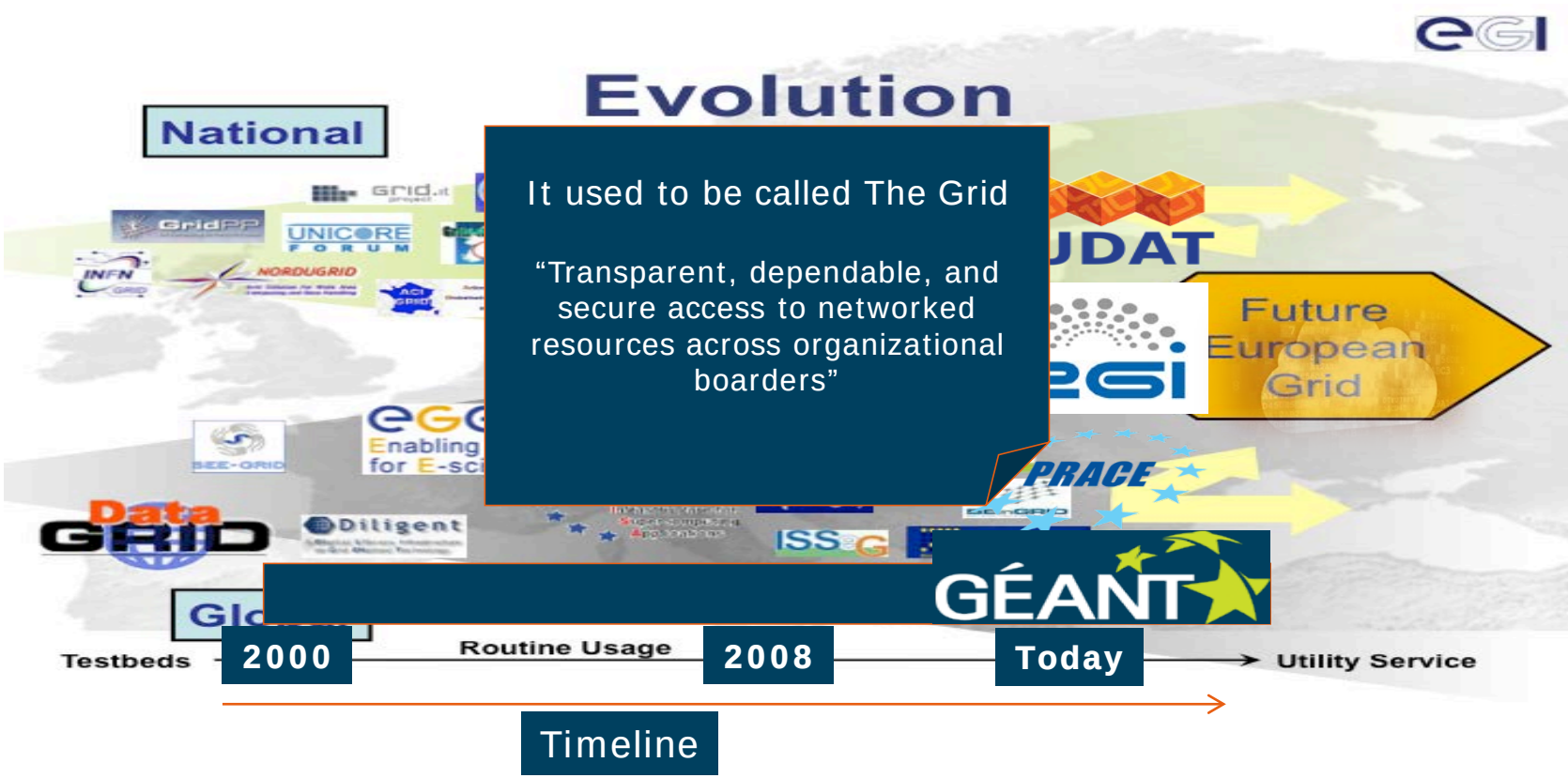
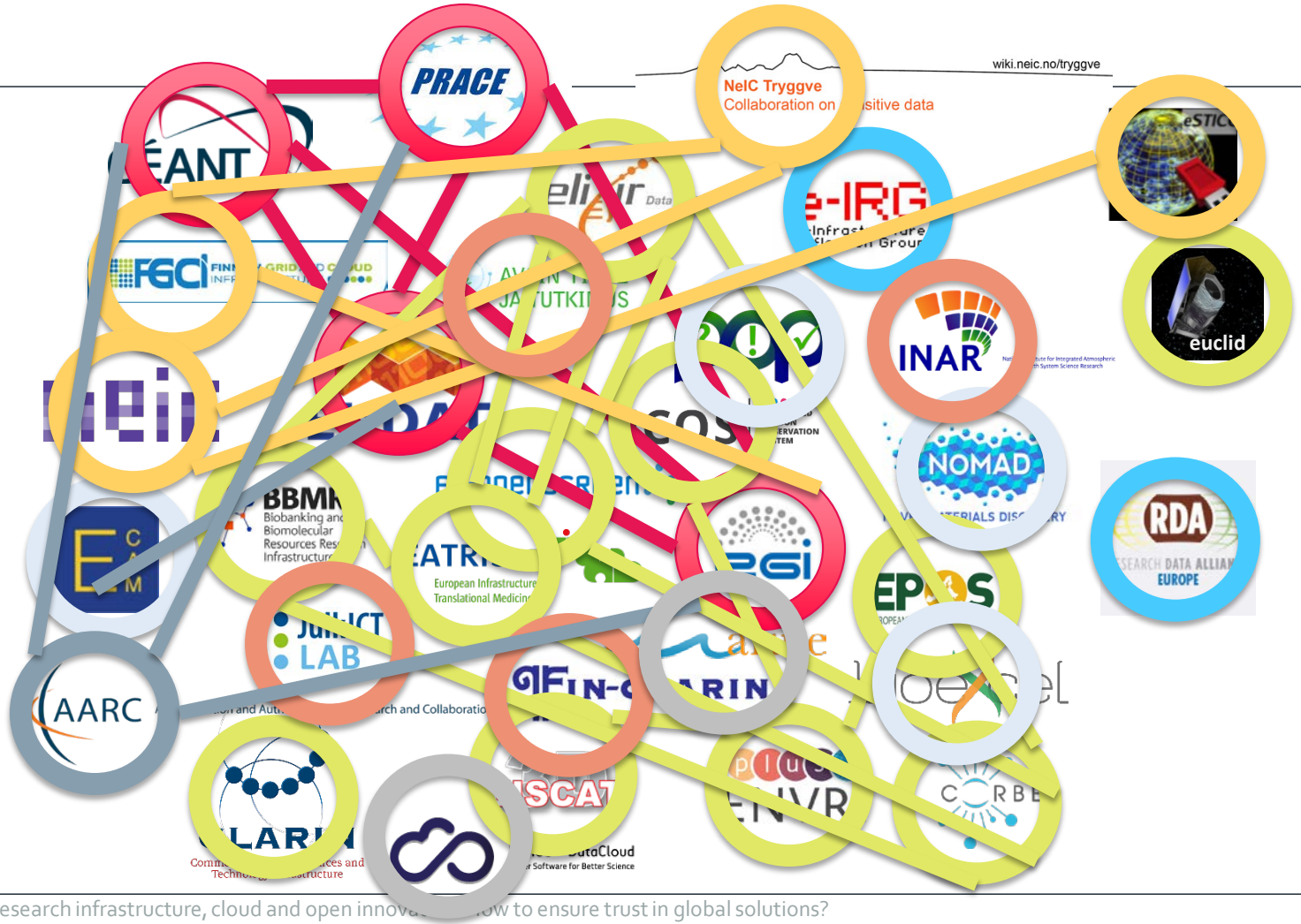
Open Forum Europe
1 Dec 2016

EOSC and Research e-Infrastructures

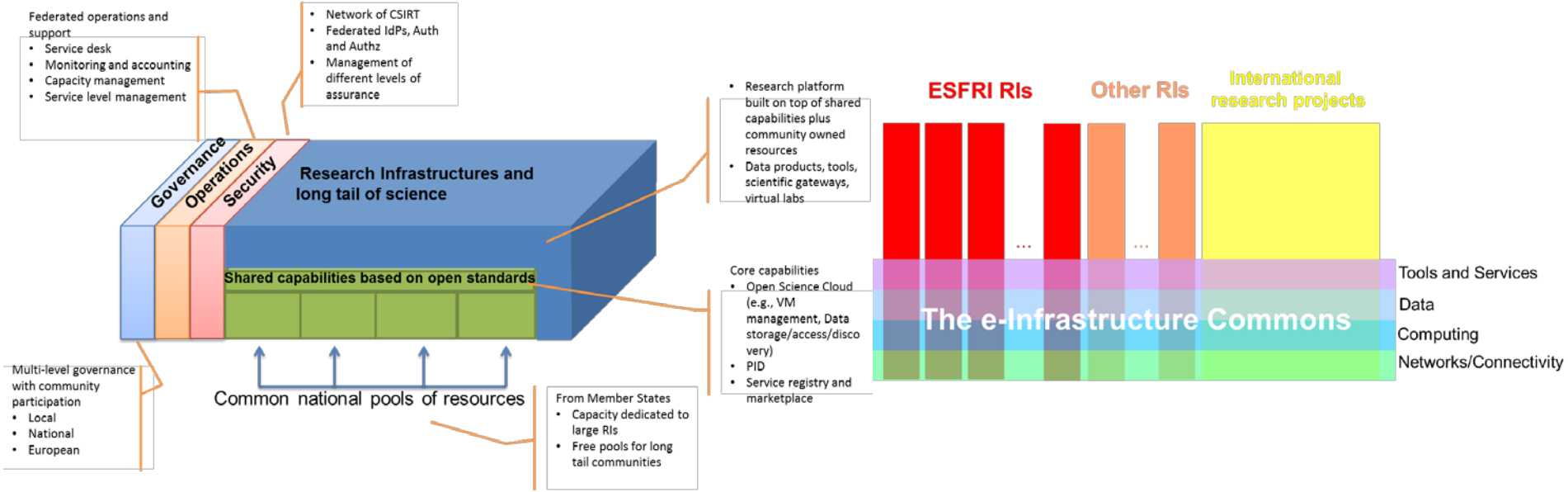
Research infrastructure, cloud and open innovation: How to ensure trust in global solutions?


Evolution
National
It used to be called The Grid
"Transparent, dependable, and secure access to networked resources across organizational boarders"
Future European Grid
GÉANT
PRACE
Testbeds
2000
Routine Usage
2008
Today
Utility Service
Timeline



Research infrastructure, cloud and open innova… …ow to ensure trust in global solutions?

Common e-Infrastructure



e-Infrastructure Commons

Principles of Commons	What it means to the e-Infrastructure Commons
Shared community resources	Research data, scientific instruments, digital services, software, scientific publications, educational and training, expertise
Community-based rules and procedures in place with built-in incentives for responsible use	Access modes are well defined and non-discriminatory for all members of the ERA (e.g. see charter for open access to RIs); clear points of access and support
Governance: the community is part	Governance model with multiple stakeholders, including research communities, scientific infrastructures, resource providers, national and European infrastructures, etc.
Long-term, persistent care for a given resource for the benefit of oneself and others	Long-term support of funding agencies to allow for infrastructures to take a long-term view and build for a common European future

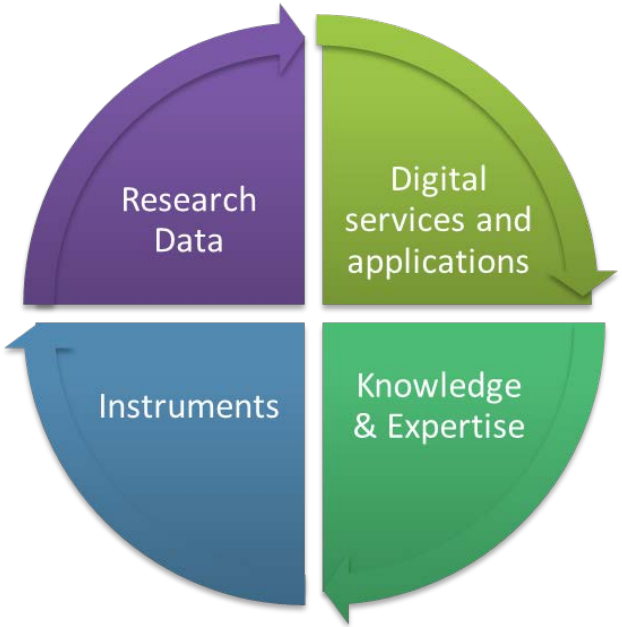
Not Just Technologies

Open Science

***Opening** of the **creation** and **dissemination** of **scholarly knowledge** towards a multitude of stakeholders, from professional researchers to citizens*

It needs:

- Shared resources
  - Integrated, easy and fair access
- Engaged communities
  - Participating in the process
  - Collaborating in the management and stewardship
- Governance
  - Rules to access/exclude
  - Rules to resolve conflicts
- Financial support
  - For long-term availability



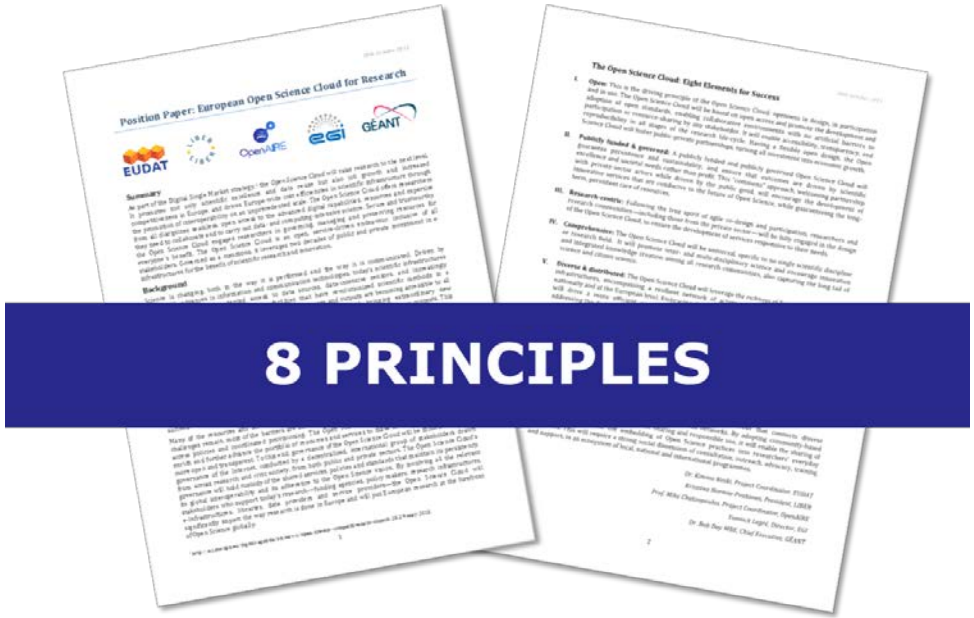
Philosophy of Open Science

School of thought	Involved groups	Central assumption	Central Aim	Tools & Methods
Democratic	Scientists, politicians, citizens	The access to knowledge is unequally distributed	**Making knowledge freely available for everyone**	Open access, intellectual property rights, Open data, Open code
Public	Scientists & citizens	Science needs to be made accessible to the public	**Making science accessible for citizens**	Citizen Science, Science PR, Science Blogging
Infrastructure	Scientists & platform providers	Efficient research depends on the available tools, applications and shared infrastructures	**Creating openly available platforms, tools and services for scientists**	Collaboration platforms, tools, computing platforms
Pragmatic	Scientists	Knowledge creation could be more efficient if scientists collaborated	**Opening up the process of knowledge creation**	Wisdom of the crowds, network effects, Open Data, Open Code
Measurement	Scientists & politicians	Scientific contributions today need alternative impact measurements	**Developing an alternative metric system for scientific impact**	Altmetrics, peer review, citation, impact factor

Source: http://www.openingscience.org/get-the-book/

Joint e-Infrastructure Vision

The Open Science Cloud offers researchers from all disciplines seamless, open access to the advanced digital capabilities, resources and expertise they need to collaborate and to carry out data- and computing-intensive science. Secure and trustworthy, the Open Science Cloud engages researchers in governing, managing and preserving resources for everyone's benefit.



- Open
- Publicly funded & governed
- Research-centric
- Comprehensive
- Diverse & distributed
- Interoperable
- Service-oriented
- Social

http://dx.doi.org/10.5281/zenodo.32915

Science 2.0: science in transition, 2014

- Preference for "Open Science" to "Science 2.0"
- Need for policy interventions
- Open Access and Copyright Regulation
- Role of Citizen Science
- Researcher Careers and Skills
- Peer review, research evaluation and metrics

Digital Single Market Strategy, May 2015

» *The Commission will propose in 2016 a European 'Free flow of data' initiative that tackles restrictions on the free movement of data for reasons other than the protection of personal data within the EU and unjustified restrictions on the location of data for storage or processing purposes. It will address the emerging issues of ownership, interoperability, usability and access to data in situations such as business-to-business, business to consumer, machine generated and machine-to-machine data. It will encourage access to public data to help drive innovation. The Commission will launch a European Cloud initiative including cloud services certification, contracts, switching of cloud services providers and a research open science cloud*

European Cloud Initiative, April 2016

- Building a competitive data and knowledge economy in Europe
  - to develop a trusted, open environment for the scientific community for storing, sharing and re-using scientific data and results- the **European Open Science Cloud**
  - to deploy the underpinning super-computing capacity, the fast connectivity and the high-capacity cloud solutions they need via a **European Data Infrastructure**
  - Focussing initially on the scientific community, the user base will be expanded to the public sector and to industry, creating solutions and technologies that will benefit all areas of the economy and society

Realising the European Open Science Cloud, HLEG Report, Oct 2016

Implementation recommendations

- I1: Turn the HLEG report into a high-level guide to scope and guide the EOSC initiative.
- I2: Develop, endorse and implement the Rules of Engagement for the EOSC.
- I2.1: Set initial guiding principles to kick-start the initiative as quickly as possible.
- I3: Fund a concerted effort to develop core data expertise in Europe.
- I4: Develop a concrete plan for the architecture of data interoperability of the EOSC.
- I5: Install an innovative guided funding scheme for the preparatory phase.
- I6: Make adequate data stewardship mandatory for all research proposals.
- I7: Provide a clear operational timeline to deal with the early preparatory phase of the EOSC.

Policy recommendations

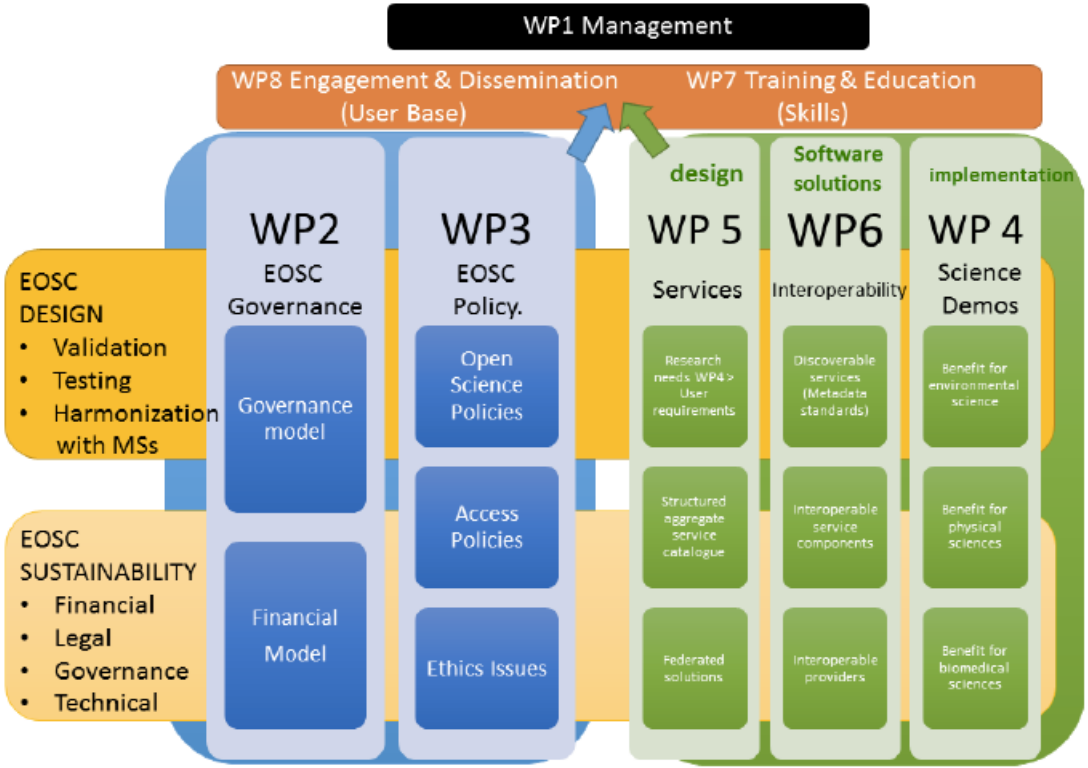
- P1: Take immediate, affirmative action on the EOSC in close concert with Member States.
- P2: Close discussions about the 'perceived need'.
- P3: Build on existing capacity and expertise where possible.
- P4: Frame the EOSC as the EU contribution to an Internet of FAIR Data and Services underpinned with open protocols.

Governance recommendations

- G1: Aim at the lightest possible, internationally effective governance.
- G2: Guidance only where guidance is due (this relates to technical issues, best practices and social change).
- G3: Define Rules of Engagement for service provision in the EOSC.
- G4: Federate the gems and amplify good practice.

EOSC Pilot Project

Number	Short name	Participant Legal Name	Country
1	STFC	SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	UK
2	CSC	CSC-TIETEEN TIETOTEKNIIKAN KESKUS OY	FI
3	MPG	MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV	DE
4	EMBL	EUROPEAN MOLECULAR BIOLOGY LABORATORY	DE
5	SURF	SURF	NL
6	EGI	Stichting EGI	NL
7	CNRS	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	FR
8	KIT	KARLSRUHER INSTITUT FUER TECHNOLOGIE	DE
9	UEDIN	THE UNIVERSITY OF EDINBURGH	UK
10	LIBER	STICHTING LIBER	NL
11	TRUST-IT	TRUST-IT SERVICES LIMITED	UK
12	ARC	ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES	EL
13	JISC	JISC LBG	UK
14	PRACE	PARTNERSHIP FOR ADVANCED COMPUTINGIN EUROPE AISBL	BE
15	CNR	CONSIGLIO NAZIONALE DELLE RICERCHE	IT
16	INFN	ISTITUTO NAZIONALE DI FISICA NUCLEARE	IT
17	DESY	STIFTUNG DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY	DE
18	INGV	ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA	IT
19	BSC	BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION	ES
20	UGOE	GEORG-AUGUST-UNIVERSITAET GOETTINGEN STIFTUNG OEFFENTLICHEN RECHTS	DE
21	DANS	KONINKLIJKE NEDERLANDSE AKADEMIE VAN WETENSCHAPPEN - KNAW	NL
22	ICOS	ICOS ERIC	FI
23	GEANT	GEANT VERENIGING	NL
24	INAF	ISTITUTO NAZIONALE DI ASTROFISICA	IT
25	BBMRI	BIOBANKS AND BIOMOLECULAR RESOURCES RESEARCH INFRASTRUCTURE CONSORTIUM (BBMRI-ERIC)	AT
26	ESS	EUROPEAN SPALLATION SOURCE ERIC	SE
27	BGS	NATURAL ENVIRONMENT RESEARCH COUNCIL	UK
28	XFEL	EUROPEAN X-RAY FREE-ELECTRON LASER FACILITY GMBH	DE
29	ECRIN	ECRIN EUROPEAN CLINICAL RESEARCH INFRASTRUCTURE NETWORK	FR
30	UMAN	THE UNIVERSITY OF MANCHESTER	UK
31	PIN	PIN SOC.CONS. A R L. - SERVIZI DIDATTICI E SCIENTIFICI PER L UNIVERSITA DI FIRENZE	IT
32	CEA	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	FR
33	CINECA	CONSORZIO INTERUNIVERSITARIO CINECA	IT



Matthew Dovey

Head of Research Technologies

Jisc Technologies

matthew.dovey@jisc.ac.uk

jisc.ac.uk