VALO Feasibility Study on the OMOP CDM Maturity in the Nordics

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The Nordic VALO Project

The Nordic VALO (Value from Health Data) project is an initiative led by Sitra (the Finnish Innovation Fund) and funded by the Nordic Council of Ministers. It aims to strengthen Nordic collaboration in the secondary use of health data, and to showcase its efficacy though cross-border experiments, of which the first one will be a federated analysis pilot using the OMOP Common Data Model.

The first step towards the federated analysis pilot was a feasibility study, conducted by Productivity Leap in the Spring 2024. The purpose of the feasibility study was to assess the OMOP capability of hospitals and other data holders across Sweden, Finland, Iceland, Norway, and Denmark, and map out their willingness to participate in the Nordic-level federated analysis. In addition, the study aimed to identify potential health topic areas suitable for the pilot.

Scope of the Feasibility Study

1. To identify which hospitals and other data holders in the Nordics are OMOP-capable, and to what degree, and willing to take part in a Nordic-level pilot;

2. To review the maturity of identified hospitals and other data holders and determine the clinical or other suitable health topic areas where the data holders in question have similar OMOP-modelled data available, to support federated analysis;

3. To propose possible pilot studies on diseases/treatments/medicines to be conducted using the OMOP data model so that data holders from at least three Nordic countries are involved.

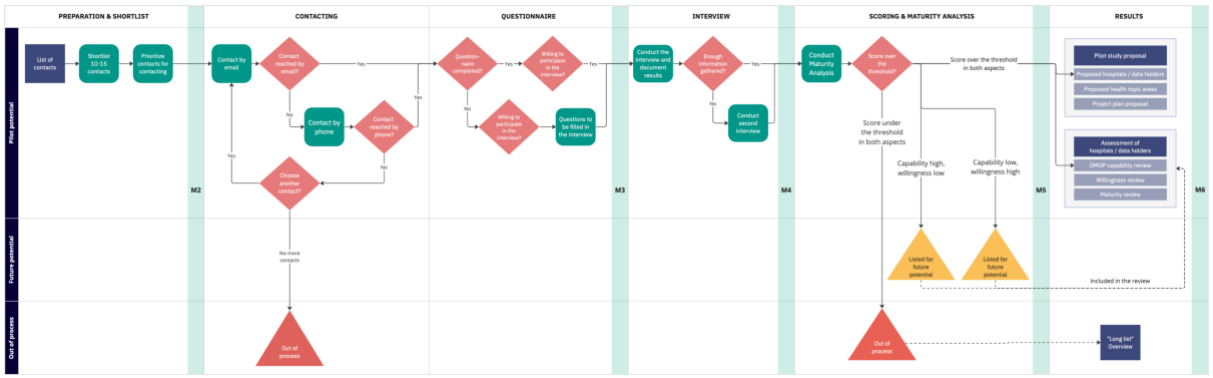
The timeline of the feasibility study was approximately two months.

Methods

Altogether 15 data holders participated in the feasibility study across the Nordic countries: six from Finland, three from Sweden, three from Iceland, two from Norway, and one from Denmark. The primary method used for the study was interviews. Additional data was also collected from some participants through a questionnaire.

The analysis of the maturity levels of hospitals and data holders involved a detailed scoring system, including six main assessment categories: 1) OMOP data model (incl. topics, coverage), 2) Data (incl. size, coverage, access, updating), 3) Research and collaboration (national and international), 4) Key resources (clinical and IT), 5) Expansion capabilities (incl. financial and educational aspects) and 6) Willingness to participate in the pilot. All these categories included several dimensions, each with their own detailed reasoning and scoring criteria.

Figure 1. Feasibility Study Process

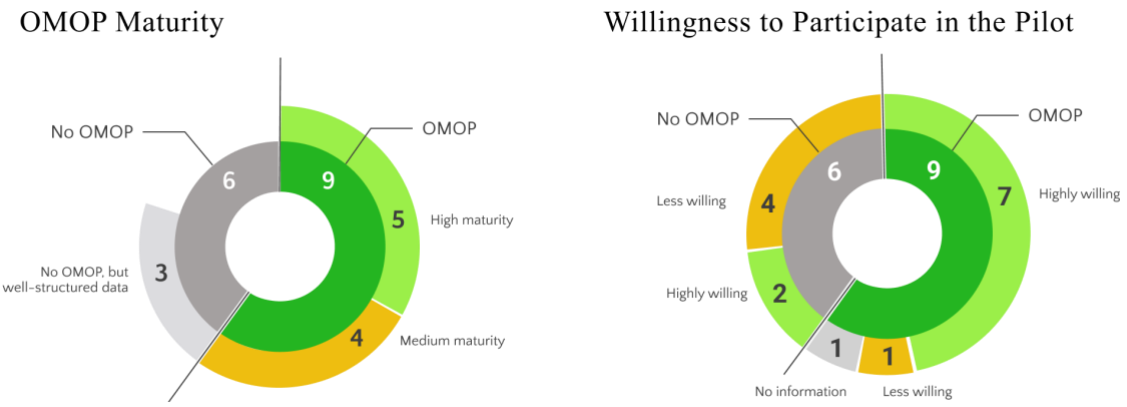


Results

Among the 15 data holders participating, nine had already adopted the OMOP data model, five with high maturity and three with medium maturity. The remaining six data holders were interested in adopting the OMOP model but had not established concrete plans or a timetable. Institutions without OMOP were willing to adopt the model but required more information and specific projects to justify resource allocation.

There was high interest in participating in the pilot, with nine data holders showing strong willingness. Five expressed less willingness to participate, mostly owing to the absence of OMOP implementation, and one due to other commitments. Yet all data holders remained interested in receiving updates about the project.

Figure 2. OMOP Maturity and Willingness Summary



The study also proposed two main health topics for the Nordic-level pilot: cancer and drug-related research. Ten data holders from four countries expressed specific interest in a cancer-related study. More specific research topics suggested within this area included hematological cancer prevalence, cardiotoxicity of cancer, prostate cancer, and treatment outcomes. Drug-related topics also garnered interest within eight data holders from all five countries, with e.g. the following topic suggestions:

drug efficacy and safety surveillance, utilisation of hypertensive drugs, impact of outcomes of drugs in treating patients with heart disease, pharmacoepidemiology, and the effectiveness of new pharmacotherapies. Some other mentioned health topic areas included cardiovascular diseases, COVID-19, dementia, diabetes, fibrotic diseases, pediatrics, and regulatory aspects.

Limitations

The timeline for conducting the feasibility study was short, which created limitations for the involvement of data holders. Not all potential data holders from the Nordics were reached, and some contacted data holders could not participate due to other commitments. One participant was only able to provide written responses, as their schedule was too tight for taking part in the actual interview.

The maturity analysis was based solely on the interview data, thus e.g. vocabulary comparison was not done as a part of the feasibility study. However, it was recommended to conduct one at the start of the pilot to assess the data compatibility of the pilot participants in more detail.

Conclusion

The feasibility study provided a comprehensive overview on the OMOP capability and maturity among the Nordic hospitals and other data holders. The study also facilitated the development of a systematic and scalable methodology to assess OMOP maturity across different countries. The feasibility study laid the groundwork for the VALO pilot, demonstrating that conducting the federated analysis using OMOP CDM between at least three Nordic countries is feasible.

Upcoming Federated Analysis Pilot

The tender process for the VALO pilot will be starting soon. The tender will be published by Sitra in August 2024, and the pilot will already be starting in November 2024. The concrete topic for the pilot and the participating data holders will be specified/selected as a part of the tendering process.