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Materials in the knowledge-society and the role of the EU 7th Framework Programme

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FP7: http://cordis.europa.eu/fp7/home_en.html
FP7 calls: http://cordis.europa.eu/fp7/dc/index.cfm
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- Countries aim at economic growth
- Growth benefits from innovation
- Innovation needs new technology
- New technology has knowledge bottlenecks that require research

  … including in materials, « horizontal » and « nano » technologies for their key, enabling character

A new Commission Communication adopted on 30 September:

http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/1394&format=HTML&aged=0&language=EN&guiLanguage=en

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Many factors may affect R&D+I

Availability of top-level infrastructures particularly for interdisciplinary R&D
Availability of suitable equipment

Lack of interdisciplinary education and training
Obstacles to researchers' mobility

Conservative character of the science systems
Contrast between « easy acceptable » and « avant-garde »

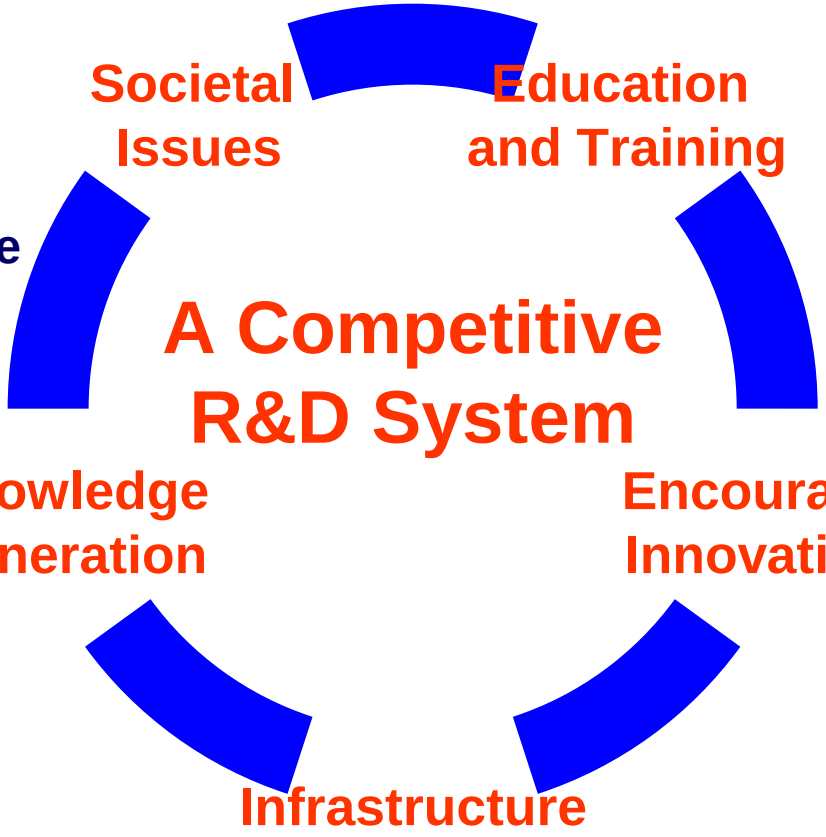
Conservative character of industry, lack of flexibility in the organisation of work
The emergence of global corporations and global competitiveness

Regulatory and non-technological bottlenecks
Difficulties in relationships amongst stakeholders

Conservative character of financial bodies
Lack of marketing approach

… and good ideas ☺

R&D+I → Managing complexity Managing networking



- ❑ Ethics
- ❑ Safety
- ❑ Information + dialogue
- ❑ Acceptance

- ❑ Private public partnership
- ❑ Governance

- ❑ Fiscal regimes
- ❑ Financing
- ❑ Patents, IPRs
- ❑ Norms/regulations
- ❑ Administrative rules
- ❑ Demand

- ❑ Industries
- ❑ Universities
- ❑ Research inst.
- ❑ Finance
- ❑ Policy makers

- ❑ Interdisciplinarity
- ❑ Entrepreneurship

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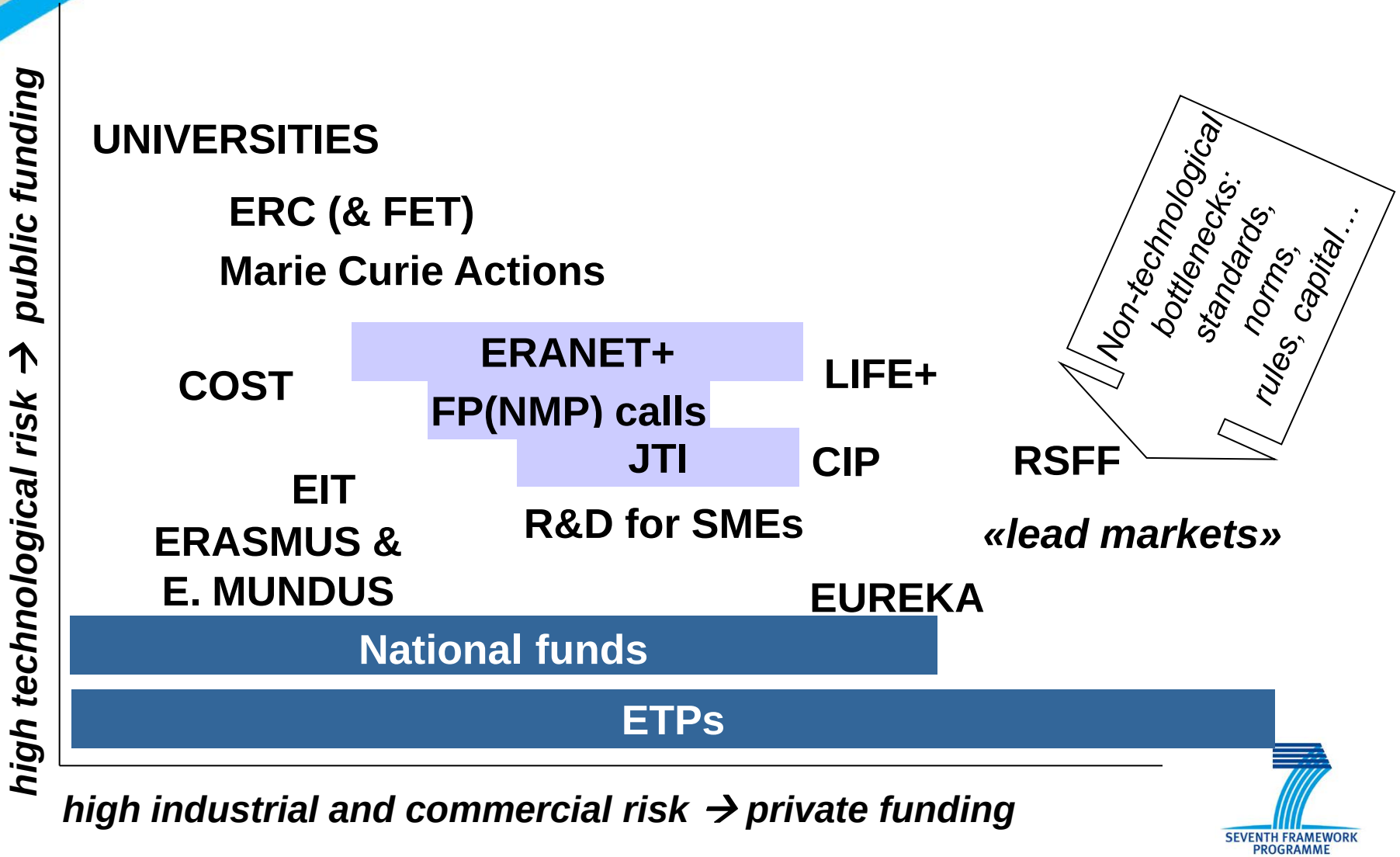
high technological risk → public funding
UNIVERSITIES
ERC (& FET)
Marie Curie Actions
ERANET+
COST
FP(NMP) calls
LIFE+
JTI
CIP
RSFF
EIT
ERASMUS &
E. MUNDUS
R&D for SMEs
«lead markets»
EUREKA
National funds
ETPs
Non-technological bottlenecks: standards, norms, rules, capital…
high industrial and commercial risk → private funding

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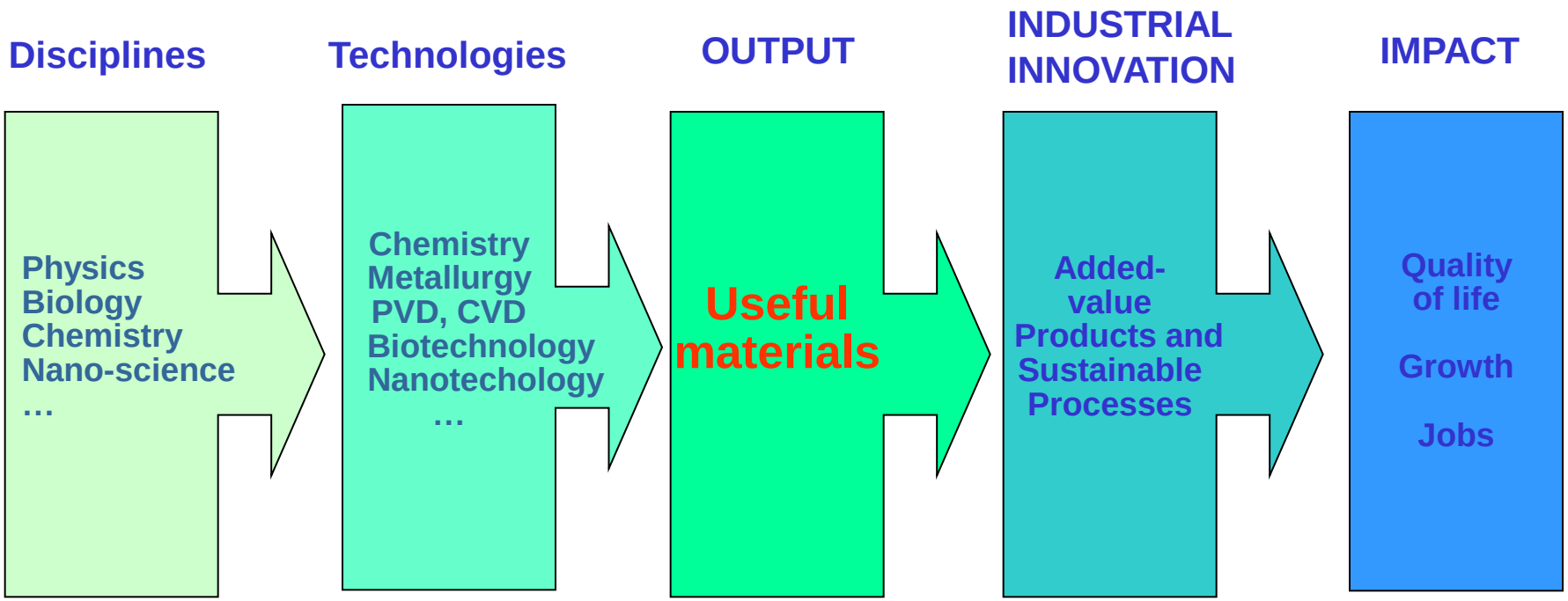
Materials profit from all available technologies and approaches



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Materials: an invisible revolution is becoming very visible and profitable

New and improved materials represent an *invisible revolution* that changes products and processes by great extents. They introduce new functionalities and/or improved properties, and thus adding value to products/services

The engineered realization of *materials by design* will allow re-designing or re-conceiving products and/or processes under a really sustainable systemic approach: energy and primary raw materials consumption, added value, safety (REACH, …), less components, less production steps, …

Materials science and engineering are a main and growing key factor for success

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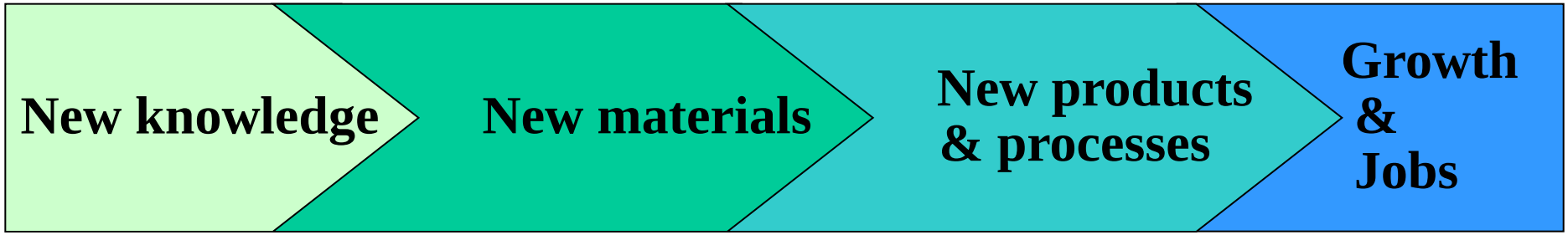
Materials are KNOWLEDGEmediaries (intermediaries of knowledge)

Materials embed and «transfer» the new knowledge into new products and processes, therefore we hear of «(re)active» or «intelligent» materials, materials that «perform a work»



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The success of a product can directly depend on the material

- Materials can be used to enhance existing products in a way that determines their function and customer benefit creating a new product
- In this way, materials can be used for key components that contribute a small part of the manufacturing costs but have a big leveraging effect
- E.g. computer hard-disks use a GMR (Giant Magneto Resistance) sensor that is only 0.3% of the system cost *(Source: CT IC)*

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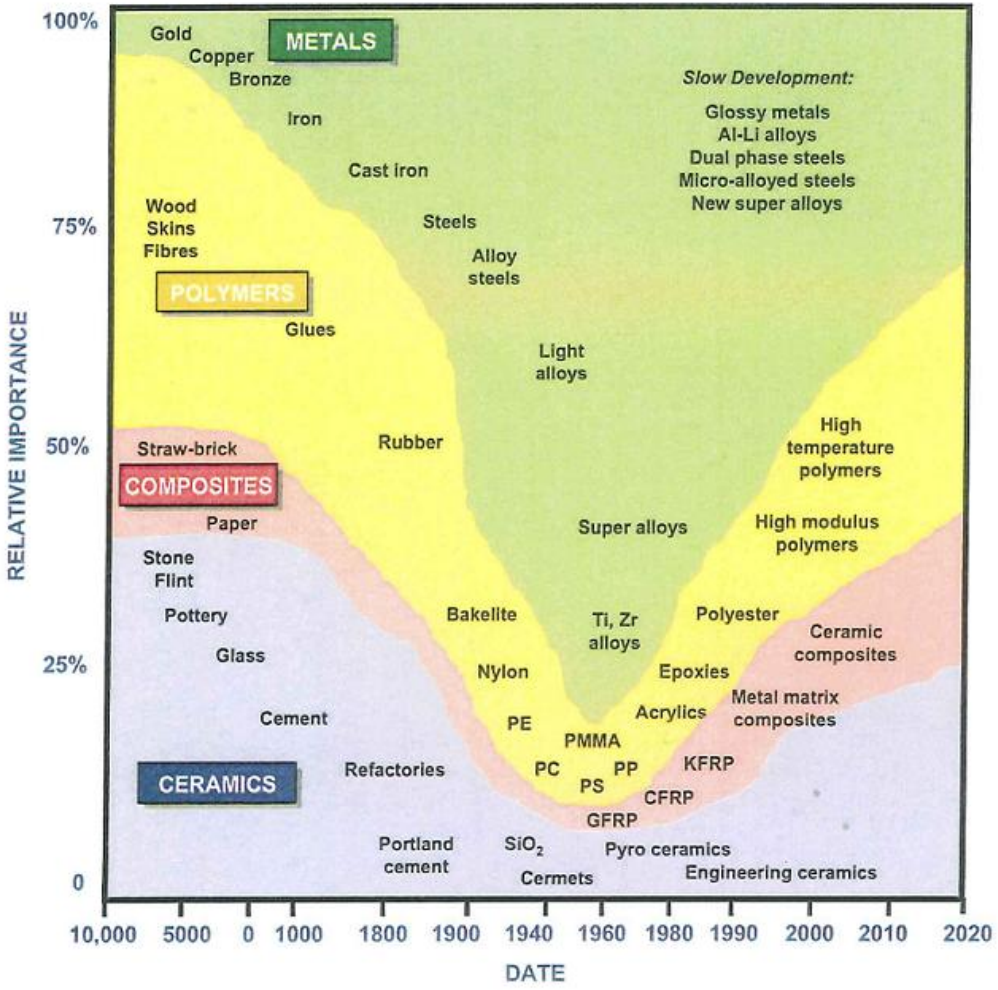
Civilization implies mastering materials

The use and development of new materials,

the number of the different materials,

their quality and performance

can be considered as an indicator of the progress of humankind



From Materials EuroRoads Meeting; 20 may 2008, London

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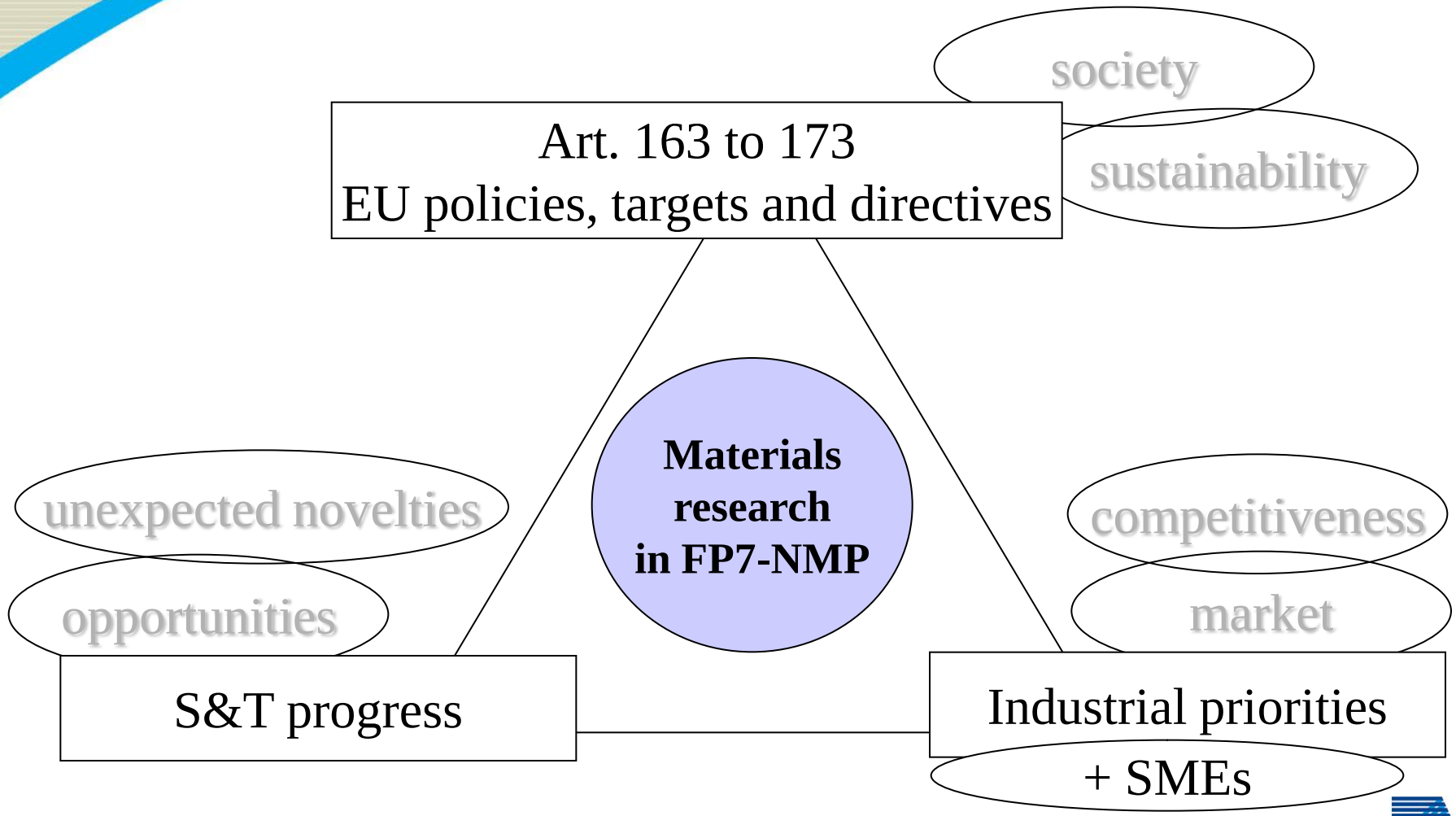
Materials R&D is one of the priorities for EU research



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The European Commission's Unit RTD- G3 "Materials"

The unit promotes research and supports relevant EU policies in the area of high performance knowledge-based materials destined for new products and processes and manages research actions to support the competitiveness of European science and industry in this field.

NMP-Materials will support the development of solutions in materials science and engineering (including "horizontal technologies") to overcome scientific, technological and related bottlenecks enabling new technologies that can give European industry a strong competitive advantage in the years to come

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The EU has 27 Member States and various levels of action

Policy level

- ✓open method of coordination
- ✓joint programming
- ✓mapping, benchmarking, score boards

Programme level

- ✓ERA-NET and ERA-NET+
- ✓Article 169

Project level

- ✓Collaborative research (FP7)

Private-public partnership

- ✓JTI
- ✓PPP

Enabling

- ✓Infrastructures
- ✓Marie Curie and Erasmus
- ✓ERC, EIT

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The EU 7th framework Programme (FP7)

- **The Framework Programme is the strategic instrument for RTD policy (Chapter XVIII of the Treaty):**
  - ✓ General principles, objectives, financial means
  - ✓ Proposed by the Commission for co-decision by Council and Parliament
- **The FP is implemented by Specific Programmes:**
  - ✓ 4 SPs in FP7: Cooperation; Ideas; People; Capacities
  - ✓ Detailed research content
  - ✓ Types of activities and where they apply
  - ✓ Normally one call for research proposal per year, in summer

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Budget

FP7 Budget: more than 53 € billion

× *CO-OPERATION*		*32413*
• Health	6100	
• Food, Agriculture and Biotechnology	1935	
• Information and Communication Technologies	9050	
• Nanotechnology, Materials & Production Technologies (NMP)	3475	
• Energy	2350	
• Environment (including Climate Change)	1890	
• Transport (including Aeronautics)	4160	
• Socio-economic Sciences and the Humanities	623	
• Space	1430	
• Security	1400	
× *IDEAS (European Research Council)*		*7510*
× *PEOPLE*		*4750*
× *CAPACITIES*		*4097*
× *JRC*		*1751*
× *Euratom (Fusion and Fission)*		*2751*

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Participation open to the world

- **General rule**
  - 3 independent participants from 3 different MS or AC (Associated Countries)
- **Specific International Cooperation Actions**
  - 2 participants MS or AC and 2 participants ICPC (International Cooperation Partner Countries)
- **Coordination and support actions, Training of Researchers, “Frontier” research projects**
  - 1 participant

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Funding

- Research activities: 50% of eligible costs, except for:
  - **SMEs: 75%**
  - **Non-profit public bodies: 75%**
  - **Secondary and higher education establishments: 75% *(+ 60% overheads)***
  - **Research organisations (non-profit): 75%**
- Demonstration activities: 50% of eligible costs
- **"Frontier" research actions: 100%**
- Coordination and support actions: 100%
- **Training and career development of researchers actions: 100%**
- Other activities (management, training, etc): 100%

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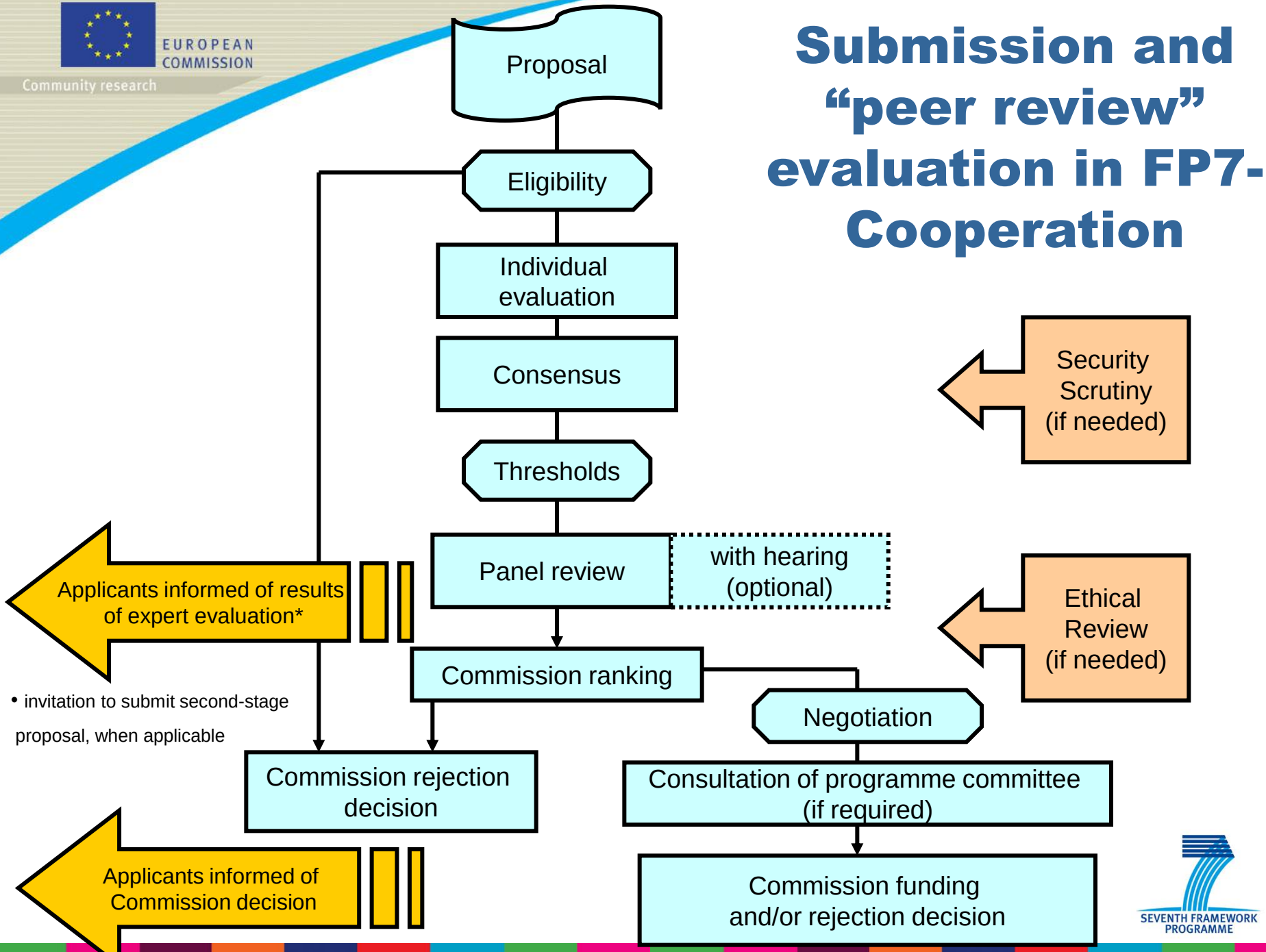
Submission and "peer review" evaluation in FP7-Cooperation



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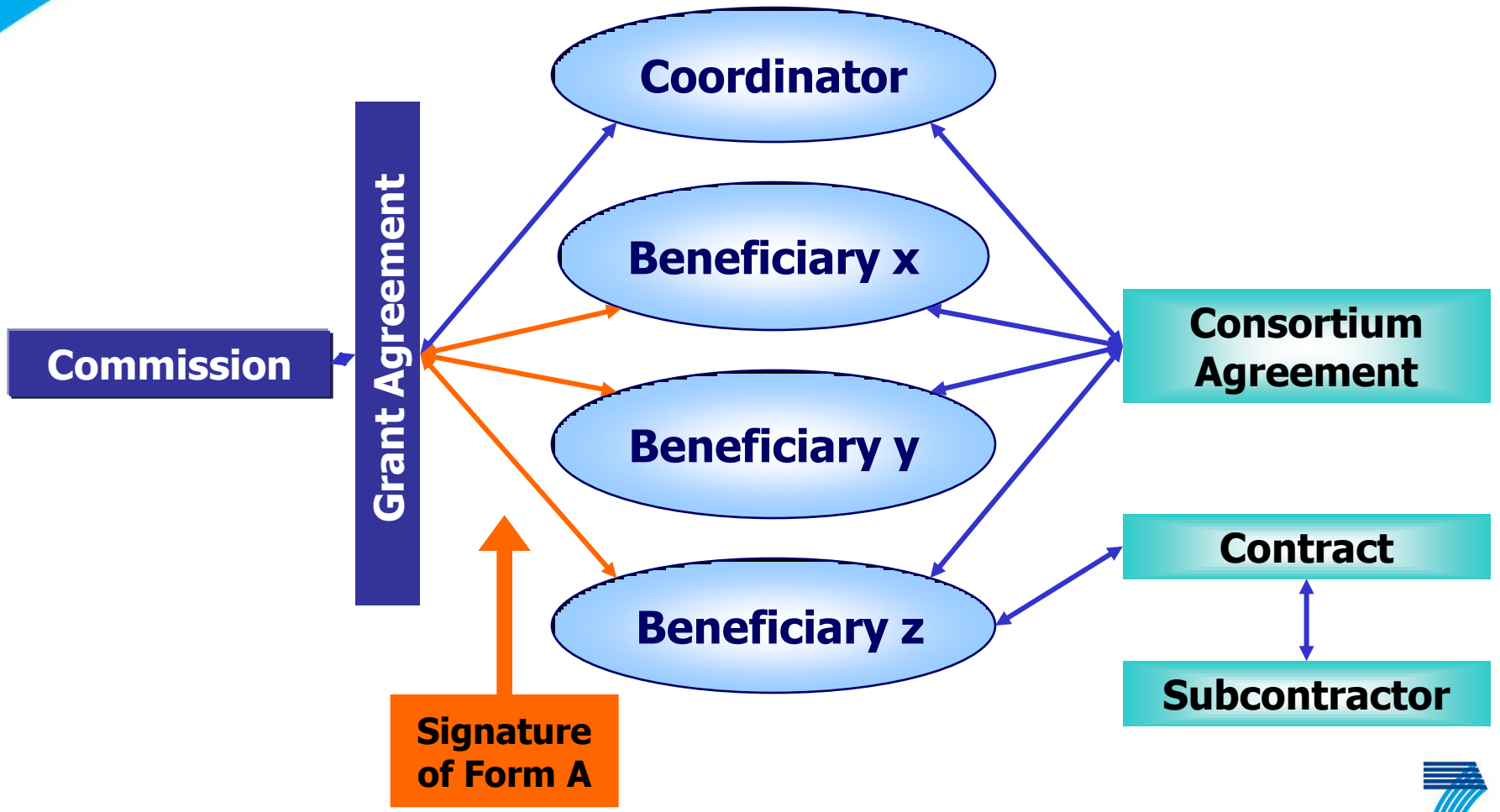
IPR are protected and owned by the beneficiaries who set their own rules



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Please contact your NCP:

http://cordis.europa.eu/fp7/ncp_en.html

Cordis NMP activity service with information on the open calls:
http://cordis.europa.eu/fp7/cooperation/nanotechnology_en.html

Industrial Technologies website:
http://ec.europa.eu/research/industrial_technologies/index_en.html

EU research:
http://ec.europa.eu/research

Seventh Framework Programme:
http://ec.europa.eu/research/fp7/index_en.cfm

Information on research programmes and projects:
http://cordis.europa.eu/

RTD *info* magazine:
http://ec.europa.eu/research/rtdinfo/index_en.html

Information requests:
http://ec.europa.eu/research/enquiries/

THANK YOU

FOR YOUR ATTENTION!

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