Managing FAIR access and Knowledge in EPOS

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StR|ESFRI

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Who I am

- Jean-Baptiste ROQUENCOURT

shoot for the moon and if you miss you will still be among the stars

What is EPOS ?

EPOS is a **long-term plan for the integration**

of research infrastructures for solid Earth Science in Europe

EPOS integrates the

existing (and future)

advanced European facilities

into

a single, distributed,

sustainable infrastructure

taking full advantage of new

e-science opportunities

25 COUNTRIES
Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland,
France, Germany, Grecee, Hungary, Iceland, Ireland, Italy,
Netherland, Norway, Poland, Portugal, Romania,
Slovakia, Slovenia, Spain, Sweden, Switzerland,
Turkey, United Kingdom

4 INTERNATIONAL
ORGANIZATIONS
Orfeus, Emsc, Euref, Intermagnet

256 NATIONAL RESEARCH
INFRASTRUCTURES

4939 SEISMIC STATIONS

2272 GPS RECEIVERS

464 TB SEISMIC DATA

118 LABORATORIES

828 INSTRUMENTS

Several PetaBytes of solid Earth Science data will be available

Several thousands of **users** expected to access the infrastructure

EPOS Goals

- Enabling discovery of resources and assets

- Pooling cross-disciplinary knowledge

- Enabling effective interdisciplinary communication and collaboration

- Supporting (semantic) interoperability in automated methods

- Fostering innovation and novel science

rocket science

EPOS Research Infrastructure

1. **Communities**

2. Integrated Core Service – Central Integration Node

3. Distributed Services

4. FAIR access to user

EPOS Research Infrastructure

Communities

NRIs and scientific communities ensure the **competences and resources** for collecting and analysing data and for maintaining territorial observation systems

Thematic Core Services (TCS) are **European – wide** and **discipline oriented** nodes for integrating data, metadata and services from various national infrastructures.

Examples:
- ORFEUS (seismology)

- ESA GEP (satellites)

- INTERMAGNET (geomagnetism)

EPOS Research Infrastructure
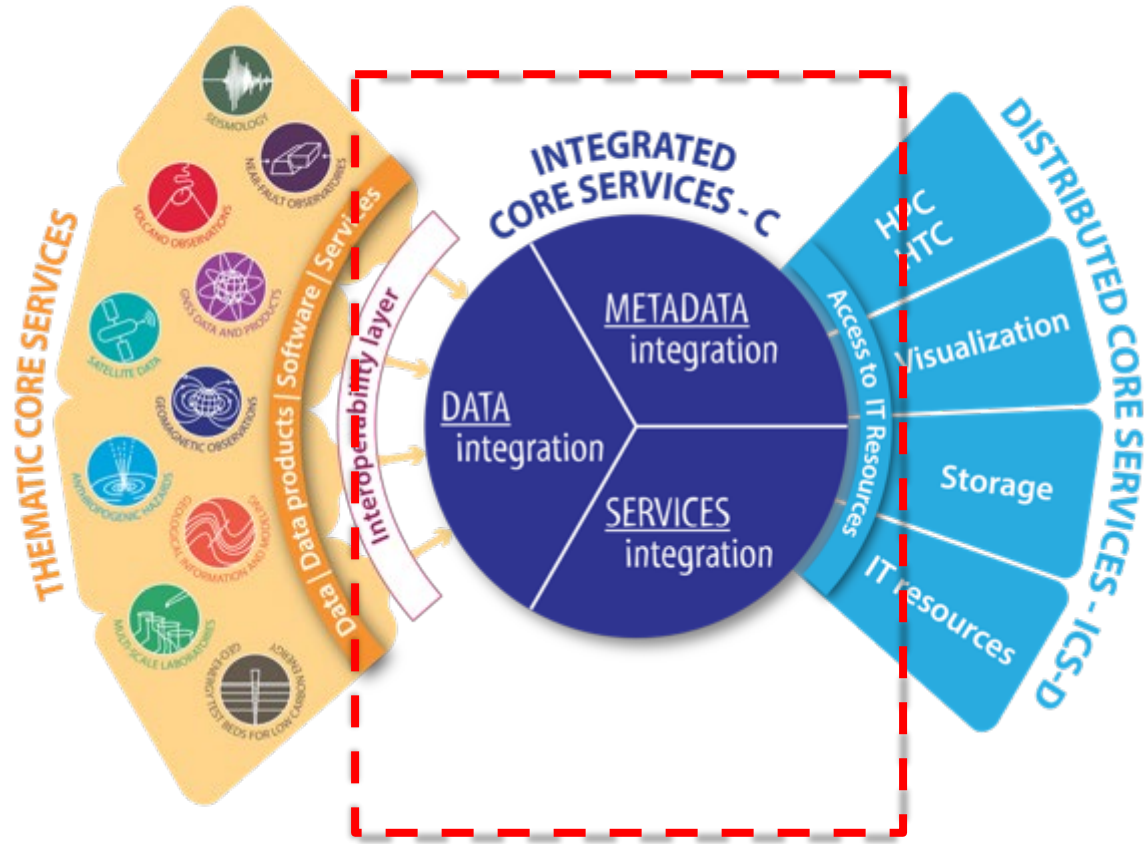
ICS-C Central integration node

Data, software and services specific disciplines are are integrated within

Integrated Core Services (ICS).

They are a centralised system where users have access to all data, software and services by the communities in a uniform way.
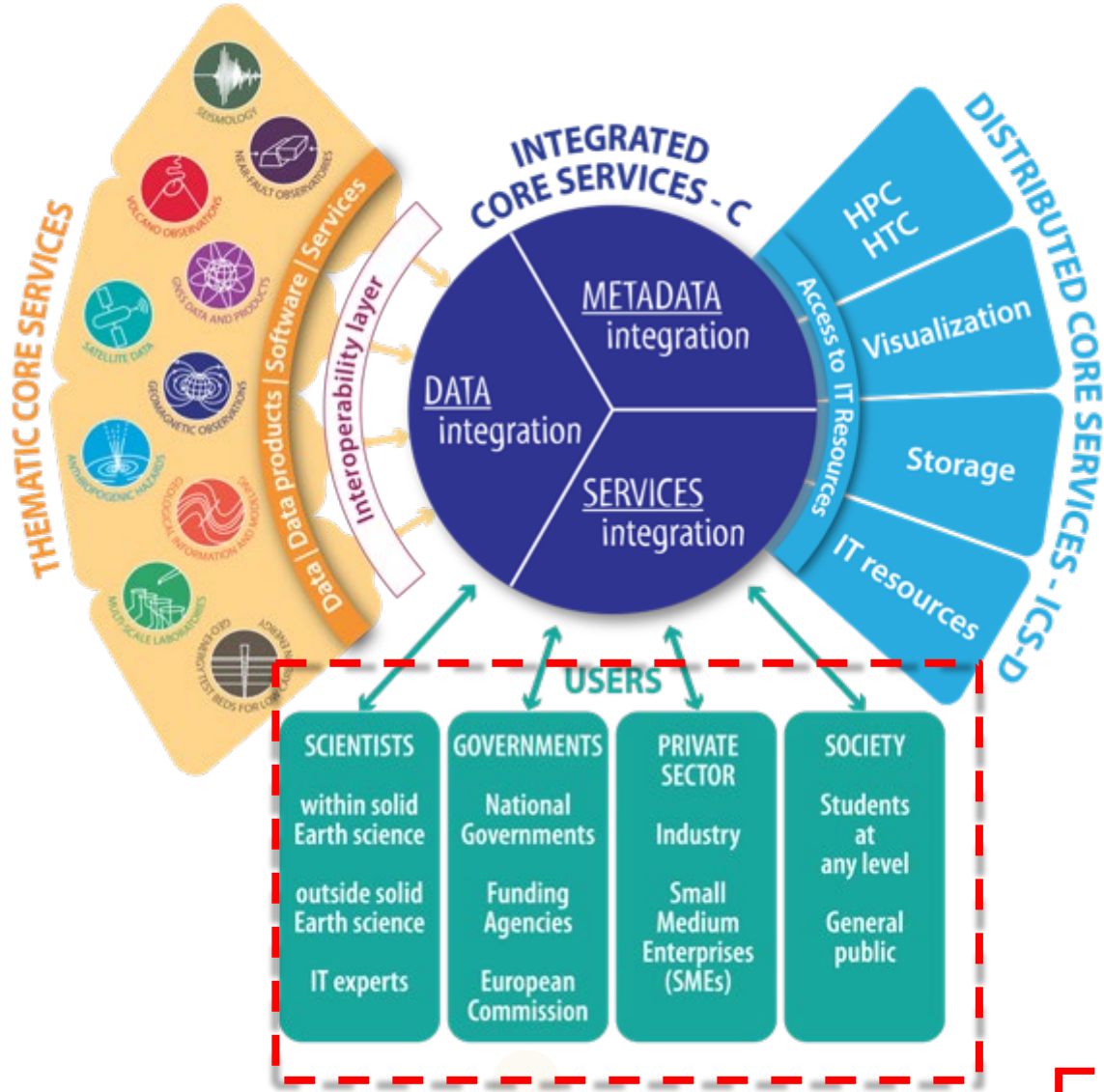
They make use of existing distributed resources for computational, visualisation services and other services.

EPOS Research Infrastructure
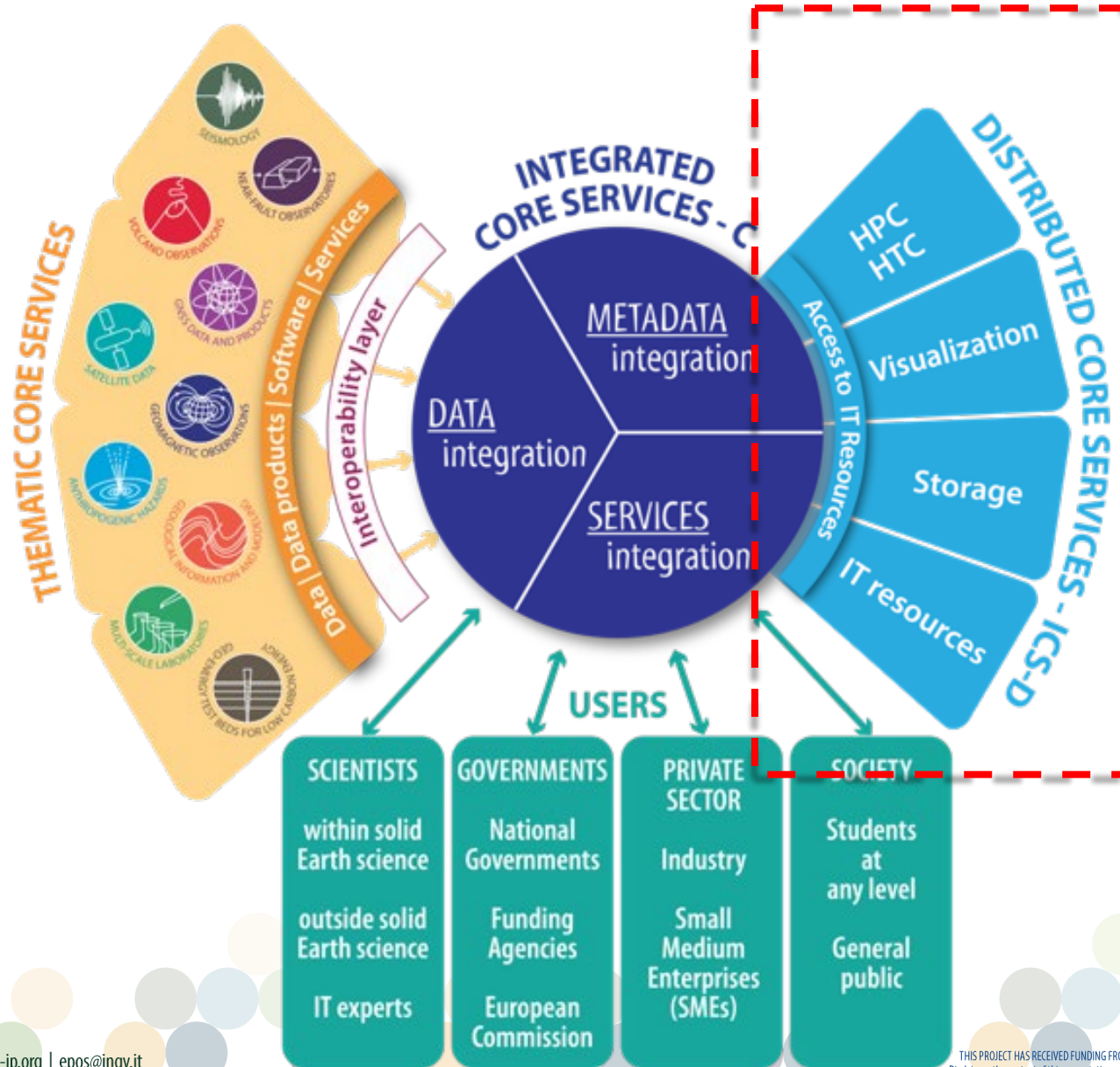
Distributed services (e.g. Enlighten, EUDAT, etc.)

EPOS Research Infrastructure

FAIR access to users is provided by means of different interfaces, tailored to users types.

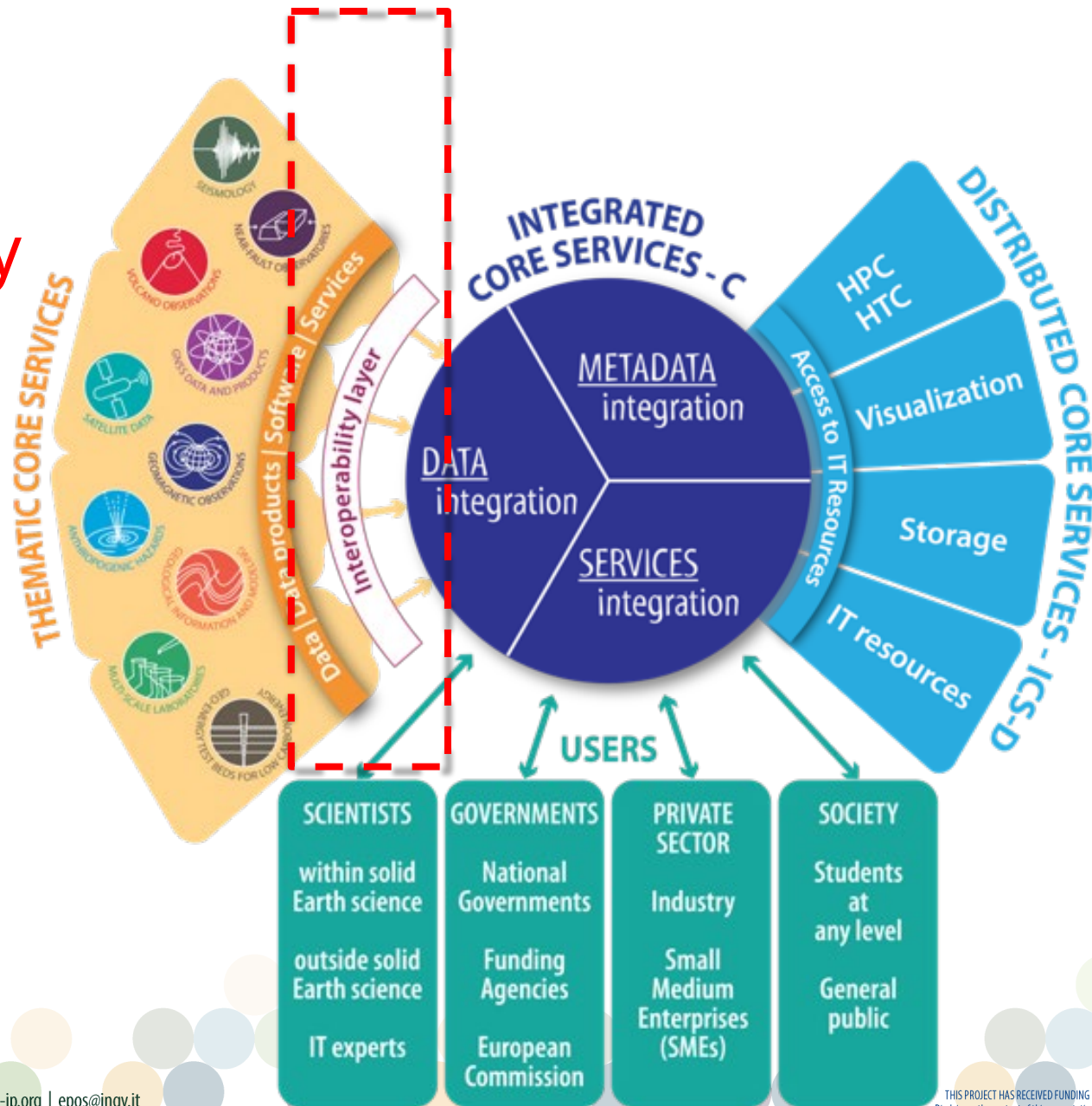A main ICS-C portal GUI is being developed for access to scientific resources.

FAIR Access to users
→ GUI / API
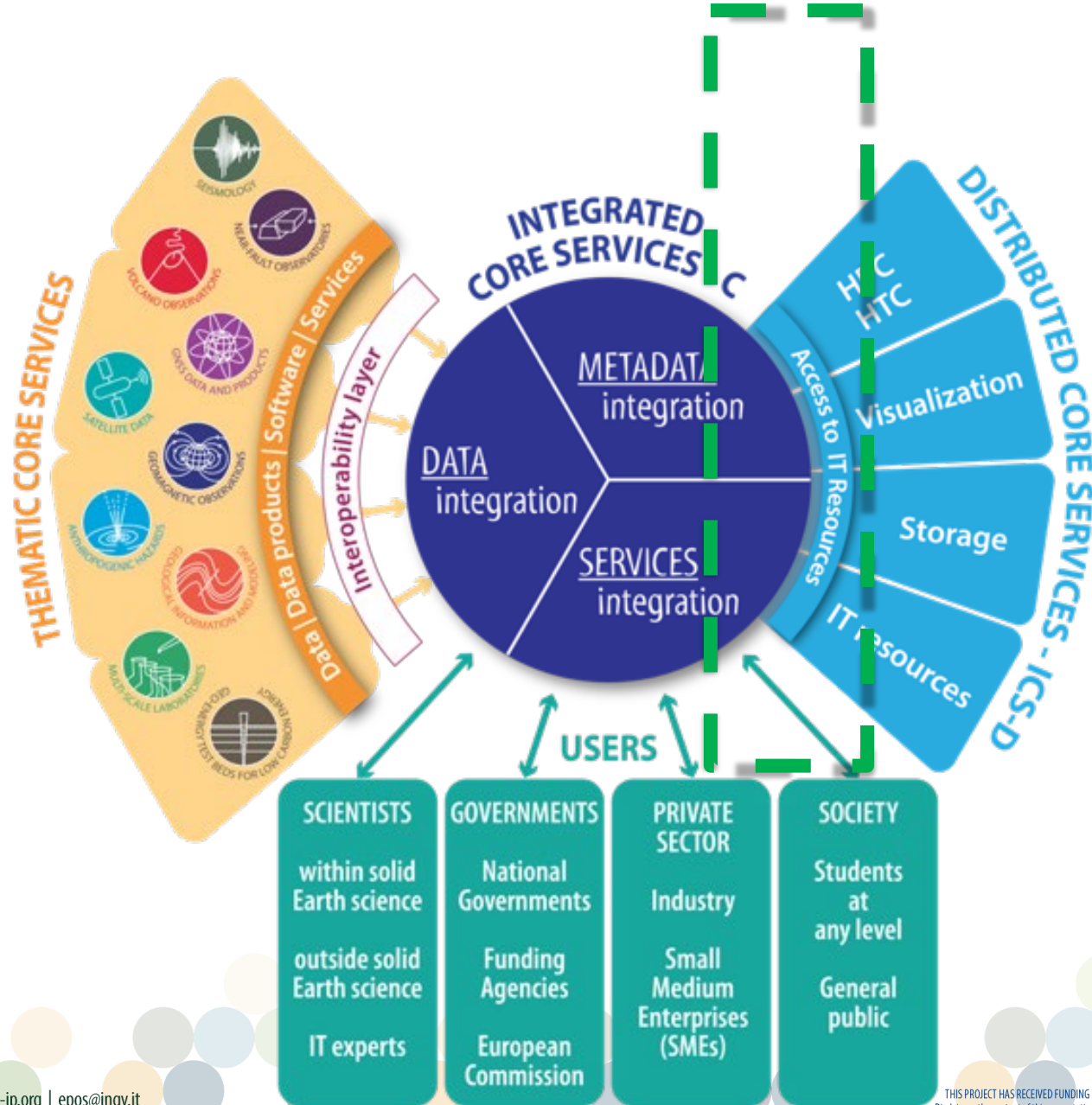
EPOS Research Infrastructure

Interoperability
FAIRness

Knowledge
(Business) is
here !!!

Solved by
scientists and
technicians

EPOS Research Infrastructure

Technical access
Solved by technicians

How do we achieve FAIRness?

EPOS : How do we achieve FAIRness?
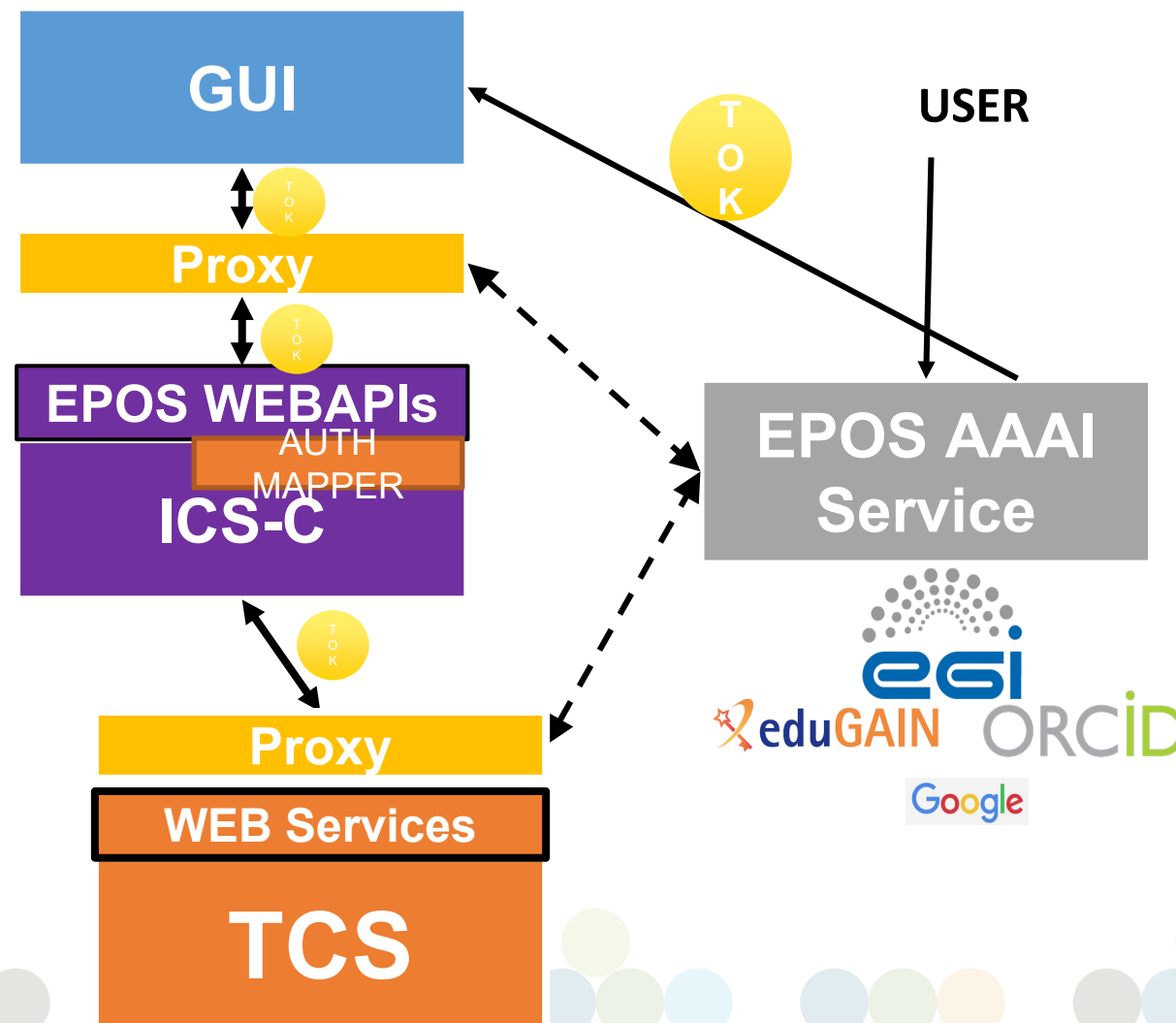
1. **<u>AAAI</u>**

2. **Interoperability layer**

3. No covered : GUI, API, etc.

EPOS AAAI : Authorisation in TCS

- Options for integration with TCS:
  - NO INTEGRATION – web service is totally publicly open, without possibility to control EPOS and non-EPOS requests
  - INTEGRATION WITH EPOS AAAI (recommended) –
  - INTEGRATION WITH OWN/OTHER Identity Provider (IDP) and adding this IDP to EPOS AAAI

EPOS AAAI : Progress

- Status:
  - Pre-production service connected to ICS GUI and WEBAPI
  - https://epos-aai.cyfronet.pl/
  - Based on http://www.unity-idm.eu
- Recent progress:
  - Defined User Profile
  - Implemented and Tested Delegation Mechanism
  - Starting process of integrating TCS services

EPOS AAAI : Open Issues and Plans

- Fix domain for AAAI Service (later changes require reconfiguration of many different components)

- Other requirements from TCSes

- Compliance with GDPR (!)

- Prepare integration scenario with using eInfrastructures

- Preparation for production service (required for integration with EduGain)
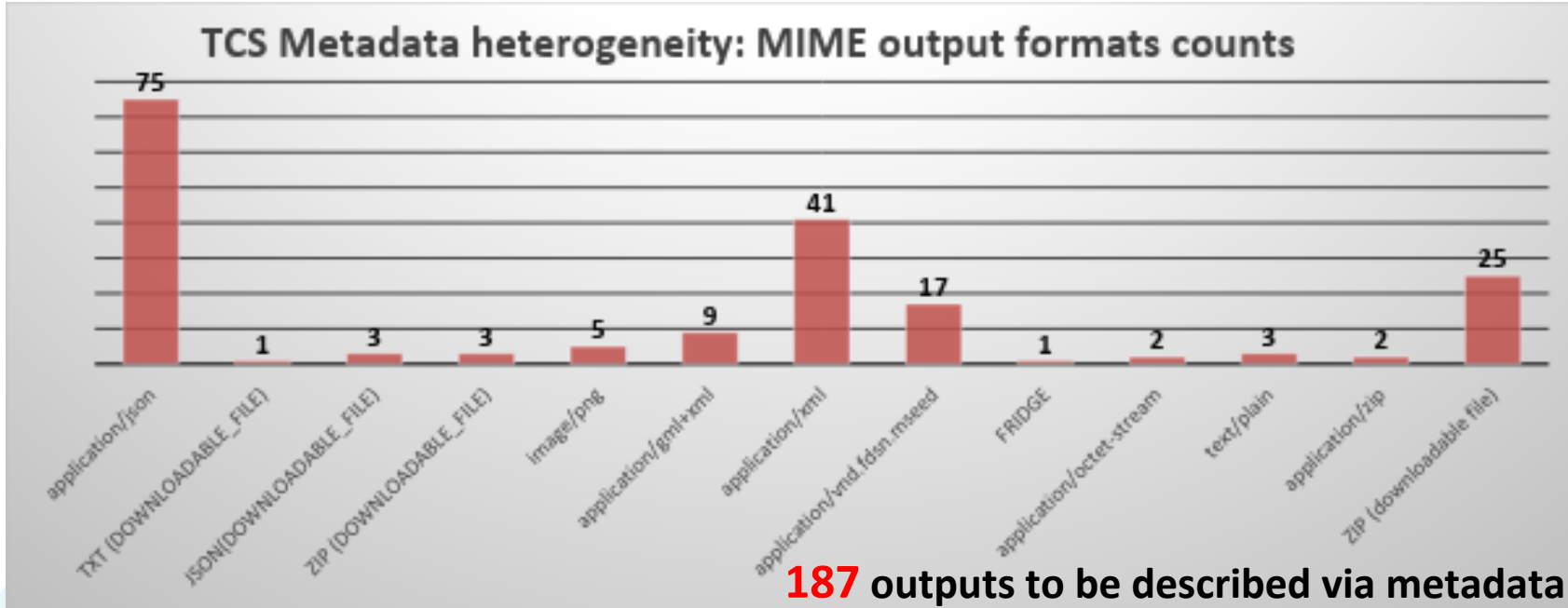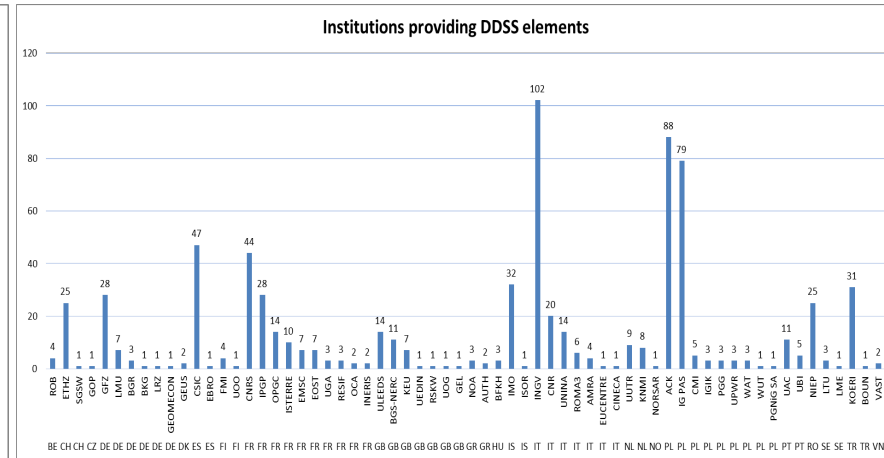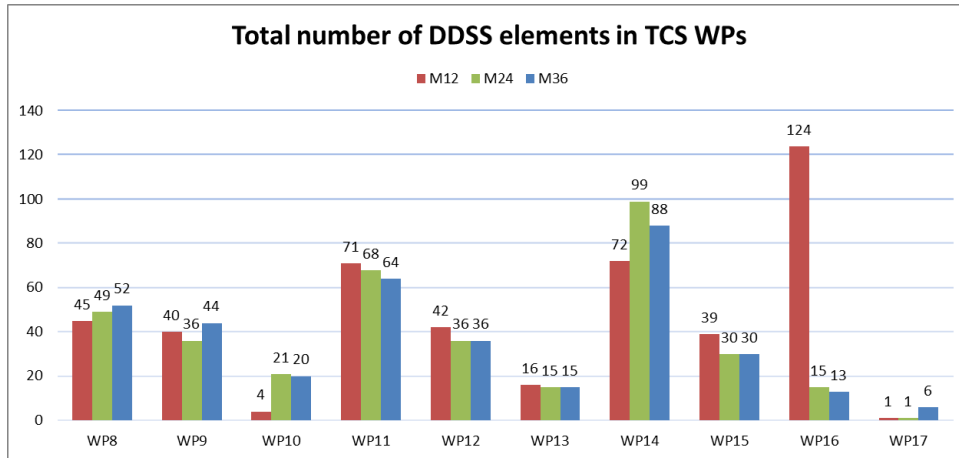
EPOS : How do we achieve FAIRness?

1. AAAI

2. **Interoperability layer**

3. No covered : GUI, API, etc.

EPOS : How do we achieve FAIRness?

EPOS : Harmonisation

Total number of DDSS elements in TCS WPs

Institutions providing DDSS elements

TCS Metadata heterogeneity: MIME output formats counts

187 outputs to be described via metadata
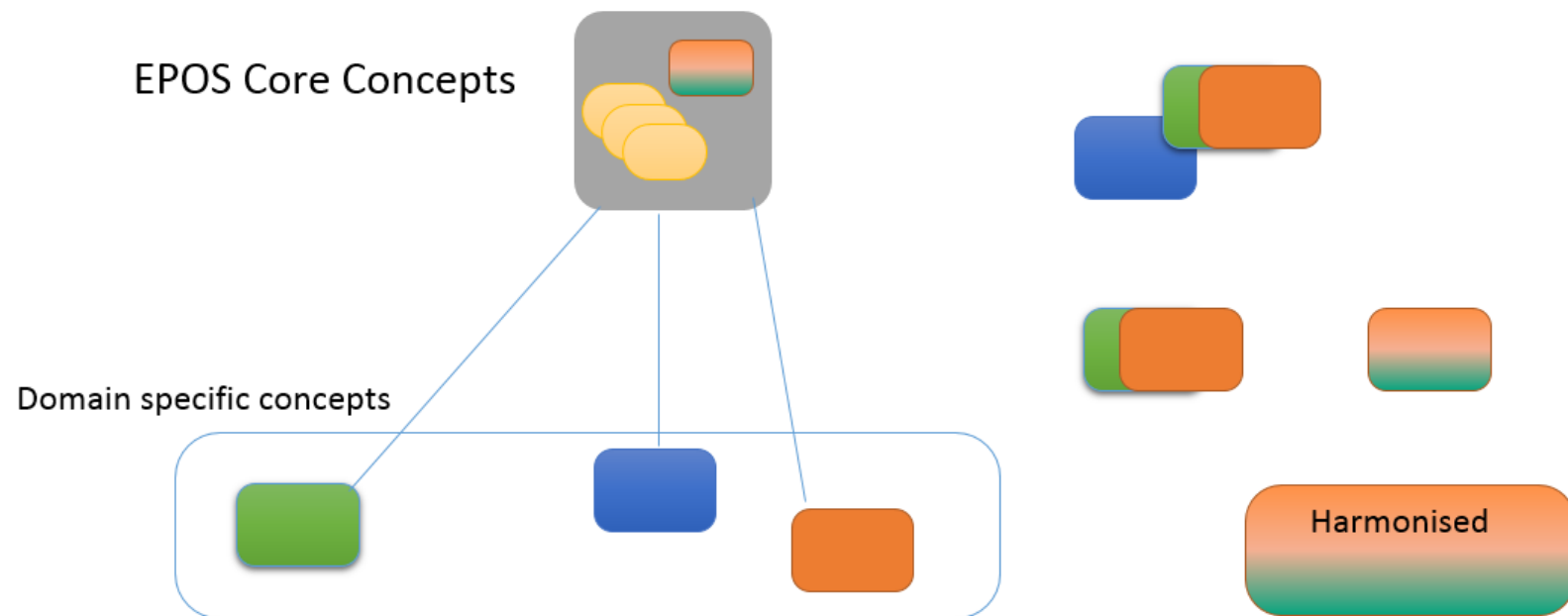
EPOS : Harmonisation

- Preserve and reuse existing efforts

- Promote good practices

- Layered information

- Controlled Harmonization

- User-driven evolution

- **Continuous process**

EPOS Core Concepts

Domain specific concepts

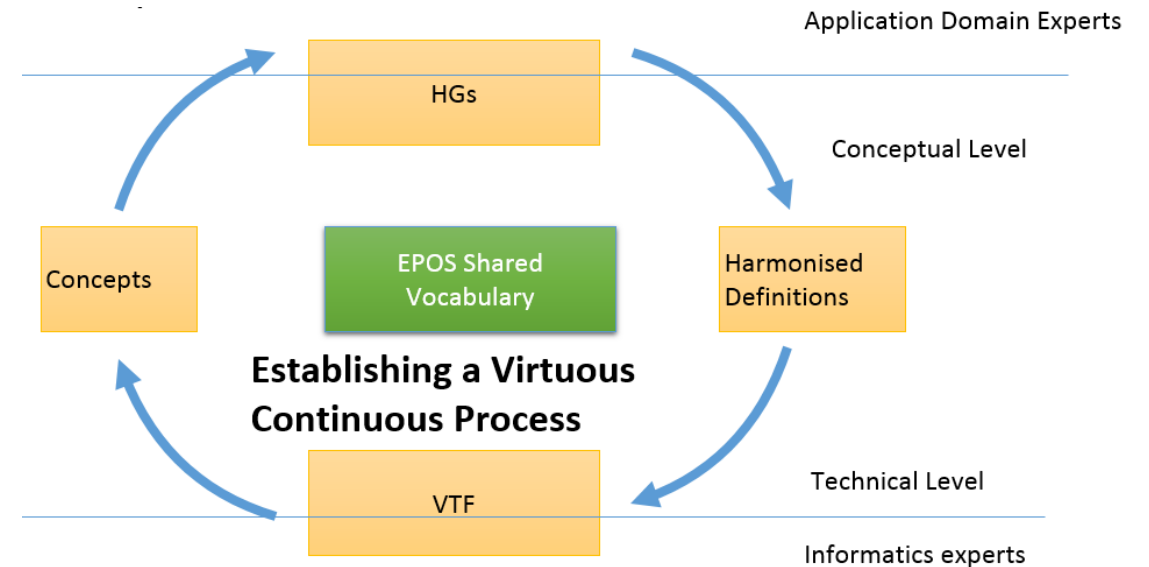Harmonised

EPOS : Harmonisation
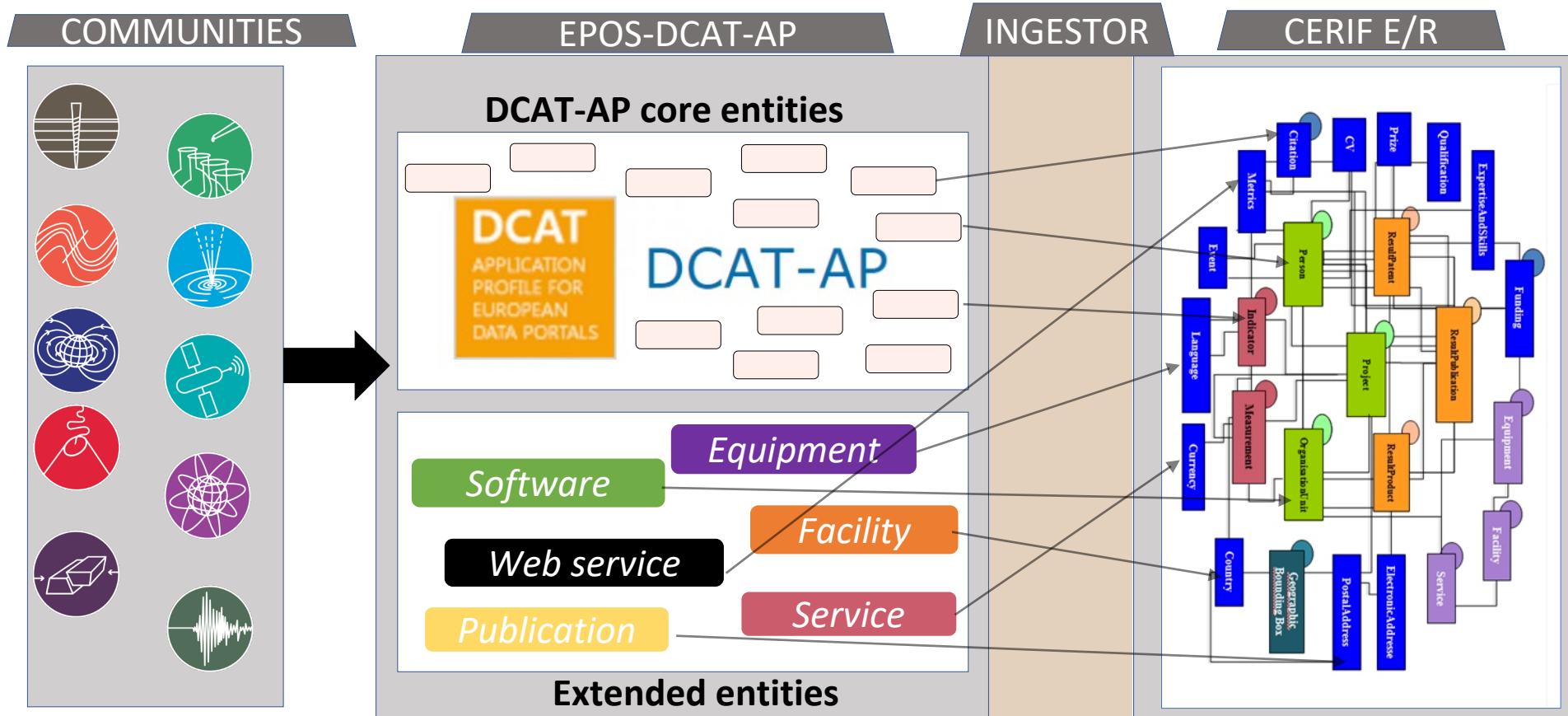
Main **Stakeholders**: VTF and HGs

Tasks of the VTF
- Analyse use cases
- Identify potential overlapping concepts
- Periodical review of the EPOS Core
- Propose changes
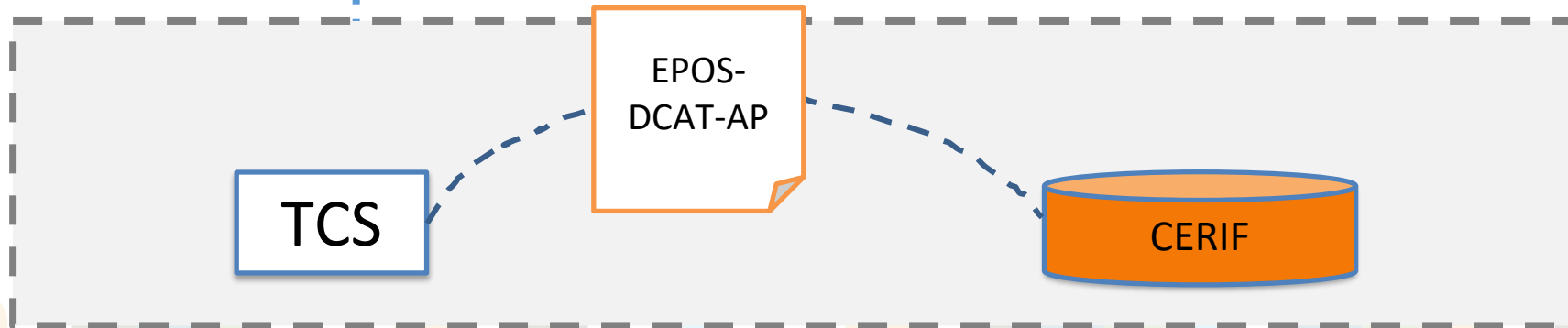- Interact with ICS technical team

Tasks of the HG
- Represent user community
- Propose cross-disciplinary use cases
- Evaluate overlapping concepts
- Assess candidates for promotion
- Harmonise definitions
- Promote in the EPOS Core Concepts
- Evaluate VTF request for changes

EPOS Interoperability : Population overview

COMMUNITIES

EPOS-DCAT-AP

DCAT-AP core entities

INGESTOR

CERIF E/R

Extended entities

Equipment

Software

Facility

Web service

Service

Publication

EPOS Interoperability : Population pipeline
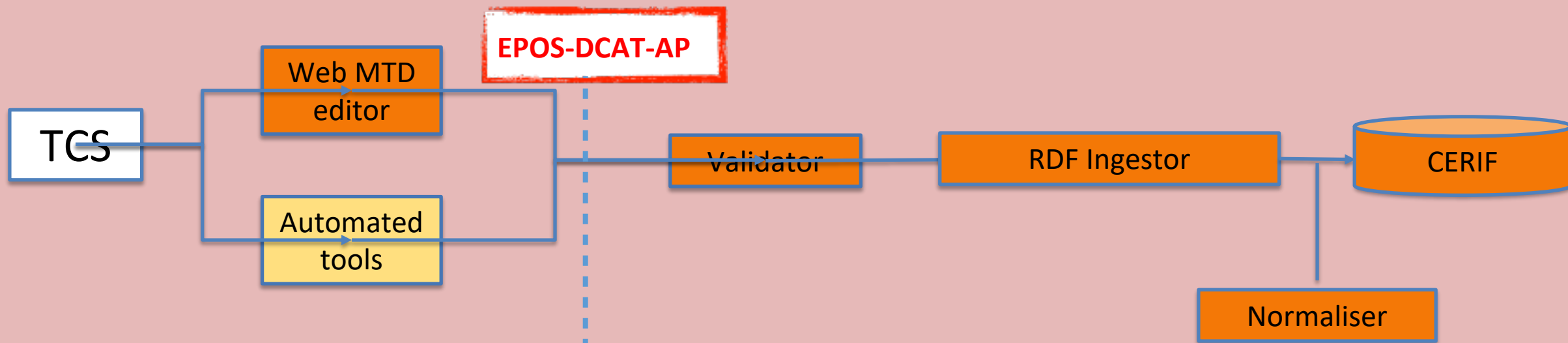
EPOS Interoperability : EPOS CC Conceptual definition

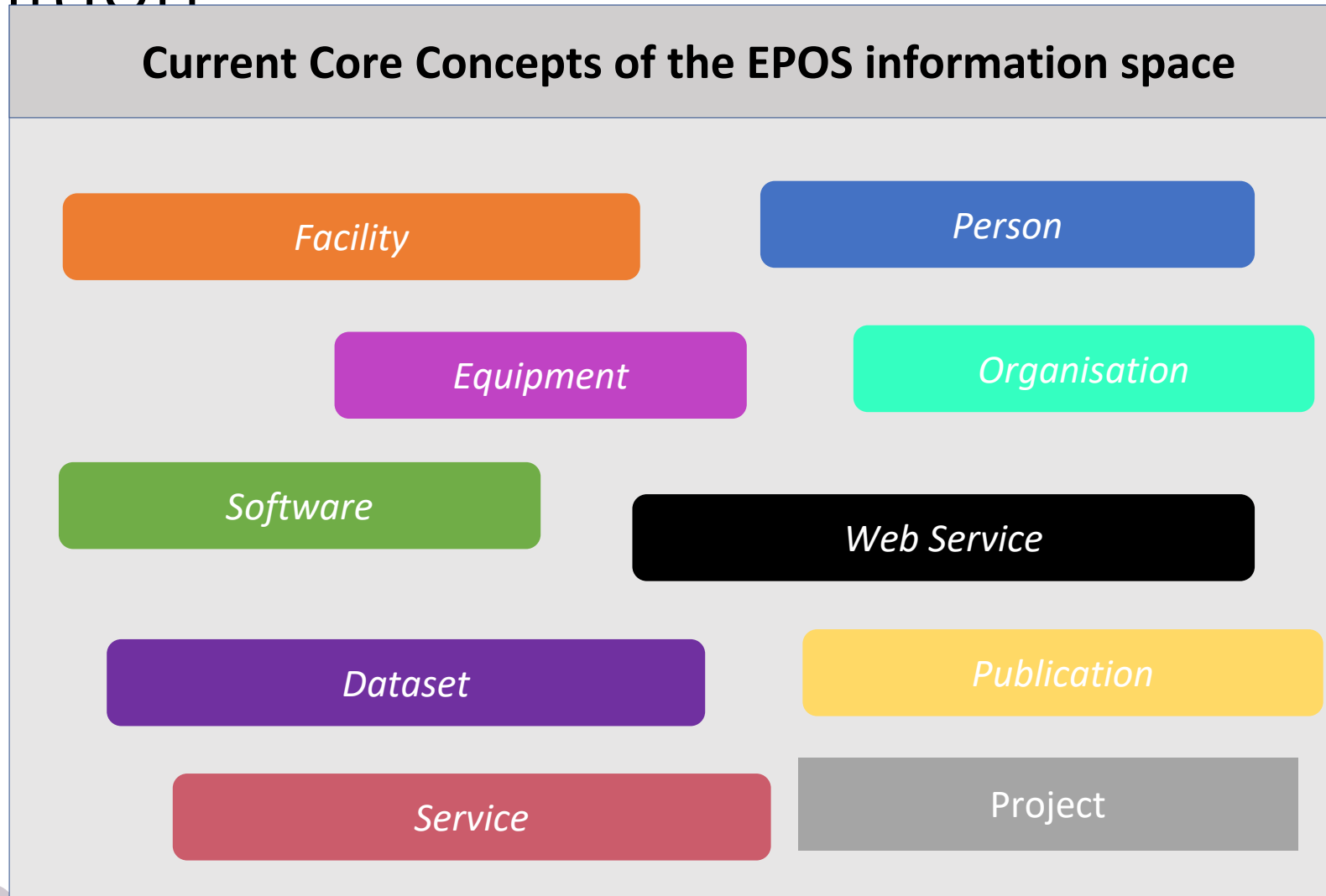- Adoption and reuse

- Harmonisation and innovation

- Requirements and use-case driven

Current Core Concepts of the EPOS information space

Facility

Person

Equipment

Organisation

Software

Web Service

Dataset

Publication

Service

Project

Representing the EPOS CC
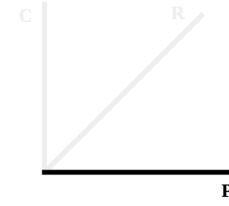
- EPOS-DCAT-AP https://github.com/epos-eu/EPOS-DCAT-AP
  - Pooling Community Knowledge (TCS)
  - Abstract underlying complexity of the EPOS metadata catalogue (CERIF)
  - Enables incremental population
  - Compliant with existing standards (DCAT)
  - Enables capturing semantics

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Questions ?