

Data FAIRification in the EUCAIM project

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The EUCAIM project is the cornerstone of the European Cancer Imaging Initiative, one of the flagships of the Europe's Beating Cancer Plan (EBCP). EUCAIM is building a federated European infrastructure for cancer images data, starting with 21 clinical sites from 12 countries. IFCA (CSIC) participates in this project and oversees the Data FAIRification sub-task, as well as collaborating in others.

The project will provide a central hub that will link EU-level and national initiatives, hospital networks as well as research repositories with cancer images data. Clinicians, researchers and innovators will have cross-border access to an interoperable, privacy-preserving and secure infrastructure for federated, distributed analysis of cancer imaging data.

Data FAIRness in AI4HI projects

EUCAIM builds upon the work of the "AI for Health Imaging"(AI4HI) projects, namely: Chaimeleon, EuCan-Image, ProCancer-I, Incisive and Primage. These projects are developing Artificial Intelligence algorithms to detect the cancer from imaging and are establishing federated repositories for cancer images.

We reviewed the data FAIRification practices of these projects to inform the best practices to be adopted in EUCAIM. From them the one with a more comprehensive approach was Chaimeleon, and their approach will help to establish the work in EUCAIM.

FAIR EVA

The EUCAIM project offers a comprehensive suite of tools and services as well, designed to streamline the data preprocessing process. Among these tools it is required to check the FAIRness of datasets.

Compliance with the FAIR principles implies considering multiple dimensions. The EUCAIM approach is based on the RDA recommendations, but during the project we will also define further FAIR attributes related specifically to Cancer Imaging data.

The EOSC-Synergy H2020 project developed a tool called FAIR EVA (evaluator, validator & advisor) that has been selected for its deployment in the EUCAIM infrastructure. Alternatives, like F-UJI, were considered, but EUCAIM is adopting FAIR EVA for deployment in its infrastructure.

FAIR EVA has been developed to check the FAIRness level of digital objects from different repositories or data portals. It requires the object identifier (preferably persistent and unique identifier) and the repository to check. It also provides a generic and agnostic way to check digital objects. FAIR evaluator is a service that runs over the web. IT can be deployed as a stand-alone application or in a docker container. It implements different web services: the API that manages the evaluation and the web interface to facilitate accessing and user-friendliness.

FAIR evaluator implements a modular architecture to allow data services and repositories to develop new plugins to access its services. Also, some parameters can be configured like the metadata terms to check, controlled vocabularies, etc. For the initial iteration the vanilla version of the tool will be deployed, but during the project a plugin will be developed to include the agreed new FAIR attributes to be checked.

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