



EUROPEAN
COMMISSION

Community research

Building a Europe of Knowledge

The Seventh
Framework
Programme for RTD
(2007-2013)

CE 2007

Angel Landabaso
Counselor for S&T
EU Delegation Brazil



The EU is taking an impulse towards a new approach for a model for sustainable growth

Lisbon strategy:

EU to become the most competitive economy based on knowledge



Science & Technology is the new paradigm to sustainable :
economic growth,
employment creation,
environmental protection,
social challenges: fight poverty,
improve human health
and quality of life



R&D – European weaknesses in transformation

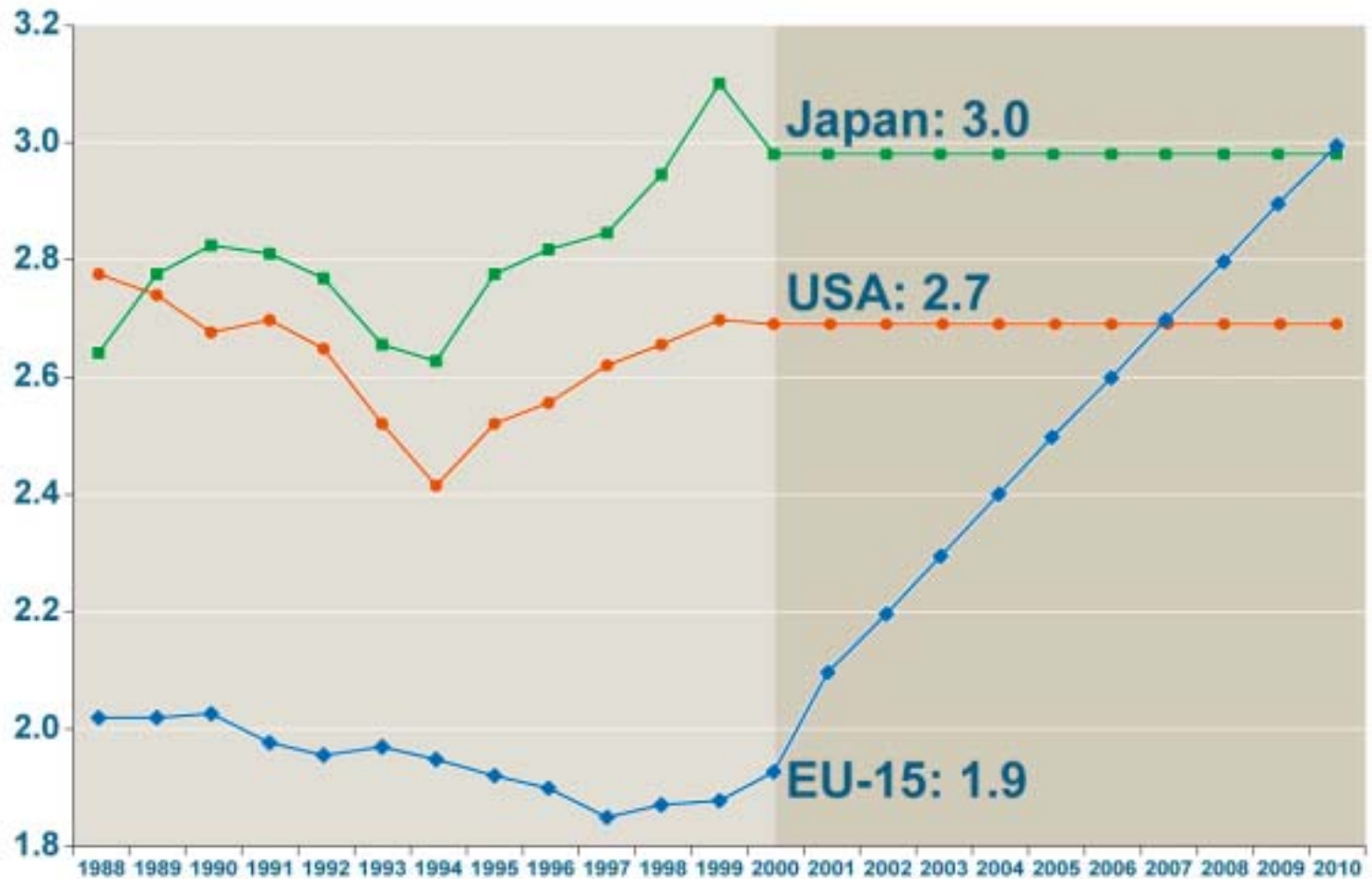
| | EU-25 | US | Japan |
|--|-------|------|-------|
| R&D intensity (% of GDP) ⁽³⁾ | 1.97 | 2.59 | 3.12 |
| Share of R&D financed by industry (%) ⁽²⁾ | 55.9 | 63.1 | 73.9 |
| Researchers per thousand labour force (FTE) ⁽³⁾ | 5.5 | 9.0 | 9.7 |
| Share of world scientific publications (%) ⁽³⁾ | 38.3 | 31.1 | 9.6 |
| Scientific publications per million population ⁽³⁾ | 639 | 809 | 569 |
| Share of world triadic patents (%) ⁽¹⁾ | 31.5 | 34.3 | 26.9 |
| Triadic patents per million population ⁽¹⁾ | 30.5 | 53.1 | 92.6 |
| High-tech exports as a share of total manufacturing exports (%) ⁽³⁾ | 19.7 | 28.5 | 26.5 |
| Share of world high-tech exports (%) ⁽²⁾ | 16.7 | 20.0 | 10.6 |

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



Research: filling the gap

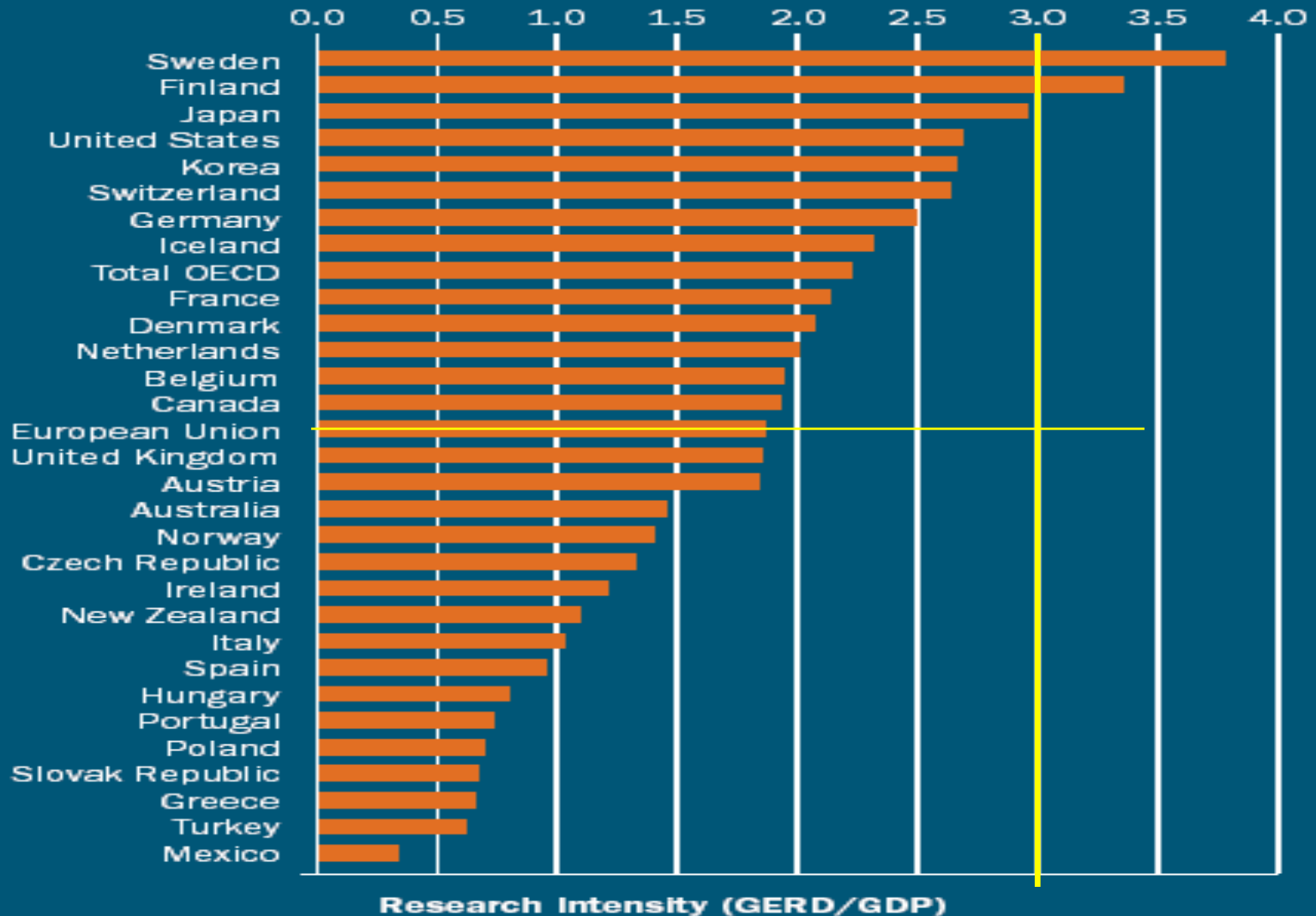
Total expenditure on R&D, % of GDP – Barcelona Summit, 2001





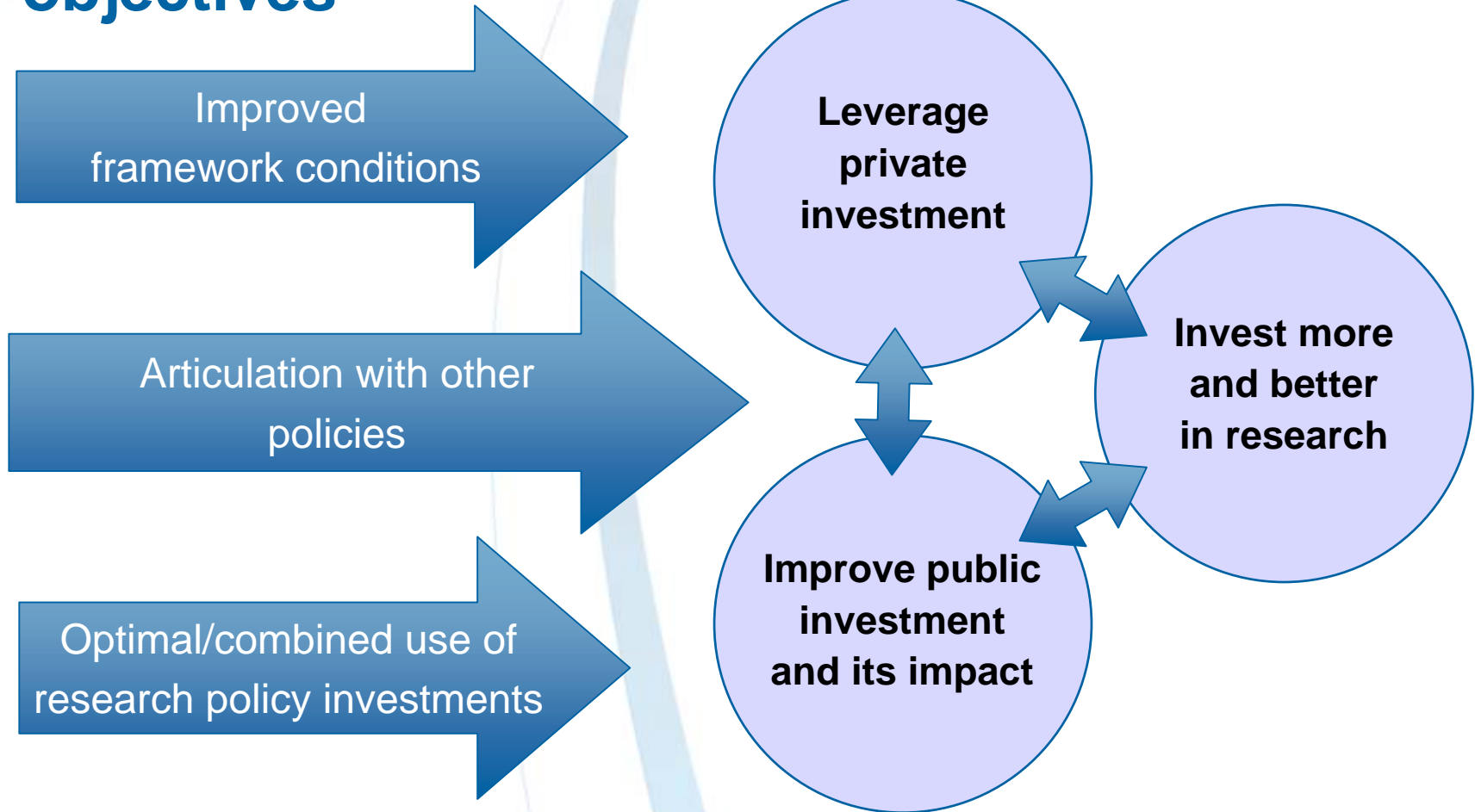
A political objective in the EU :
to double the investments in RTD (to reach 3% f GDP)

*R&D Percentage of Gross Domestic Product
2000 (or most recent year)*





EU to develop a coherent set of policies: objectives





Why research at European level?

- Pooling and leveraging resources
 - Resources are pooled to achieve critical mass
 - Leverage effect on private investments
 - Interoperability and complementarity of big science
- Fostering human capacity and excellence in S&T
 - Stimulate training, mobility and career development of researchers
 - Improve S&T capabilities
 - Stimulate competition in research
- Better integration of European R&D
 - Create scientific base for pan-European policy challenges
 - Encourage coordination of national policies
 - Effective comparative research at EU-level
 - Efficient dissemination of research results



The instruments:

7th Framework Programme for RTD (FP7, 2007-2013)

- European Commission is responsible for EU research policy and actions via FP7 that is the European Union's main instrument for funding research
- FP7 is the largest international R&D Program:
open to any institution, any company from all over the world in cooperation with European ones
- FP7 supports research in selected priority areas on the basis of the quality of the proposals
- Budget: 53 billion Euros (about 70 billion US\$)



Cooperation with Industry to define common Strategic Research Agendas: European Technology Platforms

- Industry-Driven, Competitiveness-Focused
- European Technology Platforms – Concept:

Stakeholders, led by industry, get together to define a Strategic Research Agenda on a number of strategically important issues with high societal relevance where achieving Europe's future growth, competitiveness and sustainable objectives is dependent upon major research and technological advances in the medium to long term.



European Technology Platforms

- Bottom-Up Approach with Industry in Lead
- Wide Stakeholder Involvement
- Flexibility: No 'One Size Fits All'
- EU Role: Facilitating and Guiding but not Leading or Owning
- Majority of Strategic Research Agendas, where Appropriate, Taken into Account in Thematic Priorities of FP7
- Some Strategic Research Agendas to be developed jointly with industry groupings as 'Joint Technology Initiatives'

Today more than 35 ETPs such as:

ACARE for Air Transport (est. 2000)

ERRAC for Rail Transport (est. 2001)

ERTRAC for Road Transport (est. 2002)

WATERBORNE for Maritime Transport (est. 2005)



Joint Technology Initiatives: Entities (EU and industry) to jointly develop the Research Agenda

- Firmly Anchored in Themes of the Cooperation Programme
- In Fields of Major European Public Interest
- Six Fields Envisaged at this Stage
 - Innovative medicines
 - Nanoelectronics
 - Embedded systems
 - Aeronautics and air traffic management
 - Hydrogen and fuel cells
 - Global monitoring for environment and security
- Other Fields Possible Subsequently

‘The Community may set up joint undertakings
or any other structure necessary for the efficient execution of
Community research, technological development and
demonstration programmes’



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Joint Technology Initiatives: 6 JTIs initiated with Industry

**Hydrogen
and Fuel Cells for a
Sustainable Energy
Future**

**Aeronautics and
Air Transport**

**Global Monitoring
for Environment
and Security**

**Innovative Medicines
for the Citizens
of Europe**

Embedded systems

**Towards new
Nanoelectronics
Approaches**

*Other possible themes
to be identified later...*



Why double the FP7 budget?

Tackle under-investment on national and private investment

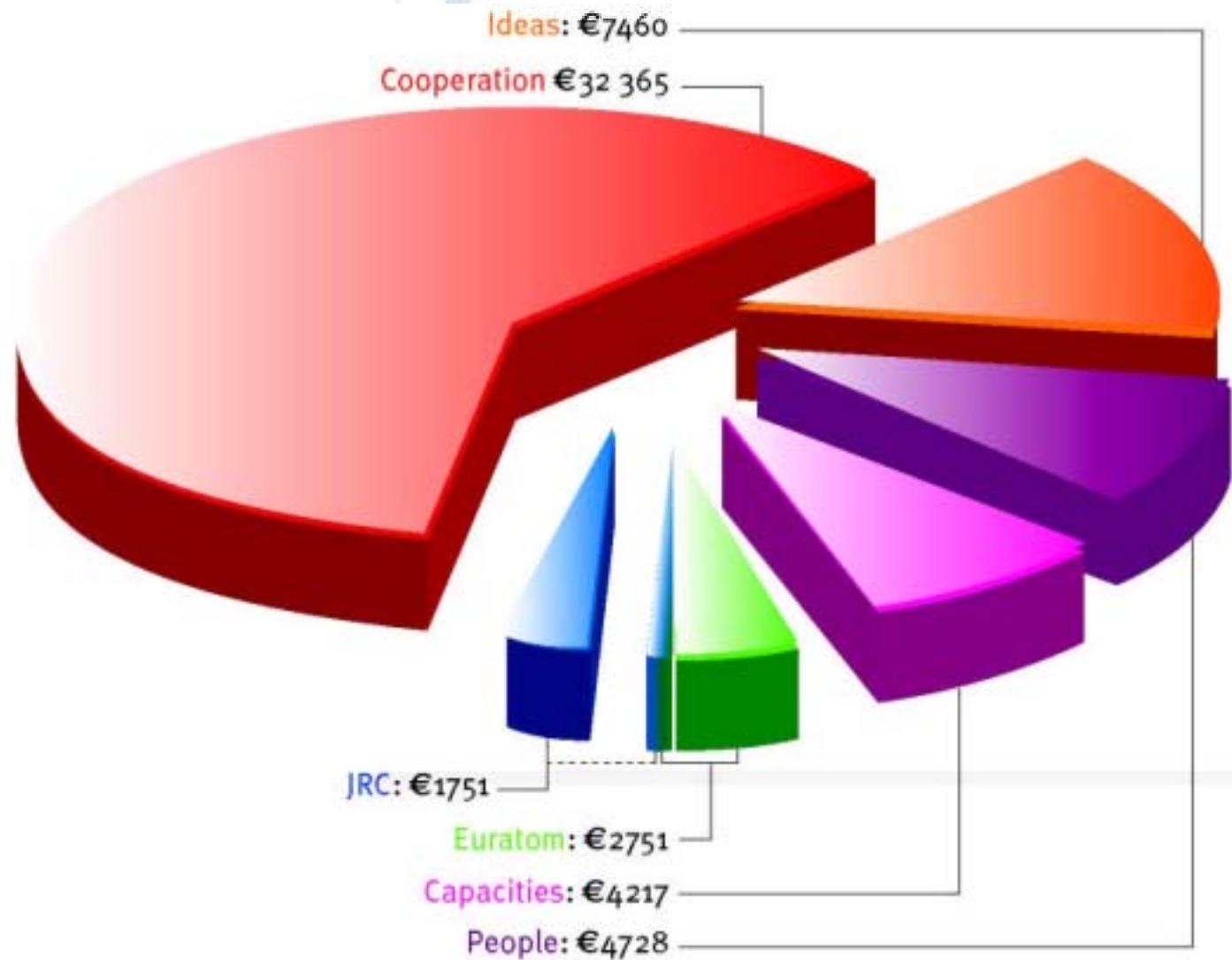
- Increase EU spending on R&D: 1.97% of GDP vs 2.59% (US)
- Help leverage business R&D (EU-wide projects, solutions and market)
- Bring EU public R&D spending to 0.96% of GDP (close to 1% target)
- Encourage Member States

Tackle fragmentation of research effort in the EU and enhance its efficiency and effectiveness

- Achieve critical mass, share knowledge and facilities
- Better dissemination across the EU
- More excellence through EU-wide competition
- Less fragmentation through stronger coordination

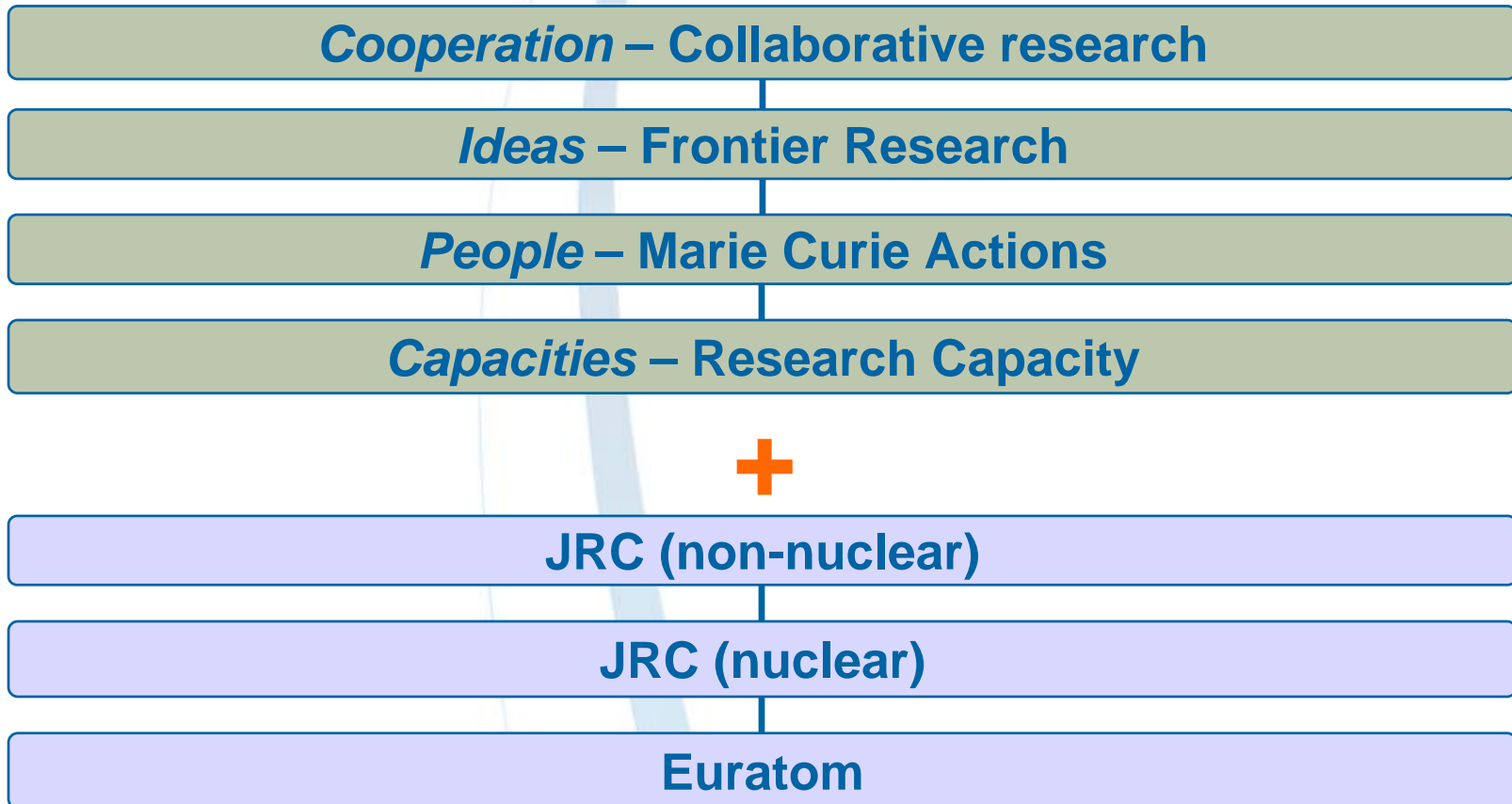


FP7 – The budget (€million)





FP7 2007 –2013 | Specific Programmes

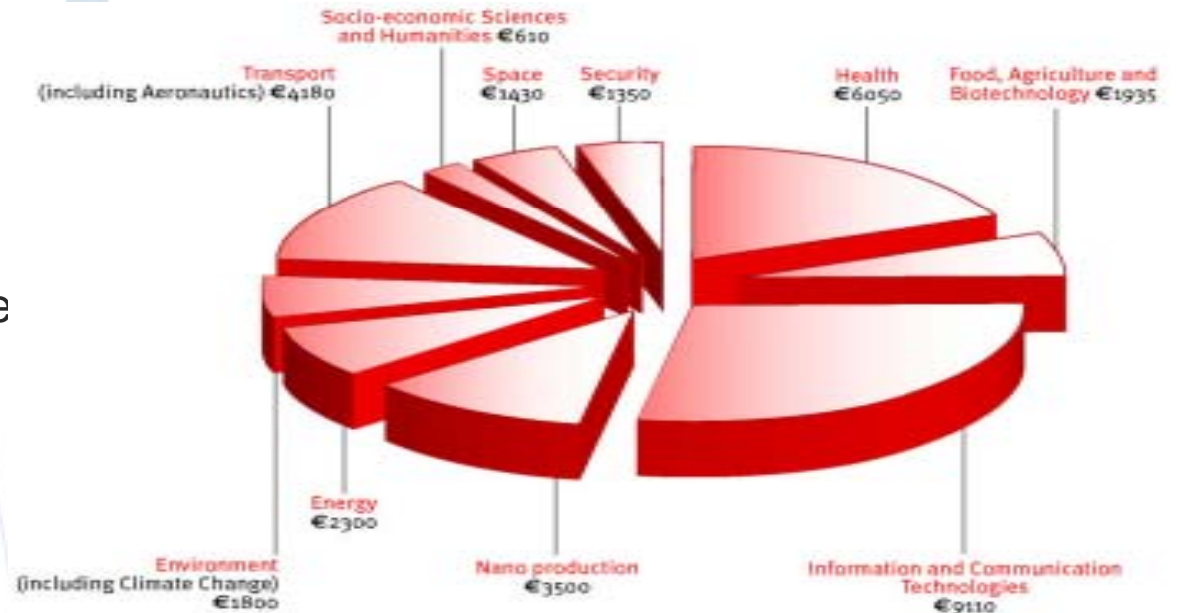




FP7 | Cooperation

bringing together our best talents (researchers and industry) to tackle the following 10 areas:

- Health;
- Food, Agriculture and Biotechnology;
- Information and Communication Technologies;
- Nano-sciences, Nano-technologies, Materials and new Production Technologies;
- Energy;
- Environment
- Transport
- Socio-economic Science
- Space;
- Security.





Some topics for cooperation

- Nanosciences, nanotechnologies, materials and new production technologies
- Integration of Technologies
- Applications research in the ICT area
- Transport (inc. aeronautics)
 - Aeronautics and air transport
 - Surface transport (rail, road and waterborne)
 - Support to the European global satellite navigation system (Galileo)
- Space



Nanosciences, nanotechnologies, materials and new production technologies

Overall objective:

- Improve the competitiveness of EU industry (including SMEs) and ensure its transformation through:
 - The effective transition from a resource-based to knowledge-based industry
 - Generation of new breakthrough, applicable knowledge
 - Strengthening EU leadership in nano-, materials and production technologies
 - Emphasis on integrating different technologies and disciplines across many sectors

- Importance of Technology Platforms to help establish common research priorities and targets



Nanosciences, nanotechnologies, materials and new production technologies

Nanosciences and nanotechnologies

→ Objective:

- Increase and support the take-up of knowledge generated in this revolutionary field for all industrial sectors

→ Topics include:

- Interface and size-dependent phenomena
- Materials properties at nano-scale
- Self assembly
- Metrology
- New concepts and approaches
- Impacts on health and safety
- Convergence of emerging technologies



Nanosciences, nanotechnologies, materials and new production technologies

Materials

→ Objective:

- Generate new knowledge to enable new industrial products and processes to be achieved, exploiting the potential of interdisciplinary approaches in materials research

→ Topics include:

- High-performance, sustainable and knowledge-based materials
- Design and simulation
- Nano-, bio- and hybrid materials and their processing
- Chemical technologies
- Materials processing industries



Nanosciences, nanotechnologies, materials and new production technologies

New production technologies

→ Objective:

- Create continuously innovating production capabilities to achieve leadership in industrial products & processes in the global market place

→ Topics include:

- Knowledge-intensive production
- New paradigms for emerging industrial needs
- Adaptive, networked and knowledge-based production
- Convergence of technologies for next generation of high-value-added products (nano, bio, info, cognitive...)



Nanosciences, nanotechnologies, materials and new production technologies

Joint European Technology Initiative:

- New Nano-electronics Approaches (with INFESO)

- **Technology Platforms related to Theme 4:**
 - Nano-electronics (ENIAC);
 - Nanomedicine;
 - Sustainable Chemistry;
 - Steel;
 - Future Textiles & Clothing;
 - Manufacturing Technologies;
 - Construction Technology;
 - Industrial Safety;
 - Hydrogen; Photovoltaics...



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Nanosciences, nanotechnologies, materials and new production technologies

Integration of technologies for industrial applications

→ Objective:

- Accelerate the rate of industrial transformation by exploiting the application potential and integration of new technologies

→ Topics include:

- Integration of nano-, materials and production technologies in sectoral and cross-sectoral applications (e.g. health, construction, transport, energy, chemistry, environment, textiles & clothing, pulp & paper, mechanical engineering)



Integration of Technologies

‘Integrating multi-technology sets that underlie new functionalities, services and applications’

- Personal environments
 - devices, accessories, wearables, implants; interfaces; interconnections
- Home environments
 - communication, monitoring, control, assistance; interoperability; content
- Robotic systems
 - advanced autonomous systems; cognition, control, (inter-) action
- Intelligent infrastructures
 - tools making critical infrastructures efficient, adaptable, robust



Applications Research

‘Providing the knowledge and the means to develop a wide range of ICT-based services and applications’

- ICT meeting societal challenges
 - Health; inclusion; mobility; environment; governments
- ICT for content, creativity and personal development
 - New media and content; learning; digital cultural assets
- ICT supporting businesses and industry
 - Business processes; collaborative work; manufacturing
- ICT for trust and confidence
 - Identity; authentication; authorisation; privacy; rights



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Aeronautics & Air Transport

Research to focus on:

- Reducing emissions and noise
- Increasing time efficiency
(innovative air traffic management, implementation of Single Sky policy, etc.)
- Ensuring customer satisfaction and safety
(comfort, in-flight services, etc.)
- Improving cost efficiency
(reduction of costs, etc.)
- Protection of aircraft and passengers
(protecting against attack, security design, etc.)
- Pioneering the air transport of the future



Surface Transport

Research to focus on:

- Creating 'greener transport'
(reducing emissions and noise, alternative fuels, etc.)
- Decongesting transport
(intermodality and interoperability, infrastructures, etc.)
- Ensuring sustainable urban mobility
(innovative organisations, public transport, etc.)
- Improving safety and security
(design, safety of the total transport system, etc.)
- Strengthening industrial competitiveness
(vehicle technologies, cost-effective production, etc.)



Global satellite navigation system (Galileo)

Research to focus on:

- Developing precise navigation and timing services for a range of sectors
- Fostering efficient use of satellite navigation and support to second-generation technologies



Space

Activities

(Space-based applications at the service of the European Society)

- GMES (Global Monitoring for Environment and Security): user driven approach to:
 - Development of satellite-based monitoring systems
 - Integration with *in-situ* monitoring systems
 - Use and delivery of GMES data and services
- Innovative satellite communication services in public application sectors (e.g. civil protection, tele-medicine)
- Technologies for reducing the vulnerability of space-based services and for the surveillance of space



Ideas – Frontier Research

- Implemented autonomously via the new ERC (European Research Council)
- From one person to large research teams can be supported (100% of funding)

But also ...

- Accountable (scientific, financial)
- Feasible: via a new Executive agency

More on Ideas





People – Marie Curie Actions

- Initial training of researches
 - 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



Marie Curie Actions FP7

Overall scope

- Human resource development in R&D in Europe
- Numerous, well-trained, motivated researchers
- Attract students to research careers
- Attract researchers to Europe and retain
- Skills and sustainable career development

Objectives

Reinforce the international (extra-European) dimension of the European Research Area as fundamental component of the EU's human resources in R&D

Build sustainable connections through mobile researchers



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. Activities of International Cooperation
7. Coherent development of policies



FP7 Activities of International Cooperation

- “Horizontal” support actions and measures not carried out in the Cooperation or People programmes

Two interdependent objectives:

Support competitiveness through strategic partnerships with third countries in selected fields

Address specific problems that third countries face or that have a global character, on the basis of mutual interest and mutual benefit



FP7 Welcomes Brazilian participation

- FP7 open to / welcomes participation by Brazilian researchers and institutions (public and private)
- Opportunities include funded participation in multi-partner, multi-country R&D projects, fellowships to and from EU countries, etc.
- Researchers from Brazil are also encouraged to register to evaluate projects submitted for funding
- For selected projects : participation in high quality, multi country/ multi partner projects
- Access to and sharing of knowledge across whole research consortium
- Creation of new networks and direct contacts with research partners in Europe, e.g. joint workshops, visits, exchanges etc
- Possibilities ranging from major (multi-million Euro) projects to smaller actions



The political framework in S&T. EU-Brazil

- Brazil has had a large participation in previous FP programmes
- EU has proposed an Strategic Partnership to Brazil (European Summit, 4 July, Lisbon)
- The EU-Brazil Agreement on S&T will be launched next September (20-21 Sep., Brasilia)
- EU and Brazil have launched an International Conference on Biofuels (5-6 July , Brussels) that includes a chapter for RTD





B.Bice Project

- Objective:
 - Enhance the international cooperation in S,T&I between Brazil and EU
- Actions:
 - Disseminating information about FP7:
 - <http://www.bbice.cgee.org.br/>
 - Partners search;
 - Creation of a database for enterprises and research institutions;
 - Support to Brazilian institutions in preparing and negotiating research projects;
 - LA/EU dialog – presentation of research priorities to the Commission for inclusion in future calls;
 - Thematic workshops for defining research priorities for cooperation



Information

- EU research:
<http://europa.eu.int/comm/research>
- Seventh Framework Programme:
http://europa.eu.int/comm/research/future/index_en.cfm
- Information on research programmes and projects:
<http://www.cordis.lu/>
- RTD *info* magazine:
<http://europa.eu.int/comm/research/rtdinfo/>
- Information in Brazil:
<http://www.bbice.cgee.org.br/>

