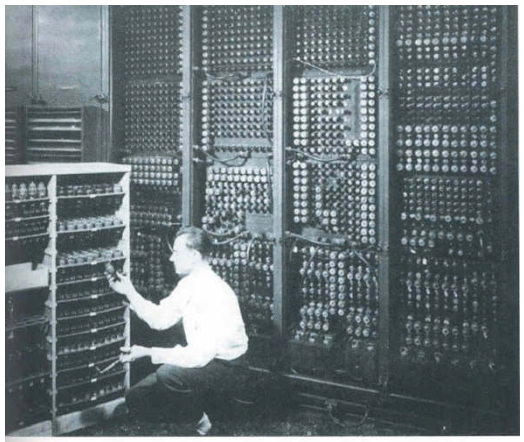
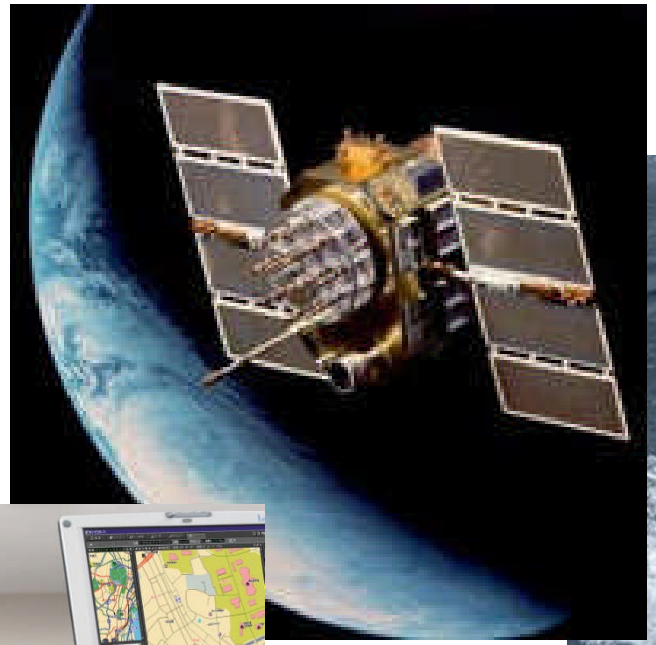
Data publishing in the context of the ICSU World Data System (WDS)

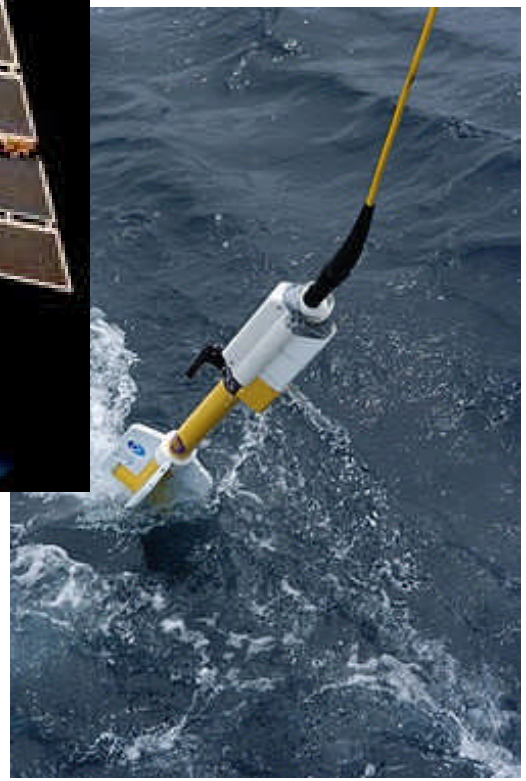
Michael Diepenbroek
PANGAEA / WDC-MARE

Technical development

ENIAC, 1944



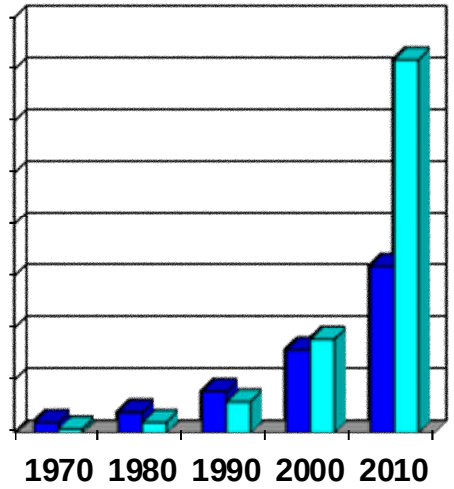


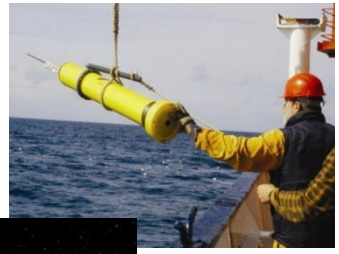


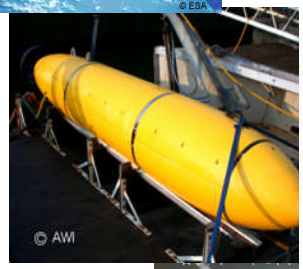
Magnetometer

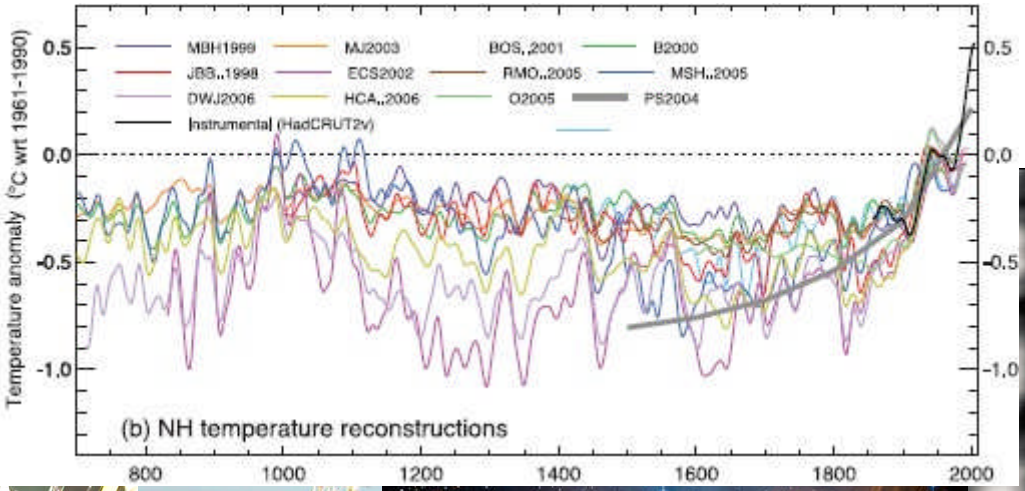
Data Driven Science

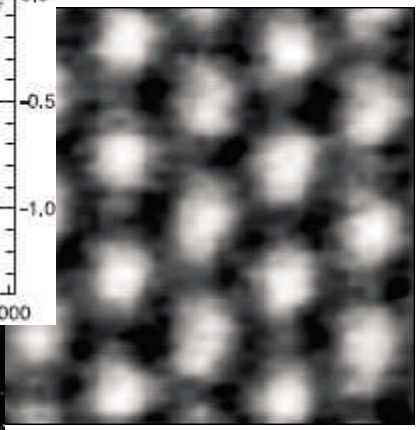
ICSU WORLD DATA SYSTEM

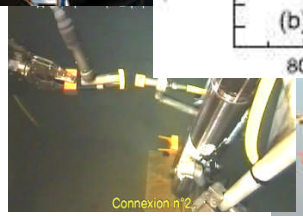






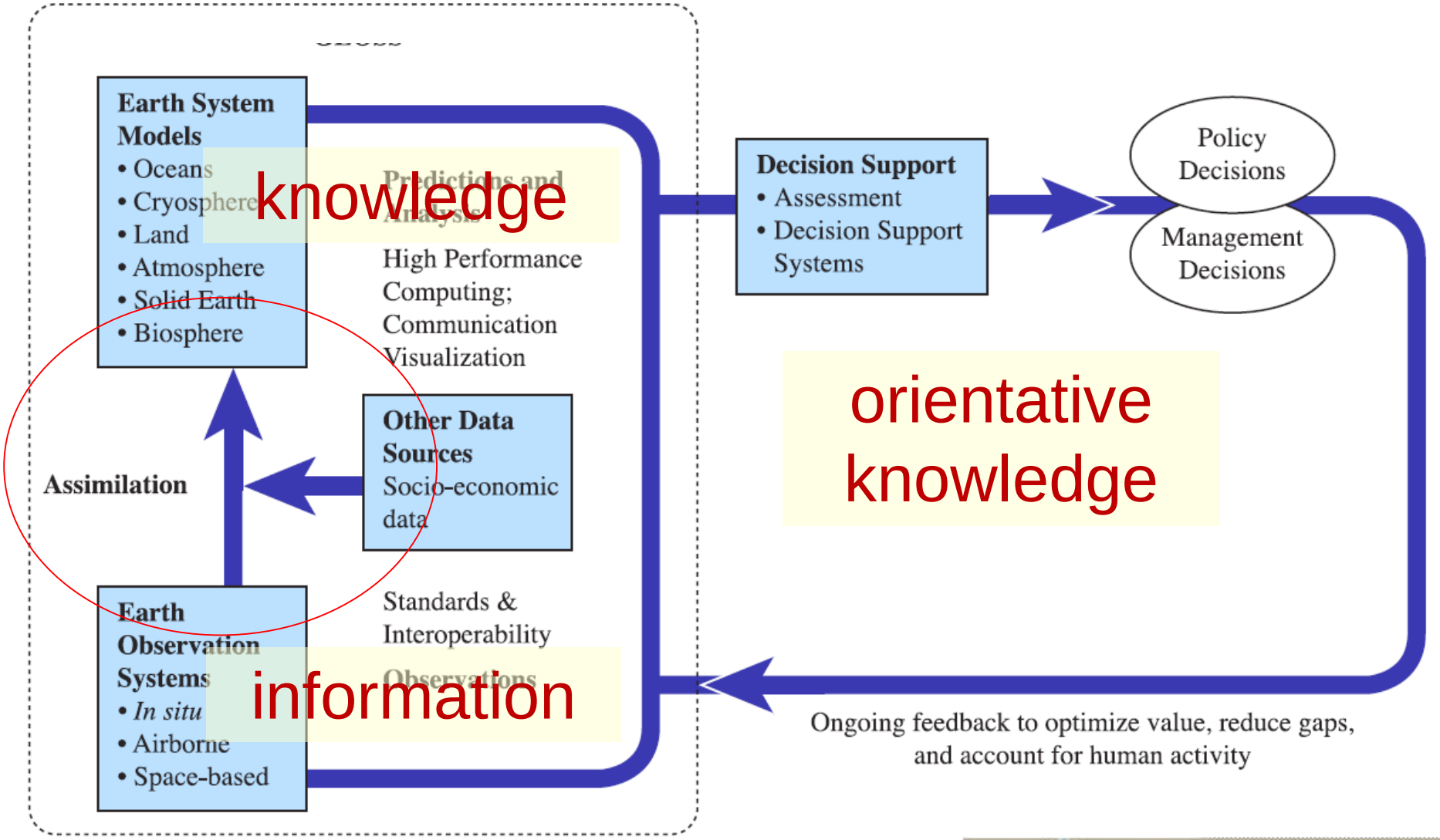






GEOSS *Global Earth Observation System of Systems*

ICSU WORLD DATA SYSTEM

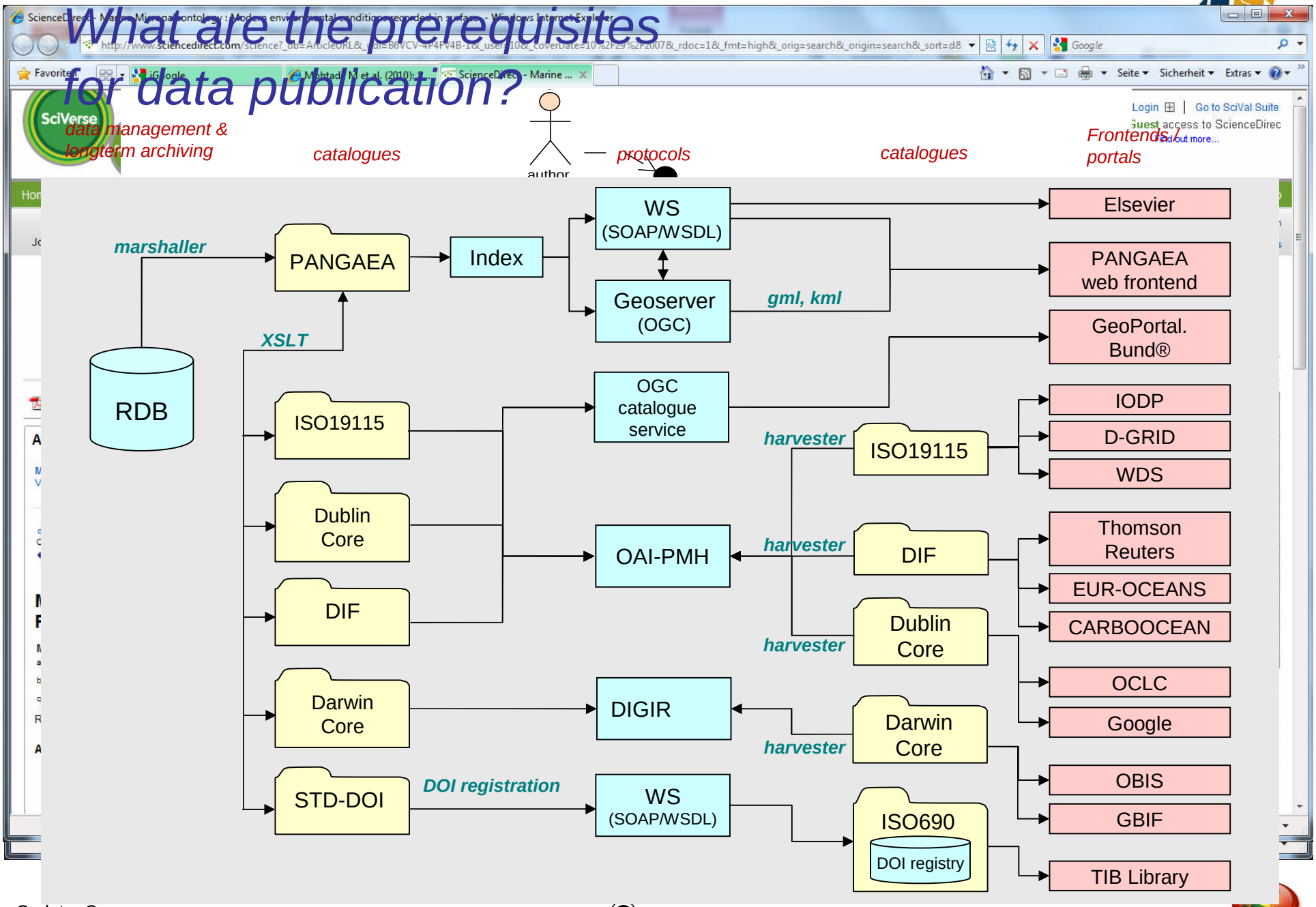


GEO Group on Earth Observations

Why do we need publishing systems for scientific data?

- Good data availability fosters large scale & complex science approaches.
- „Data recycling“ is more effective than re-production.
- General data availability is low compared to data production.
- Available data are often not usable because the quality cannot be estimated.
- **Prerequisite for the verification of scientific results.**
- **Benefit to data producers (publications = science currency)**

What are the prerequisites for data publication?



ICSU World Data Centers (WDC)

Geophysical Year 1957

ICSU WORLD DATA SYSTEM

•Airglow
Mitaka,Japan

•Astronomy
Beijing, China

•Atmospheric Trace Gases
Oak Ridge TN, USA

•Aurora
Tokyo, Japan

•Cosmic Rays
Toyokawa, Japan

•Earth Tides
Brussels, Belgium

•Geology
Beijing, China

•Geomagnetism
Copenhagen, Denmark
Edinburgh, UK
Kyoto, Japan
Colaba, India

•Glaciology
Boulder CO, USA
Cambridge, UK
Lanzhou, China

•Human Interactions in the Environment
Palisades NY, USA

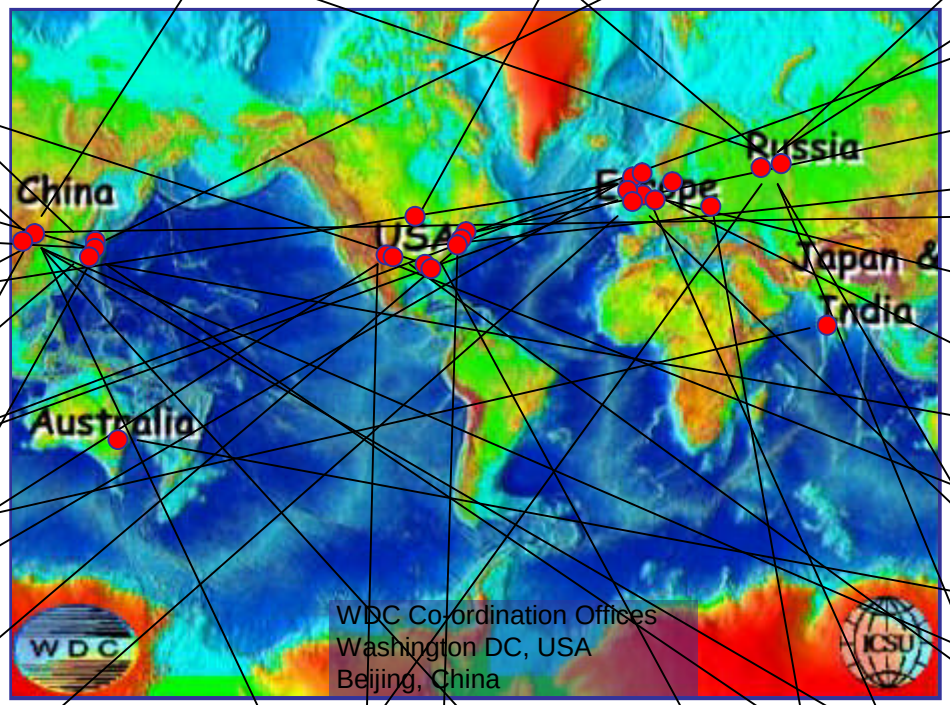
•Ionosphere
Tokyo, Japan

•Marine Environmental Sciences
Germany, (2001)

•Meteorology
Asheville NC, USA
Beijing, China
Obninsk, Russia

•Marine Geology and Geophysics
Boulder CO, USA
Moscow, Russia

•Nuclear Radiation
Tokyo, Japan



WDC Co-ordination Offices
Washington DC, USA
Beijing, China

•Oceaography
Obninsk, Russia
Silver Spring MD, USA
Tianjin, China

•Paleoclimatology
Boulder CO, USA

•Recent Crustal Movements
Ondrejov, Czech Republic

•Remotely Sensed Land Data
Sioux Falls SD, USA

•Renewable Resources and Environment
Beijing, China

•Rockets and Satellites
Obninsk, Russia

•Rotation of the Earth
Obninsk, Russia
Washington DC, USA

•Satellite Information
Greenbelt MD, USA

•Seismology
Denver CO, USA
Beijing, China

•Soils
Wageningen, The Netherlands

•Solar Activity
Meudon, France

•Solar Radio Emission
Nagano, Japan

•Solar Terrestrial Physics
Boulder CO, USA
Didcot Oxon, UK
Moscow, Russia
Haymarket, Australia

•Solid Earth Geophysics
Beijing, China
Boulder CO, USA
Moscow, Russia

•Space Science
Beijing, China

•Space Science Satellites
Kanagawa, Japan

•Sunspot Index
Brussels, Belgium

Initial position of WDS

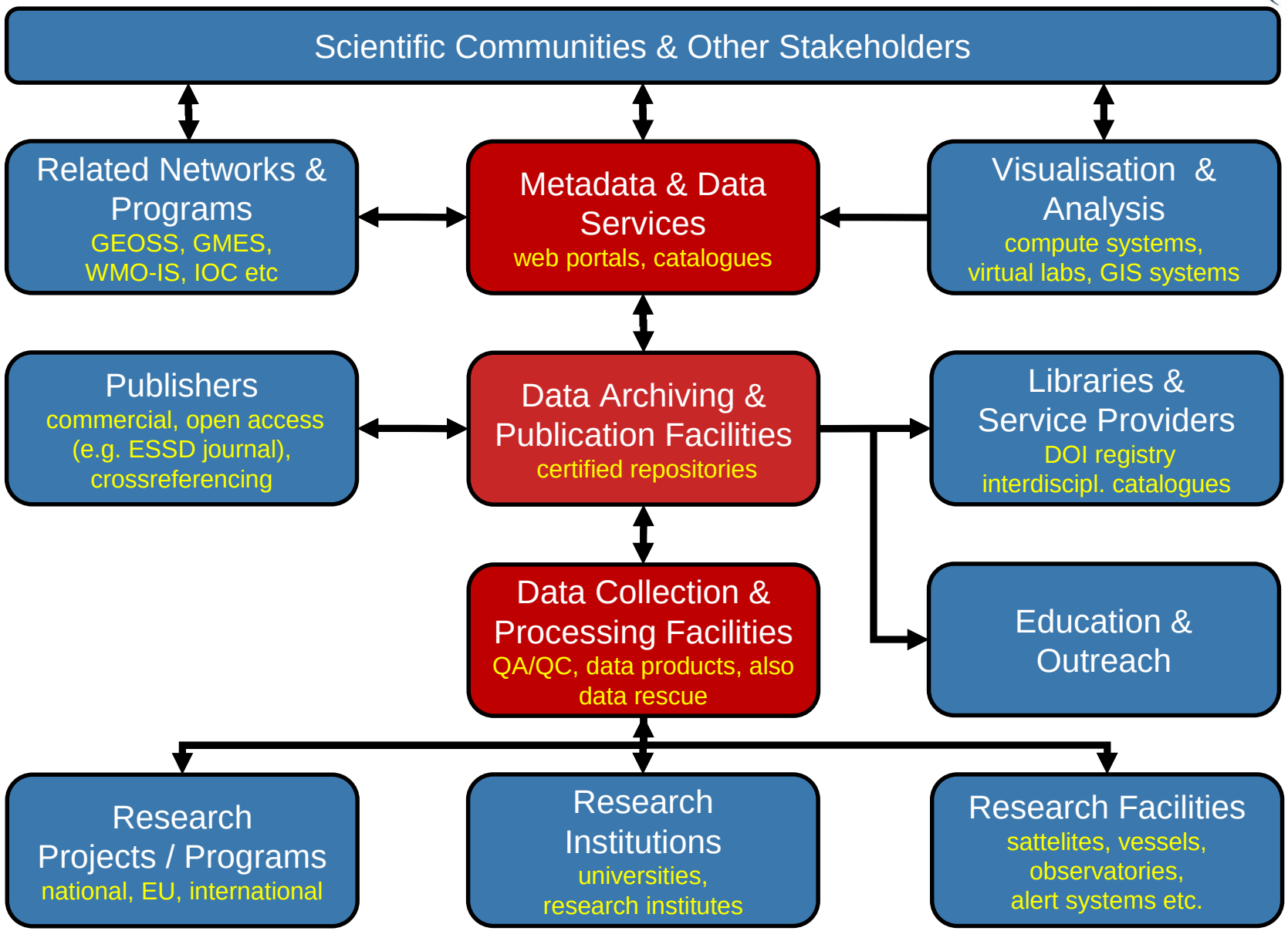
Contra

- Insufficient funding (of course)
- Organisation and quality of data services are not consistent
- IT development is fast – no time for legacies
- Fragmentation of efforts

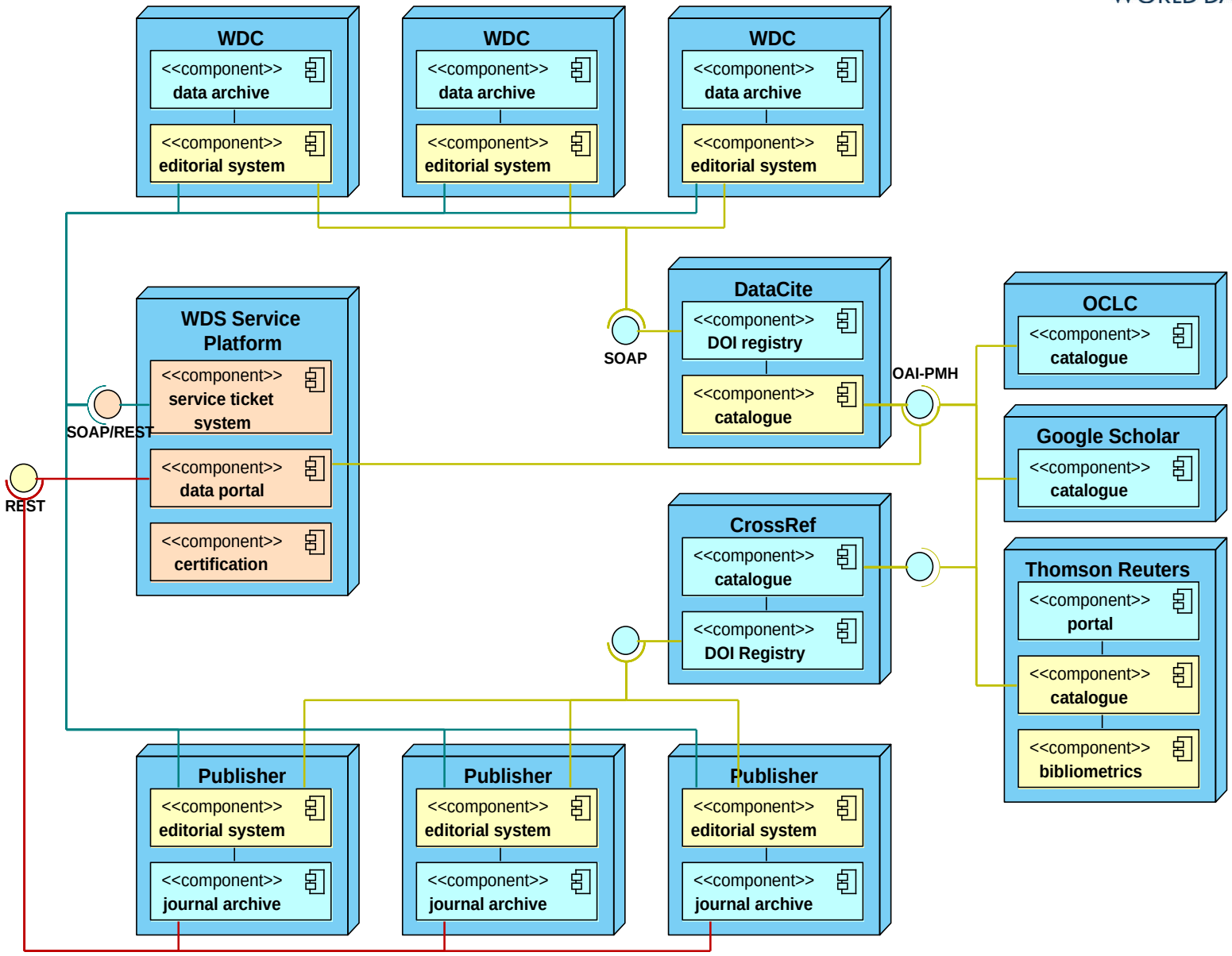
Pro

- Long standing experience & know how & motivation
- Good context with science
- Open access for all data resources
- As a whole a very large global data management capacity
- Trans-disciplinary !

ICSU WDS - *Roles & relations in a federated system*



WDS implementation



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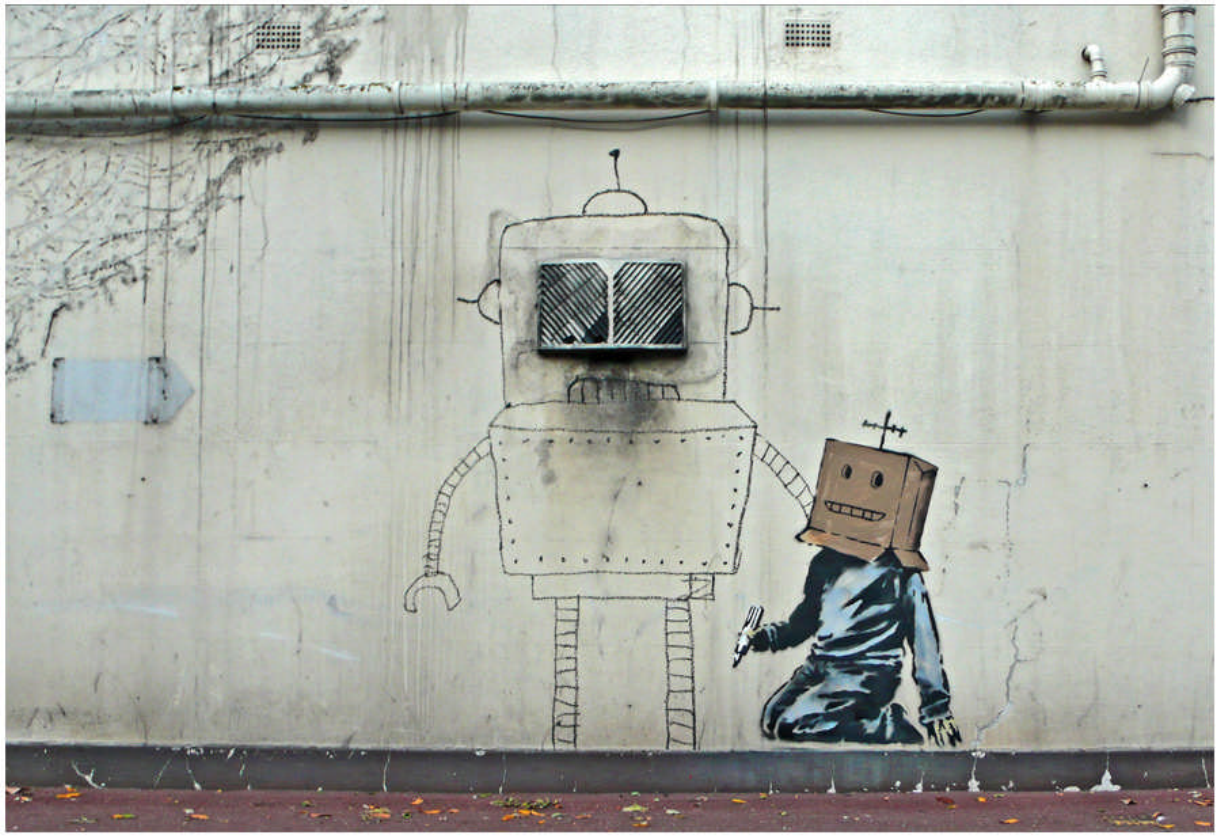
WORLD DATA SYSTEM



Thank you !