

Photonic Technologies in the European Research Programmes (2007-2013)

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European Commission
Directorate General Information Society and Media
- Nanoelectronics and Photonics -

- Introduction:

- Basics: Acronyms and logos: EU, EC, FP7, ICT, NMP, SP ???

- Framework Programme VII (2007-2013)

- Structure of the framework programme
- Photonics in FP7, where ?

- in ICT

- Photonic components and subsystems
- Network of the Future and test beds
- Display systems
- Future and Emerging Technologies

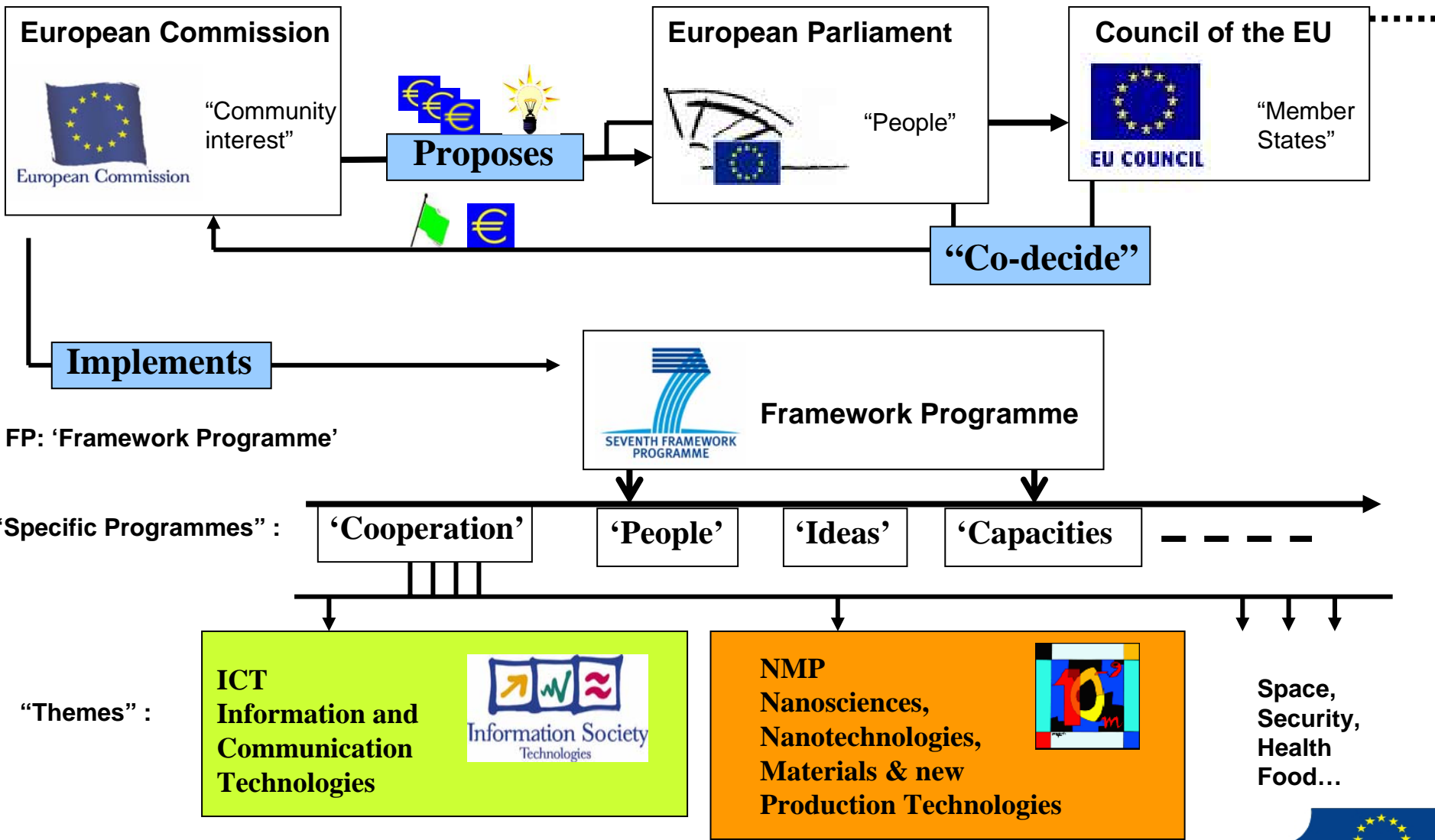
- in NMP

- Photonic materials, nanostructured materials
- Processes, Manufacturing, Equipment
- Production technologies

- Elsewhere

- The Photonics Technology Platform (see also Mo4.1.4 by Paul Lagasse)

Basics: First some vocabulary, logos and acronyms



○ There !

€ for Photonics ?

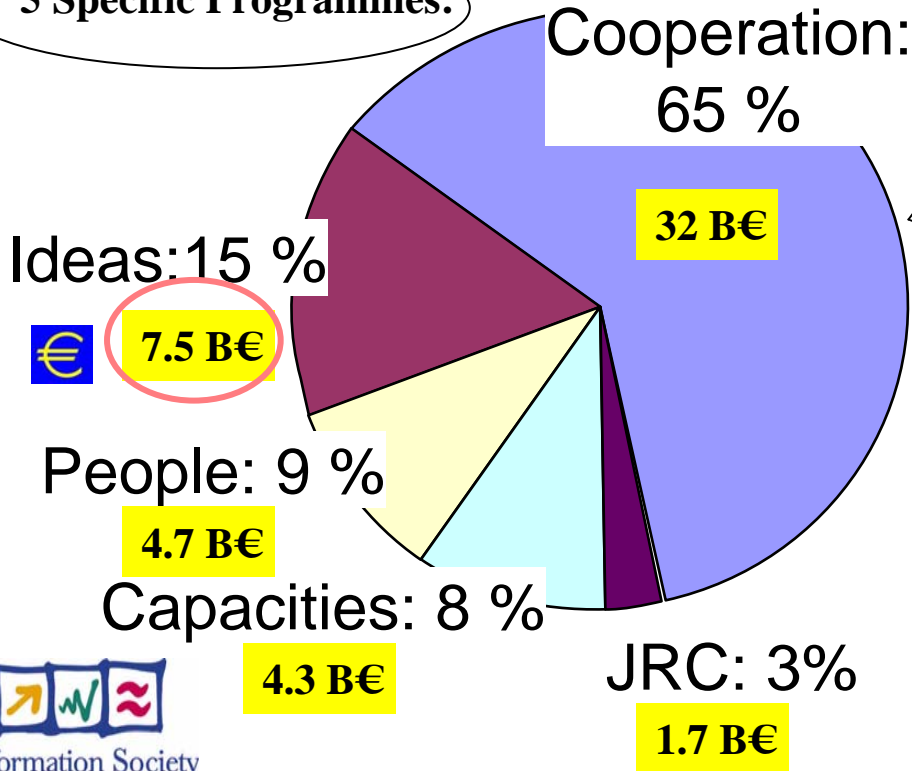


2007 - 2013

Budget: 50.7 B€

10 Themes

5 Specific Programmes:



ICT
Information and
Communication

Information Society
Technologies



9.12 B€

NMP
Nanosciences,
Nanotechnologies,
Materials & new
Production Technologies



3.5 B€

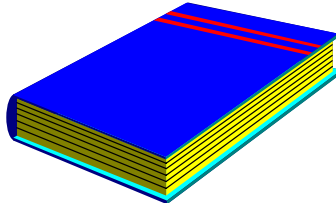


(Space, Security...)

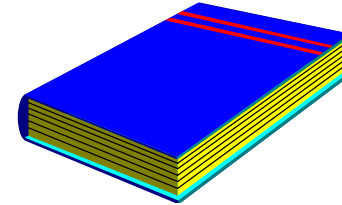


Photonics: which topics will be covered ?

Read the Workprogrammes 2007 - 2008 !



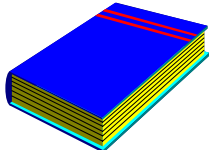


**ICT
Information and
Communication
Technologies**

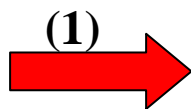


**NMP
Nanosciences,
Nanotechnologies,
Materials & new
Production Technologies**



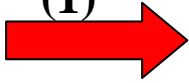
Topics involving Photonics

Research Theme	Specific objective: 	Planned Budget 2007-2008
 <p>ICT Information and Communication Technologies</p>	<ul style="list-style-type: none"> - Photonic Components and Subsystems ← (1) - The Network of the Future ← (2) - New paradigms and Experimental facilities - FET – Future and Emerging Technologies ← (3) - Display Systems 	<p>90-100 M€</p> <p>No pre-allocated</p> <p>No pre-allocated</p> <p>18 M€</p>
 <p>NMP Nanosciences, Nanotechnologies, Materials & new Production Technologies</p>	<ul style="list-style-type: none"> - Organic Materials for Electronics and Photonics (including photovoltaics) - Nanostructured materials with tailored properties - Flexible efficient processing for Polymers (laser processing) - Rapid manufacturing concepts (small series production) - Processes & Equipment for 3D nanosurface production - Production (Techno. & Equip.) for micromanufacturing 	<p>No pre-allocated</p> <p>No pre-allocated</p> <p>No pre-allocated</p> <p>No pre-allocated</p> <p>No pre-allocated</p>



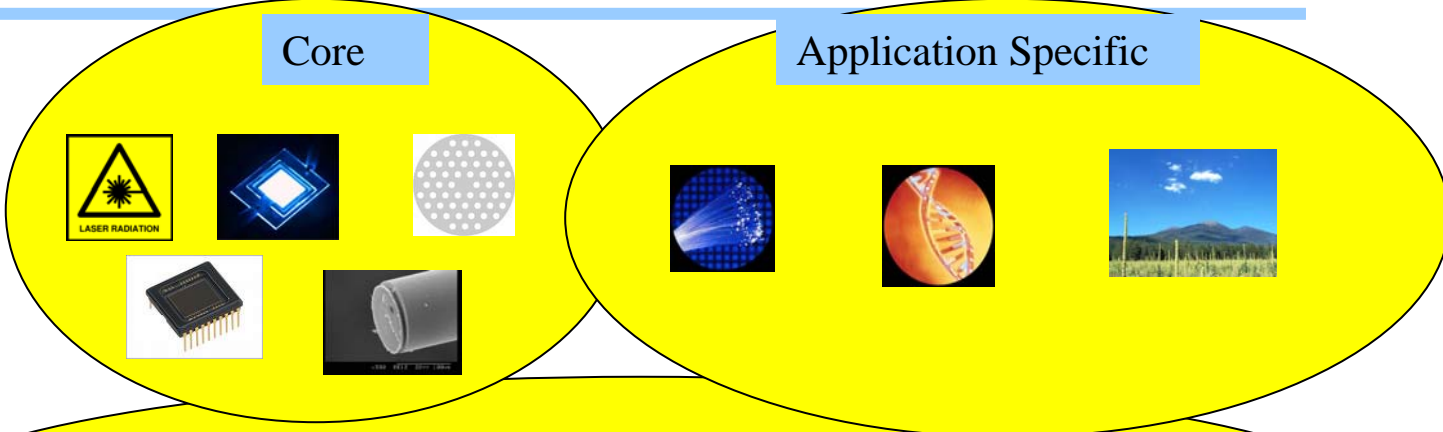
Photonic components and subsystems

	Average funding
1999-2002 (FP5)	14 M€/year
2003-2006 (FP6)	32 M€/year
2007-08 (part of FP7):	48 M€/year
	90-100 M€ in the 2007 call

(1) 

Photonic components and subsystems

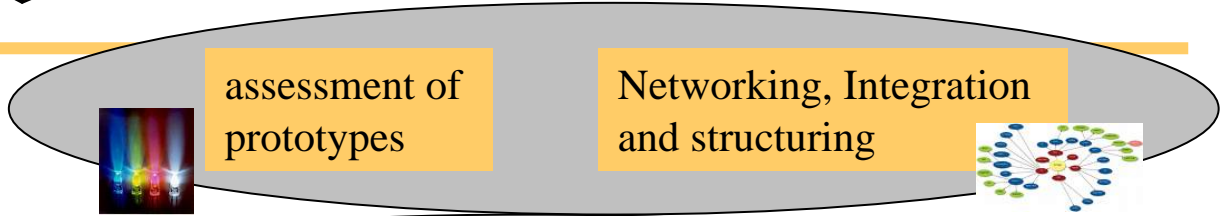
Components and subsystems



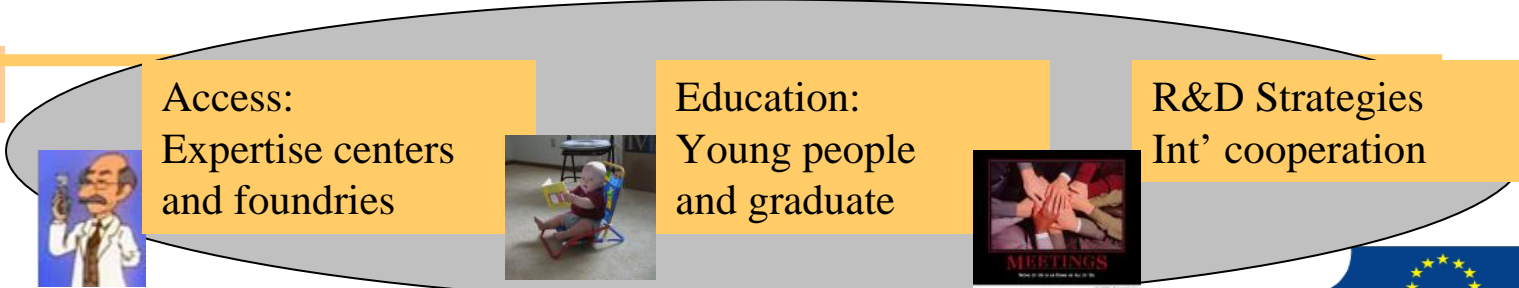
Underlying technologies



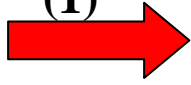
Complementary Measures



Support measures



(1)

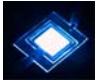


Photonic components and subsystems

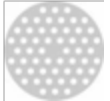
- Core Photonic components:



- High Performance lasers



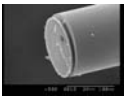
- High brightness solid-state sources (including for lighting)



- High performance special fibers



- Image sensors

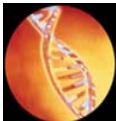


- Sensors exploiting innovative sensing principles

- Application specific components



- Broadband core networks, Broadband access and LAN

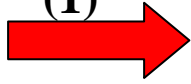


- Medical diagnosis and prevention



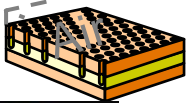
- Sensors for Environment, Well-being, Safety and Security

(1)

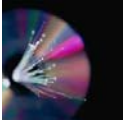


Photonic components and subsystems (cont')

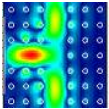
- Underlying Technologies



- Integration Technologies



- Manufacturing Technologies



- Design methodologies and tools

- Complementary measures



- Joint assessment of prototypes components to equipment



- R&D capacities: Networking, and Structuring

- Support measures



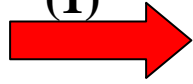
- Access to foundries and centers of expertise



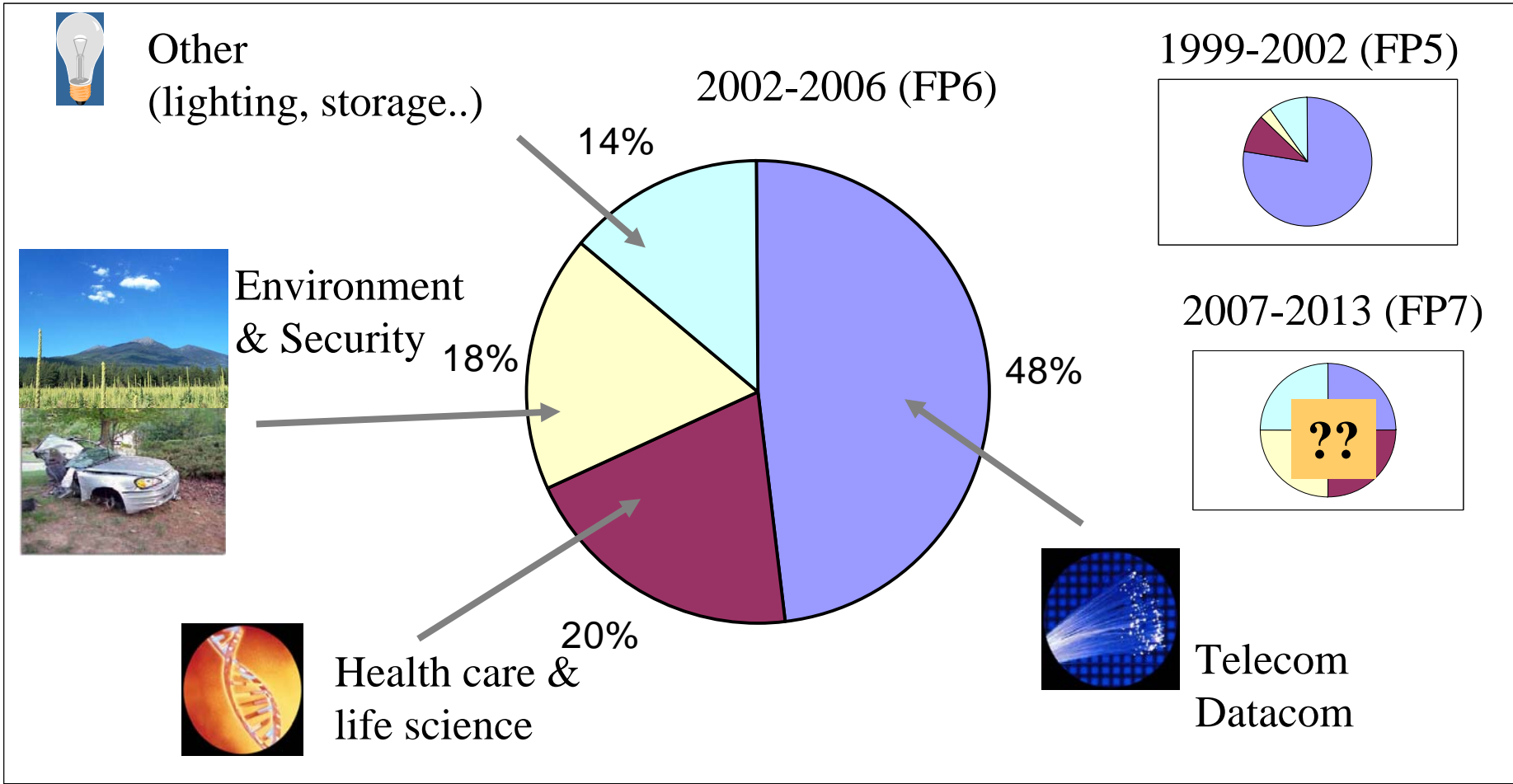
- Raising interest of young people, Cross-National schemes for graduates



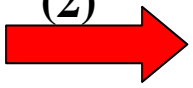
- R&D Strategies (Roadmapping, Coordination with MS, International coop.)

(1) 

Photonic Components: Evolution since 1999



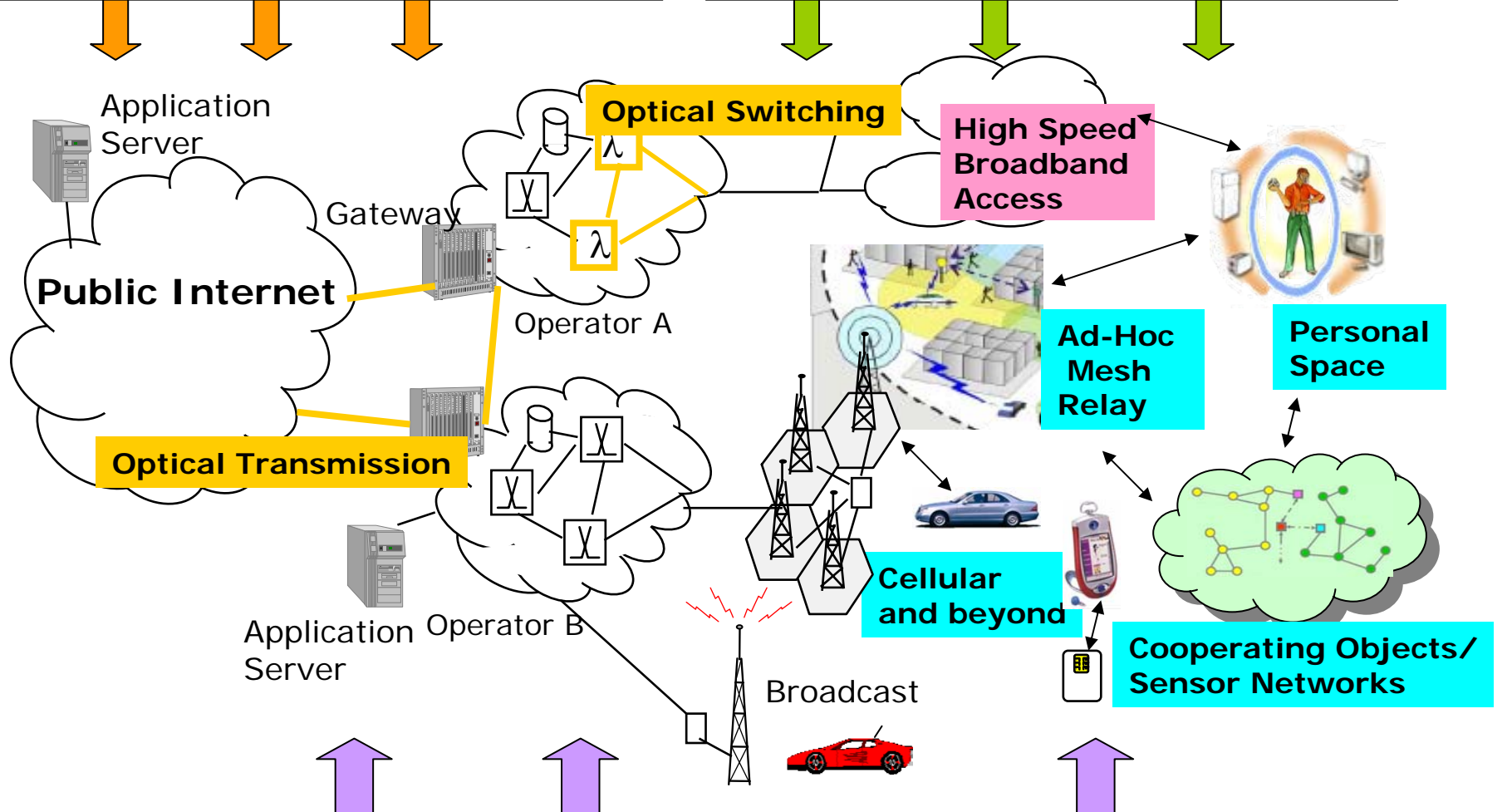
Figures in “number of projects”

(2) 

The Network of the future

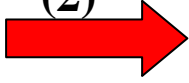
Infrastructures and Architectures

Control, Management, Flexibility



Technologies for the Future Internet

(2)



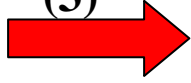
The Network of the future

Key Objective: Ultra high speed end-to-end-connectivity !



**Need to demonstrate why optical is the best technology choice !
(no pre-allocated budget for photonics)**

(3)



FET : Future and Emerging Technologies



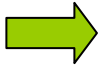
Key Objective:

- Promote new ideas & new participants / communities
- Long term, visionary, proof-of-concept!



FET – Open: 'Bottom-up'

- open to any IST related topic
- continuously open (submit whenever the idea is mature)



FET – Proactive: 'Top-down'

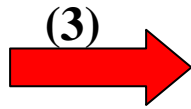
- fixed deadline calls
- Well defined topics of strategic importance

Question: Any Photonics **FET-Proactive** in FP7?


Answer: To be defined if justified

Current situation: => open & public consultation pending on:

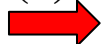
'Controlling Electromagnetic Propagation with Metamaterials'



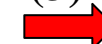
When ?

(1)  Photonic Components and Subsystems

May-June 2007 (call 2)

(2)  - The Network of the Future
- New paradigms and Experimental facilities

January 2007 (call 1)

(3)  FET – Future and Emerging Technologies:
- Open
- Pro-active (Metamaterials, year 2 ?)

 FET – Open: 'Bottom-up'

From January 2007 (call 1)

 FET – Proactive: 'Top-down'

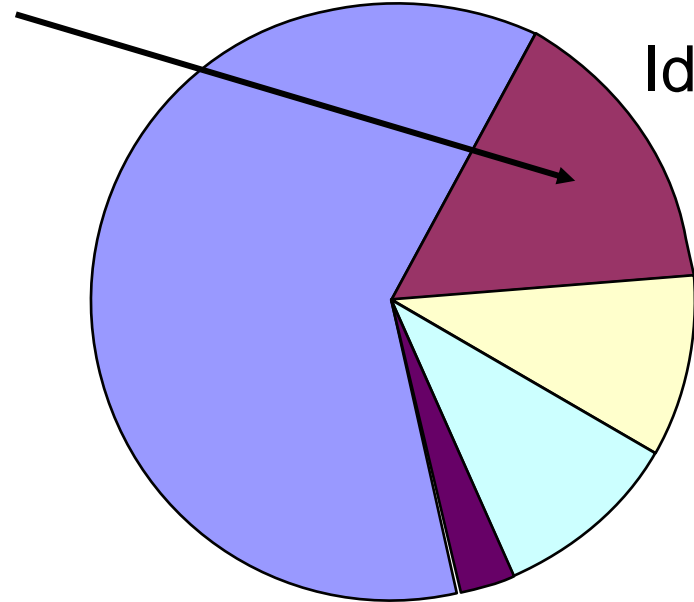
2008 (call 3 ?)

Photonic research elsewhere ?

Specific Programme 'Ideas'

- Addressing 'Frontier Research'
- Science-driven
- Investigator initiated
- Support of individual teams

European Research Council

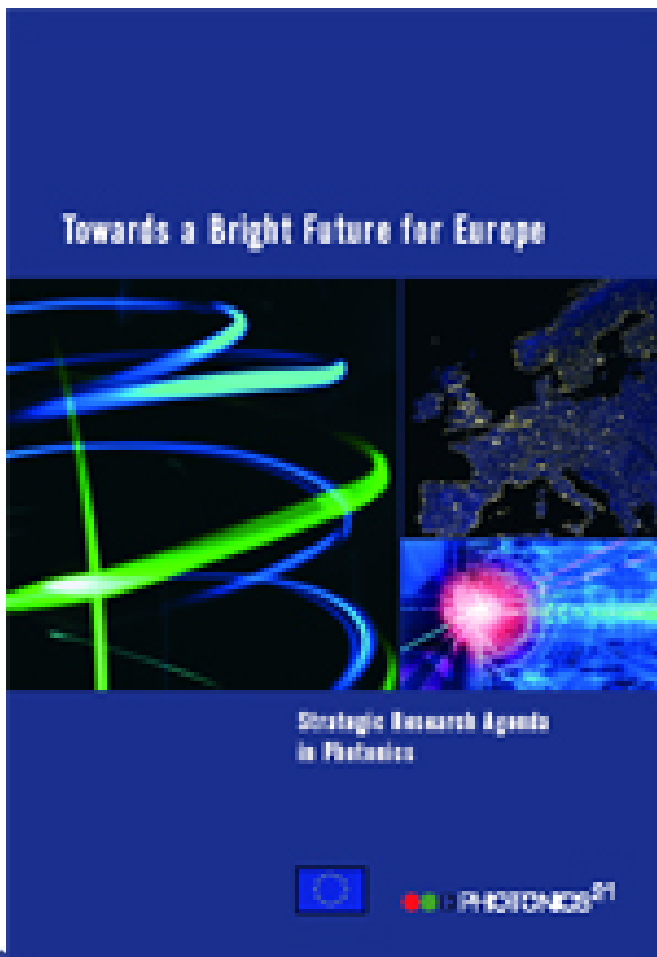


2008 ?

The Technology platform in Photonics



www.photonics21.org



A important document guiding EU priorities

See sections on:

- 'Information and Communication'
- 'Design & manufacturing of Photonic Components and systems'

Photonics in FP7 ?

In:

- Information and Communication Technologies (*ICT programme*)

- Photonic components and subsystems

- The Network of the Future

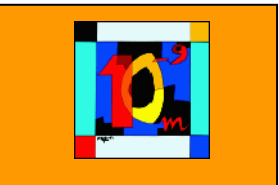
- FET – Future and Emerging Technologies



- Nanoscience & nanotechnology, production technologies (*NMP Programme*)

- Organic Materials for electronics and photonics

- Nanostructured materials



- Long Term Research in materials and devices (*Frontier Research Programme*)

For components:

- Address pragmatic issues for components – Components as “commodities”:

- Fabrication scalability and cost

- Integration/compatibility with current fab technologies

- Packaging /Interface technologies

Further information and Contact

European research on the web:

<http://cordis.europa.eu>

<http://cordis.europa.eu/fp7>

<http://ec.europa.eu/comm/research/future/>

ICT programme: <http://cordis.europa.eu/ist>

NMP programme: <http://cordis.europa.eu/nmp>

Technology Platforms :

<http://www.cordis.lu/technology-platforms>

<http://www.photonics21.org>

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Rainer Zimmermann

Gustav Kalbe

Anne De Baas

Anna Roig

Jyrki Suominen

Telecom networks

FET actions

NMP programme

IST 2006 event



Conference

Exhibition

Networking & workshops

ec.europa.eu/information_society/istevent/2006