

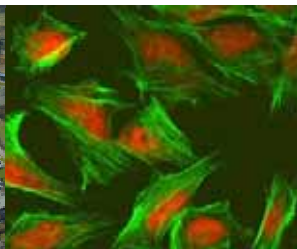


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Community research

Research Infrastructures and nanotechnologies

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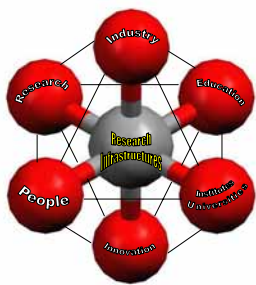
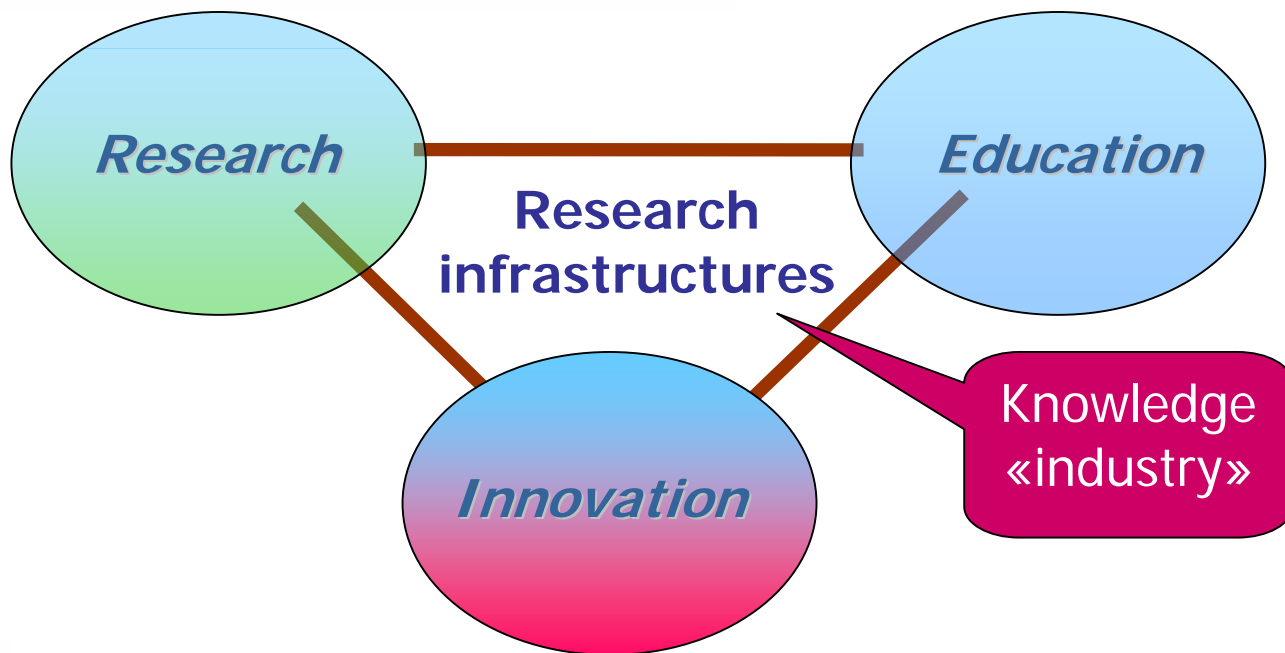


Research Infrastructures (incl. e-infrastructures) are:

- Facilities, resources, and related services used by the scientific community for
 - ➔ Conducting leading-edge research
 - ➔ Knowledge transmission, knowledge exchanges and knowledge preservation
- Today Research Infrastructures include
 - ➔ Major scientific equipment
 - ➔ Scientific collections, archives, structured information
 - ➔ ICT-based infrastructures
 - ➔ Entities of a unique nature, used for research



Research Infrastructures are at the core of the knowledge Triangle



They are even at the core of a “diamond”
if we add the 3 main actors,
industry, university and the people



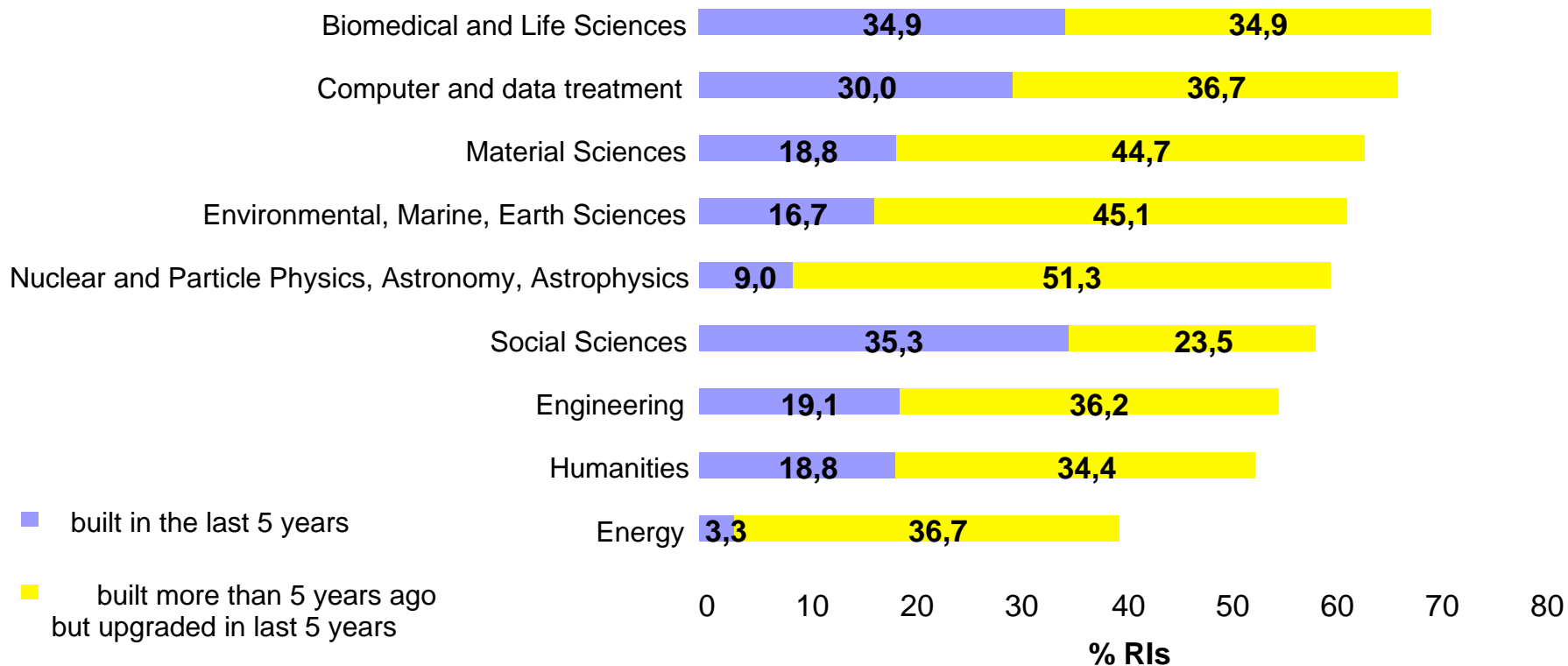
Europe is faced with a wide spectrum of issues

- Single site, complex, unique facilities;
- Networks of complementary centres;
- From Globally unique,
to Regionally distributed;
- Many stakeholders (from ministries to
researchers)
- Underlying and growing use of
e-infrastructures;
- Opportunities but difficulties of interaction
between basic research and industry...



Research Infrastructures' pattern is rapidly evolving in Europe

Share of RIs Built or Upgraded in the Last 5 Years



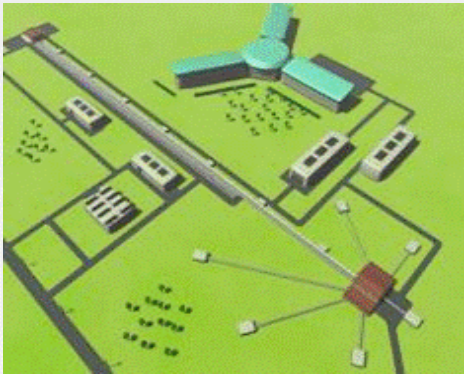
ESFRI



The European Strategy Forum on Research Infrastructures (ESFRI) has been set-up to help facing important challenges

- Launched in April 02 by Council of Research Ministers
 - Representatives of the 27 Member and 5 Associated States + one representative of the European Commission (EC)
- 

ESFRI Roadmap for Materials Science



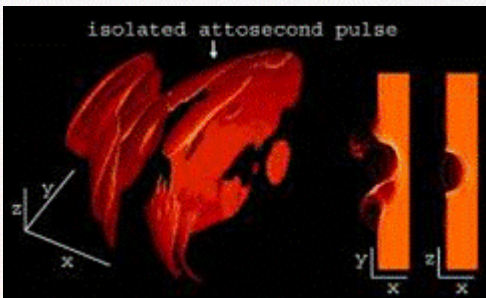
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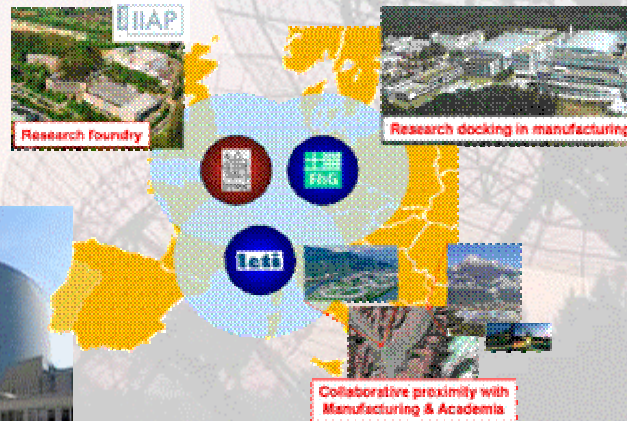
XFEL



IRUVX



ELI



ILL

PRINS



ESRF

Importance of Community actions:

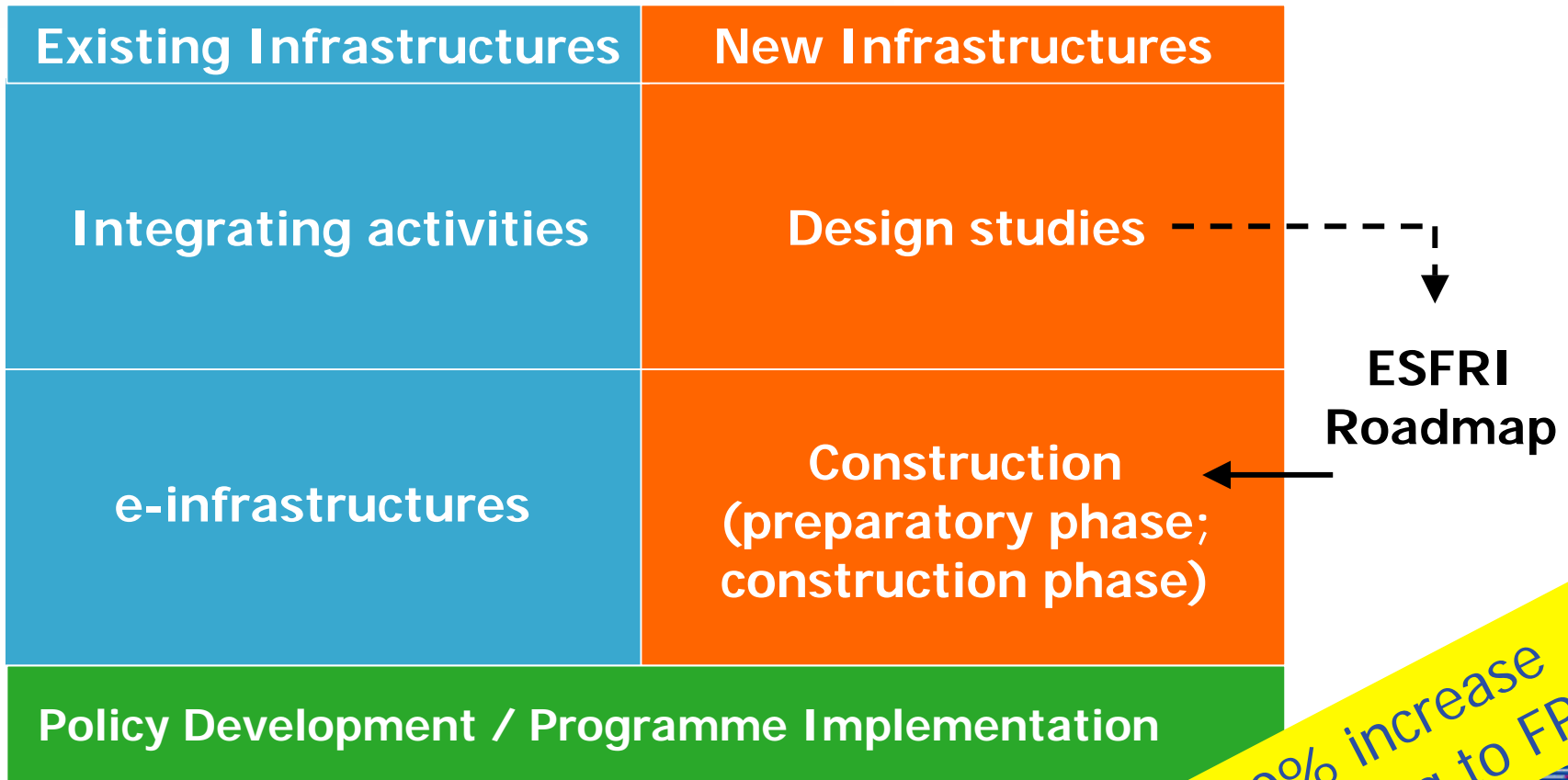
- to reduce European fragmentation and dispersion of existing facilities
- To stimulate vision, policy development and more international cooperation in certain fields
- To help developing a research market for access to and use of installations / research services



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FP7 Research Infrastructures actions



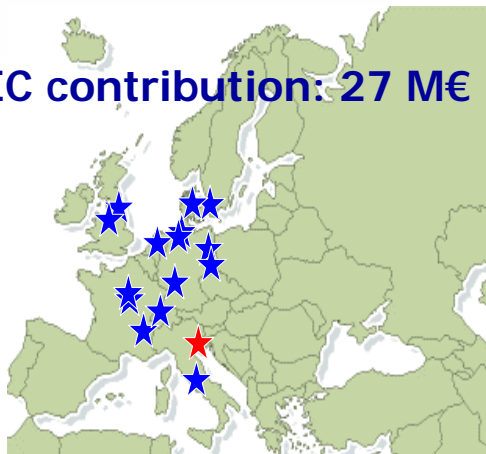
30% increase according to FP6





... lot of efforts are carried out to “integrate” existing Research Infrastructure

EC contribution: 27 M€



Transnational Access (~19 M€):

- 15 installations, with 4000 users from a very broad spectrum of disciplines

Networking Activities (~2 M€):

- e.g. specialized workshops, conferences, schools (support areas of transnational cooperation)

Joint Research Actions (~6 M€):

- e.g. setting up of a European platform for Protein Crystallography, development of new instruments, e.g.: Photo-injector for X-ray Free Electron Lasers, instrumentation for Femto-second Pulses, diffractive x-ray optics

See: <http://www.elettra.trieste.it/i3/>

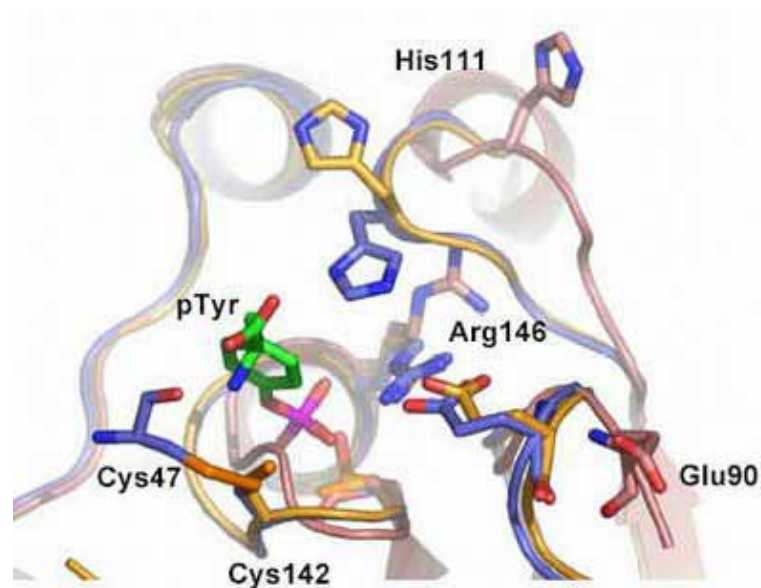




Example of use of large RIs: Photons for Nano (biology)

- Applications of synchrotrons and Free Electron Lasers: Protein-crystal structures, imaging chemical reactions, high-energy spectroscopy
- Example: Study of stress-adapted proteins

A team from Cancer Research UK discovers a new family of proteins that regulate stress pathways in yeast, and determines their 3D structure at the ESRF (Grenoble)



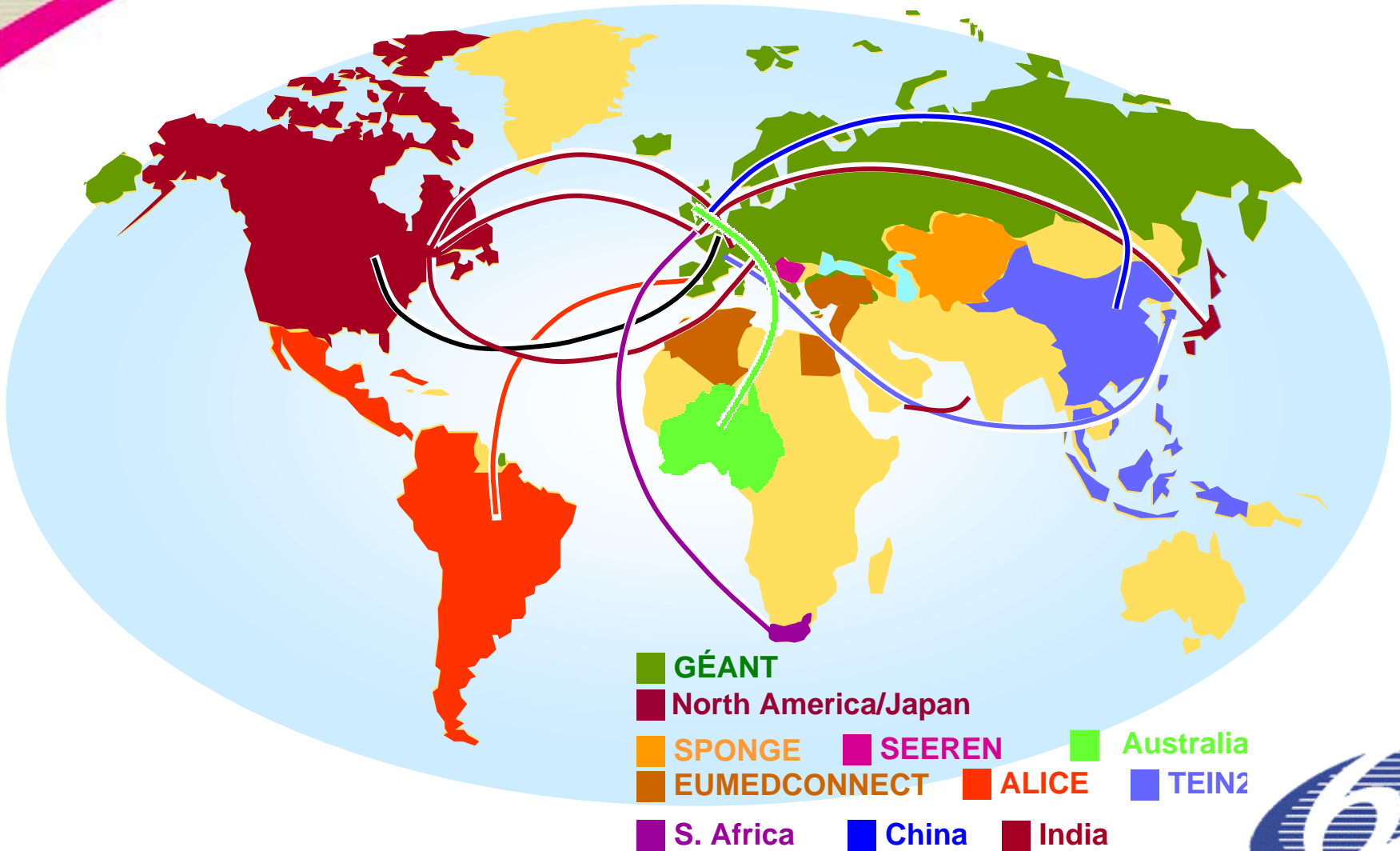
Fox et al., Redox-mediated substrate recognition by Sdp1 defines a new group of tyrosine phosphatases, Nature (May 2007).



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GÉANT (global dimension)



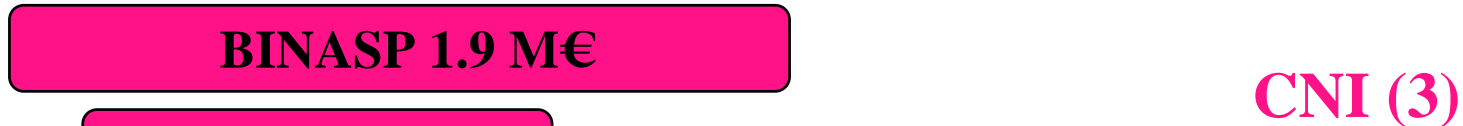


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RIs for Nanos FP6-FP7 projects

Call closing 29 Feb 



More than 40 M€



Planning of FP7 calls

Total operational budget 1665 M€	<i>Call 1 2007</i>	<i>Call 2 2007</i>	<i>Call 3 2008</i>	<i>Call 4 2008</i>	<i>Call 5 2009</i>	<i>Call 6 2010</i>	<i>Call 7 2012</i>
Integrating activities			277			X	X
e-Infrastructures	42	50		113	X		X
Design studies	31					X	
Construction – Support to the Preparatory Phase	147					X	
Construction – Support to Implementation	RSFF (200 M€) + 130 M€						
Policy Development and Programme Implementation	8	14	9		X	X	X
Total per call (M€)	228	64	286	113			



The 2008 RI Targeted call

- *Complementing a bottom-up approach, the 2008 call (closing 29 Feb) will address nanotechnologies related objectives:*

bringing together existing RIs to support the efficient provision of essential research services, including but not limited to the characterization, exposure and toxicology of nano-materials

- for **nano-bio-technology**, simulation, design and control of biomaterial structure / reactions;
- for **nano-materials** research, linked with the European nanotechnology Action Plan.





Another 2008 call under RoK (closing 14 March)

For a total of **10 M €**, two objectives:

- Analysis, mentoring, integration of research agendas and definition of **Joint Action Plans**
- Facilitating the emergence of **new regional research driven clusters** / mutual exchange of information

With two focus:

1. Maximizing the benefits of research infrastructures for regional economic development
2. Regional contributions to the CO2 reduction





For further information

- ESFRI on CORDIS
<http://cordis.europa.eu/esfri/>
- FP7 and Capacities Specific Programme
http://cordis.europa.eu/fp7/home_en.html
http://cordis.europa.eu/fp7/capacities/home_en.html
- Research Infrastructures on CORDIS (FP6)
<http://cordis.europa.eu/infrastructures/>
- **Research Infrastructures in Europa**
<http://ec.europa.eu/research/infrastructures>
- Grant Model Agreement
http://cordis.europa.eu/fp7/calls-grant-agreement_en.html#standard_ga



In conclusion, RI policy at EU level has no other choice than continuing reinforcing coordination

- At EU level,
- At national and regional,
- At “variable geometry”,
- At global level...

*This explains the important
role of ESFRI and many others...*

