

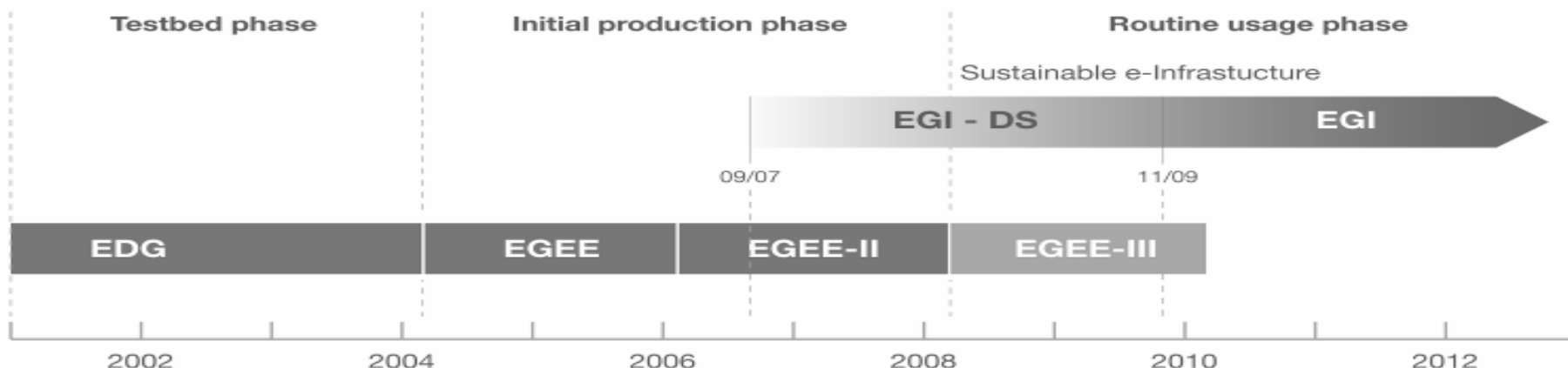
A Virtualised European Grid Infrastructure?

Steven Newhouse
Project Director, EGI.eu

What is EGI?

- European:
 - Focus on meeting the needs of European Researchers
 - Their key need is to collaborate internationally
- Grid:
 - Federation of shared resources, not a single technology
 - Supports a collaborative social network
- Infrastructure:
 - Established physical and organisational structures
 - Services and facilities for an economy to function

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



Are users willing to follow?

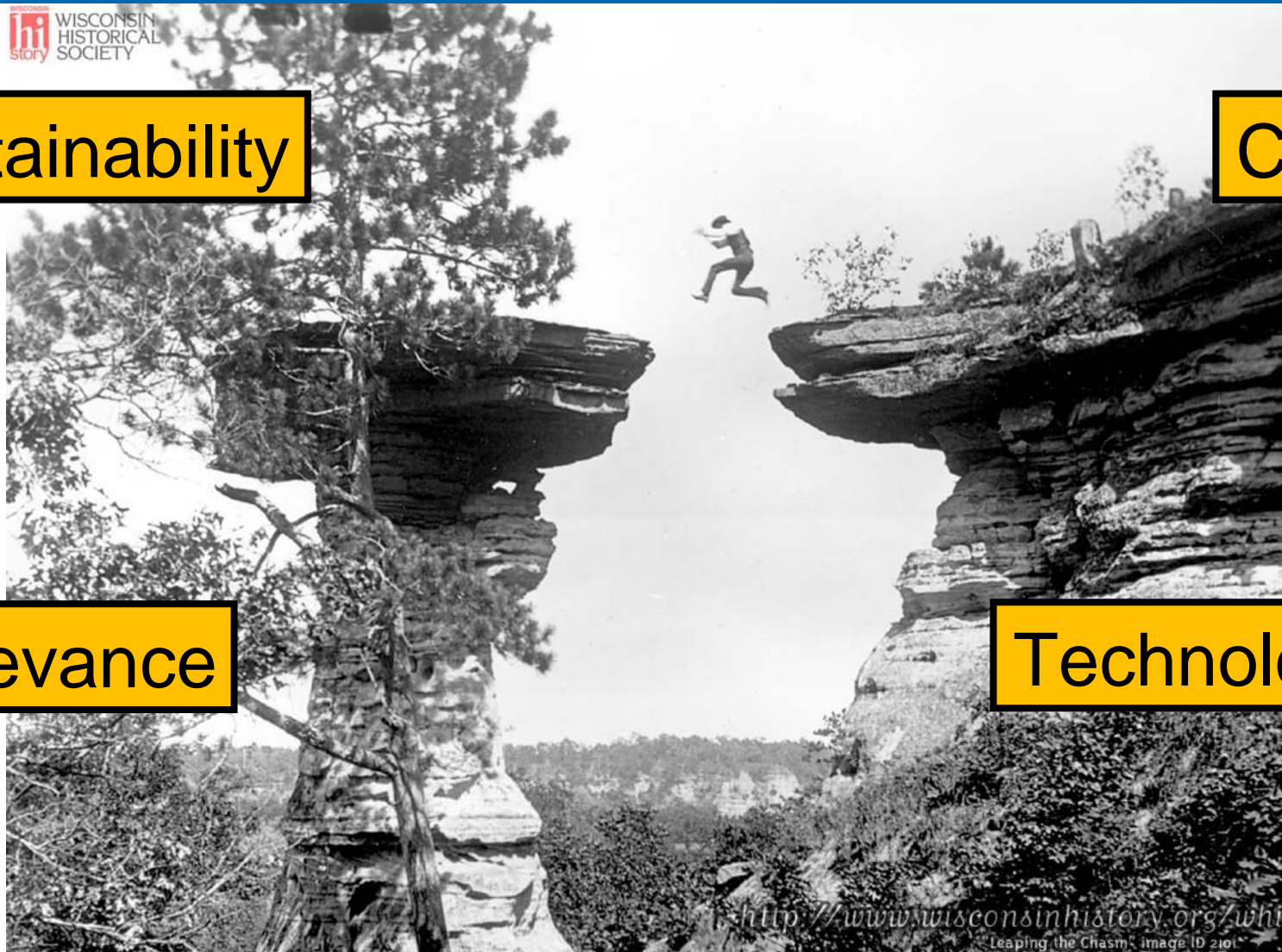
WISCONSIN
HISTORICAL
SOCIETY

Sustainability

Cost

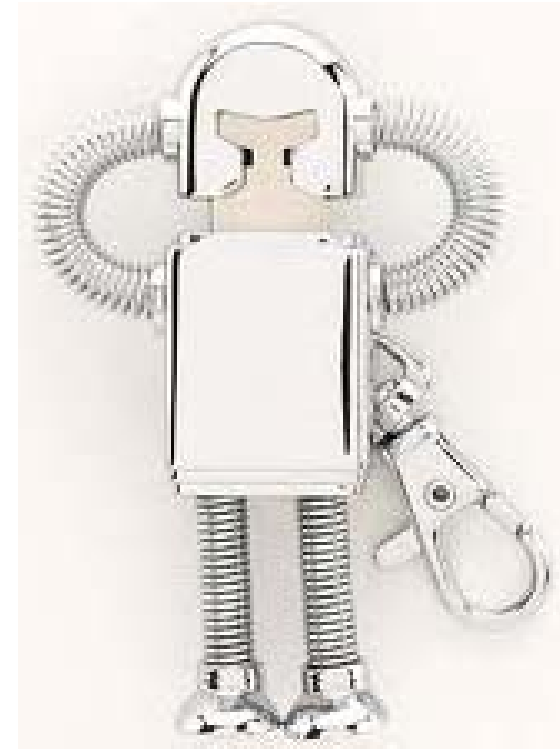
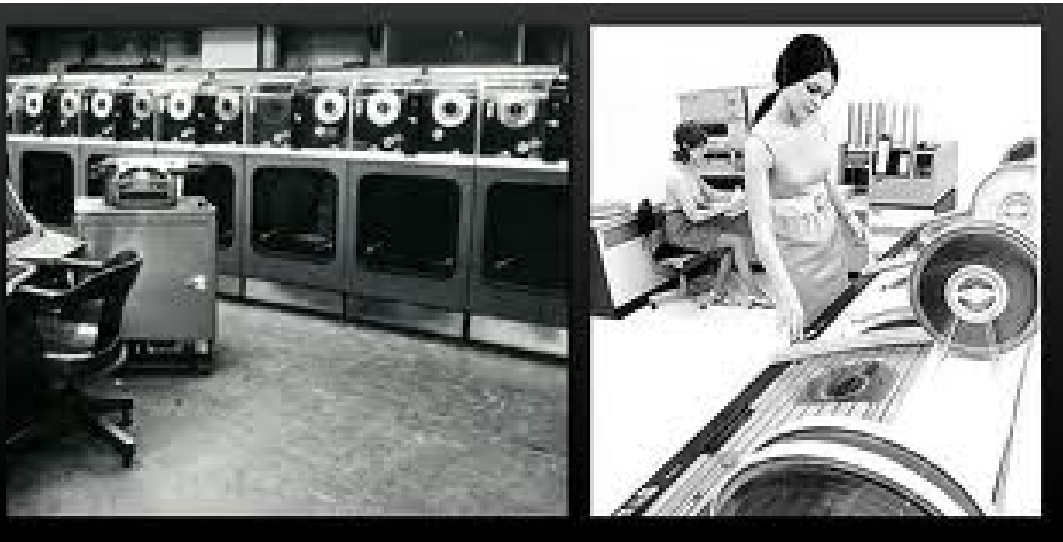
Relevance

Technology

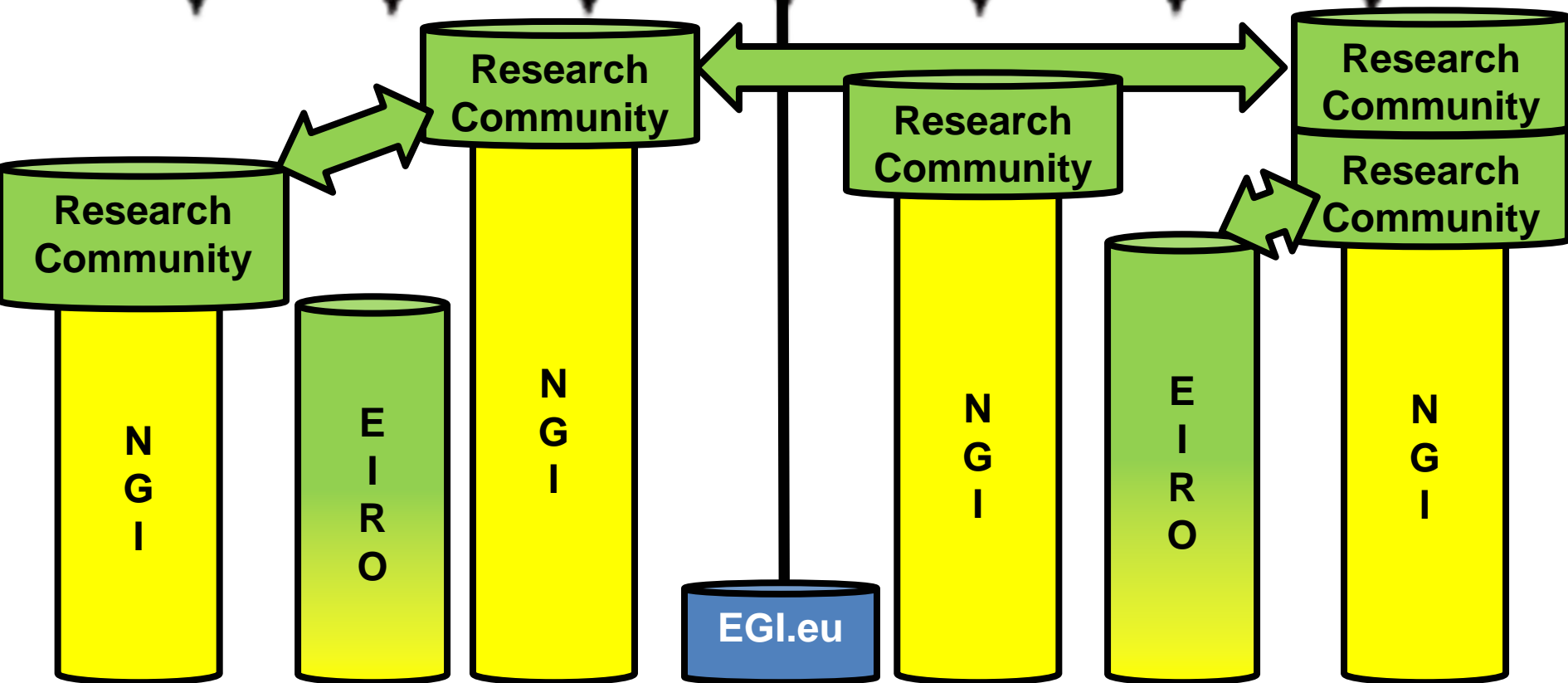


My project will last for 5 years, and I will need to read and analyse my data for 10 years after that....

Will you be around that long?



EGI Collaboration



- EGI.eu established as non-profit foundation
- Governance & ownership by its participants
 - Participants:
 - European NGIs
 - Associated participants:
 - Other groups willing to agree with EGI.eu objectives
- EGI Council: All participants represented
 - Votes linked to fees

- Coordination for European Grid resources
 - Established February 8th 2010
 - Central policy & services needed to run a grid
 - Sustainable small coordinating organisation
- Based in Amsterdam
 - Coordinating core (~20 people) in Amsterdam
 - Technical services from partners (~20 people)

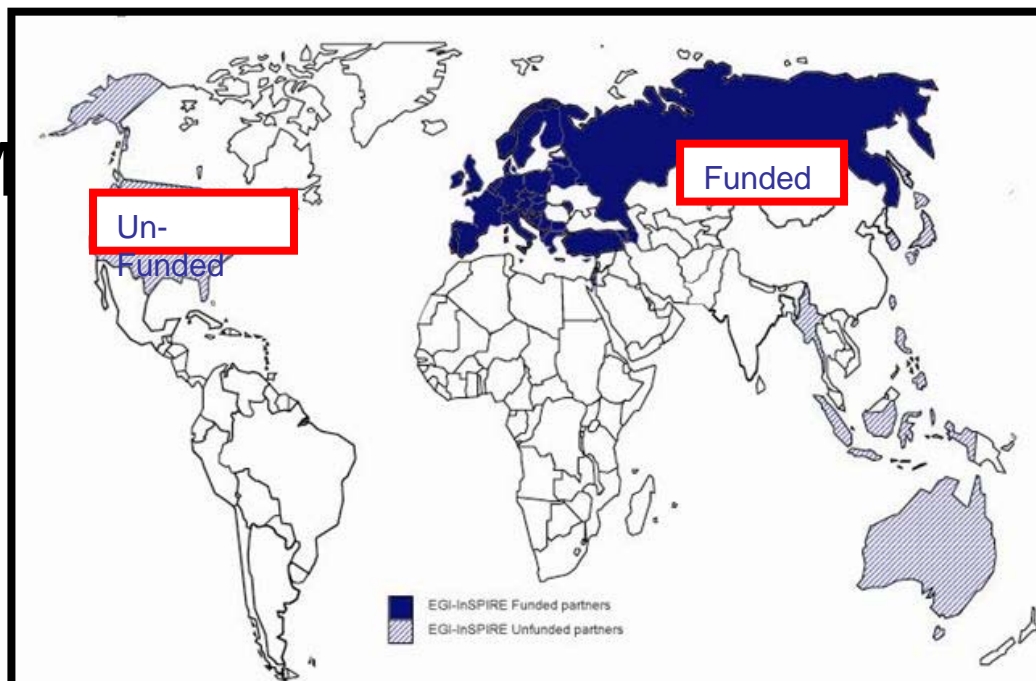
EGI and EGI.eu supported initially by EGI-InSPIRE

Integrated Sustainable Pan-European Infrastructure for Researchers in Europe

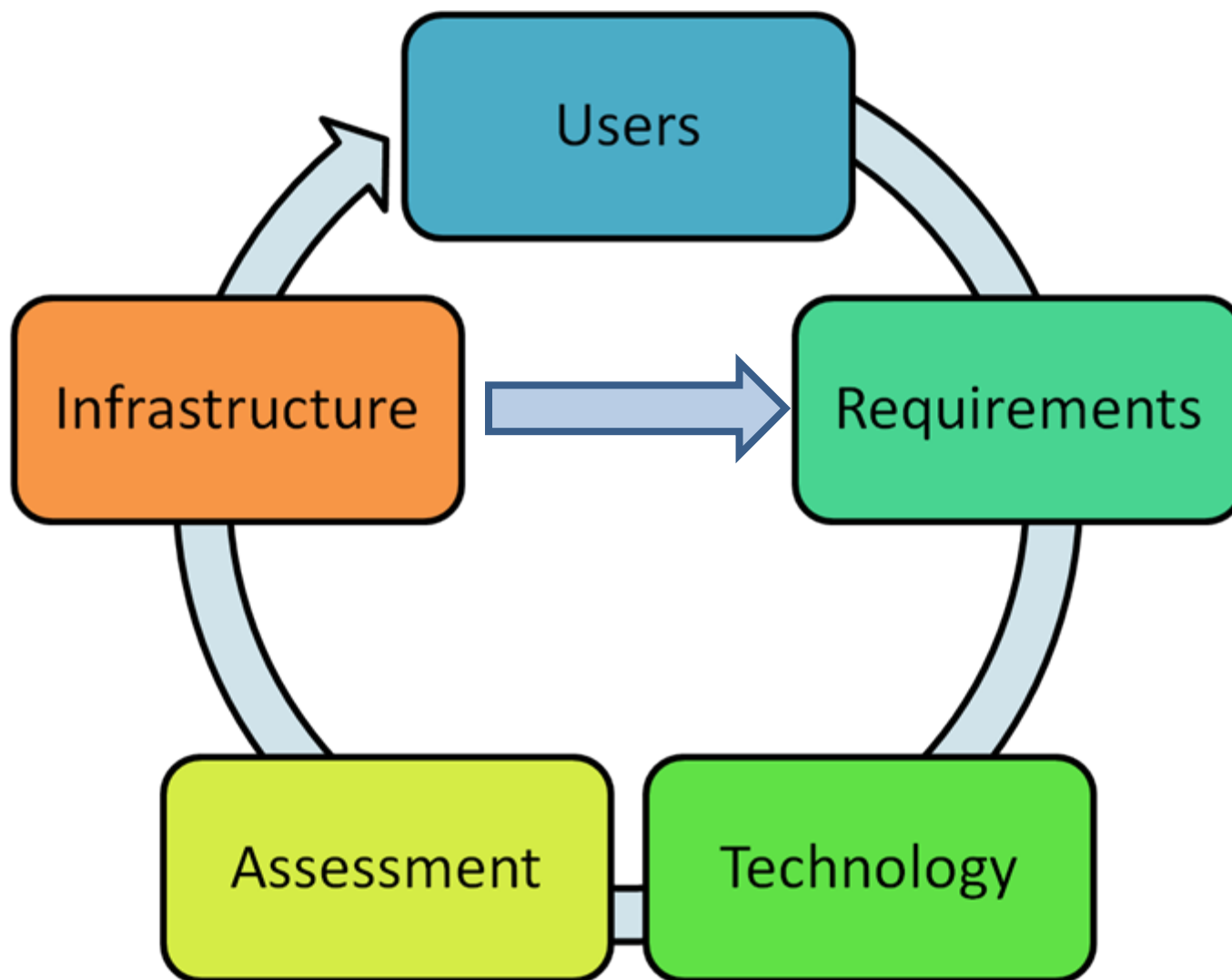
- A 4 year project with €25M EC contribution
 - Project cost €72M
 - Total Effort ~€330M
 - Effort: 9261PMs

Project Partners (50)

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



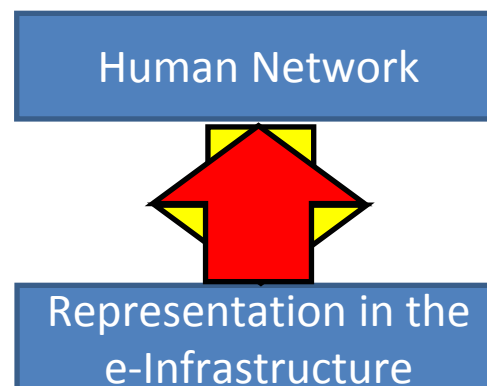
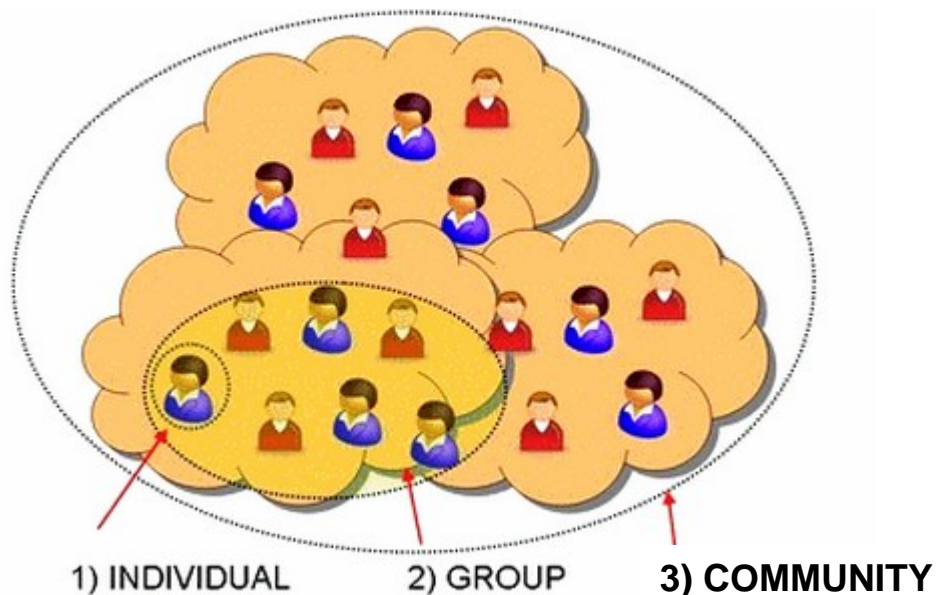
A Virtuous Service Cycle



- 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)

OK so you have processes....

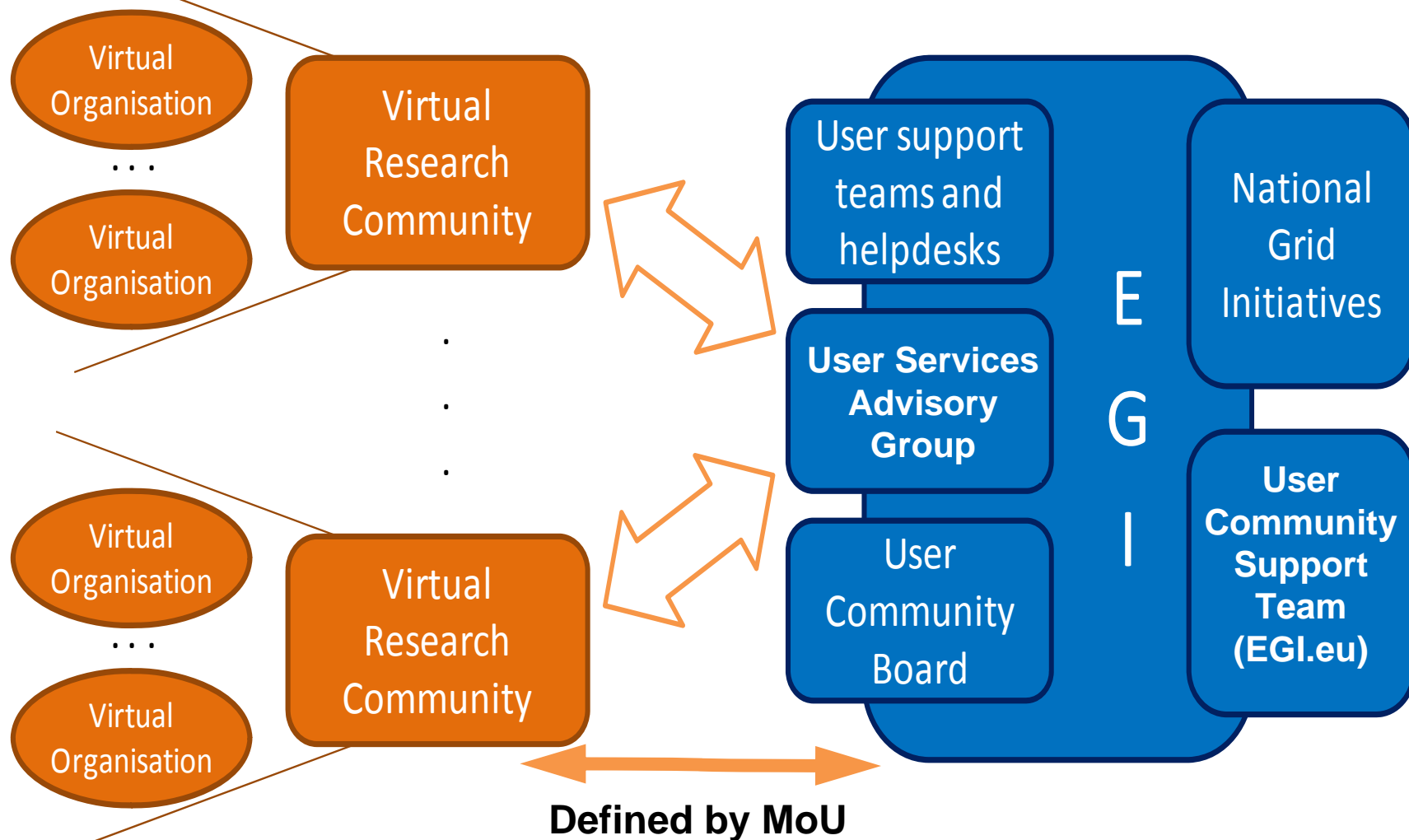
How are you going to help me do what's relevant to me and my community?



- Across an NGI Research Community
- Across an International Research Community
- Across different disciplines & skill levels
- From an Individual to a Community
- Services that enable the human network

Services that support building your
Virtual Research Community

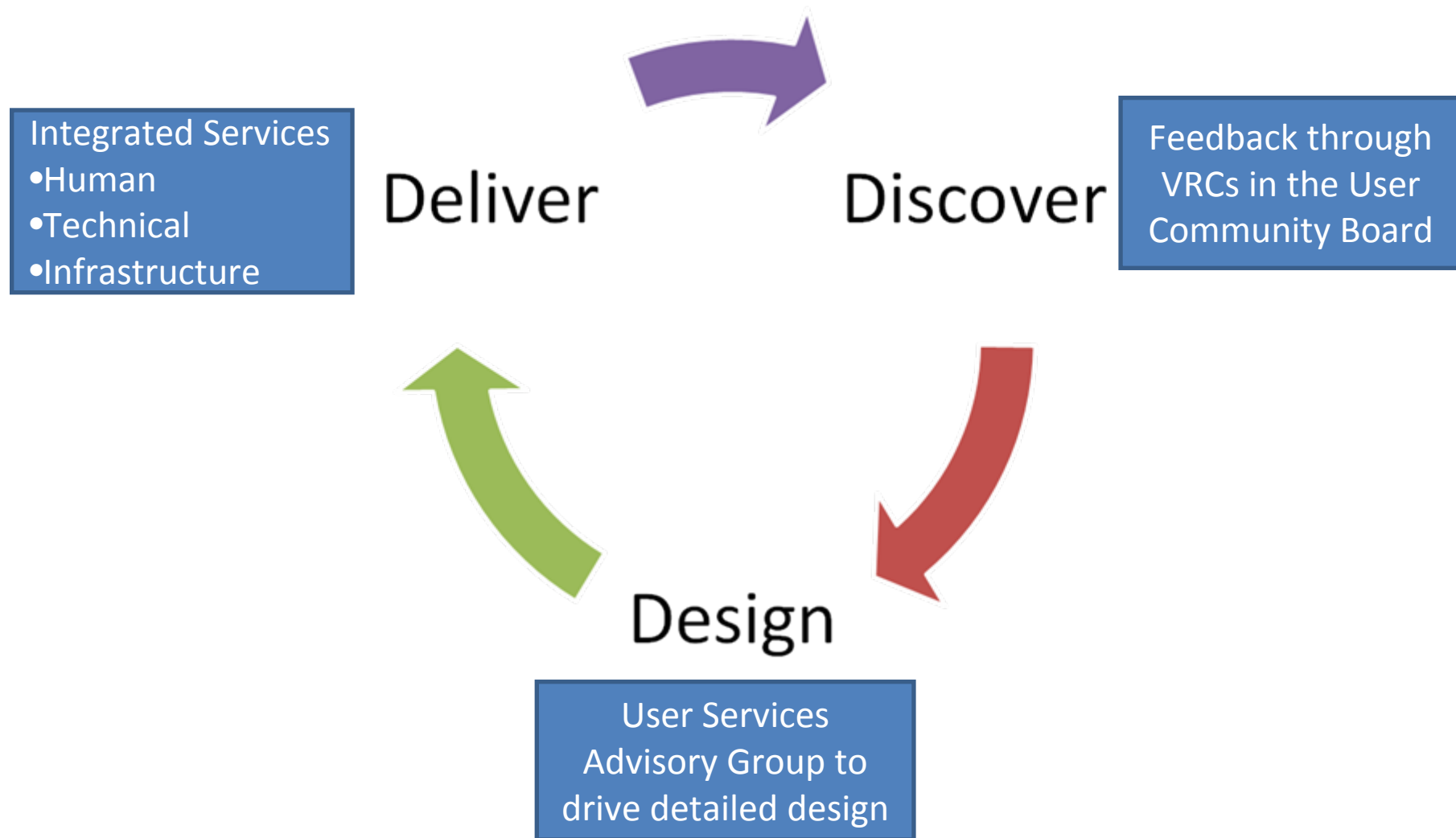
An Evolving Relationship



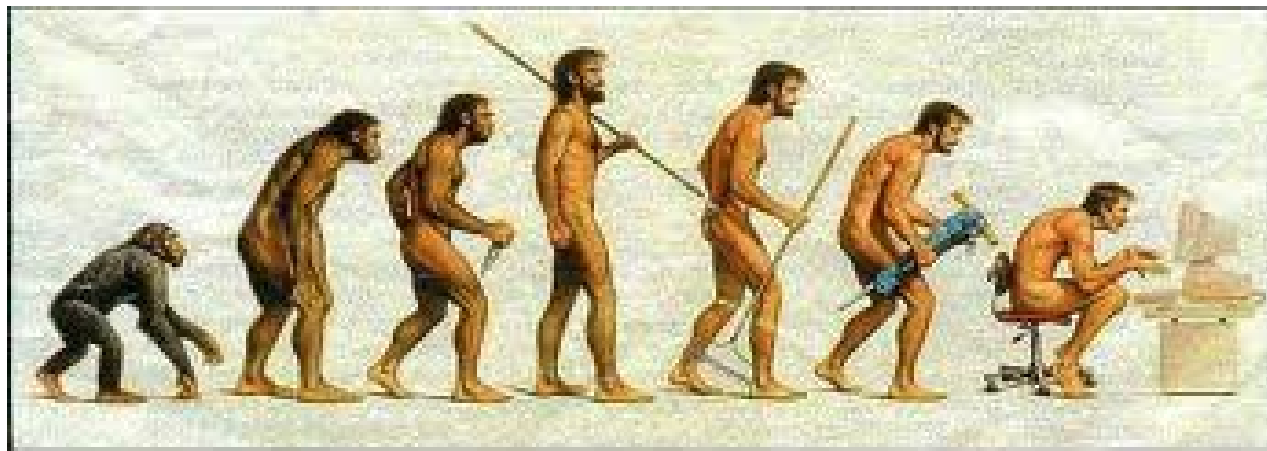
- VRCs link EGI to a community structure
 - Defined by MoU, conference, organisation, ...
- A focus for collecting requirements for:
 - Human and Technical services (e.g. Training)
 - Discipline specific support (e.g. Bio Apps)
 - Operation teams in the resource centres

It is the human collaborative side of the grid

A Virtuous User Cycle



I've told you what I want, how are you going to support my exact needs, now and in the future, instead of my competitors?



Somewhere, something went terribly wrong



- 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 resource through standards

Applications

Networking

Resources

Desktops

HTC Grids

HPC Grids

Petascale
HPC

Virtualised Resources

EGEE

PRACE

- 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'?

- Who makes your Virtual Machine Images?
- Who checks that they will run anywhere?
- Who checks that they are running?
- Who checks that they are secure?

New technology requires new expertise

A Virtualised Future?

End-User Technology Experts
(National, European & Global Collaborations)



Infrastructure Providers
(Research & Commercial – National, European & Global)

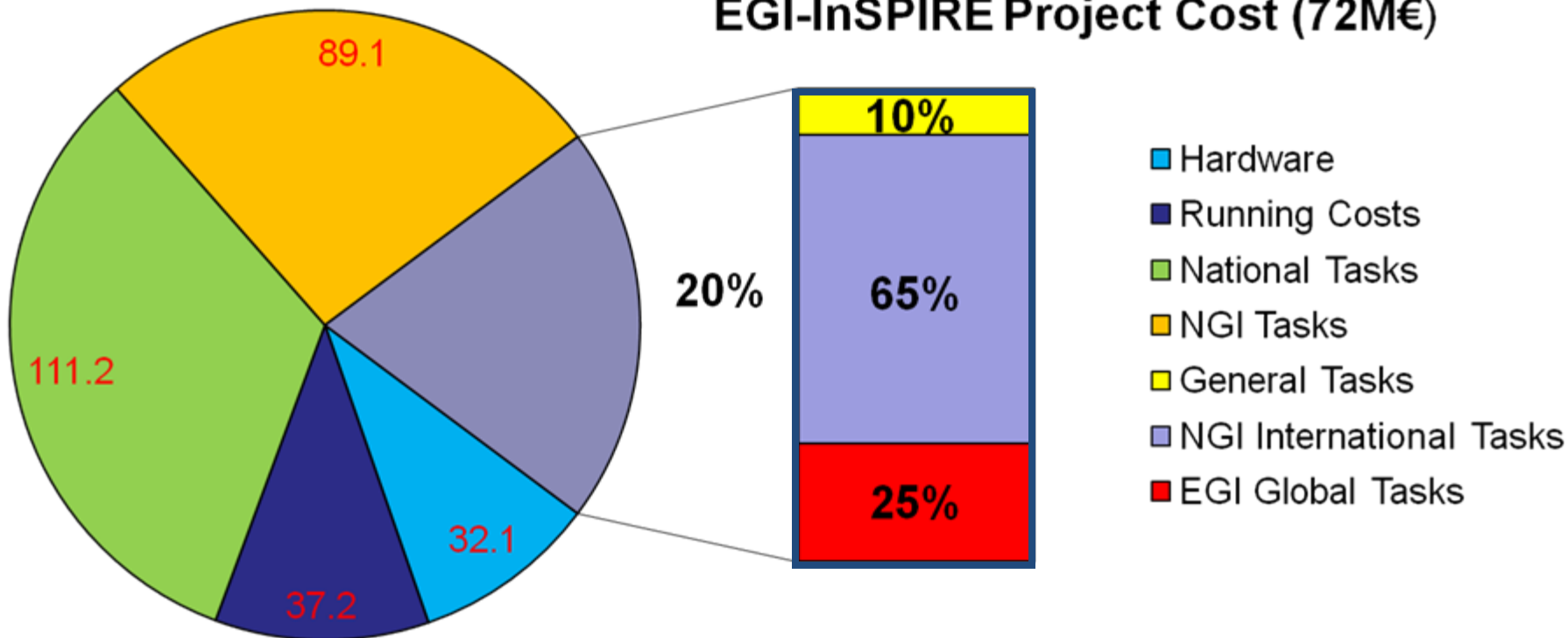
This sounds wonderful! How much is it going to cost me?



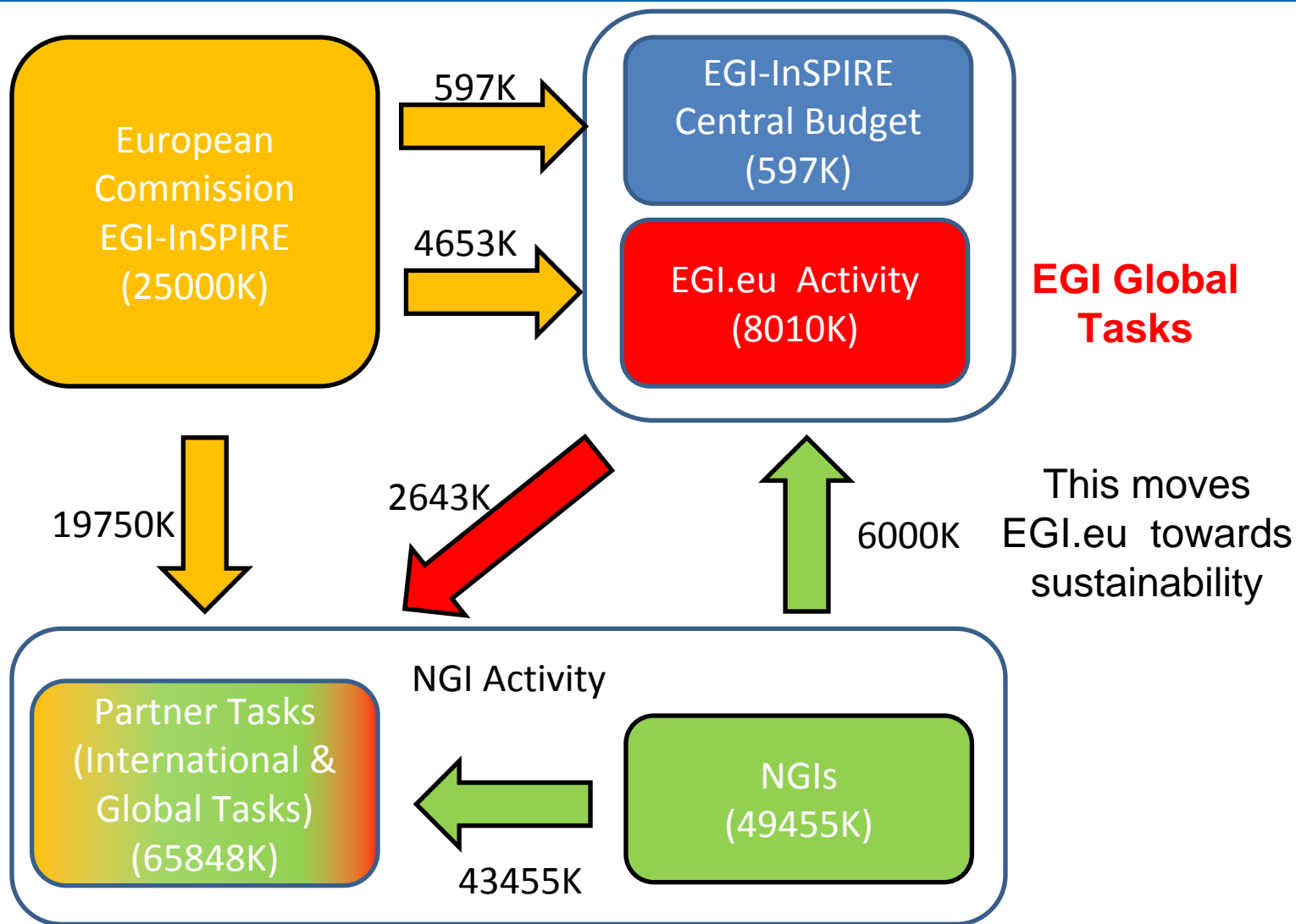
EGI Activity Cost over 4 years (M€)

Total Activity Cost (338M€)

EGI-InSPIRE Project Cost (72M€)



Running EGI.eu (4 yrs)



- EGEE:
 - Demonstrated a production e-infrastructure
- EGI:
 - Provide a sustainable production e-infrastructure
- EGI.eu established in Amsterdam
 - Supported transition through EGI-InSPIRE
 - Moving towards sustainable coordination

Questions?

The poster for the EGI User Forum 2011 features a blue background with a network of white lines connecting various nodes, including a globe and a building. The text is in white and blue.

EGI User Forum 2011

11-15 April
Vilnius, Lithuania

- Call for papers opens October 2010
- See www.egi.eu/EGIUF2011 for more details
- We are still hiring!!!
 - www.egi.eu/about/jobs
- Contact:
 - Steven Newhouse
 - director@egi.eu



Hosts: NGI LitGrid, presented by
Vilnius University and Baltic Amadeus
infrastruktūros paslaugos (BAIP)

Organisers: AIM Group Baltic UAB