



Materials and Nanotechnology in FP7

European Commission
DG Research – Materials Unit
José-Lorenzo Vallés

EU-Russia Cooperation 2007-2013 – Moscow, 22 February 2007





Progress in Materials Sciences ...and more

- Nano-enhanced products increasingly appear in our everyday life, even if we do not always realise

- 1 - Organic Light Emitting Diodes
- 2 - Photovoltaic film
- 3 - Scratch-proof self-cleaning glass
- 4 - Stain resistant fabrics
- 5 - Intelligent clothing
- 6 - Bucky-tubeframe
- 7 - Biocompatible hip-joint
- 8 - Nano-particle paint
- 9 - Thermo-chromic glass
- 10 - Magnetic data memory
- 11 - Carbon nanotube fuel cells
- 12 - Nano-engineered cochlear implant

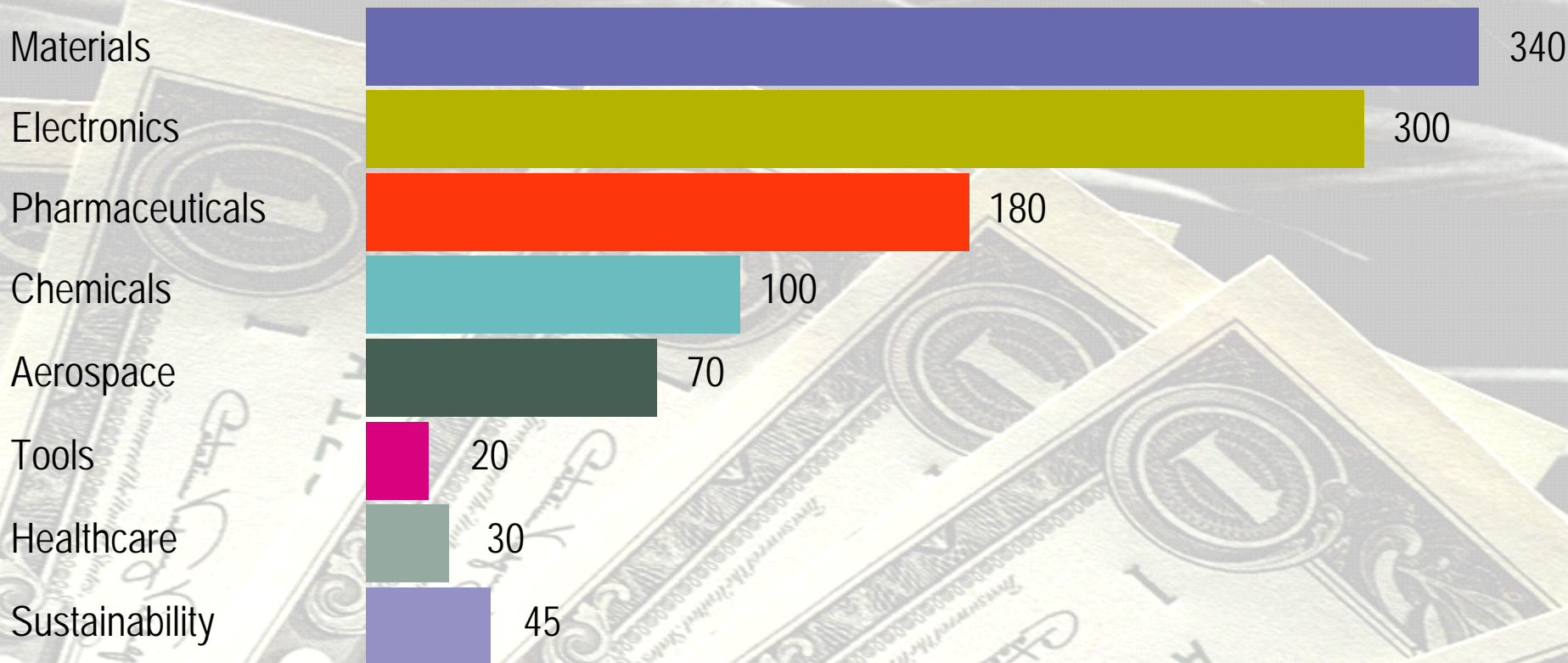


Source: BBC



Nano-Markets in 2015?

Nanotechnology revenues worldwide by 2015 (USD billion)



Source: National Science Foundation



The EU Action Plan on Nanotechnology

- **Eight groups of actions divided according to:**
 - **Research, Development and Innovation**
 - **Infrastructure and European Poles of Excellence**
 - **Interdisciplinary Human Resources: Creativity**
 - **Industrial Innovation: From Knowledge to the Market**
 - **Integrating the Societal Dimension: Expectations and Concerns**
 - **Public Health, Safety, Environment and Consumer Protection**
 - **International Cooperation**
 - **Implementing a Coherent Approach at European Level**



FP7 (2007–2013)

***Cooperation* – Collaborative research**

***Ideas* – Frontier Research**

***People* – Human Potential**

***Capacities* – Research Capacity**



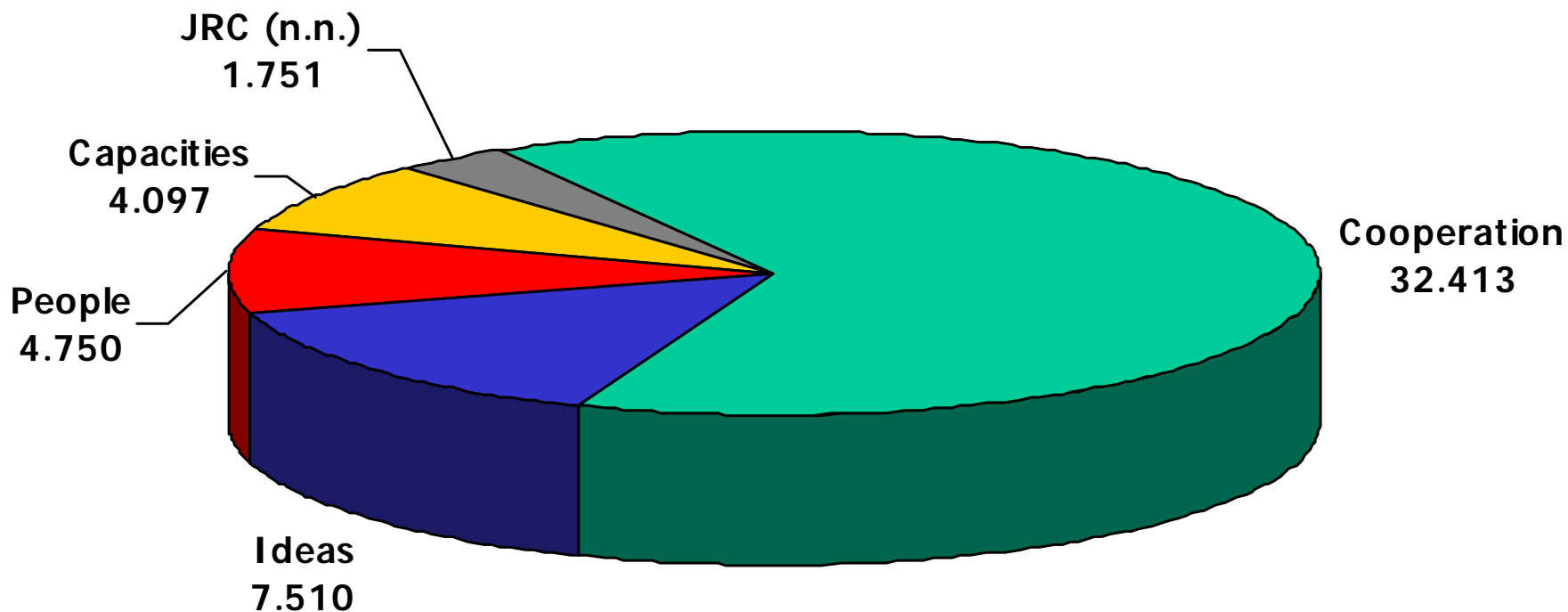
JRC (non-nuclear)

JRC (nuclear)

Euratom



FP7 budget (in billion €, total 50.521)



FP7 – SP Cooperation

10 Themes

	(€million)
1. Health	6 100
2. Food, agriculture and fisheries, and biotechnology	1 935
3. Information and communication technologies	9 050
4. Nanotechnologies, materials and production	3 475
5. Energy	2 350
6. Environment	1 890
7. Transport	4 160
8. Socioeconomic research	623
9. Space	1 430
10. Security	1 400
Total	32 413

* Not including non-nuclear activities of the Joint Research Centre: €1 751 million



***Cooperation* – Collaborative research**

- Flexibility for ***Emerging needs*** and ***Unforeseen policy needs***
- Support for Dissemination of knowledge and Transfer of results
- Support will be implemented across all themes through:

Collaborative research

(Collaborative projects; Networks of Excellence; Coordination/support actions)

Joint Technology Initiatives

Coordination of non-Community research programmes

(ERA-NET; ERA-NET+; Article 169)

International Cooperation



Simplification of procedures

- Light submission procedure (e.g. two-stage)
- Reducing a priori controls
- Increasing autonomy of consortia
- Streamlining the selection process (e.g. Time to contract, involvement of committees).
- Exploring new modes of funding
- Simplifying the cost-based funding system



Theme 4: NMP

Overall objective : To improve the competitiveness of EU industry and ensure its transformation via:

- the effective transition from a resource-based to knowledge-based industry
- generation of new breakthrough knowledge
- strengthening EU leadership in nano, materials and production technologies
- emphasis on integrating different technologies and disciplines across many industrial sectors

... strong continuity with FP6

Importance of **Technology Platforms** to help establish common research priorities



EUROPEAN
COMMISSION

Community research

EU-Russia Cooperation 2007-2013 – Moscow, 22 February 2007





Theme 4: NMP

Four activities:

1. Nanosciences and nanotechnologies
2. Materials
3. New production
4. Integration of technologies for industrial applications



EUROPEAN
COMMISSION

Community research

WP - NMP

Activity 4.1: Nano S&T

4.1.1: Nanosciences and converging sciences

4.1.2: Nanotechnologies and converging technologies

4.1.3: Health, Safety and Environmental Impacts



WP - NMP

Activity 4.1: Nano S&T

4.1.1: Nanosciences and converging sciences

- Nano-scale mechanisms of bio/non-bio interactions - SSFRP
- Self-assembling and self organisation – SSFRP
- Support to ICPC researchers and creation of an electronic archive of publications - CSA
- Development of methodology, collection and elaboration of data and studies...and establishment of an observatory - CSA
- ERANET-PLUS in Nanosciences

Activity 4.1: Nano S&T

4.1.2: Nanotechnologies & converging technologies

- Pilot lines to study, develop and up-scale nanotech-based processes from laboratory - LSIP
- Equipment and methods for nanotechnology - LSIP
- Analysis of the ethical, regulatory, social and economic environment of nanomedicine - CSA
- Coordination in nanometrology - CSA
- Examining capacity building in nanobiotechnology - CSA



WP - NMP

Activity 4.1: Nano S&T

4.1.3: Health, Safety and Environment Impacts

- Specific, easy-to-use portable devices for measurement and analysis - LSIP
- Risk assessment of engineered nano-particles on health and the environment – SSFRP
- Scientific review of...the potential impact of engineered nanoparticles – CSA
- Database on impact of nanoparticles – CSA
- Coordination in studying H,S&E impact - CSA



Activity 4.2: Materials

- 4.2.1: Mastering nano-scale complexity in materials**
- 4.2.2: Knowledge-based smart materials with tailored properties**
- 4.2.3: Novel biomaterials and bioinspired materials**
- 4.2.4: Advances in chemical technologies and materials processing**
- 4.2.5: Using engineering to develop high performance materials**



WP - NMP

Activity 4.2: Materials

4.2.1: Mastering nano-scale complexity in materials

- Nanostructured polymer-matrix composites - LSIP
- Nanostructured coatings and thin films - SSFRP
- Characterisation of nanostructured materials - CSA



Activity 4.2: Materials

4.2.2: Knowledge-based smart materials with tailored properties

- Organic materials for electronics and photonics - LSIP
- Nanostructured materials with tailored magnetic properties - SSFRP
- Advanced material architectures for energy conversion - SSFRP



Activity 4.2: Materials

4.2.3: Novel biomaterials and bioinspired materials

- Highly porous bioactive scaffolds controlling angiogenesis for tissue engineering - LSIP



Activity 4.2: Materials

4.2.4 Advances in chemical technologies and materials processing

- Flexible efficient processing for polymers-SME-TP
- Nanostructured catalysts with tailor-made functional surfaces - SSFRP
- Renewable materials for functional packaging applications - SSFRP



Activity 4.2: Materials

4.2.5 Using engineering to develop high performance knowledge-based materials

- Novel materials tailored for extreme environments - LSIP
- Modelling of microstructural evolution under work conditions and in materials processing - SSFRP



Activity 4.3: New Production

- 4.3.1: Development and validation of new industrial models and strategies**
- 4.3.2: Adaptive production systems**
- 4.3.3: Networked production**
- 4.3.4: Rapid transfer and integration of new technologies into the design and operation of manufacturing processes**
- 4.3.5: Exploitation of the convergence of technologies**

Activity 4.4: Integration

- Advanced wood-based composites and their production - LSIP
- Application of new materials including bio-based fibres in high-added value textile products – SME-TP
- Multifunctional materials for the future vehicles – LSIP
- Development of nanotechnology-based systems for in-vivo diagnosis and therapy – LSIP
- Resource efficient and clean buildings – LSIP
- Innovative ... construction product-services – SME-TP
- ERA-NET on Construction



Funding Schemes - NMP

Collaborative projects

- Small or medium scale focussed projects
< € 4 million EC funding requested
- Large scale integrating projects
> € 4 million EC funding requested
- SME-targeted projects: at least 35% to SMEs

Networks of Excellence (not in the first calls)

Coordination and Support actions

Deadlines of the Calls

Collaborative projects

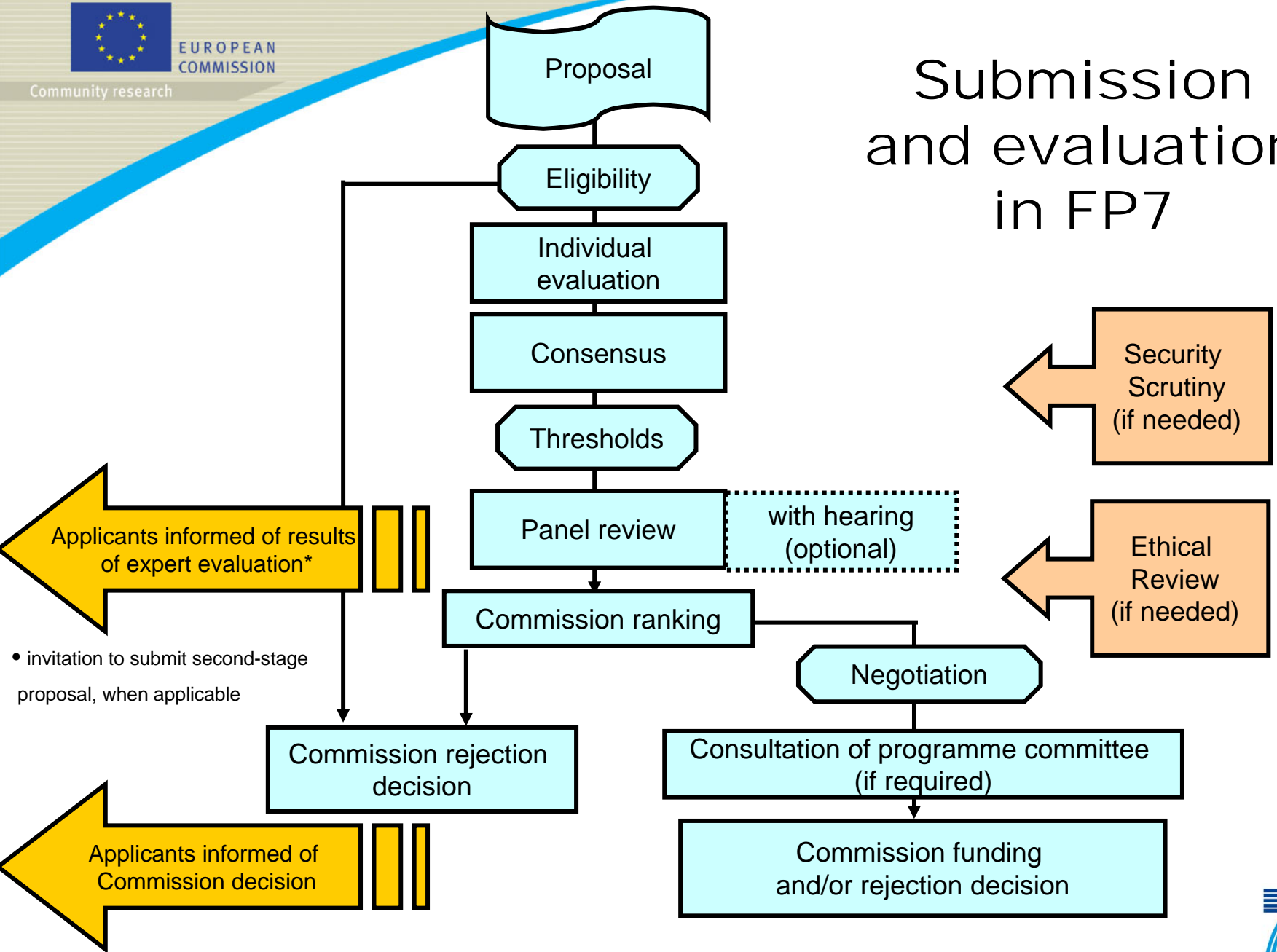
- Closure date of First Stage: 4 MAY 07
10 page proposal: S&T content + expected impact
2 pages: consortium+estimated financial resources
- Indicative closure for Second Stage
SSFRP on 13 SEP 07
LSIP, SME-TP on 4 OCT 07

Coordination and Support actions

- Closure date: 5 JUN 07 – Single stage



Submission and evaluation in FP7



• invitation to submit second-stage proposal, when applicable





Proposal submission

- **Using the Electronic Proposal Submission Service (EPSS)**
- **Proposals arriving by any other means are regarded as 'not submitted'**
- **Advice: Submit first a draft version one week before the deadline**



WP - NMP

Evaluation criteria and thresholds

S&T quality	4/5
Implementation	3/5
Impact	3/5
Overall	12/15

- Implementation is not considered in stage 1 and the overall threshold is 8
- For LSIP, in stage 2 the threshold for Impact is 4



FP7 Information

- **EU research:**
<http://europa.eu.int/comm/research>
- **Research programmes and projects:**
<http://cordis.europa.eu/en/home.htm>