

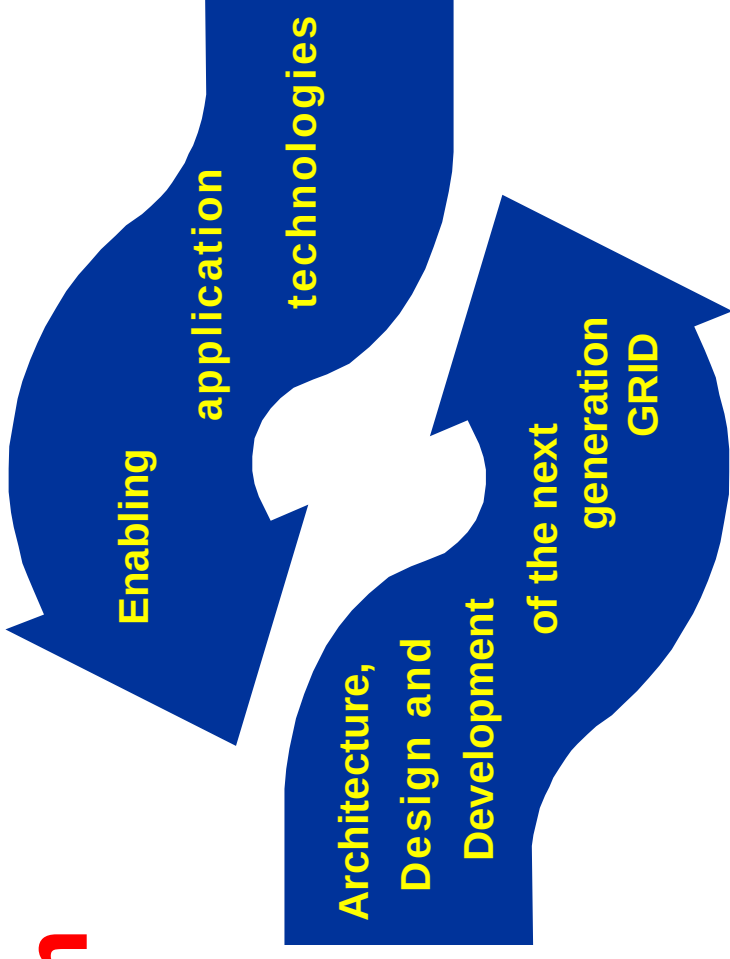
EU Grid Research and the European Research Area

Wolfgang Boch
Head of Unit

DG Information Society

Unit F2 - Grids for Complex
Problem solving

<http://www.cordis.lu/ist/grids>

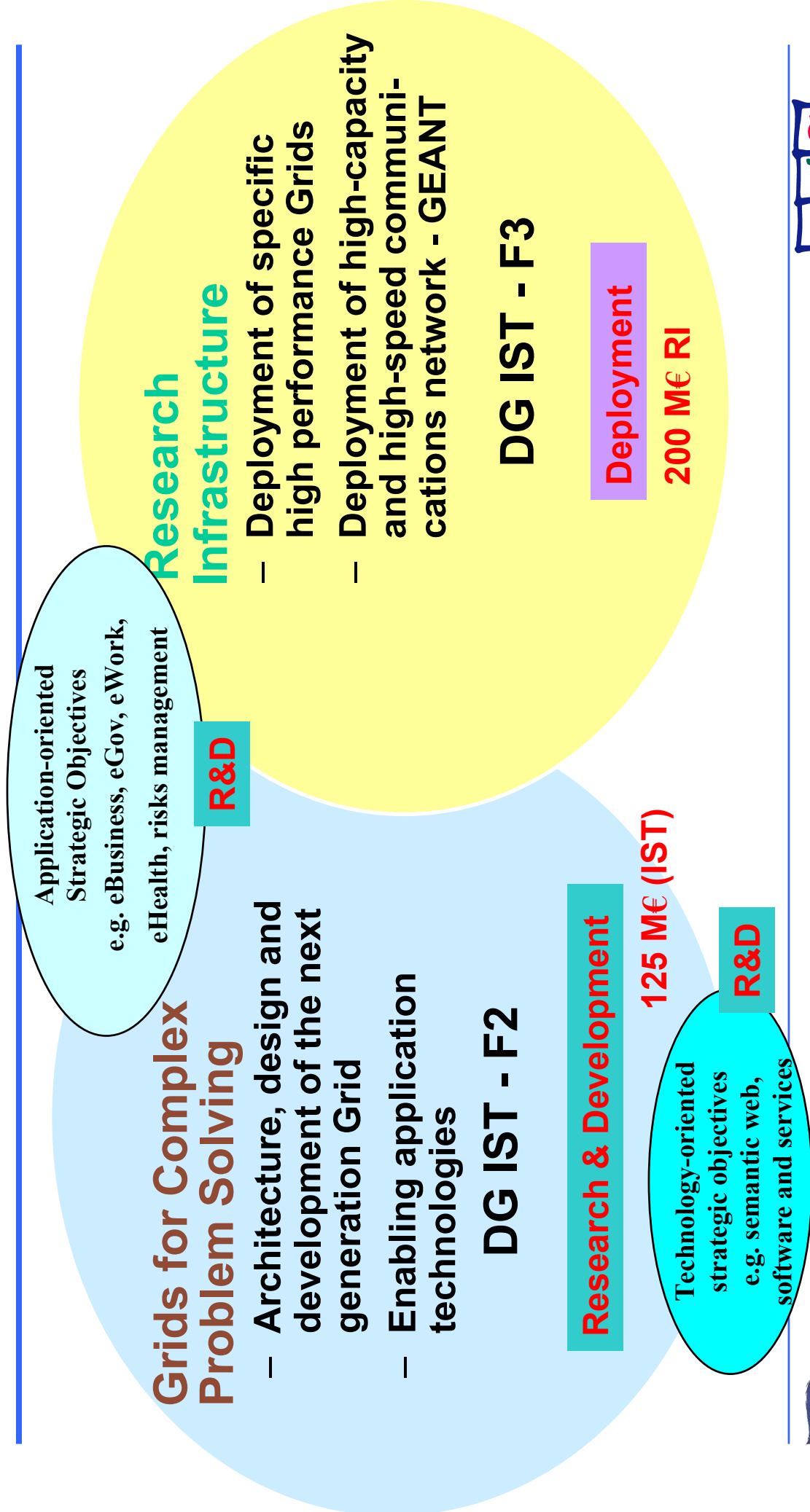


UK/FR Grid Workshop 3-4 November 2003, London
Wolfgang Boch - European Commission - DG INFSO-F2

Outline

- ⇒ ① Grid Research - IST Work Programme 2003-04
- ② Preparation of the EU Grid Research Agenda 2010
- ③ Why an ERA pilot/Technology Platform for Grid Research?

Grid Research and Deployment in FP6



Focus of FP5 IST Grid Projects (58 M€)

•Infrastructure

DataTag

•Computing

EuroGrid, DataGrid,
Damien

•Tools and Middleware

GridLab, GRIP

•Applications

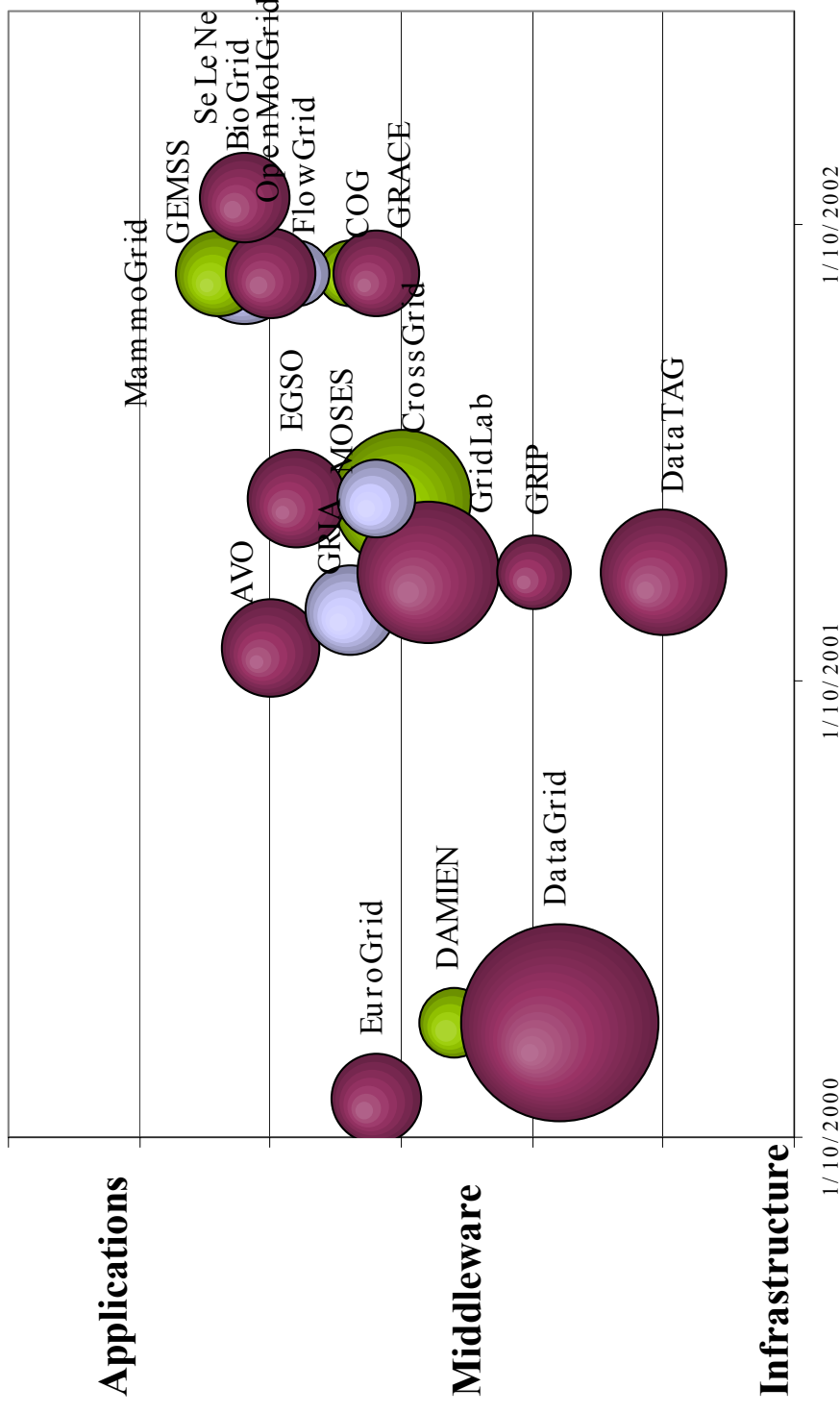
EGSO, CrossGrid,
BioGrid, FlowGrid,
Moses, COG, GEMSS,
Grace, Mammogrid,
OpenMolGrid, Selene,

•P2P / ASP / Webservices

P2People, ASP-BP,
GRIA, MMAPS,
GRASP, GRIP, WEBSI

•Clustering

GridStart



IST-FP6 commitment to Grid research

- First actions launched in IST-FP5
- Grid research is a key strategic objective

**From FP5 to FP6 Grid
research funding more
than doubles**

58M€

FP5

2000-2002

125M€

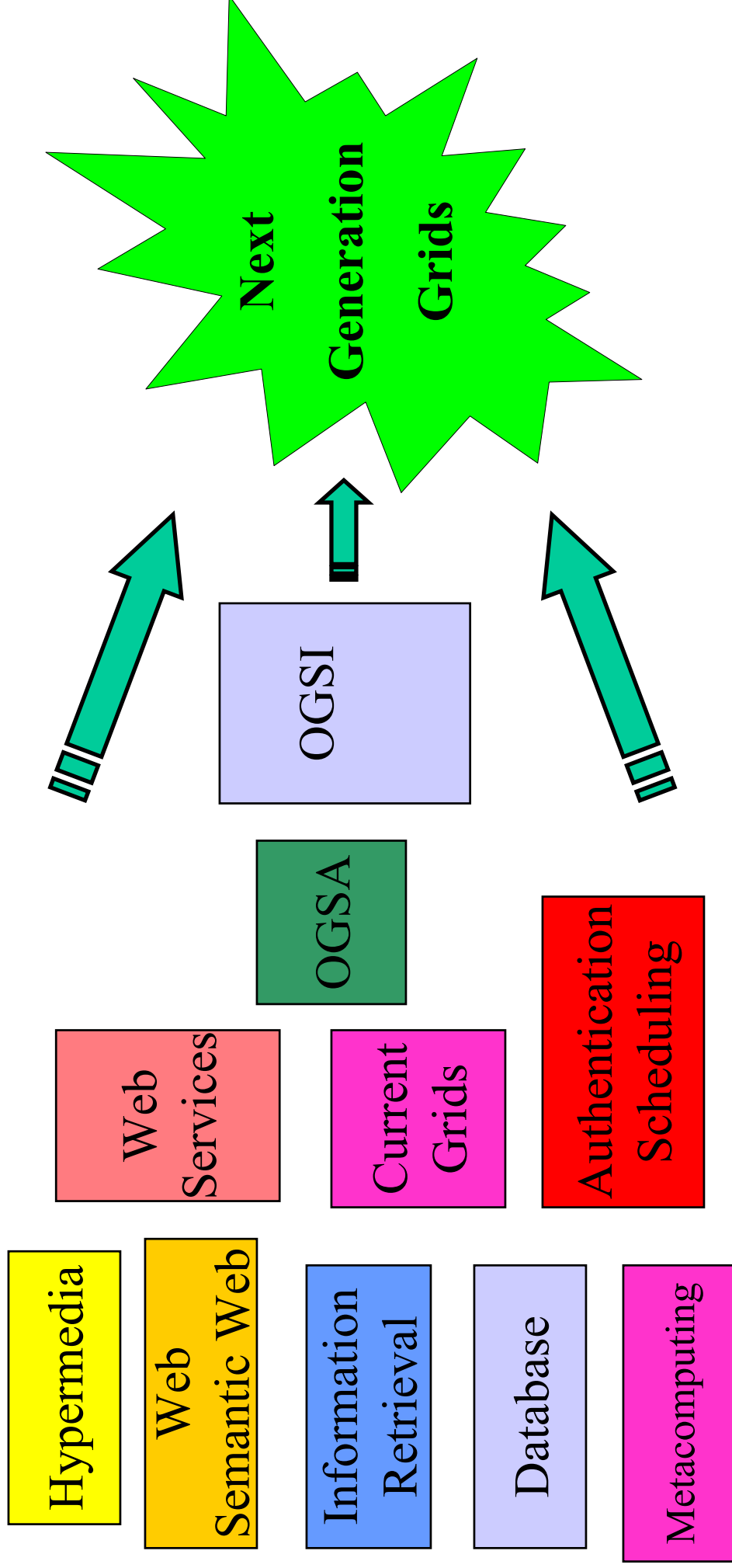
FP6

2002-2006



The Challenge (1)

Complexity - Interoperability - Ease of Use - ...

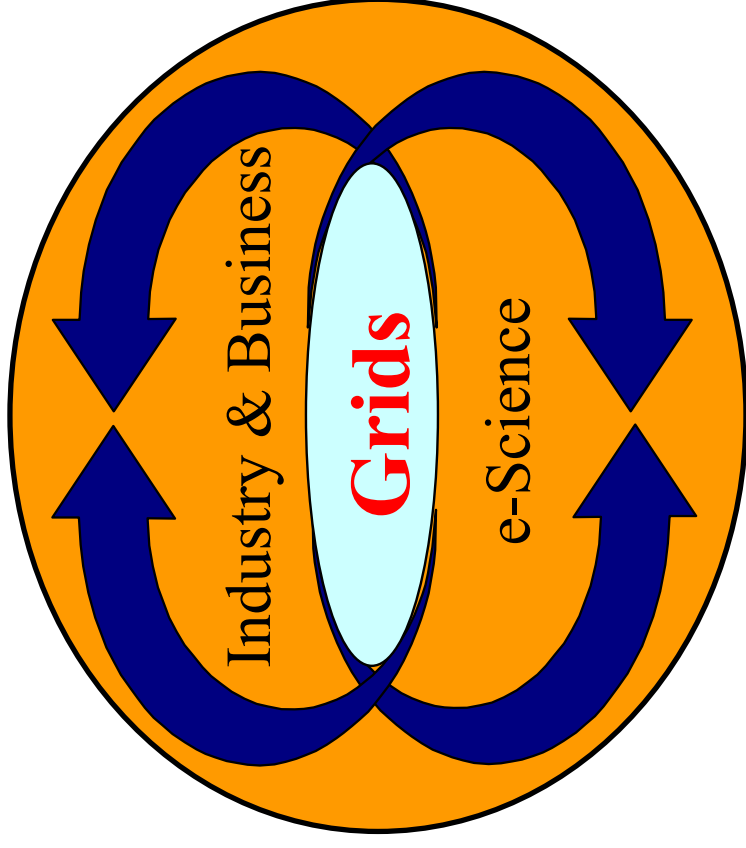


The Challenge (2)

Moving Grid from e-Science to Industry

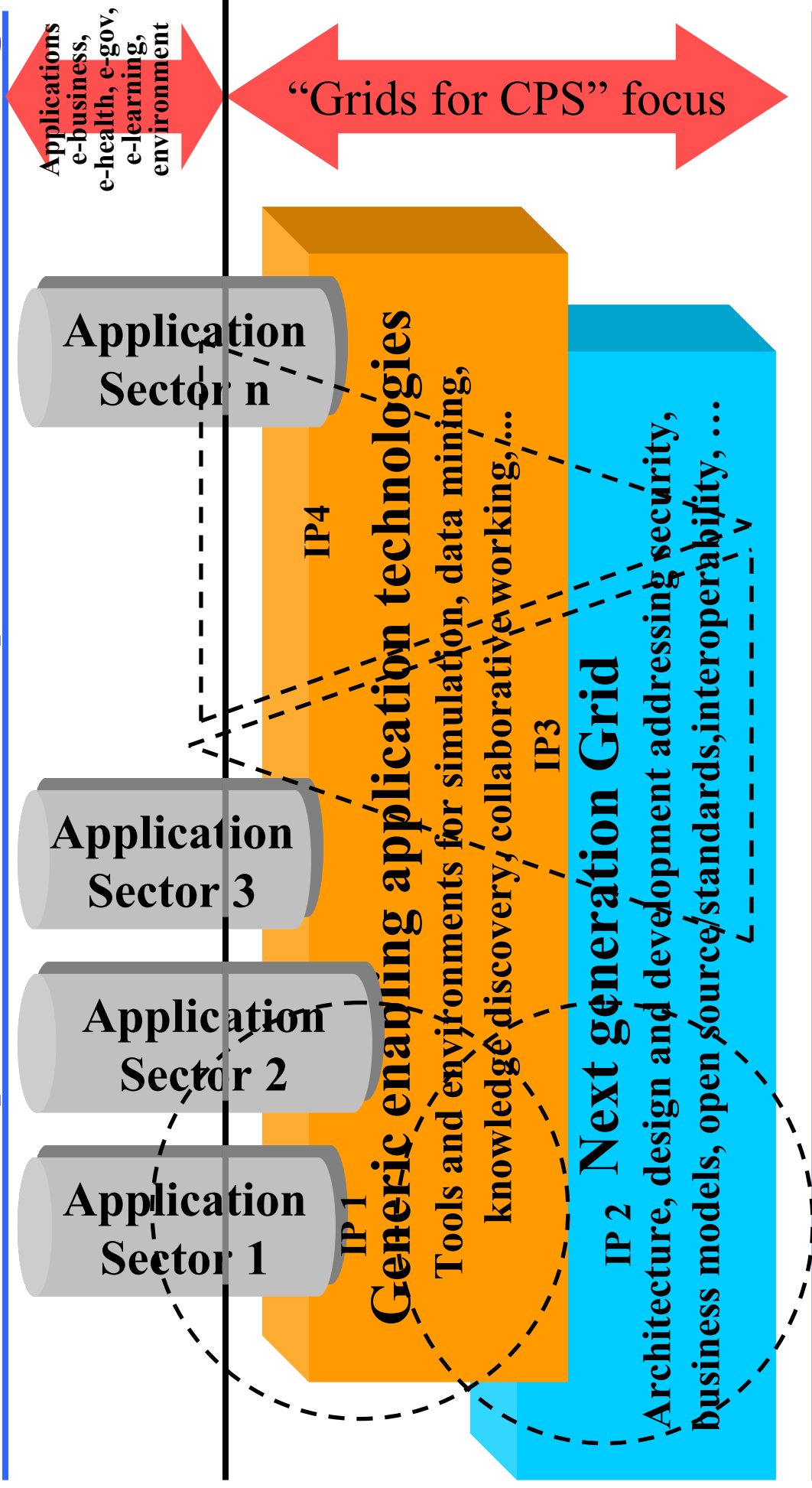
Promote Grid research to

- Solve complex problems with high economic and societal impact
- Exploit the potential of Grids beyond e-Science
- Ease access and use of Grids



Research Focus

Grid-based Systems for Complex Problem Solving



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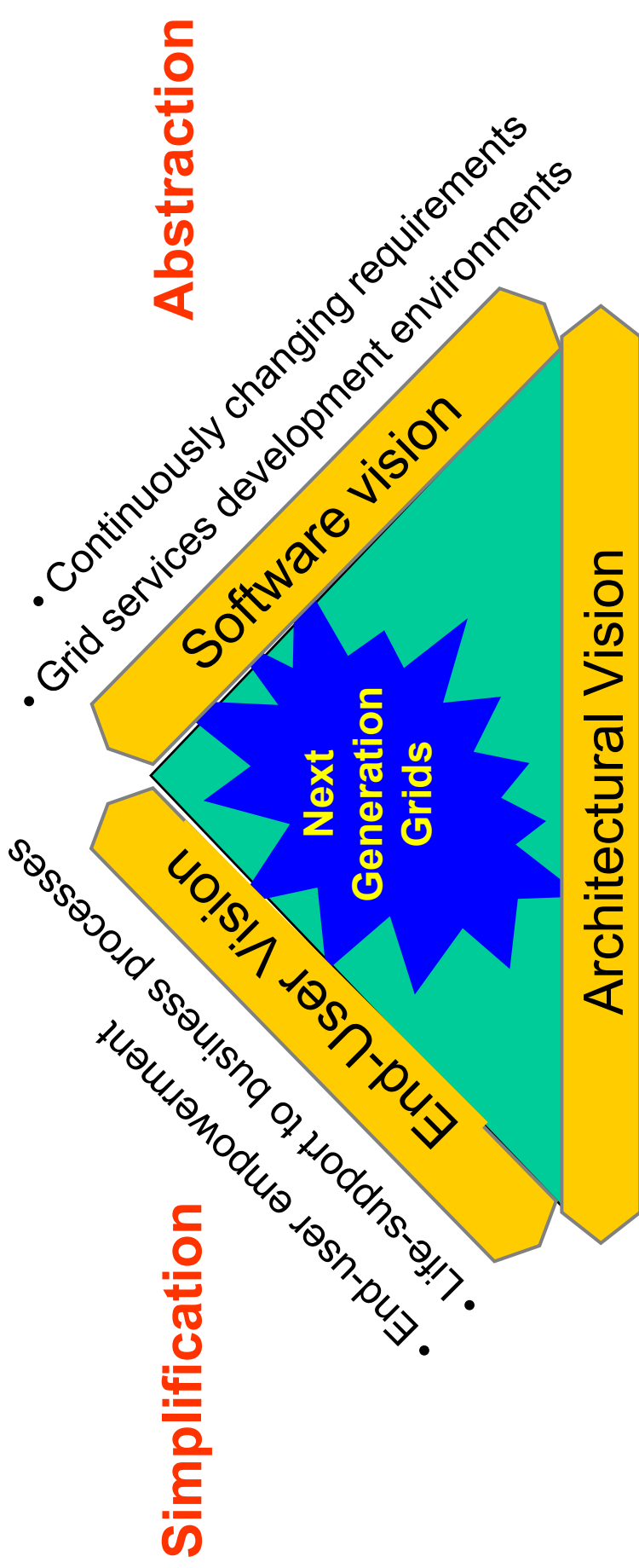
Expert Group Report: Next Generation Grid(s)

European Grids Research 2005-2010

- **Long term visions** that cannot be realised based on existing or near term Grid technologies
- **Areas of research** that need to be addressed in the medium to long term

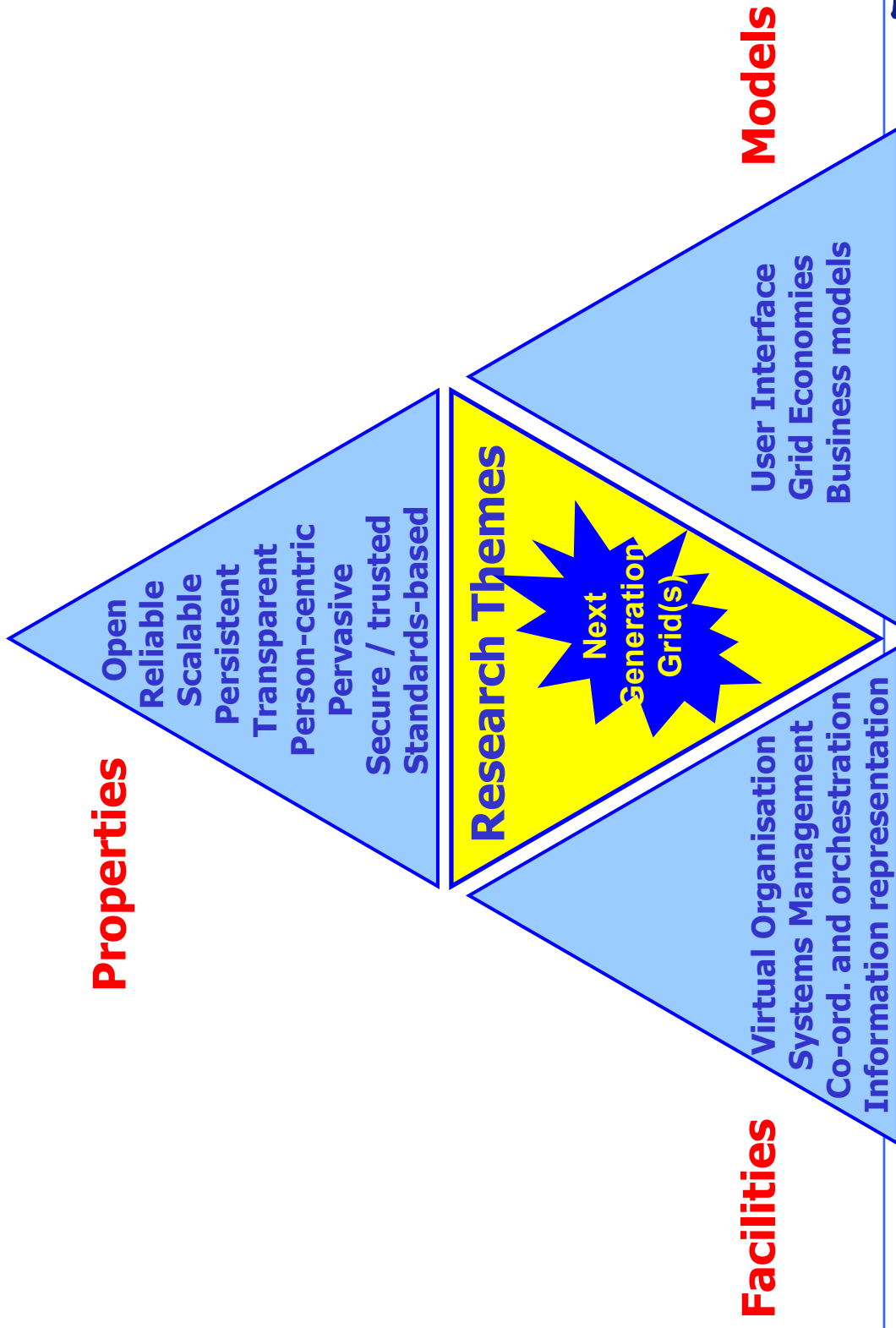
Implementing the visions will enable Europe to become a strong competitive player in Grid technology and its applications.

Next Generation Grid(s): 3-fold vision



- Societal behaviour (millions of self-organising nodes)
- Computational semantics, ontologies, meta-descriptions
- Pervasive virtual organisations

Next Generation Grid(s): Identified Research Themes

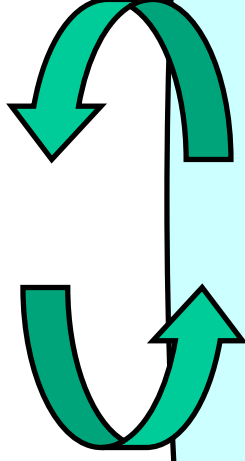


Outline

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European research policy context

- European Research Area (Lisbon Summit, March 2000)



IST-FP6 to boost the emergence of ERA!
Grids: a main strategic objective!

- R&D investments from 1.9% up to 3% of GDP by 2010 (Barcelona Council, March 2002)

Investment in R&D, 3% action plan (DG RTD)

- **Council resolution adopted on 22/09/2003**
- **Making Europe a more attractive place for R&D investment requires a determined and sustained efforts of public and private sectors...**
- **Improving framework conditions for private investment in research**
 - IPRs, Regulation of products and standardisation, Competition rules, Financial markets, Fiscal environment, Corporate research strategy & financial reporting
- **Progressing jointly**
 - OMC, ETP, mutual learning for regions...
- **Improving public support to research and innovation**
 - HR, link public /private R&D, enhance public financing instruments (direct measures, fiscal measures, guarantee...)
- **Redirecting public spending towards research and innovation**
 - Modernise State aid rules, Use better public procurement to support research and innovation...

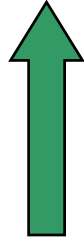
European Research Area: opportunities & challenges

- **Realising ERA requires**
 - Focusing on strategic research topics
 - Cooperation, concentration, critical mass & flexibility
- **FP6 provides a key opportunity to shape and improve the impact of research in Europe**
 - Europe is well positioned to shape the future and compete
 - Coordination of public and private R&D funding
- **Efforts are needed**

- to mobilise the constituency

- to establish priorities within a long term vision

**European Technology Platform
for Grid Research**



What is a European Technology Platform?

- **Strong mobilisation of actors fostering effective public-private partnerships**
 - between research, industry and regulatory and finance stakeholders, public and private bodies
 - for **sharing an European long-term vision** on high impact sectors or leading technologies
- **Primary output**
 - **European Strategic Research Agenda** for the next decade(s)
 - Recommendations for its implementation (strategy & action plan)
- **Final goal**

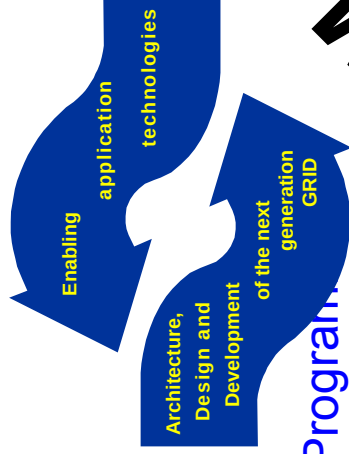
to achieve EU industrial leadership and meet society's needs through optimisation of the benefits for all parties
- **ETP can lead to a new form of governance**



Programmes on Grid Research in Europe 2003

- **Large Programmes**

- EU- IST: Grids for Complex Problem Solving



- UK e-Science Programme

- Core Programme: Collaborative industrial projects & Core Grid MW
- Application Projects in all areas of science and engineering

- NL

- e-Science: Virtual lab for e-Science
- e-Business: Gigaport Next Generation Applications

- **Other Programmes**

- F:

➢ ACI Grid
➢ Grid 5000

- IT:

- MIUR - FIRB: Grid.it
- PNR-ICT: GRID and Next Generation Web

- PL: Pioneer

- Advanced Grid-enabled Appl.

- HU: IKTA

- **Planned Programmes**

- DE, ES

- **Other countries with Grid research activities**

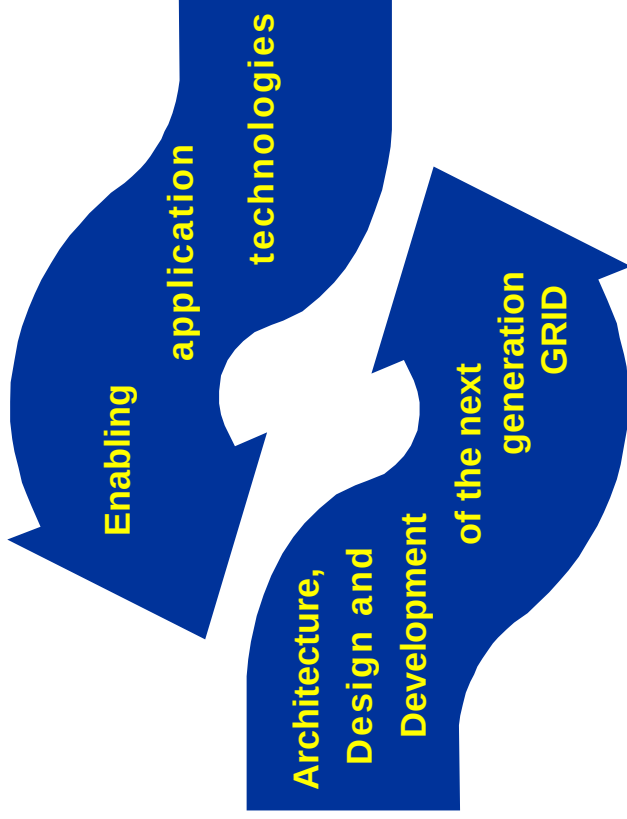
- CZ, ...

Europe's Position

US dominance in international fora

Europe contributes to Global Grid Forum, but influences/capitalises disproportionately

Contributions of the European Grid community to other fora as well important: W3C, OMG, ...



European strengths:

application of Grid technologies

research competences:

semantics, agents, architectures, operating systems, databases, ...

European weaknesses:

capitalisation on Grid technology / MW by Grid technology providers

Funding of Grid Research and Deployment at EU and National Level (2002-2006)

- **Community level funding 375 M€**
 - 100 M€ GEANT upgrade (Research Networks)
 - 100 M€ Grid deployment
 - 50 M€ RN testbeds
 - 125 M€ Grid Research (EAT, NGG)
- **National funding 450 - 650 M€^{*)} estimate**
 - ~150 M€ Research Networks (interconnectivity) and NRN funding
 - ~300-500 M€ Grid Research (UK, France, Italy, Netherlands, Germany, ...)

An ERA Pilot/ETP for Grid Research

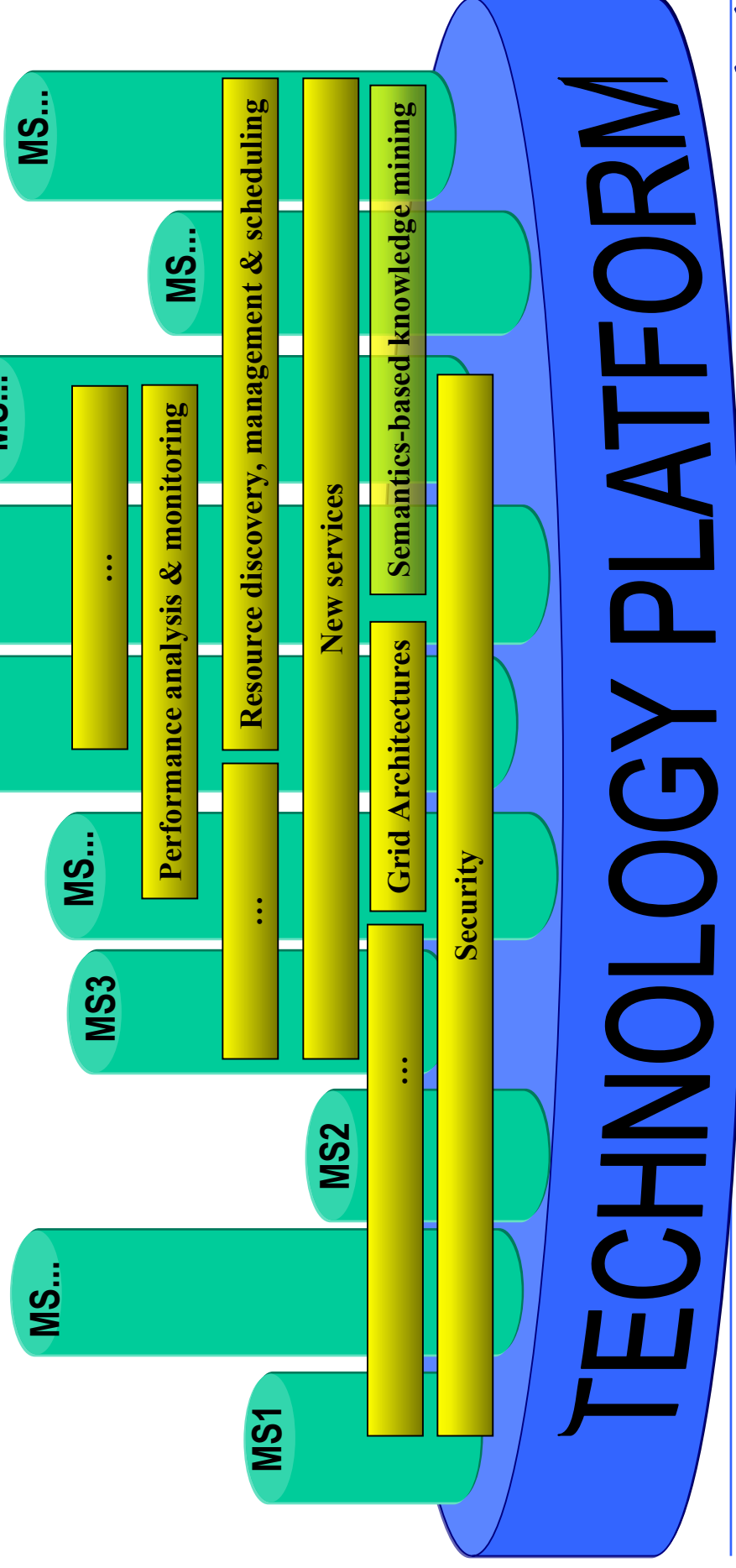
Objectives and Benefits

- **Overcome fragmentation and dispersion across EU to reinforce impact of national and Community research**
 - Facilitate stronger co-operation between MSs and Community activities
 - Support the MSs in developing shared visions / common planning / joint programmes
 - Provide assistance for the co-ordination of future research initiatives
 - Identify topics of mutual interest for Community and National Level
- **Strengthen Europe's position on Grid Research and its exploitation**
 - Pooling of expertise and creation of critical mass
 - Focussing and co-ordinating national priorities in European / world-wide context



An ERA Pilot/ETP for Grid Research

✓ Vision: Develop and implement common objectives



ERA related actions undertaken

↓ ↓ **Bilateral meetings between F2 and MS Initiatives**

I, D, UK, ES, NL, F, HU, PL

↓ ↓ **Meetings with provider and user industries (Jan - July 2003)**

↓ ↓ **Multilateral Meeting with 10 MS - July 2003**

↓ 2 experts per country

- one representative of the funding authority
- one technical experts with a leading role in national initiatives

↓ **Exchange information and share data on present and future activities**

↓ **Identify specific issues for collaboration and co-ordination**

↓ ↓ **IST 2003 conference session - October 2003**

Shaping EU leadership in Grid research through ERA

- *representatives from funding authorities, research programmes and industry*

Conclusions from the ERA meeting July 2003

Endorsement of need for further action

- Inventory of national and EU initiatives including analysis of strength, weaknesses, gaps and synergies on EU-scale
- Establishment of a regular forum on Grid Research of European funding bodies and research leaders
- Better co-ordination of fragmented national and EU efforts by putting them in EU context towards achieving critical mass / higher impact on international level
- Further investigation on how to best stimulate the development and delivery of production-level / industrial-strength Grid MW
- Actions towards broadening the use of Grid beyond eScience towards its use in business and industry



ERA Pilot/ETP for Grid Research - Next steps

Achievements so far

- First elements of a Strategic Research Agenda (NGG expert report) established
- Forum with public stakeholders (17 July 2003) established
- Bilaterals with industry held

Next Steps

- Consolidation of Strategic Research Agenda in 2004
- Public-Private Partnership Forum to be created?
- Initiation of collaboration among MS programmes



Conclusions

- **Grid technologies have the potential to revolutionise the Internet of tomorrow as the Web did for the Internet of today**
- **The shift of Grids from e-Science to industry will in future reap the benefits for European business, industry & society**
- **Grid Research represents a Strategic Objective of IST-FP6**
- **Need for stronger co-ordination of existing Community, Member States and international activities on Grid research**
 - to overcome fragmentation and reinforce impact
 - to strengthen Europe's position in Grid Research and its exploitation

References / Background Information

- Expert Group Report: **“Next Generation Grid(s) - European Grid Research 2005 - 2010”**, June 2003
- FP5 **“IST Grid Projects Inventory and Roadmap”**, GRIDSTART Project, 31 July 2003
- IST 2003 Conference Spotlight Topic: **“Harnessing Computing and Knowledge Resources”**, Oct. 2003, Book of session summaries and presentations

and more

www.cordis.lu/ist/grids

“The information presented in this presentation has no legal relevance. The legal basis for the call is based on the Work Programme, the Call text, the Guide for Proposers and the Guidelines on Proposal Evaluation and Selection Procedures.”

