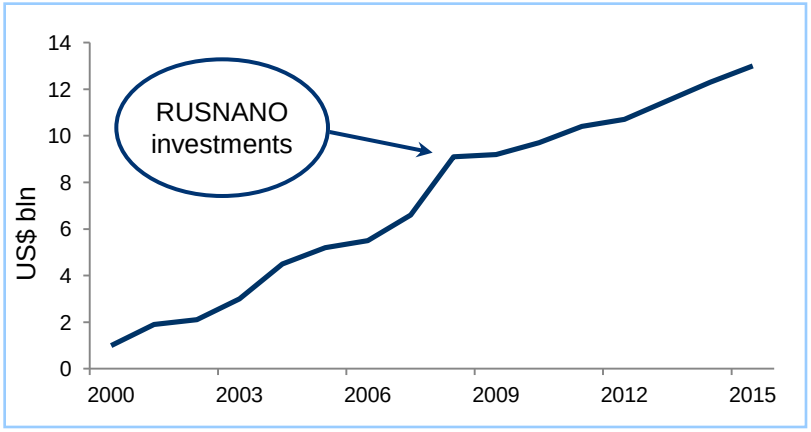
The new technological revolution lays in nanoscale.
The next Big thing is really small!

* Moore's law: *The number of transistors per square inch on integrated circuits had doubled every 18-24 months since the integrated circuit was invented*

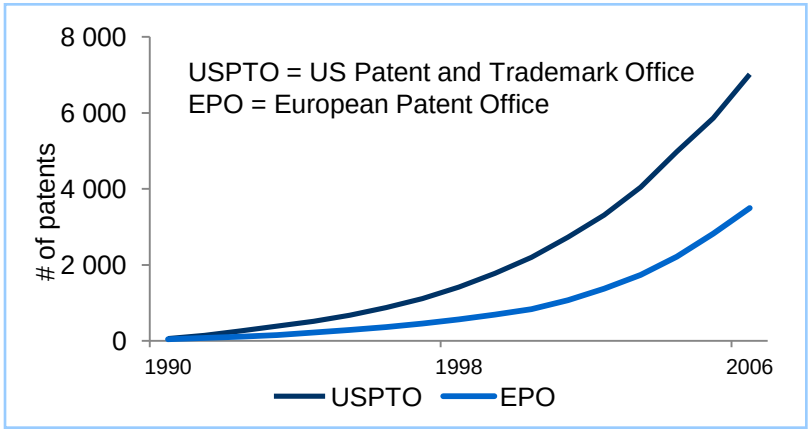
*** Source: Nature.com, DesalData/Desalination Market 2010*

Nanotechnologies: ready for commercialization

Annual world governments' investments in nanotechnologies*



Accumulative number of nanotech patents published in USPTO and EPO**



Vastly financed and supported

- Developed countries have invested billions of US dollars in R&D centers and manufacturing infrastructure for nanotechnology businesses over the last decade
- Nanotechnologies became a major point of scientific research over the last 10 years. The number of published and patents have grown exponentially

Private venture-backed companies get the chance to leverage on the latest scientific achievements and established infrastructure

**Source: Cientifica.com*
*** Source: Nature.com*

Nanotechnologies: products and markets

Clean Energy

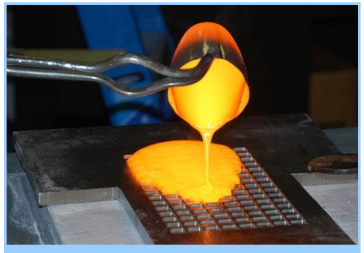
Market in 2017: US$114,7 bln
CAGR: 12,5%+*

Huge market with growth based on exponential increase of energy demand

Electronics

Market in 2017: US$329,1 bln
CAGR: 5,4%+*

The industry is already operating at nanoscale, driven by Moore's Law



Materials

Market in 2017: US$13,1 bln
CAGR: 54,9%+*

Fast growing market based on opportunity to operate with molecules and nano 'building blocks'

Nanooptics

Market in 2017: US$3,4 bln
CAGR: 100%+**

Perspective industry due to the fundamental advantages of photons in comparison with electrons

Nanotechnology products have already created multibillion markets with tremendous growth rates

** Source: VTB Capital research*
*** Source: marketsandmarkets.com*

Nanotechnologies: contribution of the Russian science

Russia's contribution to technological revolution

- 15 Nobel Awards in physics and chemistry; 5 Awards granted in XXI century
- Russian scientists played the main role in the invention of lasers, quantum heterostructures, LEDs, quantum dots, graphene, quantum computing and other breakthrough technologies that created multi-billion dollar markets in the past and are expected to create new markets in the forthcoming decade
- Russia still has unique technologies in such fields as space and nuclear energy

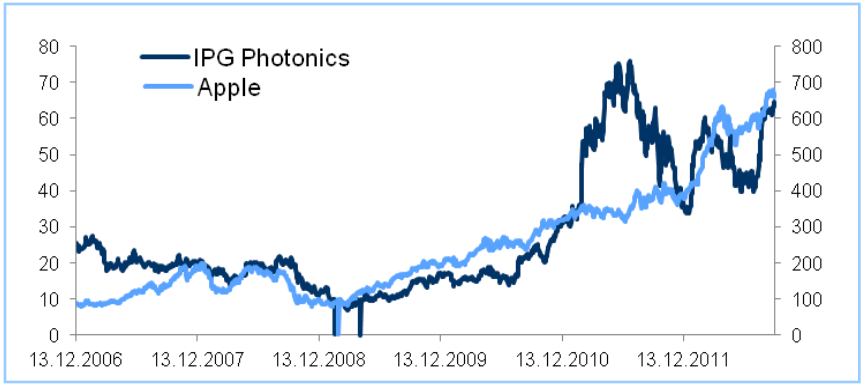
Case Study: IPG Photonics

- World leader in high power fiber lasers and amplifiers
- Founded in Russia by Valentin Gapontsev in 1990
- Went public in 2006 on the NASDAQ (IPGP)
- Market capitalization US$3,2 bln +
- IPG delivers record revenue and net income in 2Q 2012 (revenue increase 13% YoY, net income grows 23%)

Markets created under Russian science influence

Developed Markets		Emerging Markets	
Market	**Market size**	**Market**	**CAGR**
Lasers	US$ 8 bln+*	Quantum dots (QDs)	59.3% *
LEDs	US$ 12 bln+ ****	Graphene	60%+ *
Nuclear energy	US$ 200 bln+ ***	Thermoelectric generation (TEG)	23.7%+ **
Superconductivity	US$ 2 bln+ *	Quantum computing	-

IPG Photonics vs. Apple share price history, US$



Russia has been one of the major contributors to the fundamental science and technological progress in the 20th century. In the 21th century Russian companies are able to take advantage of it

Sources: * *BCC Research; **GlobalData;*** MarketLIne; **** LEDsMagazine, investor.ipgphotonics.com*

Nanotechnologies: market drivers in CIS

Russia votes for modernization

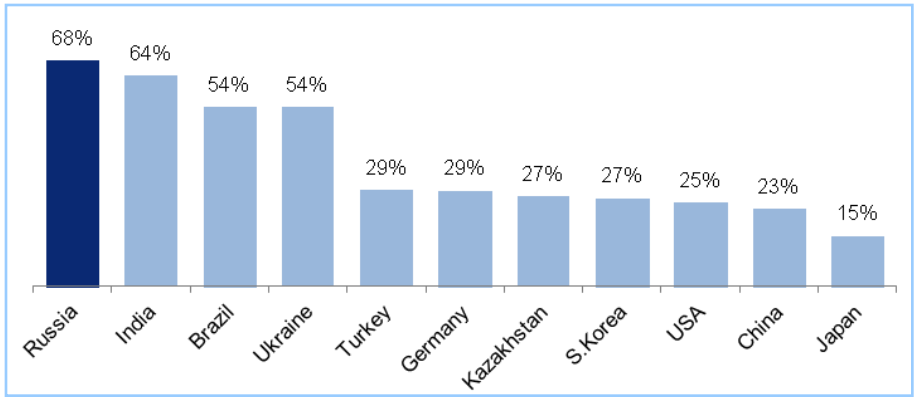
- Recently, Russia has taken a new course towards modernization. The plan is to radically increase penetration of innovative products in the Russian market and spend more on foreign technology and transfer of best practices to Russia.
- The total budget for the Innovative Development Program (designed to modernize manufacturing and business infrastructures) for all Russian state-owned companies, over next 3 years, is approximately US$30 bln.
- RUSNANO (US$6 bln AUM) is the Russian state-owned company responsible for building the country's nanotechnology industry.
- According to Russian Prime Minister Dmitry Medvedev, the total sales of the Russian nanotech industry is expected to reach US$30 bln in 2015.
- US$90 million is planned to be invested in the development of nanotechnology industry in Belarus

The CIS market represents a huge opportunity for foreign high-tech companies and startups

Growth of expenditures on innovation technologies stemming from state-owned companies

Russian state-owned companies	Expenditures on Innovations as % of Revenue*			Foreign peer
	2010	2011	2012F	
RusHydro	0.0%	3.2%	3.0%	Fortum (0.5%)
Federal Grid Company	1.2%	2.4%	3.2%	EdF (0.7%)
Rosneft	0.2%	0.4%	0.4%	Petroleo Brasiliero (0.8%)
Space Corp. Energia	1.4%	3.9%	7.0%	Alliant Techsystems (6.2%)
ALROSA	0.1%	0.2%	0.3%	De Beers (0.2%)
Russian Technologies	0.4%	0.9%	1.1%	United Technologies (3.1%)
Rostelecom	0.0%	0.2%	0.6%	France Telecom (1.7%)

Government share in national expenditure on R&D**



** Source: Ministry of Economic Development of the Russian Federation*
*** Source: EIU, UNESCO, Eurostat as of May 2012*
Source: Belta.by

Selected Portfolio Companies

Fastlane Ventures: leading developer of Internet companies

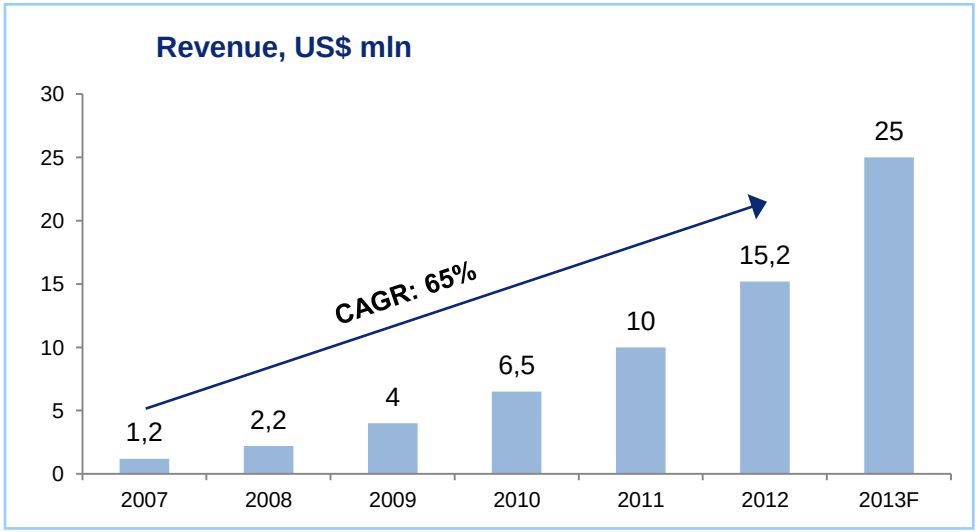
- Founded by Pascal Clement (Ozon.ru, Rus Finance Bank) and Oscar Hartmann (KupiVip)
- **6** market sectors covered: e-commerce service, b2b service, content & advertising, social service & financial services
- **20** companies established
- **80** million dollars of investments raised.
- **770** employees are building startup businesses with Fast Lane Ventures
- Investors: Intel Capital, Accel Partners, Russia Partners, Mangrove Capital Partners, eVenture, Ventech VC and VTB Capital

FLV is a unique platform for creating, building and growing businesses in Russian consumer Internet space

IQCard Disruptive financial services	HomeFair миллион вещей для дома Selling home goods online	juvalia &you Innovative MLM + e-commerce company	eventmag Event planning app
Lokata Local search and local promotion	Kommerstate.ru B2B online marketplace for commercial Real Estate	pinme Social collection of ideas	TravelRent Online marketplace for C2C traveler's bookings
RENTHOME.RU Online marketplace for C2C traveler's bookings	EVEREST Sports and outdoors online trade company	DOMGEO Real estate search portal	Teamo Couple matching service for serious relationships
Vita portal Medical and health related topics portal	RM RelevantMedia Innovative media company	sapato.ru ВСЯ ОБУВЬ ОНЛАЙН Sold to Ozon.ru in 2012	SL Shopping Live Sold to German group Home Shopping Europe in 2012

Grid Dynamics: scalable e-commerce platform solutions

- Developer of five robust and open solutions that are essential for every successful e-commerce platform:
  - Scalable and configurable eCommerce search platform;
  - Open and scalable personalization solution;
  - Engineering for scale, performance and stability;
  - Open continuous delivery platform;
  - Open private cloud for continuous delivery
- Core Technology provider to top-tier US retailers: Macy and Kohl
- **2x** higher billing per a programmer compared to EPAM
- **15+** million dollars in revenue in 2012 (55% YoY growth) with EBITDA Margins over 13%



Key Customers

macy's, KOHL'S expect great things, YAHOO!, Microsoft, PayPal, ebay, ING, vmware

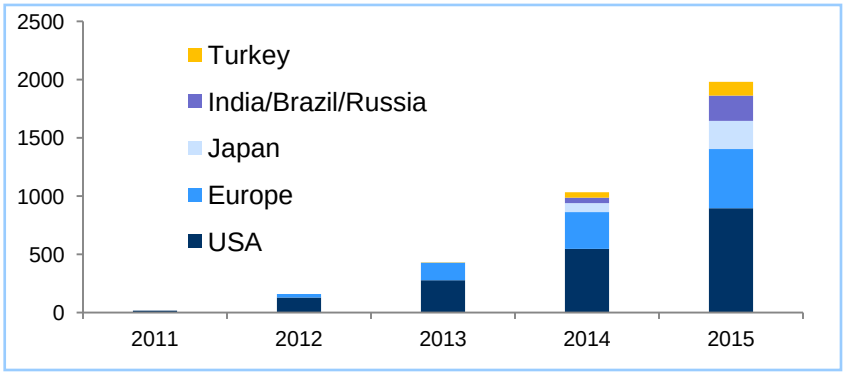
Fab.com

Best E-Commerce Application — THE 2012 CRUNCHIES sponsored by YAHOO!

Social commerce platform, which allows people all over the globe to access everyday design objects from the world's largest network of designers. Fab is the fastest growing e-commerce company ever, having 600 employees in New York, Berlin and Pune (India) and selling products in 26 countries all over the world.

New Design Discovery Paradigm in E-shopping Industry

Revenue Projections by Regions (2011-2015), US$ mln



The site was launched on 9 June, 2011 and just 18 months later:

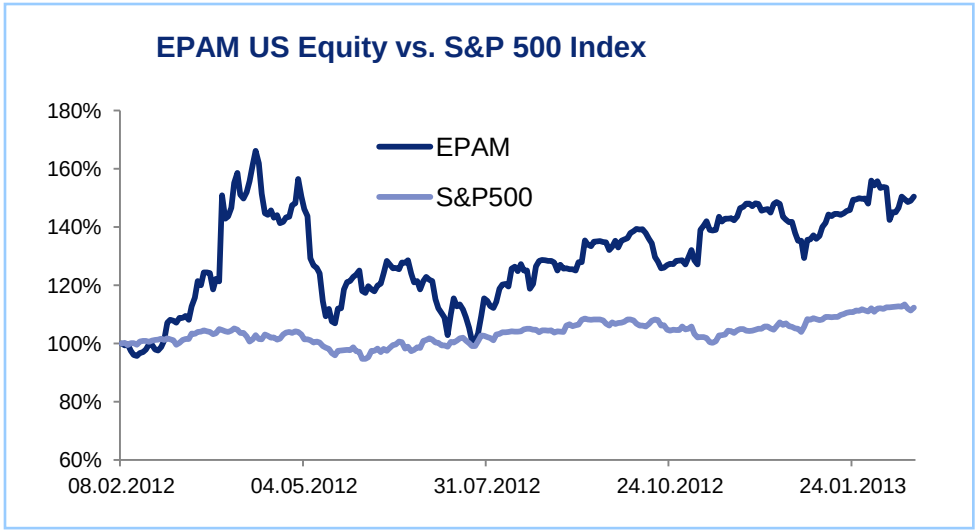
- Today Fab sells 15,000 unique products
- Fab sold US$25mln in the past 30 days
- Fab's gross margins are 40%+
- 10 million members
- The average shipping time is 2 days across USA
- Fab sells 23 products per minute
- 2012 sales will reach US$140-150mln and will exceed US$400mln in 2013
- 30% of sales come from Europe (in 2011 100% of sales were from US customers)
- 56% of sales made via mobile devices on Christmas'12
- 50% of members come from social networks
- 65% are repeat buyers
- Fab is after a US$70bln market (USA only)

Fab.com has raised over US$150mln from:
Andreessen Horowitz, Atomico, Baroda Ventures, Docomo, First Round Capital, Mayfield Fund, Menlo Ventures, Pinnacle Ventures, RTP Ventures, SoftTech VC, SV Angel, **VTB Capital (US$7mln)**, Times Internet, The Washington Post Company, Zelkova Ventures

EPAM: leading software and solutions provider in Europe

In 2012, VTB Capital Private Equity realized a full exit of its investment in global software engineering and IT consulting provider EPAM Systems by floating the business on the New York Stock Exchange and subsequent block trades

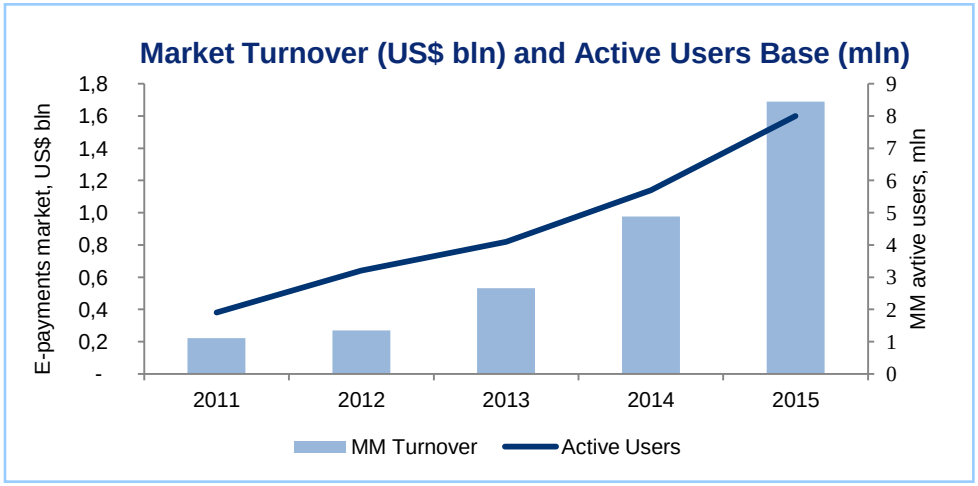
- VTB Capital Private Equity and Special Situations ("PESS") acquired shares in EPAM in two tranches in 2010
- At IPO in February, VTB Capital sold a small portion of its holding alongside other financial investors and company insiders.
- Post IPO, EPAM's stock outperformed all major Russian and US indices on the back of positive earnings announcements and outlook for 2012
- VTB Capital fully exited its investment in EPAM in August
- Research analysts continue to have buy/overweight ratings on the stock
- EPAM was the first CIS based company to be listed on NYSE in eight years

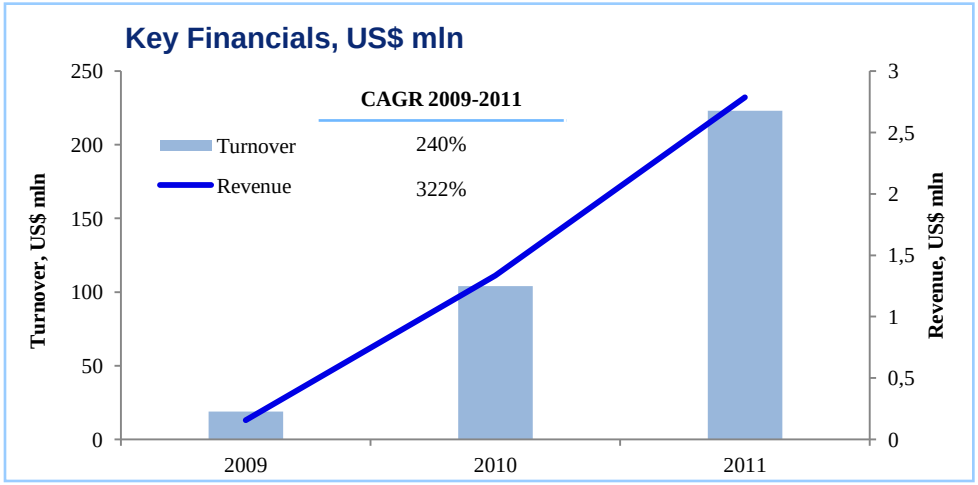


Mobi.Money: #1 company in mobile payments in Russia

- First mobile payments / P2P mobile money transfer / virtual debit card project in Russia
- **3 years** from seed-stage startup to growth company
- **10 mln** active (unique) users base in 2015
- **17%** estimated market share in 2015 based on e-money, MNO* account and virtual cards
- **28.2 mln dollars** in est. revenue by 2015
- **Investors:** PayCash (Yandex.Money, MonetaExpress, eDealer). VTB Capital led Seed Round and Round A in 2009

Company aims to become a household name in the consolidated e-payments market





*MNO = mobile network operator
* *BCG research

Avalanche Technology, Inc.

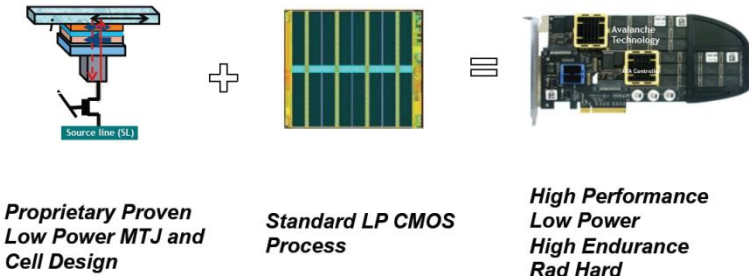
Top 10 Most Promising Storage Start-Ups in 2013

Storage.com Newsletter

Avalanche is revolutionizing the US$ 70 bln computer memory market by developing a spin programmable memory (SPMEM) technology that by itself, delivers on a number of key functional attributes found today only in separate memory technologies such as DRAM, SRAM, NOR and Flash

Technology

- Proprietary Spin Programmable Memory (SPMEM)
- Cell is 1/5th the size of any current memory device
- Scalable beyond 10nm
- Technology partners: US and Asian CMOS fabs

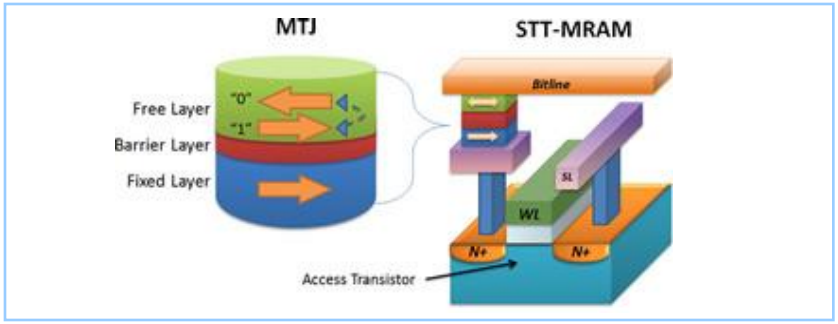


Team

- **Petro Estakhri** (co-founder, CEO) took Lexar Media from a start-up to $1B evaluation in less than 5 years including a successful IPO and later acquisition by Micron
- **Dr. Rajiv Ranjan** (co-founder, CTO) former executive at Seagate and Komag
- **Dr. Yiming Huai** (VP Technology), former CTO and co-founder of Grandis, Inc., one of the pioneer in spin transfer torque magnetic memory (STT-RAM), acquired by Samsung in 2011

Markets

- **Market #1**: stand alone SPI & DDR end-products replacing current NOR & HDD/SSD DRAM cache memory. Segment size: US$6+ bln.
- **Market #2:** embedded STT MRAM solution for leading SOC providers (BRCM, QCOM, NVIDIA) and large fabs (SMIC, Global, TSMC, IBM, UMC). Segment size: US$10+ bln.
- **Market #3:** STT MRAM enabled SSD's. Segment size: US$10 bln.



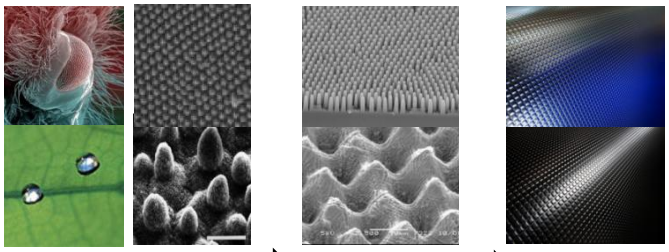
Other Investors: The Fund co-invested US$8 mln in Round D with US$22 mln from Sequoia Capital, Bessemer Venture Partners, Vulcan Capital, Thomvest Ventures, and Qualcomm Ventures

sequoia capital · BESSEMER VENTURE PARTNERS · THOMVEST VENTURES · QUALCOMM · VULCAN Capital

Rolith, Inc.

Rolith, Inc. is developing advanced technology and equipment for nanostructured coatings (anti-reflective, self-cleaning) for the solar panel, display, and architectural glass markets using a proprietary nanolithography technology. Rolith is capable of making nanostructures cheaper, faster, and over larger surface areas than currently existing technologies (Nanoimprint lithography, PVD, Sol-gel etc.)

'Scaling Nature' Approach

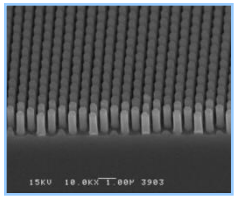


Technology

- Near-field/soft lithography + cylindrical masks = sub-wavelength resolution / scalability / low cost
- "Rolling mask" specs: resolution ~ 10 nm; cost ~ US$2/m^2; throughput ~ 3 m^2/min

Development Status

- Prototype of "rolling mask" lithography system is up and running
- Nanopatterning technology Is demonstrated on 300 mm wafers



Intellectual Property

10+ Patents already filed (US and worldwide) & "know-how"

Partnerships

- **Asahi Glass Co (AGC):** Glass application development / Investor
- **SUSS Microtec AG:** Nanolithography equipment development
- **University of Michigan:** Mask fabrication materials & process technology

Market

- **Rolith applications:** nanostructured coatings for solar sells, architectural glass and displays. Nanostructured coatings market: US$1.1 bln – in 2009, US$3.5 bln – in 2015

Team

- **Boris Kobrin, CEO & Founder:** 25 years experience in lithography and semiconductors industry (Applied Microstructures, Onix Microsystems etc.)
- **Qualified technological team** Leading scientists from Stanford, University of Michigan, Univ. of Illinois Urbana-Champaign are involved

Investors

- **DFJ VTB Capital Aurora:** Round A lead (US$3 mln).
- **Asahi Glass Co (AGC):** Seed (US$350k) + Round A follow-up (US$2mln)

SmS Tenzotherm GmbH

SmS Tenzotherm GmbH is commercializing 30+ years experience of R&D in the field of the rare-earth Samarium Sulphide (SmS) semiconductors. Unique properties of SmS open a path to advanced breakthrough products (Tenzosensors, Thermoelectrical generators).

Samarium-Sulphide

- Unique semiconductor rare earth material with phase transition "semiconductor-metal" at 6.5 kBar
- High levels of electron concentration in conduction band up to 1021 см^3 provide low sensitivity to impurity contamination
- Isotropy of physical properties – polycrystalline material makes it possible to use
- SmS films deposited on different materials/substrates (metal, glass, ceramic, silicon) have a suitable linear temperature expansion coefficient

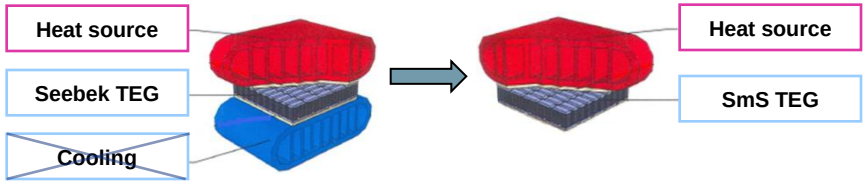
Products portfolio

Tenzosensors (Production stage)

- Linear and high voltage output signal
- High stability against radiation and strong magnetic fields
- Wide temperature range -200 to +400°C

Thermoelectric generators, TEGs (R&D stage)

- Generation without additional cooling and high efficiency
- Can be designed as thin films



Market

- **Sensors:** US$6.3+ bln market in 2010
  Application fields: Construction, oil & gas production, etc.
- **TEGs:** US$1.3 bln market in 2012, CAGR >30%
  Application example: Increasing solar panels efficiency by 100%, cost savings of 25%

Russian-German collaboration

- **Ioffe Institute (Russia)**
  Transfer of developed IP to Germany, continuing R&D
- **MST Factory (Germany)**
  Manufacturing facilities for SmS products in Germany
- **Technical University of Dortmund (Germany)**
  Detailed characterization and fundamental studies of SmS

Intellectual property

Broad portfolio of "know-how" based on 30+ years experience in Samaruim-Sulphide

Team

- The world leading team in Samarium-Sulphide R&D, 30+ years experience
- Professional business team with successful exits in semiconductor industry (Innolume, OptoGan)

Investors

- Russian angel-investors: US$ 1mln (seed round)
- DFJ VTB Capital Aurora: US$6 mln (Round A)