

# European Plate Observing System (EPOS) - die europäische Infrastruktur zur nachhaltigen Integrierung von multidisziplinären Daten zur Festen Erde

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Helmholtz Open Access Webinare zu Forschungsdaten  
Webinar 20 - 26.03./03.04.14



[www.epos-eu.org](http://www.epos-eu.org)



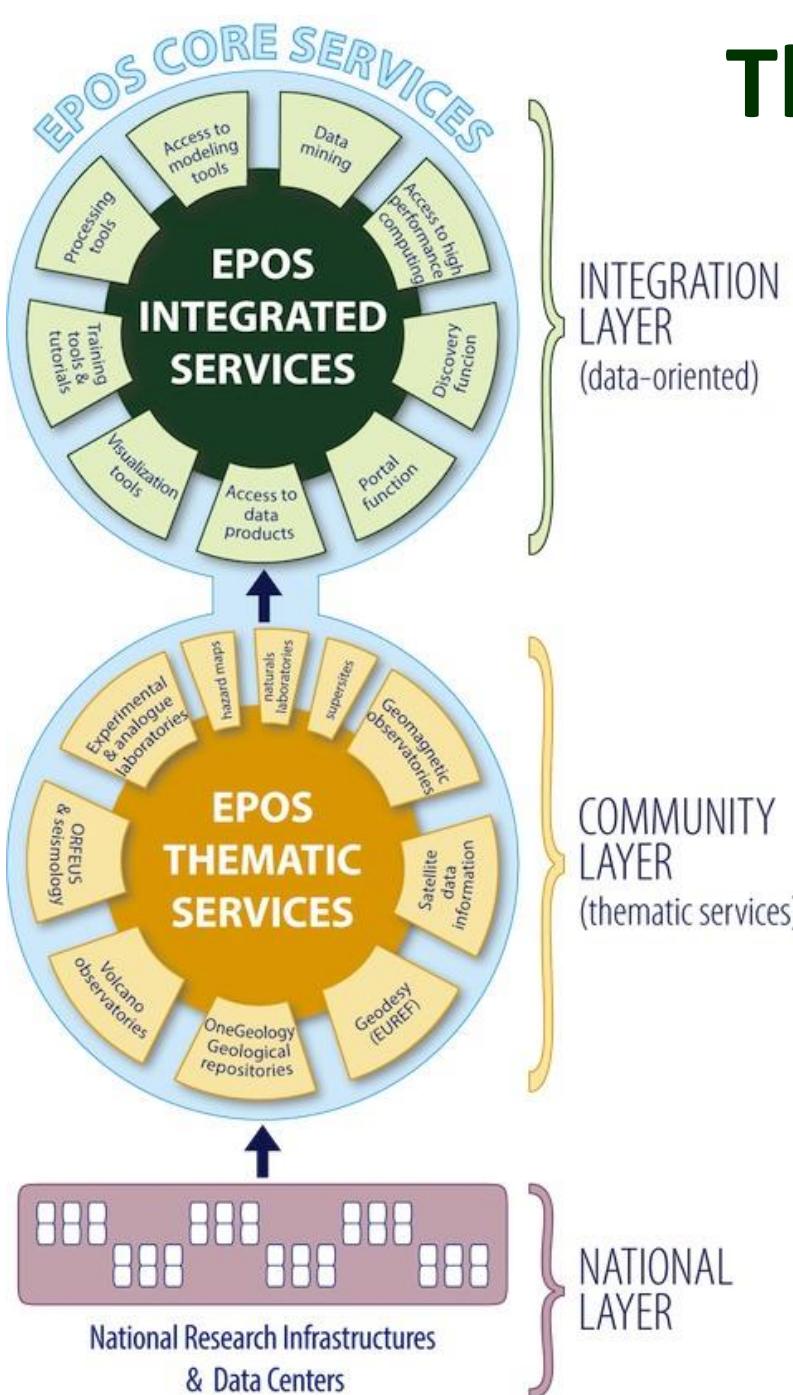
# What is EPOS ?

**EPOS** is a long-term integration plan that aims to create a **single sustainable, permanent and distributed infrastructure** that includes:

- geophysical and geodetic monitoring networks
- local observatories (including permanent in-situ and volcano observatories)
- experimental & analogue laboratories in Europe

**EPOS** will give **open access** to geophysical and geological data and modelling tools, enabling a step change in **multidisciplinary scientific research** into different areas

# The EPOS Architecture



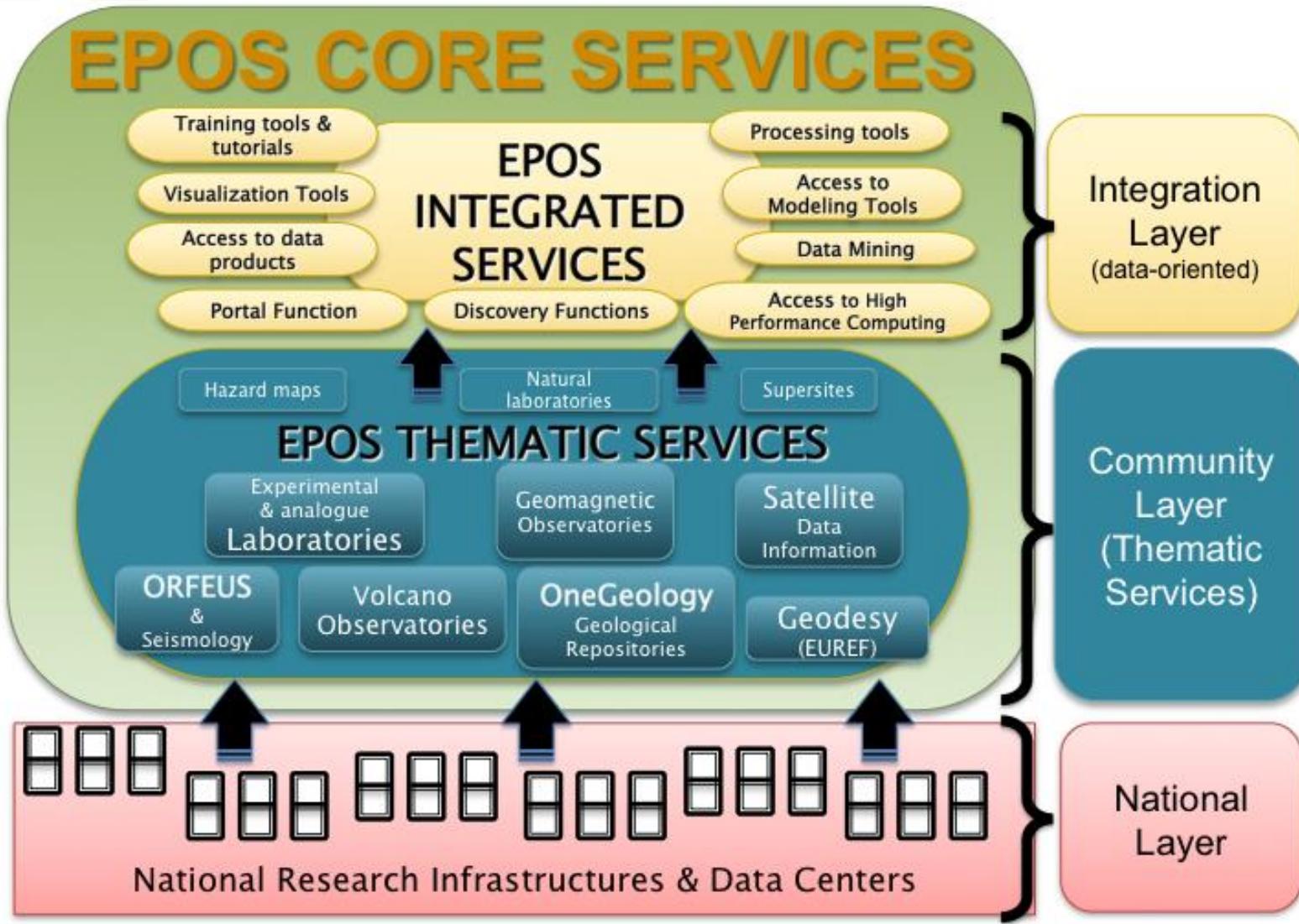
The **EPOS Integrated Core Services** will provide access to multidisciplinary data, data products, synthetic data from simulations, processing and visualization tools

The **EPOS Integrated Core Services** will serve scientists and other stakeholders, young researchers (training), professionals and industry

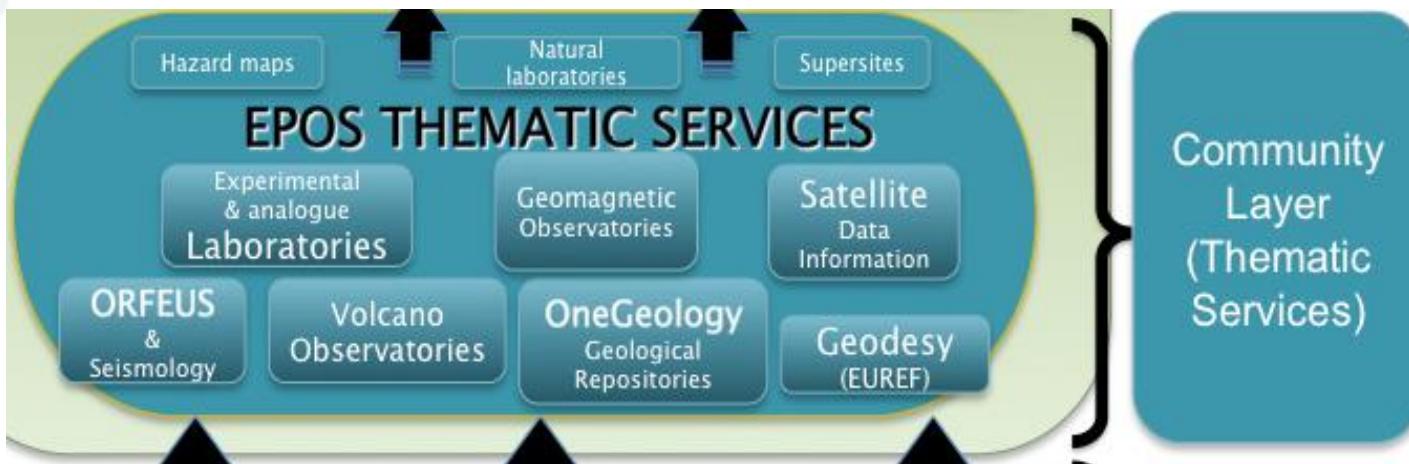
**EPOS** is more than a mere data portal: it will not only provide data but also **integrate**, **analyse**, **compare**, **interpret** and **present** data and information about **Solid Earth**.

**Thematic Core Services** are infrastructures to provide **data services to specific communities** (they might be international organizations, such as ORFEUS for seismology)

**National Research Infrastructures and facilities** provide **services at national level** and send data to the European thematic data infrastructures.



# The Community Layer of Thematic Services

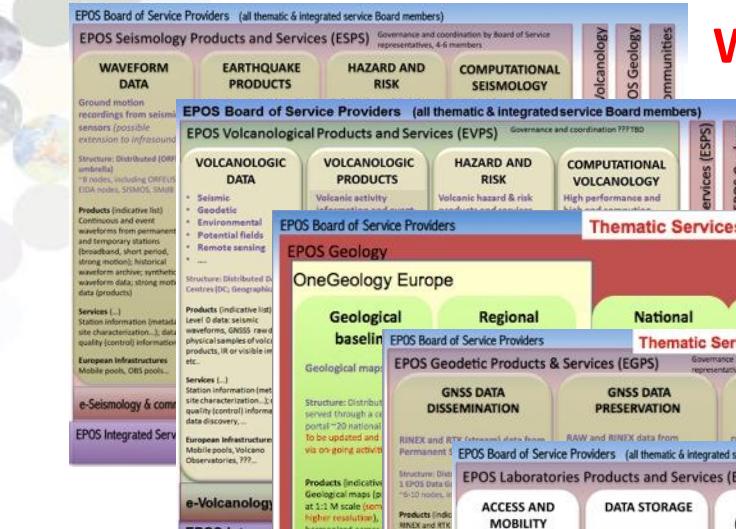


## Thematic Core Services:

- are infrastructures to provide **data services to specific communities**
- also **link** the National Research Infrastructures to the EPOS Integrated Services
- consist of **existing** (e.g. ORFEUS, EMSC, EFEHR, etc.), **developing** (e.g. EUREF/GNSS) or **still to be developed Service Providers** for specific thematic communities (e.g., seismology, volcanology, geodesy, geology, geomagnetism, geo-resources ... and many more)
- some Service Providers (e.g. OneGeology+, Intermagnet) may be **merely linked or partially integrated**
- **Integrated Laboratories**, and RIs spanning **multiple EPOS disciplines**, will also be included in this layer; their **new Thematic Nodes** will take advantage of other existing Thematic Services

# The EPOS Working Groups and their vision of Thematic Core Services (TCS)

- Governance
- Data Products
- Services
- Socio-Economic Impact



## WG1 - Seismology

## WG2 - Volcanology

## WG3 – Geological Data

## WG4 – GNSS Data

## WG5a – Ocean Bottom Sensors

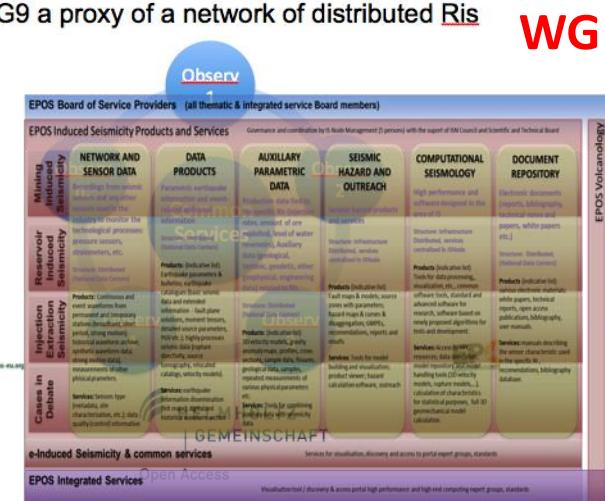
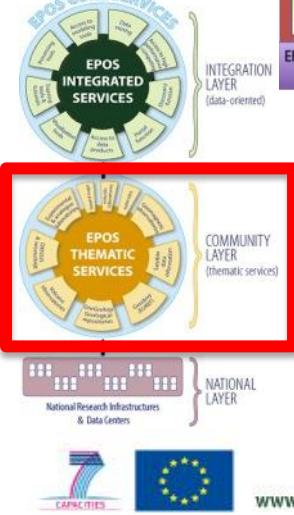
## WG5b - Near Fault Observatories

## WG6 – Analytical and Experimental Laboratories

## WG8 – Satellite Data

## WG 9 – Geomagnetic Observatories

## WG10 - Infrastructures for Georesources



# The RIDE Catalogue of EPOS Research Infrastructures



**RIDE**  
RESEARCH INFRASTRUCTURE DATABASE for EPOS

--Select a filter--

**Filter RIs List**

Order by: name

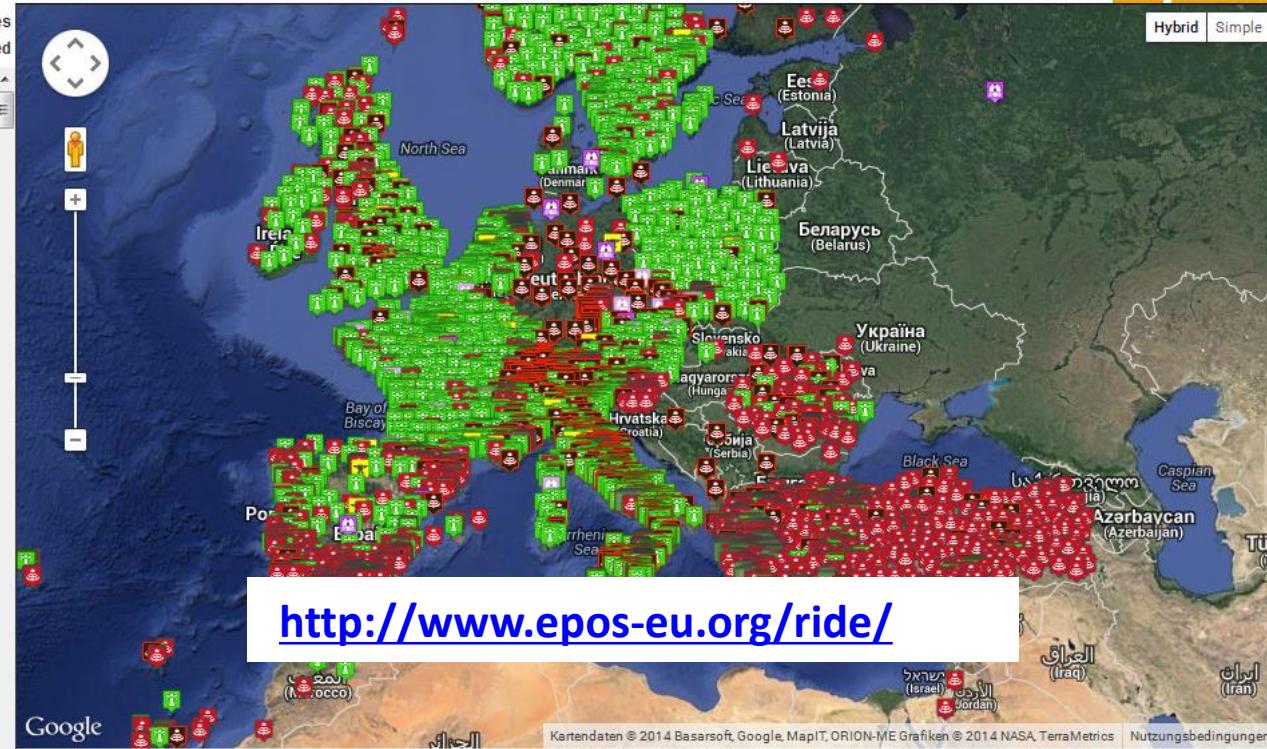
250 Research Infrastructures listed

click on a row to show info

- 1.  ZRC SAZU - TM 71 extensometer monitoring - WG 3
- 2.  ZAMG-ASN - WG 1
- 3.  Wire line diamond core drilling rig - WG 3
- 4.  VUA - Mineral separation laboratory - WG 6
- 5.  VUA - Isotope Geochemistry Laboratory - WG 6
- 6.  VUA - Experimental and Analytical Laboratories - WG 6
- 7.  Utrecht University - Experimental and Analytical Laboratories - WG 6
- 8.  UPSL - Seismological Laboratory - WG 1
- 9.  Uppsala University - Experimental and Analytical Laboratories - WG 6
- 10.  UPorto – Laboratory of Electromagnetic Emission by Fractured Rocks - WG 6
- 11.  University Twente - WG 8
- 12.  University of Oviedo - Applied Geophysics and Analytical Laboratories - WG 5,6
- 13.  University of Manchester - Experimental and Analytical Laboratories - WG 6
- 14.  University of Liverpool - Experimental and Analytical Laboratories - WG 6

What's RIDE? What's EPOS? Contacts Help Login

## EPOS is: 7221 Seismic and GPS Stations/Benchmarks

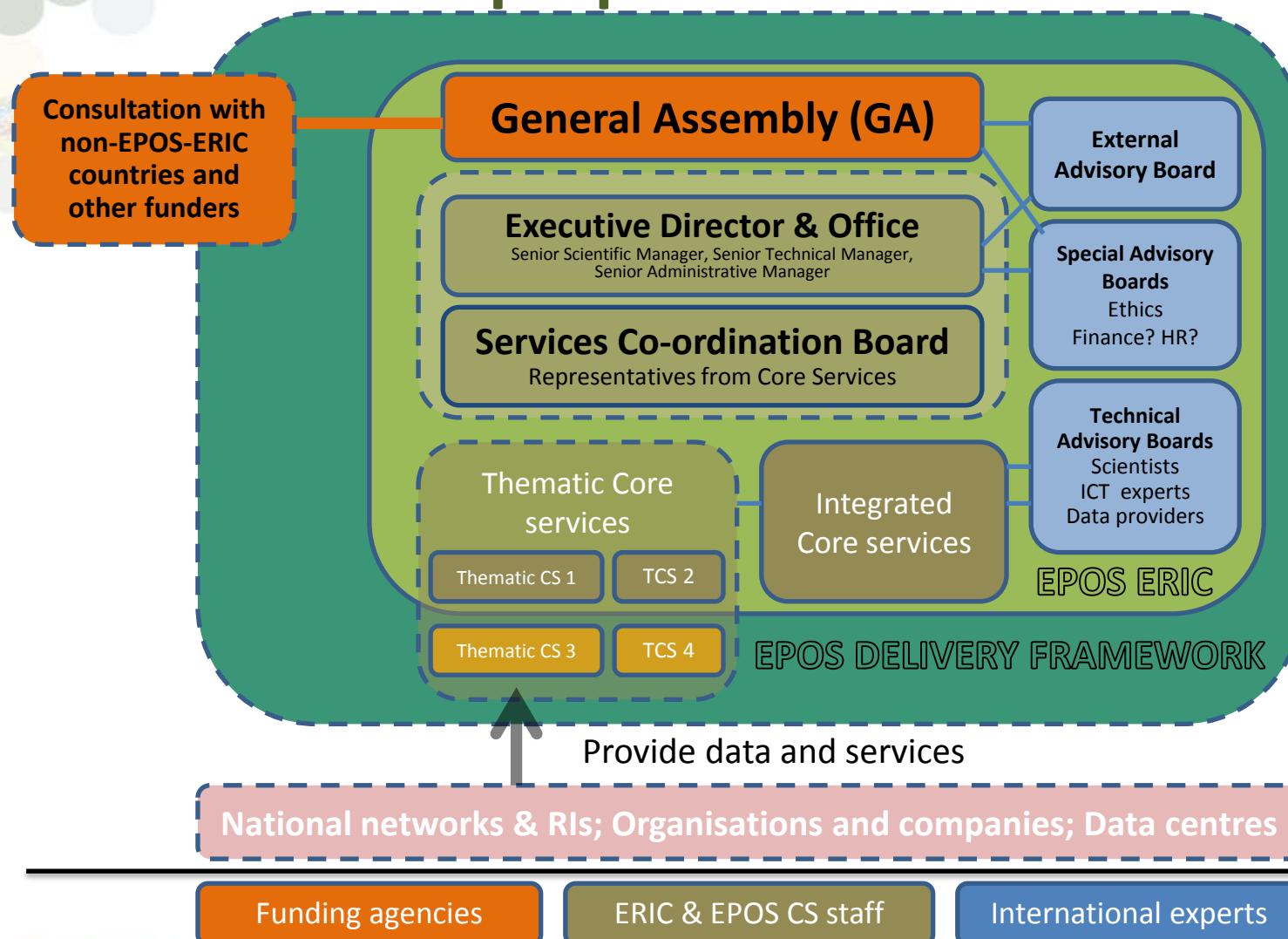


<http://www.epos-eu.org/ride/>

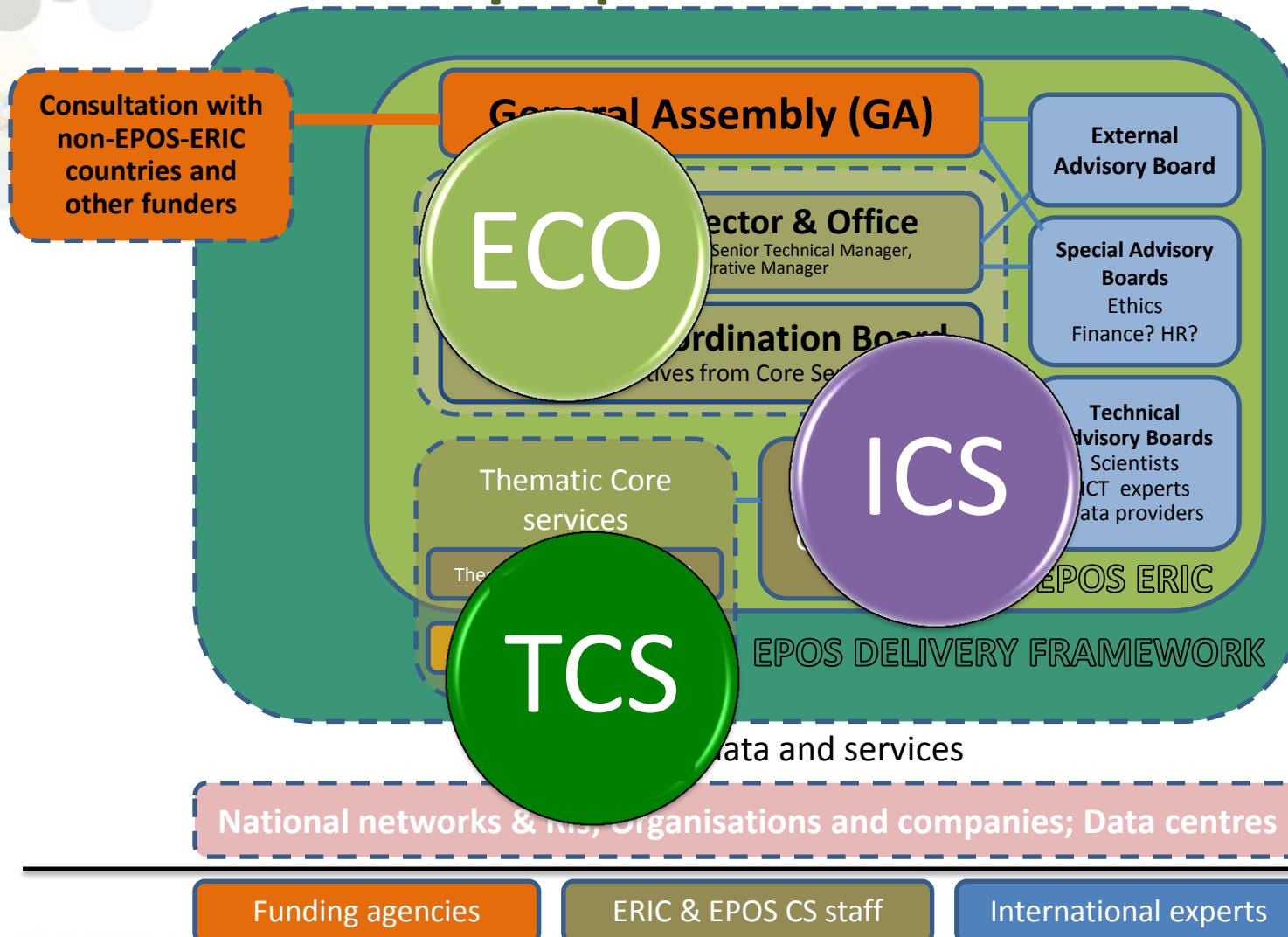
full screen ON/OFF  Laboratory   Seismic Station (Orfeus)  GPS Station (Benchmark)  Other station 

Kartendaten © 2014 Basarsoft, Google, Mapit, ORION-ME Grafiken © 2014 NASA, TerraMetrics [Nutzungsbedingungen](#)

# EPOS ERIC: proposed Governance scheme



# EPOS ERIC: proposed Governance scheme



# EPOS Landscape and interactions

## EPOS CONCEPTION



EXPLORIS  
Explosive Eruption Risk and Decision Support  
for EU Populations Threatened by Volcanoes



SAFER  
Seismic Early warning For EuRope  
http://safer-project.eu

## Projects' interactions

NERA



EUROGEO SURVEYS  
The Geological Surveys of Europe



## TRAINING



Measuring and Modelling of  
MaMoVolc  
Volcano eruption dynamics



## IT collaborations

VERGE



## TCS implementation



EFEHR



MEDITERRANEAN  
SUPERSITE  
VOLCANOES  
MEDSUV



## Global cooperation

COOPEUS

UNAVCO

SUPERSITES

IRIS

## Participation in global Initiatives

GEO

GEM  
GLOBAL EARTHQUAKE MODEL



# 3-Phase Implementation Model

## Preparatory Phase (2010-14)

- Use Cases & Demonstrator
- Prototype for ICS
- EoI for hosting ECO
- EoI for hosting ICS
- Governance Model Approved
- Business plan in place

## Implementation (2015-20)

- ERIC Signature (establishment of the ECO)
- ICS implementation
- TCS integration of existing community nodes and implementation of new ones

## Operation (2020+)

- EPOS RI fully operational (ECO & ICS)
- Additional TCS nodes will be implemented
- Interaction with private sector

2013 EU evaluation:  
EPOS considered  
mature and ready for  
implementation



# Das EPOS Portal

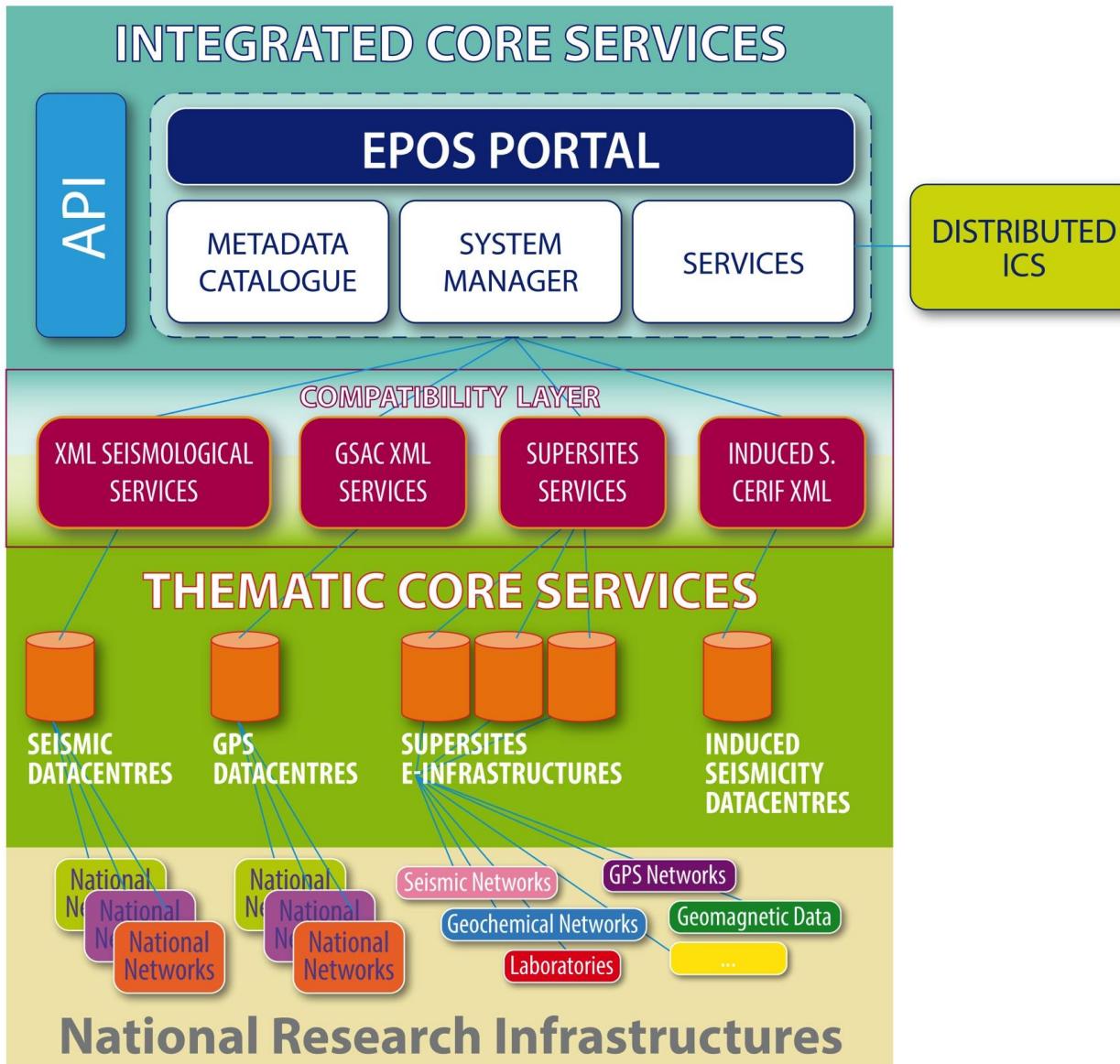
## Erster Entwurf der EPOS eArchitektur

# Kernelemente des EPOS Portals

- Diversität der Daten (Multidisziplinarität)
- Geprüfte Qualität der Daten
- Integration von Katalogen, Software, Modellen, ...
- Prozessierung großer Datenmengen über externe HPC Ressourcen

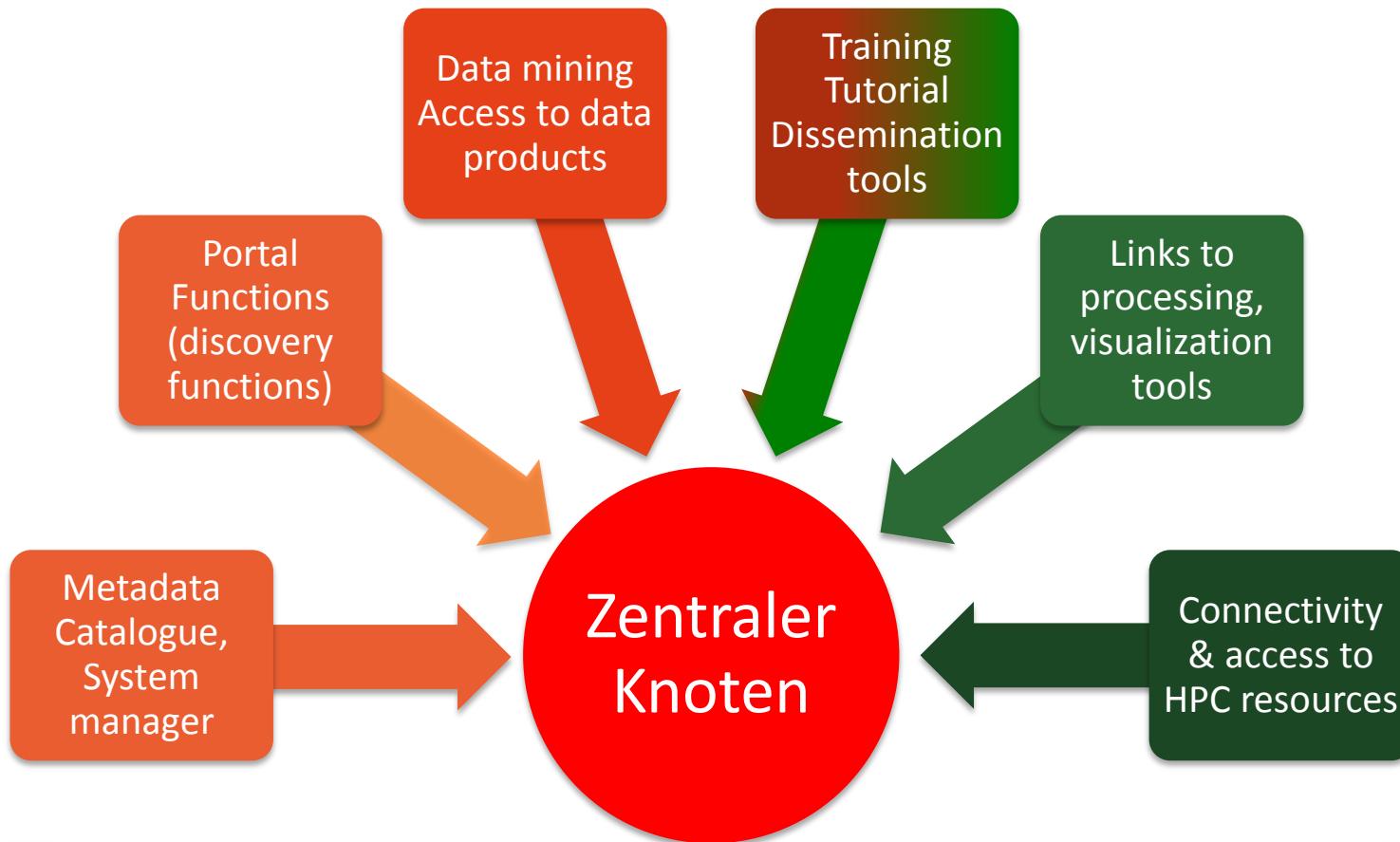
„One-Stop-Shop“

# EPOS eArchitektur



# Integrated Services

zentral oder verteilt?



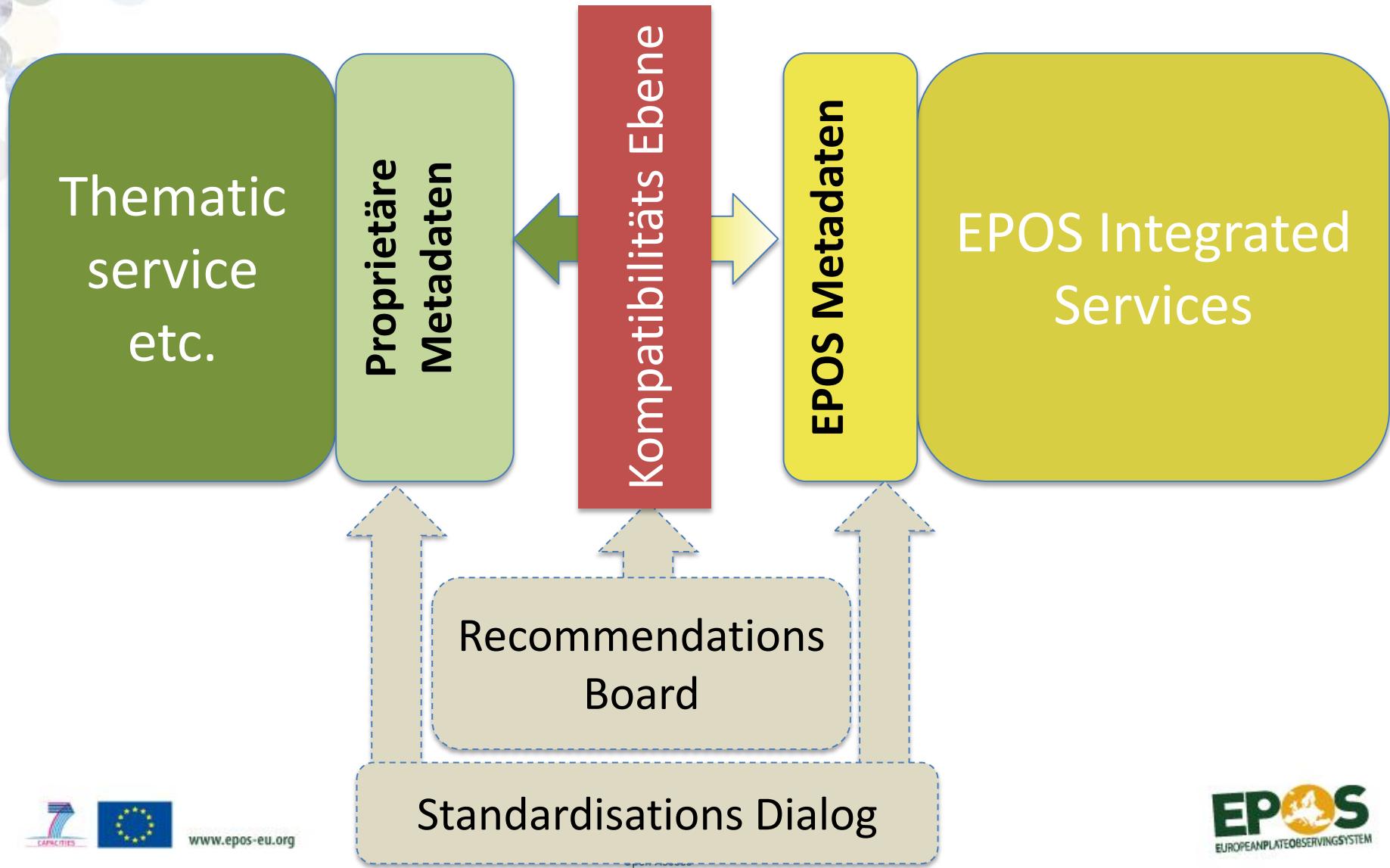
# Der zentrale Katalog

## Kommende Schritte:

- RDF Export (Interoperabilität mit ENVRI)
- OAI-PMH (Interoperabilität mit EUDAT)
- CKAN, opensearch, ...



# Metadaten Kompatibilität



# Epos Prototyp (Planung)

## Benutzeroberfläche

### Kompatibilitätsebene

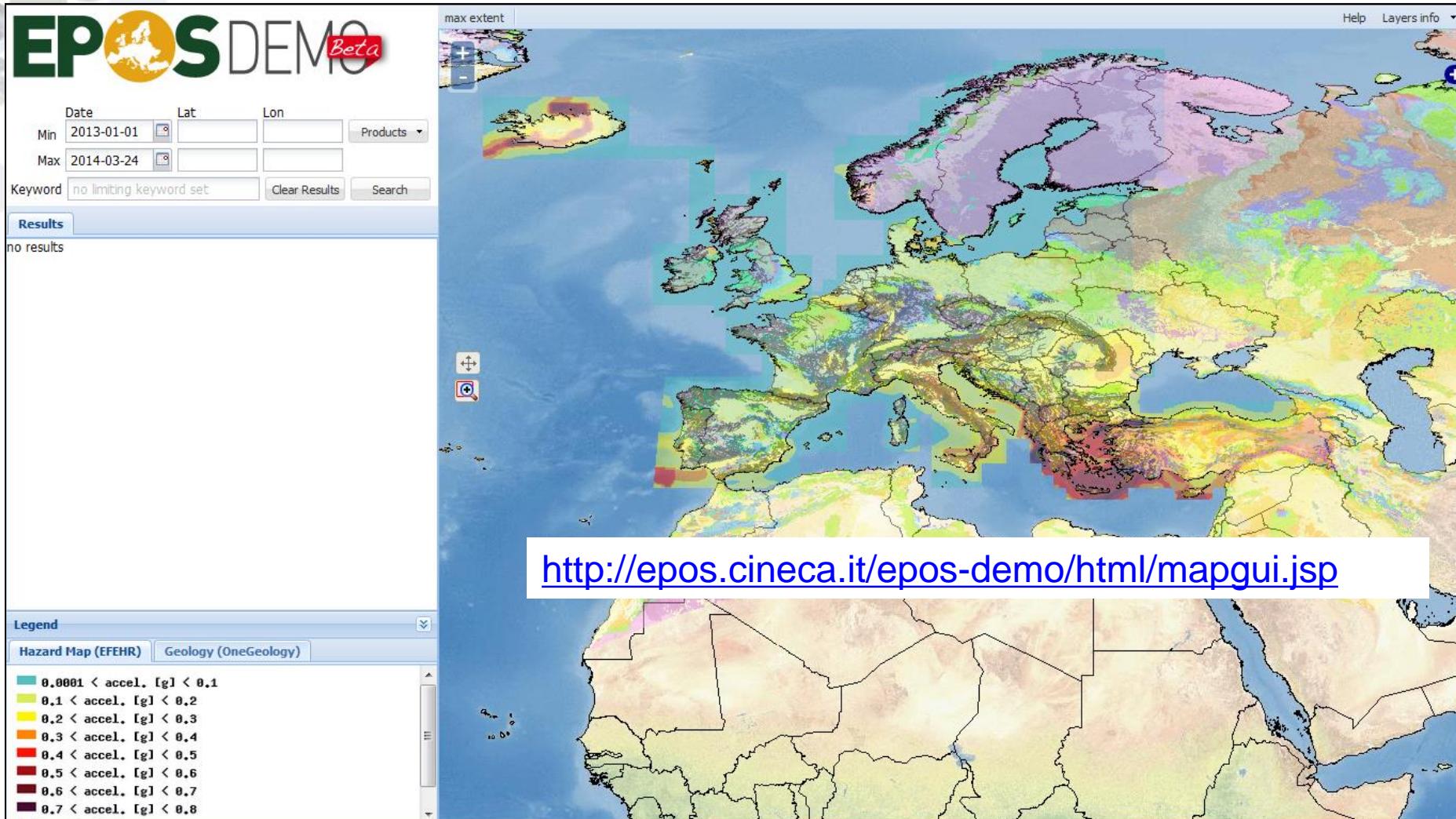
Metadaten  
Katalog

[GEOLOGIE]  
ONEGEOLOGY

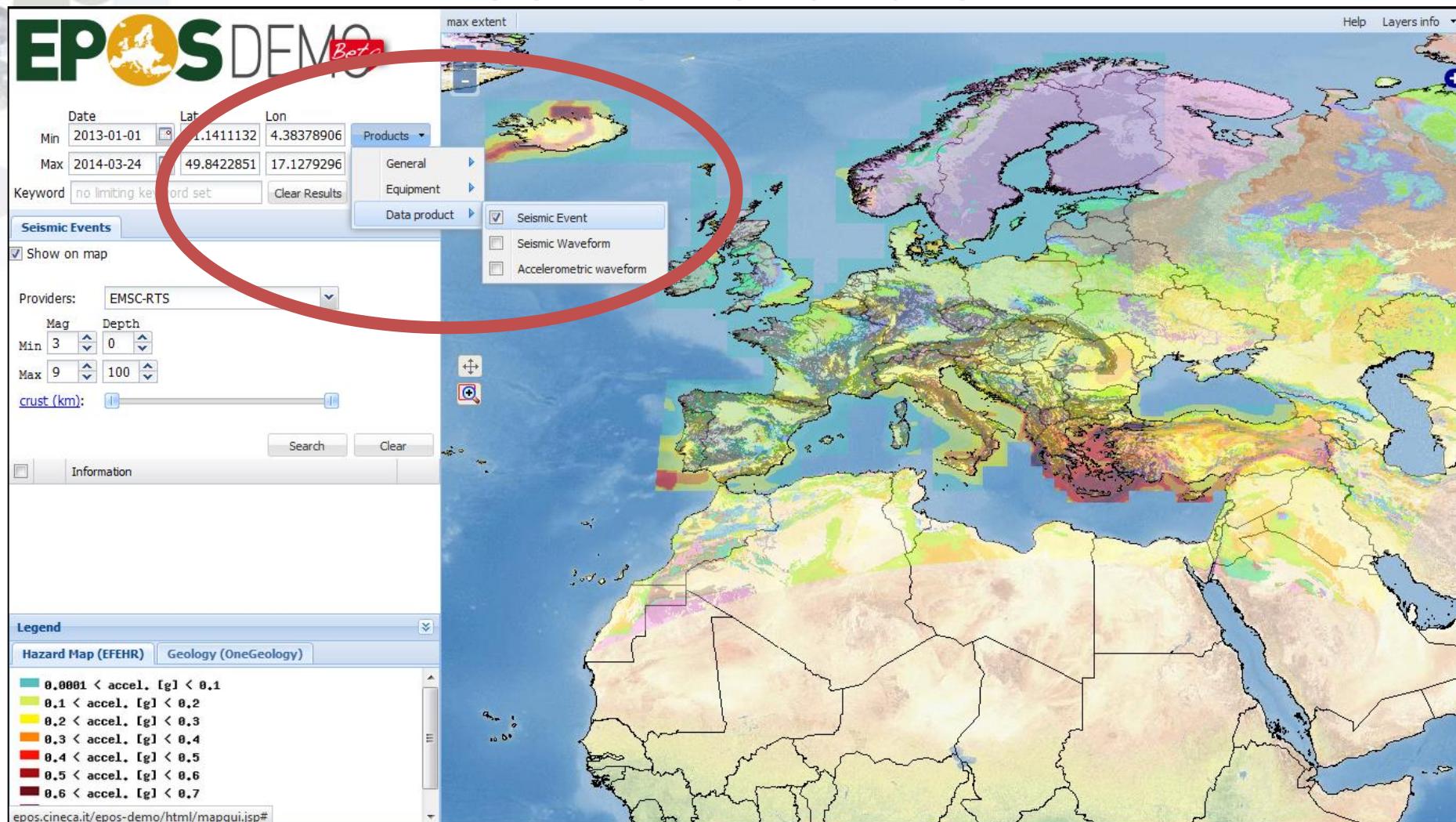
[SEISMOLOGIE]  
EIDA, EFEHR,  
EMSC

[GEODÄSIE]  
GSAC?

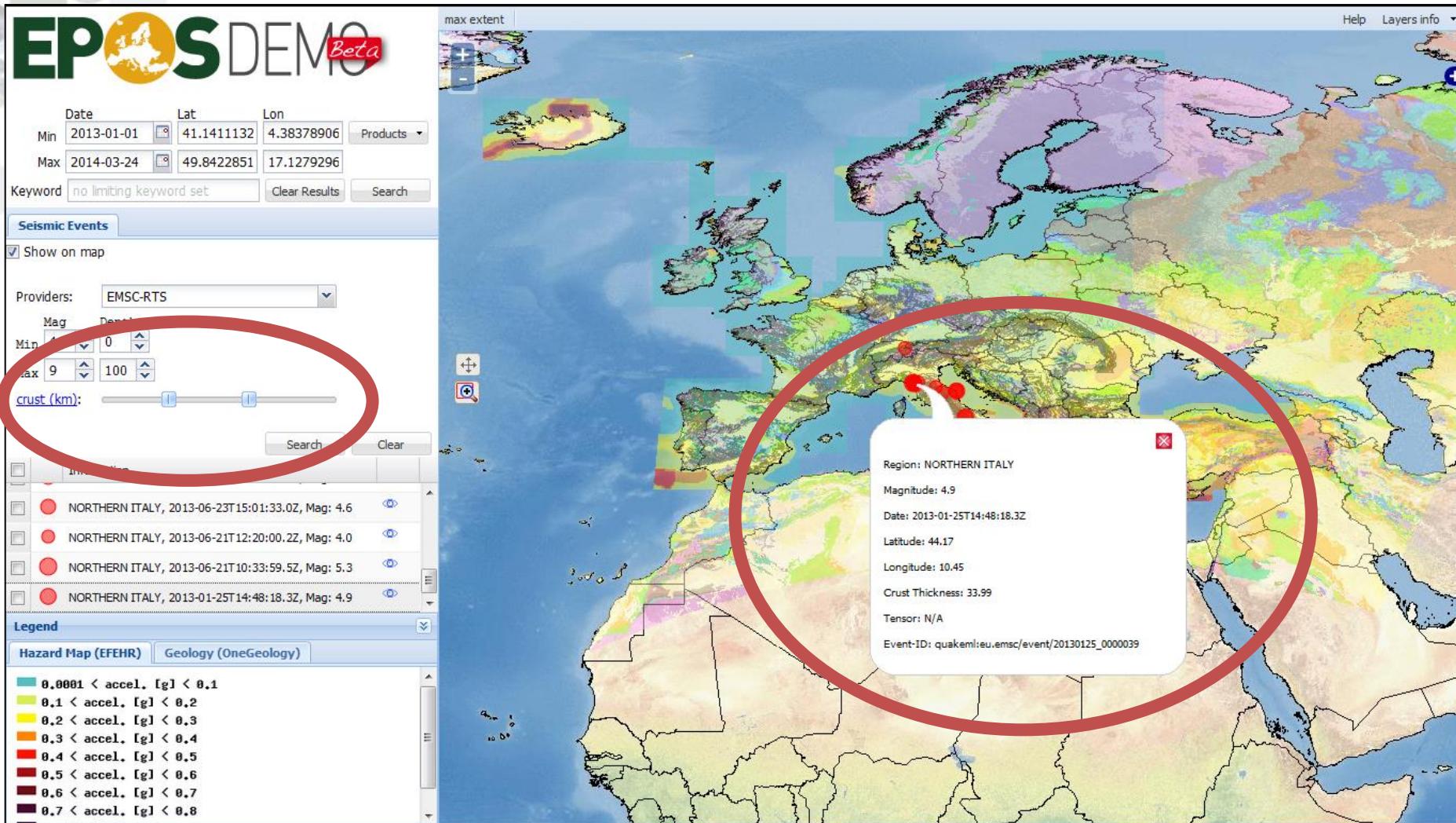
# EPOS Demonstrator I



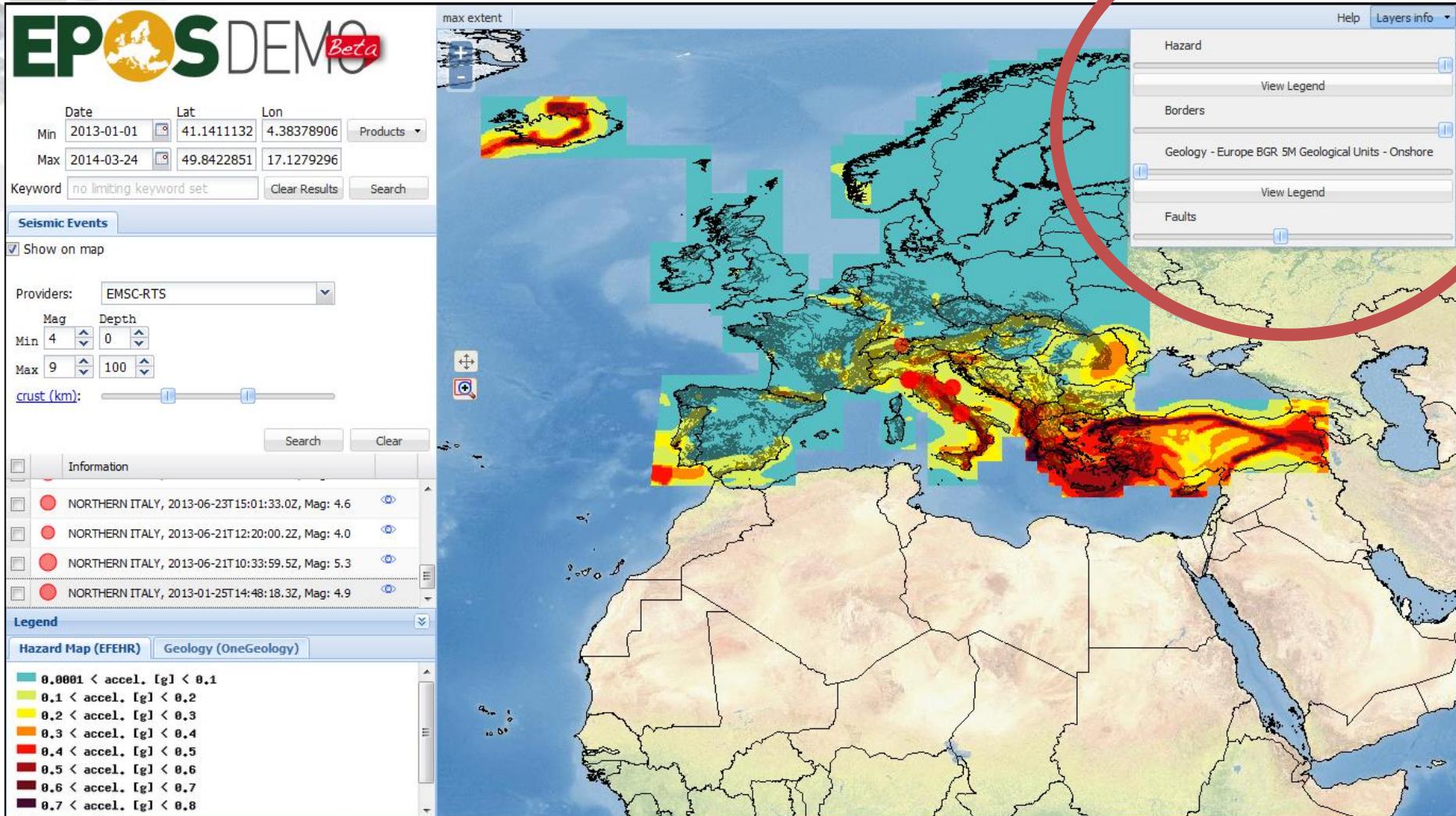
# EPOS Demonstrator II



# EPOS Demonstrator II



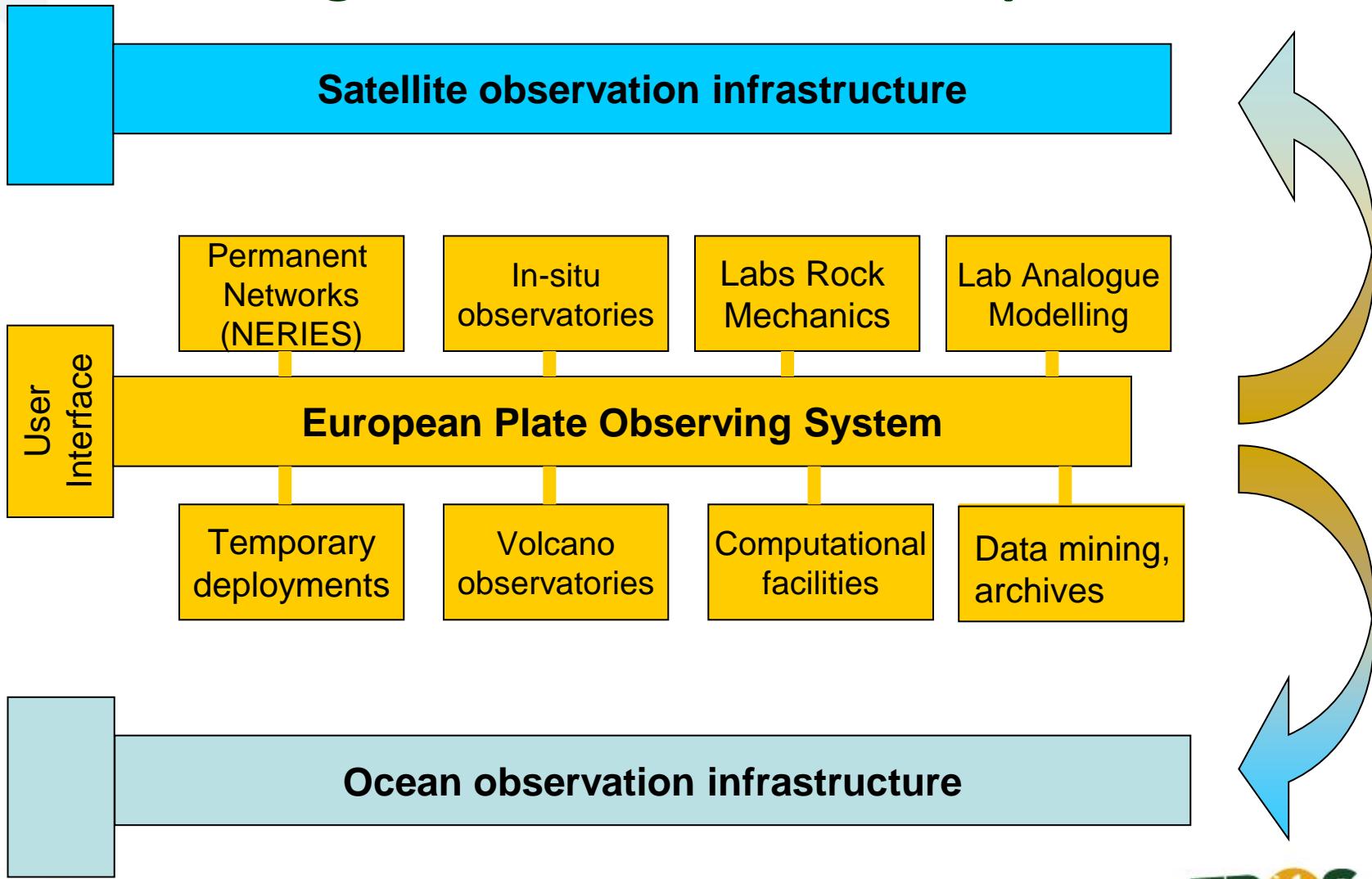
# EPOS Demonstrator IV



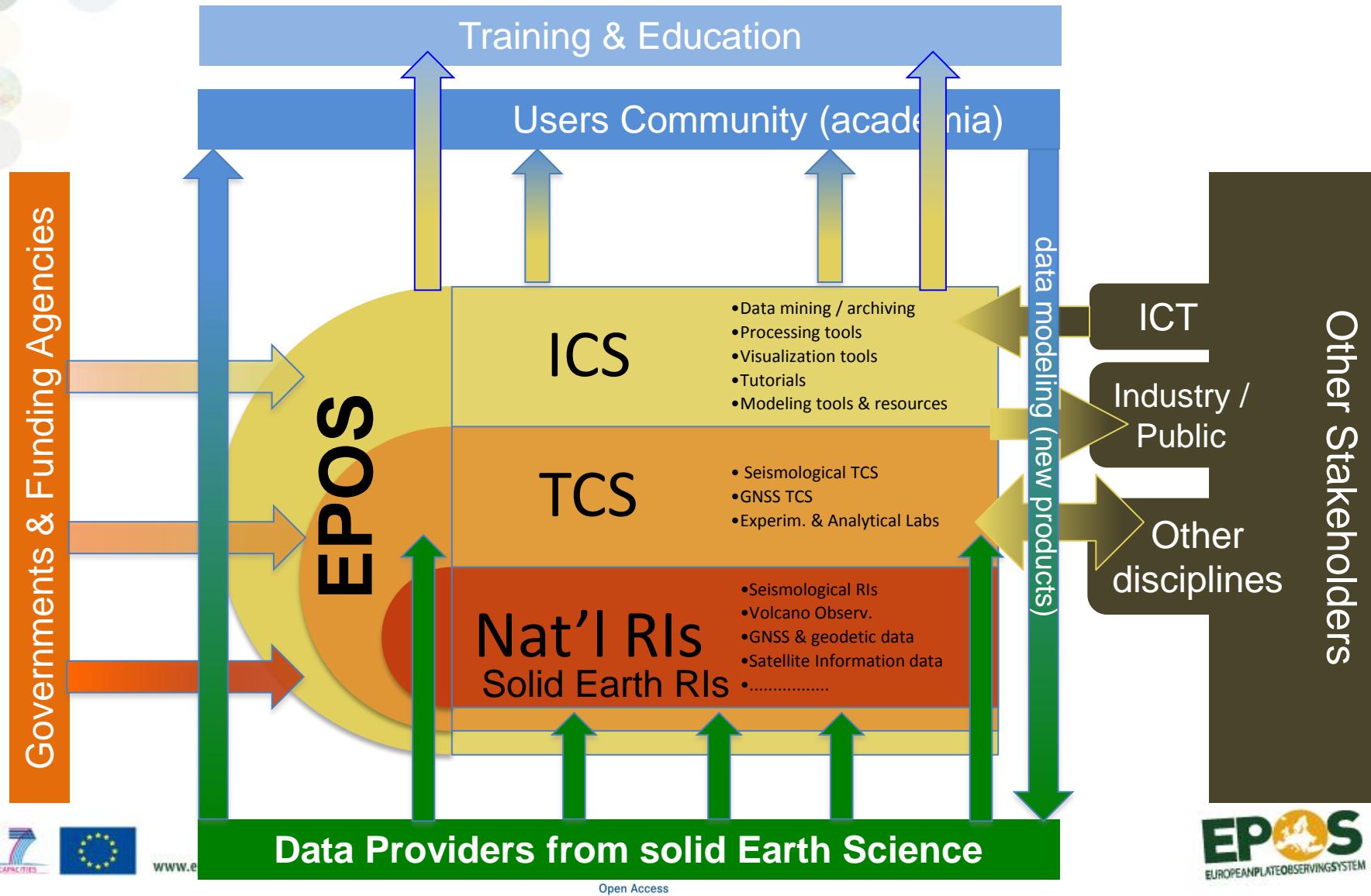
# Additional EPOS presentation slides for discussion and general reference

Users: science, education, public

# EPOS: Integration with other European RIs



# Stakeholder Strategy



# EPOS Data, Access, and IPR policy

Guiding principle:

- open access
- licensing
- no charges

developers: DP WG & EPOS Legal WG  
(lawyers, IT scientists, geoscientists)

September 2013: draft presented to IAPC  
October 2013: Deliverable D2.4

Protect EPOS legally



Trace EPOS use & users



Unrestricted use & access

Balance: Legal risk : Openness : Traceability

Respect: domain customs & standards

e.g. anonymous vs authentication access, embargo periods,

national & EU legislation & policies

e.g. INSPIRE, privacy protection,  
commercial use of publicly funded data

Account for:

Ethic Issues

# Implementation Phase: funding sources

