INTEROPERABLE DATA MANAGEMENT AND SERVICES IN ENVRI RIS

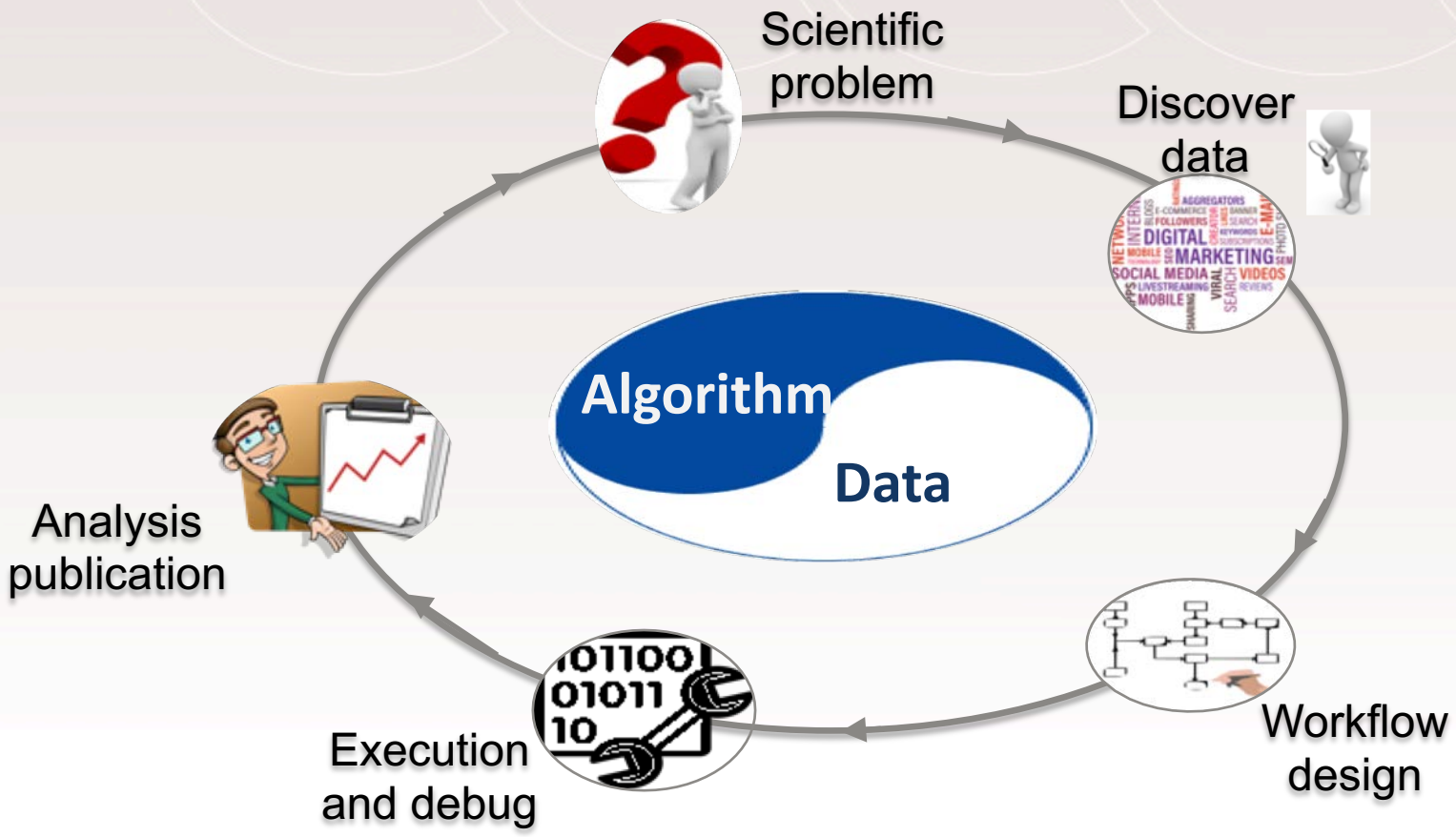
DR. ZHIMING ZHAO

UNIVERSITY OF AMSTERDAM

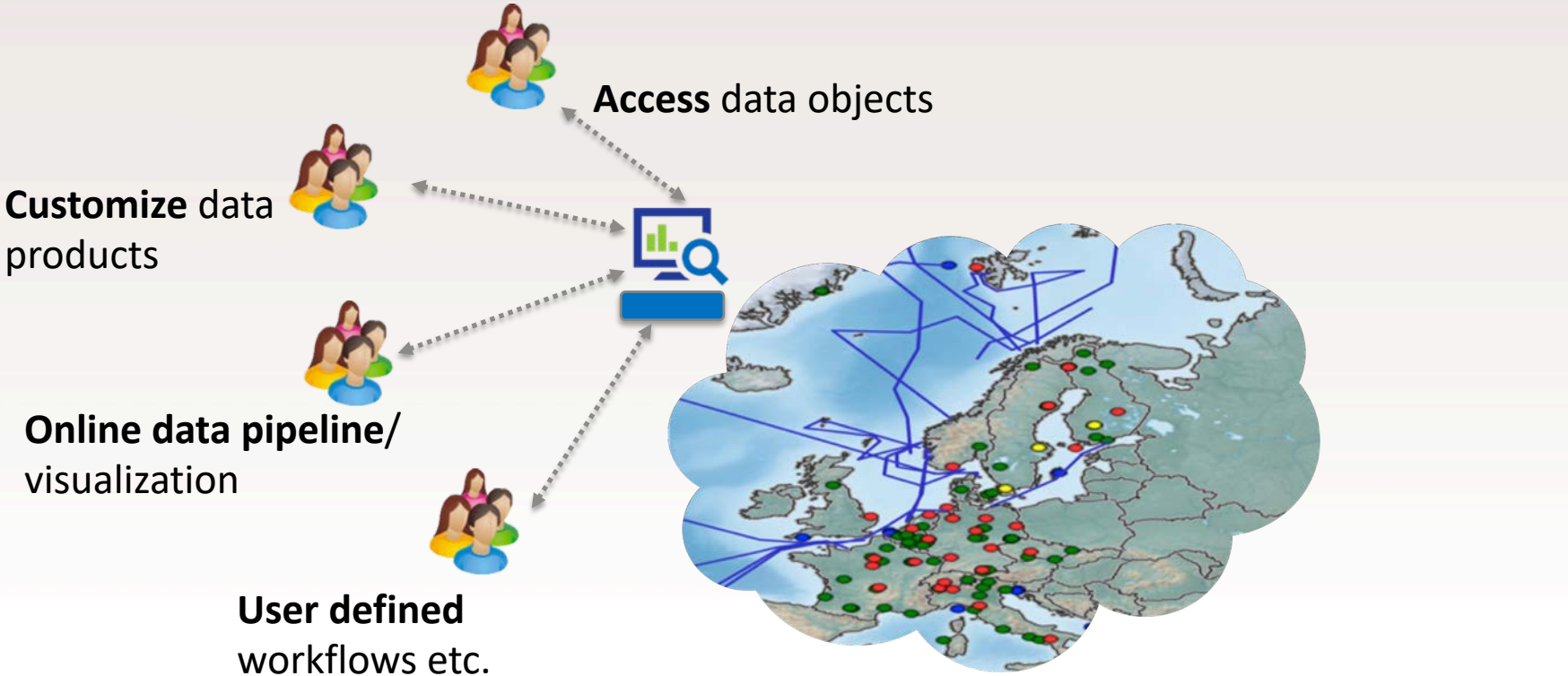
ON BEHALF OF ALL PARTNERS IN THEME2

Supporting environmental research
with integrated solutions
- the Earth is our lab

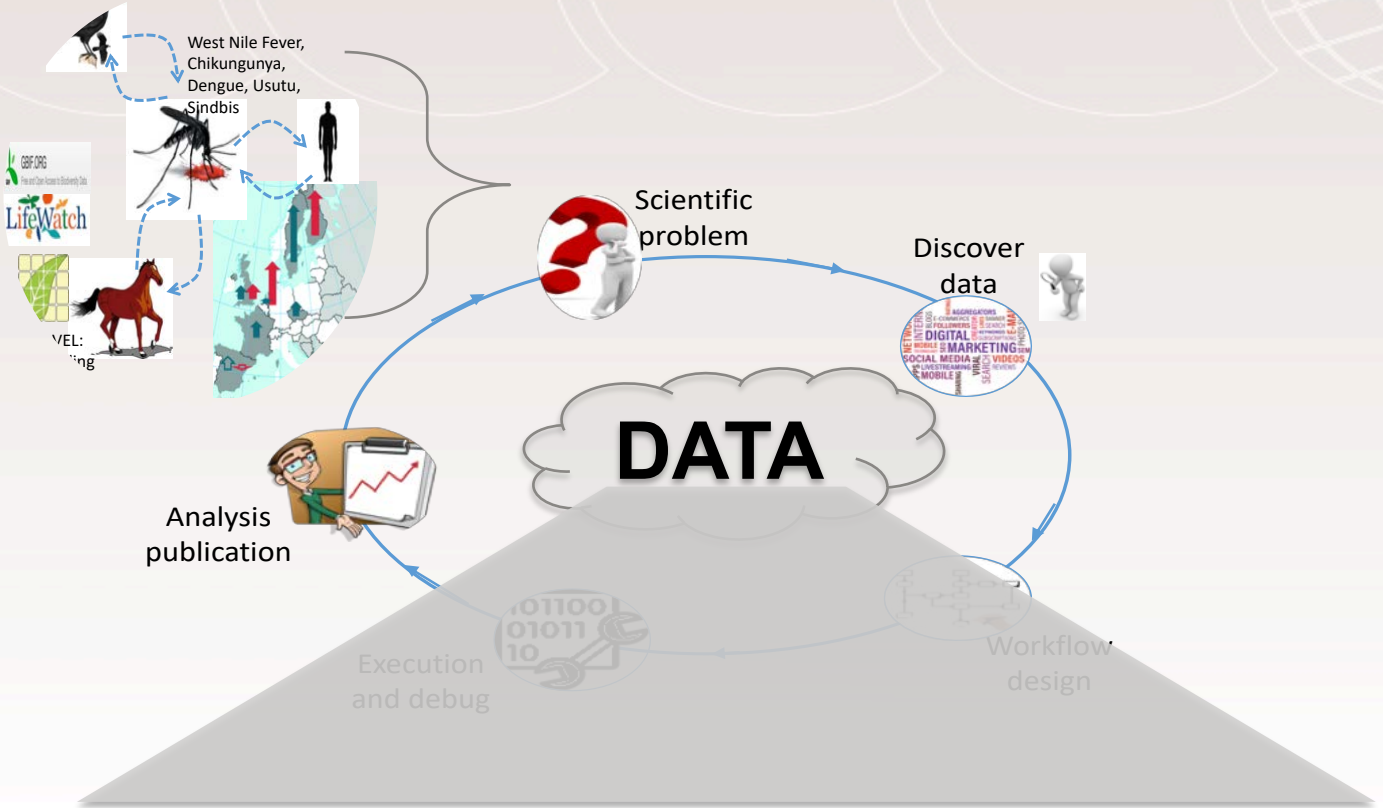
DATA PLAYS A CENTRAL ROLE IN SCIENTIFIC RESEARCH

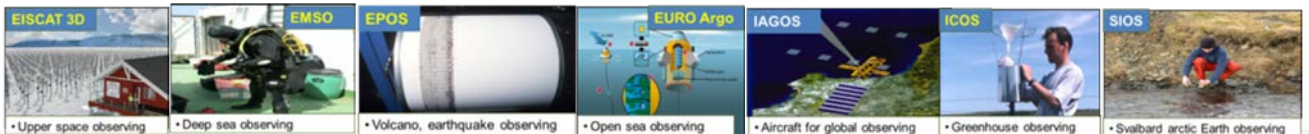


RESEARCH INFRASTRUCTURES AIM TO BREAK BOUNDARY OF ISOLATED DATA SOURCES

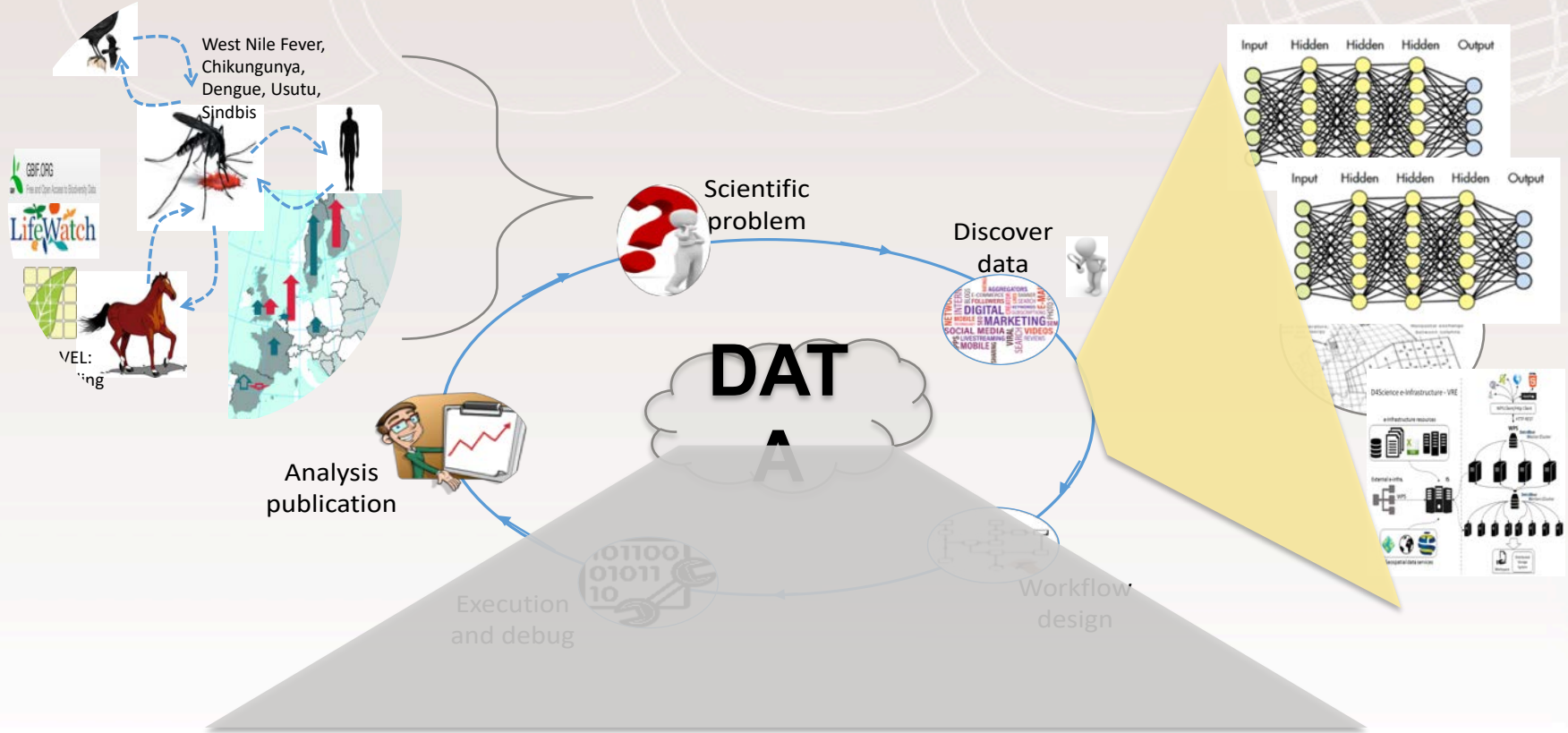


DATA CENTRIC SCIENCES ARE GETTING COMPLEX

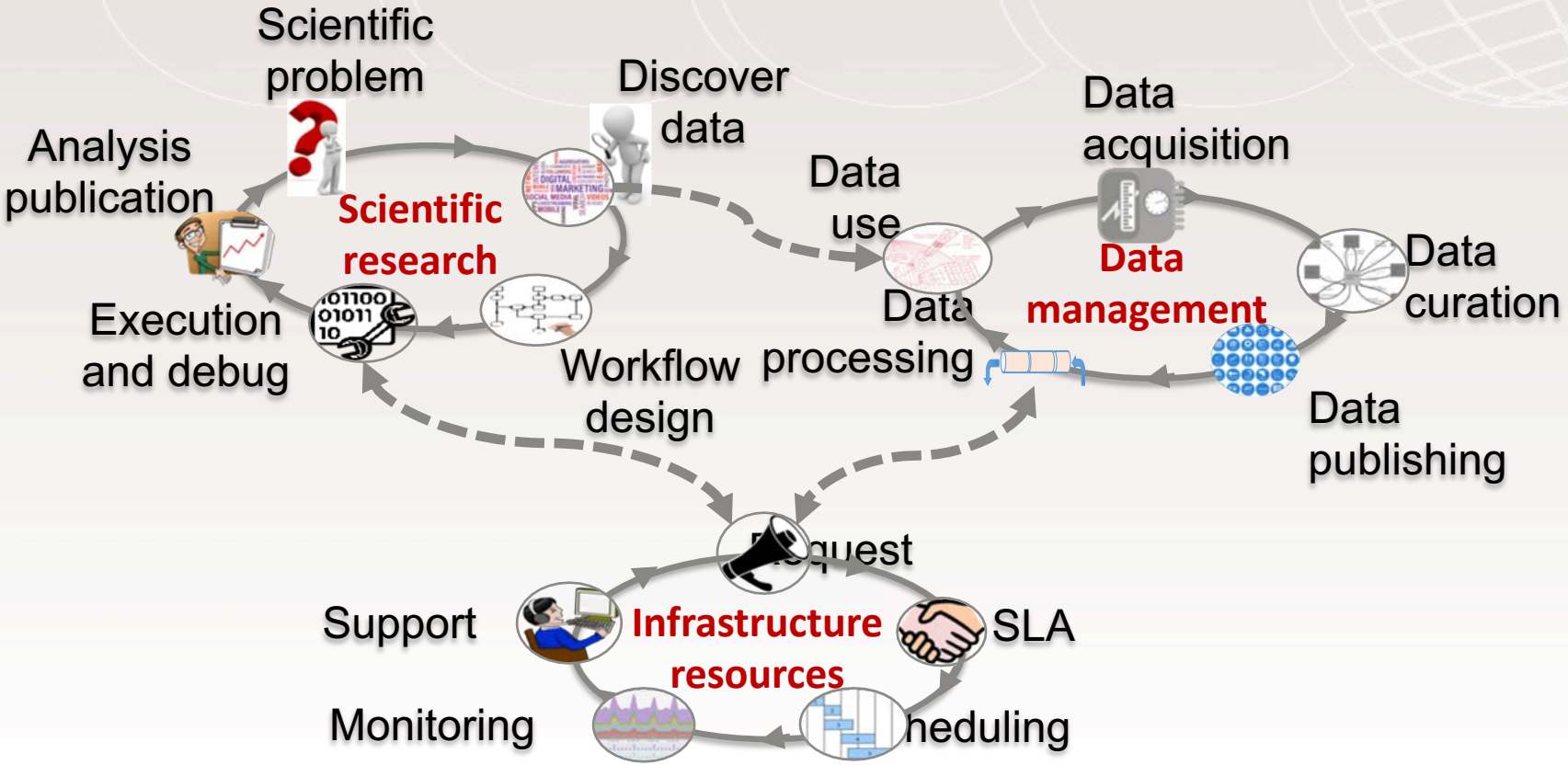




DATA CENTRIC SCIENCES ARE GETTING COMPLEX

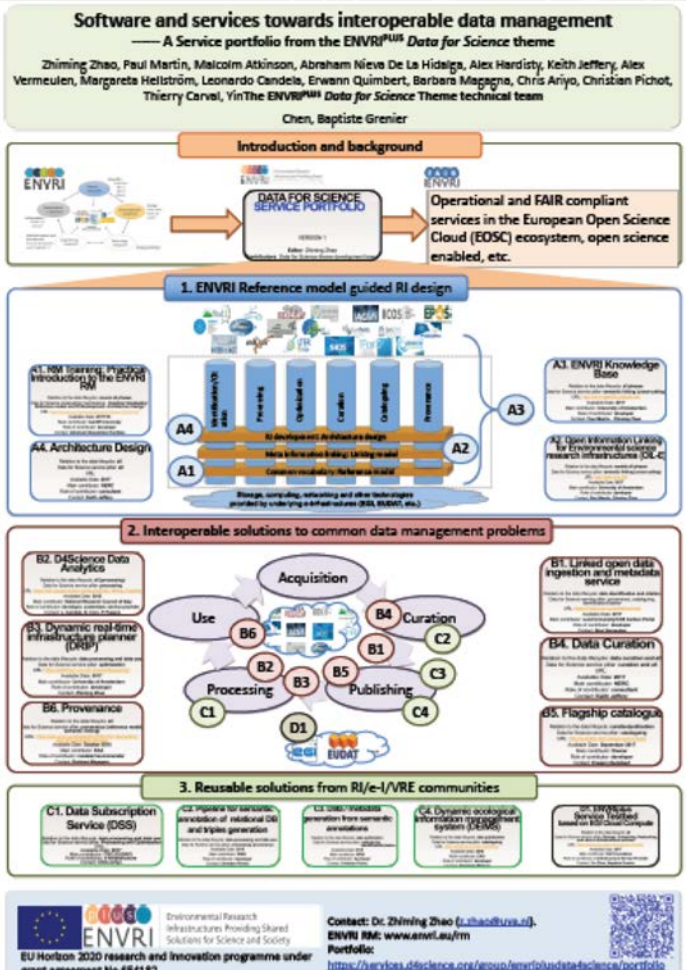


DATA CENTRIC SCIENCES ARE GETTING COMPLICATED



THEME2 SERVICE PORTFOLIO

A. Reference model related
A1: Reference model training service - CU
A2: Open information linking for ENV-RIs - UvA
A3: ENVRI knowledge base - UvA
A4: RI architecture design – NERC
B. Theme2 service pillar
B1: Linked open data ingestion and metadata service– ICOS/LU
B2: D4science data analytics - CNR
B3: Dynamic real-time infrastructure planner - UvA
B4: Curation - NERC
B5: Flagship cataloguing - IFREMER
B6: Provenance - EAA
C. Reusable solution from use cases/RIs
C1: Data subscription service - EUDAT
C2: Pipeline for semantic annotation of relational DB – ANAEE/INRA
C3: Data / metadata generation from semantic annotations- ANAEE/INRA
C4: Dynamic ecological information management system (DEIMS)- LTER/EAA
C5: Biodiversity Community Portal (LifeWatch/LTER)- EAA
D. Software quality check and testbed
D1: Envriplus service test bed - EGI



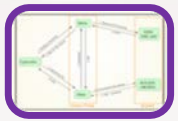
SOME EXAMPLE SOLUTIONS IN THE PORTFOLIO

A1. Reference model training service

A2. Open information linking for environmental RIs

A3. ENVRI knowledge base

A4. Architecture guideline



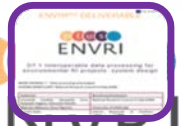
B1: Linked open data ingestion and metadata service

B2: D4science data analytics

B3: Dynamic real-time infrastructure planner

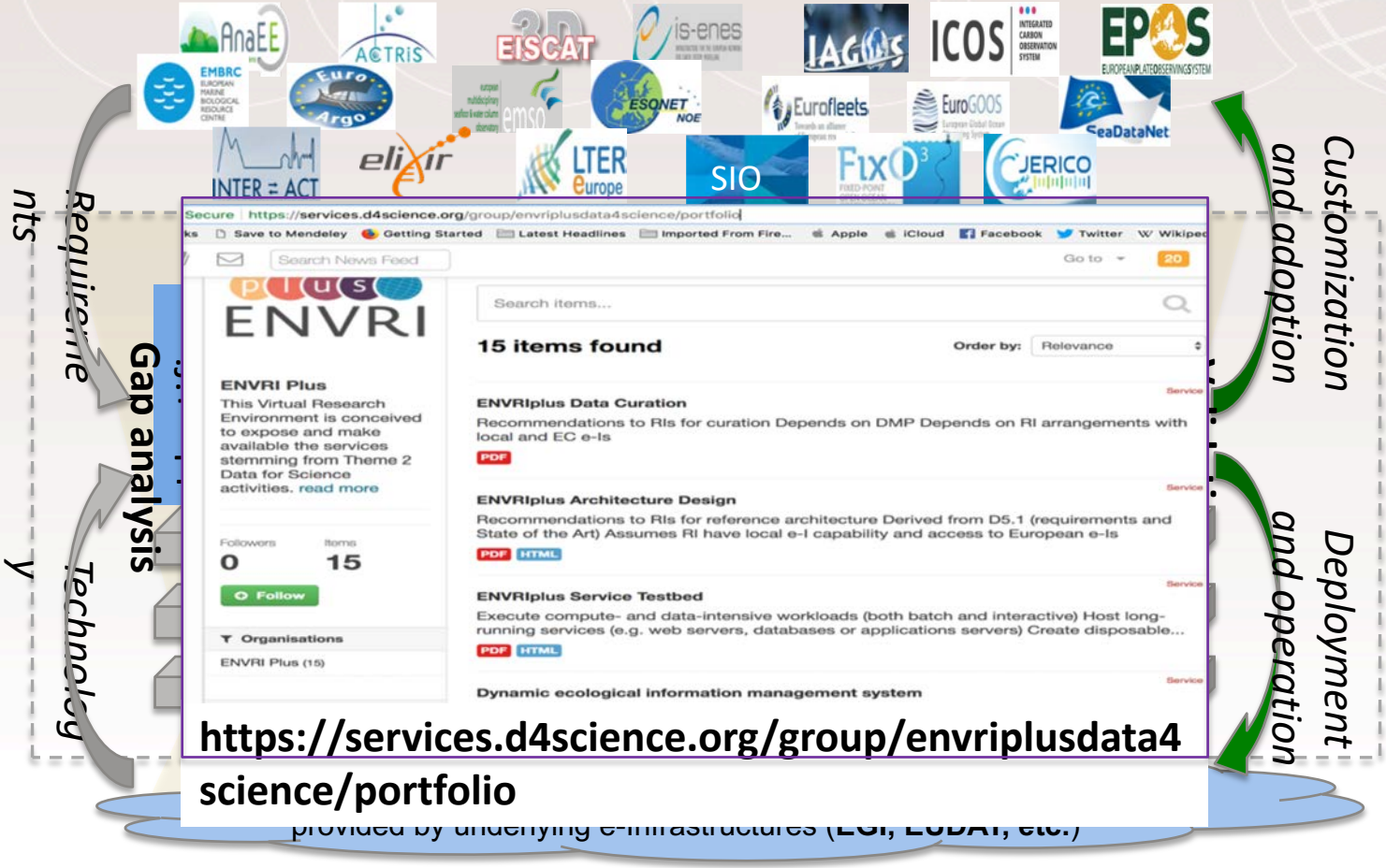
B4: Flagship cataloguing

B5: Curation



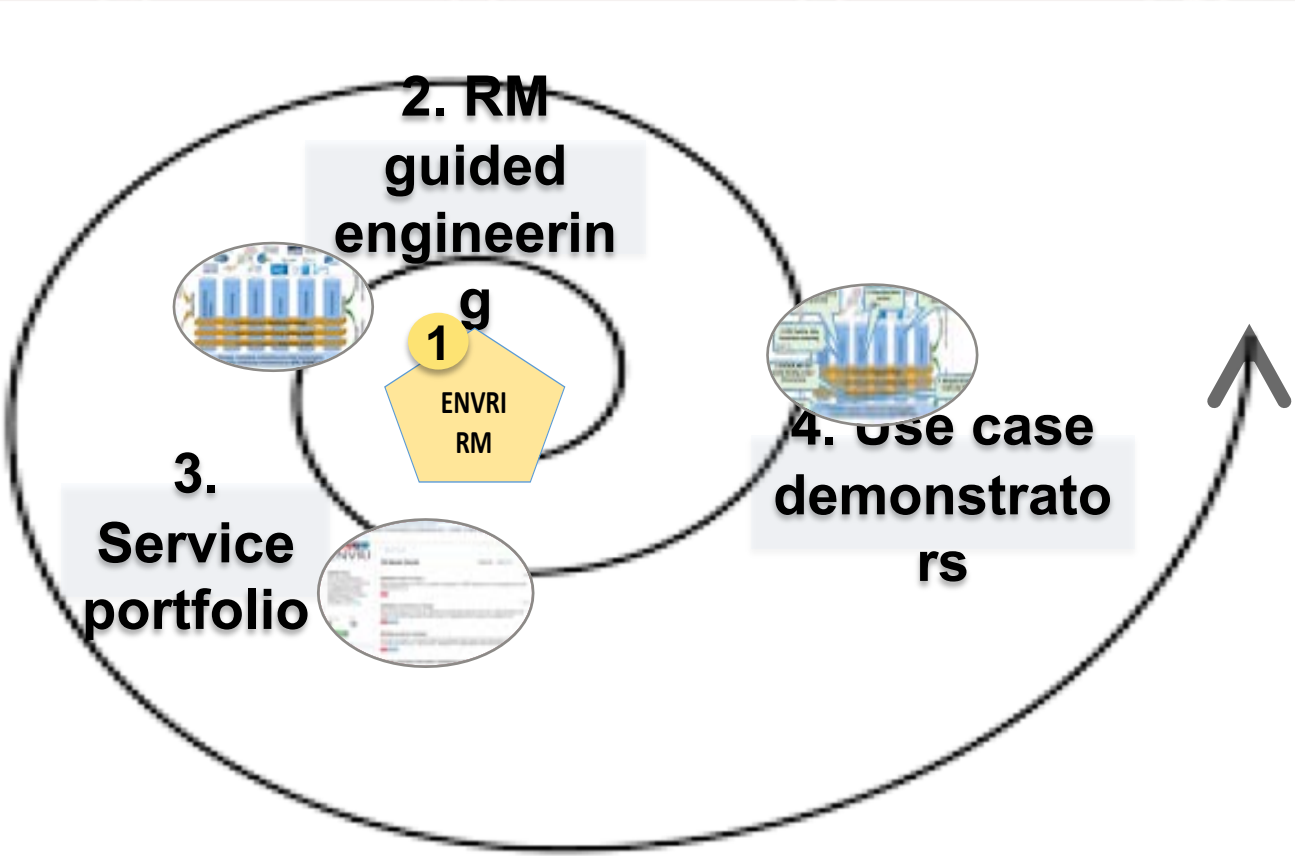
B6: Provenance

SERVICE PORTFOLIO: REUSABLE SOLUTIONS



Logos of ENVRIPLUS research infrastructures, Composed by Zhiming Zhao

HIGHLIGHTS 4: USE CASE DEMONSTRATOR



Theme 2 ICT specialists

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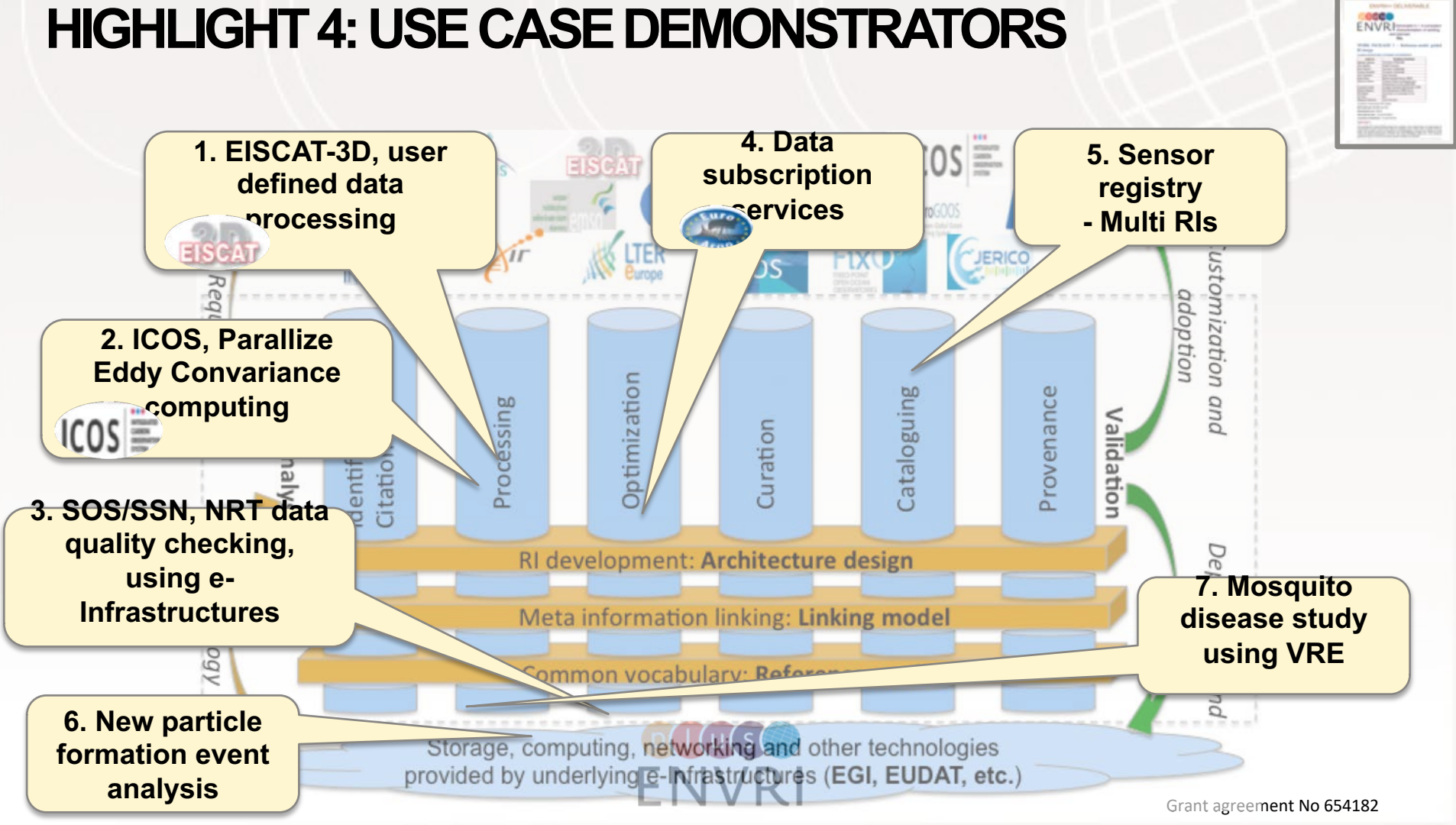
HIGHLIGHT 4: USE CASE DEMONSTRATORS



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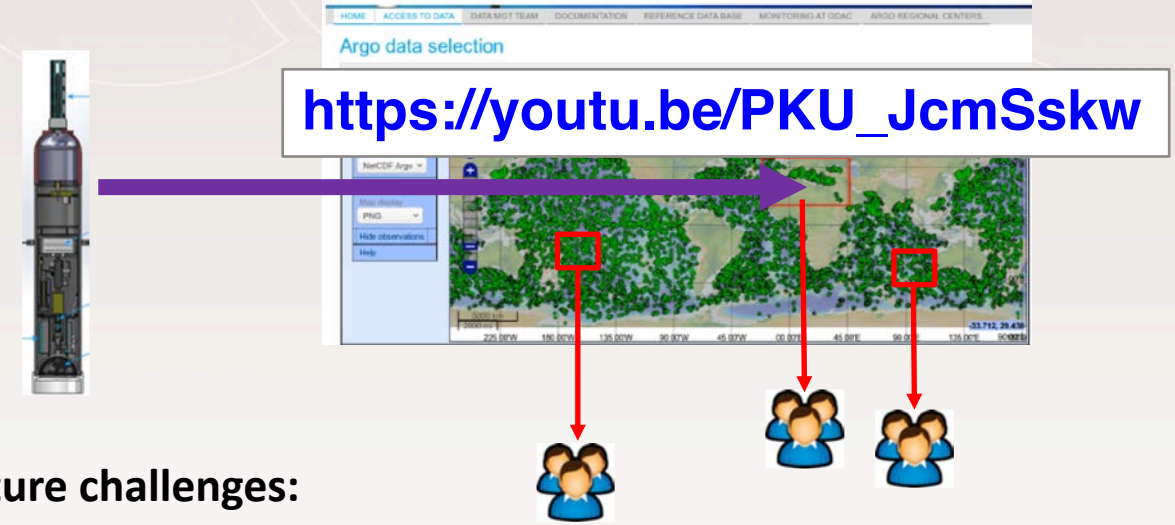
DEMONSTRATOR 1: SUBSCRIBING DATA FROM RI



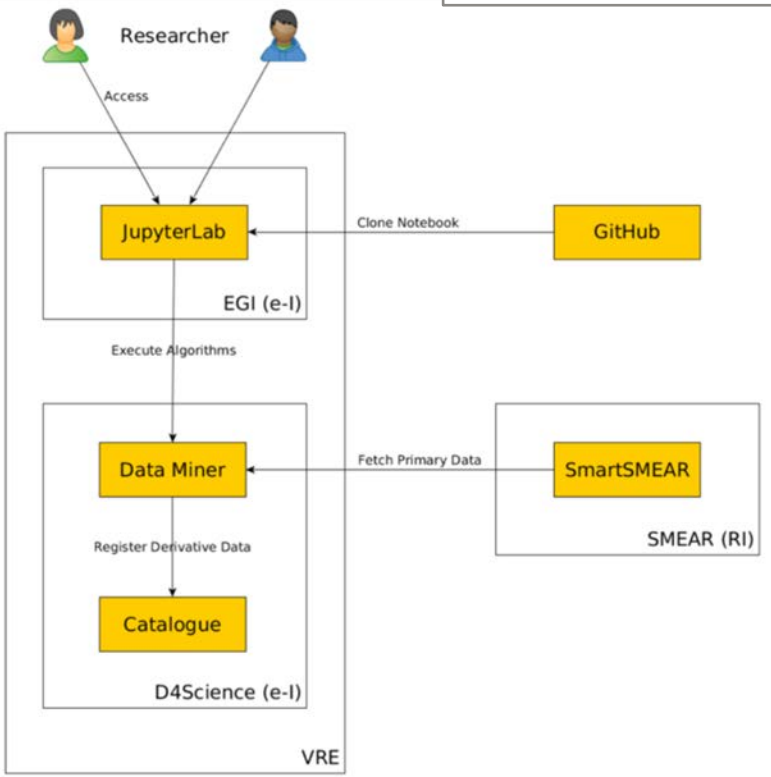
Infrastructure challenges:

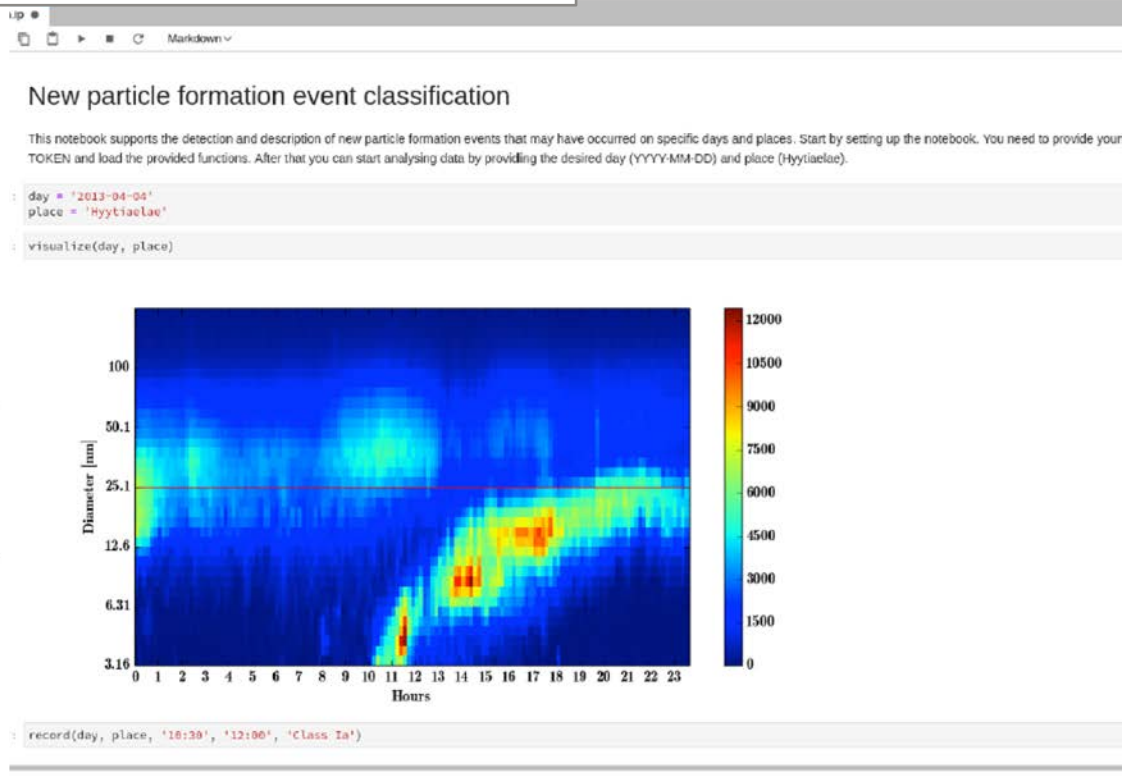
1. Subscriptions are diverse and changing
2. Subscriptions require different data region, time duration and computation
3. Subscriptions are for different purposes: simulation models, real-time decisions, or research etc.
4. Subscriptions have different requirements: e.g., time critical or high QoS

Koulouzis S. et al., (2019), Time-critical data management in clouds: challenges and a

DEMONSTRATOR 2: NEW PARTICLE FORMATION EVENT ANALYSIS

https://youtu.be/ra9W7b5DbgI

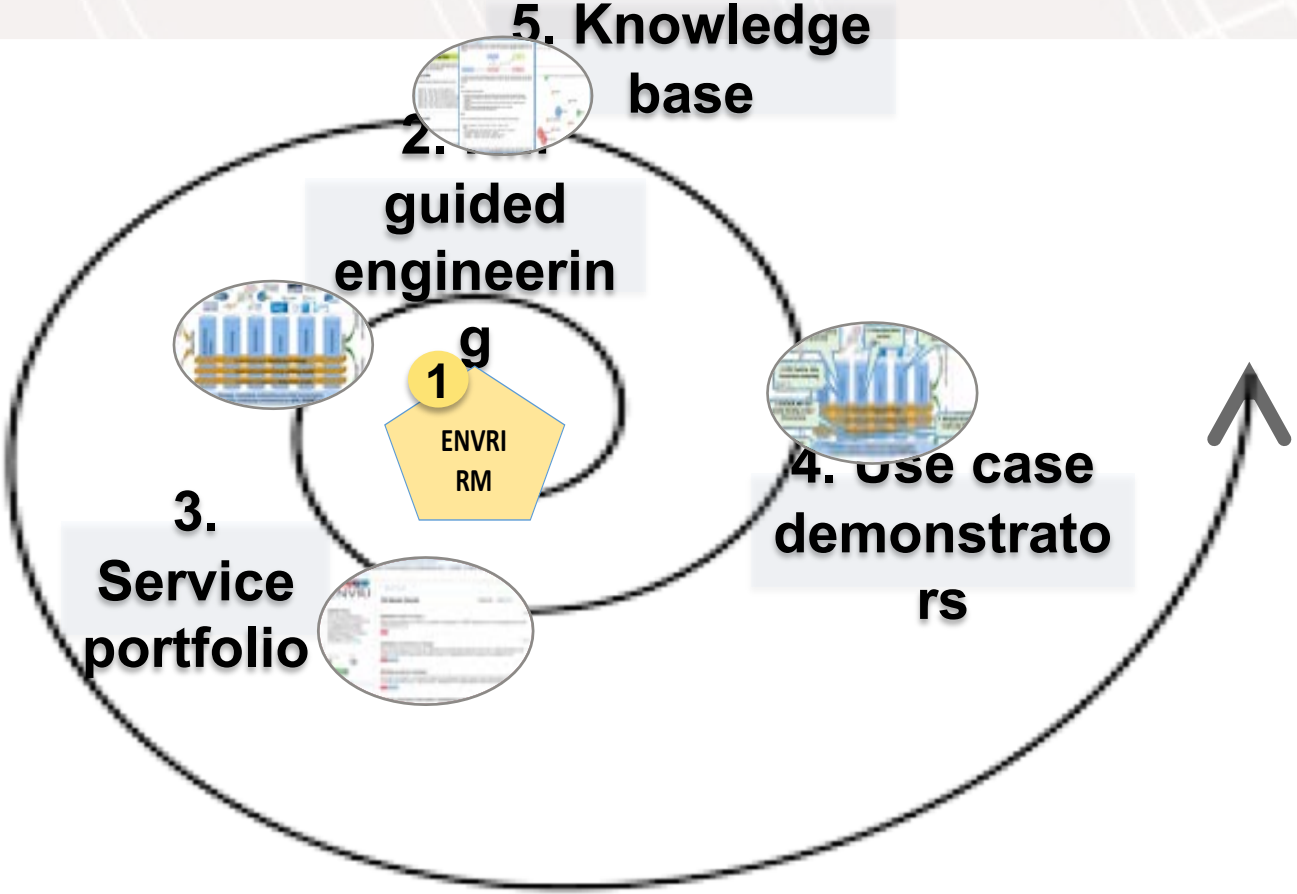




MORE INFORMATION

D9.1 and D9.2 Service deployment in computing and data e-Infrastructures (Version1 and 2)

HIGHLIGHTS 5: KNOWLEDGE BASE



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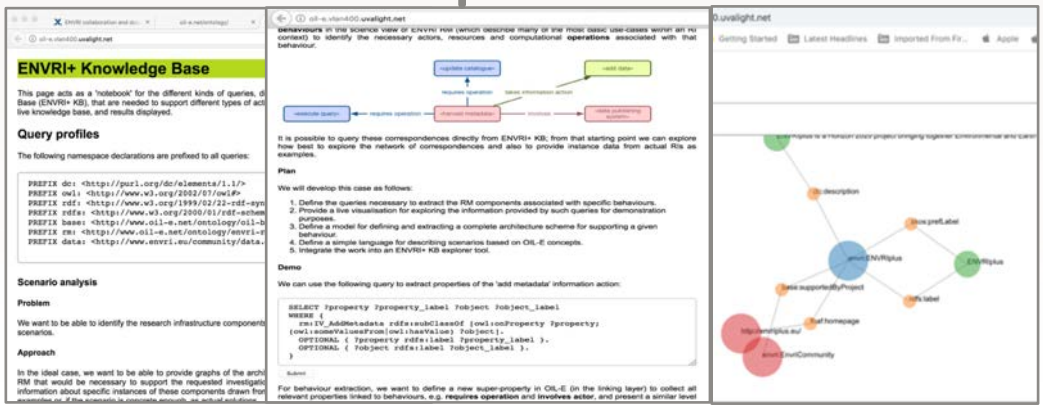
THEME2 KNOWLEDGE BASE

Architecture, communities, roles, data management services, quality control, tools, standards etc.



Prototype: http://oil-e.vlan400.uvalight.net

Requirement: https://bit.ly/KB-REQ

KEY HIGHLIGHTS

1. ENVRI reference model (*common vocabularies*)
2. Reference model guided engineering (*methodologies*)
3. Theme2 service portfolio (*key development results*)
4. Use case demonstrators (*validation*)
5. Theme2 knowledge base (*knowledge curation*)
6. Theme2 summer school (*knowledge transfer*)
7. Theme2 book (*knowledge transfer*)
8. Towards ENVRI-FAIR (*towards FAIR and EOSC*)

Horizon 2020

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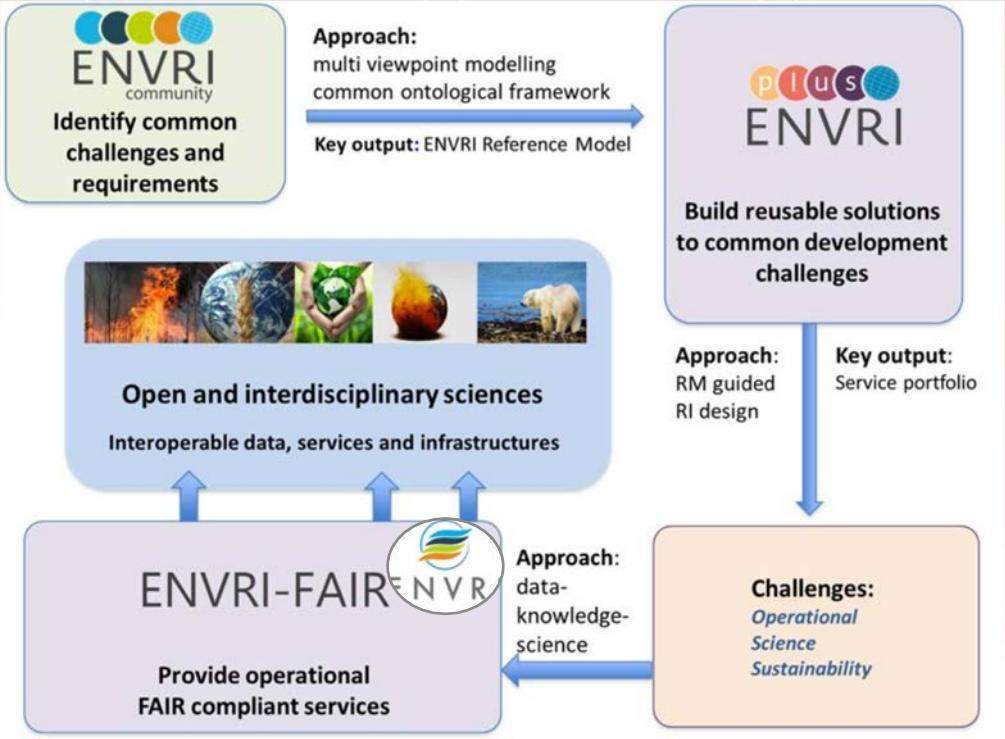
WRAP UP


ENVRI community
Identify common challenges and requirements
Approach:
multi viewpoint modelling
common ontological framework
Key output: ENVRI Reference Model
plus ENVRI
Build reusable solutions to common development challenges
Approach:
RM guided
RI design
Key output:
Service portfolio
Open and interdisciplinary sciences
Interoperable data, services and infrastructures
ENVRI-FAIR
Provide operational
FAIR compliant services
Approach:
data-
knowledge-
science
Challenges:
Operational
Science
Sustainability