



# Towards an e-infrastructure for open science in agriculture

## eROSA approach and beyond

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# Background

🚀 e-ROSA: build a roadmap for an « e-infrastructure for openscience in agriculture »

✓ 18 months : jan 2017-june 2018

🚀 Aginfra+ : illustrate the value and potential of a virtual research environment for the domain of agriculture and food

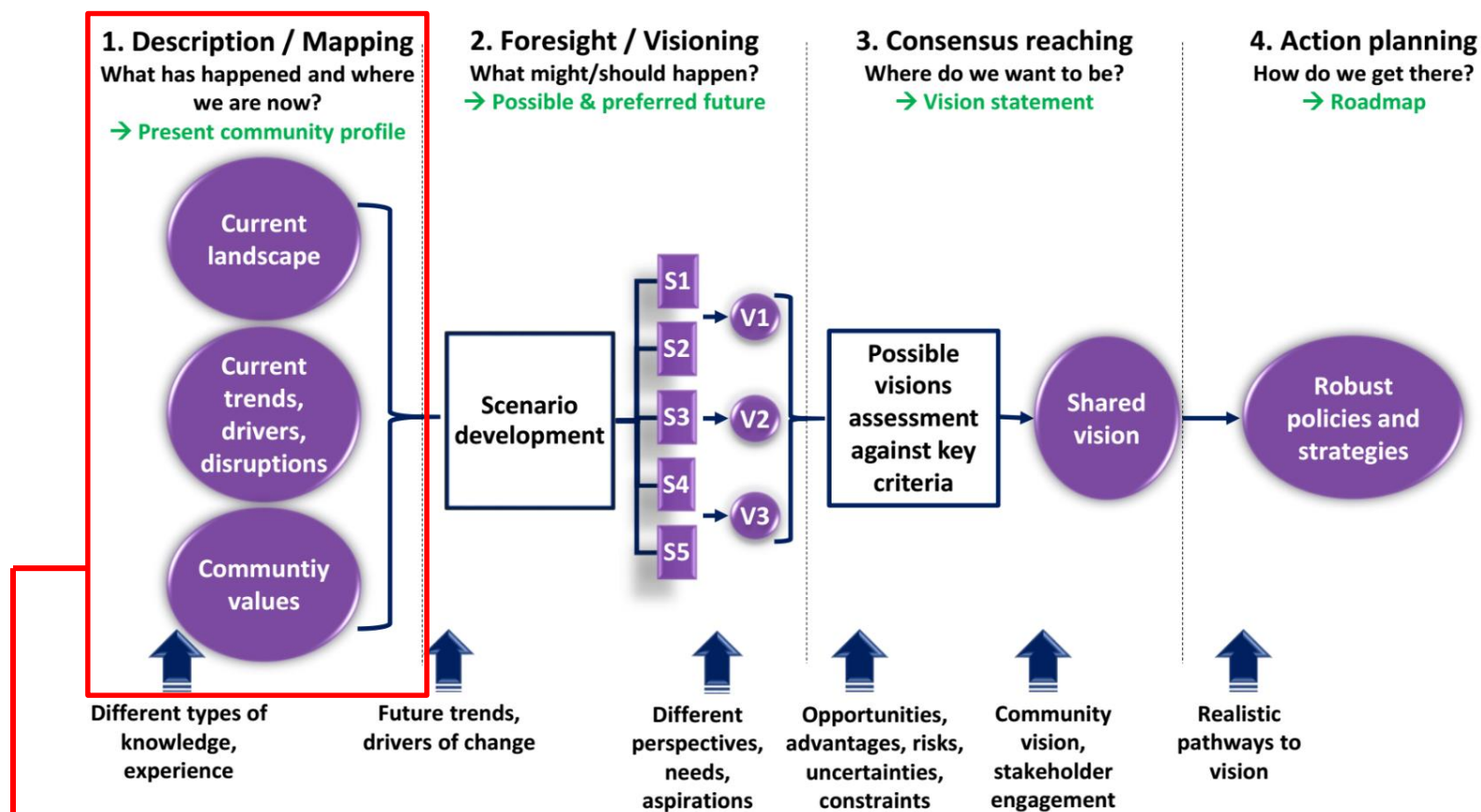
✓ 3 years : 2017-2019

🚀 Open data policy at INRA

<http://datapartage.inra.fr>



# eROSA methodology



**WP1: Ecosystem & Community**

	Description/Mapping	Foresight	Consensus	Action planning
WP1				
WP2				
WP3	WKS1		WKS2	WKS3



# What could it be ?

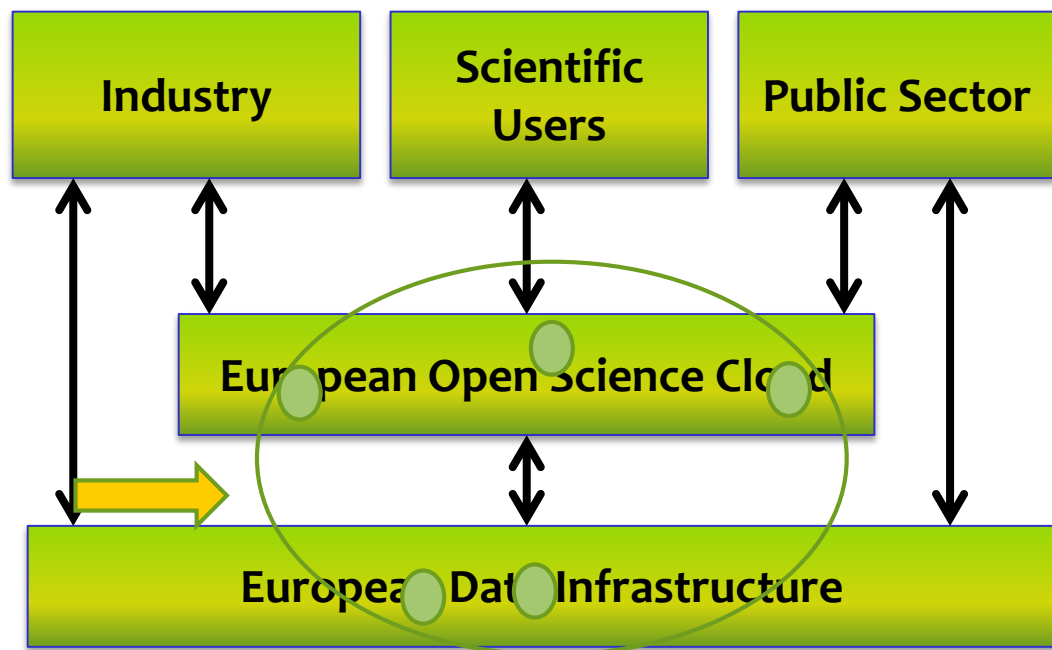
First approach



# Keywords

**Community**  
**Ecosystem** **Federated**  
**Services**  
**Distributed** **Skills**  
**Sustainability**

# E-infra : an ecosystem of resources and services



- **European Open Science Cloud (EOSC)**
  - Integration and consolidation of e-infrastructures
  - Federation of existing research infrastructures and scientific clouds
  - Development of cloud-based services for Open Science
  - Connection of ESFRIs to the EOSC
- **European Data Infrastructure (EDI)**
  - Development and deployment of large-scale European HPC, data and network infrastructure

**Source:** <https://ec.europa.eu/digital-single-market/en/%20european-cloud-initiative>

# Resources and services : 1st approach

Data publication

Data processing and analysis

Data integration



Galaxy, Taverna et Knime  
Virtual research env

openMIN7ED  
Open Mining Infrastructure for Text & Data

Data interoperability

semantics



<http://vest.agrisemantics.org>

<http://agroportal.lirmm.fr/>

<http://agrisemantics.org/>

openMIN7ED  
Open Mining Infrastructure for Text & Data

Data discovery



Data resources: management, storage, ...

FAIR data

Data standardization



Distributed and Trusted data repositories

openMIN7ED  
Open Mining Infrastructure for Text & Data



eROSA  
e-infrastructure Roadmap  
for Open Science in Agriculture

CAPSELLA Open Data Workshop, Chania, 2 June 2017

Horizon 2020 research and innovation programme - grant agreement No 730988



# What did we achieve so far ?

Quick overview





# Mapping under e-ROSA

- ✚ Provide a detailed, comprehensive overview of the current landscape related to data science in agriculture
- ✚ Identify main stakeholders and existing resources within the e-ROSA scope that can support and benefit from the e-ROSA community-building and roadmap elaboration process
- ✚ **Tell a story :**
  - ✓ Diversity of data types and resources to tackle the challenges of the agri-food science
  - ✓ Identify the gems : data, standards, services, expertise
  - ✓ Help to identify our commons ....

# Concepts and definitions

- ✚ **E-infrastructure :**  
<https://docs.google.com/document/d/1MYZhRAelcdTu59YjE-5ZTkgQzfDuihIULBTNw-FaMgo/edit?usp=sharing>
- ✚ **Organisations:** the organisations (e.g. research performing organisations, ministries, international organisations) within the e-ROSA scope; “data producers”, “data experts” , “data policy”
- ✚ **Initiatives:** Projects, networks and other initiatives within the e-ROSA scope
- ✚ **Data points:** all forms of data sources directly or indirectly providing access to data in the field of agriculture and food ; answers the question “how to get data?”
- ✚ **Facilities:** research infrastructures and e-infrastructures that provide one or several types of data services (e.g. modeling infrastructures, data management infrastructures, etc.); answers the question “what can you do with data?”

# AgINFRA/e-ROSA online map




 <http://www.aginfra.eu/discover>

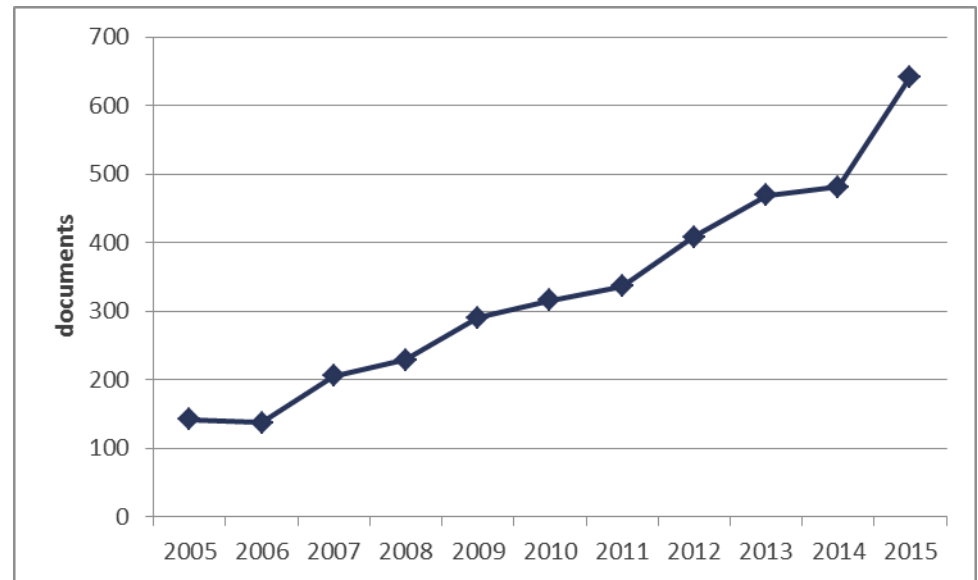
 <http://www.aginfra.eu>



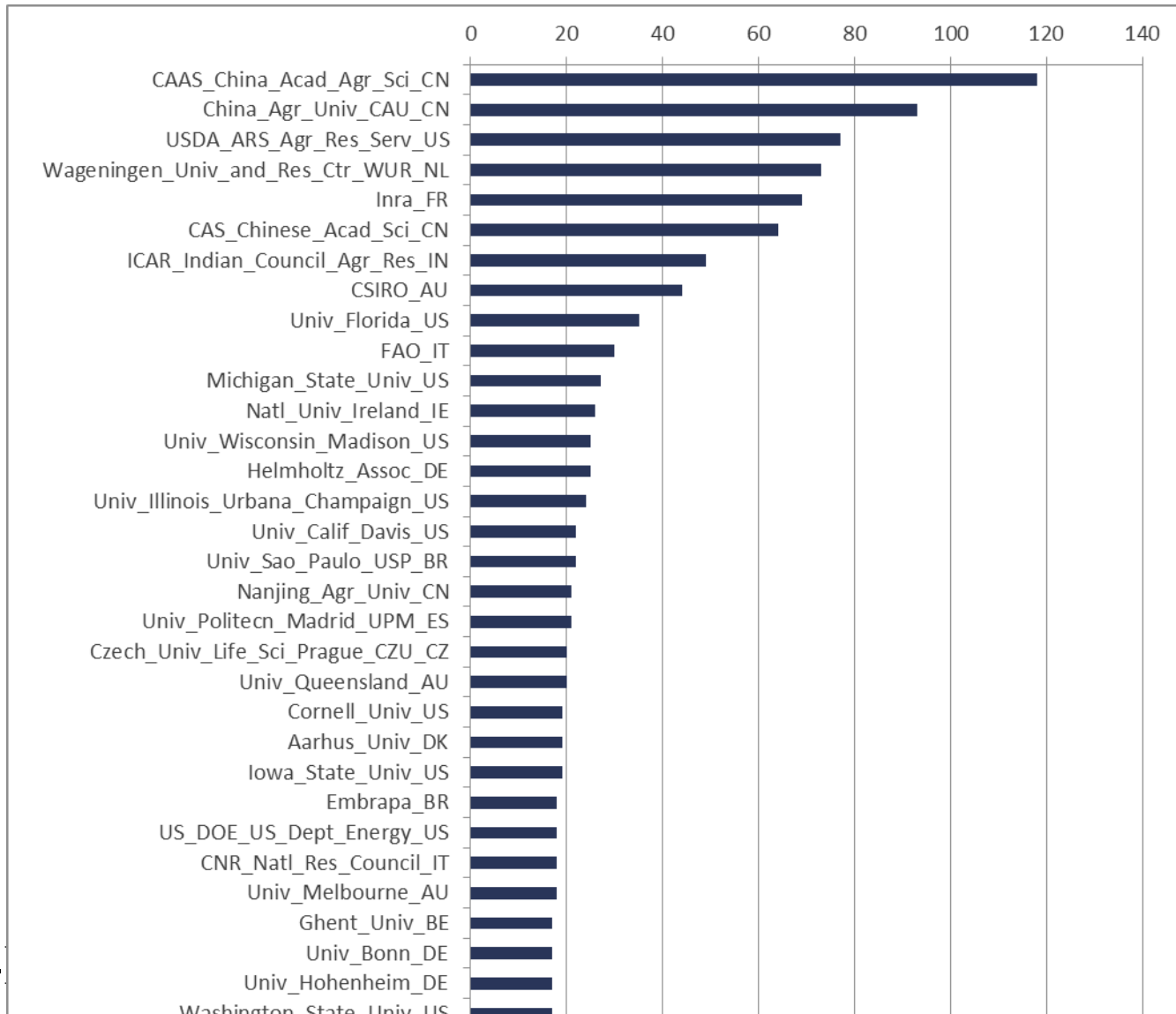
Mapping the Data Ecosystem of Agriculture and Food Sciences

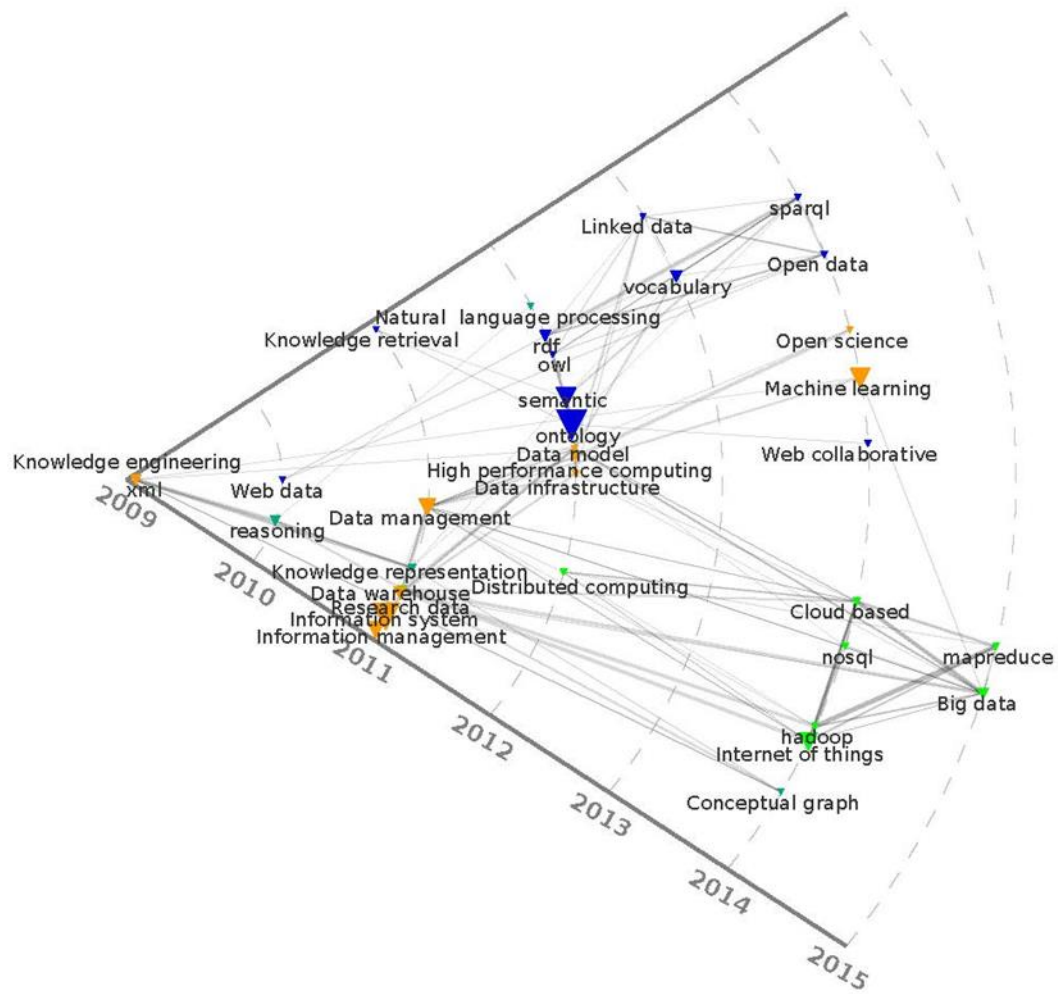
# Bibliometric analysis

-  The identification of scientists and related collaboration networks involved in data science for agriculture
-  Identify specific domains related to data and computer science that are of interest to identified scientists (i.e. working on agricultural issues).
-  Identify related conferences and journals that the e-ROSA project can target in order to effectively reach out to the relevant communities involved in data science issues related to agriculture.

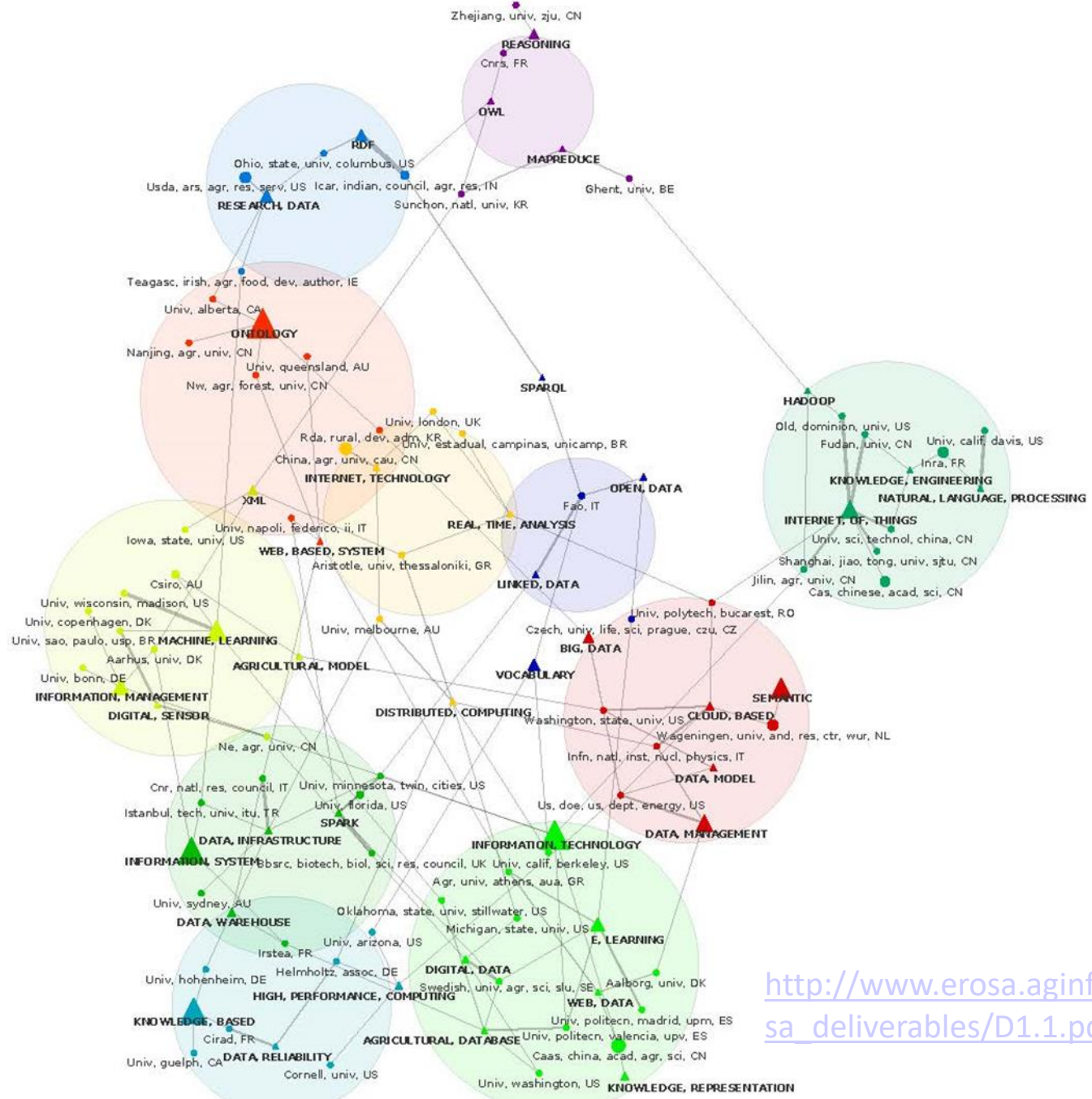


# Most publishing countries









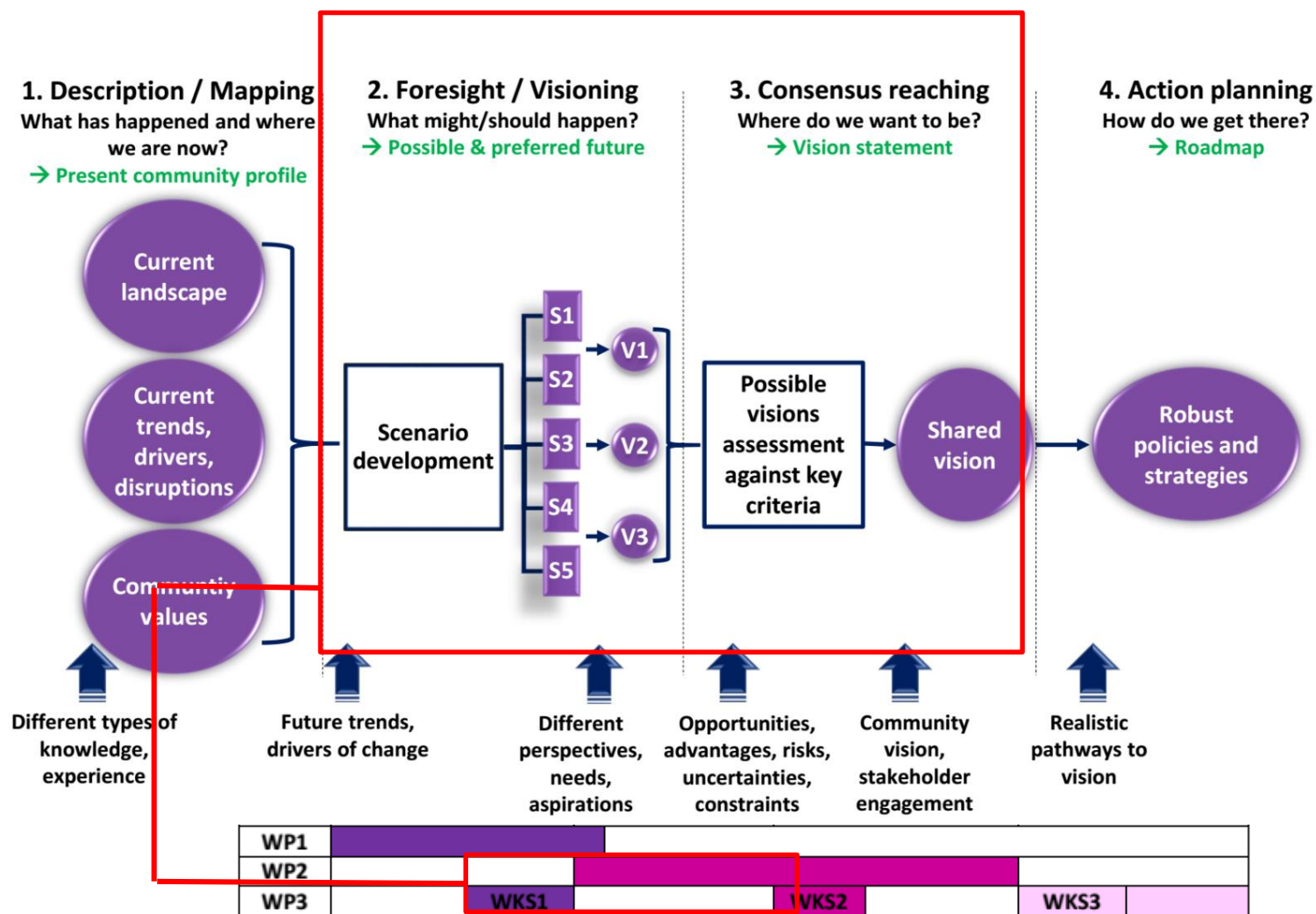
[http://www.erosa.aginfra.eu/sites/erosa\\_deliverables/D1.1.pdf](http://www.erosa.aginfra.eu/sites/erosa_deliverables/D1.1.pdf)

# Next steps

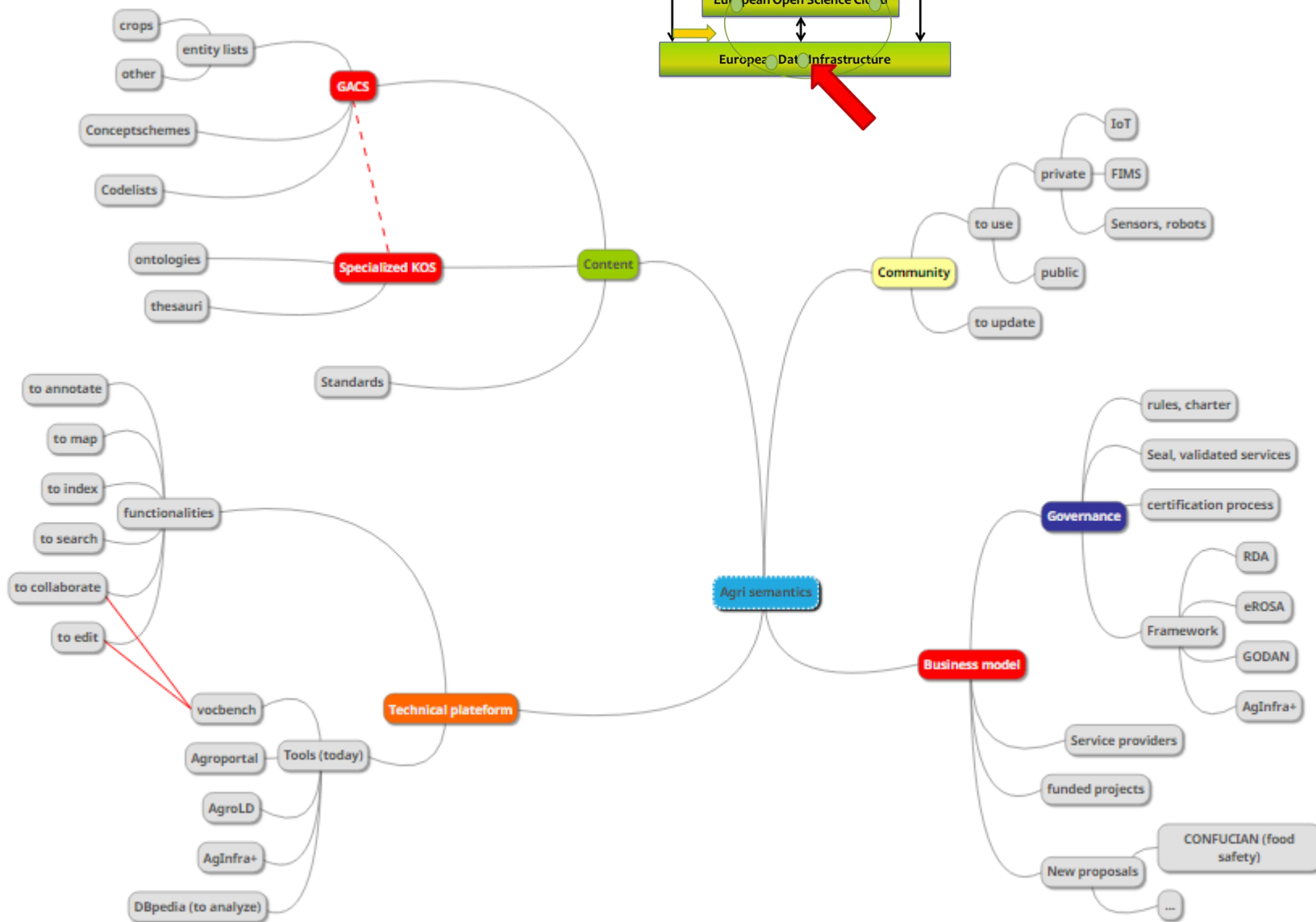
First approach (not a result of the project in April 2017)





# eROSA methodology



# Semantics



# Some wishes or needs (personnal)

-  To be more focus on content than on technical service
  - ✓ vocabularies as a service
  - ✓ PID as a service
  - ✓ xxx.... as a service
-  To have a conceptual framework to describe an e-infrastructure
  - ✓ technical layers, services ...



# Back to EOSC and the future





# European Open Science Cloud



Addressing scientific challenges

## Science Demonstrators



Addressing technical challenges



Policy

Governance

Engagement

Skills

Addressing cultural challenges







## Focus points in thematic workshops & policy debates:

- How to create a culture of data stewardship in your thematic community and the role of funding agencies;
- Mapping the types of data and Data Management Plans (DMPs);
- FAIR principles in thematic communities and across disciplines and other borders;  
(European open research data circulated within the EOSC will be findable, accessible, interoperable and reusable)
- Research data infrastructures and services for European scientists (projects, ESFRIs / ERICs , national nodes, clusters; how they work together/ decision flows, funding models etc.);
- Thematic cloud/s architectures, functionalities, funding mechanisms and governance models already in place, existing federations, assessing potential of interdisciplinarity (e.g. Blue and Food, Blue and Health, Blue and Citizens/SSH etc.);
- Needs assessment / mapping the needs of your scientific community/ scientific discipline and proposing next steps/ action plans

## European Open Science Cloud (EOSC)

Actions	Timeline	
The Commission will work with global policy and research partners to foster cooperation and to create a <b>level playing field</b> in scientific data sharing and data-driven science.	As of 2016	<b>OECD, RDA, G7</b>
The Commission will use the <b>Horizon 2020 Work Programmes</b> to provide funding to <b>integrate</b> and consolidate e-infrastructure platforms, to <b>federate</b> existing research infrastructures and scientific clouds and to support the <b>development of cloud-based services for Open Science</b> .	As of 2016	<b>WP2018-20</b>
The Commission will make <b>open research data the default option</b> , while ensuring opt-outs, for all new projects of the Horizon 2020 programme.	As of 2017	✓ <b>01.01.2017</b>
The Commission will review the 2012 Commission Recommendation on access to and preservation of scientific information <sup>41</sup> to <b>encourage scientific data sharing</b> and the creation of incentive schemes, rewards systems and education and training programmes for researchers and businesses to share data, in close relation with the DSM 'Free flow of data' initiative.	As of 2017	<b>EG on Rewards &amp; EG on Skills</b>
The Commission will work with Member States to <b>connect</b> the priority European research infrastructures <sup>42</sup> to the European Open Science Cloud.	As of 2017	
Together with stakeholders and relevant global initiatives, the Commission will work towards an <b>Action Plan for scientific data interoperability</b> , including 'meta-data', specifications and certification.	By end 2017	<b>FAIR Action Plan</b>

# For us – link with what we discussed yesterday

-  Competence centres (federated, distributed ...) in agri-food data science
-  FAIR principles in agri-food to foster interdisciplinary approaches crucial of agri-food science
-  Policy, rules of engagement for GO FAIR in agri-food sc
-  Action plan for data interoperability including metadata





Thank you for your attention!  
And many thanks to the eROSA team

## CONSORTIUM

