

e-Infrastructure in FP7

towards a European Supercomputing Infrastructure

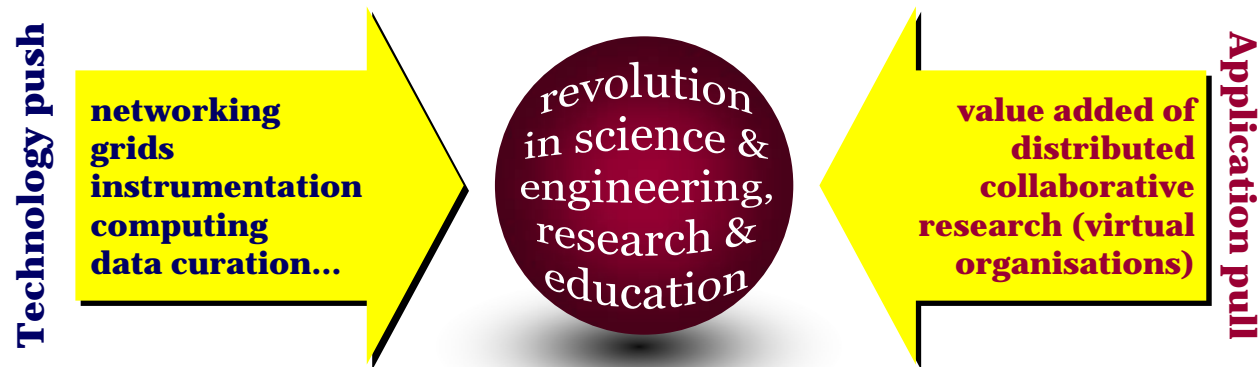
DEISA Symposium 2007
Munich 21st May 2007



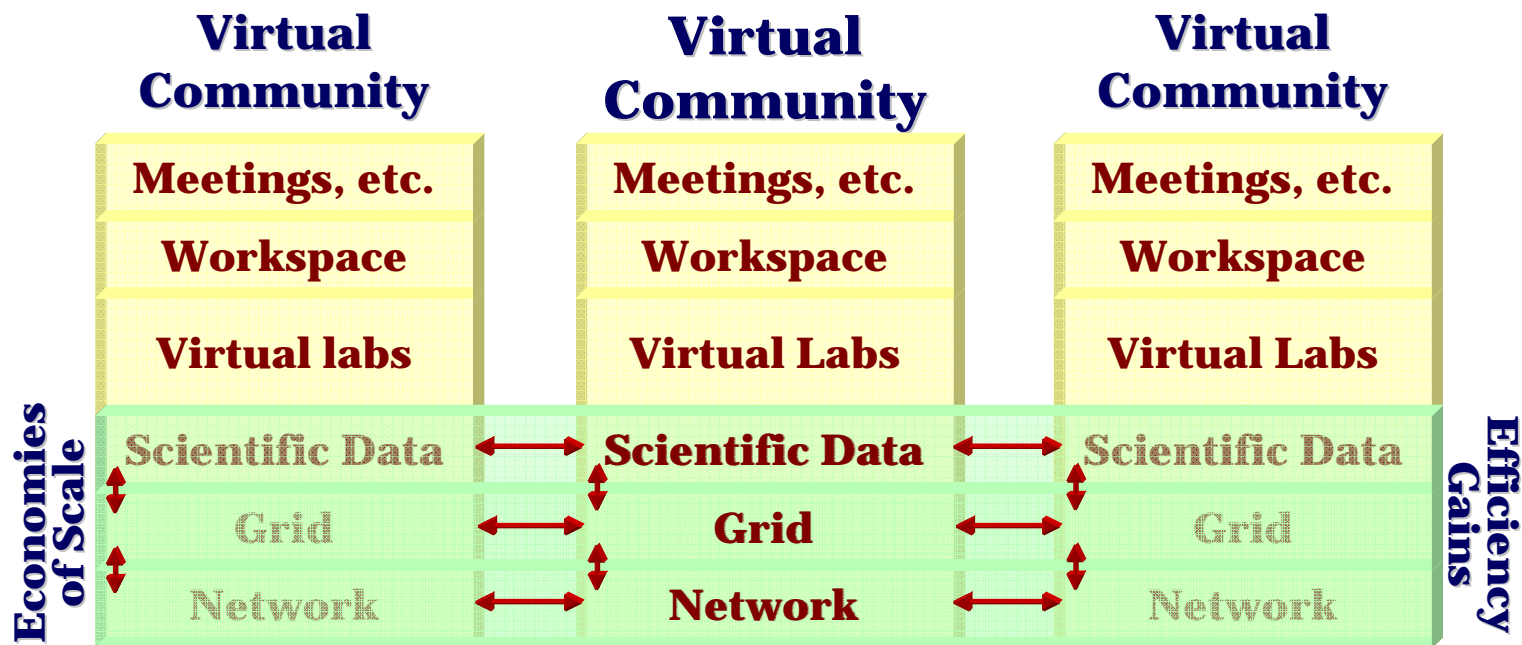
Mário Campolargo
European Commission - DG INFSO
Head of Unit "GÉANT and e-Infrastructures"

Embracing a new vision for Science

- **Virtual Research Communities**
- **Improved scientific process... role of simulation**
- **Cross-disciplinarity**
- **Data deluge - Wet-labs versus ICT infrastructures**

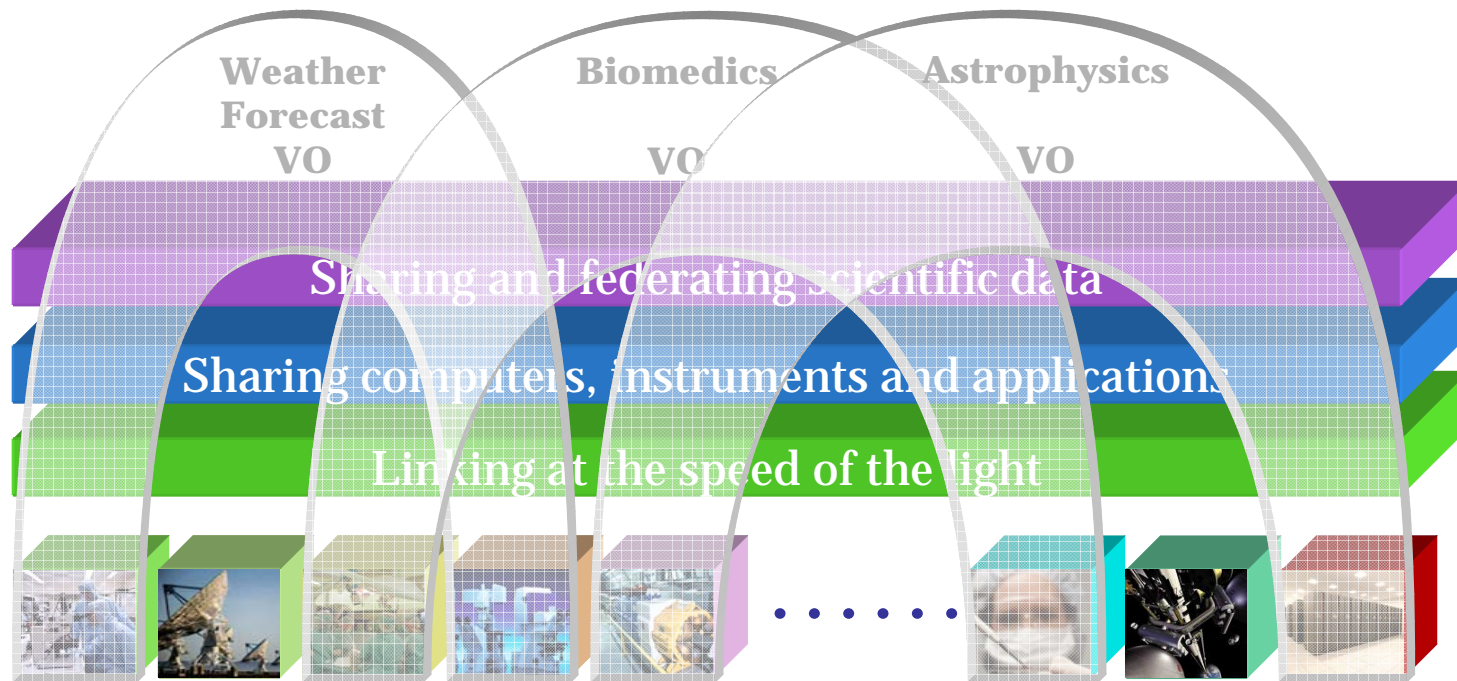


Global Virtual Research Community



e-Infrastructures: strategy

Connecting the finest minds
Sharing the best scientific resources
Building global virtual communities



FP7: Research Infrastructures activities

Integrating activities

Design studies

e-Infrastructure
2006-2013 ≈ 600 M€

ICT based
e-Infrastructures

Construction of new RIs
(preparatory and
implementation phases)

supporting measures

European policy, international cooperation,
emerging needs

e-Infrastructures: evolutive approach

support to existing
research infrastructures

Integrating activities

**e-Infrastructures for
Scientific Communities**

**e-Science Grid
infrastructures**

support to new research
infrastructures

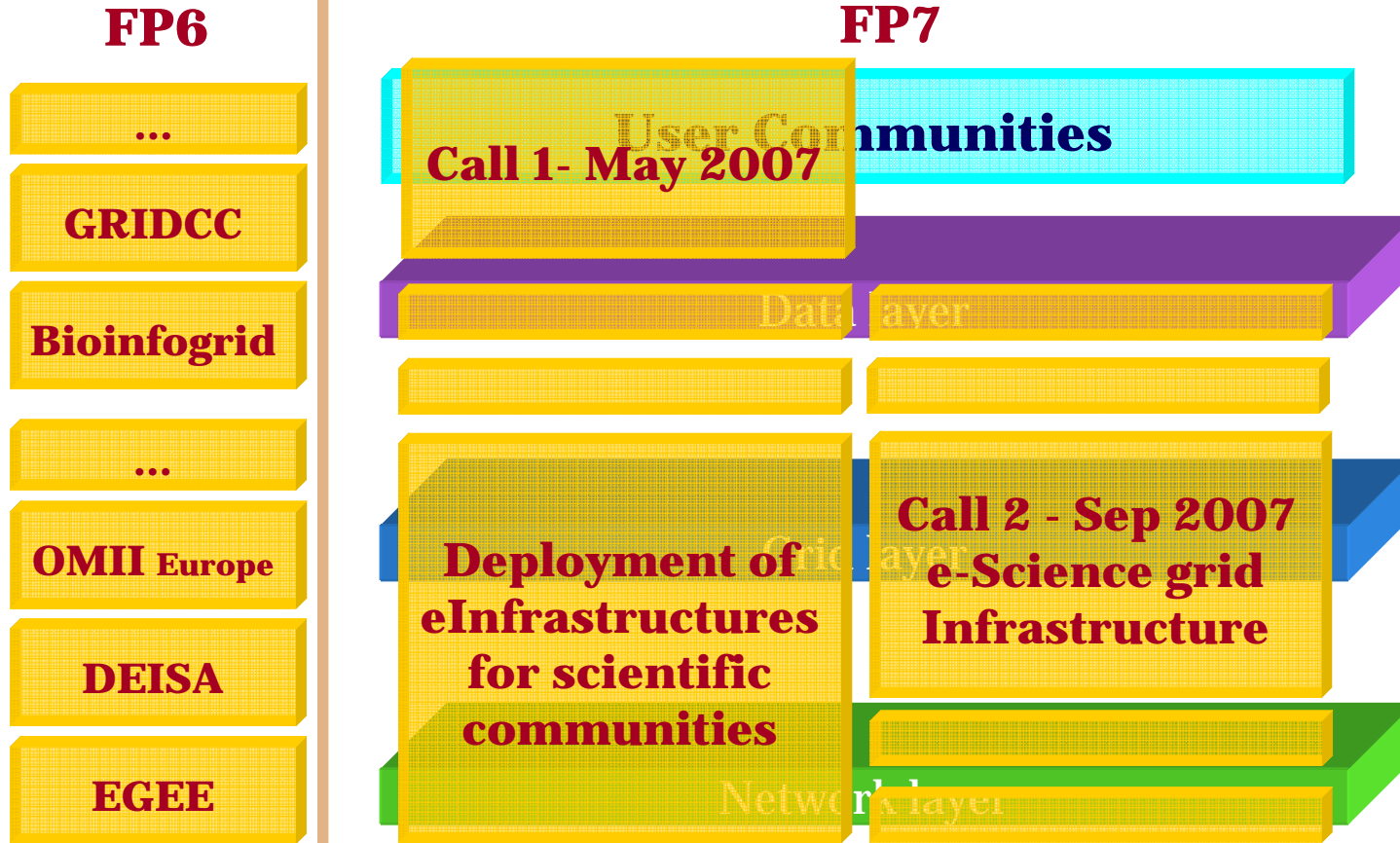
Design studies

Construction of new RIs
(preparatory and
implementation phases)

supporting measures

European policy, international cooperation,
emerging needs

e-Infrastructure: core infrast. and users



e-Infrastructure: new focus on data

support to existing
research infrastructures

Integrating activities

**Scientific Data
Infrastructure**

support to new research
infrastructures

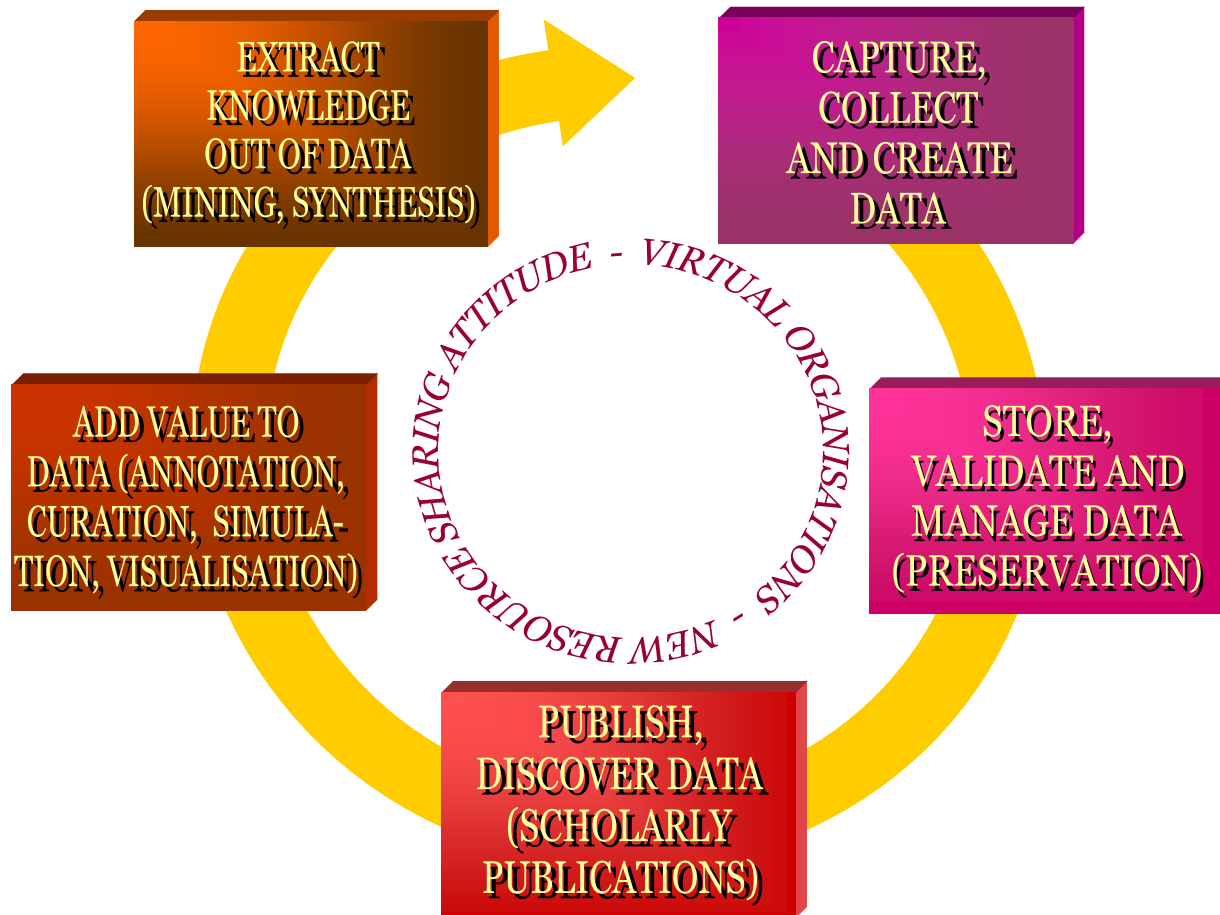
Design studies

Construction of new RIs
(preparatory and
implementation phases)

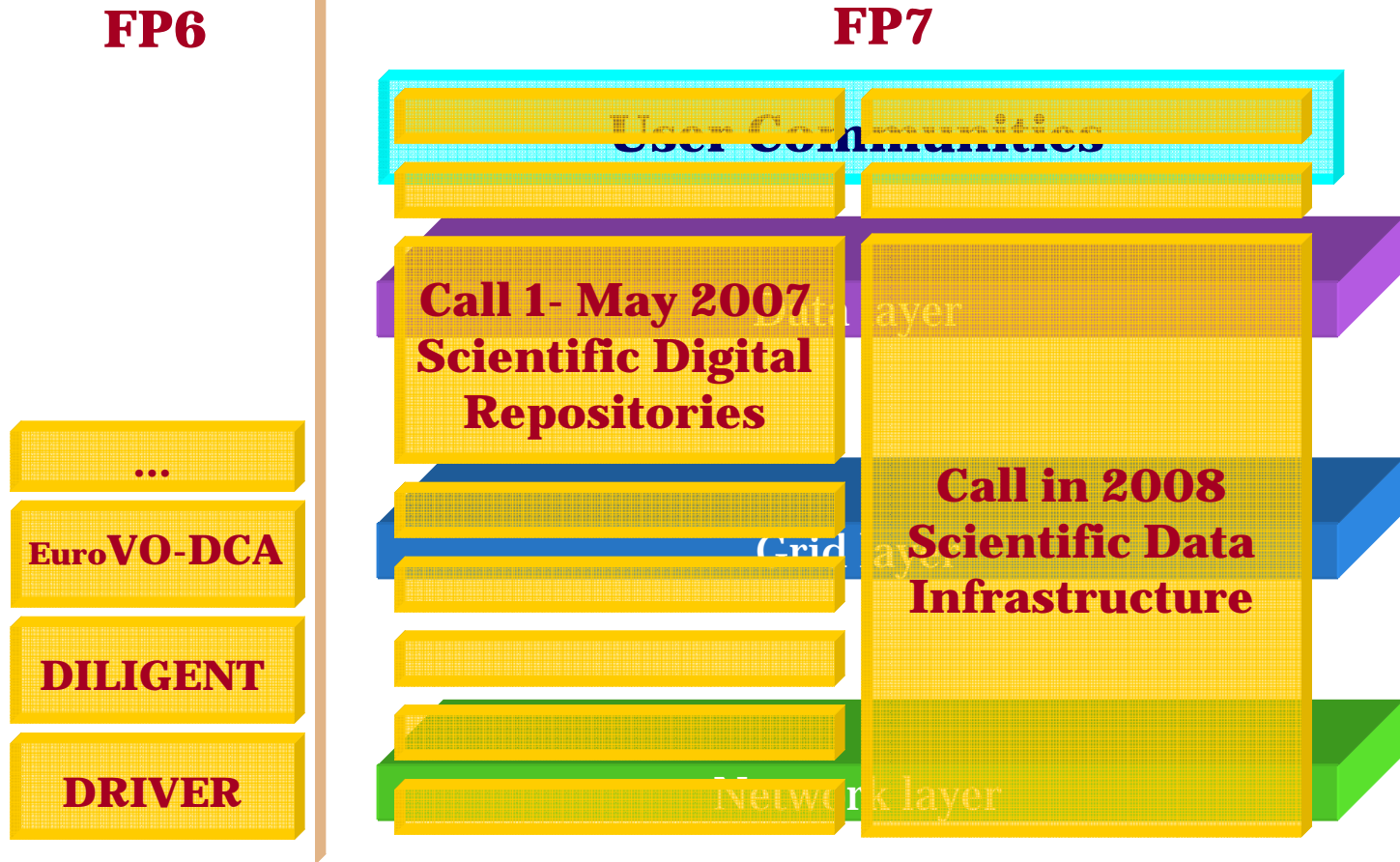
supporting measures

European policy, international cooperation,
emerging needs

e-Infrastructure: new focus on data



e-Infrastructure: new focus on data



FP7: Research Infrastructures activities

support to existing
research infrastructures

Integrating activities

e-Infrastructures for
Scientific Communities
e-Science Grid
infrastructures

support to new research
infrastructures

Design studies

Construction of new RIs
(preparatory and
implementation phases)

accompanying measures

European policy, international cooperation,
emerging needs

New Infrastructures: supercomputing

support to existing
research infrastructures

Integrating activities

e-Infrastructures for
Scientific Communities

e-Science Grid
infrastructures

support to new research
infrastructures

Design studies

**European High-
Performance
Computing Service**

accompanying measures

European policy, international cooperation,
emerging needs

New Infrastructures: supercomputing

- **key component of a science and industrial research infrastructure**
- **sustainable eco-system, pyramid shaped, requiring European expertise & services infrastructure**
- **reaching petaflop level**
- **consistent investment / upgrade on top of national**
- **building on a DEISA-like model**
- **supporting different algorithmic processes rather than different scientific disciplines and benefit from complementary research in ICT**
- **key element in an industrial strategy (use of pre-commercial procurement)**

Construction of new infrastructures

- **Strategic work** (integrate in European fabric, centres of excellence, sites of various generations, R&D services)
- **Technical work** (engineering plans, prototypes, transfer of knowledge from prototypes to infrastructures, exploit highest efficiency, new processes or software)
- **Governance and logistical work** (decision-making, management structure, advisory body, IPRs, access rules for researchers, staff plans, logistic support)
- **Financial work** (for construction/operation, National/Community instruments- e.g. structural funds, EIB, new mechanisms- e.g. pre-commercial procurement)
- **Legal work** (for construction and operation, "signature-ready" agreement for the actual construction)



FP7: Research Infrastructures activities

**support to existing
research infrastructures**

Integrating activities

**ICT based
e-Infrastructures**

**support to new research
infrastructures**

Design studies

**Construction of new RIs
(preparatory and
implementation phases)**

supporting measures

**European policy, international cooperation,
emerging needs**

e-Infrastructure: support measures

FP6

FP7

**Call 2 - Sep 2007
Regarding e-Infrastructures...**

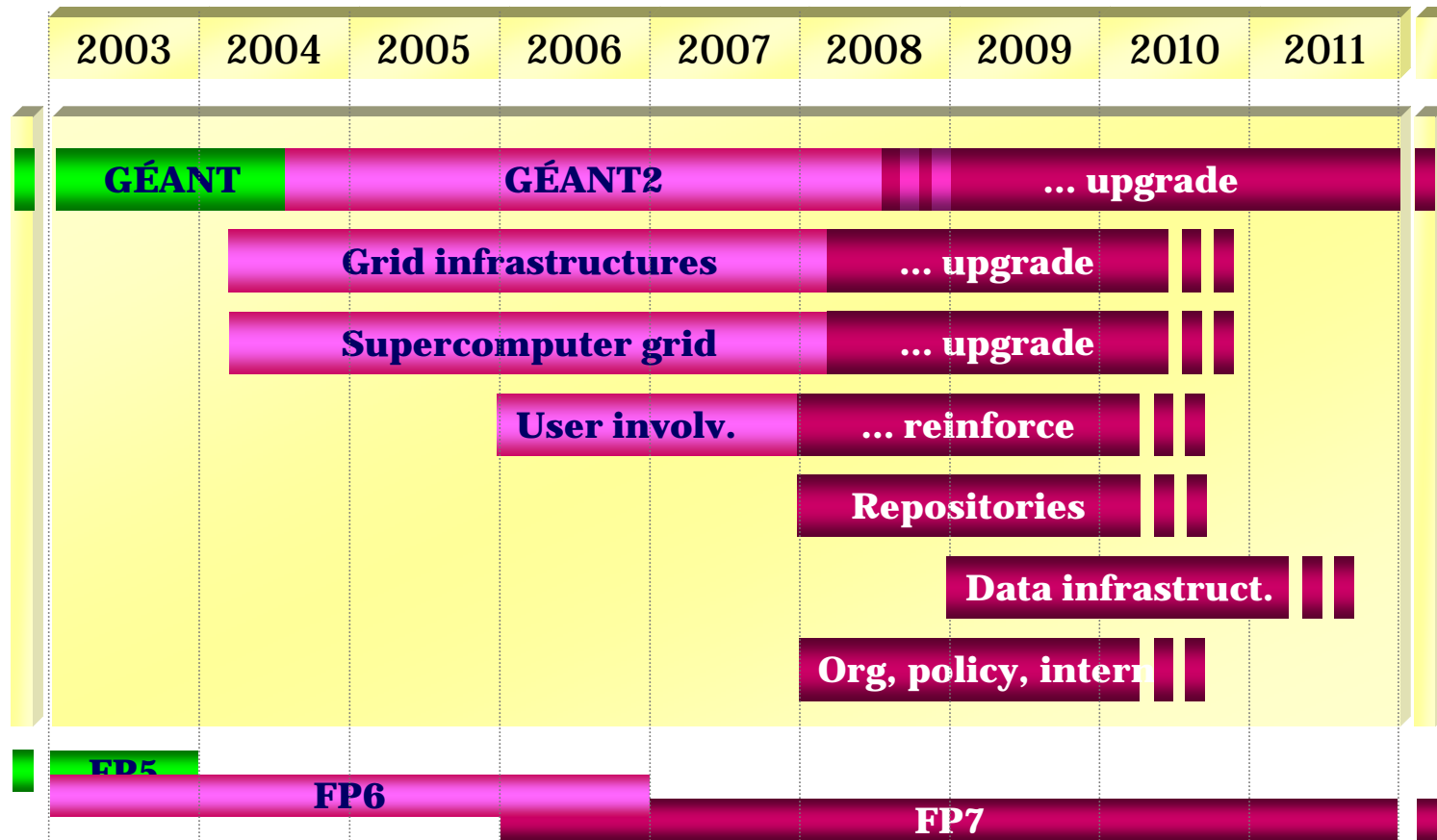
... studies and conferences ...

**... coordination actions supporting
policy development ...**

... international cooperation



e-Infrastructures evolving approach



Role of DEISA in an enlarged scenario

- **DEISA emerged as a major vector of integration of HPC resources at European scale.**
 - **Running larger parallel applications**
 - **Enabling workflow applications**
 - **Providing global data management**
 - **Deploying portals**
 - **Extreme Computing Initiative**
- **High Performance Common Global File System is central**
- **Integrate HPC in the broader concept of e-Infrastructure**
- **Provide concrete support to the deployment of a HPC eco-system, including new European petaflop machines**

At the beginning of a new cycle

- **FP7 opens a new cycle: supporting the combination of a vertical axis towards capability computing (new infrastructures / petaflop European machine) and a horizontal axis towards capacity computing (grids, virtualisation of access, integrated HPC environments, ...)**
- **With the right level of ambition, the coordination of National and European investments and a strategically correct vision, this cycle will bring Europe to a more prominent place in the world scene**
- **Rationalisation of investments in Research and Innovation, given the scarcity of overall resources, requires federation/sharing of computing resources**
- **Europe needs to reinforce its organisation capabilities, define ambitious and modern criteria for access and virtualisation of resources, brand its approach**

Further information



www.cordis.europa.eu/fp7/ict/e-infrastructure/

