

➤ INRAE's open science policy and monitoring

Odile Hologne, Directorate for Open Science (DipSO)

<https://science-ouverte.inrae.fr>

➤ INRAE, French Research Institute for Agriculture, Food and the Environment

SCIENCE DEDICATED TO LIFE, HUMANS, AND THE EARTH



Agriculture



Environment



Food



Global challenges

Climate change and risks, One health,
agrifood systems

Key figures

A community of **11,000+ people**

Budget > € 1000 million

A strong presence in the regional higher education and research ecosystem in France with **18 research centers, 14 scientific divisions**

A world class research institute in the fields of :

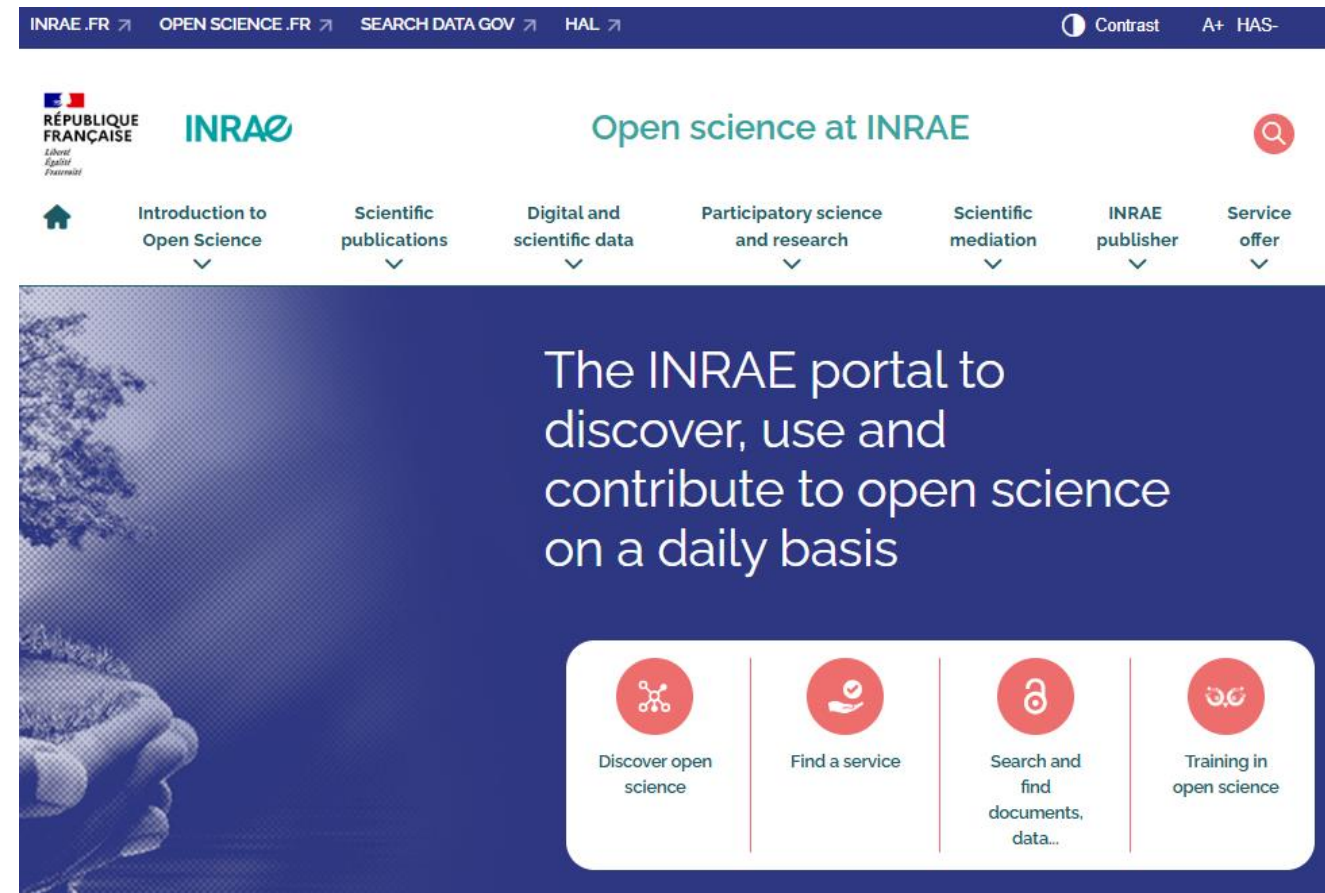
- Agricultural sciences:
- Plant and Animal Sciences
- Food Sciences
- Ecology Environment

A top research contributor to the United Nations 2030 Agenda' Sustainable Development Goals

➤ Open Science at INRAE

Creation of INRAE in 2020 (merged of INRA+ IRSTEA)

- A Directorate for Open Science (DipSO in french) created in 2020 with 4 main teams in charge of services to support :
 - Publishing, archiving, Open Access
 - Bibliometrics studies, indicators, « business intelligence »
 - Data and digital services, FAIR Data and Research data governance
 - Citizen Science, mediation, partnerships with civil society
- Opportunity to define policies and roadmaps
 - Open science policy
 - Data governance policy
 - Roadmaps on different topics : Open Science, Data, Open Innovation, Citizen Sciences



➤ INRAE 2030 strategic research Agenda and Open Science

PP 1.3. Open science and shared knowledge

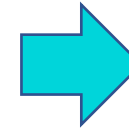
As part of France's national programme to promote open science³³ and in accordance with European and international initiatives, INRAE has constructed a roadmap to accelerate its adoption of open science policies and its sharing of knowledge and data. We are also strongly committed to the further development of participatory research and to dialogues with the third-party research stakeholders. We simultaneously recognise the importance of protecting certain discoveries and innovations: "Science must be as open as possible and as closed as necessary".

PP 3.4. A commitment to openness and transparency

Societal expectations are extremely high, and everyday citizens demand clarity regarding how research results and expertise are obtained, the aims of this work, and its timeliness. We are invested in communicating with the general public and teaching members of society about our research. In tandem, we are committed to fostering debate and exchange, especially on high-stakes issues. This commitment means that we must provide space for opposing viewpoints, explore controversial topics, and provide scientific facts to inform debates.



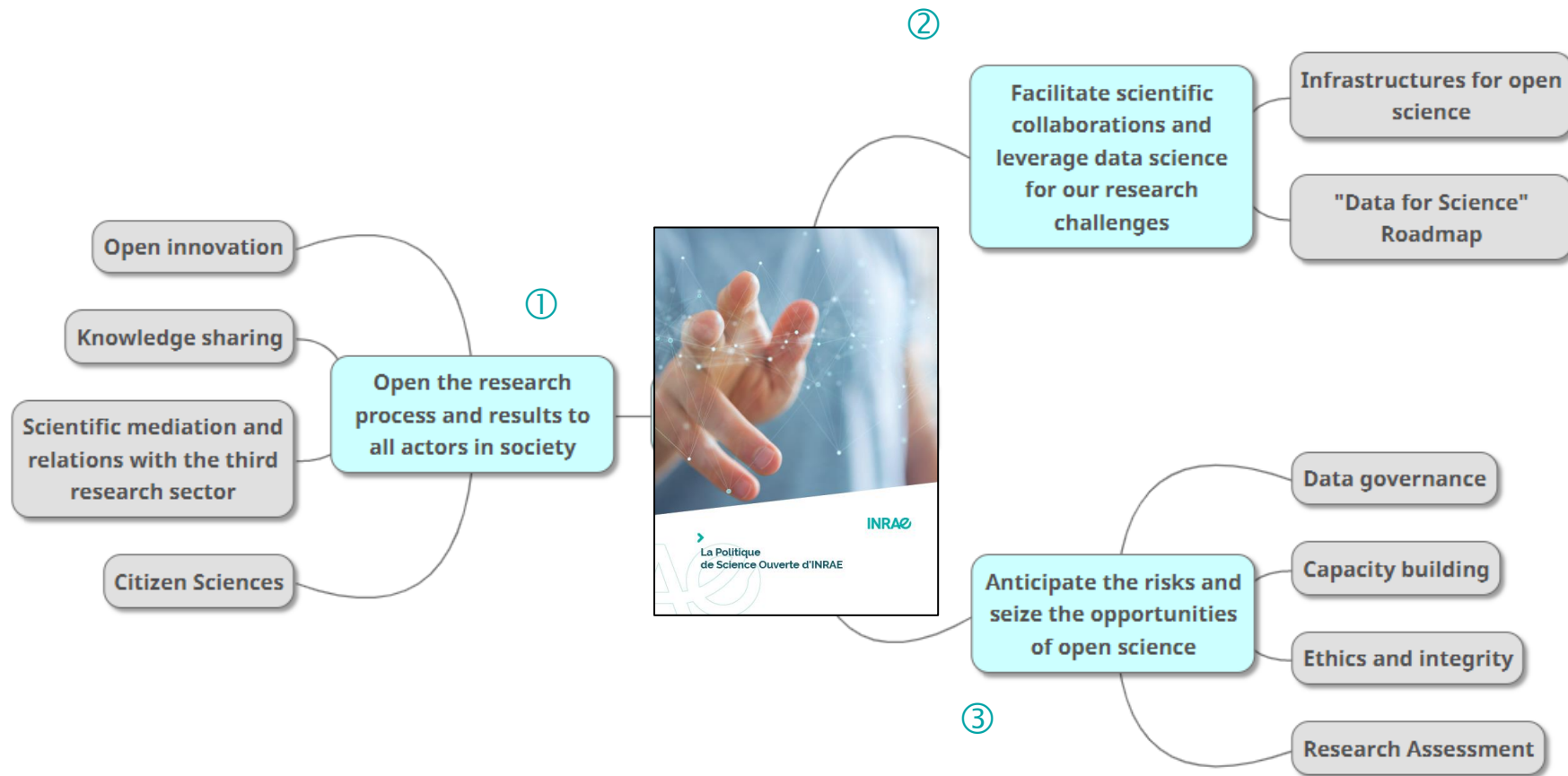
OS Policy



OS Roadmap



➤ INRAE Open Science Policy : 3 goals



➤ OS Roadmap : 10 key actions



▼ The 10 key initiatives for open science at INRAE

1  **A NATIONAL PLATFORM FOR RESEARCH DATA**
research.data.gouv.fr
in Spring 2022

Open access and sharing of FAIR (Findable / Accessible / Interoperable / Reusable) scientific data produced by researchers in France.
INRAE is leading the implementation of the repository and catalogue, as well as the future related resource centre for higher education and research.

2  **A NEW INRAE OPEN SCIENCE WEB PORTAL** online in 2022

Centralized access to all open science-related INRAE services with a range of resources on the subject.

3  **A TARGET OF 100% OF INRAE PUBLICATIONS**
in open access format by 2030

Support for scientists in developing a publication strategy and disseminating their publications. Support for innovative publishing schemes.
From 2022 onwards, evaluations will be based on publications deposited in open archives and repositories, in particular INRAE's national HAL archive.

<https://hal.inrae.fr>

4  **TRAINING** that covers all aspects of open science

Developed internally (with Human Resources) and externally, training covers open access, open data, participatory research, open innovation, integrity and more.

5  **AN INRAE OBSERVATORY on open science**

Sharing and promotion of the open science practices of the Institute's scientists, to learn about what they do and disseminate their work.
The observatory can monitor new developments using various qualitative and quantitative indicators.

6  **A NEW PARTICIPATORY RESEARCH AWARD**

Launch of the participatory research award in 2021, led by INRAE and gradually extended to the entire higher education and research community in line with the stated goal of the new research programming law to recognise, promote and encourage the commitment of research professionals to an interconnected science and society.

7  **SUPPORT FOR OPEN INNOVATION APPROACHES**

Creation of a common framework, training, sharing of experience, guides and teaching aids for research professionals.

8  **A STRENGTHENED ROLE FOR INRAE IN SCIENTIFIC MEDIATION**

Development of new partnerships, particularly with civil society; training of scientists and shedding light on controversial issues.

9  **CONSIDERATION OF OPEN SCIENCE PRACTICES**
in scientist evaluations
beginning in 2022

Diversity in publications and activities, as well as new scientific and sound practices related to open science will weigh more heavily in the evaluation system of INRAE researchers.

10  **A KNOWLEDGE PLATFORM**
presenting INRAE's strategic
themes, in development in 2022

Facilitate access to and sharing of the knowledge produced by INRAE with as many people as possible.

➤ Some of the most important key actions

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➤ Open Science Policy monitoring

5



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➤ Observing OS practices

- Monitor the Growth of openness rate (publications, data, codes)
 - French Open Science Monitor for INRAE and its indicators
 - GraspOS project and OpenAire Monitor – Pilot on Agri Vet Sciences
- Analyze the Costs i.e. “publications costs”
 - contribution to [OpenAPC](#) coordination by Couperin (french Libraries consortium)
- The impacts
 - Qualitative and quantitative approaches
 - Societal impact of citizen sciences projects (ASIRPA method*)
 - Impact of open science policy on interdisciplinarity, or on innovation or on policy



➤ OS Monitoring

<https://science-ouverte.inrae.fr/fr/la-science-ouverte/le-barometre-de-la-science-ouverte-inrae>



INRAE

La science ouverte à INRAE

Introduction à la science ouverte

Publications scientifiques

Numérique et données scientifiques

Sciences et recherches participatives

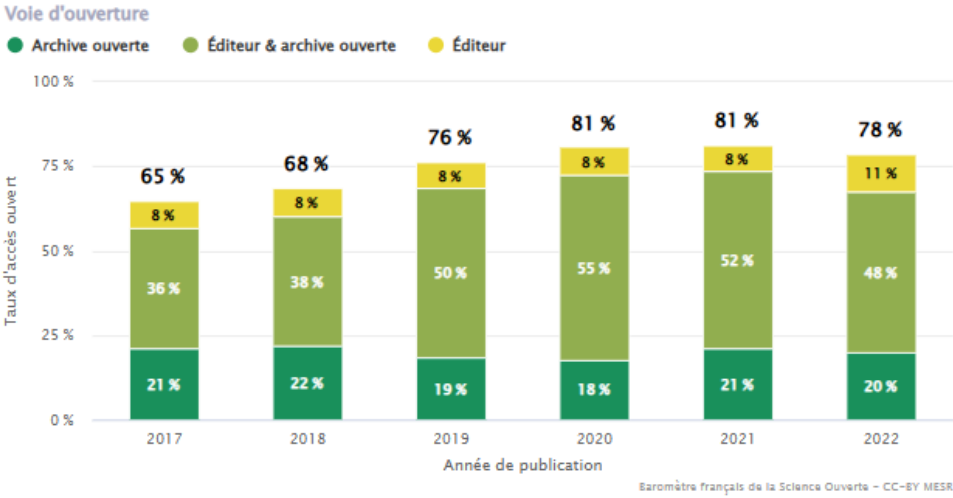
Médiation scientifique

INRAE éditeur

Offre de services

Accueil > La science ouverte > Le baromètre de la Science Ouverte INRAE

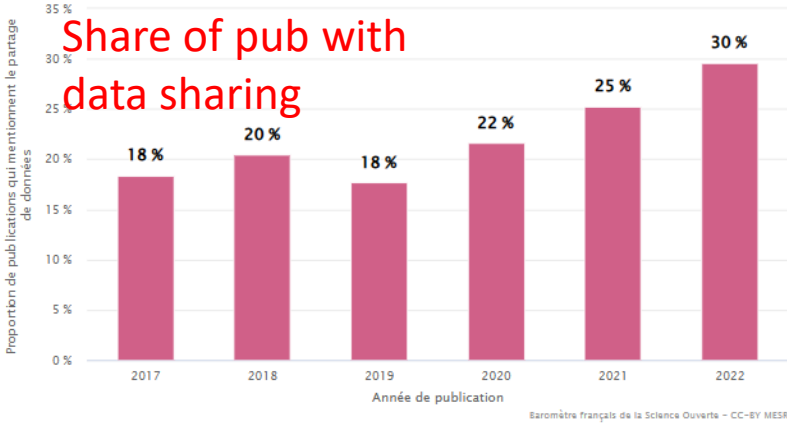
Growth of OA rate



Le baromètre de la Science Ouverte INRAE

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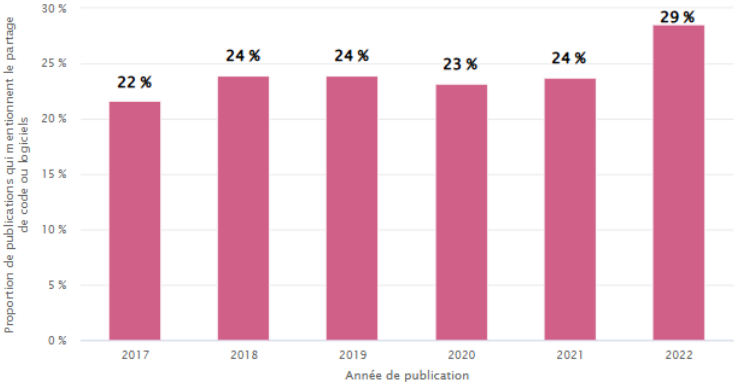
Institut national de recherche pour l'agriculture, l'alimentation et l'environnement (INRAE) : Proportion de publications de INRAE qui mentionnent le partage de leurs données par année de publication



Share of pub with data sharing

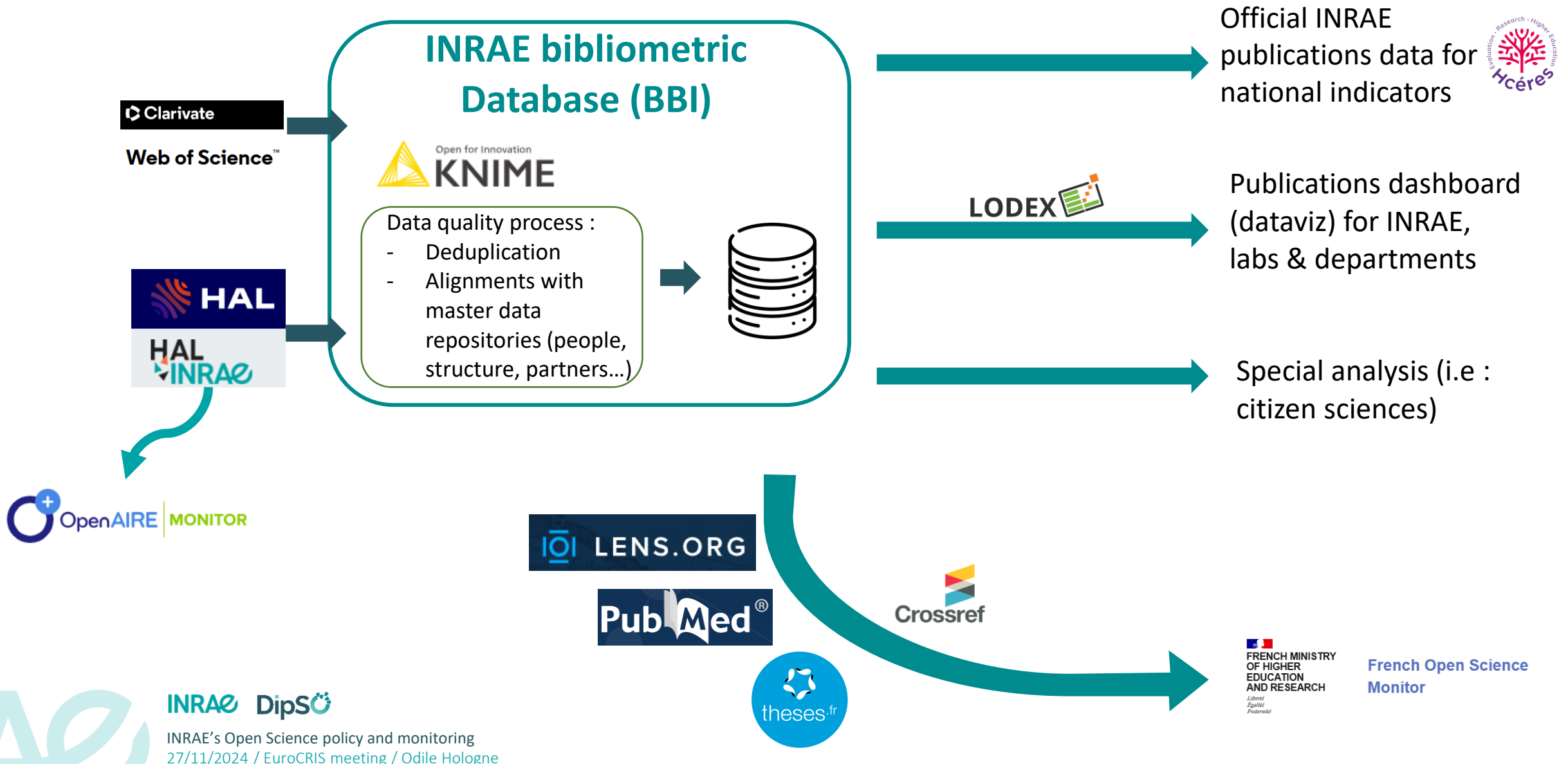
Version [bêta]

Institut national de recherche pour l'agriculture, l'alimentation et l'environnement (INRAE) : Proportion de publications de INRAE qui mentionnent le partage de leur code ou logiciels par année de publication



Share of pub with code sharing

➤ Bibliometric data pipelines



➤ Some lessons...

- Data cleaning everywhere : waste of time
 - In Open Access repositories
 - In our internal databases (CRIS, bibliometric databases ...)
 - In commercial databases (WoS, Scopus, ...)
 - In data aggregator databases (OpenAire, OpenAlex, Core ...)
- From rich data models to poor data models in aggregators
 - Limits of OAI-PMH harvesting,
 - Low usage of API or semantic artifacts (ontologies)
 - Poor quality of PID data bases : ORCID, ROR, ...
- Need of Standardized indicators to monitor open science
 - For publications, data and codes
 - And their impacts : on usage (citation, downloads) and above



➤ But some reasons for hope

- **Technologies :**

- Development of PID usage to improve data linkage
 - Usage in all information systems (even internal ones)
 - Clear process and tools to manage data quality
- Usage of API to have access to rich data models
- Usage of semantic artifacts to improve findability and interoperability
- Rich data models : Scientific Knowledge graphs
- Standardization of indicators : i.e. PathOS project - [Open science indicator Handbook](#)

ORCID

ROR

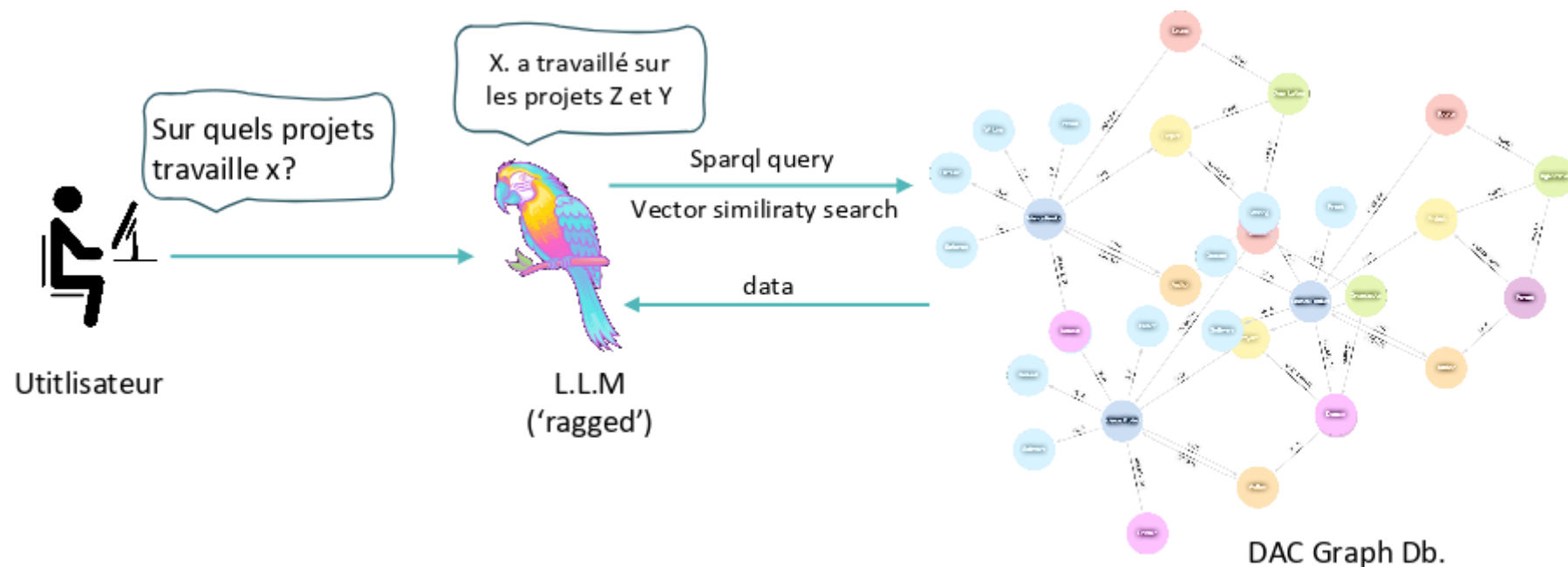
- **Policy and new initiatives**

- RIS : Barcelona declaration + EuroCRIS
- OS monitoring : OSMI initiative and its working groups
- PID :
 - National strategies for PID
 - Governance of PID to ensure quality, sustainability and sovereignty

 Open Science
Monitoring
Initiative

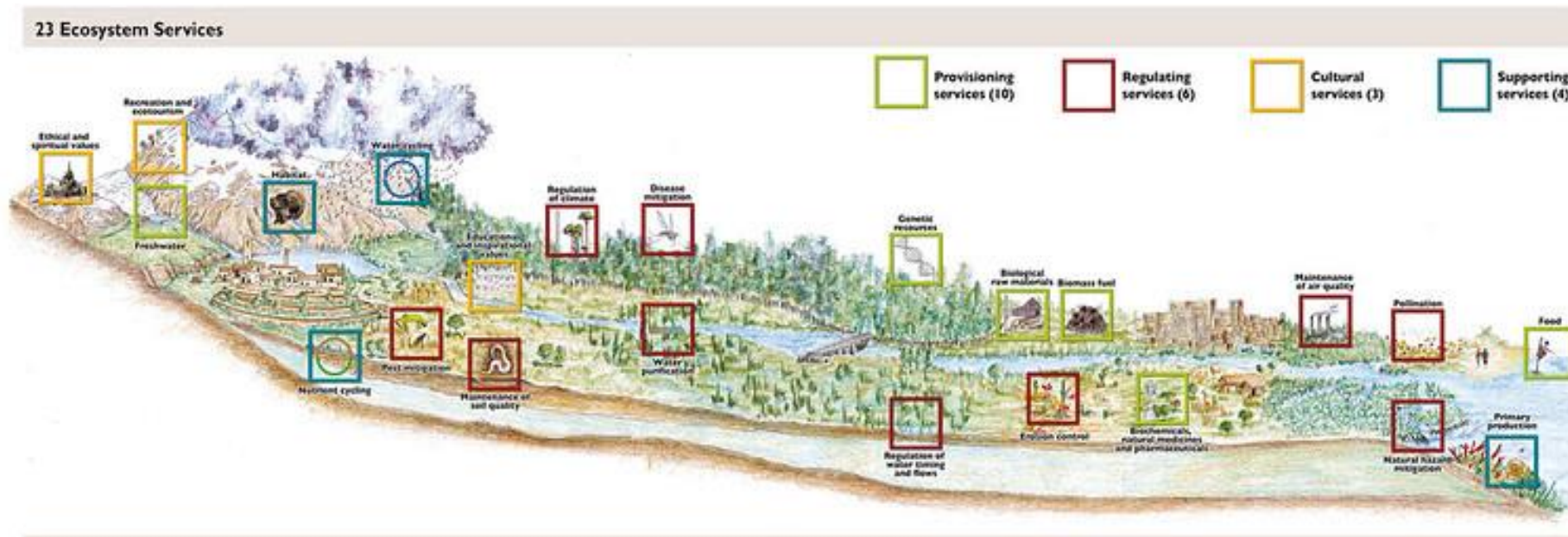
➤ Future directions for INRAE

GraphRAG : knowledge graph and LLM proof of concept (to be launched next january)



➤ Conclusion

We have to see RIS as an « ecosystem » : services, common goods, resources, organisms



source : <https://www.grida.no/resources/8141>



➤ Thank you for your attention

Odile Hologne, Head of directorate for open science

Odile.hologne@inrae.fr @Holo_08