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PHIS, a plant science ontology-driven Phenotyping Hybrid Information System

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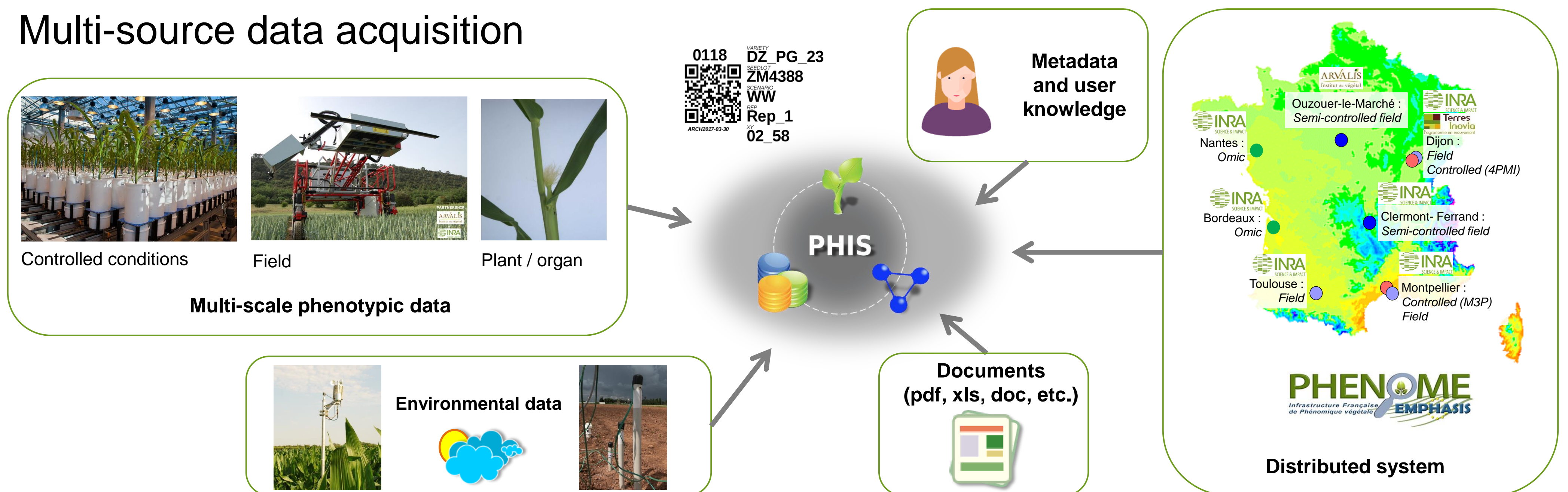
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Plant phenomics datasets are unprecedented resources for identifying and testing novel mechanisms and models. These datasets need to be reusable to the scientific community. Their analysis requires the understanding of relevant information on thousands of plants, sensors and events. The open-source Phenotyping Hybrid Information System (PHIS) is proposed for the smart management of plant phenotyping experimental data. It allows the unambiguous identification and management of all agronomical objects and traits in an experiment and establishes their relations thanks to semantics resources such as reference ontologies. PHIS deals with various experimental context, e.g. field and greenhouse conditions.

Multi-source data acquisition



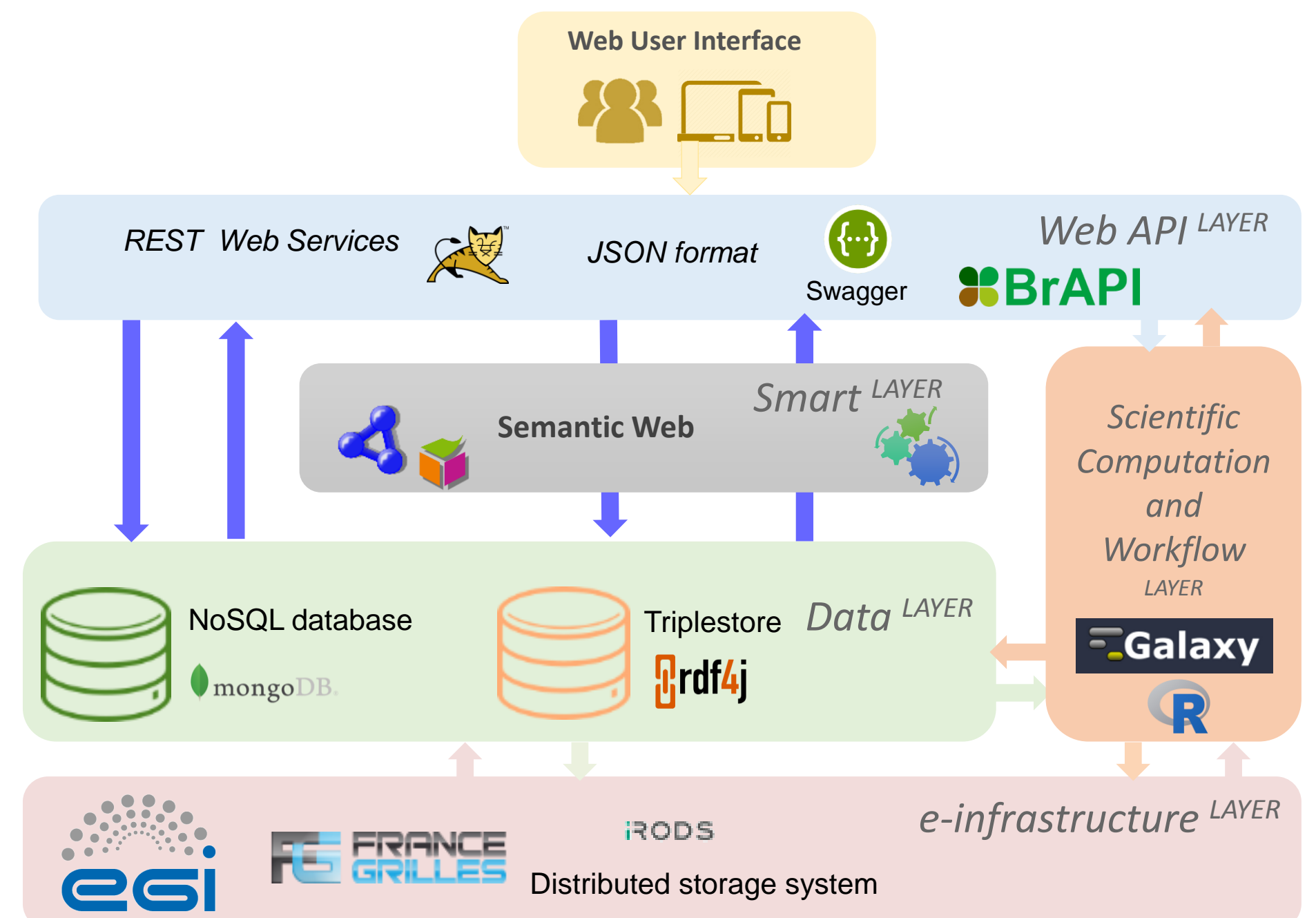
Functionalities

PHIS ontology-driven architecture is a powerful tool for integrating and managing data from multiple experiments and platforms using high-throughput devices (both plant phenotyping and environment monitoring).

PHIS, in short :

- ✓ Allows management of huge and complex data thanks to a flexible design
- ✓ Enables and facilitates cloud computing thanks to distributed computing, distributed storage
- ✓ Focuses on Data Provenance in order to produce reproducible research
- ✓ Is based on Open technologies
- ✓ Uses international identification systems (URI and DOI)
- ✓ Uses Semantics (ontologies in OWL, standardized vocabularies)
- ✓ Allows portal interoperability (towards BrAPI v1.2 compliance)

Architecture and technologies



Development Community

<http://www.phis.inra.fr/>
<https://github.com/OpenSILEX>
<https://twitter.com/PHISphenomics>

Contact : phis@info.com

Acknowledgements

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Availability & Requirements

The source code, user and developer documentation of latest version of PHIS are available at <https://github.com/OpenSILEX> under a GNU Affero General Public License version 2. PHIS requires Java JRE or JDK version 1.7, PHP 5.6, PostgreSQL 10.1, RDF4j 2.2.1, MongoDB 3.4.4 and R 3.3.1 and runs on Linux, Mac, and Microsoft Windows platforms.