- The data model that Qvain works on is hosted externally. In the first stage we are working with a generic data model developed in the Open Science and Research Initiative (bit.ly/fairmodel)but of course the tool can work with other data models, too.

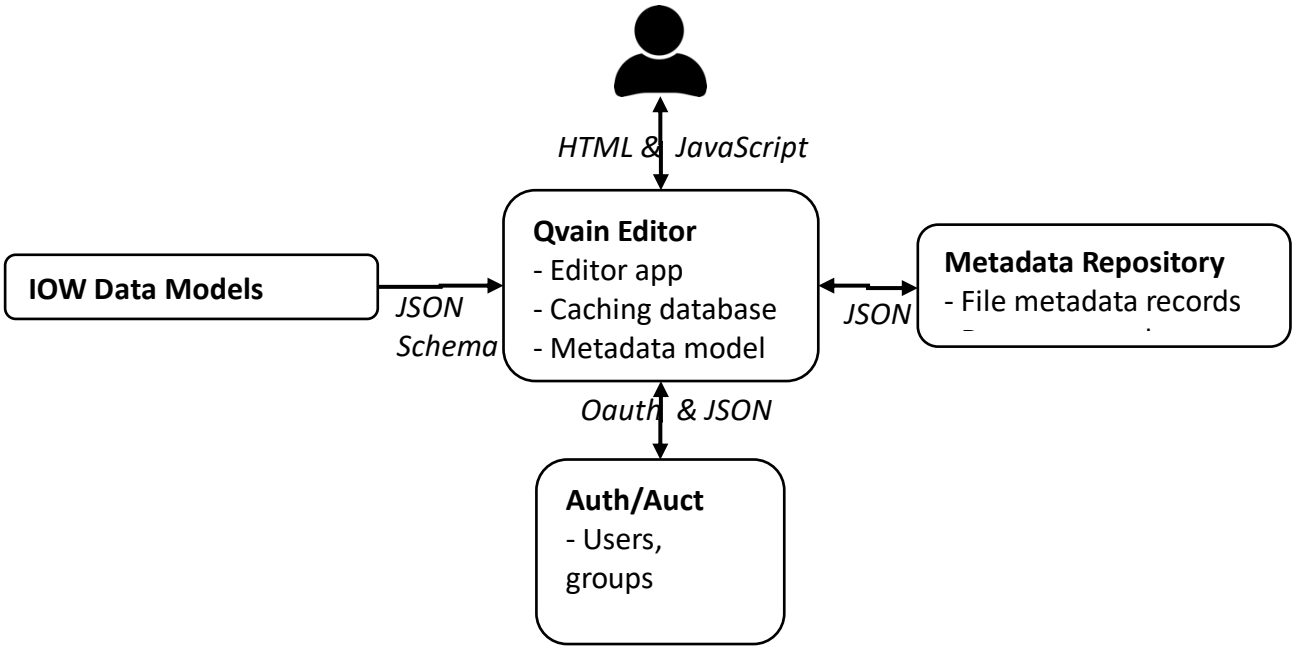

Figure 2. Interactions of Qvain.

Qvain is, for the time being, intended for high-level, manual description. In many cases vast amounts of metadata of a more technical nature already exist. We are considering the best way to upload existing metadata into the Metadata Repository. – In addition, the Data Storage will create basic technical metadata of the files and store it in the Metadata Repository.

There were design reasons why Qvain does not manage files at all, in other words, it does not upload or download data files. It is always presumed that there is a PID that can be used as a reference to the files. This is perhaps a decision that will require reconsideration.

Fairdata Services are funded by the Ministry of Education. They are being developed by **CSC – IT Centre for Science Ltd.** (*csc.fi*), and the **National Library of Finland** (*nationallibrary.fi*). The National Library is part of the University of Helsinki. CSC is a state-owned non-profit company that hat provides ICT expert services for research, education, culture, public administration, and enterprises.

Qvain is a generic research dataset metadata editor.

Our data model is available online: bit.ly/fairmodel. In the future, we can support several models.

Qvain reads the data model as a JSON Schema. Qvain re-orders and re-groups the fields, adds help texts, performs real time validation, etc.

Qvain supports Open ID.

Users of Qvain can delegate the editing rights.

Suitable widgets, and controlled vocabularies for each type of metadata.

Qvain publishes the finished record by moving it to an external repository.

Qvain does not manage files. Users may refer to them with URIs. We also see a storage service through API, refer to files, and also edit their technical metadata.

Qvain is a web application using the Vue JavaScript framework. The back-end is written in Go. The source code is available: https://github.com/Nat-LibFi

Qvain is a part of Fairdata.fi Services, funded by the Ministry of Education. They are being developed by CSC – IT Centre for Science Ltd. (csc.fi), and the National Library of Finland (nationallibrary.fi). Qvain will be launched in summer 2018 – wait for news @ www.fairdata.fi

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Ministry of Education and Culture

Fairdata.fi

CSC

1640 THE NATIONAL LIBRARY OF FINLAND

Qvain – a Generic Research Dataset Metadata Editor

Good metadata is integral for research data management. Libraries and other support services in research organizations do their best to assist researchers in making their data more visible, and easier to re-use. Quality of metadata is also vital for preservation, as it must answer questions about the data after people involved cannot be reached anymore.

Support services only can help those who help themselves. Researchers' input on their own data is very important. They know what it is all about and how to communicate about the data to their colleagues. We need their contributions although we know they are busy.

Some disciplines are more advanced in data sharing and have best practices as well as data management and archiving infrastructures in existence. However, many researchers lack that kind of community. Many of the researchers and certainly many of the support functions are still learning about the

In Finland, research data management services are being built not only in the research organizations but also on the national level. The Open Science and Research (www.openscience.fi) was an initiative launched run from 2015 to 2017. Its aim was to turn Finland into one of the leading countries in openness of science and research.

Fairdata.fi Services are a result of the Open Science Initiative. The services are

- Storage service **IDA**
- Metadata tool **QVAIN**
- Research data search portal **Etsin** that also manages reuse applications
- Research Data Digital **Preservation,** *www.digitalpreservation.fi*.

In addition, there is

- a shared metadata repository that links the components together
- a common authentication and identity management solution
- an administrative tool for participating organizations.

Fairdata.fi Services will be available in 2018 in Finnish universities and research institutes.

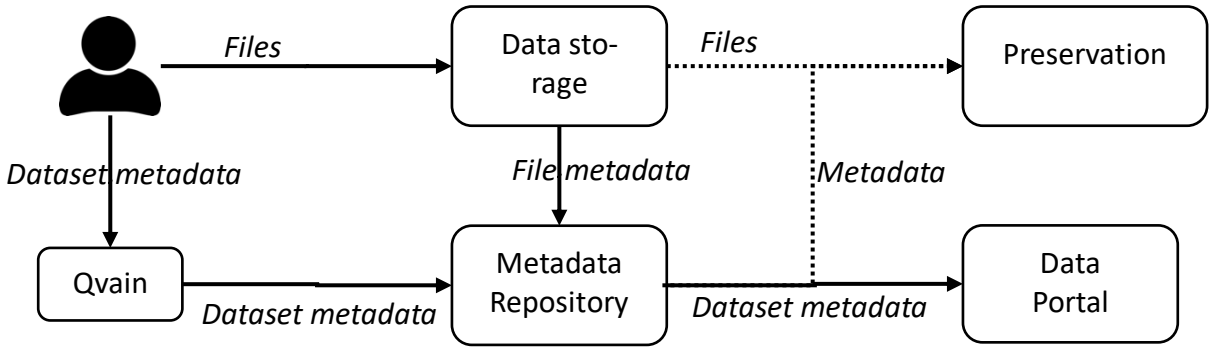

Figure 1. IT Service Components of the Fairdata.fi Services.

* * *

Qvain takes a data model expressed as JSON Schema and turns it into a web form for filling in. Of course, a direct transformation could be very hard to use and difficult to understand. Therefore, Qvain provides an administration tool that helps to re-order and re-group the fields, to add help texts etc. It also provides a way to employ different widgets in entering different kinds of data. For example, in case of spatial data a map widget might be used.

Qvain has a user management module that uses OpenID. It has an internal Postgresql database for storing the records.

Qvain is designed to work as a standalone system. At the same time, it is being integrated to the larger aggregation of IT services described above (Figure 1):

- The user may work with an unfinished description within the tool. When the user considers the metadata record ready for publication, it is transferred to the shared metadata repository and from there it will be publicly available.
- Metadata records in the metadata repository may be fetched to Qvain for further editing.
- There will be a shared identity management for data storage and Qvain. That means that when describing a dataset in Qvain, the user may view files (that is, file metadata) in the metadata repository, and mark them as belonging to the dataset being described (always provided that they have right to view the files in the storage system).