OMOP4 SWEDEN!
EVIDENCE GENERATION FOR BETTER HEALTHCARE

OMOP in the international health informatics standardisation landscape

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Needs for Interoperability

Interoperability means the ability to <capture, manage*>, communicate and exchange data accurately, effectively, securely, and consistently with different information technology systems, software applications, and networks in various settings, and exchange data such that clinical or operational purpose and meaning of the data are preserved and unaltered.

- Distributed storage of health data
- Proprietary data/information models

-> information loss

Legal Interoperability

- Legislation
- Policies
- Governance

Organizational Interoperability

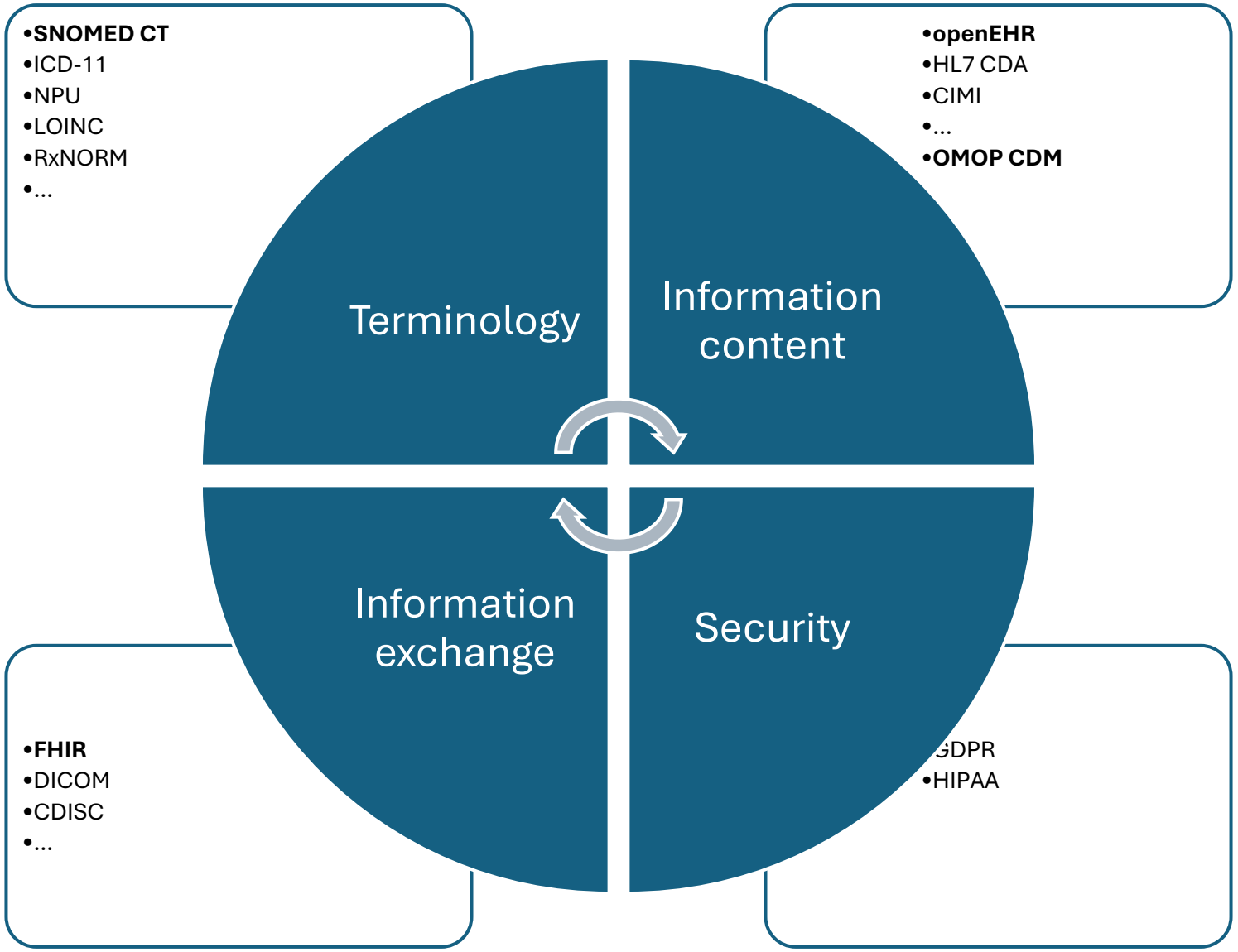
- Business rules
- Functional standards
- HIT Safety

Semantic Interoperability

- Data standards/terminologies
- Information content

Technical Interoperability

- Information exchange
- Security


•SNOMED CT
•ICD-11
•NPU
•LOINC
•RxNORM
•...
•openEHR
•HL7 CDA
•CIMI
•...
•OMOP CDM
Terminology
Information content
Information exchange
Security
•FHIR
•DICOM
•CDISC
•...
GDPR
•HIPAA

Extra: openEHR and HL7 FHIR

- Aim of each is different! And work great together.

	FHIR	openEHR
Primary aim	EHR data Exchange	Fine grained EHR data structure & persistence
Also does	Data persistence	Data exchange
Moto	80/20 rule (Pareto law)	Maximum dataset
Main concepts & availability	Resources R4: ~140 resources (11 normative)	Archetypes 882 active archetypes (160 published)
Concepts managed by	FHIR team – workgroups per resource	openEHR community
Age	7y (since 2015 - uses information learned from HL7 v2 era ~1989 + CDA)	30y (since 1992 - called GEHR)

Based on: Allwell-Brown, Eneimi. (2016). A Comparative Analysis of HL7 FHIR and openEHR for Electronic Aggregation, Exchange and Reuse of Patient Data in Acute Care.

- FHIR is great for Exchange and for not-so-complex projects and supports very common clinical use. openEHR is good for persisting fine-grained detailed data for a patient's lifespan and more complex use cases.

Source: FHIR vs openEHR - Integration / HL7 FHIR - openEHR

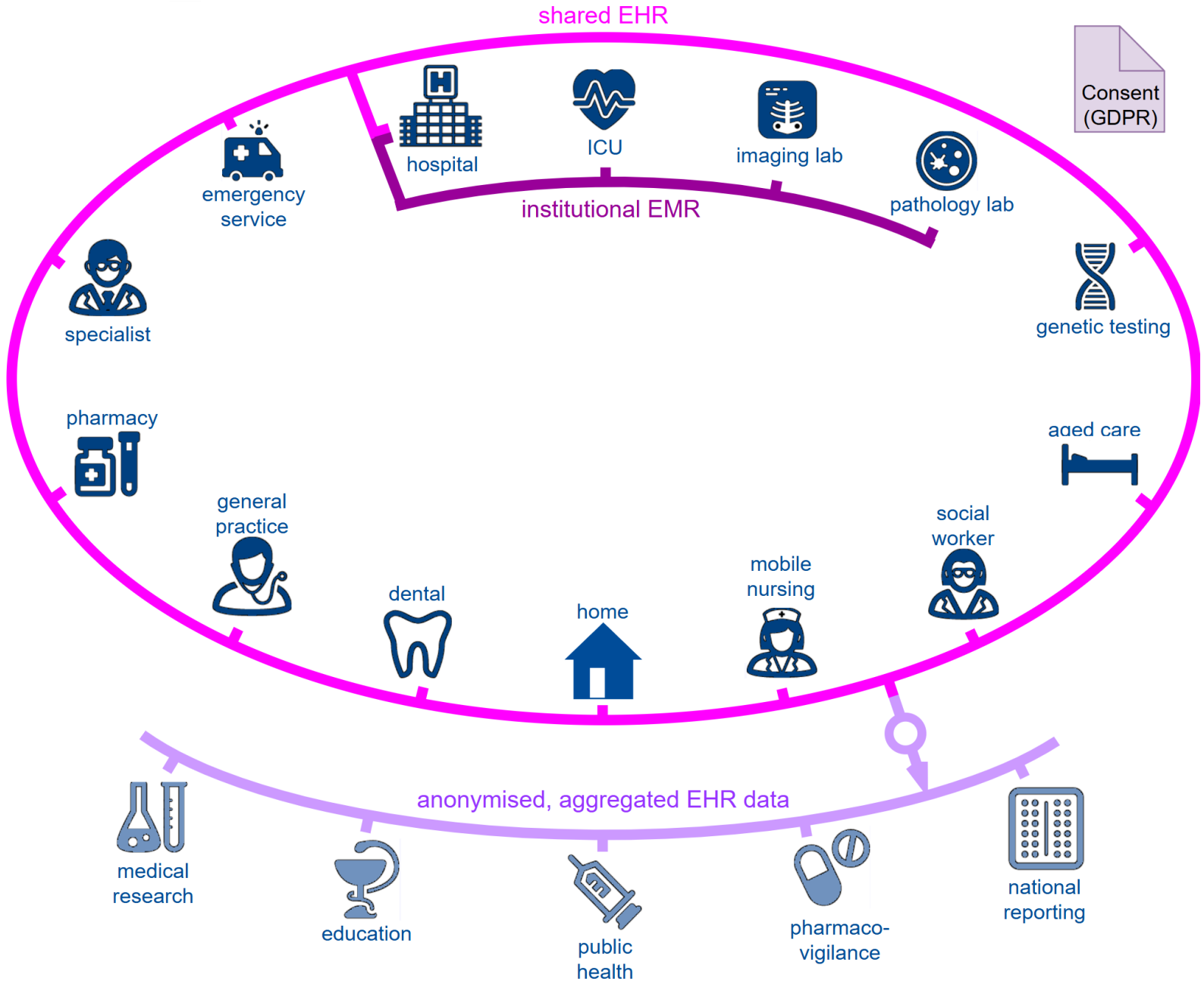
Primary purpose

- openEHR: storage and retrieval of electronic health record data
- FHIR: real-time exchange of healthcare information between different information systems
- OMOP: storage and analysis of harmonized data for large-scale research purposes

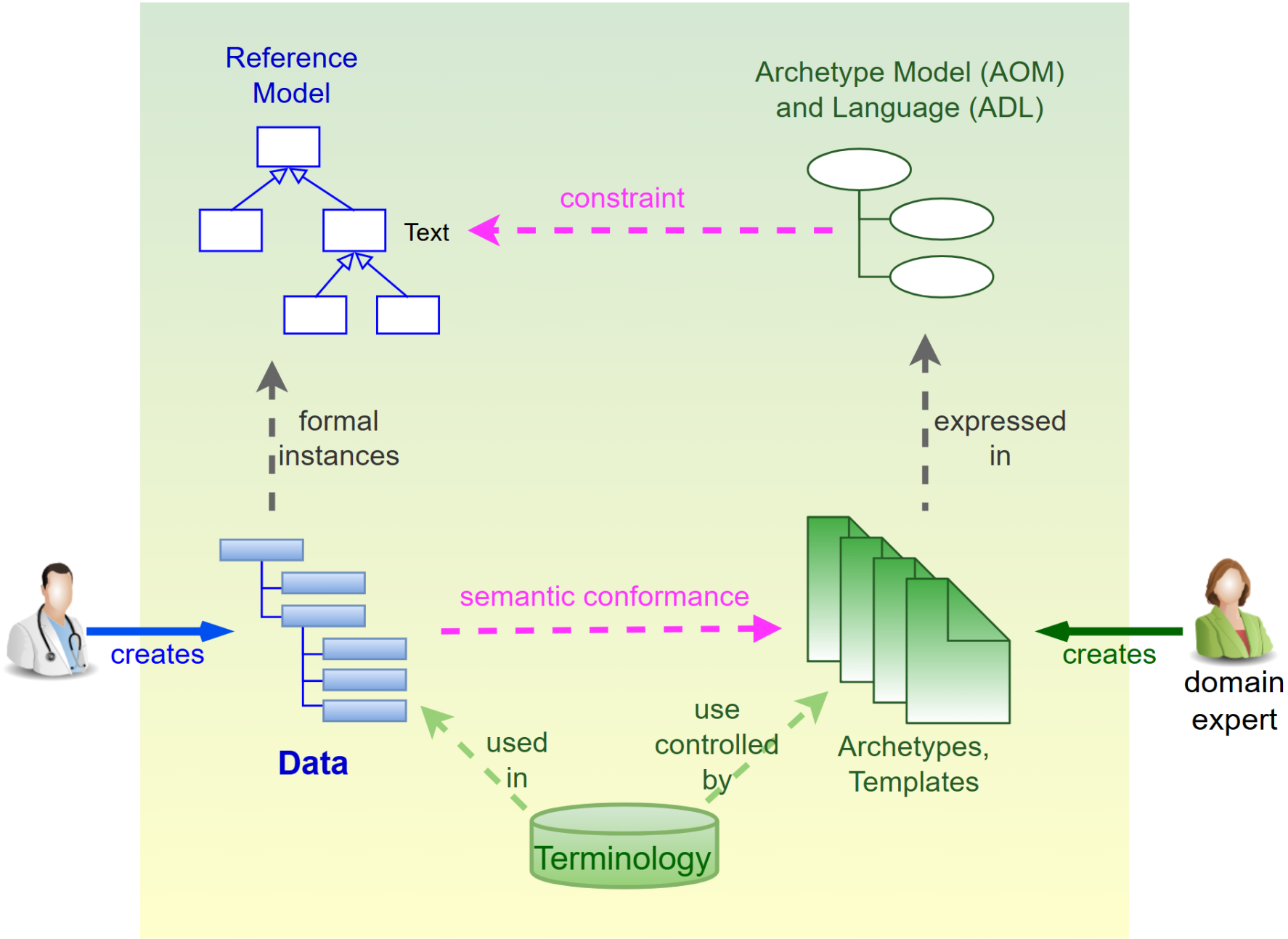
openEHR Sweden

Mikael Nyström

openEHR Sweden



openEHR Sweden



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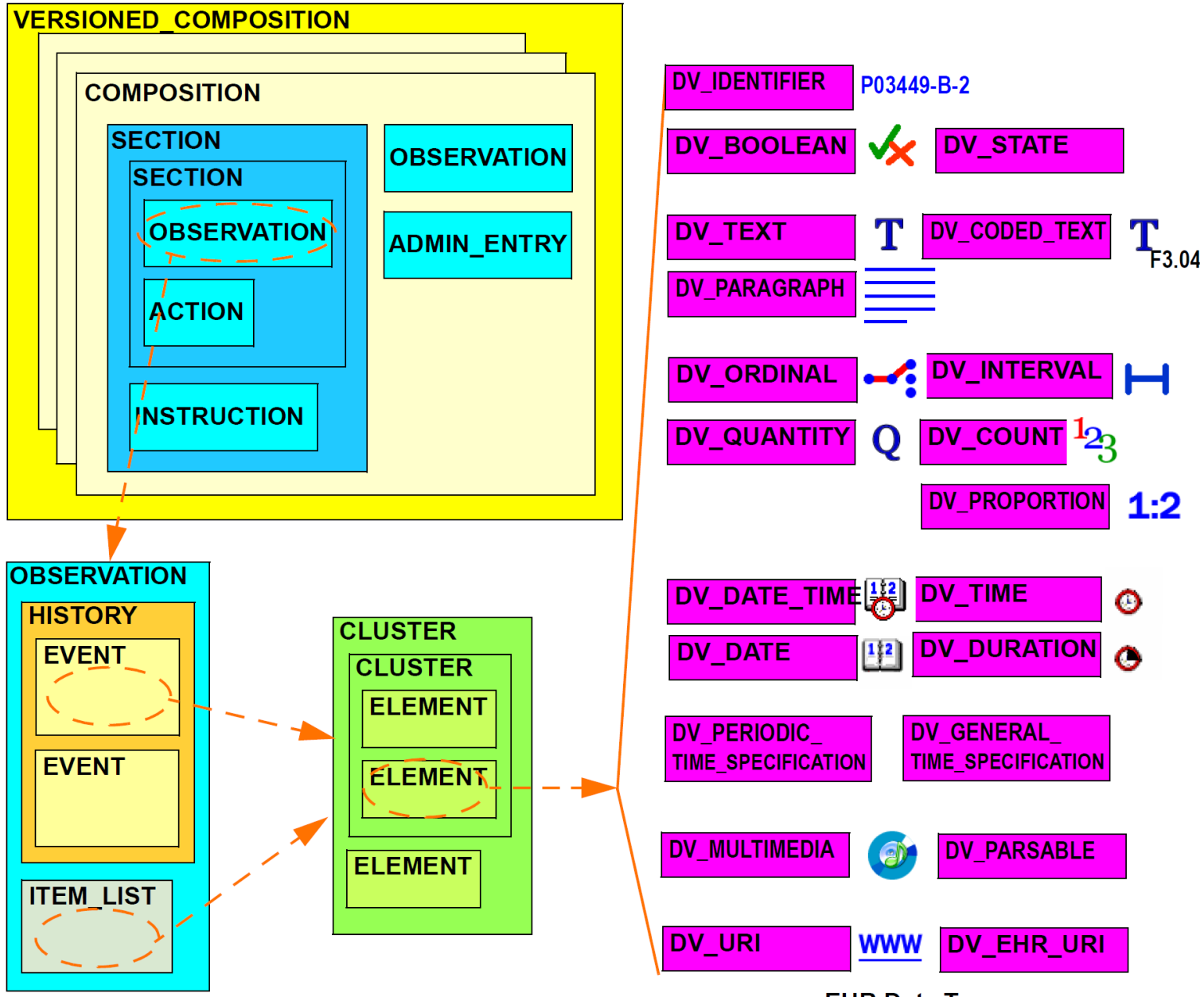
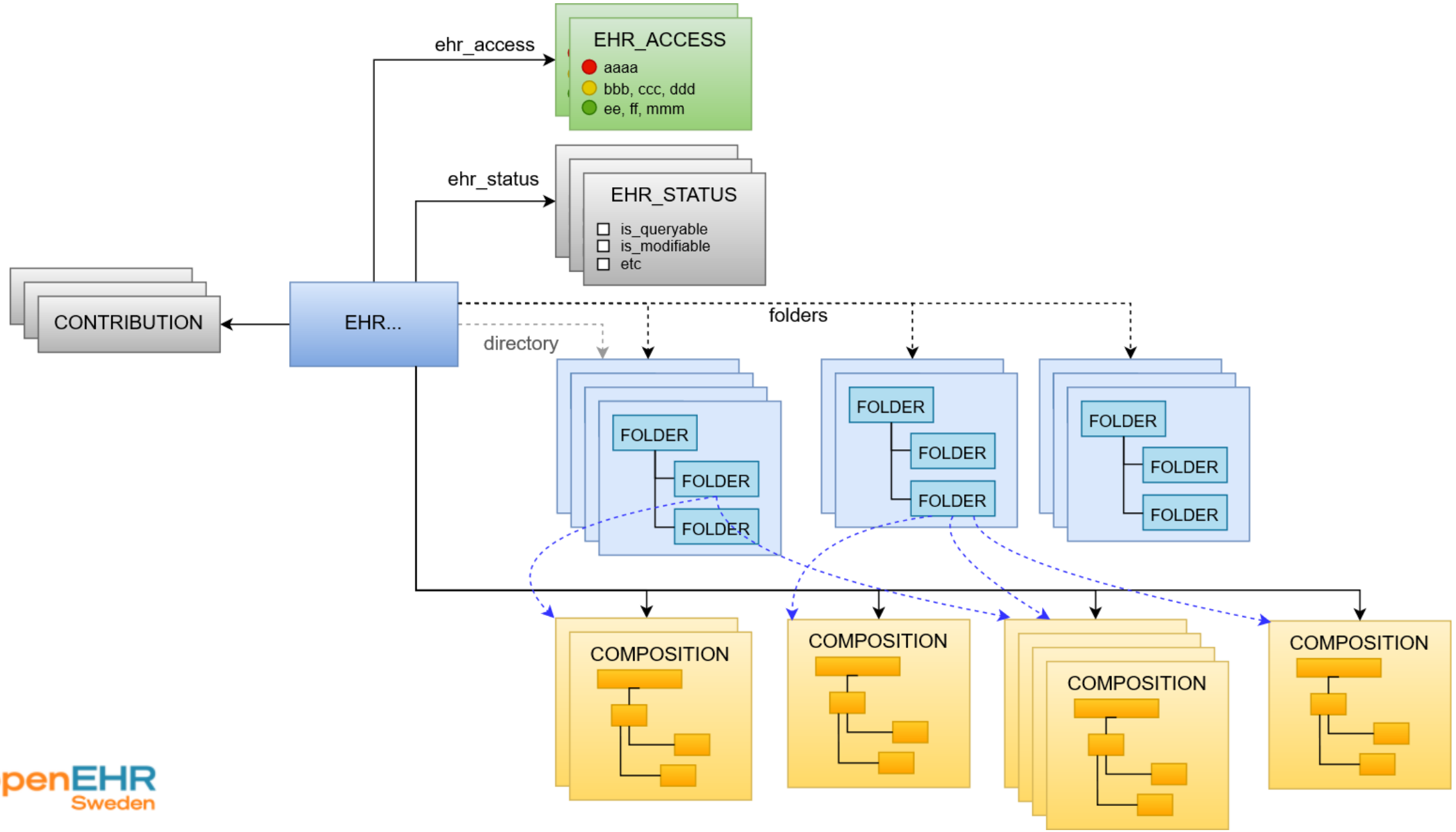


openEHR Data Types

openEHR Sweden

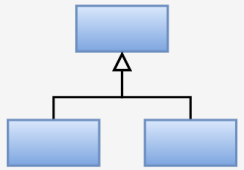


openEHR Sweden

The semantic framework of openEHR

Reference Model

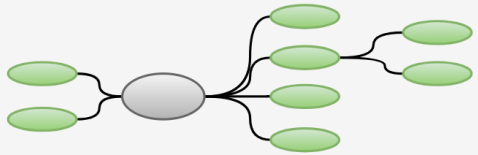
defines **data representation**



+ 150 classes
+ developed by IT experts
+ basis of **syntactic interop**

Archetypes

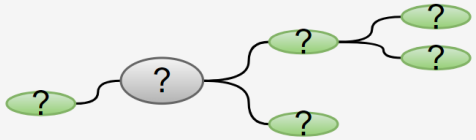
define ***possible*** **content**



+ O(50k) **data points** for medicine
+ developed by domain experts
+ basis of **semantic interop**

AQL Queries

match ***required*** **content**



+ **portable** (archetype-based)
+ developed by specialist users
+ basis of **data use and CDS**

refs

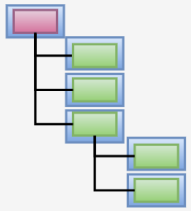
refs

Terminology
Ontology

refs

Templates

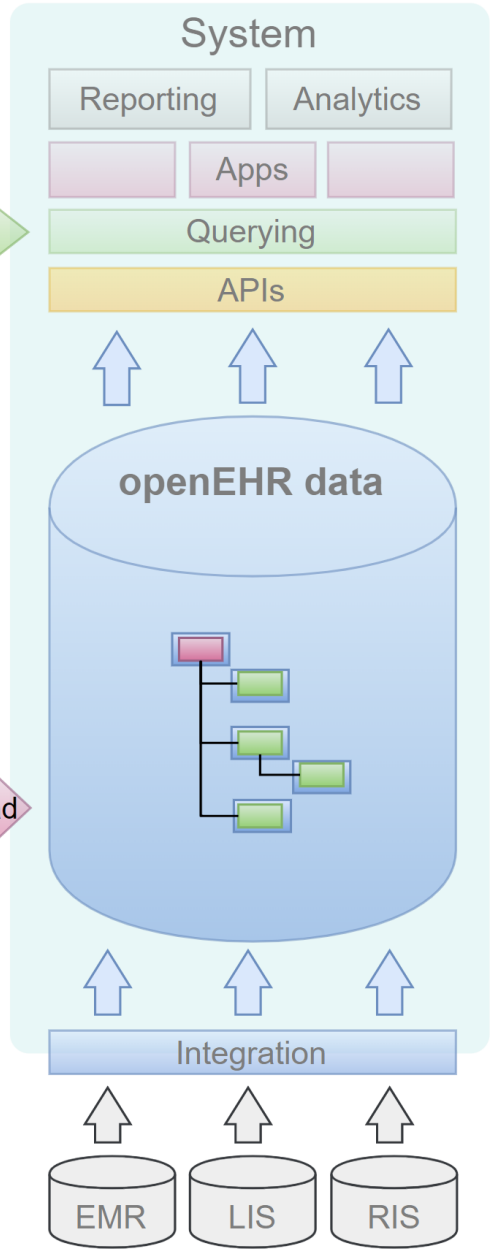
configure ***actual*** **content**



+ unlimited **data sets** for systems
+ developed by local HIT devs
+ basis of **systems development**

use

upload



openEHR Sweden

The semantic framework of openEHR

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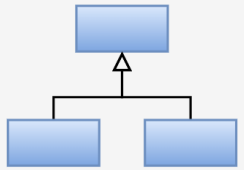

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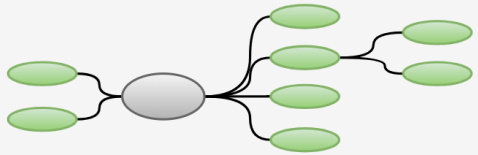

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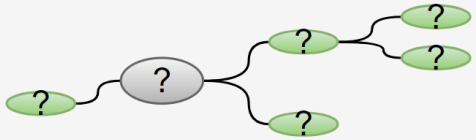

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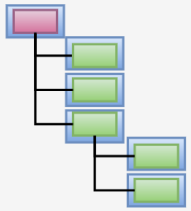

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use

upload

System

Reporting | Analytics

Apps

Querying

APIs

openEHR data

Integration

EMR | LIS | RIS

OMOP CDM

openEHR Sweden