

## Background

The FAIR principles (Findable, Accessible, Interoperable, Reusable) are key to dissemination and re-use of data and results.<sup>1,2</sup> The IMI EHDEN project is an effort to harmonize 100 million health records to the OMOP Common Data Model (CDM) and creates the infrastructure for a European Health Data network for collaboration.<sup>3</sup> EHDEN essentially aims to make healthcare data in Europe FAIR at an unprecedented level.

The EHDEN framework contains a number of important applications to support this objective, building on the OHDSI toolkit. For example, the IMI EMIF Catalogue<sup>4</sup> supports Findability by providing metadata and a data source index, the Arachne platform improves Accessibility, and of course the OMOP CDM and Standardized Vocabularies cater Interoperability.



### Implementing FAIR in OHDSI and EHDEN

However, to benefit IMI EHDEN and the OHDSI community long term, it would be beneficial to have a standardized way to publish a number of key digital resources as FAIR digital objects, rather than relying on software such as ATLAS or hosted websites such as data.ohdsi.org. Examples of digital resources within OHDSI are the OMOP CDM version or study results. Digital objects are digital resources that, together with a persistent identifier referring to the digital object, are made available to a digital information infrastructure. Digital objects are stored in repositories and described by metadata.<sup>5,6</sup>

## Methods

The first step is to identify digital resources important within the OHDSI ecosystem. When key digital resources are selected, the FAIRification process starts. This entails standardizing the digital resources as digital objects, using widely adopted standard like schema.org /JSON Linked Data or using the GO-FAIR Digital Object standard, if official by then. A few aspects to consider during this FAIRification and standardization process are the use of persistent identifiers to refer to the digital objects, describing the digital objects with metadata, and storing the digital objects in a searchable resource. Figure 1 shows the FAIRification process.



Figure 1. Identification and FAIRification process of digital resources in OHDSI

## Results

### Identify and inventorise digital resources in OHDSI

Within the context of OHDSI and EHDEN, a preliminary list of digital resources is defined.

This list include the following digital resources, grouped by resource type:

- Data model: OMOP CDM version, OMOP vocabulary version
- Database information: OMOP database profile, OMOP database instance version
- Study setup: OMOP cohort definition, study protocol, study-a-thon
- Study output: registered observational study, study results, query definitions, query results
- Other: organizations, projects, publications, authors

### Define digital object standards for digital resources

We have done a preliminary FAIR assessment of two potential digital resources. The outcome is shown in table 1.

Table 1. Preliminary FAIR assessment of two digital resources

Digital resource	Current FAIRness	Example of current location	Possible technical solution	Potential impact of FAIRification & advantage for OHDSI community
OMOP CDM version	Average	<a href="#">Github repository</a>	Register in FAIRsharing.org	Critical for reproducibility
Study results	Poor	<a href="#">data.ohdsi.org</a>	A FAIR version of the <a href="#">EU PAS register</a>	Ensures findability and searchability of study results

## Conclusions

Feedback from you, the OHDSI community, is what we need to make make this work! Do you have any examples of other digital resources that you encountered within OHDSI? This could be resources that are buried in emails or forum posts, or resources that you use regularly. Anything that pops into your head.

Join the [discussion on the OHDSI forum](#), and contribute in making OHDSI and EHDEN more FAIR!

### References

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