

# **A sustainable e-Infrastructure for Europe**

*Paris, France*

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*Bob Jones*

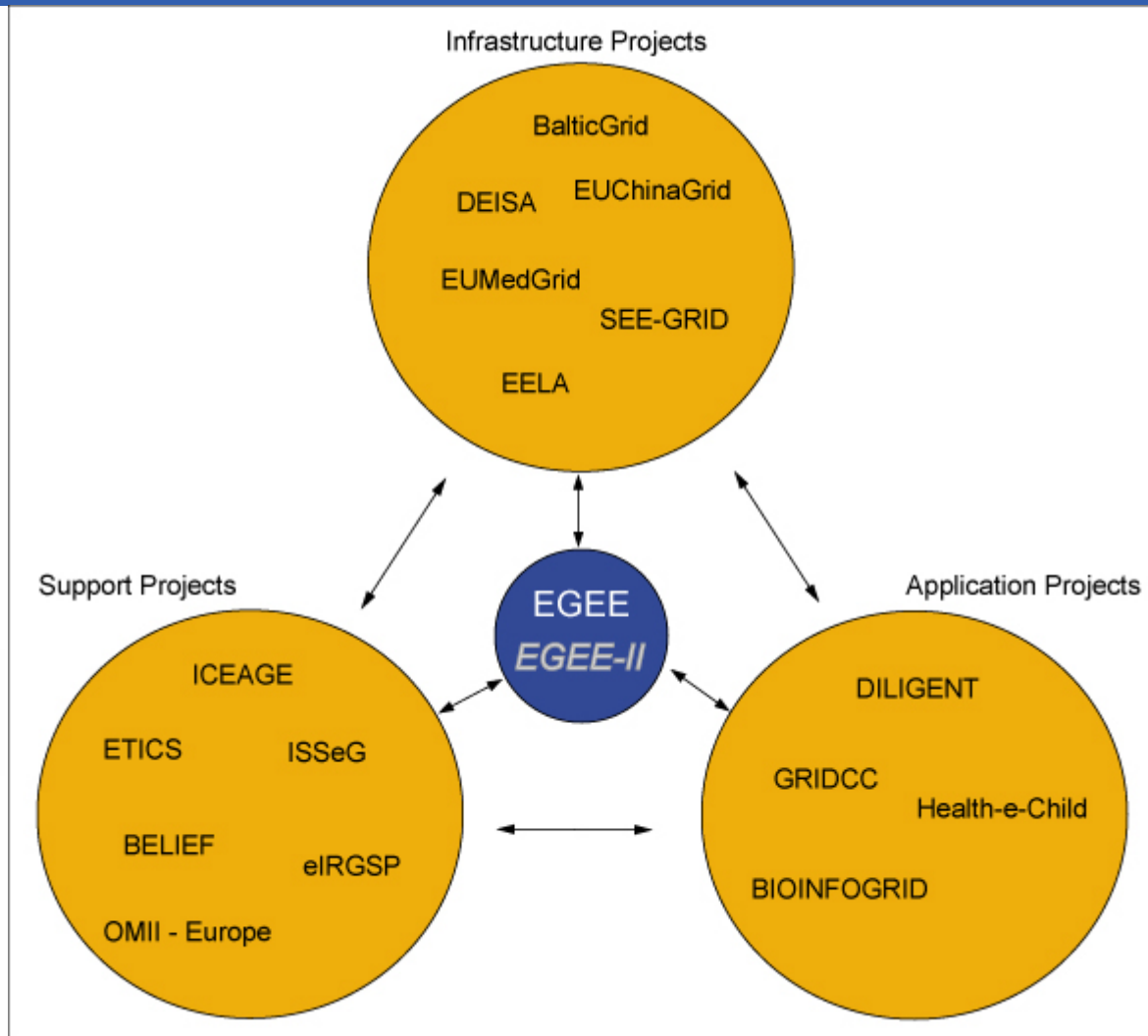
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# EGEE today – What does it deliver?

- **Infrastructure operation**
  - Currently includes >200 sites across 39 countries
  - Based on GEANT network
  - Continuous monitoring of grid services & automated site configuration/management
- **Middleware**
  - Production quality middleware distributed under business friendly open source licence
- **User Support - *Managed process from first contact through to production usage***
  - Training
  - Documentation
  - Expertise in grid-enabling applications
  - Online helpdesk
  - Networking events (User Forum, Conferences etc.)
- **Interoperability**
  - Expanding interoperability with related infrastructures



# Related EU projects



A Digital Library Infrastructure on Grid ENabled Technology



- **EGEE'06 – Capitalising on e-infrastructures**
  - Demos
  - Related Projects
  - Industry
  - International community
- **25-29 September 2006**
- **Geneva, Switzerland**
- **<http://www.cern.ch/egee-intranet/conferences/EGEE06>**



Welcome to the key European Grid event of 2006!

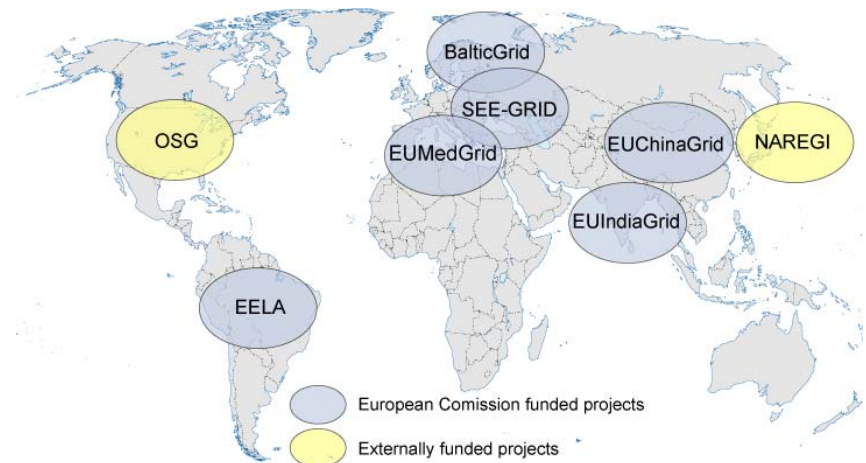
# EGEE Expertise & Resources

- 32 countries
- 13 federations
- ➔ Major and national Grid projects in Europe, USA, Asia



+ 27 countries  
through related projects:

- **BalticGrid**
- **EELA**
- **EUChinaGrid**
- **EUIndiaGrid**
- **EUMedGrid**
- **SEE-GRID**



# EGEE-II partners involved in network support

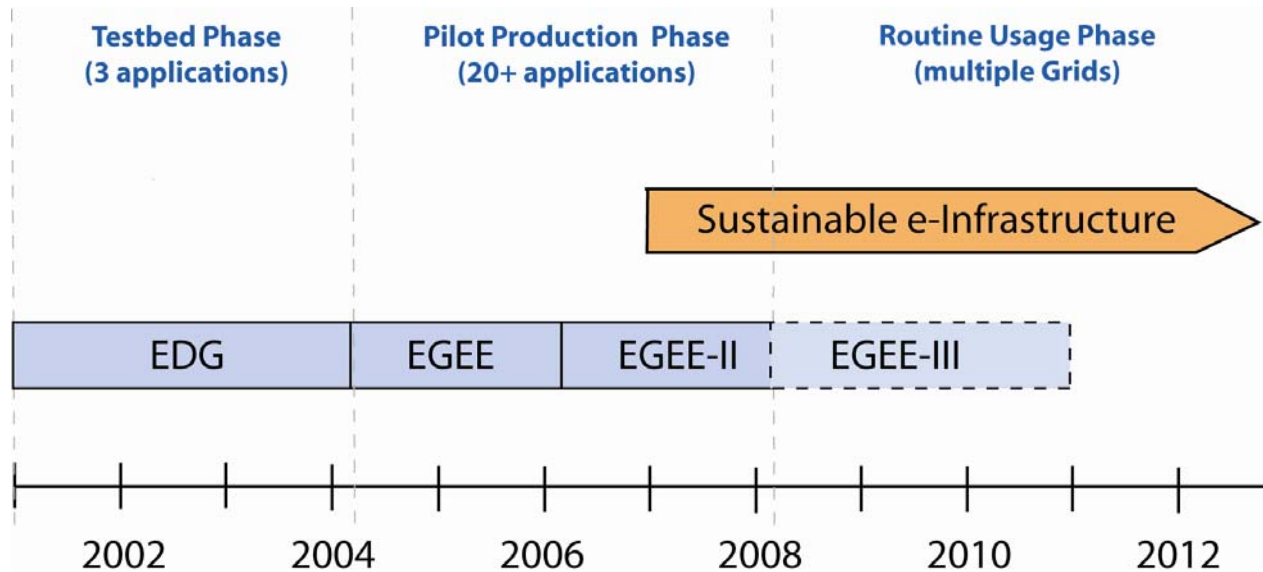
- **AMREJ – Serbia & Montenegro**
- **ASGC – Taiwan**
- **CESNET – Czech Republic**
- **CNRS/UREC – France**
- **DANTE – UK**
- **DFN – Germany**
- **GARR – Italy**
- **GRNET – Greece**
- **ICI – Romania**
- **IPP BAS – Bulgaria**
- **PSNC – Poland**
- **NIIF/HUNGARNET – Hungary**
- **RedIRIS/Red.es – Spain**
- **RRC KI – Russia**
- **TUBITAK-ULAKBIM – Turkey**
- **SRCE – Croatia**
- **SWITCH – Switzerland**

## Associates:

- **TENET – South Africa**
- **EENET – Estonia**
- **UUNETT – Norway**
- **IUCC - Israel**

# Sustainability: Beyond EGEE-II

- **Need to prepare for permanent Grid infrastructure**
  - Maintain Europe's leading position in global science Grids
  - Ensure a reliable and adaptive support for all sciences
  - Independent of short project funding cycles
  - Modelled on success of GÉANT
    - Infrastructure managed in collaboration with national grid initiatives



- **The Vision (1)**

- *“An environment where research resources (H/W, S/W & content) can be readily shared and accessed wherever this is necessary to promote better and more effective research”*

(1) “A European vision for a Universal e-Infrastructure for Research” by Malcolm Read [http://www.e-irg.org/meetings/2005-UK/A\\_European\\_vision\\_for\\_a\\_Universal\\_e-Infrastructure\\_for\\_Research.pdf](http://www.e-irg.org/meetings/2005-UK/A_European_vision_for_a_Universal_e-Infrastructure_for_Research.pdf)



## e-IRG Recommendation:



***“The e-IRG recognises that the current project-based financing model of grids (e.g., EGEE, DEISA) presents continuity and interoperability problems, and that new financing and governance models need to be explored – taking into account the role of national grid initiatives as recommended in the Luxembourg e-IRG meeting.”***

White Paper: <http://www.e-irg.org/publ/2005-Luxembourg-eIRG-whitepaper.pdf>

# Proposed model of a e-Infrastructure for Europe

- Builds on the experience gained with EGEE and related projects to define a European Grid Infrastructure (EGI)
- Takes into account the eIRG recommendations
- Input from EGO paper <sup>(1)</sup> and the workshops
  - Thoiry (France) 30-31<sup>st</sup> January – *EGEE federations, EU*
  - Kassel (Germany) 10<sup>th</sup> March – *Germany*
  - Barcelona (Spain) 28<sup>th</sup> March – *France, Portugal, Spain, EU*
  - Athens (Greece) 19<sup>th</sup> April – *Bulgaria, Cyprus, Greece, Israel, Romania, Serbia, Turkey, EU*
  - Vilnius (Lithuania) 26<sup>th</sup> April – *Estonia, Latvia, Lithuania, Poland, Sweden, Ukraine*
  - Paris (France) 28<sup>th</sup> April – *Terena/NRENS grid workshop*

(1) *Establishing an European Grid Organisation (EGO)*,  
<http://www.e-irg.org/meetings/2005-UK/050617-EGO-position-paper.pdf>

# e-Infrastructure for Europe - Mission

- **Infrastructure**

- Co-ordination of production e-Infrastructure open to all user communities and service providers
- Interoperate with e-Infrastructure projects around the globe
- Support access to commodity computing and super-computers
- Contribute to Grid standardisation and policy efforts

- **Support applications from diverse communities**

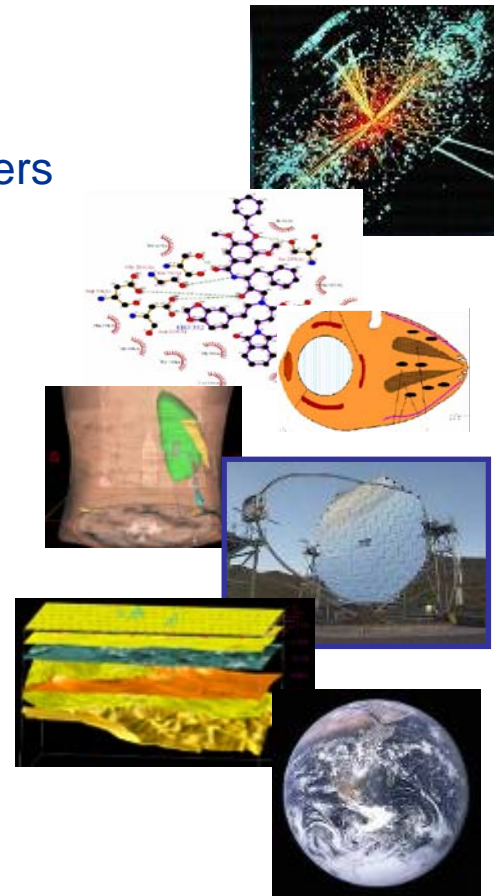
- Astrophysics
- Computational Chemistry
- Earth Sciences
- Finance
- Fusion
- Geophysics
- High Energy Physics
- Life Sciences
- Material Sciences
- Multimedia etc....

**Encourage inter-disciplinary research and increase data inter-operability**

- **Business**

- Forge links with the full spectrum of interested business partners to aid industrial take-up of grids

- **Disseminate knowledge about the Grid through training**



## Federated model bringing together **National Grid Initiatives (NGIs)** to build a European organisation

**EGEE federations would evolve into NGIs**

**Each NGI is a national body**

- Recognised at the national level
- Mobilises national funding and resources
- Contributes and adheres to international standards and policies
- Operates the national e-Infrastructure
- Application independent, open to new user communities and resource providers



# European National Grid Projects

- Austria – AustrianGrid
- Belgium – BEGrid
- Bulgaria – BgGrid
- Croatia – CRO-GRID
- Cyprus – CyGrid
- Czech Republic- METACentre
- *Denmark*
- *Estonia - EstoniaGrid*
- *Finland*
- *France – ICAR*
- Germany – D-GRID
- Greece - HellasGrid
- *Hungary*
- Ireland - Grid-Ireland
- Israel – Israel Academic Grid
- *Italy - planned*
- *Latvia – Latvian Grid*
- Lithuania - LitGrid
- Netherlands – DutchGrid
- Norway – NorGrid
- *Poland - Pioneer*
- *Portugal – launched Apr'06*
- Romania – RoGrid
- Serbia – AEGIS
- *Slovakia*
- Slovenia - SiNET
- *Spain – IBERgrid*
- Sweden – SweGrid
- *Switzerland – SwissGrid*
- Turkey – TR-Grid
- *Ukraine - UGrid*
- United Kingdom - eScience

*Italics indicate in planning stage*

- **The following key services are deemed necessary for a central organisation coordinated with the NGIs**
  - **Coordination of infrastructure operations**
    - Joint Security Policy Group
    - Operational Security Coordination Team
    - Vulnerability Group
  - **Middleware testing and certification**
  - **Application support**
  - **Dissemination and outreach**
  - **Training**
- **Additional services**
  - Data management and curation services
  - Resource centres operated by NGIs, coordinated by EGI

# EGI Governance and Funding

- **Governance**
  - Organisation with its own legal identity
  - NGIs are the stakeholders
    - NGIs would form the governing council
    - Annual reviews by independent experts nominated by the EU
- **What to Fund**
  - Basic infrastructure and its operation including national Points-of-Presence, regional resource centres and central organisation
- **How to Fund**
  - Basic funding by NGIs and EU
  - EU could fund preparatory project to set-up EGI (~12 months?)
  - Full structure could start in 2008/9

- **The need for a European e-Infrastructure has been identified**
- **The current structures are reaching their limits**
- **A model committing the National Grid Initiatives and building a central organisation is proposed – your input and feedback is actively sought**
- **Proposed key services**
  - Coordination of Infrastructure operations
  - Middleware testing and certification
  - Application support
  - Dissemination and outreach
  - Training
- **Such a scheme will ensure a sustainable e-Infrastructure for research and help maintain Europe's leading position**
- **Now working with European Commission and member states, national grid representatives and user communities to develop the details of such a structure and how it can be put in place**