Resource estimate for openEHR repository at NTGMC

July 2016

Building a clinical data repository using openEHR will require three principal things

* Procuring an openEHR repository with associated tools — known as an openEHR “platform” or “execution engine”.
* Clinical modelling and mapping of Genomics England (GEL) data set to openEHR archetypes and templates.
* Integration work to build additional interfaces to the repository for data input and extraction.

A. openEHR platform / execution engine

It is possible to self-develop an openEHR platform / execution engine. However, this would require a substantial investment of time, money and resources. It would make more sense to acquire one.

An example of a leading platform is Think!EHR Platform, offered by Marand.

Think!EHR Platform performs the following functions

* Stores data in openEHR format in a database.
* Saves data from source systems into openEHR format. The Think!EHR Platform includes interfaces for inputting and extracting clinical data. If required, FHIR or HL7 APIs can be used in combination with the Think!EHR Platform.
* Can store coded values from any of the terminologies such as SNOMED-CT, LOINC and ICD, and if needed can also integrate with a terminology server.
* Supports several IHE profiles such as XDS.Registry, XDS.Repository, XCA.IG, XCA.RG, XUA, ATNA ARR, as certified at the 2016 IHE Connectathon.
* Provides an application development environment that enables applications, registries etc to be built on the database using openEHR data.
* Provides a query interface that supports sophisticated querying. openEHR contains an Archetype Query Language (AQL) that extends the capability of SQL and allows searches using hierarchical relationships. Using AQL, any data item created using the openEHR reference model can be searched.

Indicative costs for Think!EHR Platform

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| --- | --- |
| Think!EHR Platform  -Lifetime license  -License covers usage for clinical data repository including unlimited installations of software instances  -License covers up to 100,000 active patient records | 80,000 Euros one-time fee |
| Think!EHR platform - maintenance and support (3rd line) | 16,800 Euros per year |
| Site instance support and maintenance | 1,500 Euros per year for each site |
| Professional services |  |
| -Initial installation, configuration and implementation in development environment, producing test scenarios and test data, consulting | 8,000 Euros one-time fee |
| -Training for EHR repository administrators, “train the trainer” | 4,000 Euros one-time fee |

B. Clinical modelling and mapping

Core task: Mapping of GEL data set to openEHR

An estimated 70% of the data points required by GEL are available in openEHR archetypes.

The remaining 30% are not yet available and will need to be mapped. These are mostly the cancer-specific data points.

Resources required for this

1. Back-end programmer / Front-end developer

Tasks

* Learn how to use the development tools that come with the Think!EHR platform. Time estimate: 1 week.

Prerequisites: Knowledge of programming languages such as Java, .NET, JavaScript, HTML, Swift.

1. Clinical modeller and health analyst

Tasks

* Learn basic concepts of openEHR; find openEHR archetypes and create templates for specific use cases. Time estimate: 1 week.
* Create clinical archetypes and adapt existing archetypes; collaborate with other clinical modellers around the world to improve and extend the library of available archetypes. Time estimate: 4 weeks, followed by continuous knowledge improvement.

Prerequisites: Medical background required.

1. Think!EHR platform operations and maintenance team enablement

Tasks

* This is for system administrators who will be responsible for deployment, maintenance and configuration of the Think!EHR platform. Time estimate: 2 days.

C. Integration

Tasks

* Build additional interfaces to the repository for data input and extraction.