EU research: the story so far

1952: ECSC treaty; first projects started March 1955
1957: Euratom treaty; Joint Research Centre set up
1983: ESPRIT programme
1993: Treaty on European Union; role of RTD in the enlarged EU
2000: European Research Area
R&D – European weaknesses

<table>
<thead>
<tr>
<th></th>
<th>EU-25</th>
<th>US</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D intensity (% of GDP)</td>
<td>1.97</td>
<td>2.59</td>
<td>3.12</td>
</tr>
<tr>
<td>Share of R&amp;D financed by industry (%)</td>
<td>55.9</td>
<td>63.1</td>
<td>73.9</td>
</tr>
<tr>
<td>Researchers per thousand labour force (FTE)</td>
<td>5.5</td>
<td>9.0</td>
<td>9.7</td>
</tr>
<tr>
<td>Share of world scientific publications (%)</td>
<td>38.3</td>
<td>31.1</td>
<td>9.6</td>
</tr>
<tr>
<td>Scientific publications per million population</td>
<td>639</td>
<td>809</td>
<td>569</td>
</tr>
<tr>
<td>Share of world triadic patents (%)</td>
<td>31.5</td>
<td>34.3</td>
<td>26.9</td>
</tr>
<tr>
<td>Triadic patents per million population</td>
<td>30.5</td>
<td>53.1</td>
<td>92.6</td>
</tr>
<tr>
<td>High-tech exports as a share of total manufacturing exports (%)</td>
<td>19.7</td>
<td>28.5</td>
<td>26.5</td>
</tr>
<tr>
<td>Share of world high-tech exports (%)</td>
<td>16.7</td>
<td>20.0</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Note: (1) 2000 data (2) 2002 data (3) 2003 data
Context

• European Research Area
• Enlarged EU
• (Revised) Lisbon Agenda
• Barcelona Target: 3% of GDP for R&D
• Financial perspectives / long term priorities
Key ideas

• “Continuity …”
• Emphasis on increasing competitiveness
• New funding modalities …
• Longer duration (seven years up to 2013)
• Substantial increase in the budget

The European Commission currently manages about 5% of total public spending in R&D in the European Union

The European Union currently invests about 1.9% of GDP in research
Budgets of the EU Framework Programmes 1984 - 2013

NB: Budgets in current prices. Source: Annual Report 2003, plus FP7 revised proposal
FP7 2007–2013 Specific Programmes

- **Cooperation** – Collaborative research
- **Ideas** – Frontier Research
- **People** – Marie Curie Actions
- **Capacities** – Research Capacity

**Euratom** direct actions – JRC nuclear research

**Euratom** indirect actions – nuclear fusion and fission research
Cooperation – Collaborative Research

10 themes

1. Health
2. Food, agriculture and biotechnology
3. Information and communication technologies
4. Nanosciences, nanotechnologies, materials and new production technologies
5. Energy
6. Environment (including climate change)
7. Transport (including aeronautics)
8. Socio-economic sciences and the humanities
9. Security
10. Space
   - Euratom: Fusion energy research, nuclear fission and radiation protection
Indicative budget breakdown for FP7 specific programmes

- Cooperation: 63%
- Ideas: 10%
- People: 10%
- Capacities: 17%
The Cooperation Programme breakdown (€ million)

- Socio-economic Sciences and Humanities €610
- Transport (including Aeronautics) €4180
- Space €1430
- Security €1350
- Health €6050
- Food, Agriculture and Biotechnology €1935
- Environment (including Climate Change) €1800
- Energy €2300
- Nano production €3500
- Information and Communication Technologies €9110
Ideas – Frontier Research

• Frontier Research is a key driver to innovation and economic performance
• Establish European Research Council (ERC) – the first pan-European funding agency for Frontier Research
• Support investigator-driven frontier research over all areas of research
• European added-value through competition at European level
People – Marie Curie Actions

• Initial training of researchers
  – Marie Curie Networks*
• Life-long training and career development
  – Individual Fellowships
  – Co-financing of regional/national/international programmes
• Industry-academia pathways and partnerships
  – Industry-Academia Knowledge–sharing Scheme*
• International dimension
  – Outgoing & Incoming International Fellowships
  – International Cooperation Scheme
  – Reintegration grants;
  – Support to researcher ‘diasporas’
• Specific actions
  – Mobility and career enhancement actions
  – Excellence awards

* Open to third-country nationals
Capacities – Research Capacity

1. Research infrastructures
2. Research for the benefit of SMEs
3. Regions of Knowledge
4. Research Potential
5. Science in Society
6. Coherent development of policies
7. Activities of International Cooperation
Типы проектов (инструменты / финансовые схемы)

- Collaborative Projects (Small and Large)
- Coordination and Support Actions
- Support for Frontier Research (ERC)
- Research for the Benefit of Specific Groups
- Support for Training and Career Development of Researchers (Marie Curie)
- Networks of Excellence
- Combinations – e.g. CP and CSA
FP7 Participation Rules so far?

- Eligibility
- Min. Participation
- Submission Procedures
- Evaluation Procedures
- Negotiation Procedures?
- Evaluation Criteria
- IPR Provisions
- Financing Basis
- Grant Agreements
- Implementation
Participation: Minimum conditions for participation

• **3 independent participants** from **3 different Member States** (MS) or Associated countries (Ac)

• **Natural persons** may participate

• **Sole participants** composed of members that meet the criteria above can participate

• **JRC** may participate and is deemed to be from a different MS or Ac
Minimum condition for participation

• Collaborative projects for specific international cooperation actions (**SICA**) dedicated to international cooperation partner countries (ICPC) identified in WP – **minimum is 4 participants of which 2 in different MS or Ac and 2 in different ICPC countries** unless otherwise foreseen in work programme (**The list of ICPC countries is given in annex 1 of the work programme**)

• Participation of international organisations and participants from third countries possible if in addition to minima
FP7 Funding Schemes

• Collaborative Projects
• Networks of Excellence
• Coordination and Support Actions
• Support for Frontier Research (ERC)
• Research for the Benefit of Specific Groups
• Support for Training and Career Development of Researchers (Marie Curie)
• Combinations – e.g. CP and CSA
Funding Schemes

3 funding schemes – 5 types of projects

• Collaborative Projects (CP)
  – Large-scale integrating projects (IP)
  – Small or medium-scale focused research actions (STREP)

• Networks of Excellence (NoE)

• Coordination and Support Actions (CSA)
  – Coordinating or networking actions (CA)
  – Support actions (SA)
# Types of Projects

<table>
<thead>
<tr>
<th>Funding scheme</th>
<th>Minimum participants*</th>
<th>Typical participants</th>
<th>Typical Duration</th>
<th>Typical Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP (STREP)</td>
<td>3</td>
<td>4 – 8</td>
<td>2 – 3 years</td>
<td>1 – 4 M€</td>
</tr>
<tr>
<td>CP (IP)</td>
<td>3</td>
<td>8 – 15</td>
<td>3 – 4 years</td>
<td>6 – 25 M€</td>
</tr>
<tr>
<td>NoE</td>
<td>3</td>
<td>6 – 12</td>
<td>3 – 4 years</td>
<td>2 – 8 M€</td>
</tr>
<tr>
<td>CSA (CA)</td>
<td>3</td>
<td>3 – 12**</td>
<td>1 – 3 years</td>
<td>0.5 – 2 M€</td>
</tr>
<tr>
<td>CSA (SA)</td>
<td>1</td>
<td>3 – 12**</td>
<td>1 – 3 years</td>
<td>0.5 – 2 M€</td>
</tr>
<tr>
<td>SICA</td>
<td>4***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Proposal Timeline

1. **Idea!**
2. **Form consortium**
3. **Write proposal**
4. **Submit to Brussels**
5. **Pass evaluation?**
   - **Contract negotiations**
   - **Project start**

Add partners

~4-6 months

~6-9 months
Typical Structure of Small or medium-scale focused research actions

- Partners
- Management Board with senior representative of each partner
- Technical Board with technical leaders of each partner/WP
  - WP1 Project Management
  - WP2 Dissem, expltn
  - WP3
  - WP4
  - WPx

Chaired by Project Manager
Chaired by Technical Director
NoE – JPA
for integrating/shaping research

RTD activities before NoE
Coordinated
NoE Effect

JPA - Joint Program of Activities
Structure of NoE

Network Board
with senior representative of each partner
(Vice Chancellor level)

Joint Activity Board
with department leaders of each partner

Industrial Advisory Board

Scientific Advisory Board

WP1
WP2
WP3
WP4
WP5

Chaired by Network Manager

Network Management

WP1
WP2
WP3
Proposal evaluation

Eligibility checks
- Date and time of receipt of proposal on or before deadline for receipt
- Minimum number of eligible, independent partners, as set out in work programme and the call
- Completeness of proposal
- “out of scope”
- Other (e.g. budget limit)
Proposal evaluation

May be "remote" evaluation

For each proposal

Proposal X copy 1
Proposal X copy 2
Proposal X copy 3

IAR expert 1
IAR expert 2
IAR expert 3

Consensus meeting

CR 3 experts

Note: There may be more than 3 evaluators
IAR = Individual Assessment Report
CR = Consensus Report
Evaluation process

Submission → Eligibility check

Evaluator - individual reading

Consensus meeting

Panel hearings

Short list discussed with National representatives

Invitations to contract negotiation

Was the proposal delivered on time? Have all forms, parts been submitted? Is the consortium formally eligible?

FP7 allows for evaluators to read proposals at home

IPs and NoE only. Questions will be issued in advance.

Register NOW to be an evaluator
Common evaluation criteria

- S&T quality (concept, objectives, methodology)
- Implementation (consortium, management, resources)
- Impact (in relation to ‘expected impact’ statements)
Why do projects fail?

- Missed deadline
- Incomplete proposal
- Does not fit objectives in call & work programme
- Scientific content is not convincing: research is not innovative
- Too ambitious, problem more complex than proposers appear to realise
- Proposal hastily put together and lacking coherence
- Likelihood of achieving success and value for money are not convincing
Six Blind People Describing - Elephant
International cooperation in FP6
Geographical distribution of funds

INCO
Thematic PRIORITIES
General overview of Participation and Contribution in FP 6

INCO Target Regions

<table>
<thead>
<tr>
<th>Regions</th>
<th>EU</th>
<th>ACC</th>
<th>AS</th>
<th>INCO Third countries</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions</td>
<td>11.000.042.909</td>
<td>120.153.631</td>
<td>642.080.942</td>
<td>170.964.327</td>
<td>18.017.435</td>
<td>11.951.259.244</td>
</tr>
<tr>
<td>Number of</td>
<td>45.090</td>
<td>1144</td>
<td>2849</td>
<td>1757</td>
<td>464</td>
<td>51.304</td>
</tr>
<tr>
<td>participations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EC contributions to participations of international cooperation targeted regions in Euros

Number of participants in international cooperation targeted regions
## EECA Participants and EC Contribution (FP6)

<table>
<thead>
<tr>
<th>Country</th>
<th>Contracts with at least one participation from country</th>
<th>Participations from country</th>
<th>All participations in contracts with at least 1 participation from country</th>
<th>EC financial contribution to partners from country</th>
<th>EC financial contribution to contracts with at least 1 participation from country</th>
<th>% of the total budget EECA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian Federation</td>
<td>195</td>
<td>298</td>
<td>3 841</td>
<td>1 021 466 549</td>
<td>35 818 234</td>
<td>82,0%</td>
</tr>
<tr>
<td>Ukraine (UA)</td>
<td>53</td>
<td>63</td>
<td>1 036</td>
<td>134 567 229</td>
<td>3 163 470</td>
<td>7,4%</td>
</tr>
<tr>
<td>Georgia (GE)</td>
<td>10</td>
<td>10</td>
<td>170</td>
<td>18 010 864</td>
<td>1 017 703</td>
<td>2,3%</td>
</tr>
<tr>
<td>Belarus (BY)</td>
<td>10</td>
<td>10</td>
<td>236</td>
<td>26 502 993</td>
<td>957 393</td>
<td>2,2%</td>
</tr>
<tr>
<td>Uzbekistan (UZ)</td>
<td>9</td>
<td>13</td>
<td>115</td>
<td>18 956 129</td>
<td>892 579</td>
<td>2,0%</td>
</tr>
<tr>
<td>Kazakstan (KZ)</td>
<td>9</td>
<td>10</td>
<td>88</td>
<td>6 578 215</td>
<td>511 952</td>
<td>1,1%</td>
</tr>
<tr>
<td>Kyrgyz Republic (KG)</td>
<td>6</td>
<td>6</td>
<td>63</td>
<td>7 636 426</td>
<td>338 821</td>
<td>0,8%</td>
</tr>
<tr>
<td>Moldova (MD) Rep</td>
<td>8</td>
<td>8</td>
<td>122</td>
<td>6 255 838</td>
<td>223 317</td>
<td>0,5%</td>
</tr>
<tr>
<td>Turkmenistan (TM)</td>
<td>3</td>
<td>3</td>
<td>24</td>
<td>1 812 408</td>
<td>148 542</td>
<td>0,034%</td>
</tr>
<tr>
<td>Tajikistan (TJ)</td>
<td>3</td>
<td>3</td>
<td>25</td>
<td>2 182 408</td>
<td>130 593</td>
<td>0,030%</td>
</tr>
<tr>
<td>Armenia (AM)</td>
<td>5</td>
<td>5</td>
<td></td>
<td>111 024</td>
<td></td>
<td>0,025%</td>
</tr>
<tr>
<td>Azerbaidjan (AZ)</td>
<td>5</td>
<td>5</td>
<td></td>
<td>109 127</td>
<td></td>
<td>0,025%</td>
</tr>
<tr>
<td></td>
<td>316</td>
<td>434</td>
<td>5 720</td>
<td>1 243 969 059</td>
<td>43 422 755</td>
<td>100,0%</td>
</tr>
</tbody>
</table>
RUSSIAN FEDERATION
Number of contracts and number of participants / priority area

<table>
<thead>
<tr>
<th>Priority Area</th>
<th>Number of Contracts</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Life sciences genomics</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>2. Information society technologies</td>
<td>24</td>
<td>29</td>
</tr>
<tr>
<td>3. Nanotechnologies &amp; space</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>4. Aeronautics &amp; space</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>5. Food quality &amp; safety</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>6. Sustainable development</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>7. Citizens support &amp; governance</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Horizontal research activities (SMEs)</td>
<td>2</td>
<td>72</td>
</tr>
<tr>
<td>Specific measures INCO</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Support - coordination of activities</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Support - coherent development</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Research &amp; innovation</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>HR &amp; mobility</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Research infrastructures</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Science and society</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Euratom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
EECA (RUSSIA + NIS) in FP6

• Russia and NIS higher participation by number of contracts and EC contribution.
• Russia high participation in the Priorities

The «Top 5»:
• Russian Federation: (298 groups)
• Ukraine: (63 groups)
• Georgia: (10 groups)
• Belarus: (10 groups)
• Uzbekistan : (13 groups)

Total: 394 groups/ 434
International Cooperation in FP7
Categories of countries

• Industrialised countries
• Associated countries (CH, NO, IL, …)
• International Cooperation Partner Countries (ICPC)
  ▪ Mediterranean partner Countries,
  ▪ Western Balkans,
  ▪ Eastern European and Central Asian countries
  ▪ ACP, Asia, Latin America
Overview of international cooperation topics in the COOPERATION Programme in which Russia and Black Sea region are mentioned

**Overview of international cooperation topics in the COOPERATION Programme in which Russia and Black Sea region are mentioned**

**Health**

- Epidemiological investigations into long-term trends of population health as consequence of socio-economic transitions, including life-style induced health problems

**FAB**

- Plants as Edible Vaccines.
- Industrial Enzymes: Rational design of biocatalysts and enzyme systems with requested properties.
- Network of Third Countries National Information Points

**ICT**

- Networked Embedded and Control Systems: Control of large-scale complex distributed systems.

**Energy**

- Extending the value chain for GHG emissions other than CO2 associated with coal production and use
- Energy technology transfer - Development of strategies and tools aimed at a better exploitation of energy research results. EU Neighbouring and Developing Countries

Support to regulatory activities for CO2 capture and storage (China, India, Brazil, South Africa) International collaboration is strongly recommended for this topic, especially with member countries of the Carbon Sequestration Leadership Forum, and more specifically with the largest emerging economies.

**Transport**

- Flow control, computational fluid dynamics and airframe noise reduction:
- Multidisciplinary optimisation tools and structural, wind-tunnel and flight testing techniques
- Smart and self-repair materials
- Explosives detection techniques
- The connected traveller in the city, region and world of tomorrow (E.G. CHINA, INDIA, RUSSIA, BRAZIL, AND SOUTH AFRICA):
| **Space** | USA/RUSSIA/CANADA/CHINA/INDIA/UKRAINE: all topics; ENP countries where use of space applications can contribute to their economic and social development and support environmental protection.  
• The outlook to future calls foresees international cooperation in GMES (*Global Monitoring for Environment and Security*). Proposal shall develop activities to disseminate and implement outside the European Union (and especially in developing countries) products and services derived or customised from current GMES development activities, for instance for risk management, resource management and land planning, marine and atmospheric environment monitoring, and in the domains of management of water resources and security. Proposals addressing Early Warning Systems linked to natural disasters, food security or disease prevention are also encouraged. Priority will also be given to proposals to study the potential for current and foreseen GMES services to provide the building blocks for the EU contribution to GEOSS (*Global Earth Observing System of Systems*). |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NMP</strong></td>
<td></td>
</tr>
</tbody>
</table>
• *Material sciences and nanomaterials (workshops to identify topics for futures coordinated calls)*

• *Material sciences and nanomaterials (workshops to identify topics for futures coordinated calls)* Including China, India, Russia and developing countries

• *Nanostructured polymer-matrix composites* E.g. China, India, Russia

• *Modelling of microstructural evolution under work conditions and in materials processing* E.g. China, India, Russia |
| **ENV** |  
• *Stability of the thermohaline circulation* (all ICPCs e.g. Russia) |

<table>
<thead>
<tr>
<th><strong>Black Sea Region</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAB</strong></td>
</tr>
</tbody>
</table>
• *Functional foods, natural products and bioactive compounds from the Black Sea region.* |
EU-RUSSIA COOPERATION IN THE FIELD OF SCIENCE AND TECHNOLOGY

• Agreement between the Government of the Russian Federation and the European Commission on the Cooperation in the Field of Science and Technologies (valid till 2009)

• Joint EU-Russia S&T Cooperation Committee (Steering Committee)
EU-RUSSIA COOPERATION IN THE FIELD OF SCIENCE AND TECHNOLOGY

• Roadmap for the EU-Russia Common Space of Research and Education including Cultural Aspects (approved at EU-Russia summit in 2005)

• Permanent Partnership Council (PPC) in Science (Ministerial level)
EU-RUSSIA COOPERATION IN THE FIELD OF SCIENCE AND TECHNOLOGY

Established Dialogues

Joint EU-Russia Working Groups:

• Nano
• Health
• Food, Agriculture, Biotechnologies
• Sustainable Energy
Views on Russian Partnerships

Monica Schofield
The positives

- Many strong existing relationships
- Increasing interest from strategic point of view
- IT industry interest
- Respect for Russian higher education and research tradition
- General goodwill amongst academics
The negatives

- Russian Federation is outside EU and not a candidate state
- Funding available is low compared with potential for partnerships
- Only a limited number of institutes are really known to EU academics
- Risk adverse attitudes of EU companies – won’t pick collaborations which are not “safe”
- Administrative problems encountered with Russia organisations
- Some language and cultural problems
What to do

• Get to know the EU programmes – learn the jargon!
• Network and if possible get involved in smaller actions e.g. accompanying measures
• Work on eliminating all administrative hurdles – understand how decisions and payments are made!
• Send out ambassadors with good skills in English
• Be clear and specific about what you have to offer – focus on strengths
• Remember relationships take time to develop
• Lobby now for FP7
Further information

INCO infodesk:
http://ec.europa.eu/research/enquiries

INCO portal:

International Scientific Cooperation Policy:
http://ec.europa.eu/research/iscp/index_en.html
Information

- EU research: [http://ec.europa.eu/research/](http://ec.europa.eu/research/)


- Information on research programmes and projects: [http://cordis.europa.eu/](http://cordis.europa.eu/)
Maximum funding rates

Research and technological activities:
– 50% of eligible costs
except for:
  • Public bodies: – 75%
  • Secondary and higher education establishments: – 75%
  • Research organisations (non-profit): – 75%
  • SMEs: – 75%

Demonstration activities – 50%

Other activities – 100% including e.g. Management

Frontier research actions – 100%

Coordination and support actions – 100%

Training and career development of researchers actions – 100%