National Technology Initiative

Space of possibility

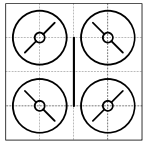
AGENCY FOR STRATEGIC INITIATIVES

NATIONAL TECHNOLOGY INITIATIVE:

THE CORNERSTONE OF RUSSIA'S NEW TECHNOLOGY POLICY

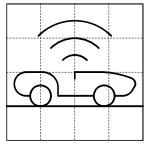
NTI is a long-term technological development program designed up to 2035, in order to create the conditions for emergence of the companies that would be competitive at the fundamentally new markets of the future.

Each prospective market is referred to as «-Net» to illustrate the idea that this will be a network of fast growing providers and trend setting consumers rather than corporative oligopolies:



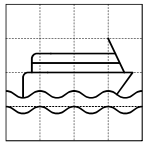
Aeronet

Unmanned aerial vehicles



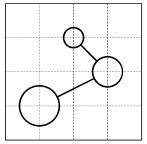
Autonet

Unmanned road vehicles



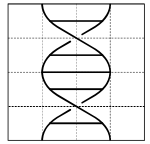
Marinet

Unmanned maritime transport



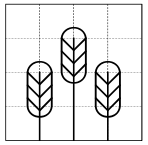
Neuronet

Brain-computer interfaces and AI



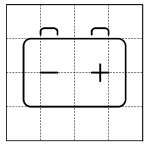
Healthnet

New medicine technologies from digital health to genomics



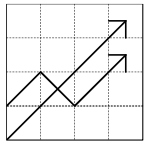
Foodnet

City farming, personal production and delivery of food



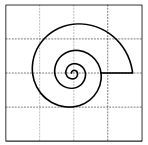
Energynet

Distributed power, micro grid, smart grid and smart city



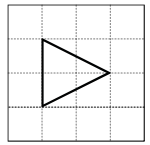
Finnet

Decentralized financial systems and currencies



Safenet

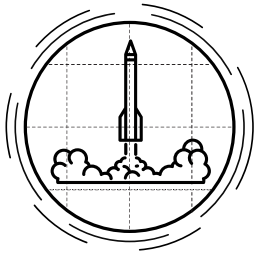
New personal security systems



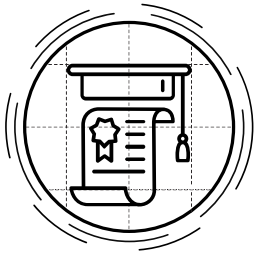
Medianet

Augmented reality and virtual reality

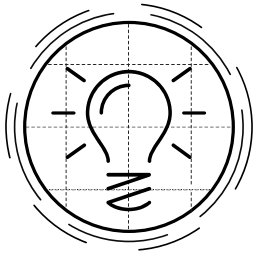
ACTORS INVOLVED IN NTI



Fast growing technology companies

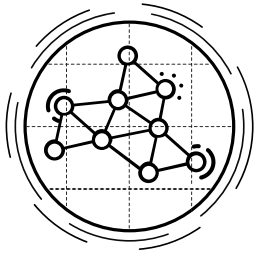


Leading universities

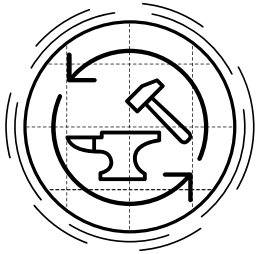


Research centers

Major business associations

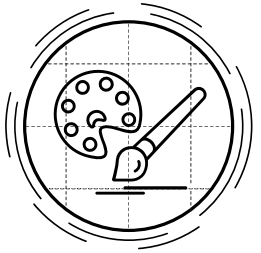


Expert and professional communities (even informal)



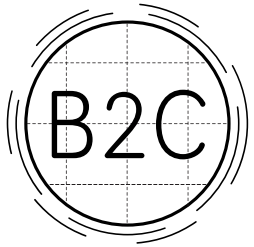
Development institutions

Engaged ministries



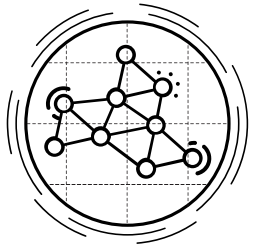
Design and creative teams

CRITERIA FOR MARKET SELECTION



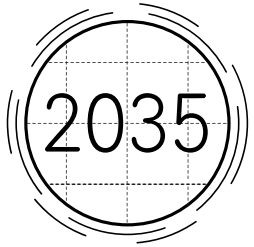
Hypothesis 1

The starting point of the description — changing needs of people (B2C markets)



Hypothesis 2

New markets of the future will be based on the network structure principle

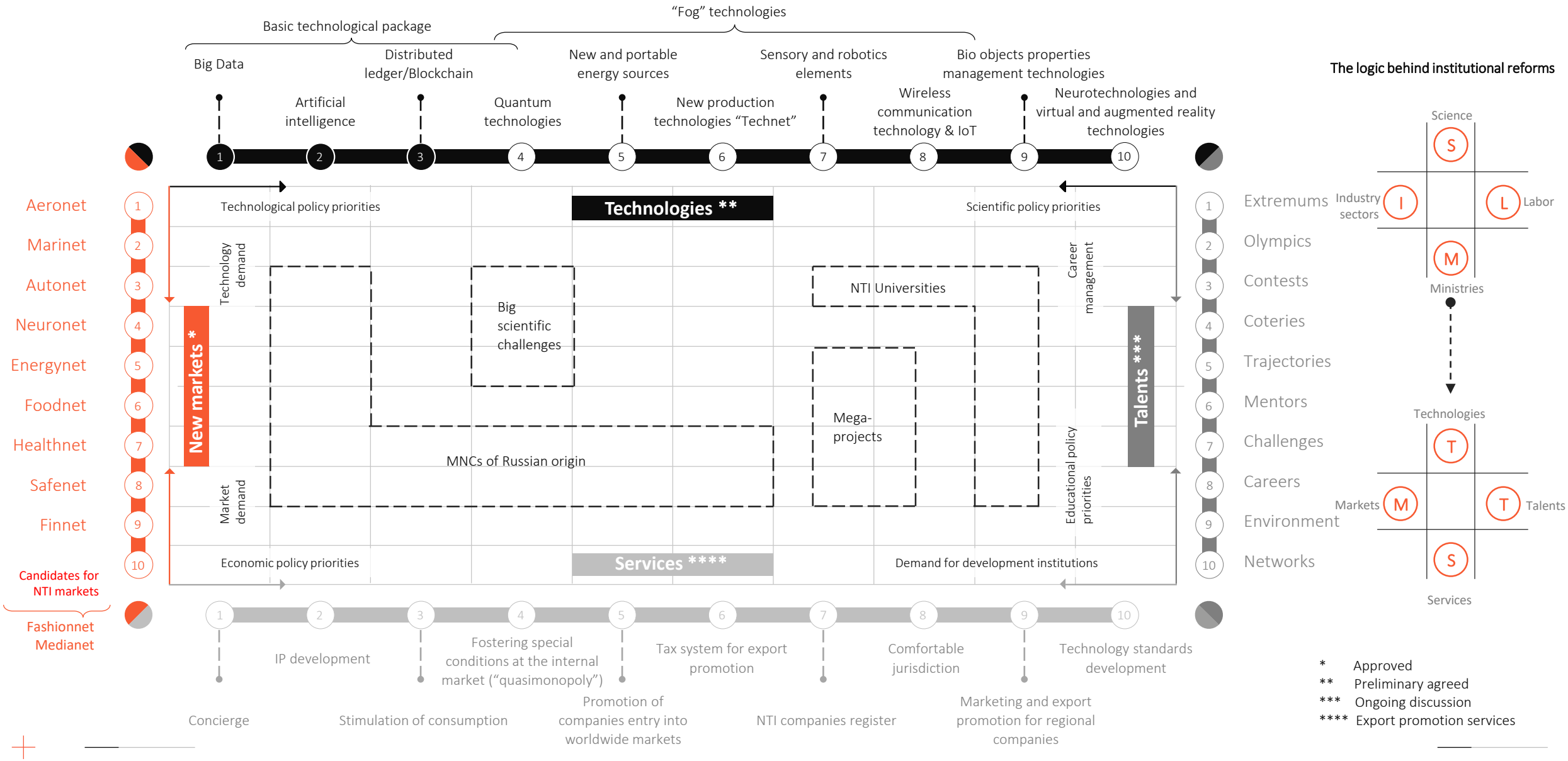


Hypothesis 3

The NTI development planned from the future 2035/2018 ("the desirable reality")

1. The selected market will become significant on a global scale: it will "weigh" more than $100 billion by 2035
2. At present the market does not exist, or it lacks the generally accepted/established technological standards
3. The market is primarily oriented towards the needs of people as final consumers (B2C prevails over B2B)
4. The market will constitute a network where intermediaries are replaced with a governing software
5. The market is important for Russia from the point of view of ensuring basic needs and security
6. There are relevant conditions for Russia to achieve competitive advantages and occupy a significant share of the market
7. Russia has technological entrepreneurs aspiring to create leading companies in this new hi-tech market

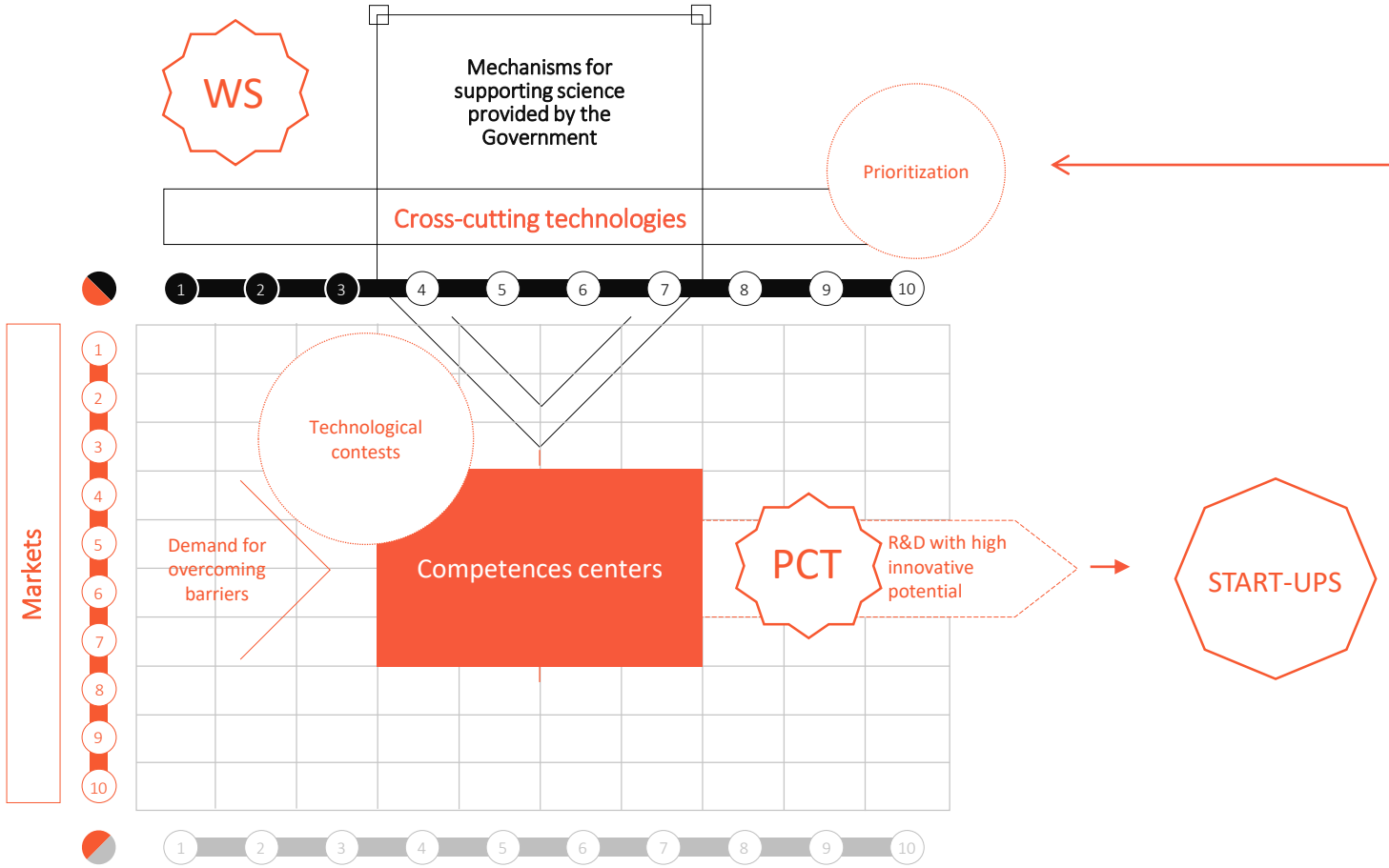
NTI MATRIX LOGIC



The logic behind institutional reforms

* Approved
** Preliminary agreed
*** Ongoing discussion
**** Export promotion services

CROSS-CUTTING TECHNOLOGIES



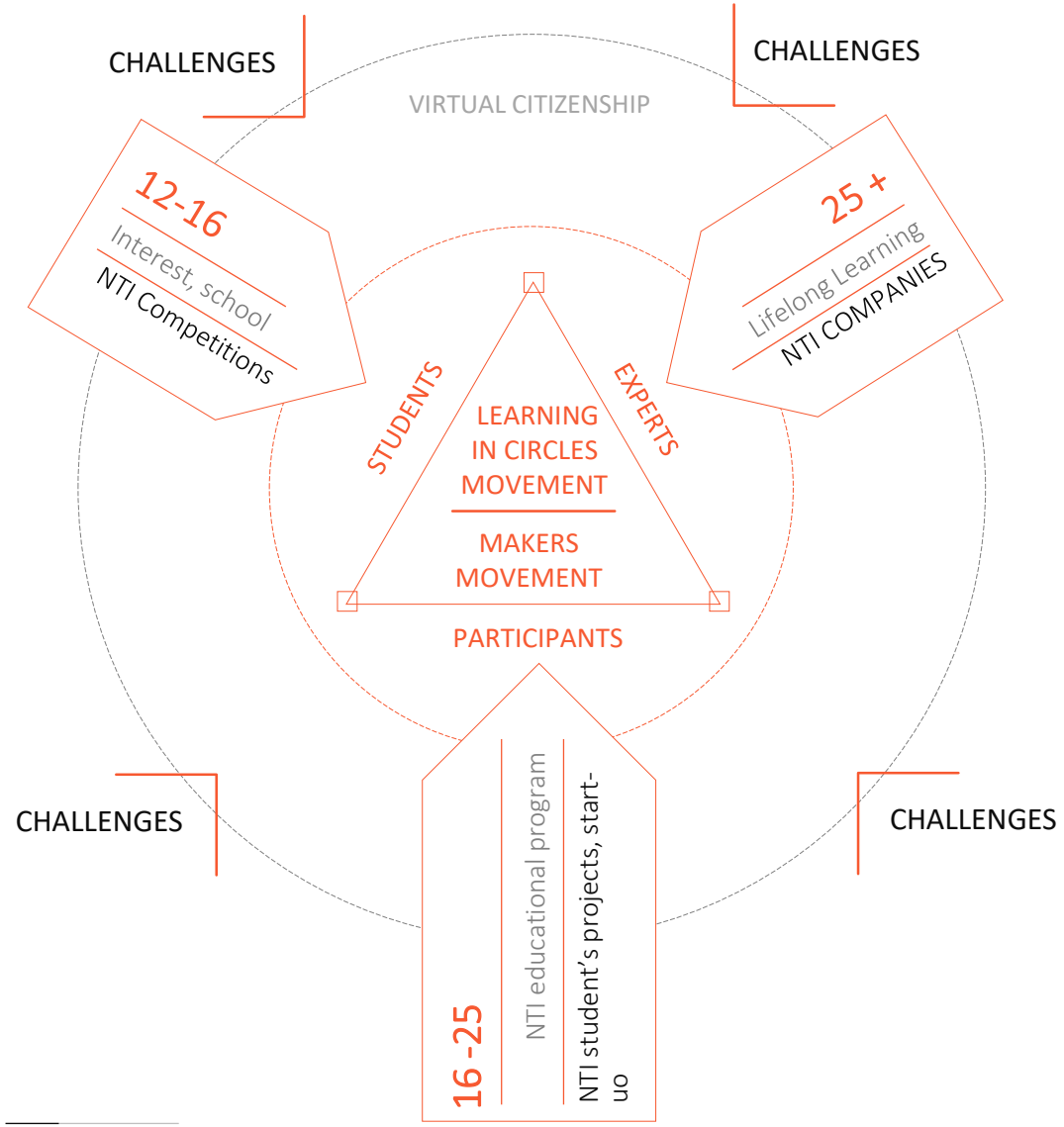
STAKE ON

- Big data
- Artificial intelligence
- Distributed ledger / blockchain
- Quantum technologies
- New and portable energy sources
- New production technologies
- Sensory and robotics
- Wireless communication technologies
- Bio objects properties management technologies
- Neurotechnologies and virtual and augmented reality technologies

SUPPORTIVE SOLUTIONS

- **Competences centers** for cross-cutting technologies
- **Contests** for overcoming technological barriers
- Introduction of the **globally acknowledged assessment criterion** – Web of Science, PCT, etc.
- Double-check of **scientific novelty**

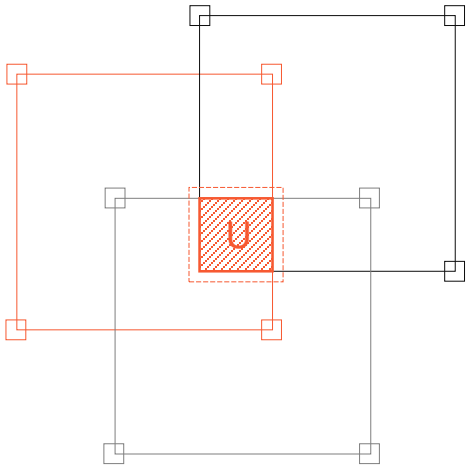
NTI TALENTS & UNIVERCITIES DEVELOPMENT STRATEGY



NTI UNIVERCITY

TALENTS

- Networking experimental educational programs



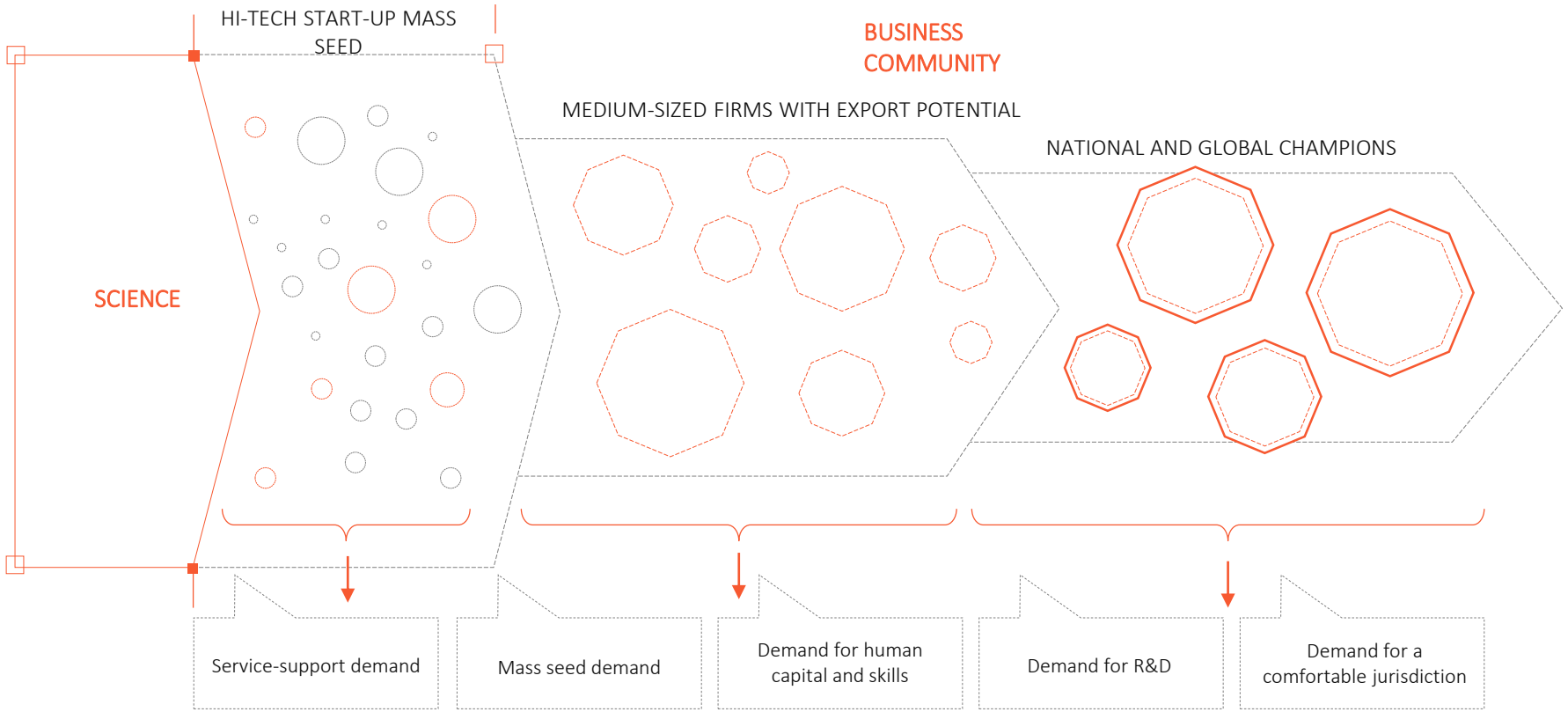
CROSS-CUTTING TECHNOLOGIES

- Networking scientific labs for NTI priority technological areas

NETS

- Development of centers for technology transfer & technology commercialization

NTI BUSINESS MODEL 2016-2035



5 – NETs	$ 150 bln by 2035	12,5 k start-ups	30 000 talents	5 000 PCT claims	**Per year**
1 – NET	$ 30 bln by 2035	2,5 k start-ups	6 000 talents	1 000 PCT claims	Per year

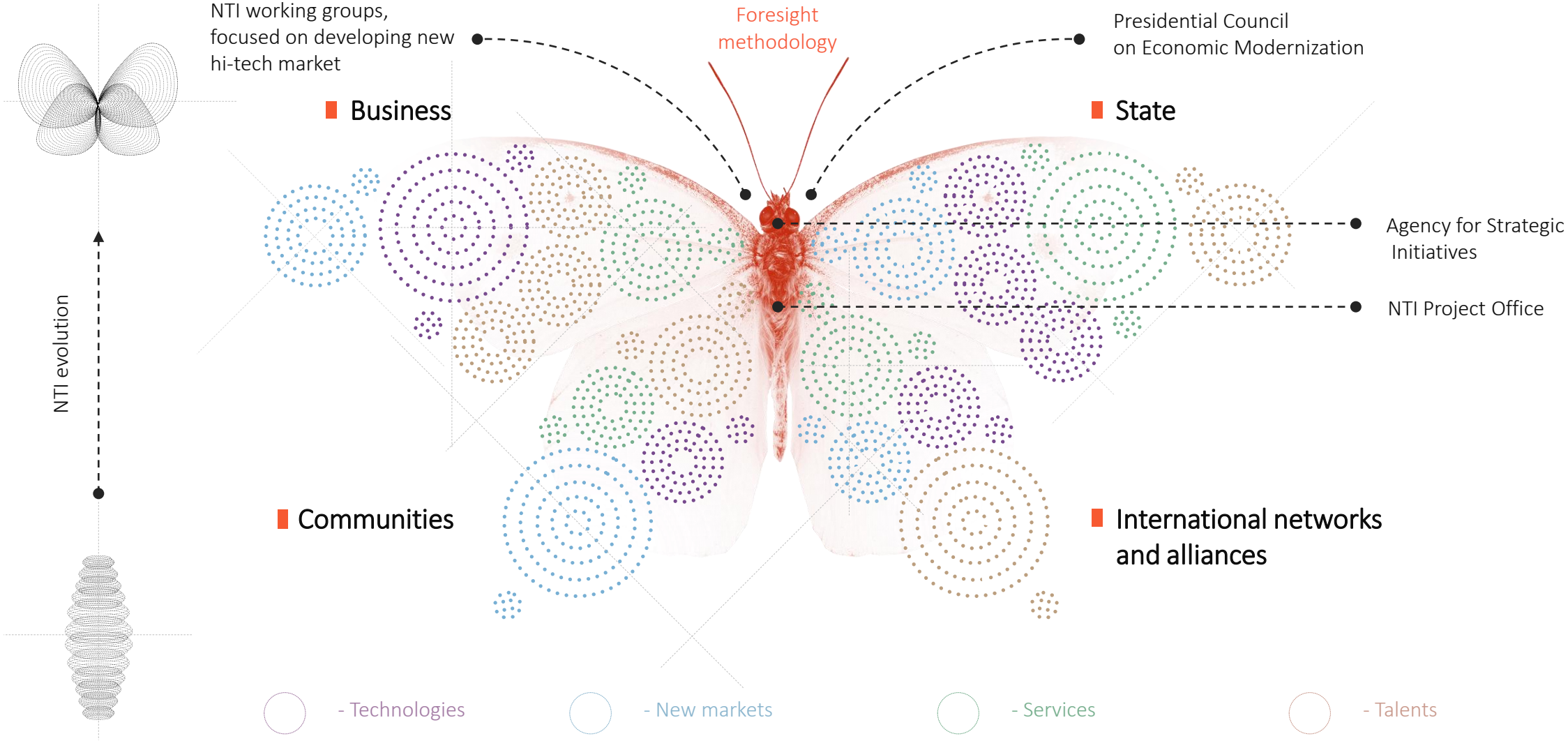
SUPPORTIVE SERVICES PROVIDED BY THE GOVERNMENT

5 NTI NETS EXPECTED RESULTS*

TURNOVER	> $ 150 BLN
GLOBAL CHAMPIONS	5
LARGER COMPANIES	250
SMES	2000
START-UPS	120 000
TALENTS EDUCATED	570 000
PCT CLAIMS	60 000

*estimates for NeuroNet, AeroNet, AutoNet, MariNet, HealthNet roadmaps

NTI STAKEHOLDERS & INTERACTIONS



NTI PERFORMANCE SO FAR: SOME EXAMPLES

Aeronet

Development of cloud web-based platform for construction quality and cost control by means of a visual interface and advanced analysis algorithms based on the data collected by the autonomous UAVs (now introduced as official state standard)

Aeronet

Development of 3D-models of cities (Tomsk, Noyabrsk, Tula region), with precision of up to 2 cm

Finnet

Introduction of blockchain technologies supported by the Bank of Russia: 4 blockchain-based pilot projects launched – for example “E-Voting” system for the account of management voting on investment decisions (various types of securities, available at the GateHub)

Energynet

A pilot project for the sale of electricity by individuals to each other based on a distributed registry

Healthnet

Preimplantation genetic diagnosis of IVF embryos

Neuronet

System for the neurocontrol of a drone flight by a freely moving operator

GLOBAL SKILLS ANTICIPATION & FUTURE SKILLS DEVELOPMENT

National Technology Initiative

ATLAS OF EMERGING JOBS

Ca. **200 jobs and competencies of the future for 25 industries** (leading carrier guiding tool that stimulated transformation of Russian secondary & tertiary education)

The Atlas is a kind of almanac for young people mapping their career paths, helping them find a good way to invest their potential

For educational and business institutions, it is a chance to contribute to
developing new training programs and to capture an opportunity to grow proper specialists for the industries of the future

GLOBAL EDUCATION FUTURES

Discussion of skills of the future involving industrial & TVET leaders from ca. **50 countries of the world**

Report on the global agenda of future education

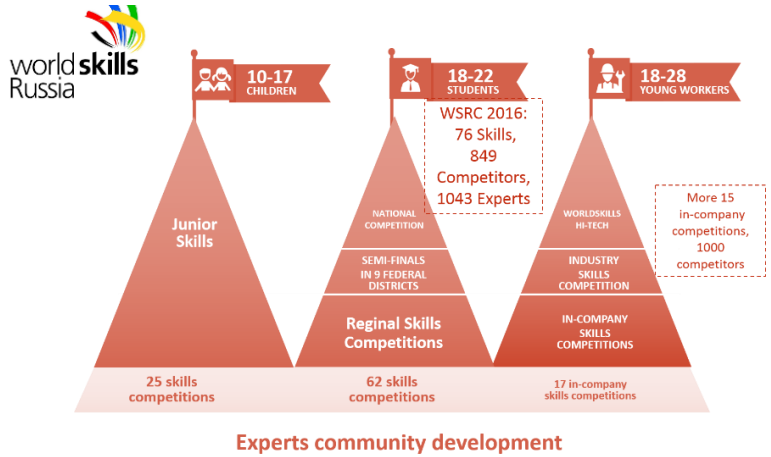
BRICS Business Council

Planned focus since 2016: study & pilot projects on Industry 4.0

COMPETITIONS FOCUSED ON TECH TALENT: WORLDSKILLS HI-TECH & JUNIOR SKILLS

Competitions based on WorldSkills methodology that are centered on talents necessary for Industry 4.0 skills and advanced manufacturing skills. New types of competitions: life cycle management, competition of experts.
“Laboratory” for new skills (e.g. “neuropiloting”) and new training methodologies (e.g. biofeedback-enhanced hard skill training)

IN 2019 RUSSIA WILL HOST WORLDSKILLS INTERNATIONAL COMPETITION



Potential spheres for cooperation

- Coordinated national technology development policies
- Shared ideas and experiences of planning and creating ground for new industries
- Scientific and technological cooperation for high-tech products and services development
- Common visions of the technological trends
- Joint efforts on creating global technology and value chains
- Joint development of international industrial standards

National Technology Initiative

Space of possibility

AGENCY FOR STRATEGIC INITIATIVES

THANK YOU FOR YOUR ATTENTION

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