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Data intensive agricultural sciences : requirements based on Aginfra+ Project and high throughput phenotyping infrastructure

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The H2020 e-ROSA has defined a three-layer architecture as federated e-infrastructure to address societal challenges of Agriculture and Food that require multi-disciplinary approaches. In that direction, the European project AGINFRA+ aims to exploit core e-infrastructures such as EGI.eu, OpenAIRE, EUDAT and D4Science, to provide a sustainable channel addressing adjacent but not fully connected user communities around Agriculture and Food. In this context, a Virtual Research Environment (VRE) has been developed for the Plant Phenotyping Research community. A VRE is a collaborative Web platform which provides different useful components to make data analysis. This VRE has been enriched with data exploration and data retrieving services in order to transparently access to multiple sources of phenotyping data. These services are based on OpenSILEX-PHIS which is an open-source information system designed for plant phenotyping experiments. Several instances of OpenSILEX - PHIS have been deployed for french phenotyping platforms on a national infrastructure. It is planned to deploy others instances on EGI infrastructures for the european partners (Emphasis ESFRI). OpenSILEX-PHIS interoperates with external resources via web services, thereby allowing data integration into other systems. The VRE is also equipped with a JupyterLab provisioned by EGI. JupyterLab is the next-generation web-based user interface for Project Jupyter allowing users to work with documents and activities such as Jupyter notebooks. EGI also provided a Galaxy server which is a scientific workflow system used by plant science community for building multi-step computational analyses facilitating data analysis persistence. That significative advance makes OpenSILEX-PHIS as a representative component of the future Food cloud and gives a basis for the requirements for an e-infrastructure supporting data intensive agri-food sciences.

Type of abstract

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