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The PHIRI project: advances towards an infrastructure for population health research

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The secondary use for research purposes of health data originated in health systems imposes a series of challenges: it has legal and organisational access constraints due to is high sensitivity; as its primary purpose is the caregiving, there is a lack of semantic and syntactic interoperability, i.e., the use of common data models and codifications, making hard to combine and exploit the datasets; and, last but not least, the technical interoperability is hardly addressed when defining the analysis tools and environments.

The technological packages of the PHIRI are producing a series of prototypes of a federated analysis infrastructure for population health research that face the above challenges in a *private-by-design* manner, following a *data-centric* approach, i.e., minimising the movement of personal data. Prototypes' design and implementation is driven by four use-cases that use real-world data from healthy systems to study the COVID-19 pandemic effects in four aspects of the population health: mental health, delayed cancer treatments, inequalities in the access to treatments and perinatal health. The prototypes will set the basis of a fully operational research infrastructure to be adopted in the ESFRI Roadmap.

The first successfully delivered PHIRI prototype is based on a containerised solution. Containers encapsulate the analytics algorithms using a common data model defined for each use case. The containers are deployed at the premises of those partners that act or interact with data processors (in terms of GDPR) and produce "local" results that are manually sent to a coordination node that performs the meta-analysis.

Current work focuses on the automation of container deployment and node coordination, the selection of a single common data model and the development of federated learning algorithms. For its production version, the PHIRI infrastructure is intended to be deployed using the EOSC infrastructure and to interact with the future EHDS infrastructure.

Any relevant links

https://www.phiri.eu/

Topic

Data Spaces

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