

EGI-InSPIRE Project Presentation

Steven Newhouse
Project Director, EGI.eu

- VO: Virtual Organisation
- EIRO: European International Research Organisation
- ESFRI: European Strategy Forum on Research Infrastructures
- NGI: National Grid Infrastructure/Initiative
- VRC: Virtual Research Community
- SSC: Specialised Support Centre

Why build a European Grid Infrastructure?

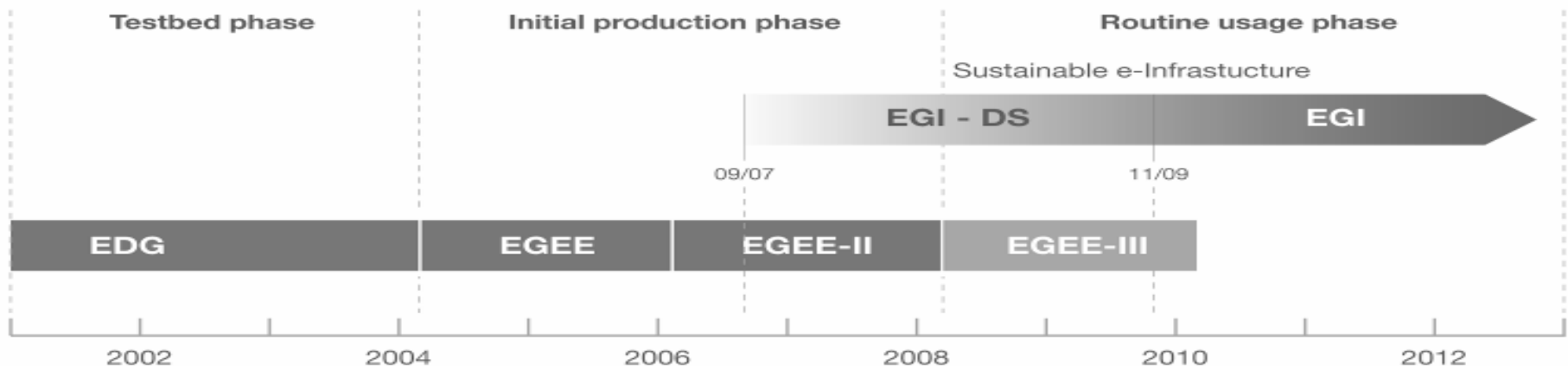
Infrastructure is the basic physical and organisational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function

The Enterprise is the European Research Area

A grid consists of distributed resources controlled by separate organisations that be systematically used securely by users external to that organisation

- Resources can include:
 - Commodity or HPC clusters
 - Disk or tape storage
 - Instruments
 - Data Archives or Digital Libraries

- European Data Grid (EDG)
 - Explore concepts in a testbed
- Enabling Grid for E-science (EGEE)
 - Moving from prototype to production
- European Grid Infrastructure (EGI)
 - Routine usage of a sustainable e-infrastructure

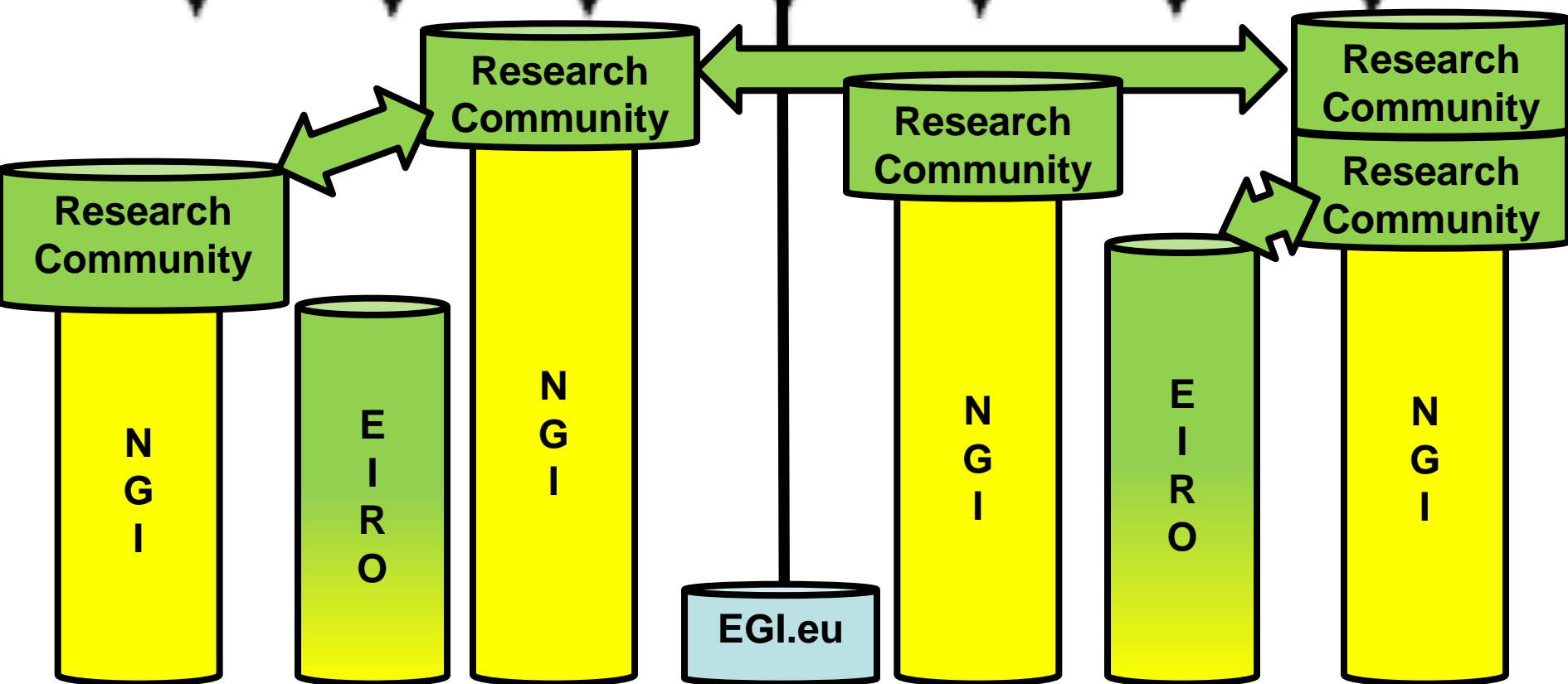


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
HTC Grids	European Data Grid			EGEE-I		EGEE-II		EGEE-III							
				SEE-GRID		SEE-GRID-2		SEE-GRID-SCI							
							BalticGrid-I		BalticGrid-II						
				Nordic DataGrid Facility											
									EGI_DS				EGI-InSPIRE		
	CROSSGRID				Int. Eu Grid										
HPC Grids	Preparatory		DEISA (FP6)					DEISA2 (FP7)							
				HPCEUR		HET	MoU	PRACE		Implementation			<i>Operations</i>		
											HPC-SE				
Desktop Grids								EDGeS		EDGI					
Clouds & Virtualisation								RESERVOIR							
											VenusC				
											Stratus Lab				

The EGI Model

EGI

Collaboration

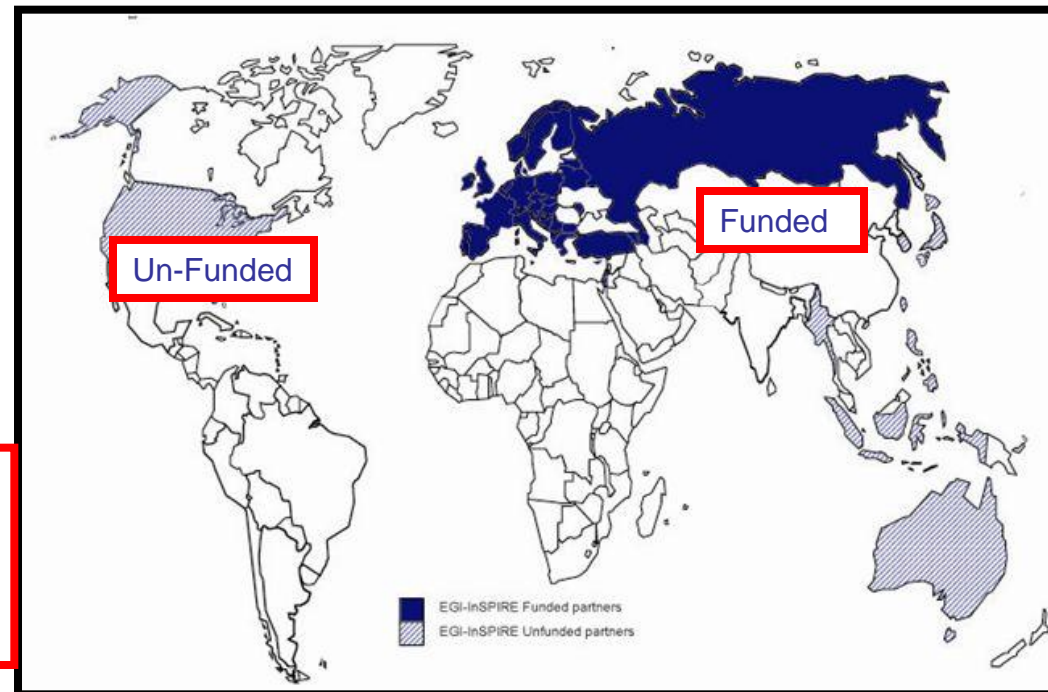


- Coordination for European Grid resources
 - Established February 8th 2010
 - Central policy & services needed to run a grid
 - Sustainable small coordinating organisation
- Governance & ownership by its participants
 - EGI Council votes linked to fees
 - Resources from within its participants
- Located in Amsterdam with approx. 40 staff
 - Coordinating core (~20 people) in Amsterdam

EGI and EGI.eu supported by EGI-InSPIRE project

Integrated Sustainable Pan-European Infrastructure for Researchers in Europe

- A 4 year project with €25M EC contribution
 - Project cost €72M
 - Total Effort ~€330M
 - Effort: 9261PMs



Project Partners (51)

- EGI.eu, 40 NGIs, 2 EIROs
- Asia Pacific (8 partners)

- **Continue towards a sustainable production infrastructure**
 - With infrastructure providers in Europe and around the world
 - With new DCI technologies as they mature
- **Provide support to current structured international research communities**
 - Sustain current domain specific services
 - Attract new user communities (e.g. ESFRI)

- NA1: Project & Consortium Management
 - Project Office and Quality Assurance
- NA2: External Relations
 - Policy Development and Dissemination
 - Community Building Events
- NA3: User Community Coordination
 - EGI.eu and NCI support teams
 - Supporting Technical Services for Virtual Research Communities
- JRA1: Support for Operational Tools
 - Maintenance and Development
 - Support for new resources and their accounting

- SA1: Reliable Operation of the production infrastructure
 - Monitoring, accounting, operational security
 - Helpdesk & NGI Support teams
 - Validation of new technology & operational tools
- SA2: Provisioning the Software Infrastructure
 - Definition of software coming from external projects
 - Validation of delivered software
 - Software repository and support tools
- SA3: Support for Heavy User Communities
 - Services & tools for all users of the infrastructure
 - Domain specific support for current heavy users

What WILL EGI do?

- Deploy Technology Innovation
 - Distributed Computing continues to evolve
 - To include: Grids, Desktops, Virtualisation, Clouds, ...
- Enable Software Innovation
 - Provide reliable persistent technology platform
 - Tools built on gLite/UNICORE/ARC/Globus
- Support Research Innovation
 - Infrastructure for data driven research
 - Support for international research (e.g. ESFRI)

- Support User Communities
 - Researchers in International Collaborations
 - National Research Collaborations through the NGI
 - Scale up from the single VO to a community
- Provide a federated Helpdesk linking:
 - Discipline specific support (e.g. Bio Apps)
 - National Grid Infrastructures
 - Generic services (e.g. Training)
- Provide core services to support users
 - Manage VOs, Application DB, Training DB

- Dissemination
 - With NGIs, VRCs, SSCs and other projects
- Support for Heavy User Communities
 - General & community specific services
- Events
 - Two Annual meetings: Users & Technology
- Technology Assessment and Integration
 - Liaison with software providers
 - Definition and verification of requirements

- Will come from outside EGI
 - Moving research technologies into production
- Partnership with technology projects
 - EMI (European Middleware Initiative)
 - IGE (Initiative for Globus in Europe)
 - EDGI (European Desktop Grid Initiative)
 - StratusLab
 - VenusC



- Will also come from outside EGI
 - EGI is a neutral platform for applications
- EGI cannot support all services in its core
 - Every community needs something different
- Foster innovation within different ‘sectors’
 - Digital Libraries
 - gCube from D4Science



- An infrastructure to support European Researchers
 - Within the EU27
 - Geographical Europe
 - Interoperability worldwide for collaboration
- Work with Virtual Research Communities
 - Groupings of aligned Virtual Organisations
 - Enable their community specific support activity:
 - Support, training, consultancy, requirements etc.



Future Plans

- Continue with a secure reliable infrastructure
 - Integrate resources based on gLite, UNICORE, ARC, Globus, ...
 - Continue the transition to national structures
- Support its user communities
 - Maintain user services & tools
 - Engage with structured (virtual) user communities
 - Encourage structuring in unstructured user communities
 - Defined representatives within EGI bodies
 - Engage with the ESFRI projects

- Consider IP network providers
 - Supports traffic from different communities
 - Customised solutions within a generic framework
 - Standards drive integrated deployment
- And for sustainable e-Infrastructures?
 - Any application, any domain, any technology
 - A platform for domain specific innovation & use
 - Integration of any compliant resource

- Improve the efficiency of the infrastructure
 - The jobs, users & data will continue to increase
 - Effectiveness of the resources needs to match
- User input into upper middleware layers
 - VOs decide what services are deployed where
 - VOs manage their own deployed infrastructure
 - Empower the VOs to meet their own needs
 - Flexibility and responsibility

- Grids have benefited from commoditisation
 - Hardware: HTC & HPC affordable to all
 - Networking: GBs can be moved over WAN
 - Software: Open source software comes of age
- Impacts of commodity virtualisation...
 - For transactional models →
 - The 'Cloud': A model based on compute not data
 - For large distributed data-oriented models →
 - The emergence of true 'function shipping'?

- Data Layer
 - Secure reliable data movement
 - Access to data resources
- Virtualisation Layer
 - Span trust domains within agreed policies
 - Monitoring as important as lifecycle control
- Service Layer
 - The services that go into the virtual machine
 - Avoid domain specific silos & promote reuse

Consensus
Openness
Balance
Transparency

- EGEE:
 - Demonstrated a production e-infrastructure
- EGI:
 - Provide a sustainable production e-infrastructure
- EGI.eu established in Amsterdam
 - Supported transition through EGI-InSPIRE
- Contact: director@egi.eu