



openEO Platform

A Federated Open Earth Observation Platform



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Platform

openEO Platform responds to the ESA tender “Open Earth Engine”, targeting a federated open infrastructure for **scalable, cloud-based EO processing and analytics**.



Ambitious goal to be met by **reuse** and integration of existing components:

- Built on the foundation of H2020 openEO project and API (grant number [776242](#))
- Consortium including three key EO cloud operators
- Building on active user community

Transition from H2020 research towards a service



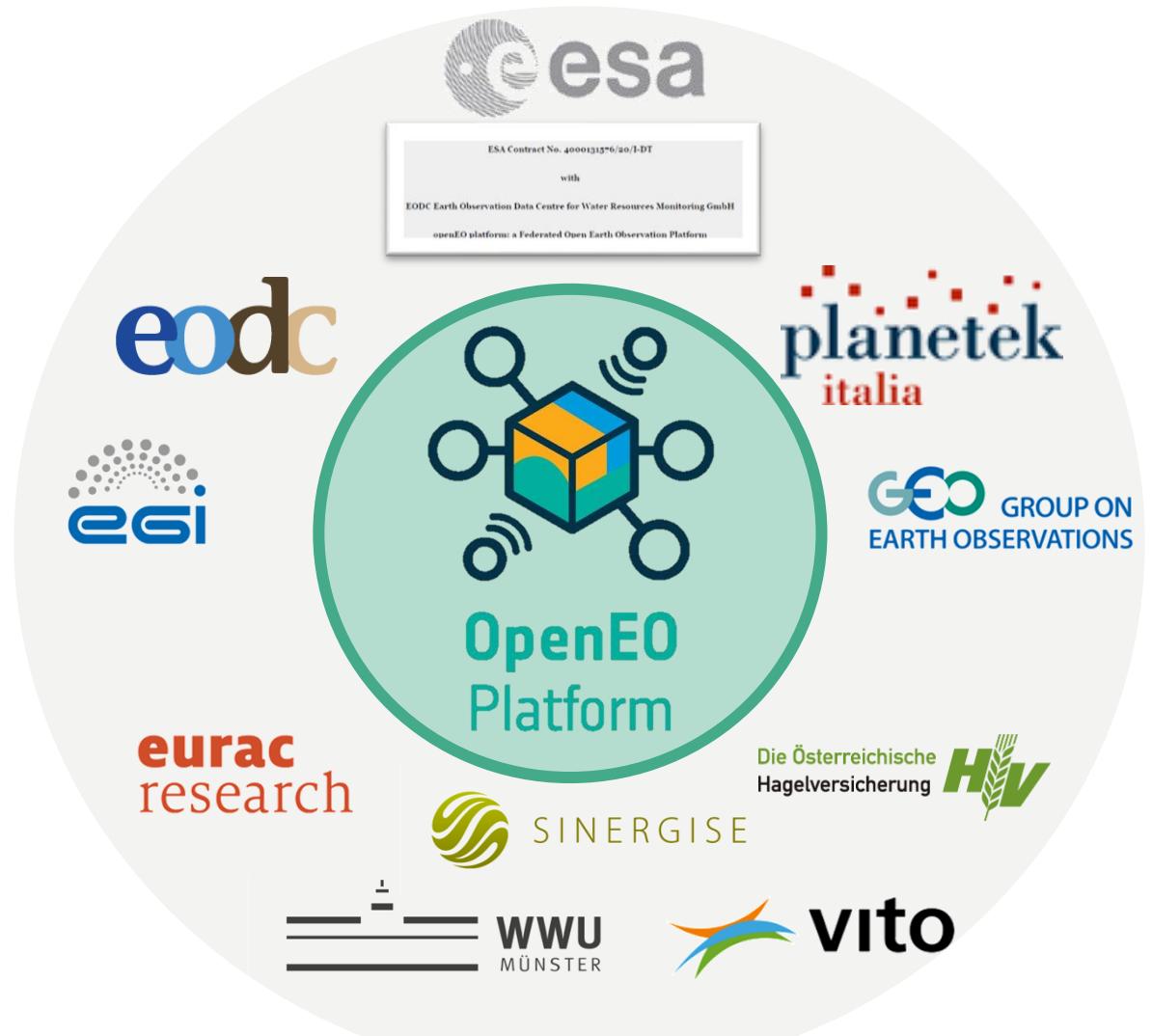
openEO develops an open API to connect R, python, JavaScript and other clients to big Earth observation back-ends in a **simple and unified** way.



FUNDING



openEO is an **H2020** project funded under call EO-2-2017: EO Big Data Shift, under grant number **776242**. The project runs from Oct 2017 to Sept2020.





The EO cloud processing/analytical landscape in Europe is not matching European leadership in EO observational capabilities:

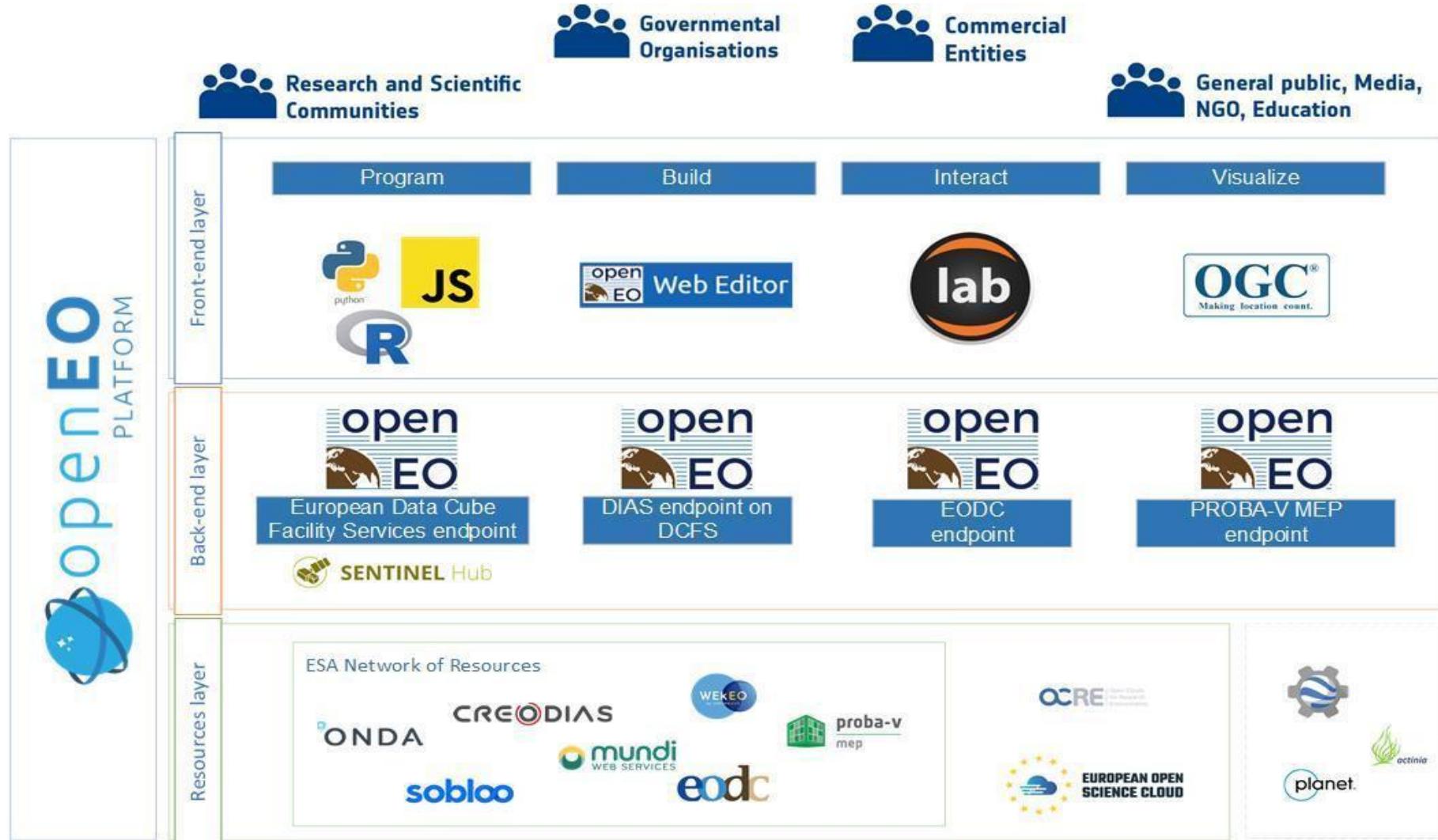
- 👎 Fragmentation, redundancy and lacking coordination among **EO platform providers**
- 👎 Prevalence of **old Virtual Machine model** (rather than dynamic resource allocation and scaling);
- 👎 **File-based** storage and data access, rather than pixel-level flexibility and cloud native data structures;
- 👎 Unappealing **business models**, lacking long term perspectives



Driving concepts for addressing the **capability gap** in Europe:

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-  **Abstracting complexity:** intuitive analytics & programming libraries, dynamic resource allocation, federated cloud environments (EODC, TerraScope, CreoDIAS, EuroDataCube);
 -  **Providing transparency:** Transparency of source code, scientific integrity & reproducibility, clarity & prior estimation of costing, confidentiality of IPR;
 -  **Pixel to continental scalability:** pixel-level data access, scalable “building block” processes, clear roadmap for continental-global scale processing;

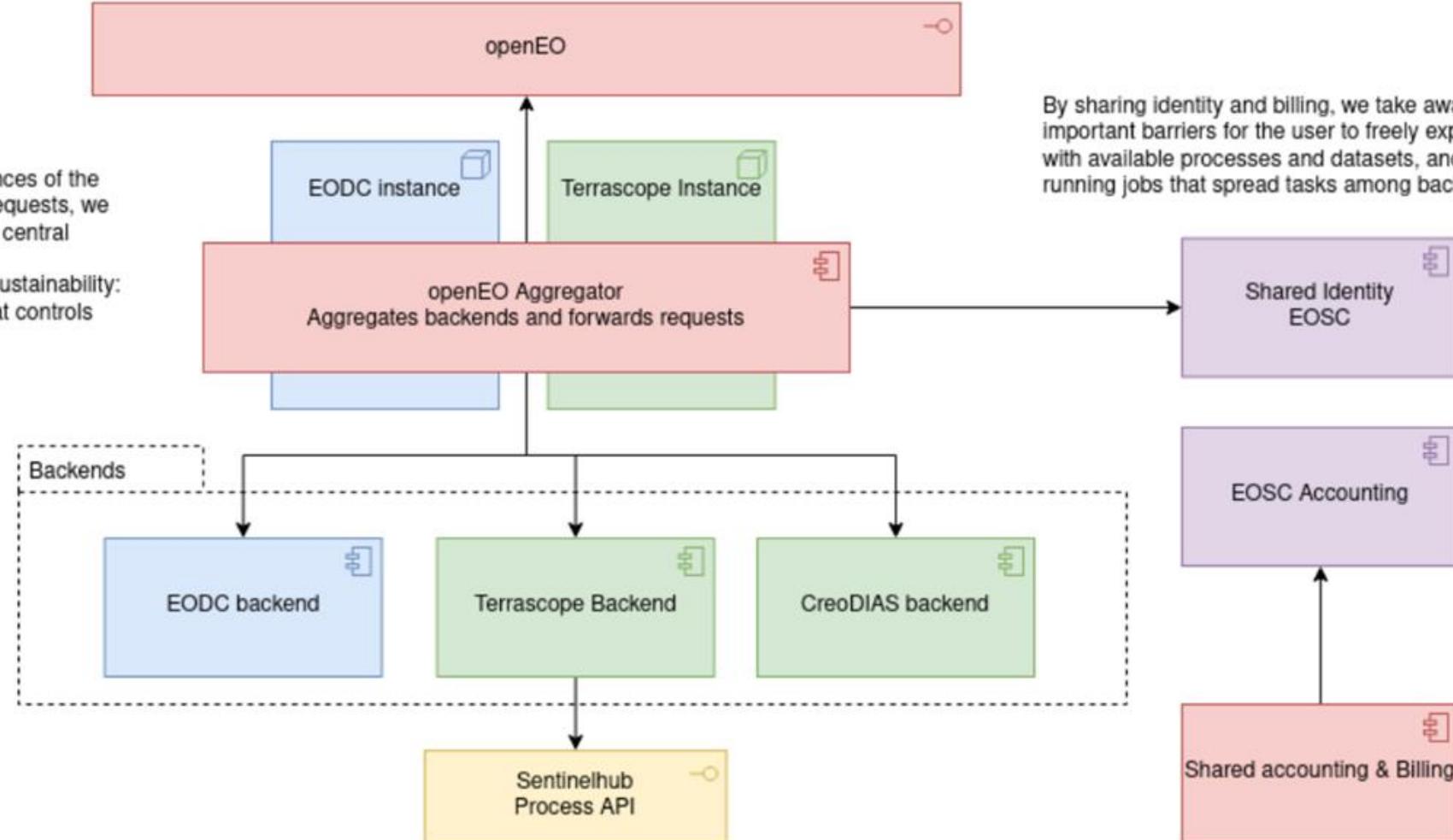
High level overview



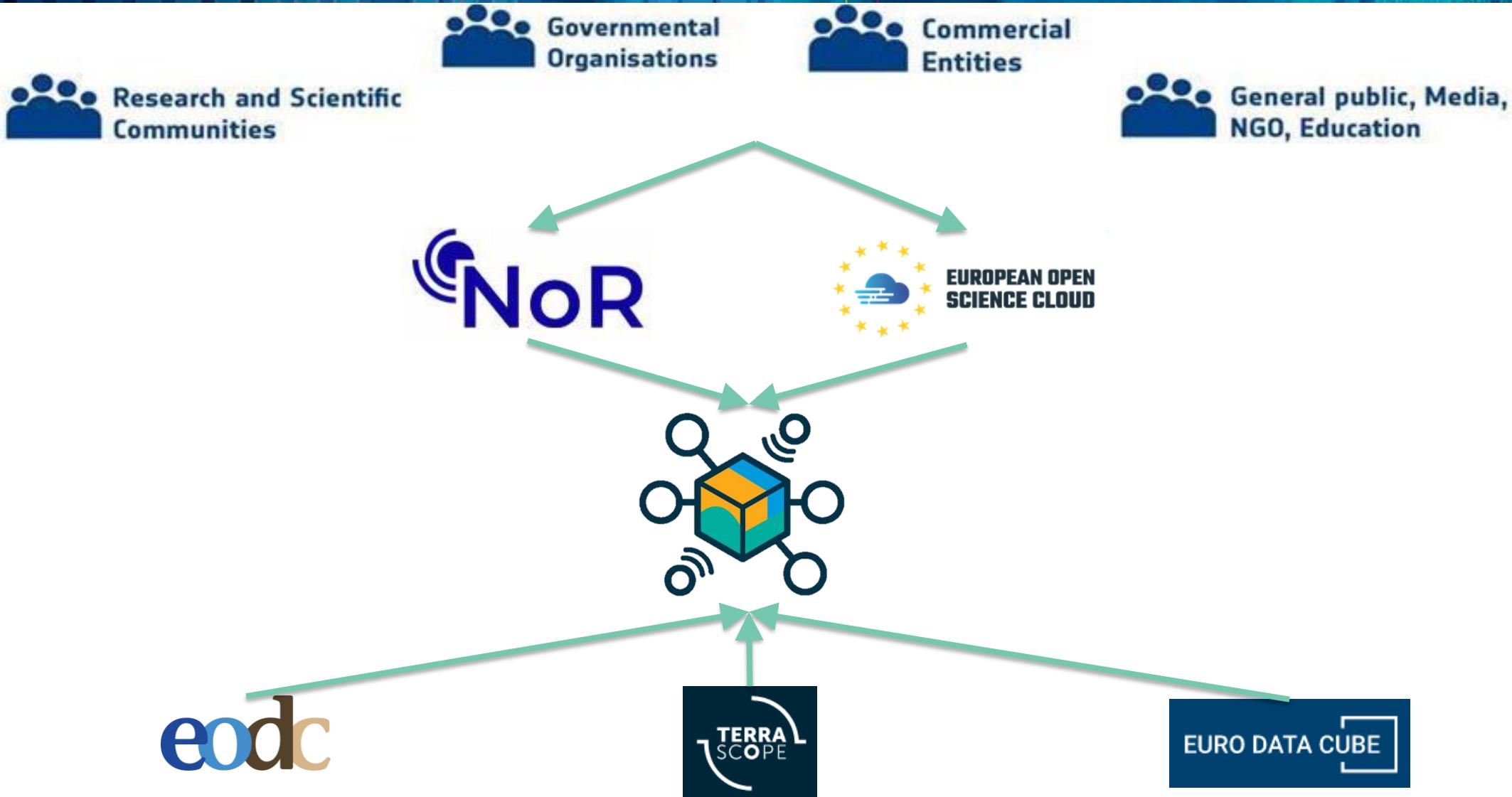
Federation design

By running multiple instances of the aggregator that brokers requests, we avoid a dependency on a central component.

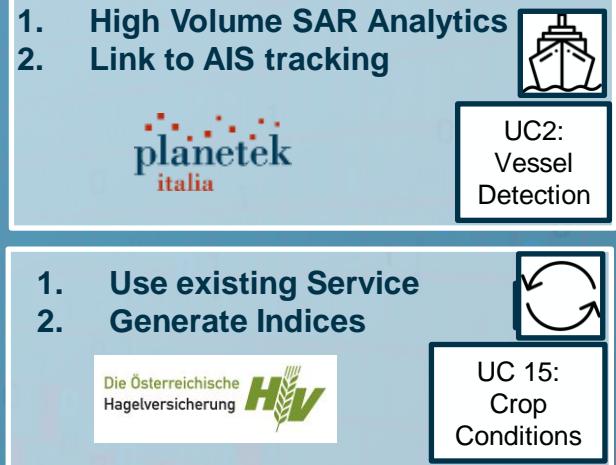
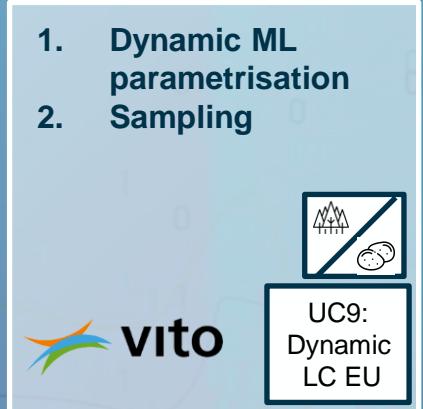
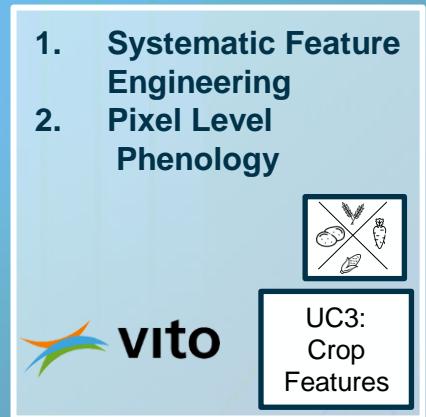
This is important for the sustainability: there's no single party that controls access to the endpoint?



European embedding and deferred resources



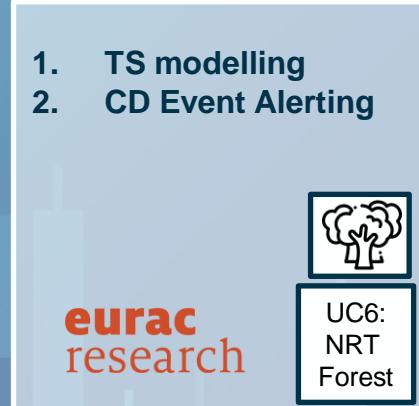
Roadmap and use cases



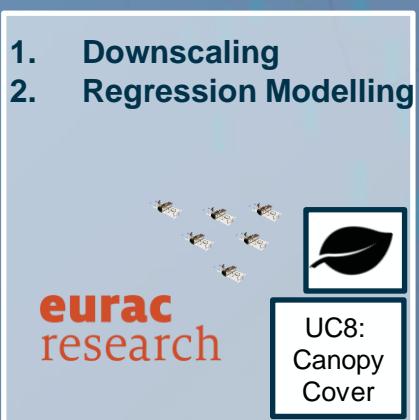
KO Sep '20 Iteration I, March ,21



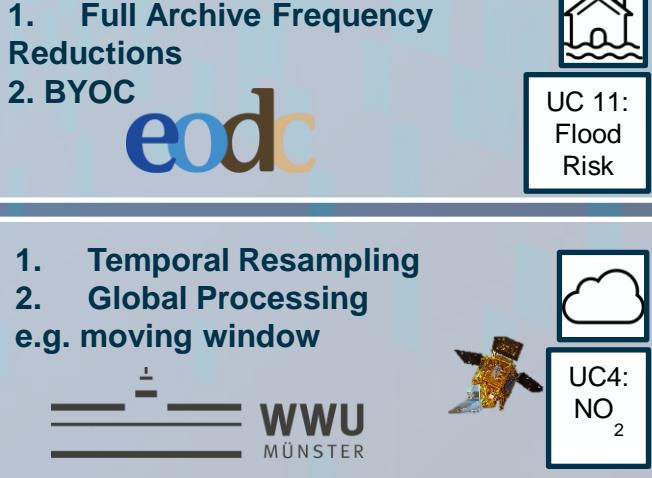
Iteration II, Sep ,21



Iteration III, Mar ,22



Iteration IV, Sep '22



- ❖ SRR1: 19.03.2021
- ❖ Use Case 1: ARD completed
- ❖ Early Adopters
 - ❖ Invited to participate, i.e. free testing and providing us feedback
 - ❖ Registration: <https://eodc.eu/openeo-early-adopters>

Outlook to events in year



- ❖ BiDS'21 (May 19-20): paper
- ❖ EODC Forum (June 8-10): openEO talks and demo
- ❖ ISDE12 (Jul 5): workshop
- ❖ ESA Phi Week (Oct 11-15): keynote and 4h workshop
 - ❖ **Public launch** event of openEO Platform!



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"Feedback is worth a lot – be part of the community"

Information:

-  • Early Adopters Newsletter – Subscribe: <https://eodc.eu/openeo-early-adopters>
-  • Twitter Account: @openEO_Platform

Feedback:

-  • via mail and monthly questionnaire

Contact Point:

-  • openeo-platform@eodc.eu

May 2021
Thank you for the attention



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