



Grid:User Perspectives

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Bundesministerium
für Bildung
und Forschung



- D-Grid : The German Way
 - D-Grid Initiative
 - D-Grid GmbH
 - Gauß-Allianz
- WissGrid:
 - Motivation & Formation
 - Workpackages
- User Perspectives
 - Sustainability
 - TextGrid (Example Humanities)
 - VRE
- Summary

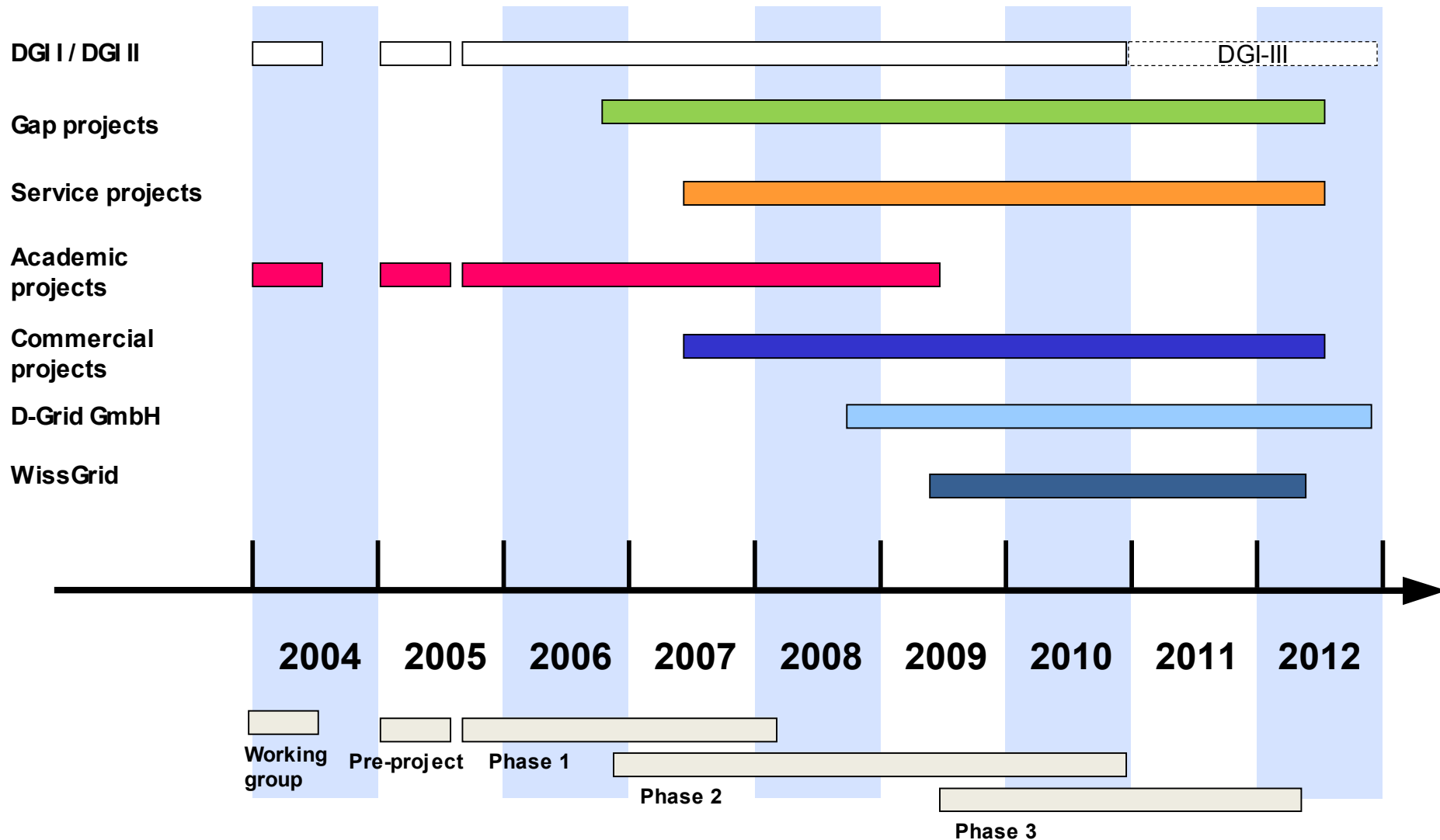


Building a national e-Infrastructure for Research and Industry

- Start in 2005 , 3 Calls (2005, 2007, 2009)
- 100+ Million Euro funding from the German Ministry for Education and Research (BMBF)
 - building a sustainable Grid infrastructure
 - providing tools and services for e-science in Germany
 - for academia and business
- More than 100 partners
 - Universities, Research Institutes, HPC
 - numerous SME and not so small companies (T-Systems, SUN, Deutsche Bank, SAP ...)
- D-Grid Beirat: all projects participate



Timeline





- AstroGrid-D
- C3-Grid
- HEP-Grid
- InGrid
- MediGrid
- TextGrid
- Wisent



- DGI - D-Grid Integration project



DGI Integration project I-II

- 20 partners from of science and industry
 - Develop, operate and support of the core grid infrastructure
 - D-Grid basic software components
 - large storage
 - data interfaces
 - virtual organizations management
 - Network, Security and data management
 - Business platform and sustainability
- Scalable, extensible, generic grid platform for future
- Longterm, sustainable grid operation, SLAs based



- AeroGrid
- BauVOGrid
- FinGrid
- GDI-Grid
- ProGRID
- Services@MediGrid
- ... and other service-oriented projects





D-Grid Call 3

- InterLogGrid
- PneumoGrid
- WisNetGrid
- **WissGrid**
- ... and more

- Gap projects
 - GapSLC
 - GIDS
 - SLA4DGrid

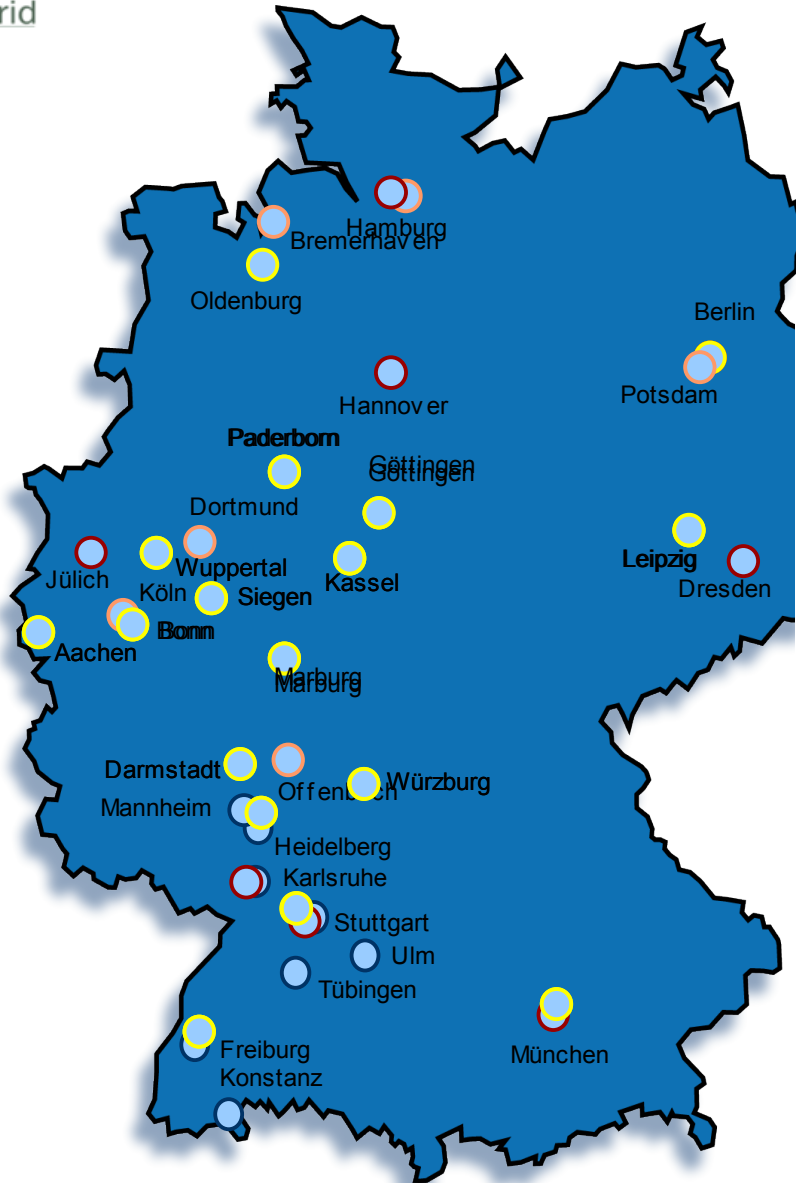
INTERLOGGRID
ΥΠΕΡΚΡΕΤΟΓΚΙΔ







SLA4DGRID

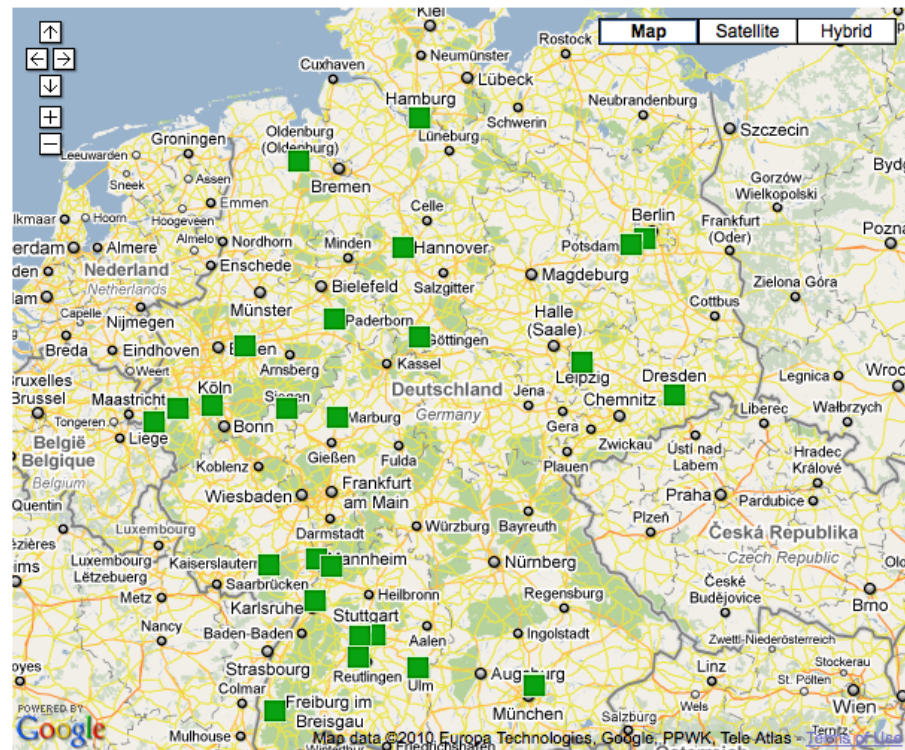


Extra Grid Funding 2006-2008



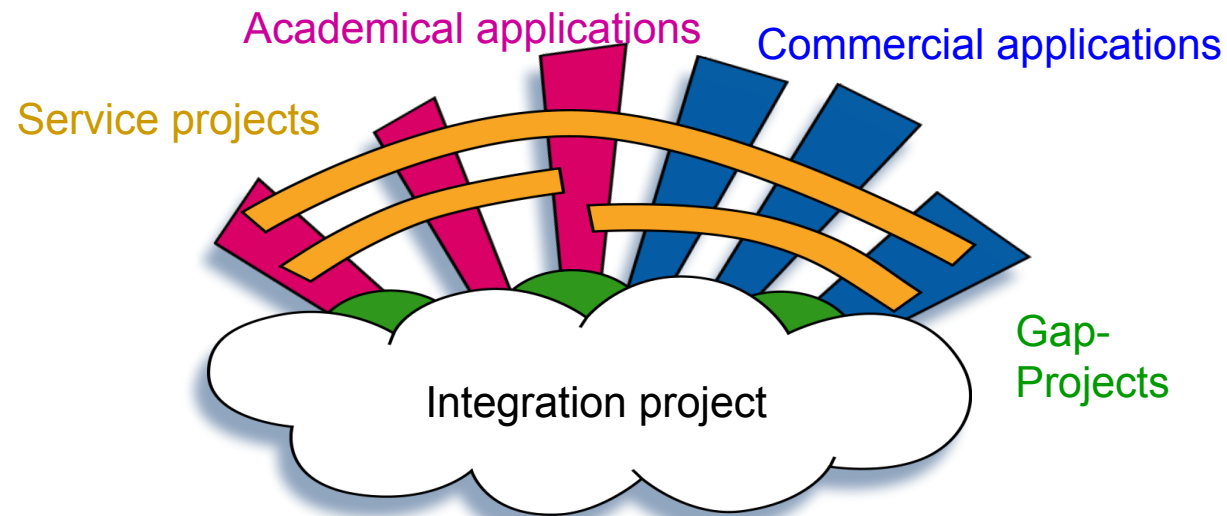
-  Core group
-  State specific group (bwGRiD)
-  Community Provider (C3-Grid, Astro,...)
-  Misc. resource provider (Univ. CC, etc),

Dynamisch erstellte Ressourcenanbieter-Karte





- Non-profit limited corporation
- Established in 2008
- Founded by the German Ministry of Education and Research (BMBF)
- One pillar of sustainability efforts for D-Grid





Gauß-Alliance



- implements the recommendations of the BMBF study “HPC in Germany – Reasons for a Strategic Alliance”
- founded December 2008 by Germany's leading supercomputing centers

Goals

- Promote research and development in the field of HPC
- Coordinate the HPC related activities of the members in Germany
- Increase the visibility on an international level by bundling the expertise of the participating centers.
- Combining the expertise of the participating centers necessary for computational science
- Strengthening the research and increasing the visibility to compete on an international level

Gauß-Alliance now is the legal entity hosting the german NGI
DGI-III: Partners from Gauss-Alliance & DESY



- Grid for Science
- D-Grid Call 3 : 05/2009 – 04/2012
- 5 Community Grids: AstroGrid-D, C3-Grid, HEP-Grid, MediGrid, TextGrid
 - ***cross-disciplinary!***
- 14 academic project partners within Germany
- Work Packages
 - WP1 - Service Models for academic Community Grids
 - WP2 - Blueprints for new community grids
 - WP3 - Long-term storage for research data





Goals and Purpose

- Provide for the heterogeneous requirements of a ***variety of scientific disciplines***
- Work on ***reusable*** interdisciplinary services and tools
- Strengthen the ***organizational cooperation*** among scientists in D-Grid (Community Grids)
- Develop concepts for the ***long-term sustainable*** use of the organizational and technical grid infrastructure
- Lower the entry thresholds for ***new academic community grids***
- Promote D-Grid as ***basic infrastructure component*** of **Virtual Research Environments (VRE)**



“The term VRE is now best thought of as shorthand for the tools and technologies needed by researchers to do their research, interact with other researchers (who may come from different disciplines, institutions or even countries) and to make use of resources and technical infrastructures available both locally and nationally.

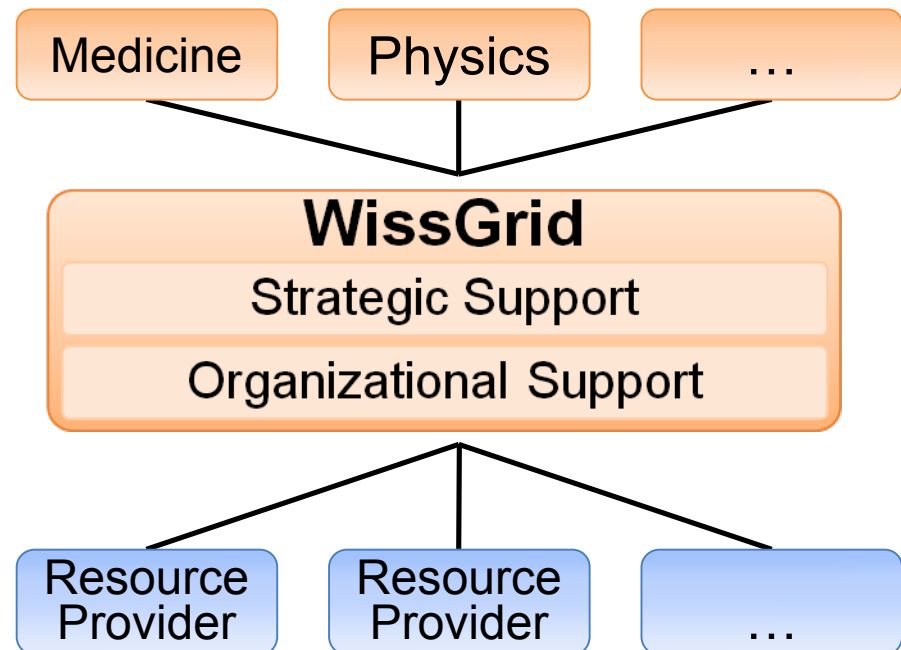
The term VRE also incorporates the context in which those tools and technologies are used.”

(JISC VRE Collaborative Landscape Study: <http://www.jisc.ac.uk>)

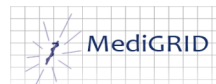
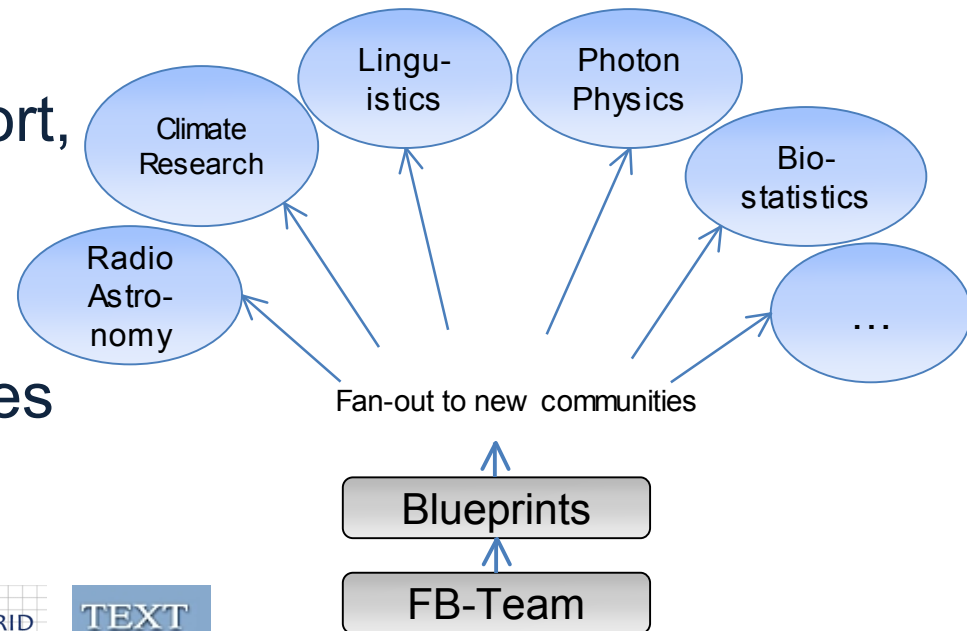


WP1 Service Models

- Organize the interests of academic users and communities
- Service models for sustainable academic Community Grids
- Develop concepts and solutions, initialize discussions with funding agencies on

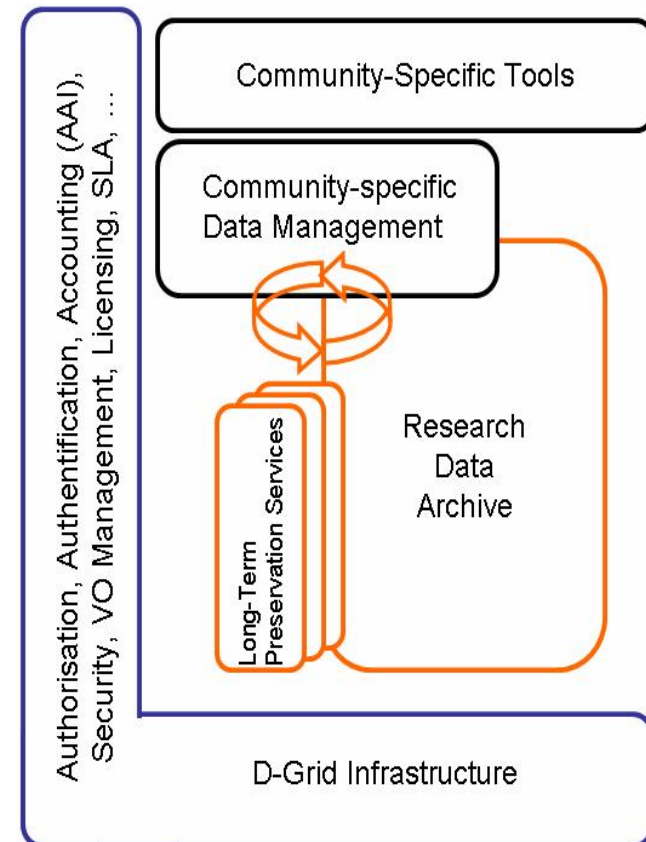


- Develop and provide training material, organizational concepts and processes for forming new Community-Grids (based on experiences from partnering CG's)
- Professional support team for new Community-Grids (Fachberater)
- Establish user-support, help forming community specific support infrastructures



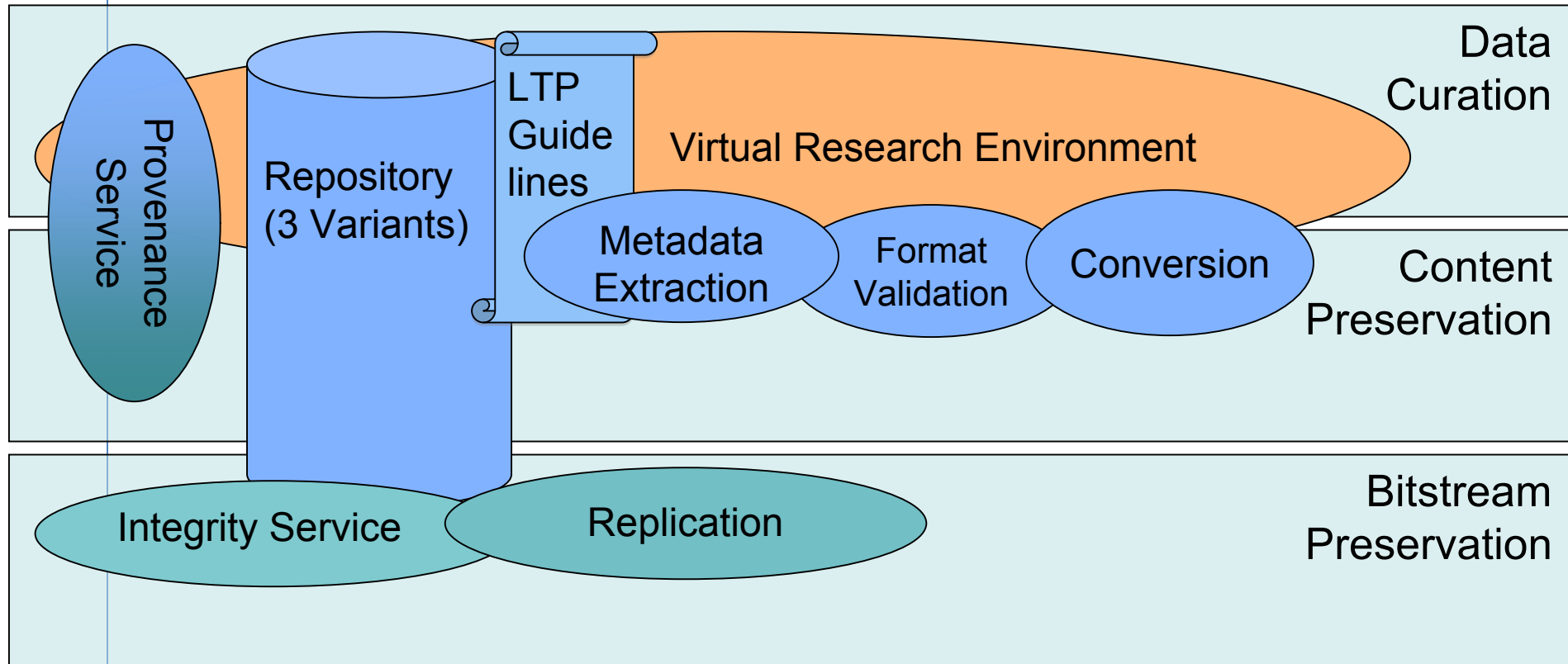
- Long-term preservation of research data in grid computing environments
- Support in implementing long-term preservation methods for their research data

Long-term preservation of scientific data is one of the crucial challenges for sustainable IT based infrastructure



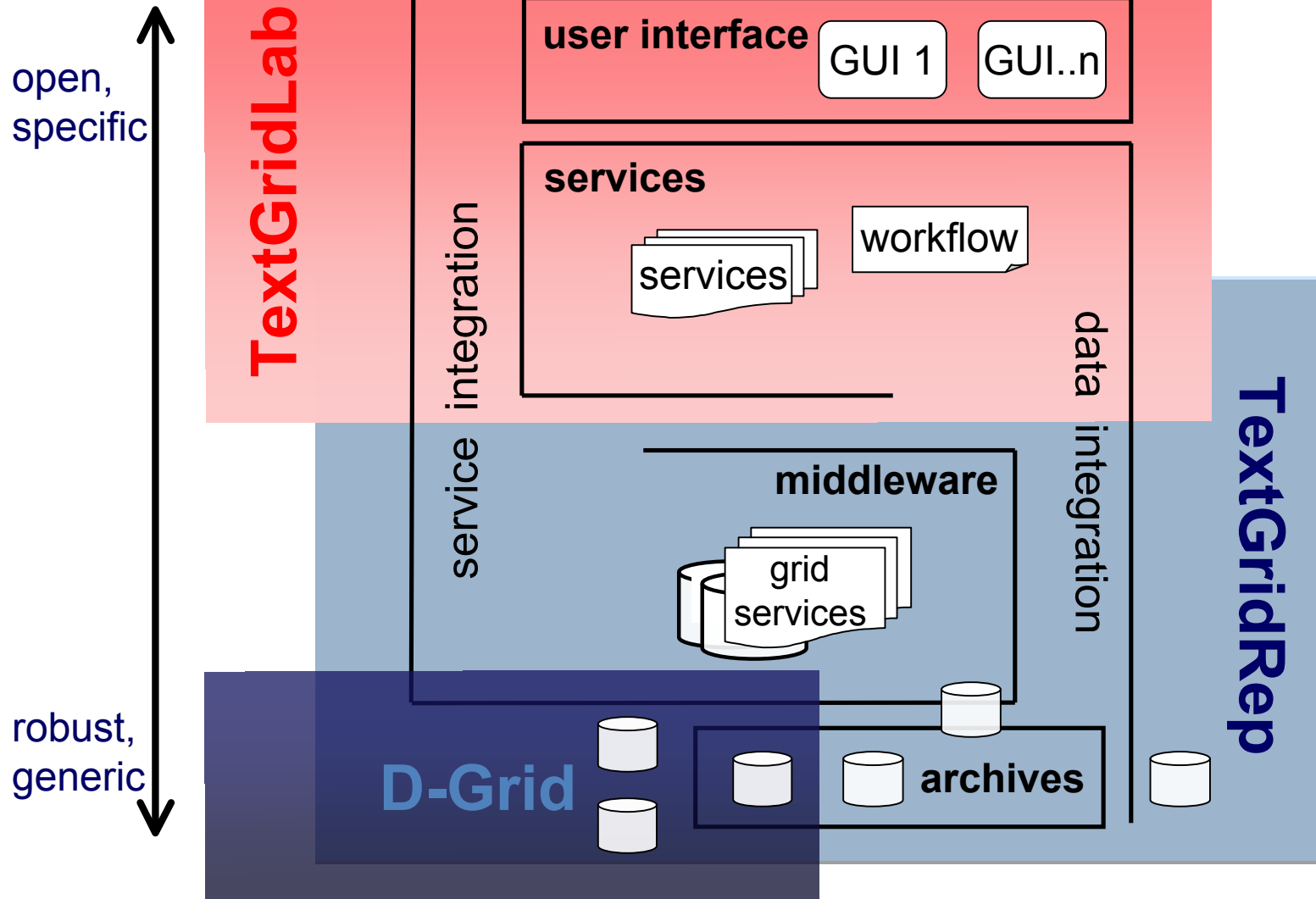


WP3: Long-term Preservation





Example





Example



T o o l s i n t h e T e x t G r i d L a b :



XML Editor



Text Image Editor

M o r e t h a n 4 8 0

r e g i s t e r e d (b e t a) t e s t e r s

M a n y r e s e a r c h g r o u p s t h a t w a n t t o u s e T e x t G r i d :

B l u m e n b a c h - O n l i n e , A r c h a e o 1 8 , F o n t a n e - E d i t i o n , e t c .



Tokenizer



Service Registry



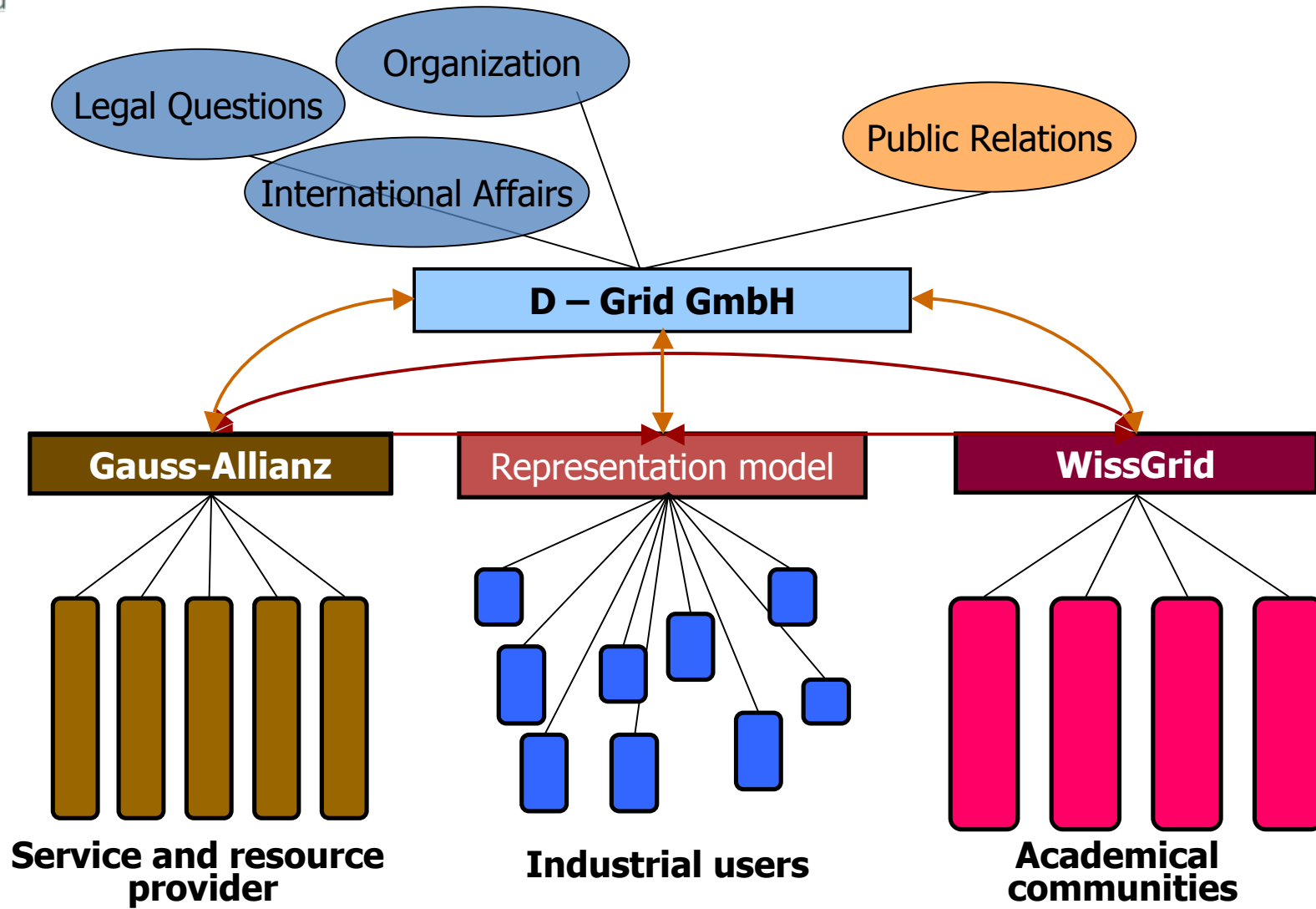
Sort Tool

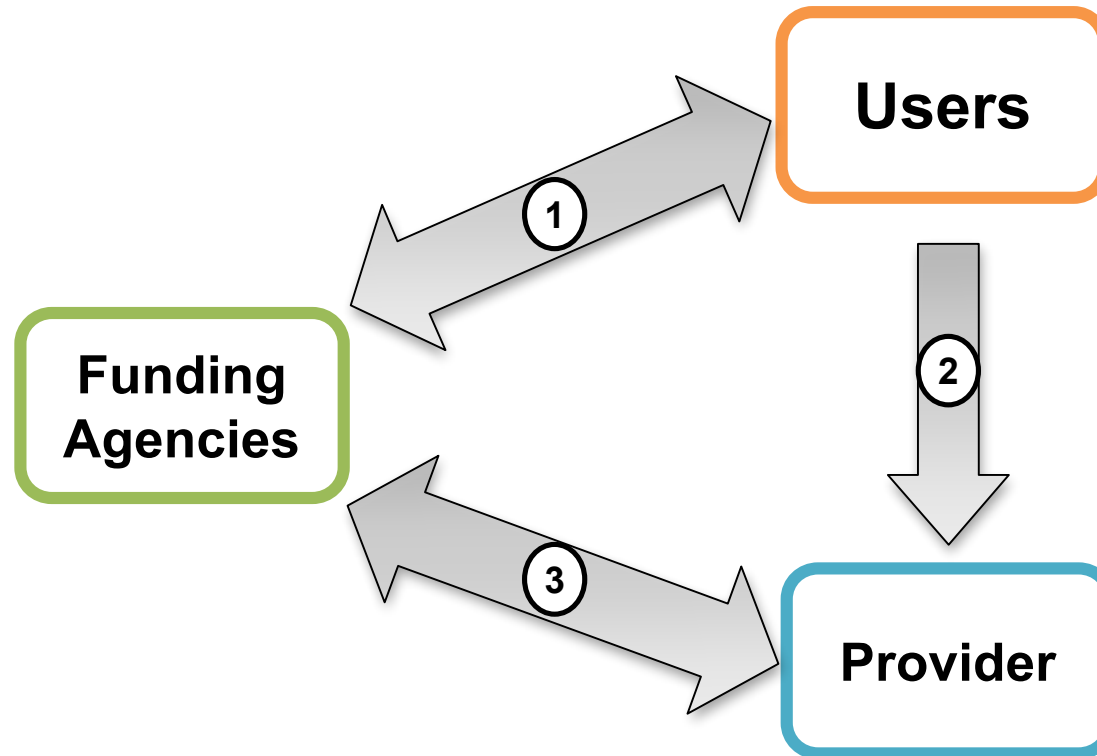
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or



Sustainability for Community Grids?

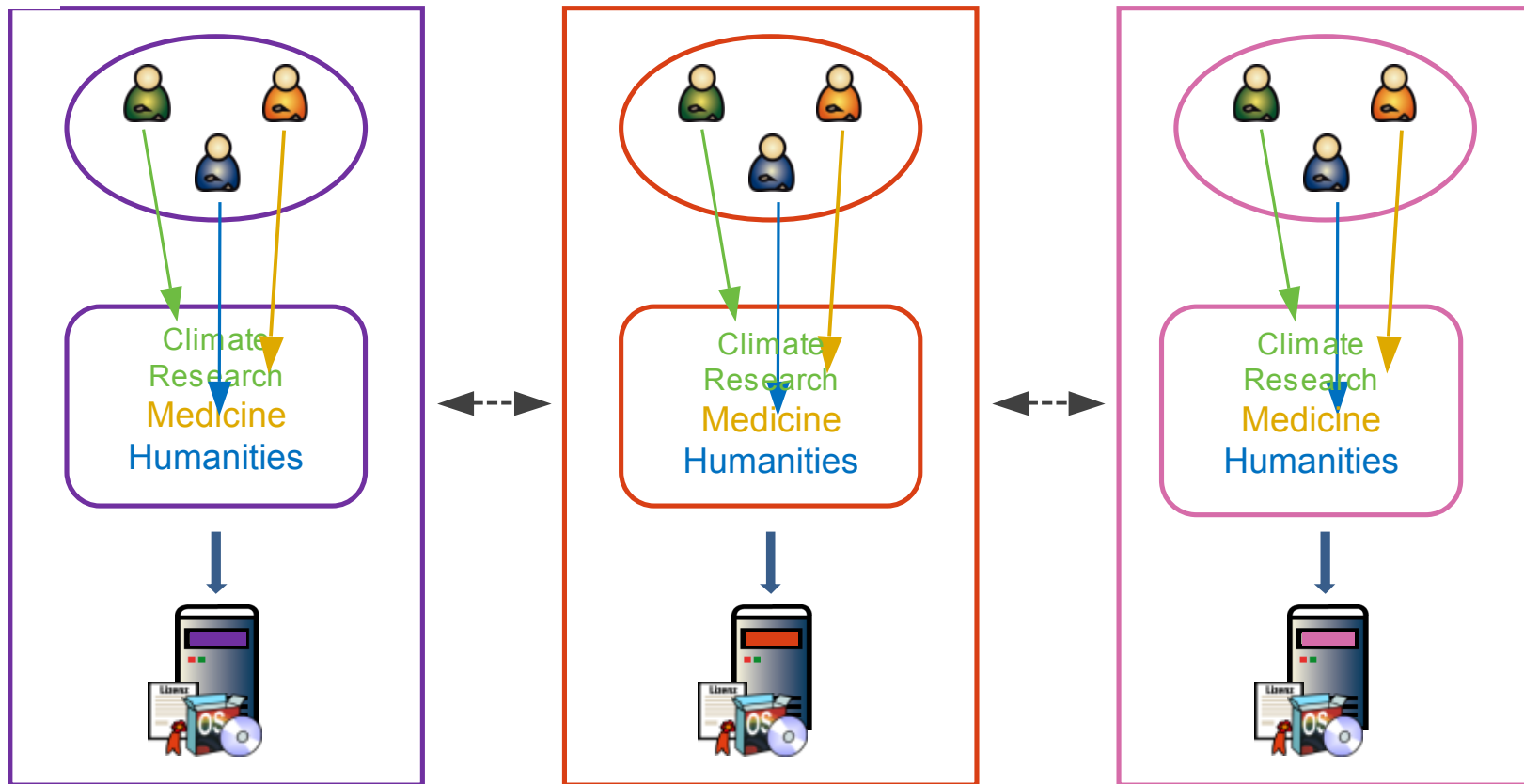




1. Project funding
2. No direct influence of users on infrastructure providers
3. Sustainability through periodical/institutional funding



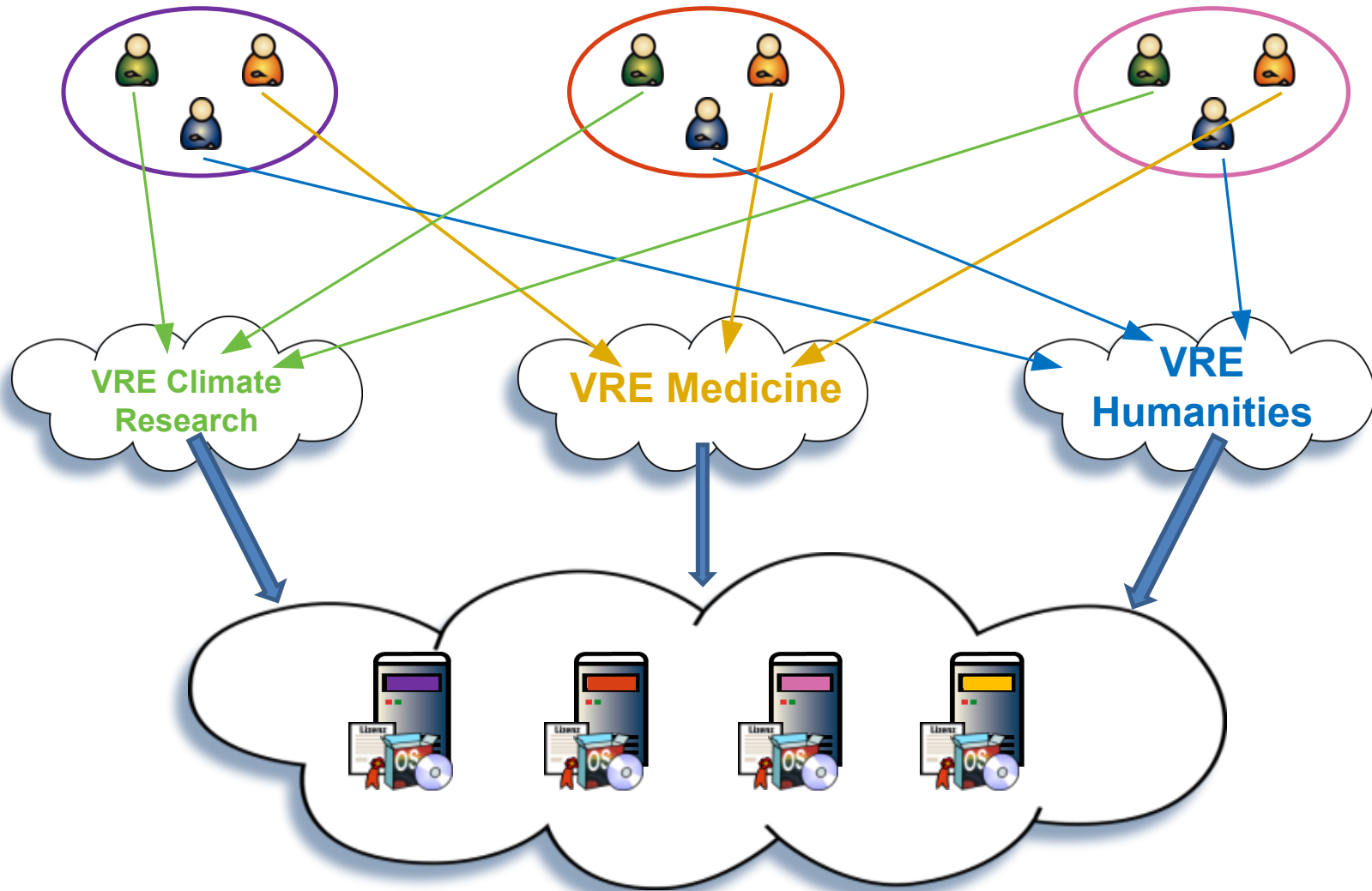
Research Environments: Current Status



Universities have to provide most IT infrastructure for all disciplines



Virtual Research Environments: the Future





WissGrid is a cross-disciplinary initiative

- addresses challenges and common issues of academic communities
 - e.g. data curation, long term preservation
 - broad variety of security requirements
- strictly user-oriented perspectives:
 - emphasizing the requirements of all disciplines
 - especially from the Humanities (as they are only now discovering the need for VRE and gridlike environments)



WissGrid is a cross-disciplinary initiative

- lobbies for new organizational structures and funding policies
 - more influence for the user communities / CGs
 - strengthen user representation in NGI/EGI (e.g. DGrid-Beirat / Beirat Gauß-Allianz)
 - address user requirements (e.g. IGE)
 - flexible IT infrastructure via (nonlocal) service offerings from specialized providers
- addresses legal obstacles for VREs

The Grid infrastructure is an essential component for Virtual Research Environments!



On behalf of the WissGrid Steering Board

Dr. Heike Neuroth(Humanities), Speaker

Dr. Harry Enke (Astronomy)

Dr. Bernadette Fritsch (Climate)

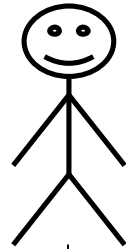
Prof. Ulrich Sax (Medicin)

Dr. Frank Schluenzen (Photon Physics)

www.wissgrid.de



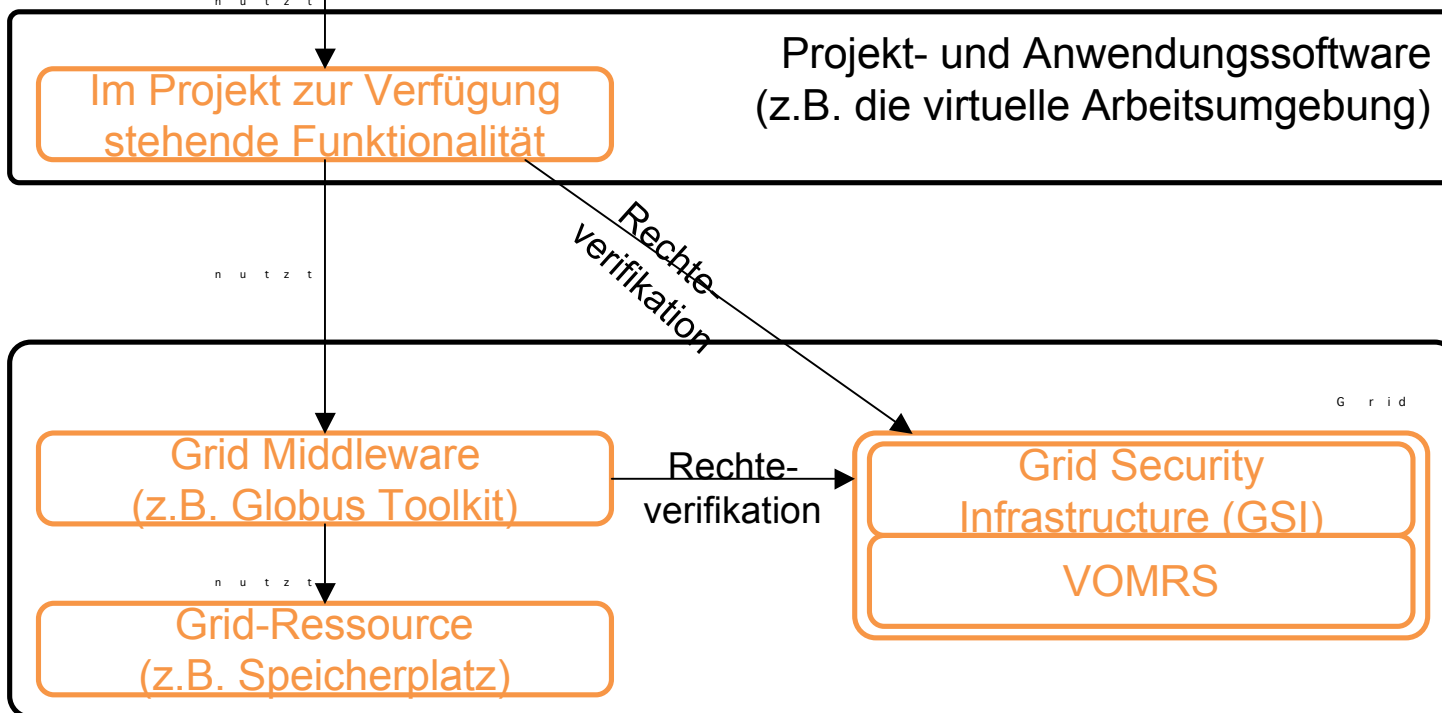
Datenbereitstellung und –sicherheit: SOEB



Expertise

VRE for Social Sciences Project SOEB

http://www.wissgrid.de/publikationen/Expertise_VirtAug.pdf

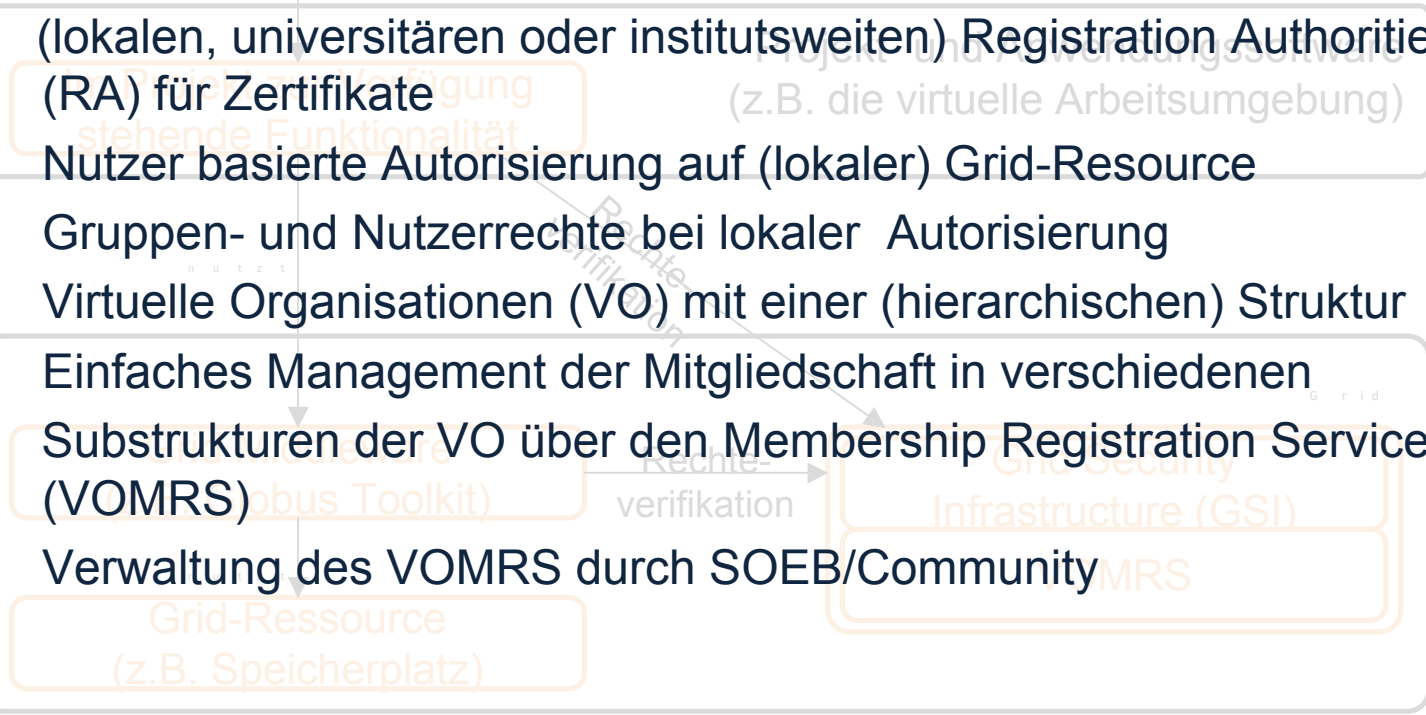




Datenbereitstellung und –sicherheit: SOEB

Grid Security Infrastruktur : (Middleware)

- Zertifikatsbasierte Authentifizierung
 - Durch zeitlich limitierte Proxy-Zertifikate Single-Sign-On
- Vorhandener „Chain of Trust“ durch GridKA und DFN mit (lokalen, universitären oder institutsweiten) Registration Authorities (RA) für Zertifikate (z.B. die virtuelle Arbeitsumgebung)
- Nutzer basierte Autorisierung auf (lokaler) Grid-Resource
- Gruppen- und Nutzerrechte bei lokaler Autorisierung
- Virtuelle Organisationen (VO) mit einer (hierarchischen) Struktur
- Einfaches Management der Mitgliedschaft in verschiedenen Substrukturen der VO über den Membership Registration Service (VOMRS)
- Verwaltung des VOMRS durch SOEB/Community





DGridVO/Grid Account Management

(dev. by AstroGrid-D)

VOMRS : VO Member-registration+management

volist : communication VOMRS/Site

Manage-Local-Grid-Accounts: gridmap management

