

# ECRI 2007<sup>★</sup>



<sup>★</sup> *european conference on research infrastructures*

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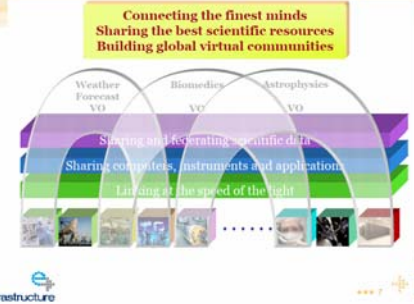
# Supporting a sustainable e- infrastructure for the ESFRI Roadmap projects

Leif Laaksonen, ECRI 2007, Hamburg, June 6th

## What is e-Science?

"e-Science is about global collaboration in key areas of science, and the next generation of infrastructure that will enable it."

*John Taylor, Director General of Research Councils Office of Science and Technology, 2000*



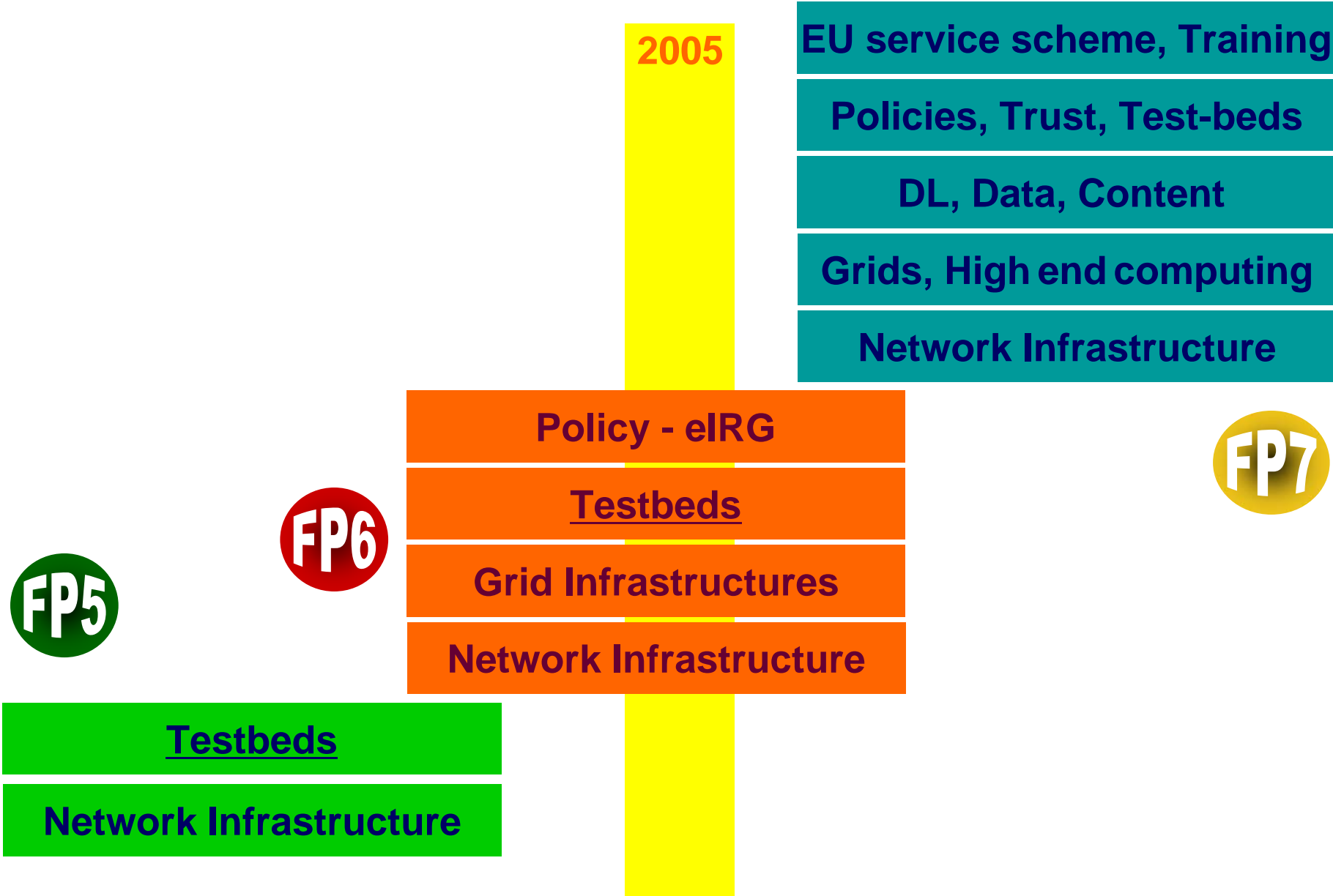
## What is an e-Infrastructure?

- e-Infrastructure stands for electronic infrastructure with 3 main layers:
  - *Networking, Grid resources (computing, storage, sensors, etc.) and Data sharing*
- *e-Infrastructure views...*
  - “A framework (political, technological and administrative) for the easy and cost-effective shared use of distributed electronic resources across a geographical area”
  - “The combination of research infrastructure, grid, and broadband technologies projects”
  - “Anything that enables eScience, collaborative research – distributed, persistent, reliable, accessible services”
  - “Broader than Grids - includes things like digital libraries, networking, etc”
  - “current Grid-based e-Infrastructure model”
  - “In some particular key areas e-Infrastructures have a stronger enabling role, in the sense that research as it is done today would be impossible in their absence – both in working on grand challenges and in enabling interdisciplinary collaboration”
  - “It is the lack of interoperability and provision of a common, unified, e-infrastructure beyond the Grid and network layer that needs to be addressed”

## Sources for Policies for European Governments

- ESFRI: European Strategy Forum on Research Infrastructures
- e-IRG: e-Infrastructure Reflection Group
- EU Funded Projects, e.g. GEANT, DEISA, EGEE, BELIEF, OMII-Europe...
- National GRID Infrastructure Initiatives, D-Grid, TeraGrid, UK e-Science Programme, Naregi, ChinaGrid, SIRENE...

# e-Infrastructure evolutionary Path



## Goals and Background of e-IRG

- Initiated in 2003 during the Greek EU Presidency
  - First workshop in June 2003, Athens
- Mission statement drafted in the Rome meeting
  - *“to support on the political, advisory and monitoring level, the creation of a policy and administrative framework for the easy and cost-effective shared use of electronic resources in Europe (focusing on Grid-computing, data storage, and networking resources) across technological, administrative and national domains.”*
- Starting point: impact of the major investments in the Grid and networking projects depends also on policies governing the use of the e-Infrastructure.

## Resource sharing

- Resources can be anything from and in any combination:
  - Computers (HPC ecosystem)
  - Storage/repositories/data management/electronic libraries
  - Sensors and Networks
  - People and software
  - Teaching and learning landscape
  - Visualization resources
  - Tools for collaborative computing
  - Research instruments

## Membership and Mandate

- Delegates appointed by the member state ministries
  - 28 European countries represented
    - Maximum 2 representatives/country
    - Usually appointed by the ministries of education
  - Observers
    - European commission
    - Major e-Infrastructure projects
      - EGEE, DEISA, ...
    - GEANT/NREN Policy Committee
- Recognised as an advisory body by the EC
  - In addition to member states themselves

## Working methods

- Publish e-IRG White Paper
  - “Snapshot of the policy and state of the art in technology”
  - Short- to medium-term scope
- Develop the e-IRG roadmap
  - Long-term strategic issues
  - Responses to emerging technologies, paradigm shifts.
- Four annual meetings
  - Two open workshops
    - Host discussions within the community involved with the Grid and research networking
      - Part of the e-IRG White Paper process
    - Technology/policy-axis
  - Two delegates meetings
    - Endorse recommendations, discuss strategic issues

## White Paper

- An overview of the active topics in the e-Infrastructure context
  - Topics selected quite freely by the e-IRG community
    - The White Paper editor assigns “section editors” to collect information and contributions related to a particular topic
  - Process aims at establishing a common understanding of the topics
- The key findings are distilled into “e-IRG recommendations”
  - Proposed by the section editors
  - Approved by the e-IRG delegates
  - Aimed at e-IRG member states and the EC
- 5 White Papers published since 2003
  - Available on the e-IRG website

## Roadmap in detail

- Evolved from the 2004 EC initiative for the “*strategic roadmap for Research Infrastructures*”.
  - Key question: *What contribution can or should the large European Research Infrastructures make to the success of the European Research Area in the next decades?*
    - 10 to 20 year timeframe
  - The e-IRG input intended as complementary to the work of ESFRI.
- e-IRG publications:
  - Opportunities list, March 2005
  - First edition of the Roadmap, June 2006
- The work towards second edition is ongoing

## Towards sustainable grid-based e-Infrastructures

- FP5: Broad scale test-beds
- FP6: Production quality facilities
- FP7: Sustainable grid-based e-Infrastructures (utility model)
- To support the transition
  - e-IRG White Paper
  - e-IRG Roadmap
  - Opportunities list
  - <http://www.e-irg.eu/publ/>
- e-IRG Support Programme (e-IRGSP)
- Task Force on Sustainable e-Infrastructures (SeI). Final report distributed widely.
- Task Force on Education and Training (ETTF).

## ESFRI and e-IRG collaboration

- Discussions under way to support the ESFRI - e-IRG collaboration and shape the role of e-IRG in creating the eco-system for the ESFRI e-Infrastructure.
- From the report of the Sustainable e-Infrastructures, 2006:
  - The future e-Infrastructure eco-system is built around components and services predominantly already available within existing systems today.
  - In the future these should be available in a much more powerful and flexible way capable of crossing thematic and regional borders.
  - This e-Infrastructure is built using components including those ranging from data management, curation and analysis, computational and visualisation resources to tools for collaborative computing.

## Roadmap to an ESFRI e-Infrastructure eco-system

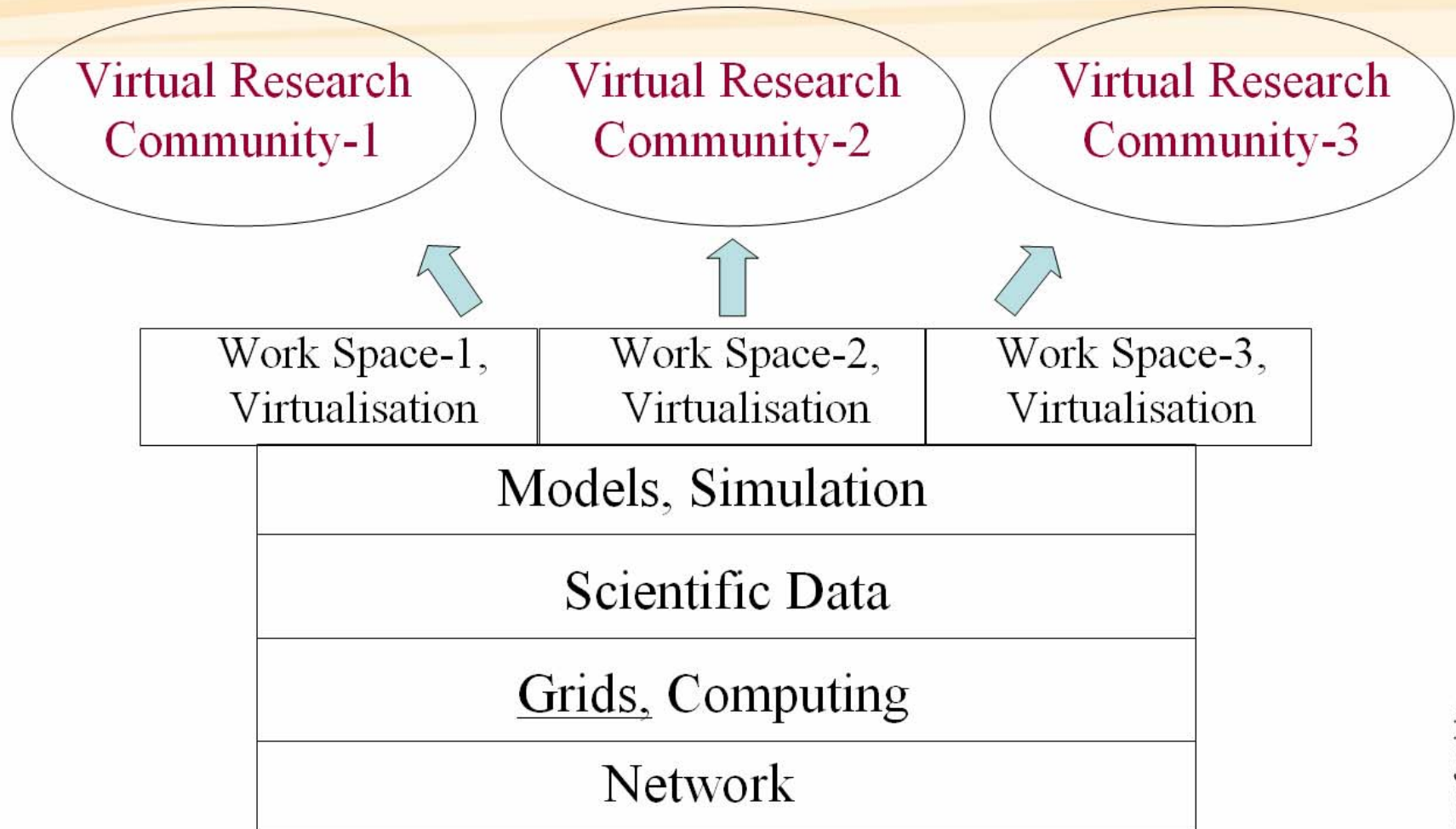
**ESFRI  
addressing  
seven fields  
of Research  
and major  
challenges**

<i>Social Science and Humanities</i>	<i>Environmental Sciences</i>	<i>Energy</i>	<i>Biomedical and Life Sciences</i>	<i>Material Sciences</i>	<i>Astronomy, Astrophysics and Nuclear Physics</i>	<i>Computer Data Treatment, Particles and Space Physics</i>

e-IRG building the e-Science e-Infrastructure

Crossing the boundaries of science						
Resources/services (such as supercomputers, sensors, data)						
Middleware and organisation						
Networking Infrastructure						

# e-Infrastructures transforming science: Science of tomorrow based on *Global Virtual Research Communities*



Global Virtual Research Communities are complementary to physical research centres; they are not replacing them



## Collaboration opportunities

- White Paper process
  - Subscription available on e-IRG site
    - News, events and paper-version of the White Paper
- Roadmap
  - The consultation process is open on the e-IRG website
- Workshops
  - Last workshop April 19<sup>th</sup> and 20<sup>th</sup> in Heidelberg, next 11<sup>th</sup> and 12<sup>th</sup> October in Lisbon
- Recommendations on e-infrastructure matters
- Collaboration to support interdisciplinary research with a common e-infrastructure.

## Summary

- e-IRG community encompasses large parts of the European
  - Grid and networking community
  - Related policy-makers in the member states and the EC
- There are several ways for informal e-IRG collaboration:
  - White Paper, Workshops, Roadmap input
- e-IRG is willing to establish collaborative relationships with complementary organisations

For example ESFRI, TERENA (Trans-European Research and Education Networking Association), ENPG (European Network Policy Group)

## Further information

- e-IRG - <http://www.e-irg.eu/>
  - e-IRG Board: troijka [ at ] e-irg . org
  - White Paper subscription -  
<http://www.e-irg.eu/subscribe/>
- e-IRG chair leif.laaksonen [ at ] csc . fi

# Thank you!

Questions and comments?