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OneWater FAIR Data Platform: setting up a national FAIR water data platform and community

Sylvain Grellet, Isabelle Braud, Fanny Arnaud, Kenneth Maussang, Anne Laurent, Frédéric Huynh, Hervé Piégay, Lise Vaudor, Christelle Pierkot, Sandrine Charles, et al.

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OneWater FAIR Data Platform: setting up a national FAIR water data platform and community

28/09/2023- TERENO-OZCAR conference

Sylvain Grellet (BRGM) & the OneWater Data Platform Team

OneWater
Eau Bien Commun

PEPR Exploratoire co-dirigé par
Agathe Euzen (CNRS), Dominique Darmendrail (BRGM), Thibault Datry (INRAE)

Référence ANR-22-PEXO-0009

Context



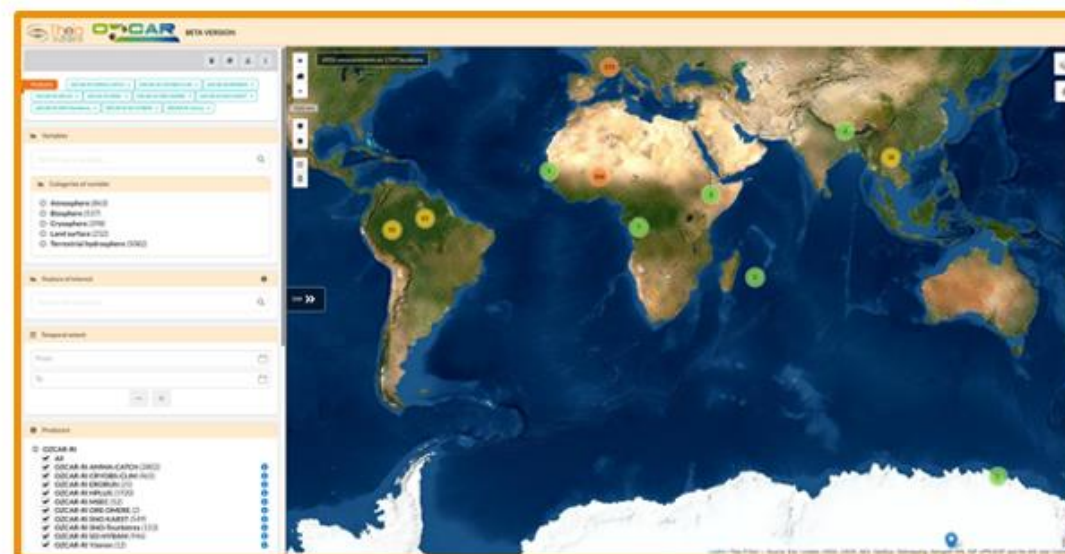
⇒ OZCAR is not new here



Data available online

<https://in-situ.theia-land.fr>

- Data discovery through variables, climate, geology, funders
- 16/22 visible observatories

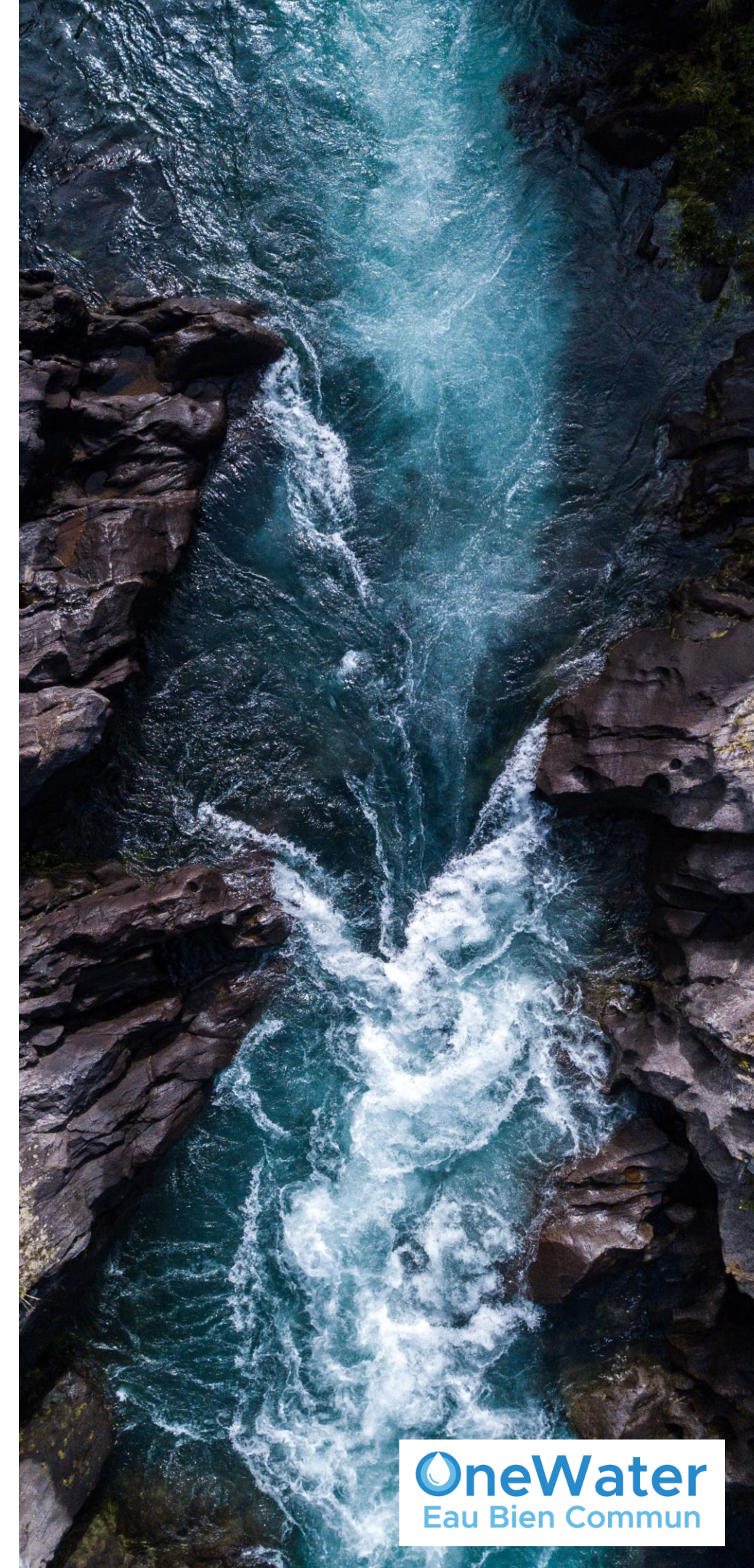
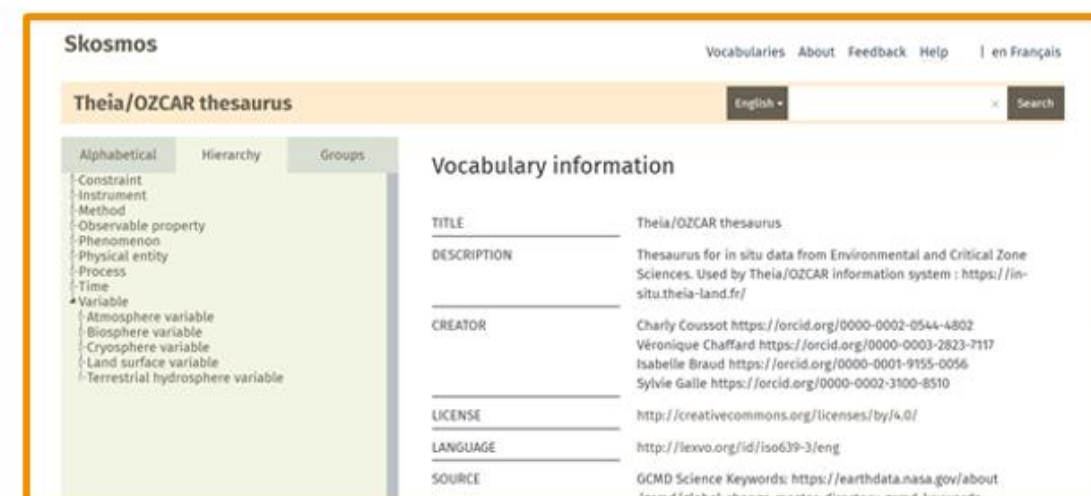


FAIR thesaurus

Variable / object of interest names

<https://w3id.org/ozcar-theia>

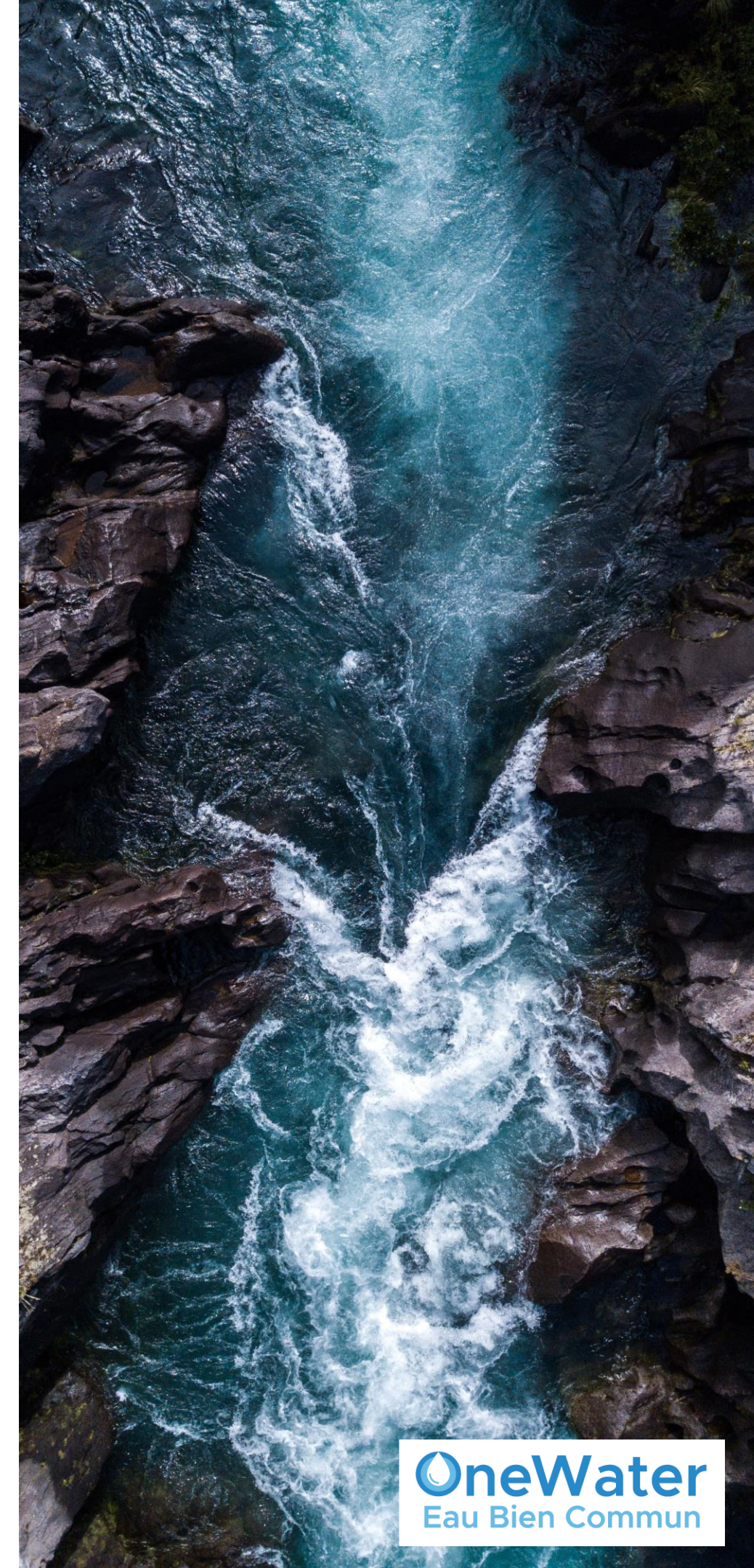
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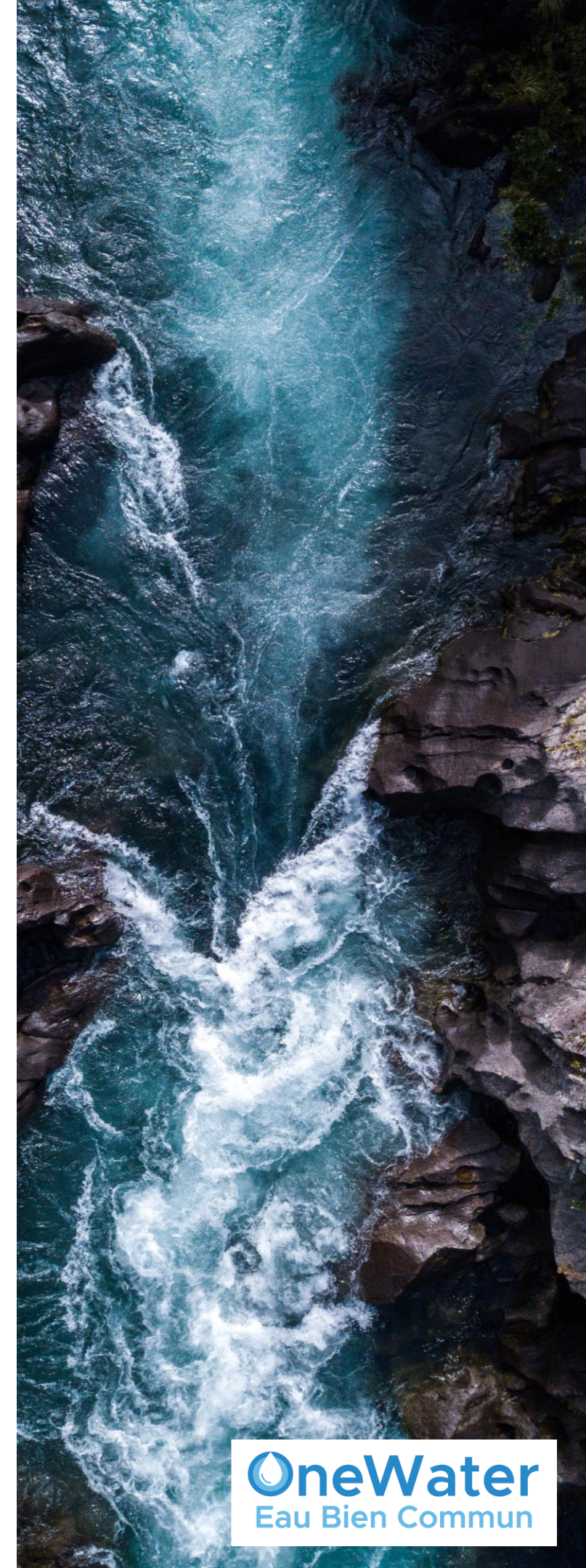
Context

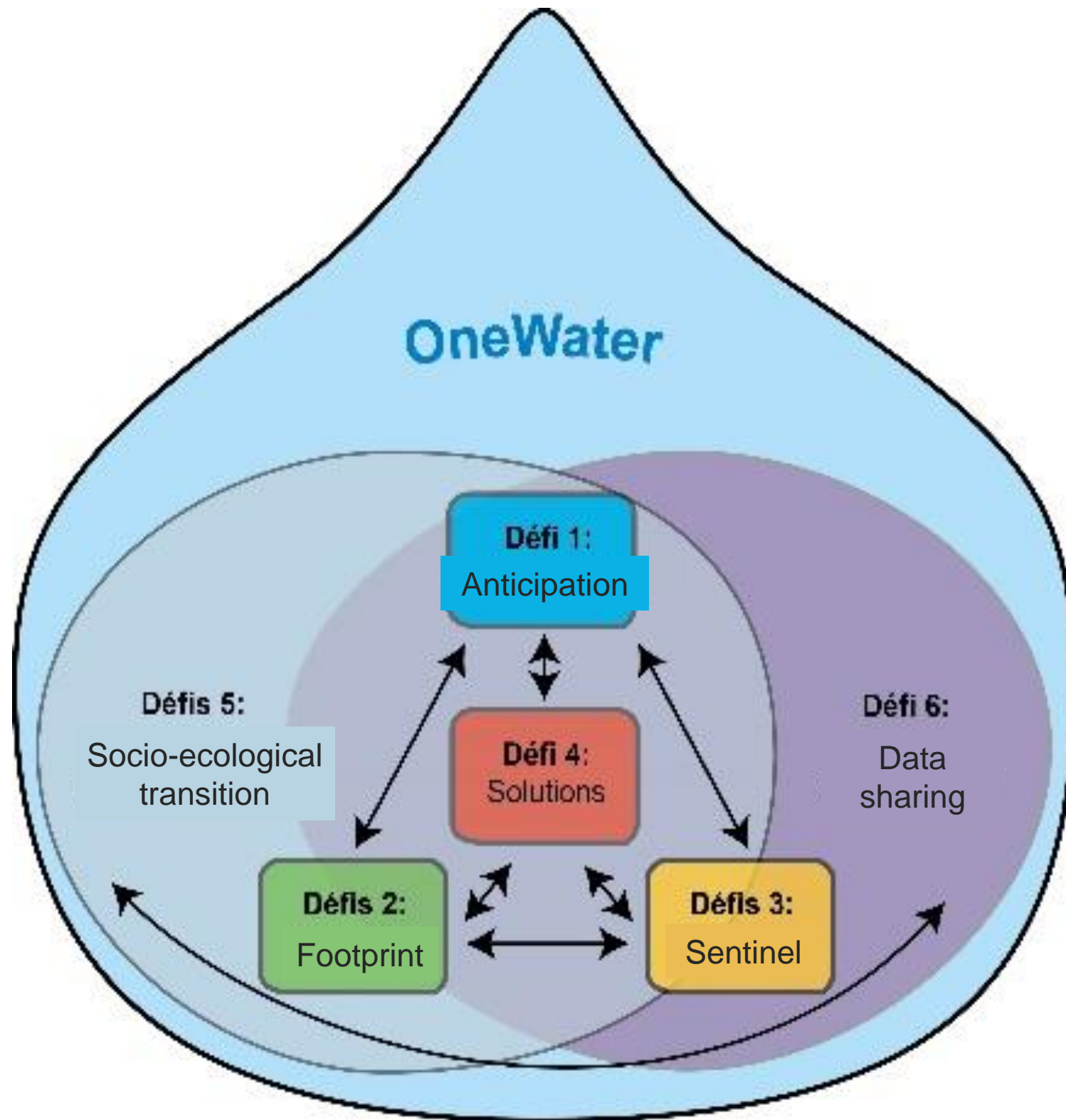
What's new ?

- We are building a more integrated water environment for research & public organization monitoring data to be FAIR



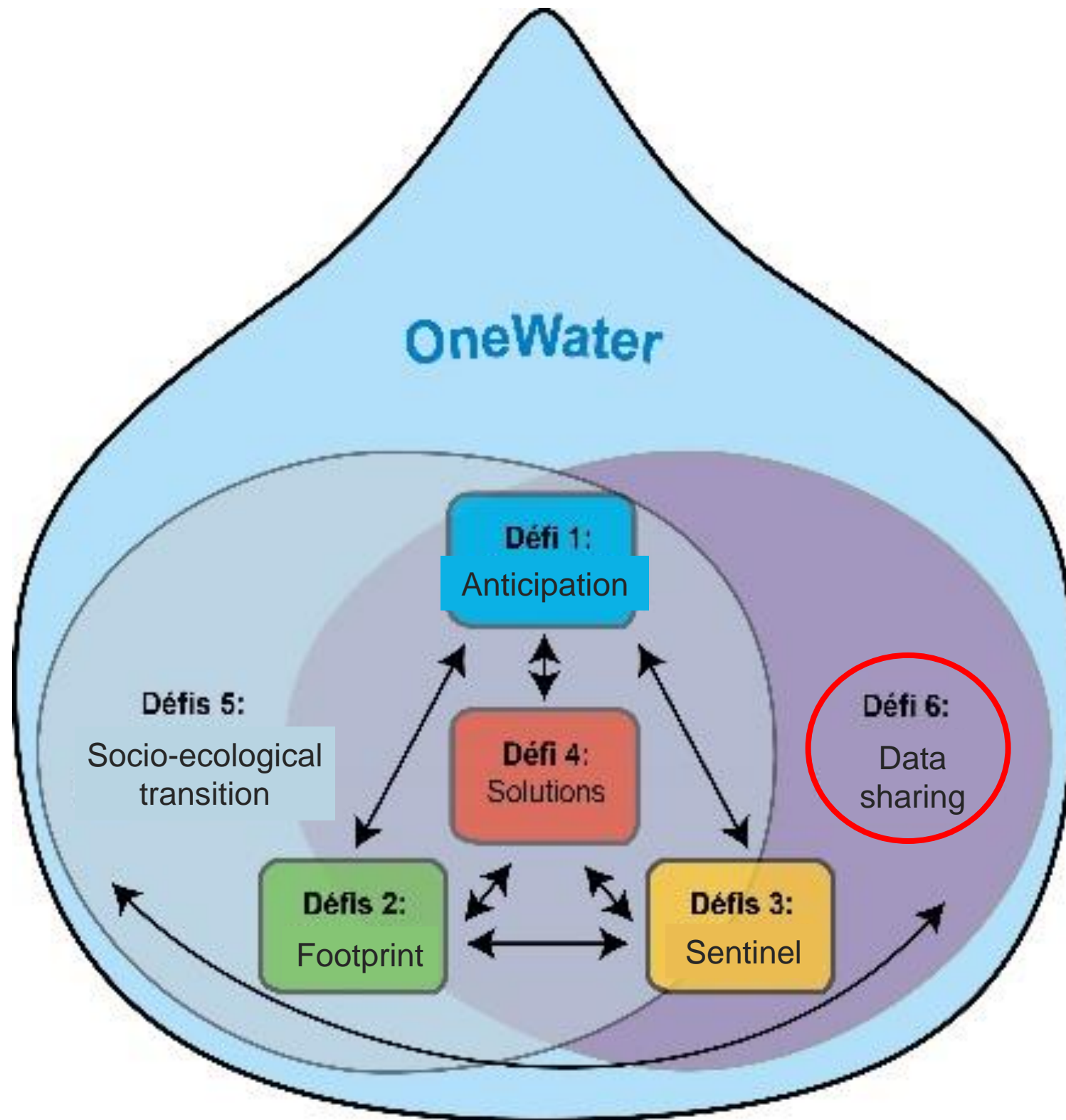
- <https://www.onewater.fr/fr> , 10 years, 10 partners,
- 53 Million €
- “Programmes et Equipements Prioritaires de Recherche (PEPR) ” -> National Acceleration Strategy
- To contribute to accelerate transitions a measure impacts of global changes on socio-ecological systems through 6 scientific challenges



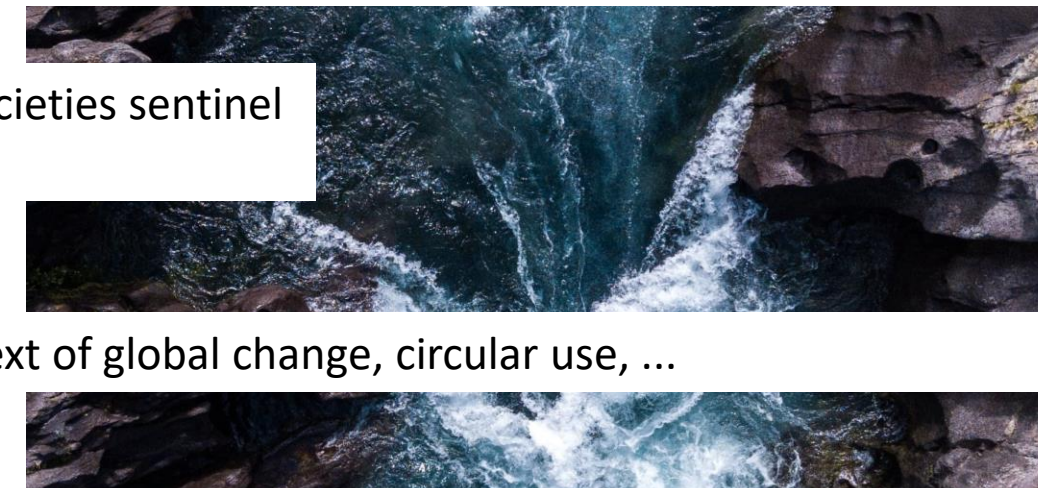


- Anticipation** of water resource availability (surface & ground) -> new sensors, models, forecast
- Footprint** holistic approach human pressures and their consequences on hydrosystems and aquatic ecosystem
- Sentinel** water as a environment health and human societies sentinel -> new approaches/methods/data/indicators
- Solutions** enhance water resource resilience in the context of global change, circular use, ...
- Socio-ecological transition** new governance modes/tools to protect water and elaborate public water policies with water as common
- Data sharing** FAIR Data / interoperability



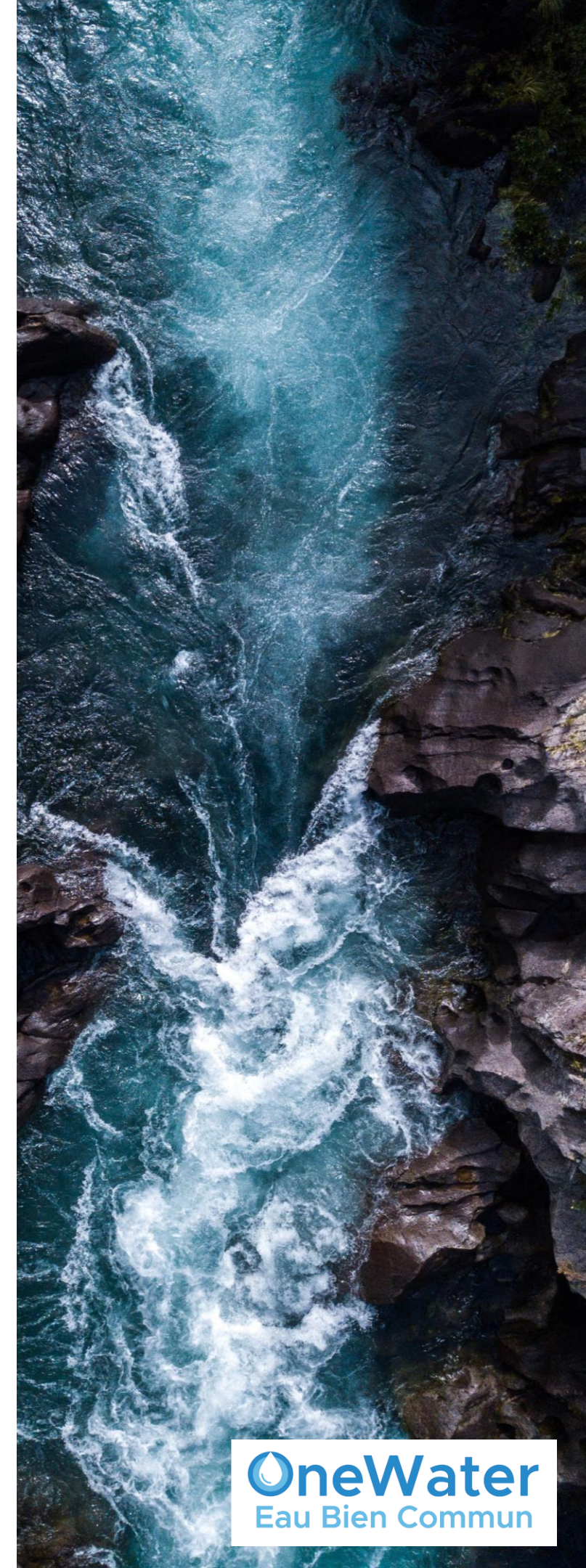


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 - Data sharing** FAIR Data / interoperability
- ★ We are here**

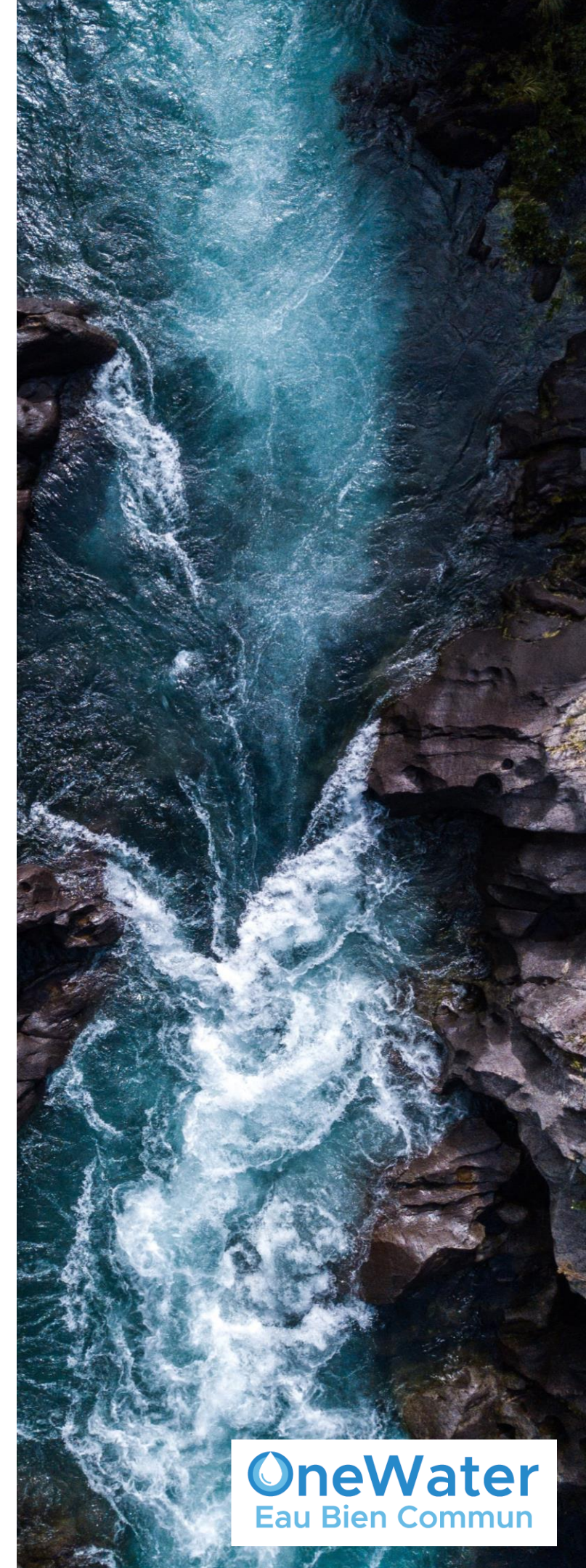
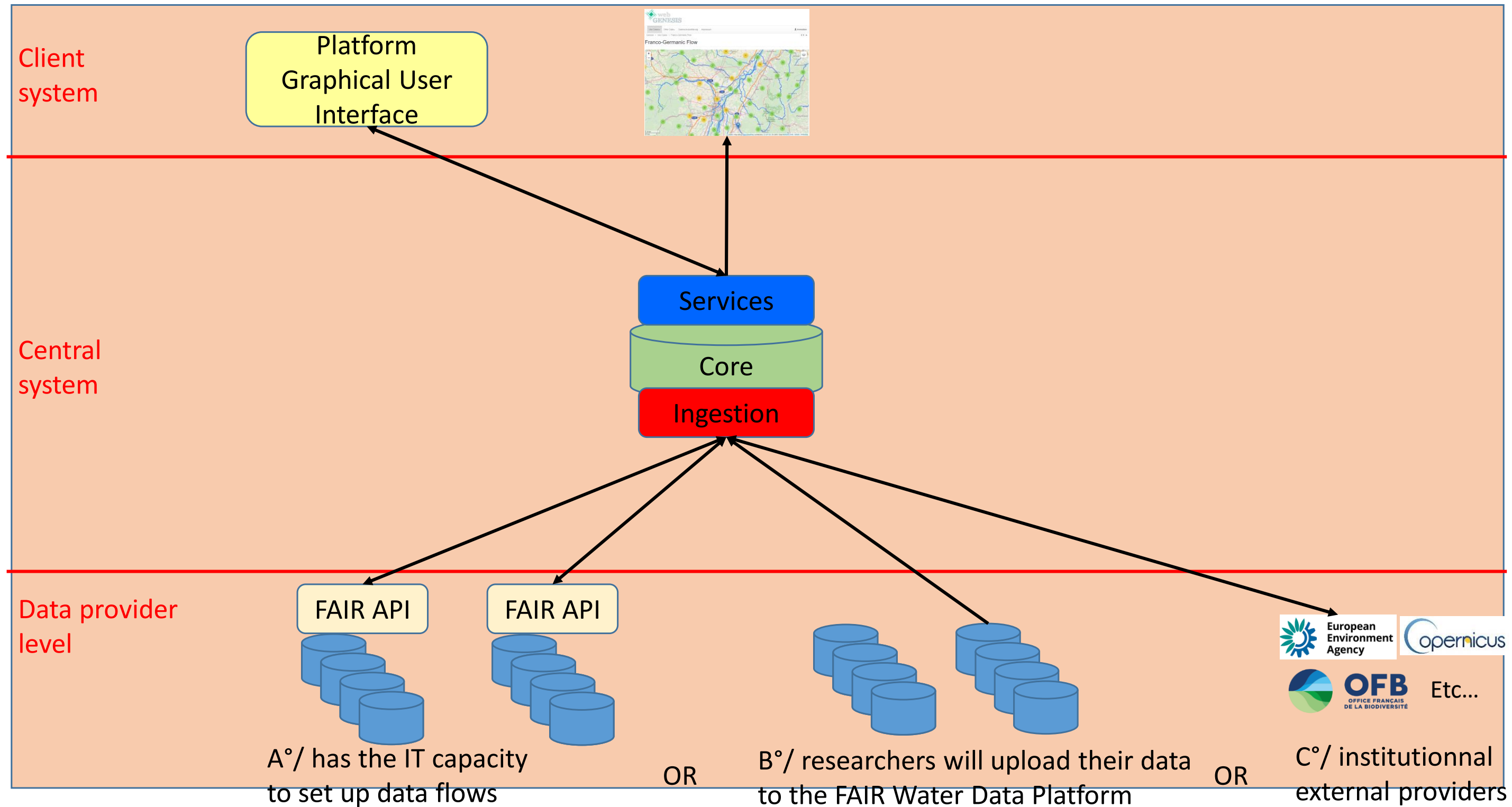


= a set of common practices

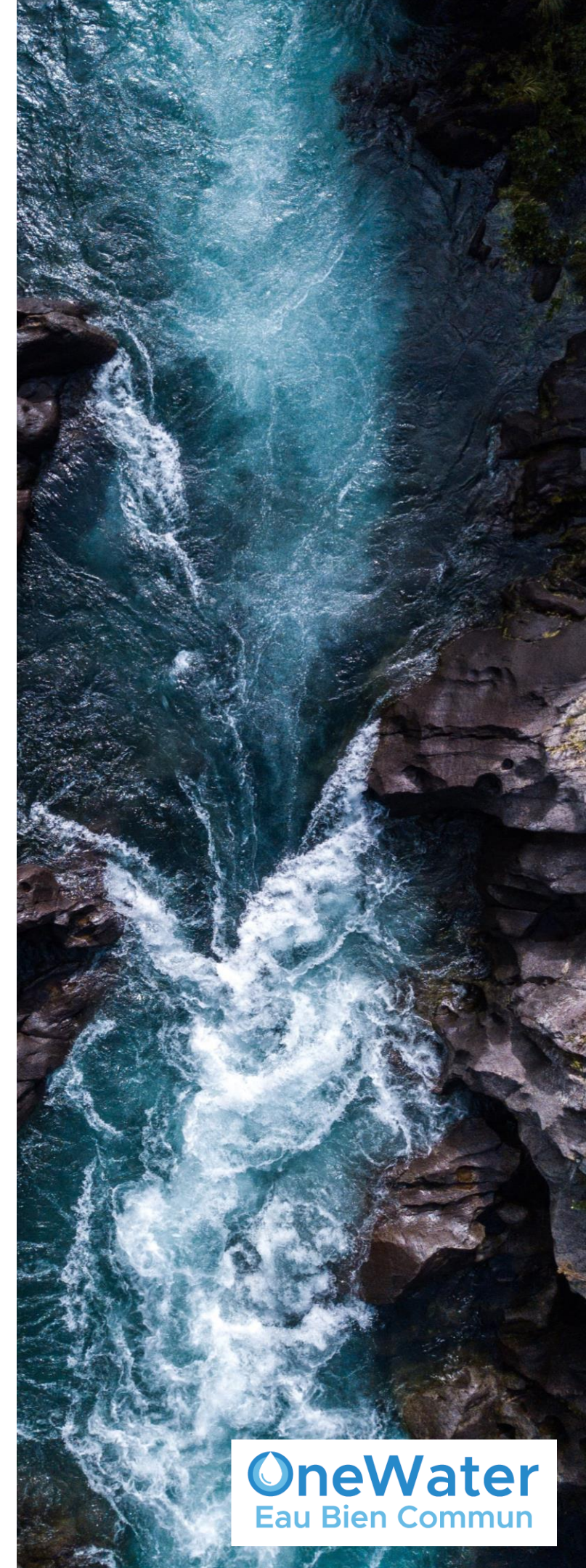
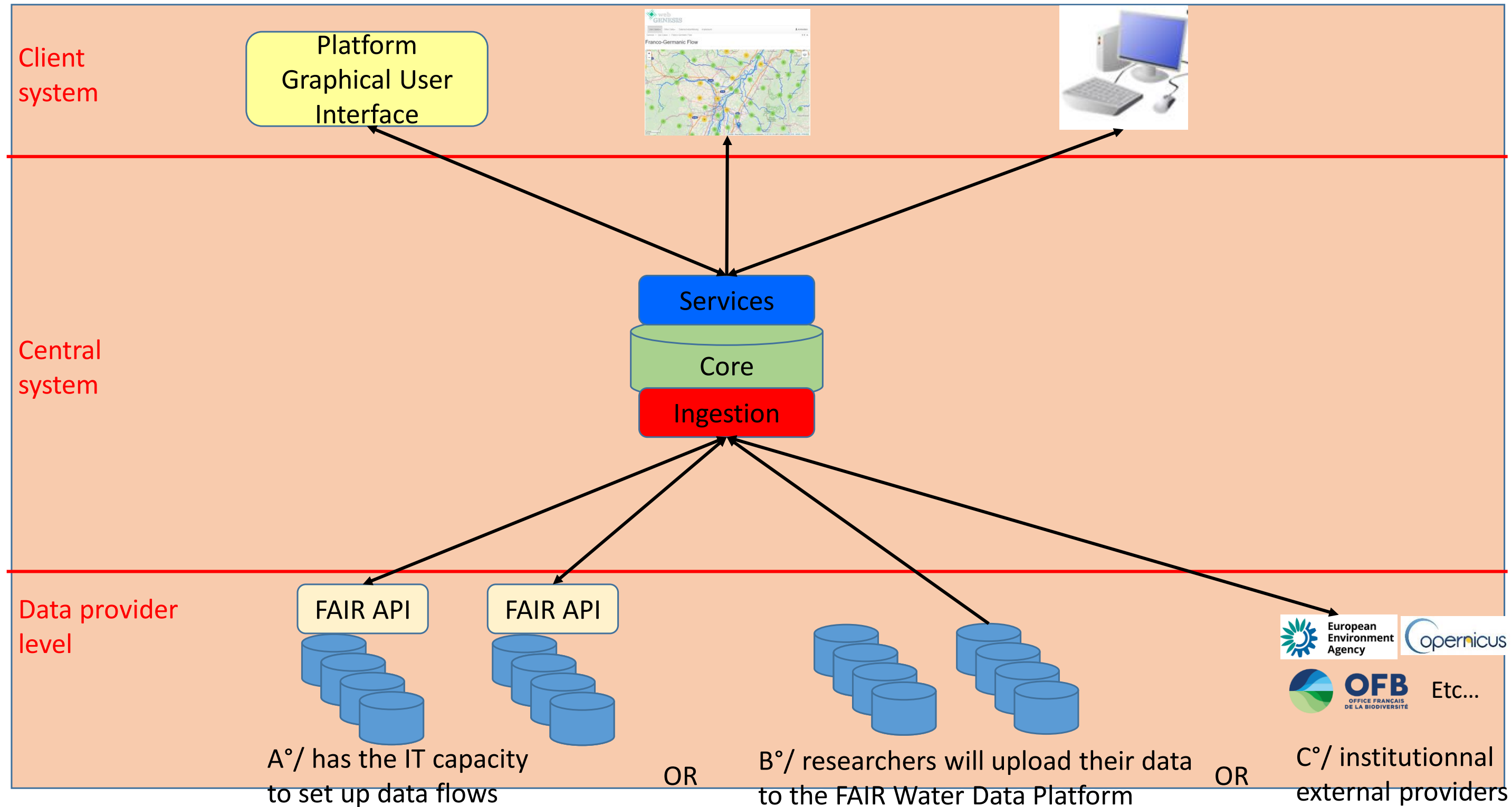
Common practices: specifications and FAIR Implementation Profiles

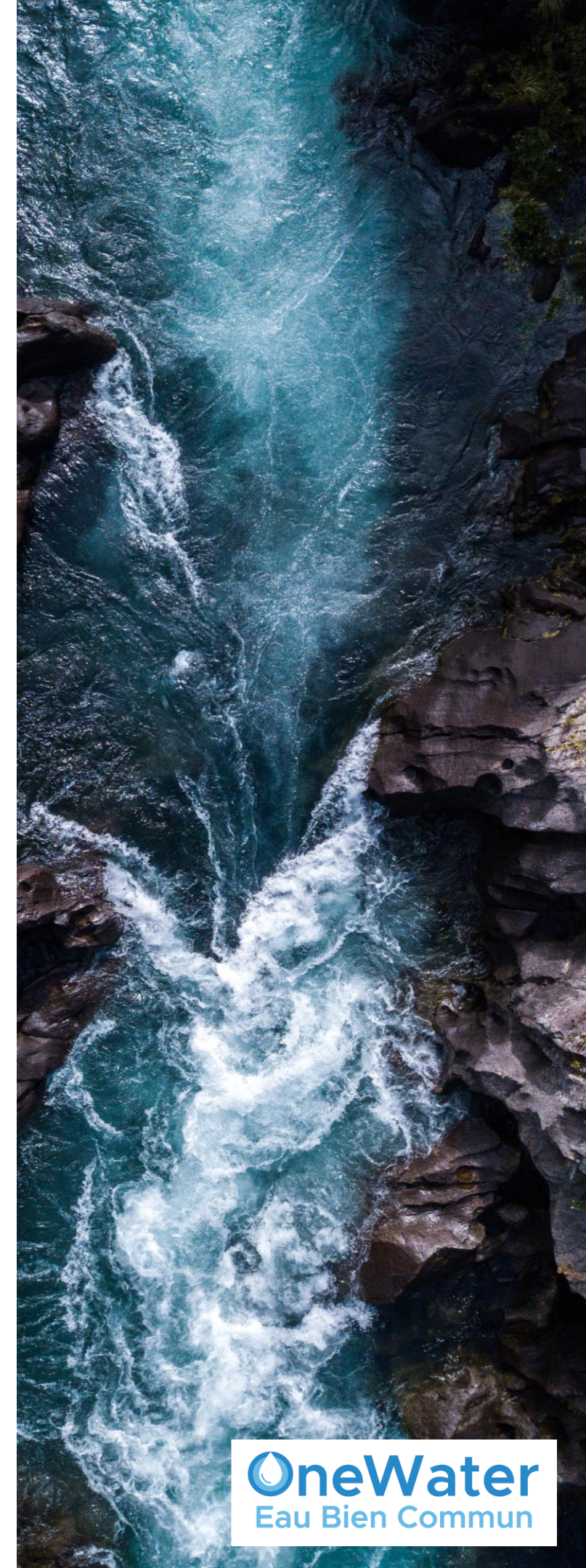
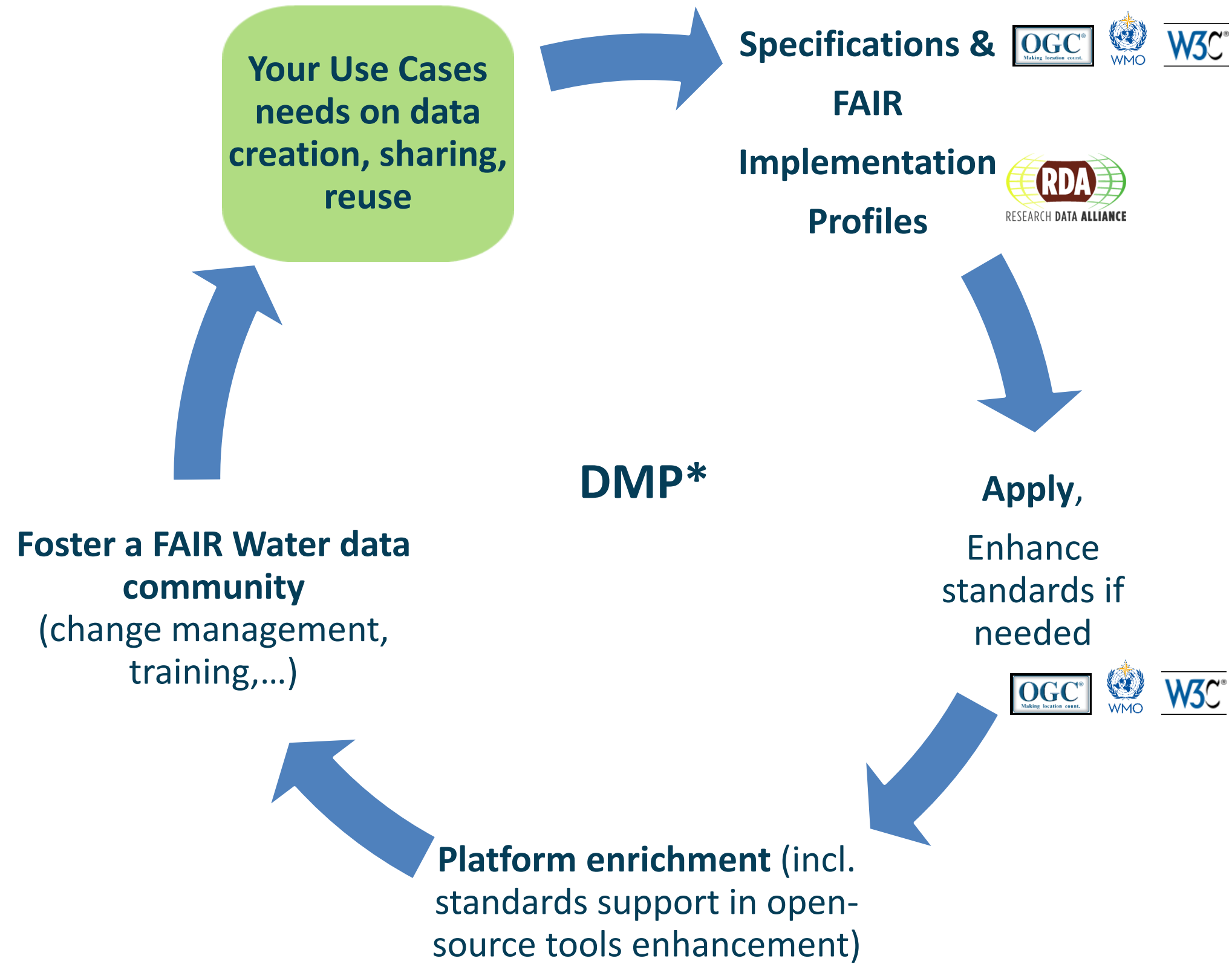


= a set of common practices + platform



= a set of common practices + platform + tools





* Data Management Plan

- Initial Use Cases to bootstrap the process

Surface Water Quantity



Ground Water Quantity



Surface Water Quality
(physico-chemical properties)



Ground Water Quality
(physico-chemical properties)



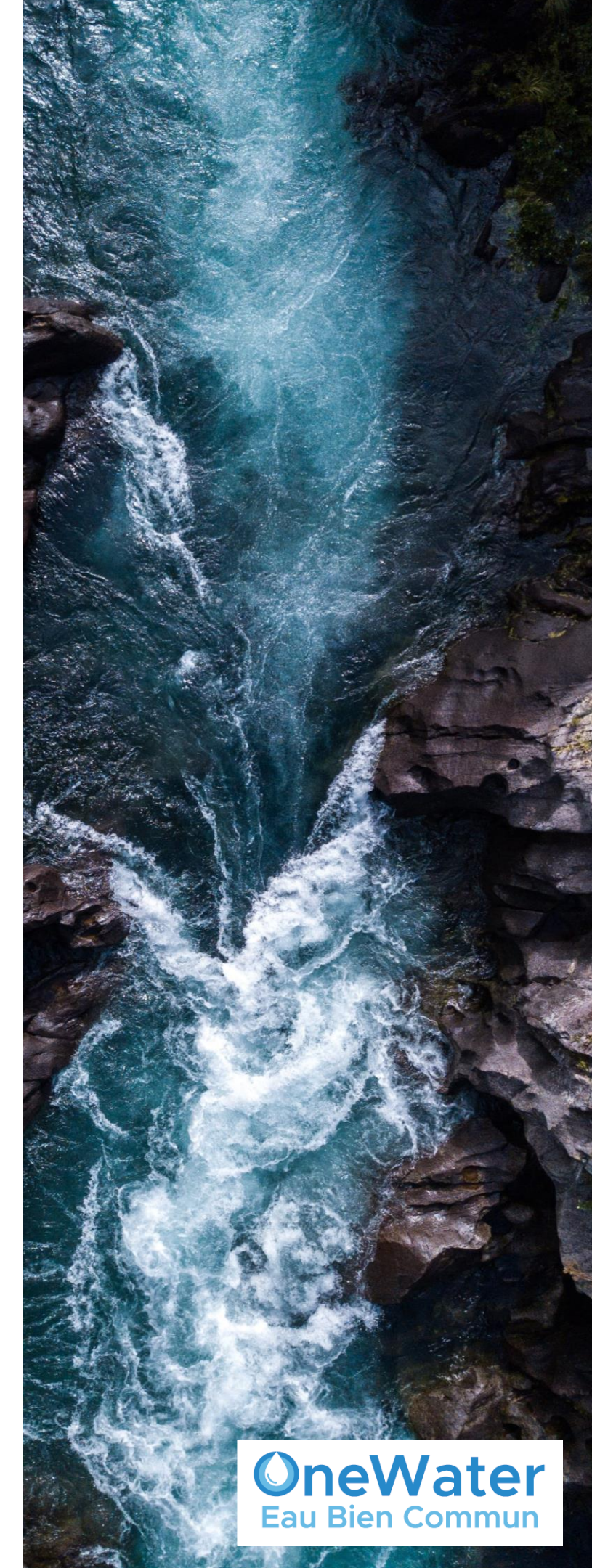
Reference hydro network



Reference hydrogeology

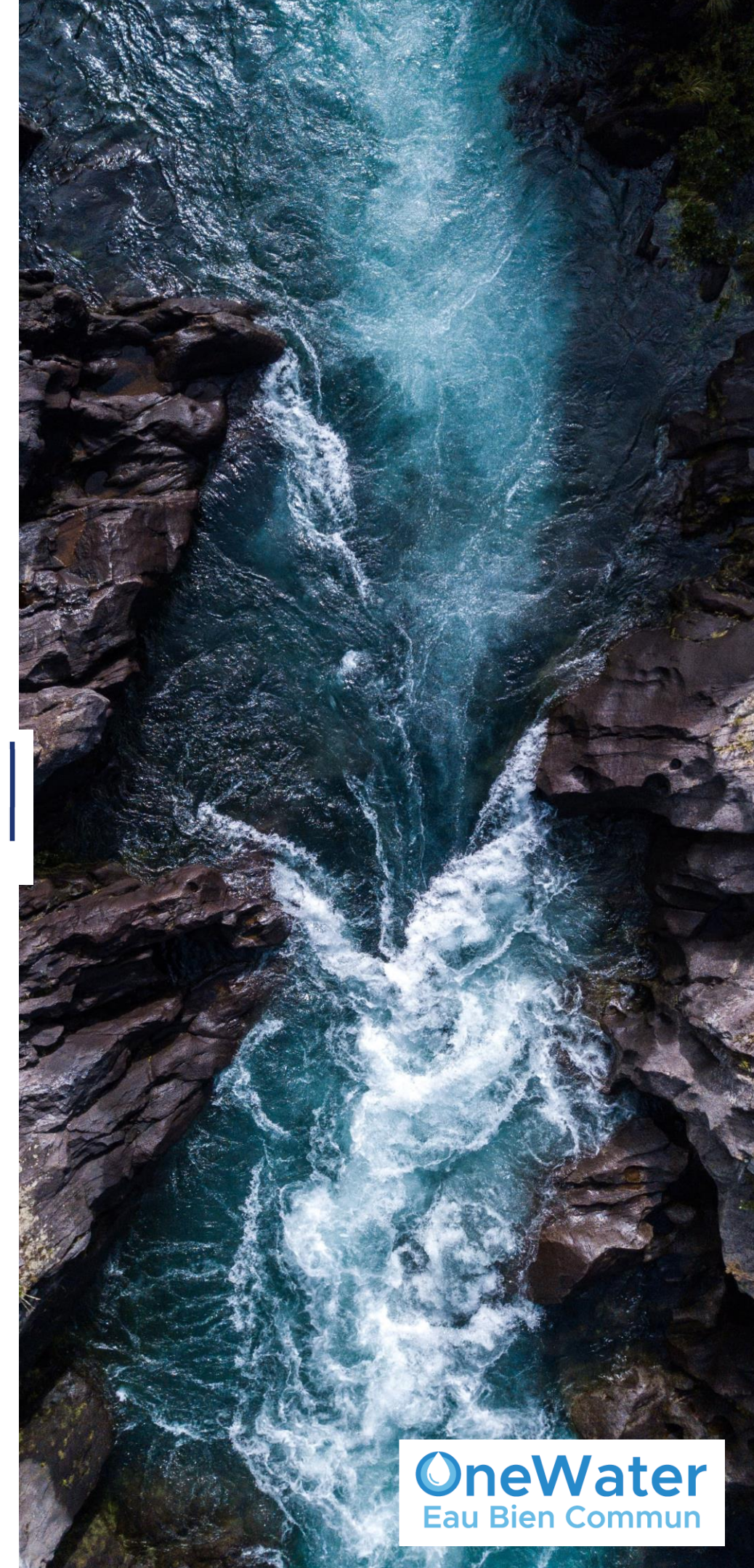
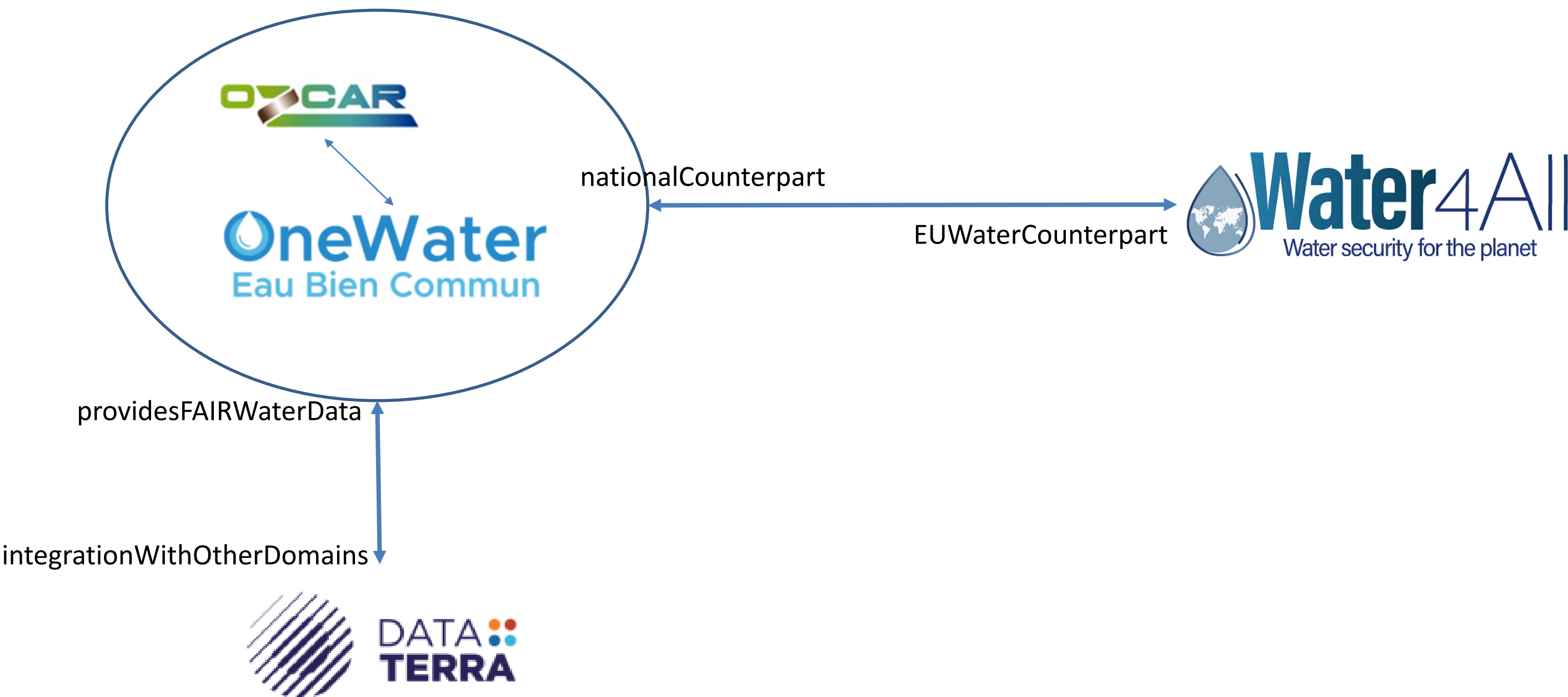


Vocabularies

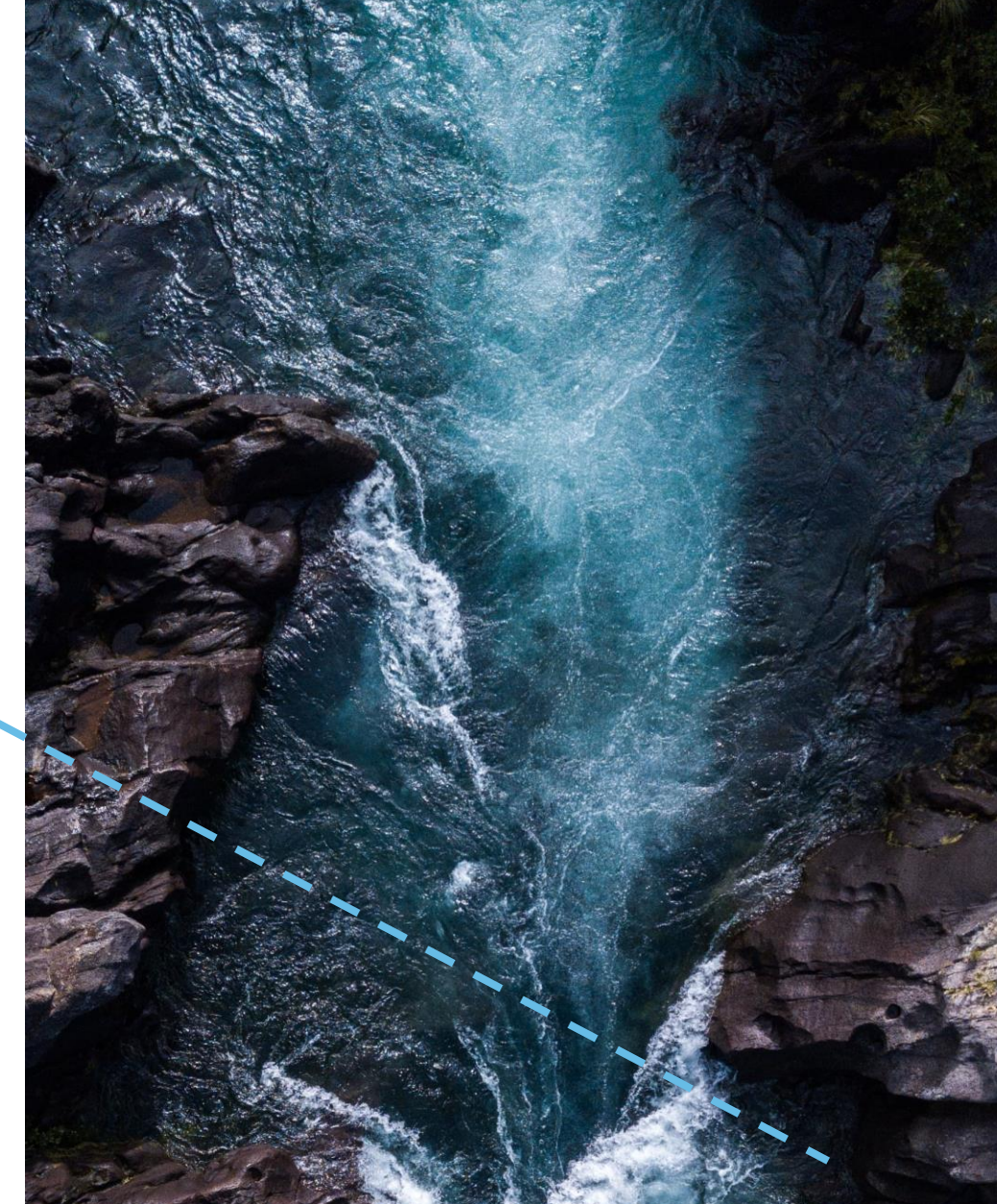
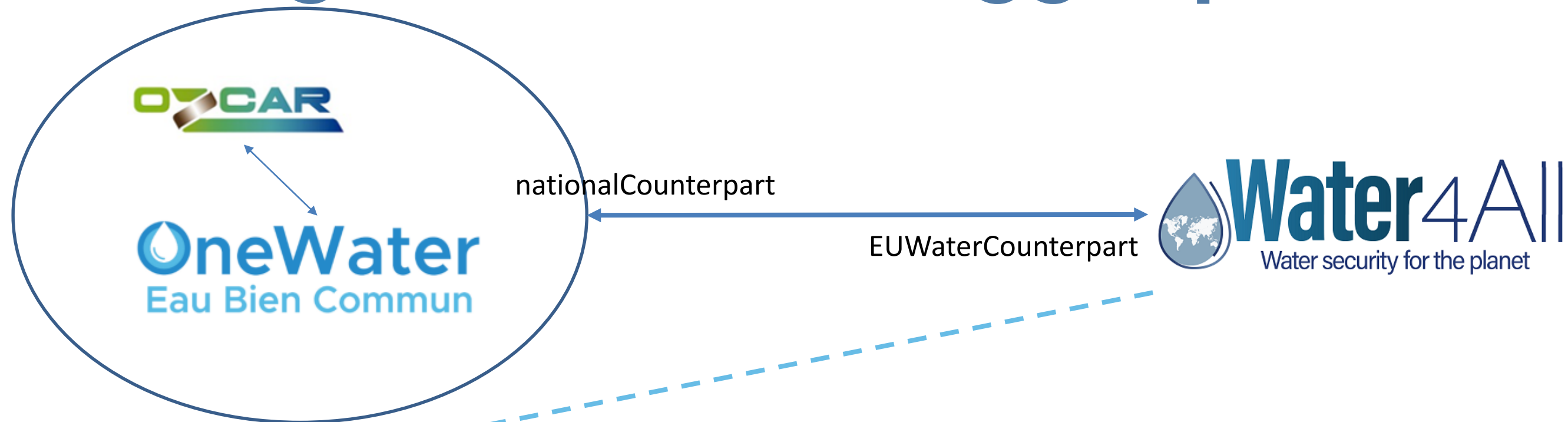


Integration in the bigger puzzle

Synergies with other dynamics



Integration in the bigger puzzle



<https://www.water4all-partnership.eu/>

31 countries, 7 years

86 m€ for the 1st phase

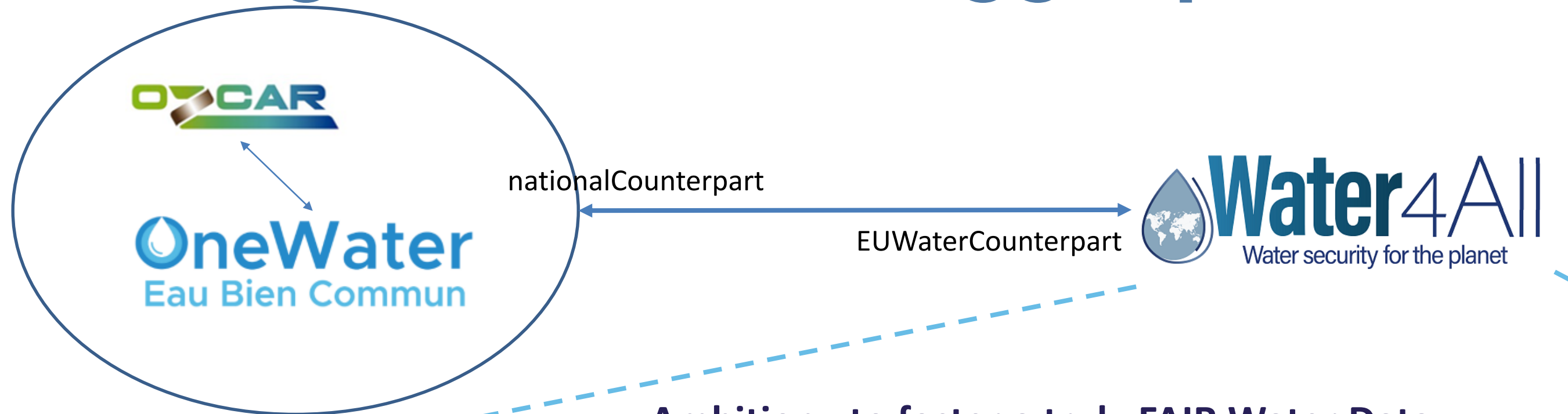
To tackle water challenges as means to face climate change, help to achieve the United Nations' Sustainable Development Goals and boost the EU's competitiveness and growth (EU Green Deal).

81 partners

- research and innovation funders,
- thematic authorities in charge of water issues and policy-makers,
- local authorities,
- associations and networks representing the economic sector in the field of water at the European, national or regional level,
- research organisations.

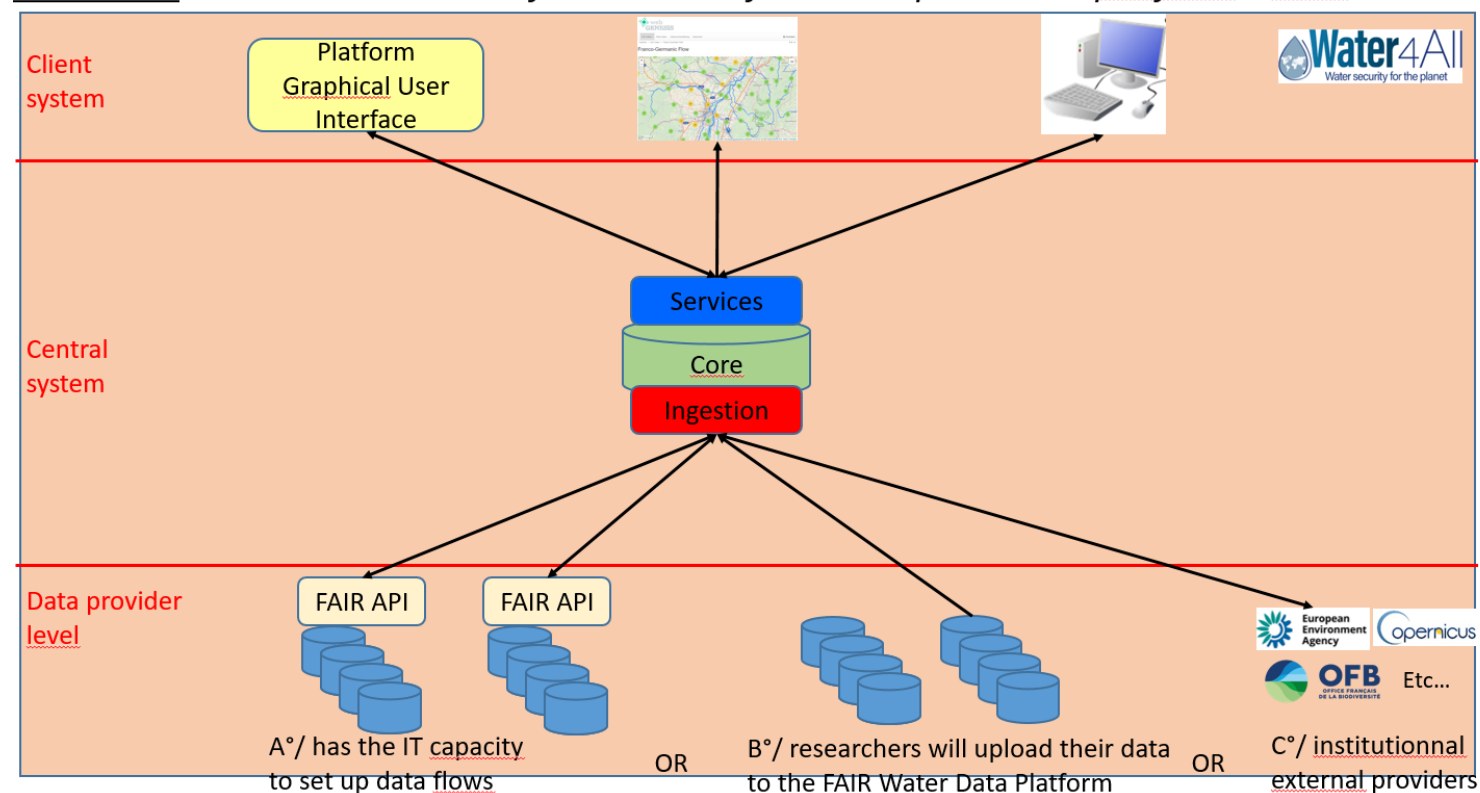


Integration in the bigger puzzle



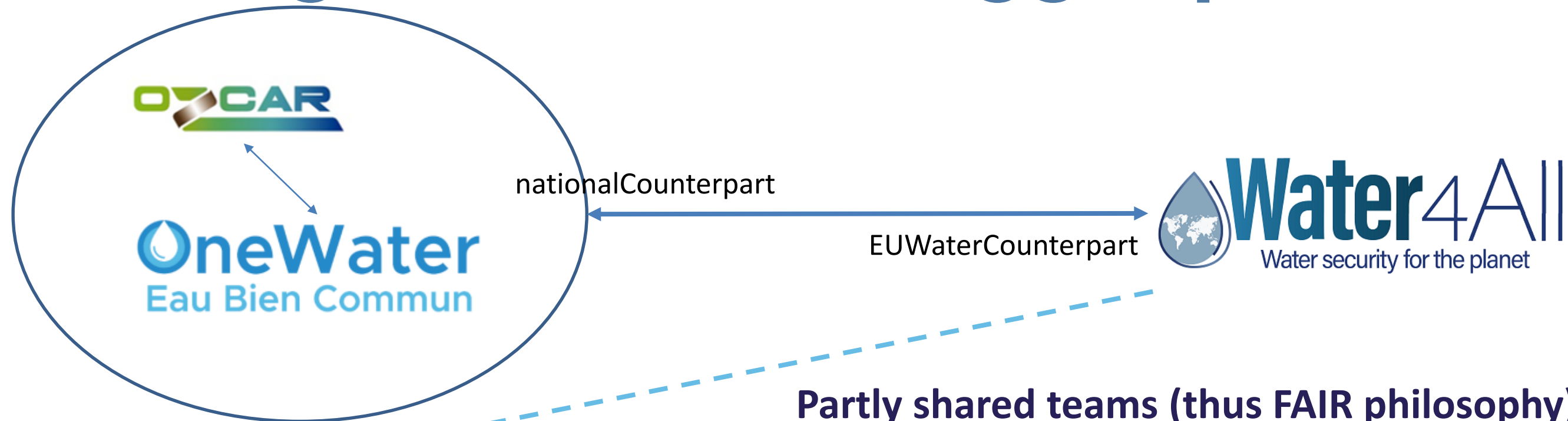
Ambition : to foster a truly FAIR Water Data exchange in Europe via a FAIR Water Data Platform

Conclusion: FAIR Water Data Platform = a set of common practices + platform + tools



? Looks similar ?

Integration in the bigger puzzle



Partly shared teams (thus FAIR philosophy) and initial Use Cases

Surface Water Quantity



Ground Water Quantity



Surface Water Quality
(physico-chemical properties)



Ground Water Quality
(physico-chemical properties)



Reference hydro network



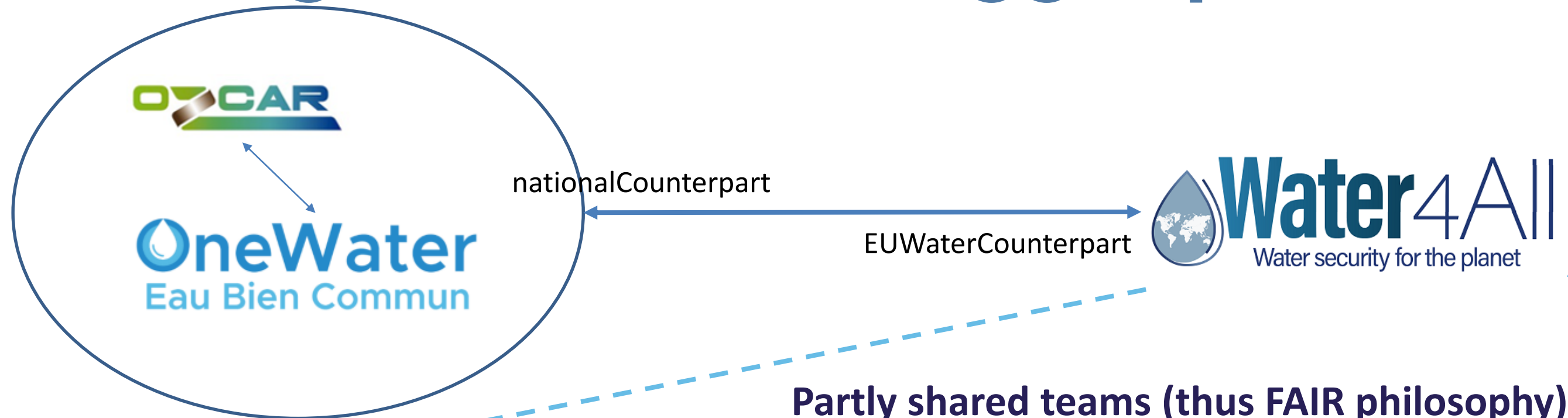
Reference hydrogeology



Vocabularies



Integration in the bigger puzzle



Partly shared teams (thus FAIR philosophy) and initial Use Cases

Surface Water Quantity



Ground Water Quantity



Surface Water Quality
(physico-chemical properties)



Ground Water Quality
(physico-chemical properties)



Reference hydro network



Reference hydrogeology



Vocabularies



= Those Use Cases are also already currently being handled in the OGC Water Quality Interoperability Experiment
<https://github.com/opengeospatial/WaterQualityIE>

Integration in the bigger puzzle



provides FAIR Water Data

integration with other domains



DATA TERRA, French research e-infrastructure focused on the Earth system and environment

Main mission → to develop a structure for accessing and processing data, products and services geared towards observing, understanding and predicting in an integrated manner the history, mechanisms and evolution of the Earth system in response to global changes.

- 26 research organization and partner university
- 30 Data and Services centers
- 32 Centers of scientific expertise
- 200 FTE / 450 scientists, engineers and technicians



Integration in the bigger puzzle

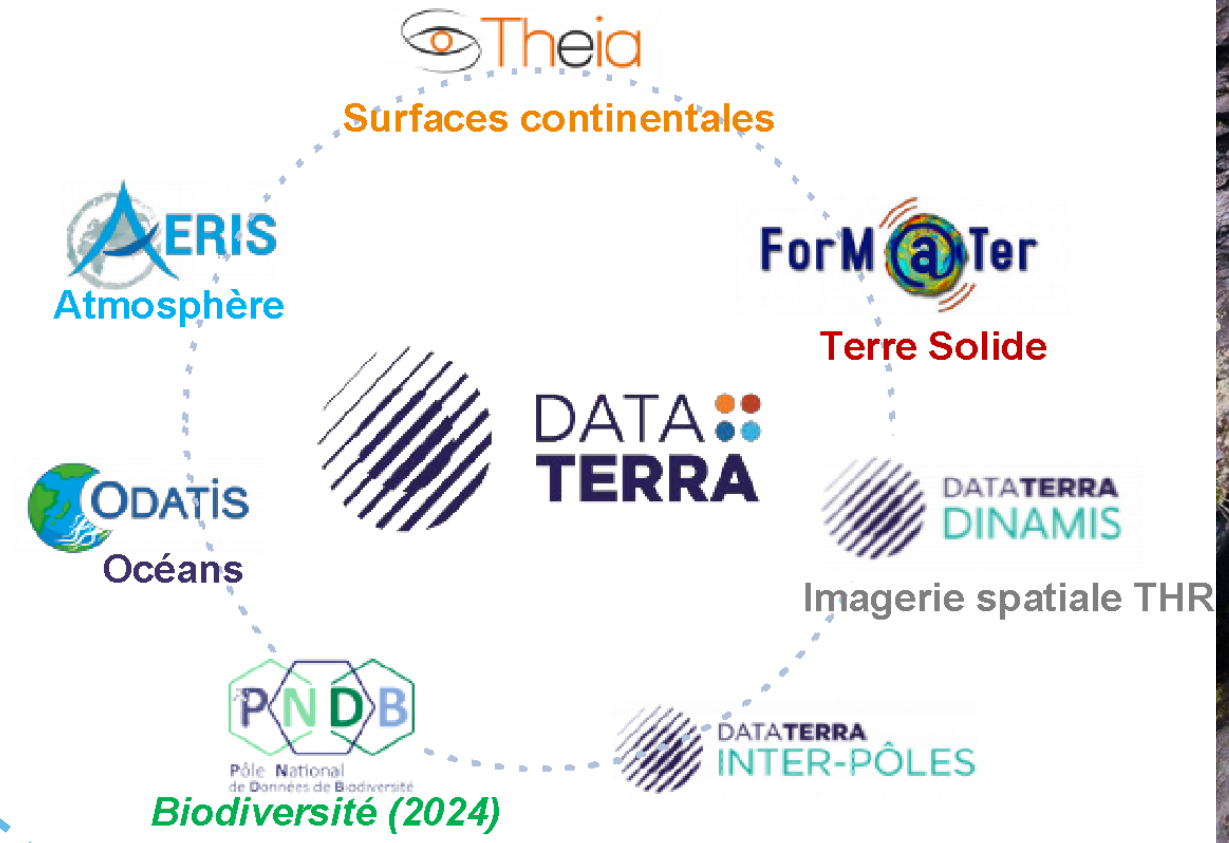


provides FAIR Water Data

integration With Other Domains



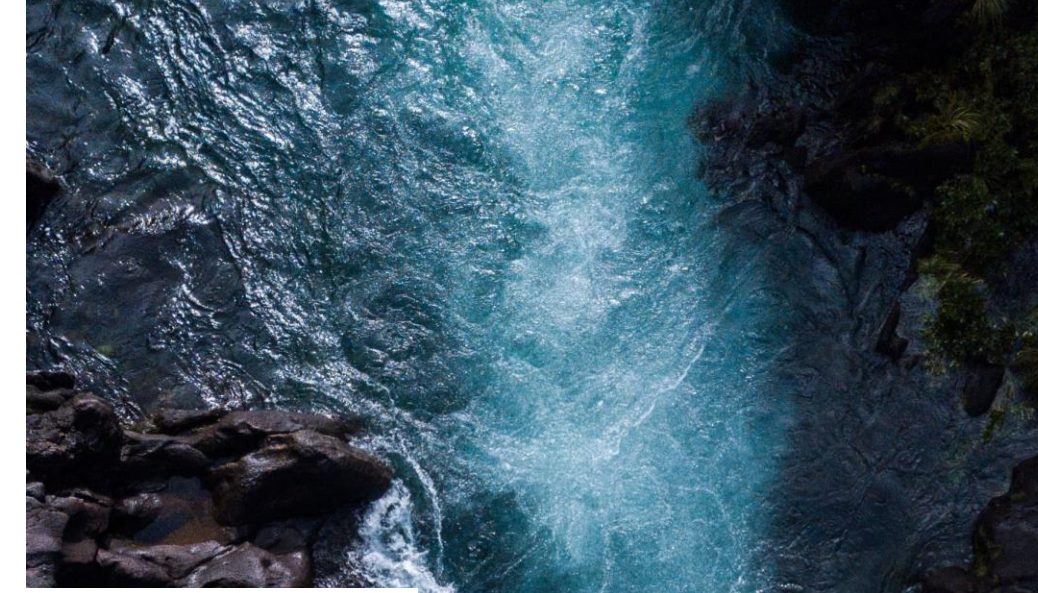
DATA TERRA, French research e-infrastructure focused on the Earth system and environment



<https://www.data-terra.org/en/>

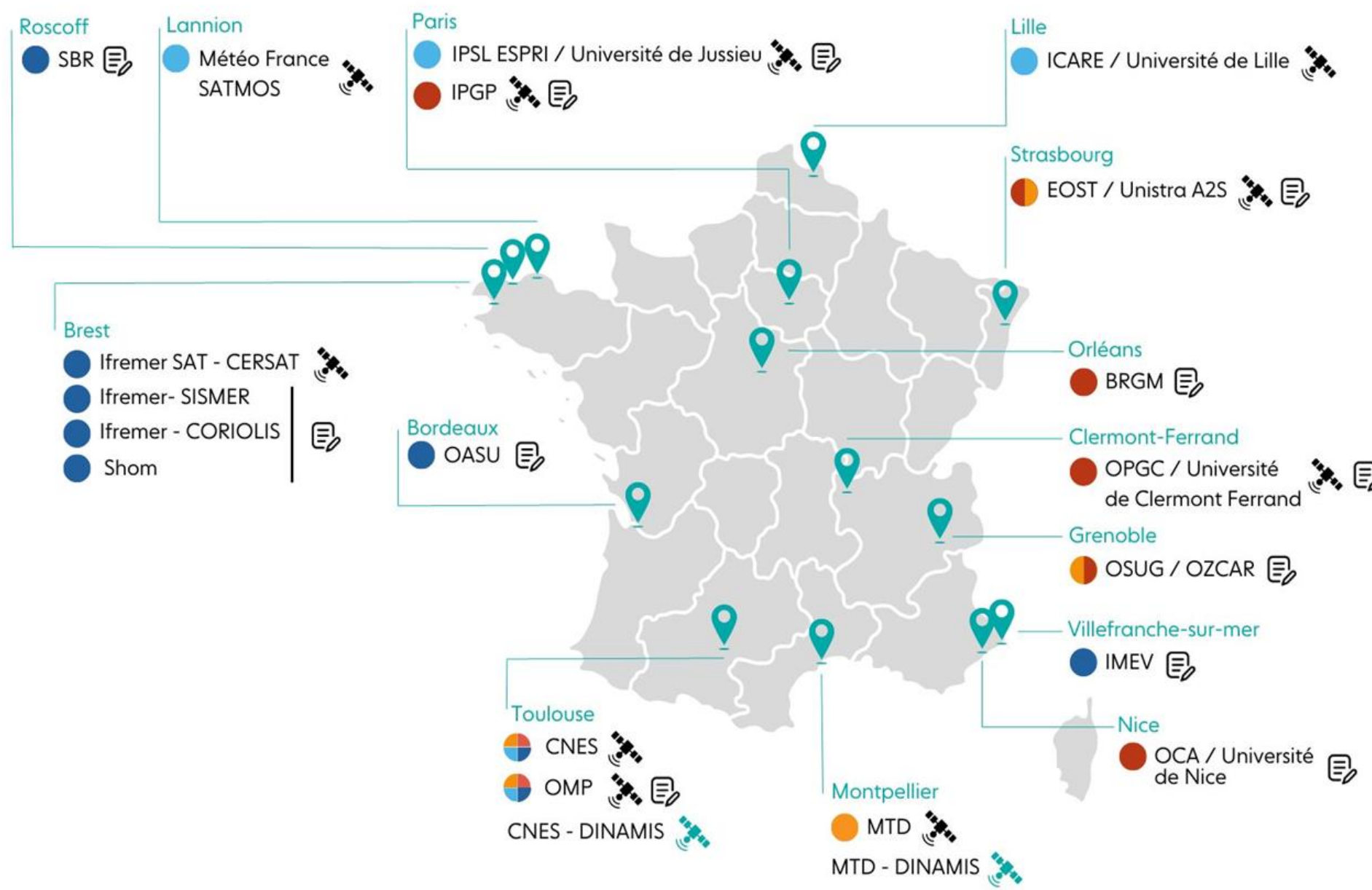


Integration in the bigger puzzle



provides FAIR Water Data

integration with other domains



Pôle de données

- AERIS
Atmosphère
- FORMATER
Terre Solide
- ODATIS
Océan
- THEIA
Surfaces continentales

Dispositif transverse images très haute résolution spatiale

- DINAMIS

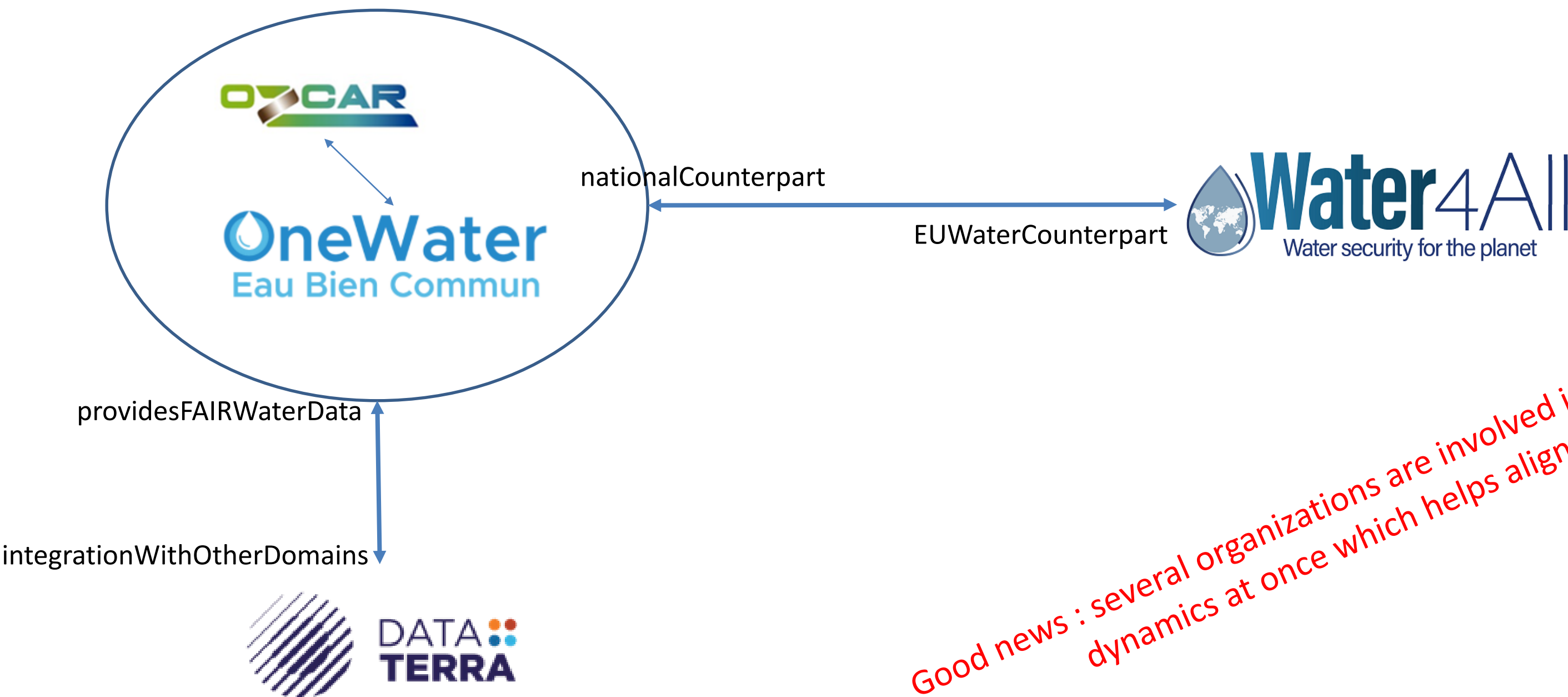
● Données Satellites

● Données In-situ



Integration in the bigger puzzle

Synergies with other dynamics



Good news : several organizations are involved in all those various dynamics at once which helps align planets



Conclusion

Quite an endeavor !

- However, all those dynamics
 - have decent time to work
 - build on
 - international FAIR practices
 - & open-source implementations

⇒ Better chance to contribute to the overall community



Thank you – OneWater Data Platform Team



Sylvain Grellet (BRGM); Isabelle Braud (INRAE); Fanny Arnaud (CNRS EVS - Université de Lyon); Kenneth Maussang (Université de Montpellier); Anne Laurent (Université de Montpellier); Frédéric Huynh (CNRS); Hervé Piegay (CNRS); Lise Vaudor (CNRS); Christelle Pierkot (DataTerra); Sandrine Charles (Université de Lyon); Yvan Le Bras (mnhn); Laurent Longuevergne (CNRS); Hervé Squidant (UMR SAS - Institut Agro); Mario Adam (INRAE); Charly Coussot (IRD / OSUG); Véronique Chaffard (IRD/IGE) and many others onboarding



MERCI DE VOTRE ATTENTION


Eau Bien Commun