



# National Integrated Services Framework

29-30 October 2013  
Dublin

Part 1

# Workshop 1

## Information Architecture

# Introduction

ERS

Electronic Record Services BV

**The context of this project is:**

Requirements based

facilitation

the **exchange** of

standardised, structured

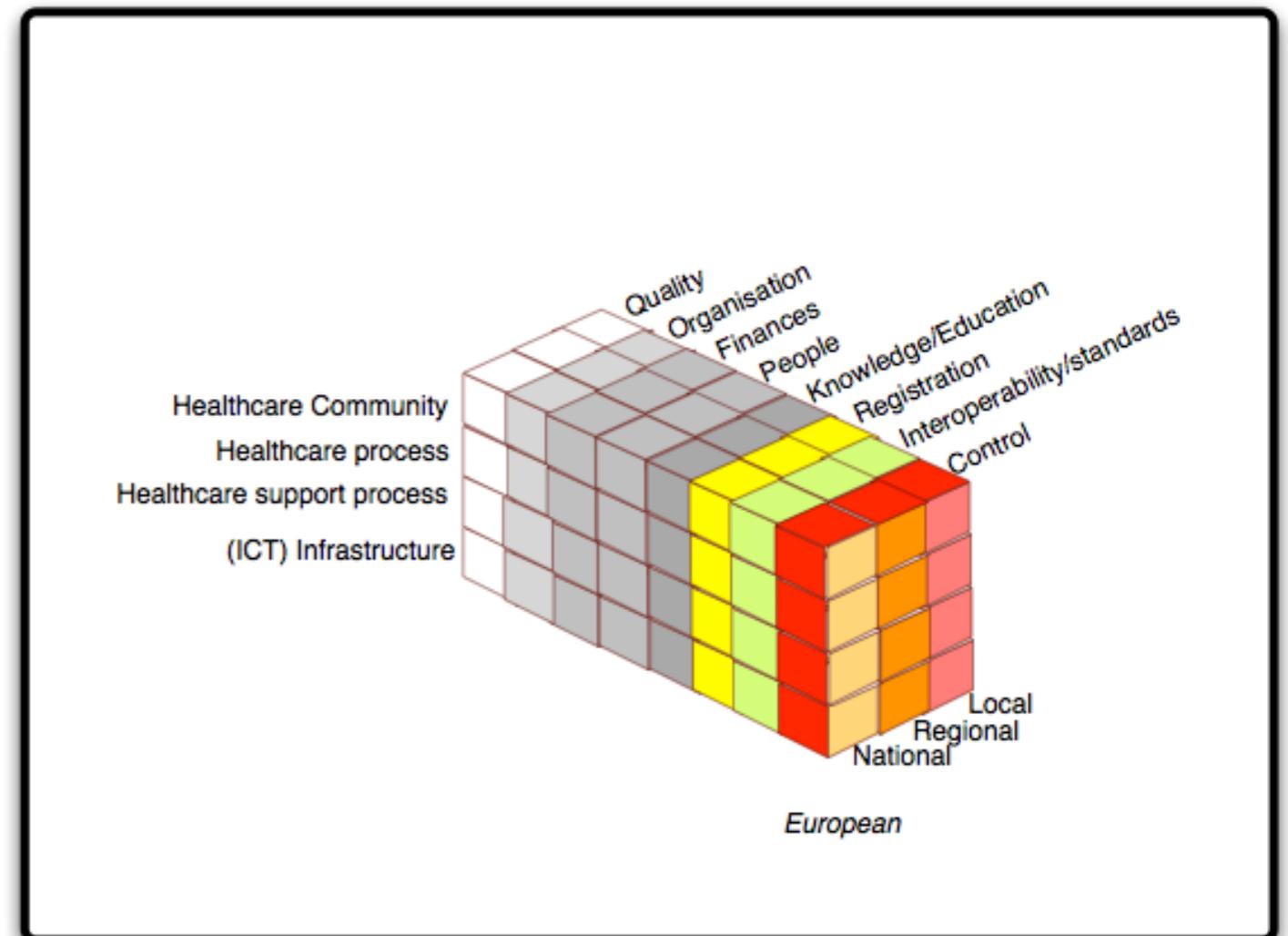
**health** and care **data**

between IT-systems

based on open International standards

# Information Architecture Stakeholders

- Business and Strategy
- Clinical, Safety and Research
- Technical
- Allied Agencies
- others

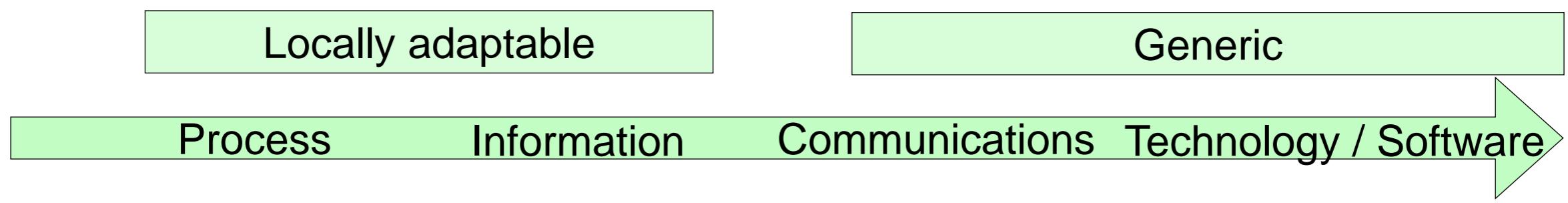


# Introduction

**ERS**

Electronic Record Services BV

## What is important?



**Healthcare is in the lead**

P

I

C

T

**IT is in the lead**

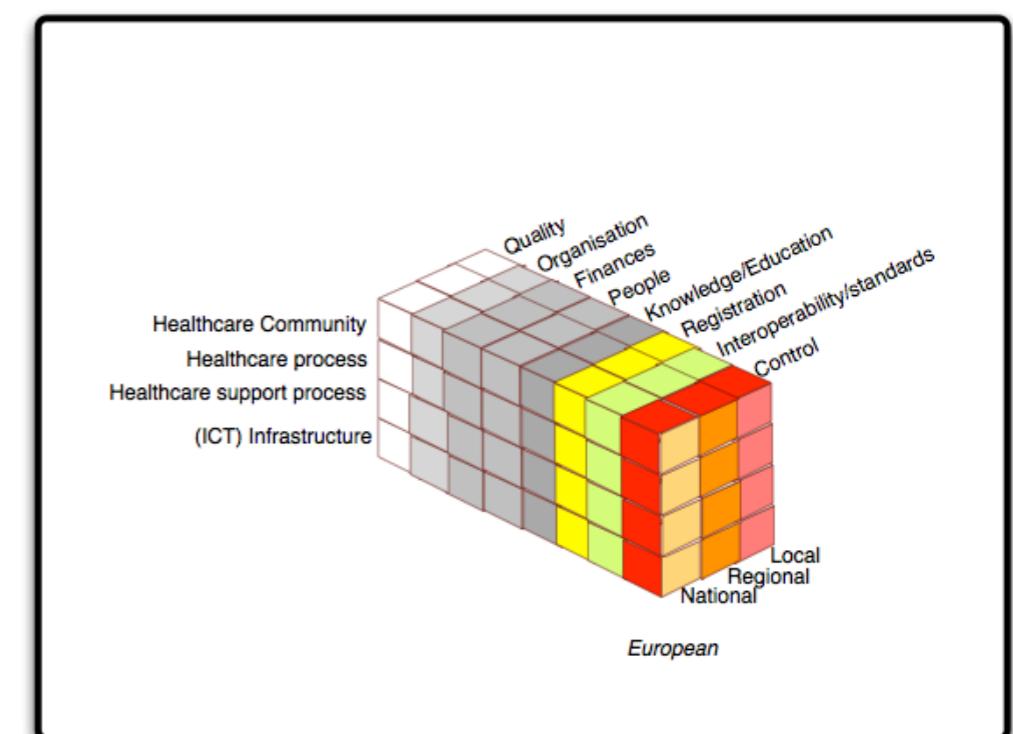


## Complexity

- **IT is complex?**
- **Exchange of data between systems is complex?**
- **Healthcare is complex?**
- **Co-operation in healthcare is complex?**

**How must/can we reduce complexity for:**

- **healthcare providers?**
- **authorities?**
- **IT-industry?**



- **Introduction: Setting the scene**
- **Why Standards**
- **What standards**
- **Exchange of data between systems**
- **Patient Summary: epSOS**

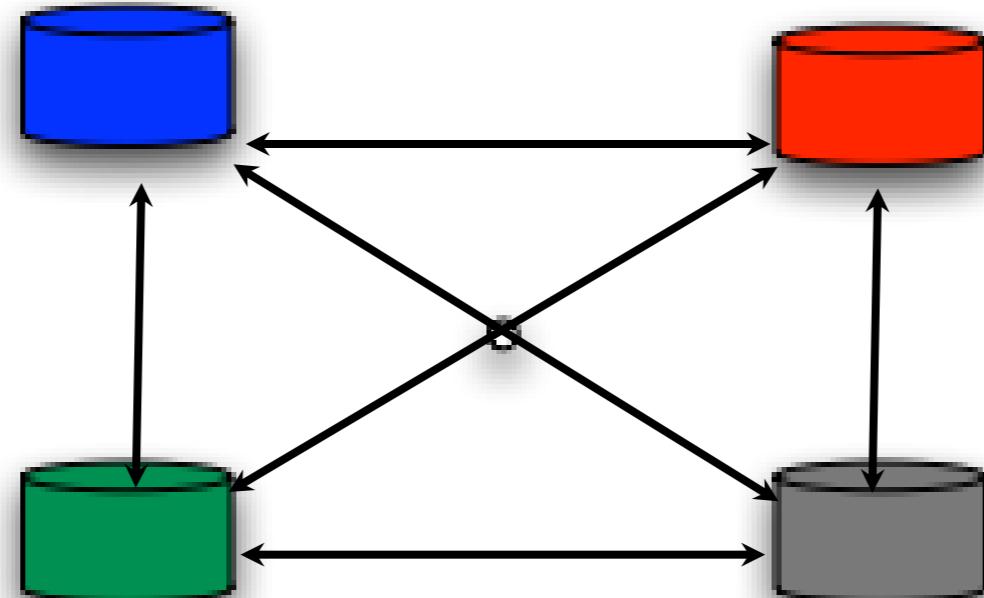
# Why Standards

**ERS**

Electronic Record Services BV

## NO STANDARDS

$$N = n*(n-1) / 2$$



$$n = 100$$

$$N = 100*(99) / 2$$

$$N = 9900 / 2$$

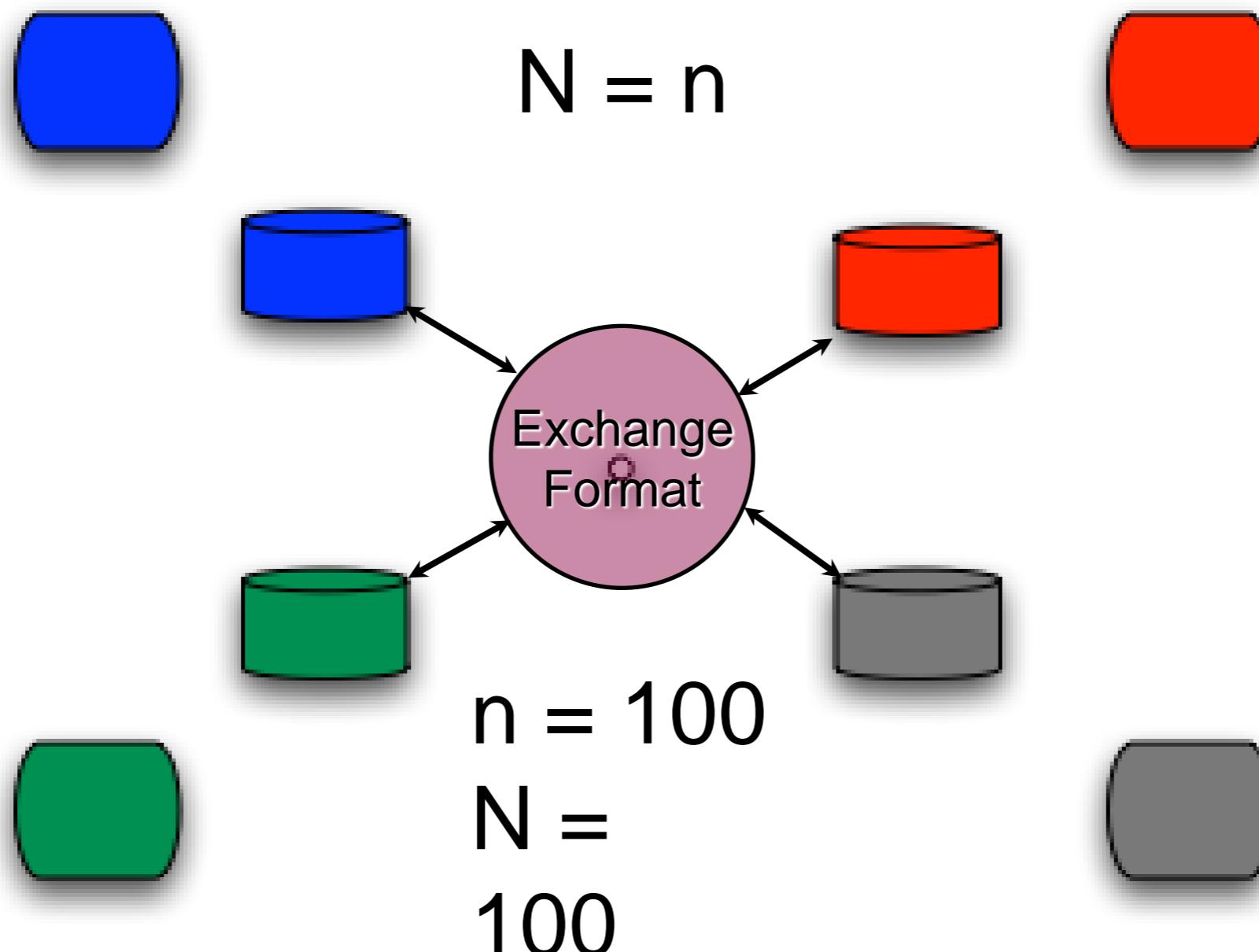
$$N = 4950$$

# Why Standards

**ERS**

Electronic Record Services BV

## EXCHANGE STANDARD



# Why European Standards

**ERS**

Electronic Record Services BV

- **27 European countries**
- **Many cultures, many languages**
- **One united European Community**
- **Free movement of goods, people, money and services**
- **One big competitive European economic space**

# European Standardisation

**European standards play  
a special role:**

- Only National standards derived from European standards can be used in *legislation*
- National and European standards play a role in *procurement*

# European developments



## Directive on patients' rights in cross-border healthcare



Directorate-General for  
Health & Consumers

### The 3 aims of this Directive



1. Help patients to exercise their rights to reimbursement for healthcare received in another EU country

2. Provide assurance about safety and quality of cross-border healthcare

3. Establish formal cooperation between health systems



# European developments



## Directive on patients' rights in cross-border healthcare



Directorate-General for  
Health & Consumers

### 3. Cooperation between health systems

#### ■ Recognition of prescriptions

A prescription issued in another EU country will be more effectively recognised

#### ■ European Reference Networks

They will bring together specialised centres across Europe helping health experts to disseminate information and expertise

#### ■ Health Technology Assessment

A permanent EU structure of cooperation to help decision-makers to make the right decisions on health investment and spending

#### ■ eHealth

A first step towards "interoperability" of ICT for health at EU level for safety and quality of care, continuity of care, and health research



# European developments



## Directive on patients' rights in cross-border healthcare



### The legislative process

- **Adoption** of the Commission proposal: 2 July 2008
- **First reading:** July 2008 - September 2010
- **Second reading:**
  - 19 January 2011: Vote in Parliament
  - 28 February 2011: Formal adoption of the Council
- **Publication in the Official Journal:** 4 April 2011
- **Entry into force:** 24 April 2011

# European developments



## Directive on patients' rights in cross-border healthcare



Directorate-General for  
Health & Consumers

### The transposition process

- **Transposition period:** 30 months (**25 October 2013**)
- **Bilateral discussions** with 27 Member States (MS):
  - COM **questionnaire** on the transposition of the measures provided for in the Directive (May – October 2011)
  - COM bilateral **visits** in all 27 MS (2011 – 2012) to discuss particular issues related to transposition
- **Committee on Cross-Border Healthcare**
  - Formal forum created by the Directive where all 27 MS will meet regularly to vote on implementing acts and discuss general issues linked with the transposition of the Directive.

# European developments



EUROPEAN  
COMMISSION

Brussels, 6.12.2012  
COM(2012) 736 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

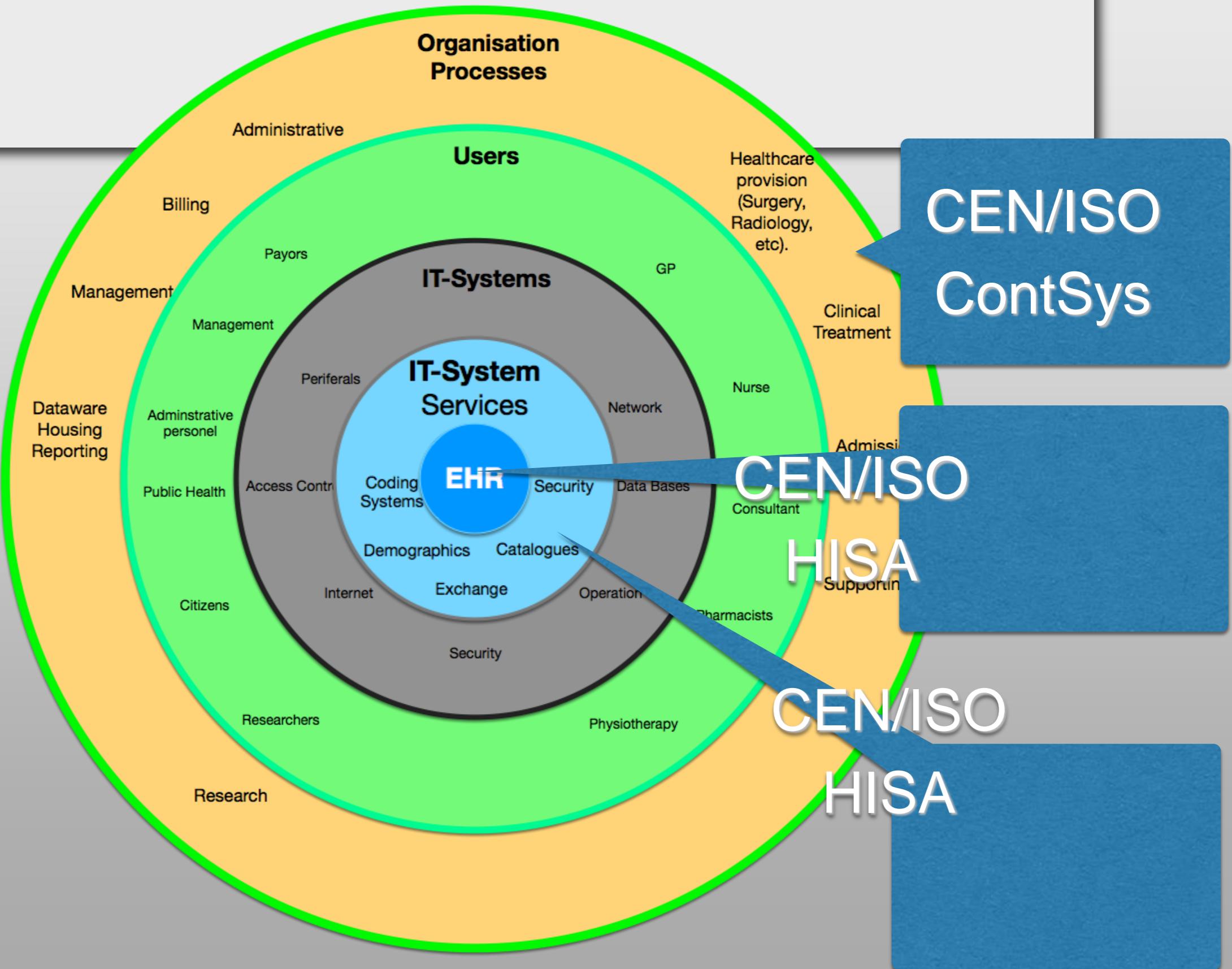
The European Commission's

## eHealth Action Plan 2012-2020

provides a roadmap:

- to empower patients and healthcare workers,
- to link up devices and technologies, and
- to invest in research towards the personalised medicine of the future.

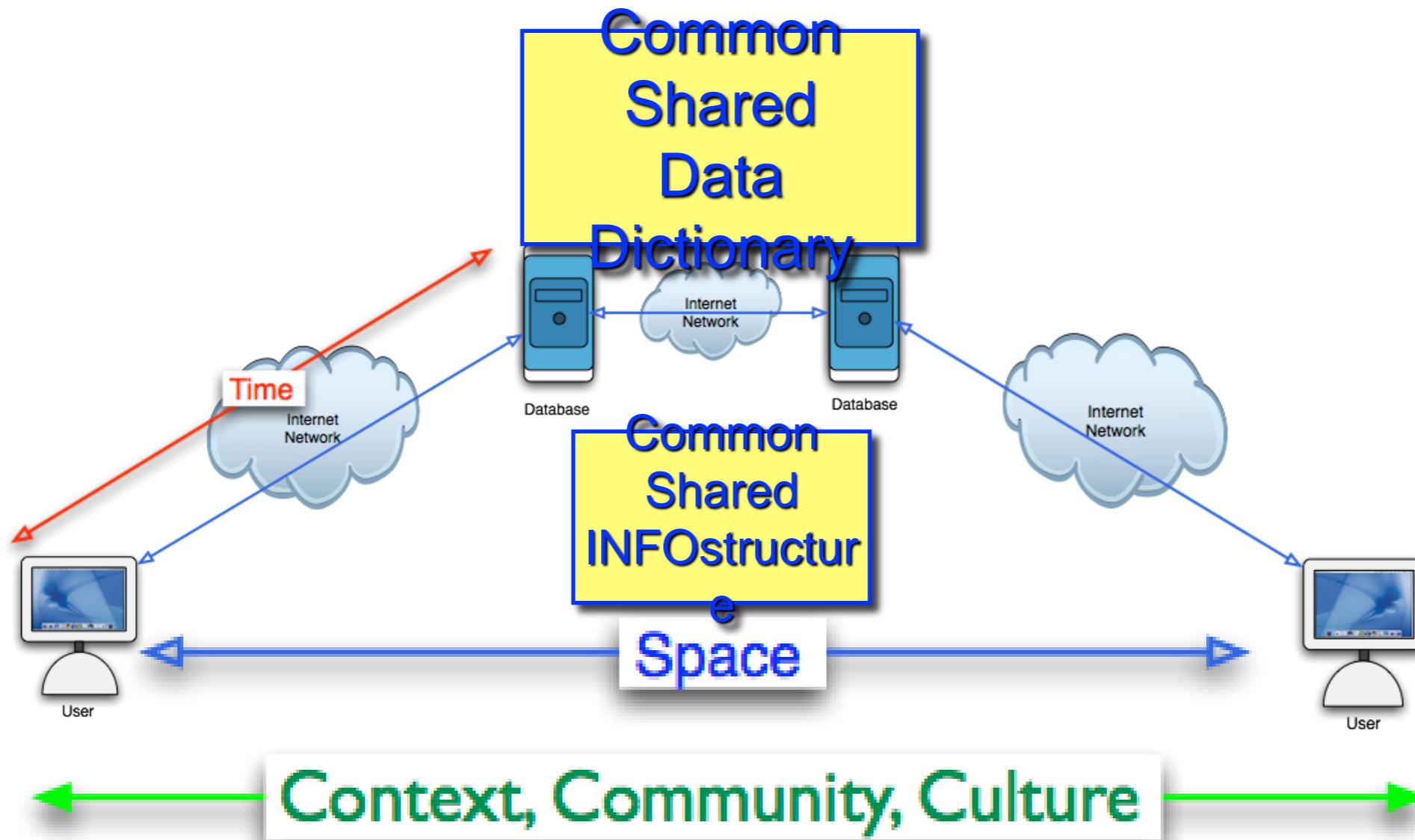
# CEN/ISO ConcurrentUSe



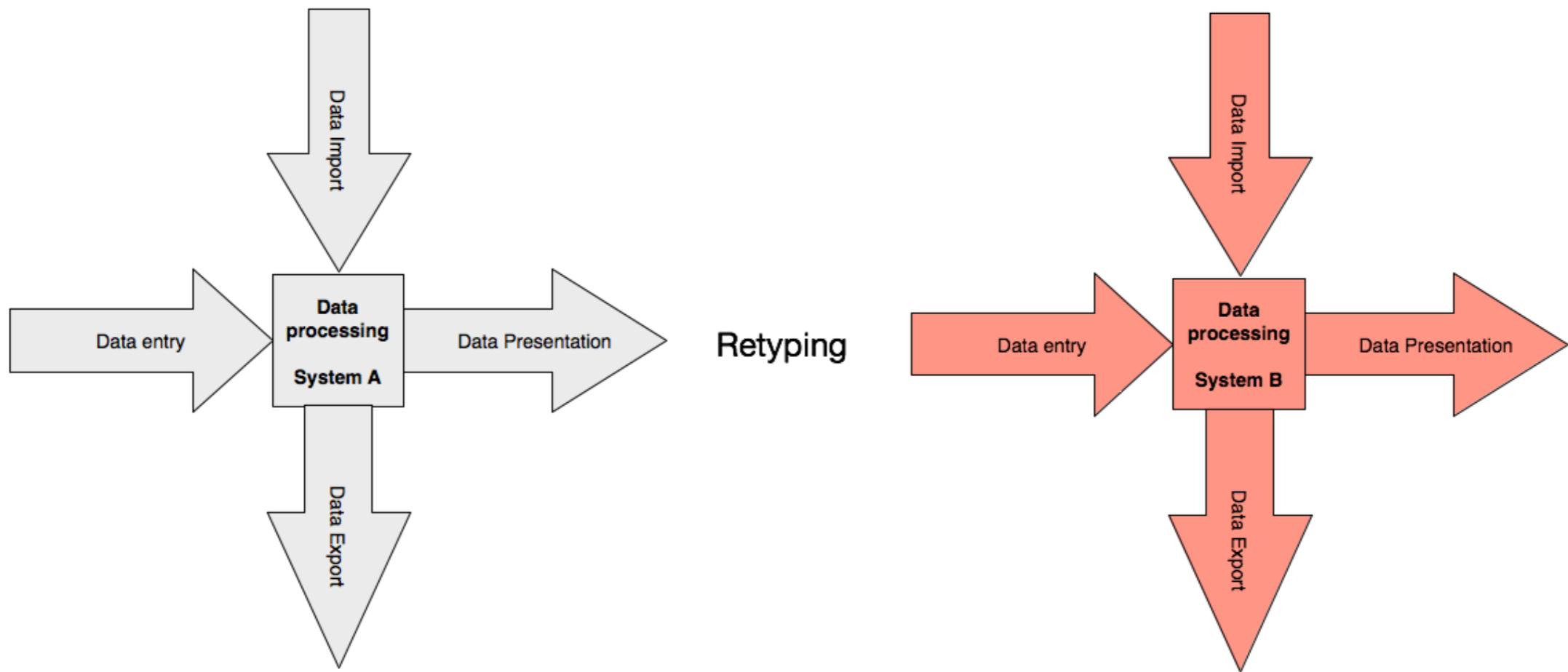
# WHAT Exchange of Data

ERS

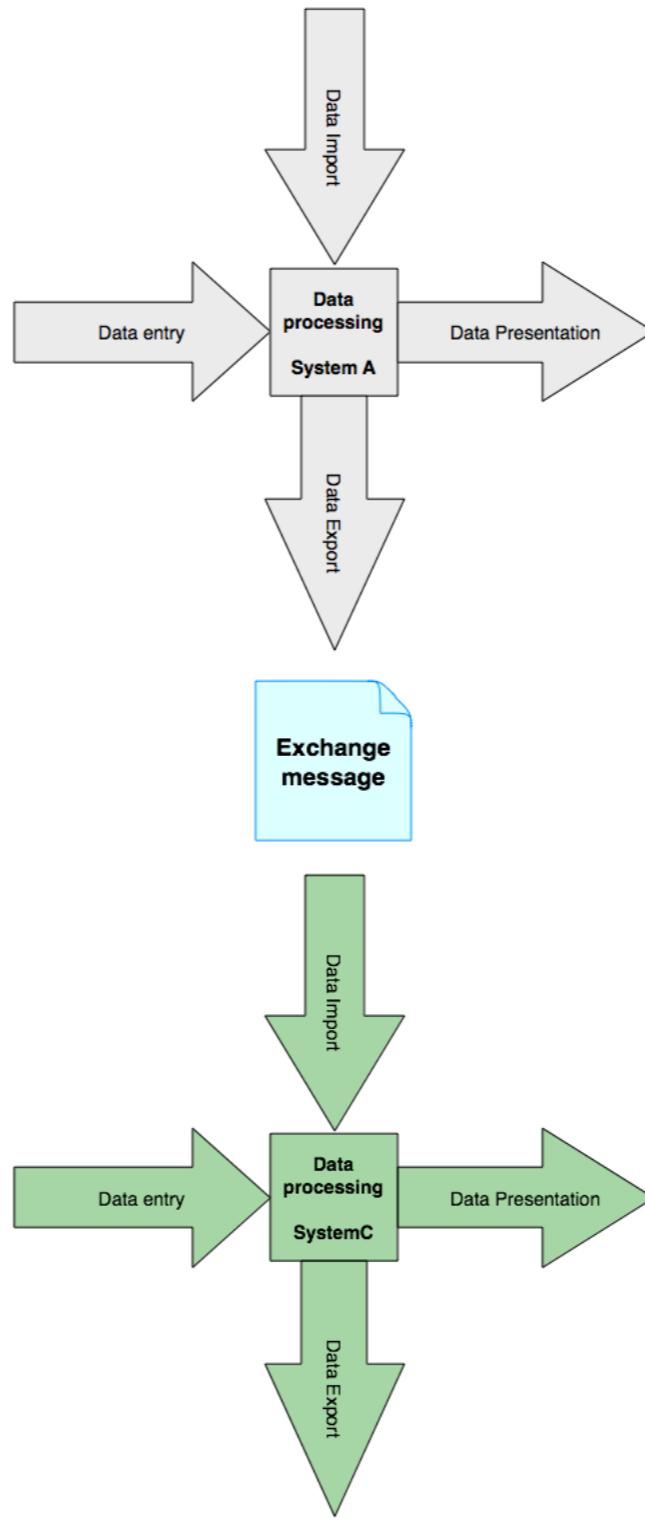
Electronic Record Services BV



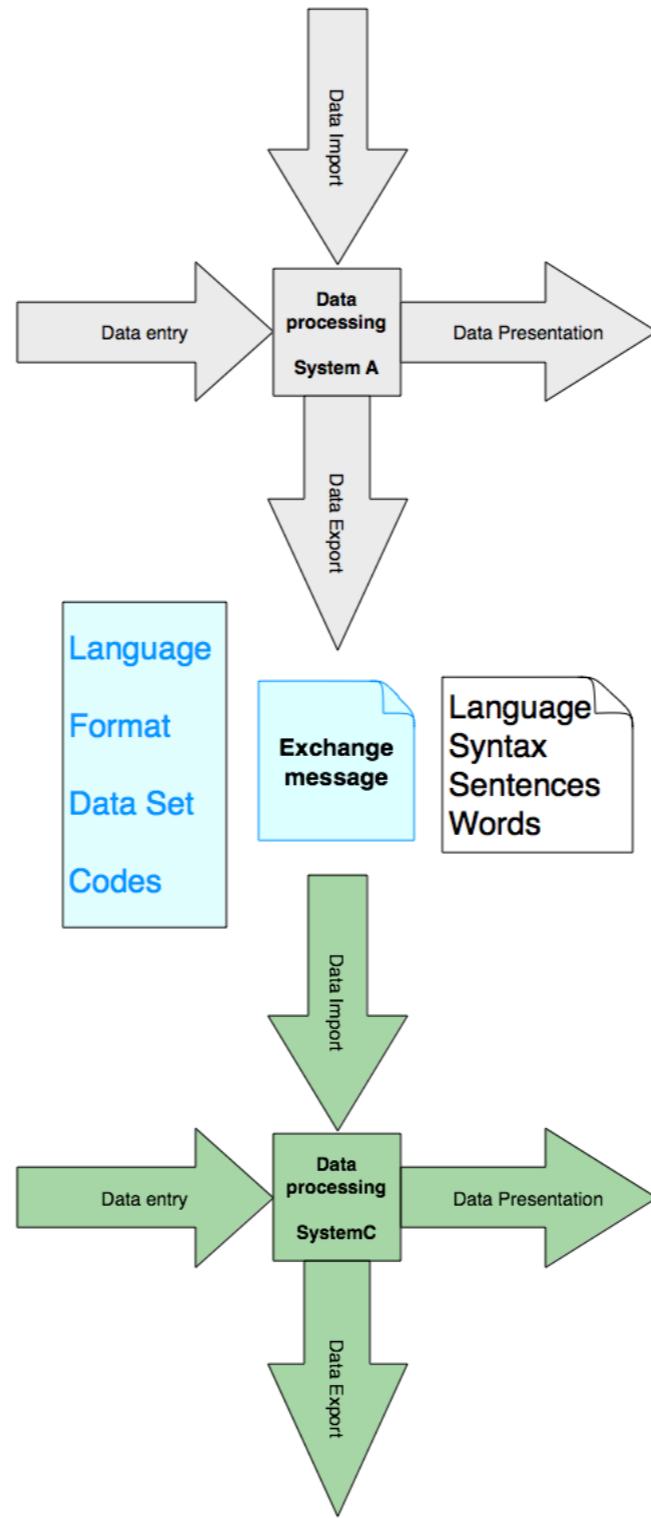
# What Standards for IT-System Data Exchange



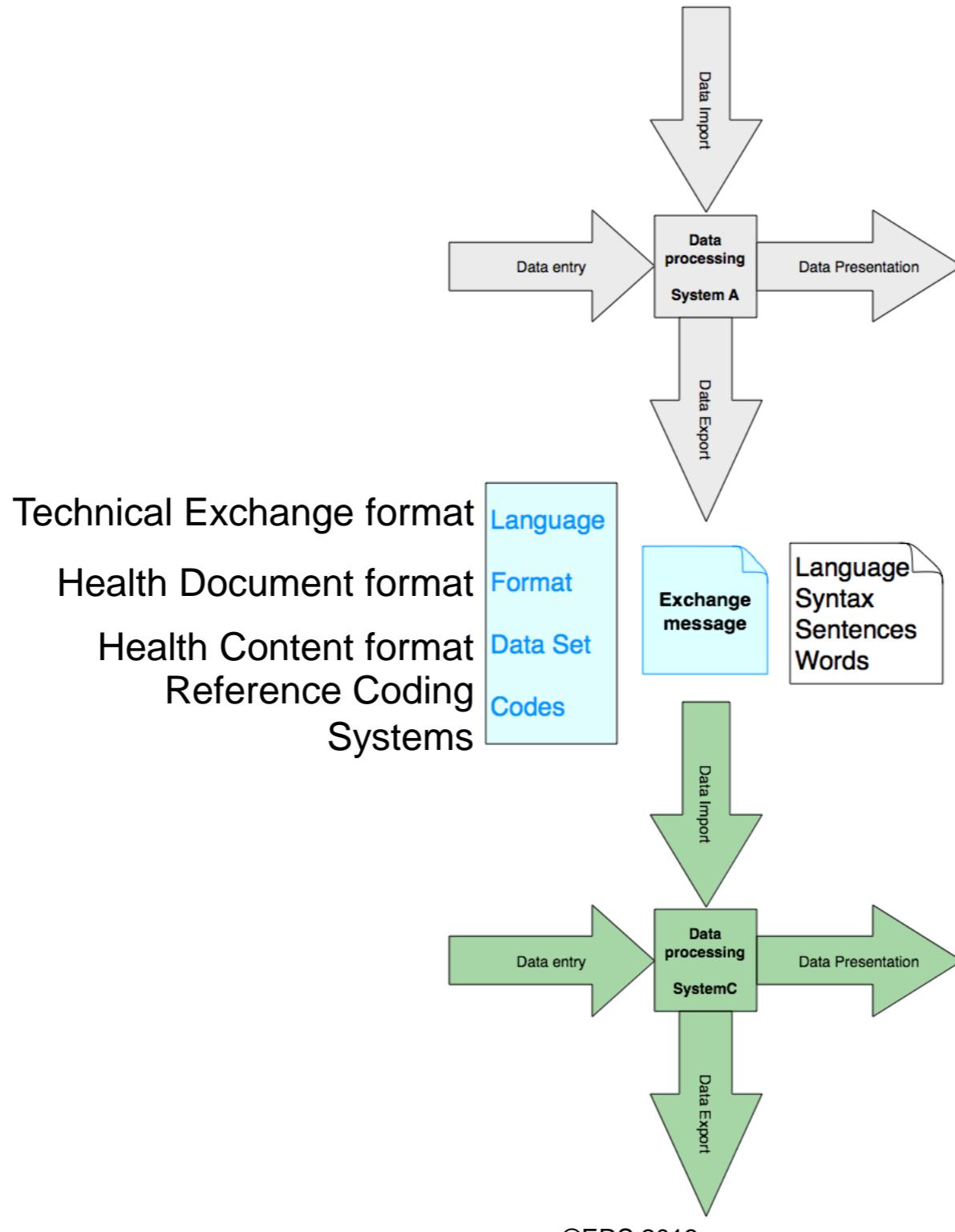
# What Standards for IT-System Data Exchange



# What Standards for IT-System Data Exchange



# What Standards for IT-System Data Exchange

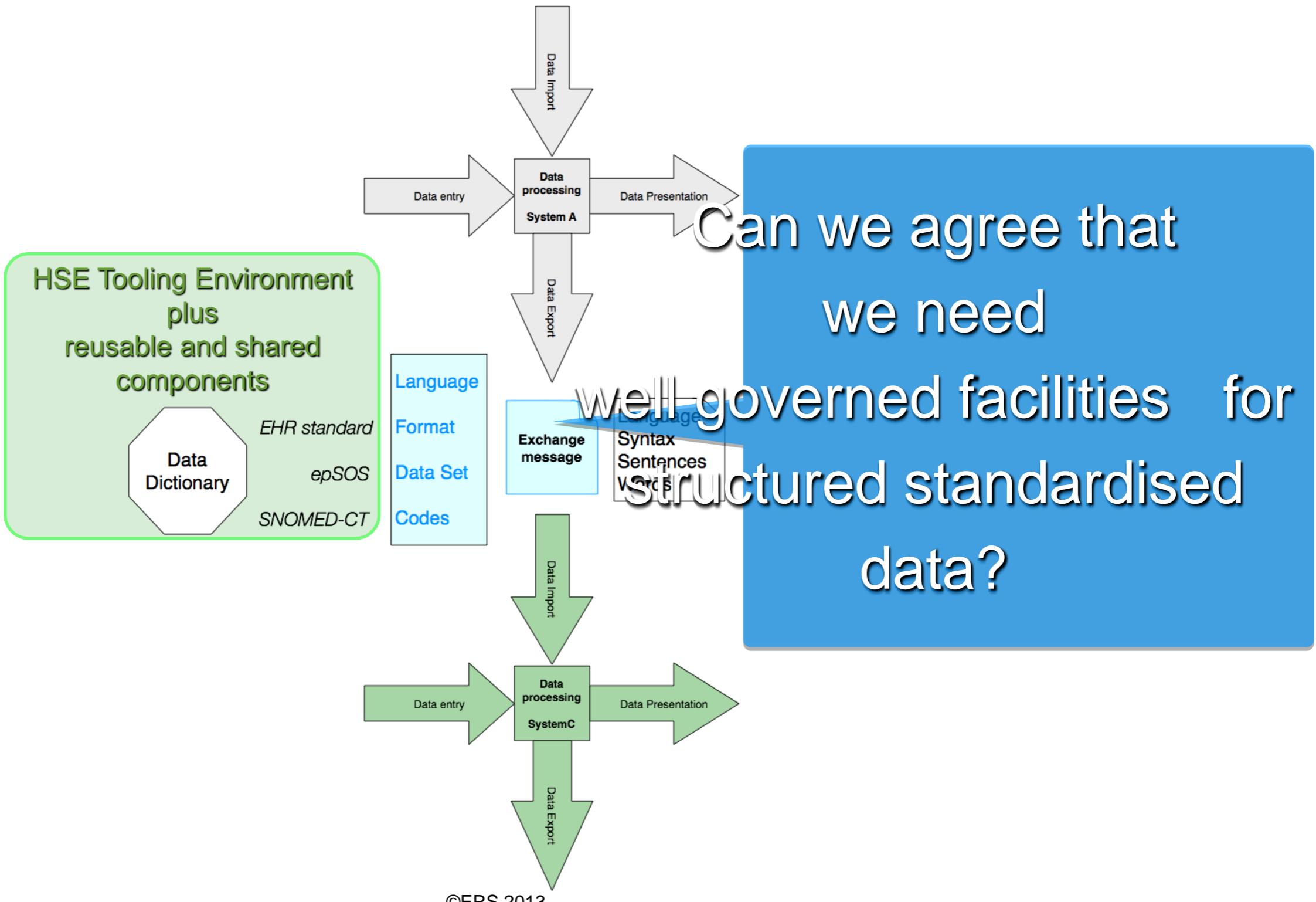


All these are part of  
the Information  
Model

# What Standards for IT-System Data Exchange

ERS

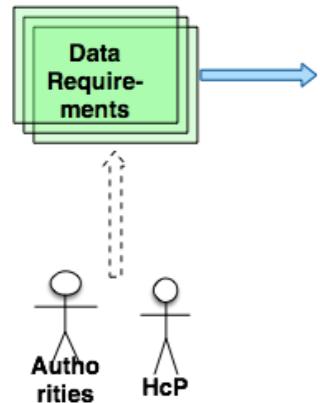
Electronic Record Services BV



# Benefits

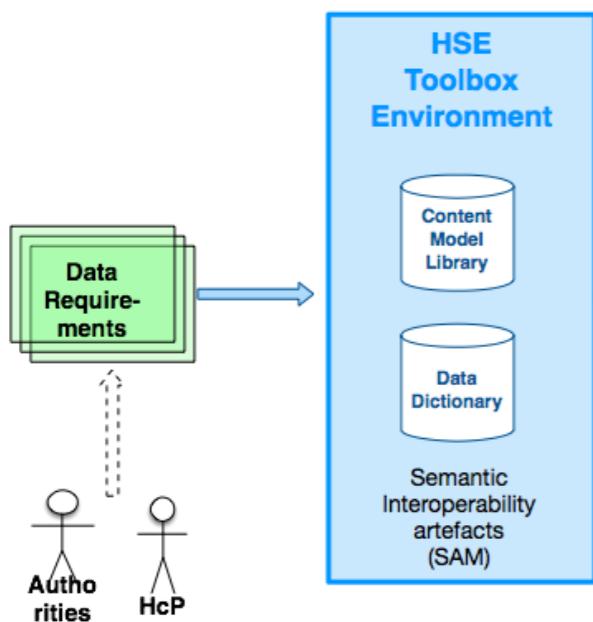
**ERS**

Electronic Record Services BV



Co-operating Stakeholders  
define Data Sets they need

## The HSE Tooling Environment operated by a Health Information Expert:



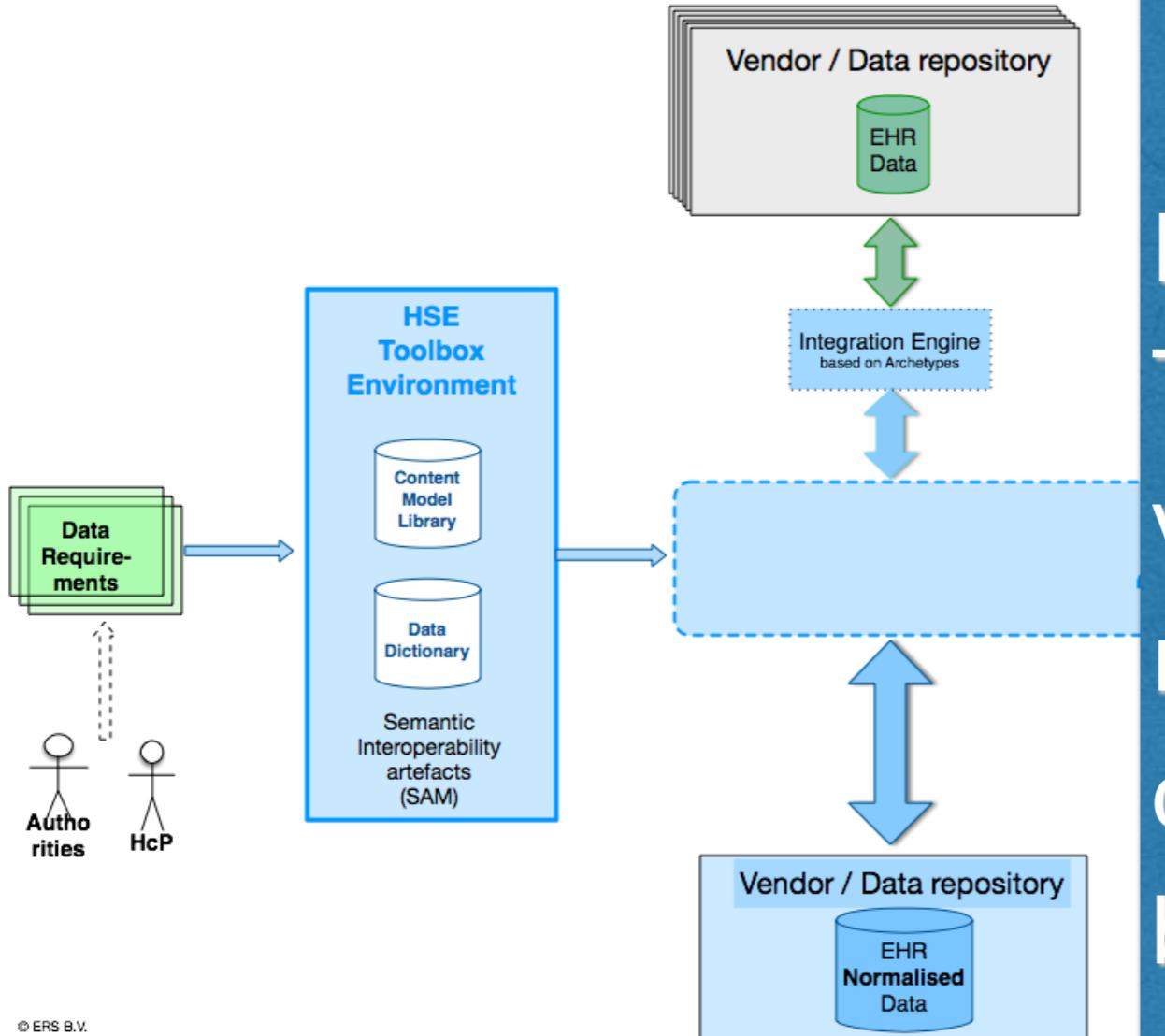
© ERS B.V.

1. Content Models
2. Content Model Editor
3. Codes from a Reference Coding system (SNOMED-CT) attached
4. Data Dictionary with precise curated definitions

# Benefits

ERS

Electronic Record Services BV

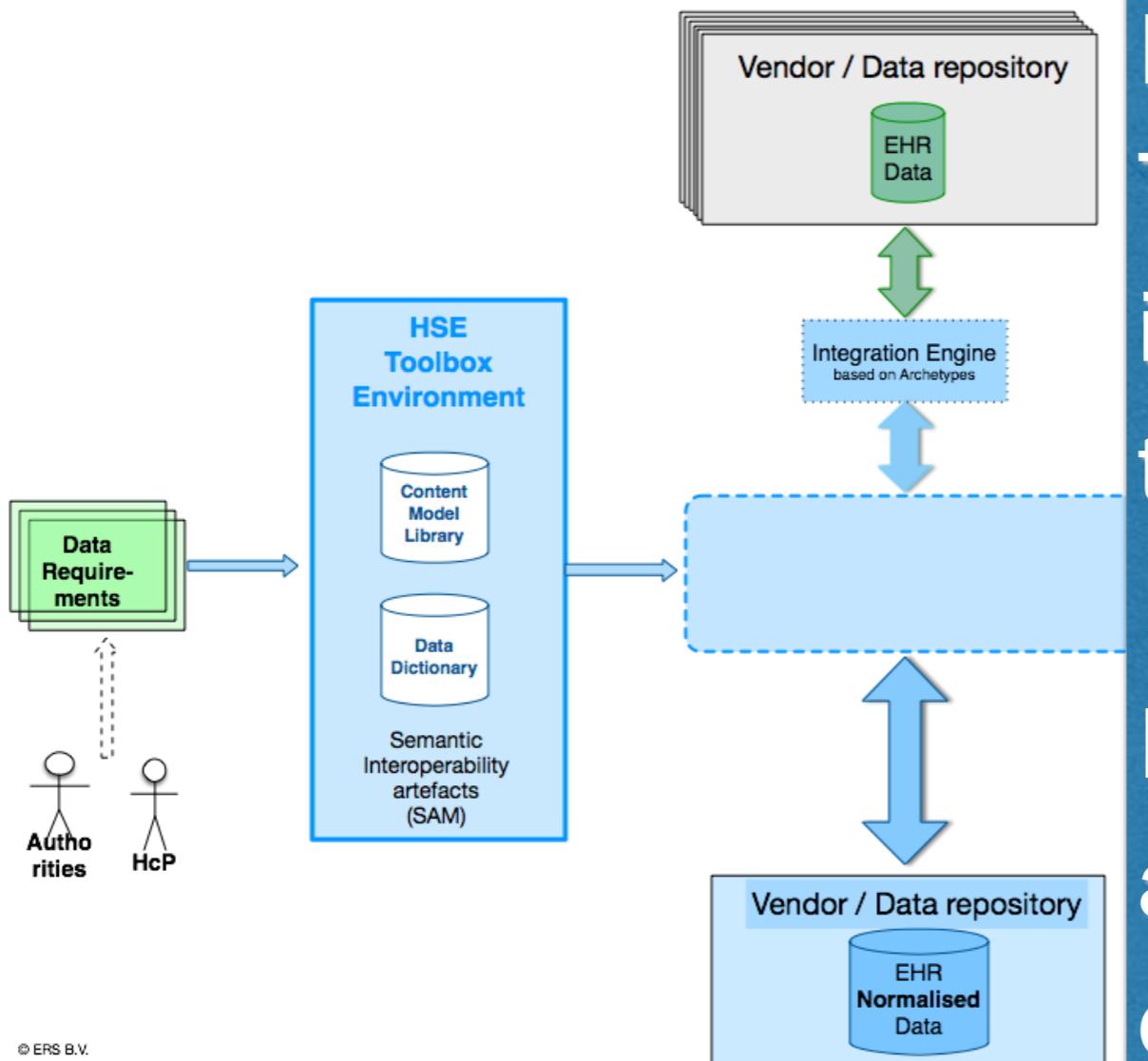


**Possibilities:**  
The vendors can be informed via procurement about requirements and about the data set the IT-system must be able to support

# Benefits

ERS

Electronic Record Services BV



© ERS B.V.

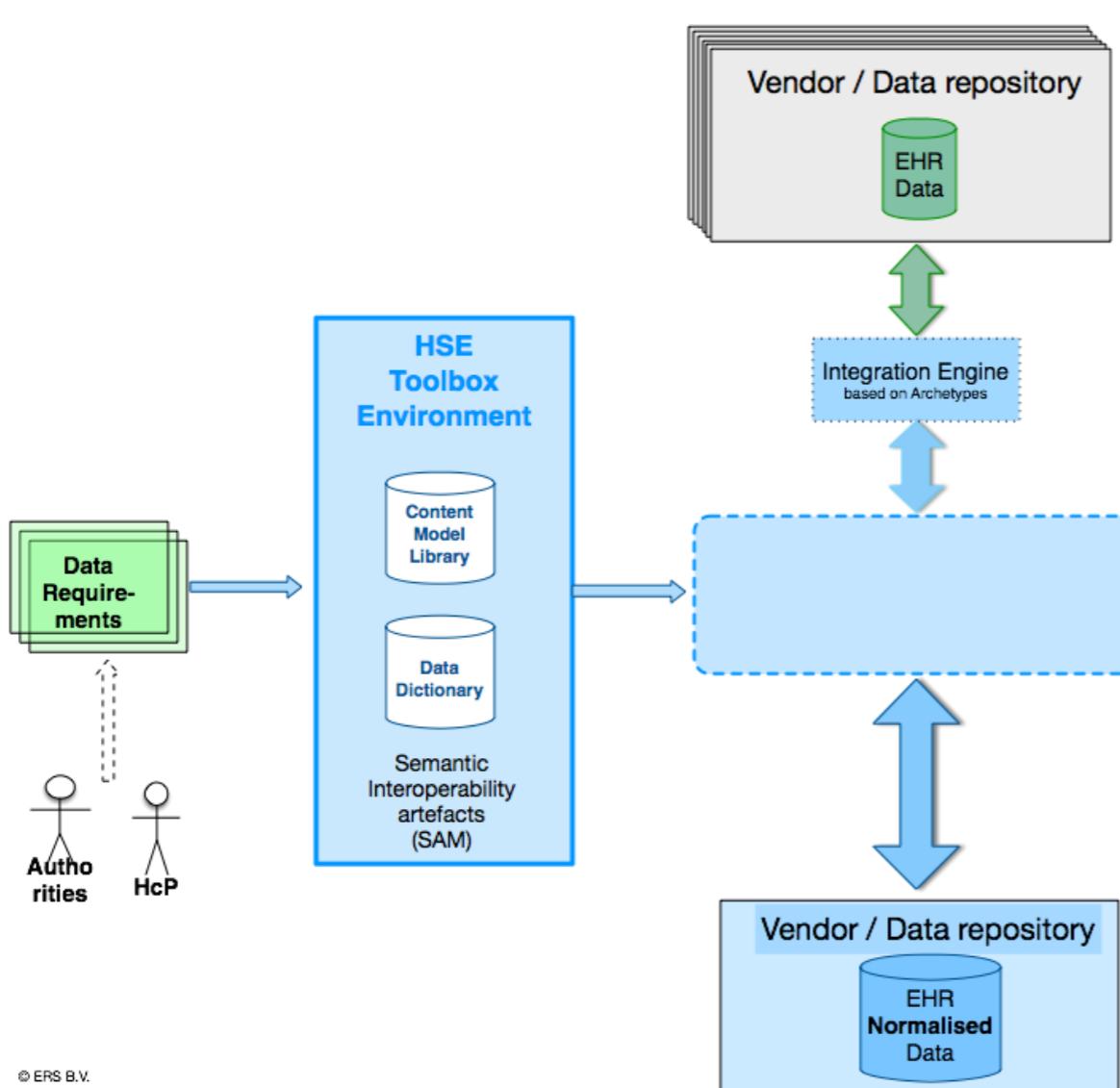
Possibilities:  
Tools exist that help  
integration of legacy systems  
to the HSE INFOstructure

In the future IT-systems that  
are conformant to standards  
do not need  
the Integration support

# Benefits

ERS

Electronic Record Services BV



© ERS B.V.

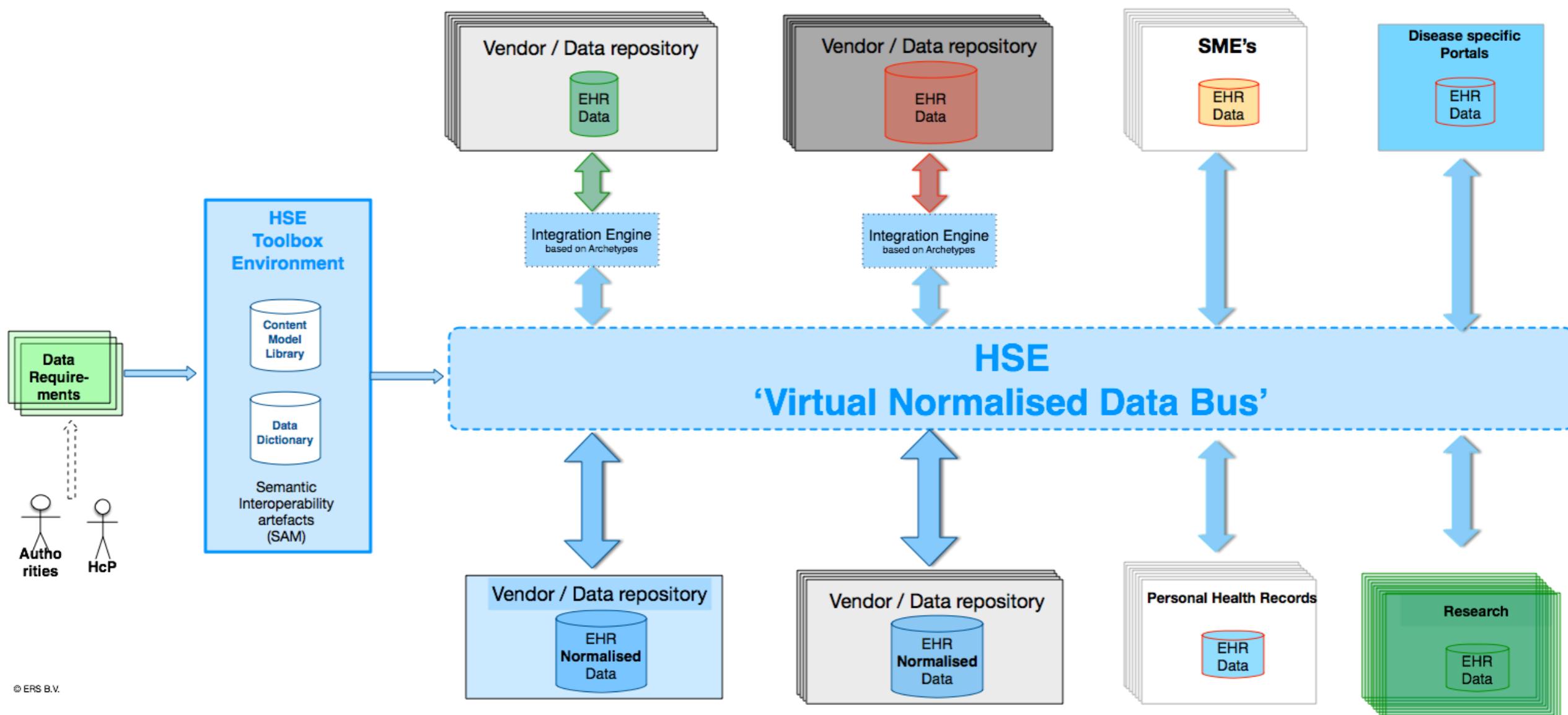
Because of the HSE Tooling Environment and re-usable components an ecosystem can emerge that encompasses:

1. Personal Health Records
2. Disease portals
3. Registries
4. eHealth Apps
5. Research
6. Reporting

# Benefits

ERS

Electronic Record Services BV



© ERS B.V.

# Data sets Subject Area Models

**ERS**

Electronic Record Services BV

(for screens, reports, exchange, etc.)

- **Health care stakeholders need to define their data requirements (data set)**
- **Each group will have its own requirements**
- **Each group must be able to construct its own data set and validate it**
- **Co-operating partners will have their own data sets as defined as part of the co-operation contract**
- **Each IT-vendor must be able to support every, and ever changing, data set inside and between the IT-systems**

**Can we agree upon these principles?**

# Data Sets and Use Cases

**ERS**

Electronic Record Services BV

- Use cases provide the context for the Data Sets as the Subject Area Model (SAM).
- In the present project we will construct a demo using the epSOS Data Set.
- In another project, for example, the Diabetes Use Case and Data Set can be selected as SAM to be deployed in real life.

Irish Standards Based Diabetes Core dataset for Primary Care							
Data Set Element	Comment	Formal Name	Type & Latency	Description	Parameter	Definition	Field No
1	Demographic Data	Practice name	n/a	IMC Practice Code 27527 Format	6 Digit Practice Code	The GP practice name is received from the Health Atlas Directory.	
	Demographic Data	Practice Identifier	n/a	IMC Practice Code 27527 Format	6 Digit Practice Code	The GP practice code is received from the Health Atlas Directory.	
	Demographic Data	Principal treating hospital identifier	n/a	IMC Practice Code 27527 Format	8 Characters	The Hospital Identifier code is received from the Health Atlas Directory.	
	Demographic Data	GP IMC code	n/a	IMC Practice Code 27527 Format	6 Digit Code	The GP IMC code is the personal identification number issued to each doctor by the Irish Medical Council permitted approval to practice medicine within the Irish Republic.	
	Demographic Data	GP GMS number	n/a	GMS Practice No. 27527 Format	6 Digit Code	General Practitioners (GPs) provide services to medical card holders in Ireland free of charge. Those GPs in the Primary Care Re-Imbursement Service (formerly known as the 'General Medical Services') scheme enter into contracts with Health Service Executive (HSE) Areas to provide services. The PCRS / GMS number of the GP should be entered in this field.	

## Goal: Cross border

- “to develop a practical eHealth framework and ICT infrastructure that will enable secure access to patient health information, particularly with respect to a basic patient summary and ePrescription, between European healthcare systems.”

## PILOT OPERATION

### Patient Summary

- access to important medical data from the patient's home country when receiving treatment abroad

### ePrescription and eDispensation services

- access to an individual's ePrescription from the home country  
ePrescribing: electronic prescribing of medicine using software to transmit the prescription data to the pharmacy
- dispensing: electronic retrieval of an ePrescription, the dispensing of the medicine to the patient and the submission of an electronic report

# epSOS Data Set

## Patient Summary

**ERS**  
Electronic Record Services BV

### General Information

- Name, birth date, gender, identification, address, contacts, insurance

### Medical Summary

- Alerts (allergies, vaccinations), current medical problems, medical implants, major surgical procedures during the last 6 months, treatment recommendations, list of current medications, life style, pregnancy, physical findings, blood group

### Other information

- When and by whom generated, updated, etc.

Each disease is unique

**ONE LANGUAGE**

Each patient is unique

used by all

Each healthcare provider is unique

when all need to collaborate

Each health organisation is unique

and need to exchange data

Each process is unique

# Questions?



Electronic Record Services B.V.

# National Integrated Services Framework

28-29 October 2013

Part 2

- **Recapitulation**
- **HSE Tooling Environment**
- **Re-usable Components**
- **Why a Data Dictionary**
- **What are the benefits**
- **Summary**

## National Integrated Services Framework

- Exchange of health and care standards based structured data for primary and secondary (re-)use
- Health, Care and Management requirements based
- Health, Care and Management process driven
- HSE Tooling Environment plus re-usable common components
- Based on existing open International standards
- Usable in IT-systems procurement
- Evolutionary change process, gentle migration

# Example Use Case Child Health Care

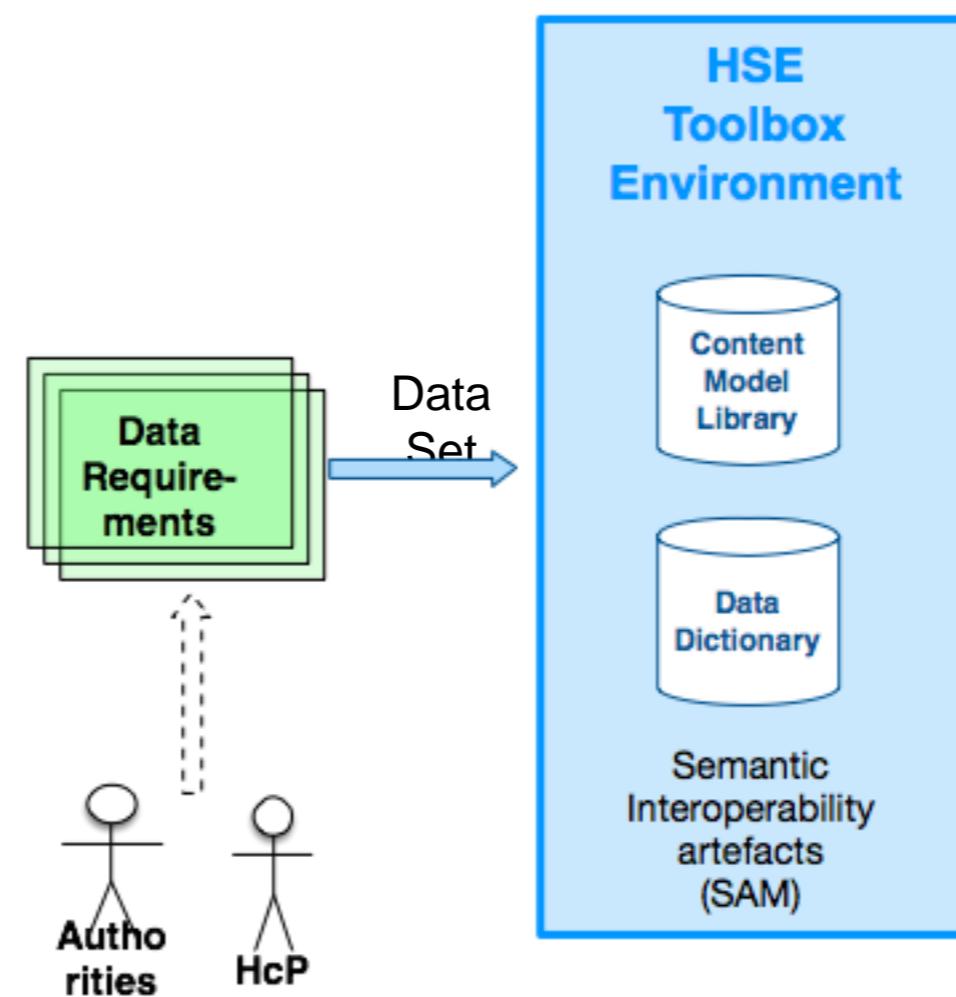
**ERS**

Electronic Record Services BV

Stakeholders	Activities
GP	Treats most common problems and needs to maintain an overview, Referral and discharge notes.
Pharmacists	Dispensing prescribed medicinal products and advice
Community Nurse	Monitoring the development new born, young children. Vaccination program
School	Monitoring the development of young children
Pediatrician	Clinical disease episodes, referral en discharge notes
Public Health	Monitoring: child developments, environment, infectious diseases, ...
Researcher	Own academic research or on behalf of third parties
Authorities	Monitoring the health care organisations and programs and projects
Patient / parents	Personal Health Record: collecting and reporting data obtained
Disease specific portal	E.g. Disease specific portal for Diabetes or Asthma , or ...

## Intended process

- Definition of Data Sets by healthcare Stakeholder groups
- Production of Semantic Interoperability Components (Content Models)
- Inserting codes for Reference Terminology
- Validation of health content
- Insertion and curation in the Data Dictionary
- Quality Assurance
- Publication and deployment

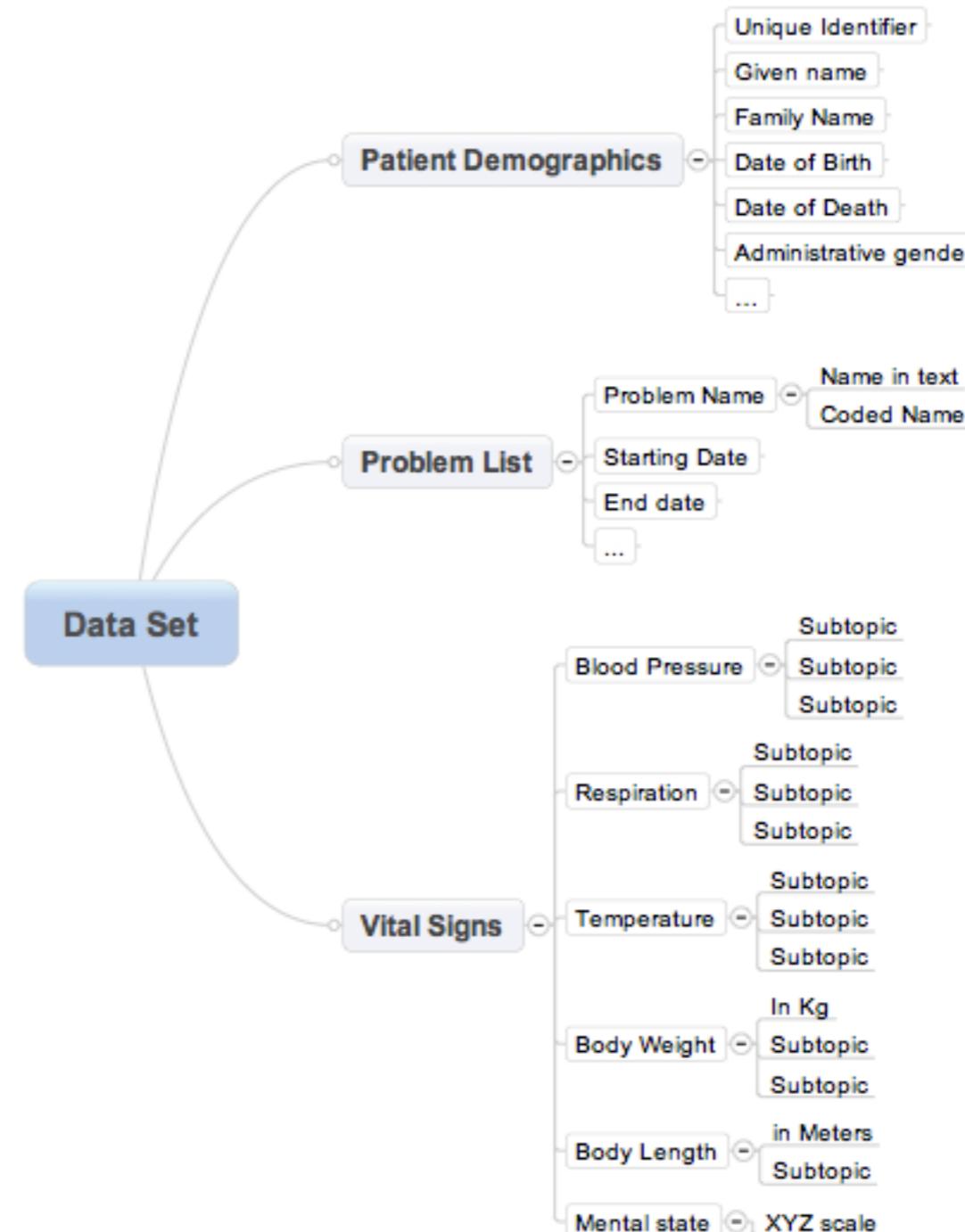


**Collaboration platform**  
**Content Models**  
**Content Model Library**  
**Content Model Editor**  
**SNOMED-ct**  
**Data Dictionary**

**Requirements can be captured in many formats:**

- free text
- an excel
- or a Mind Map

**And transformed in to an Content Model using the Content Model Editor**



# HSE Tooling Environment

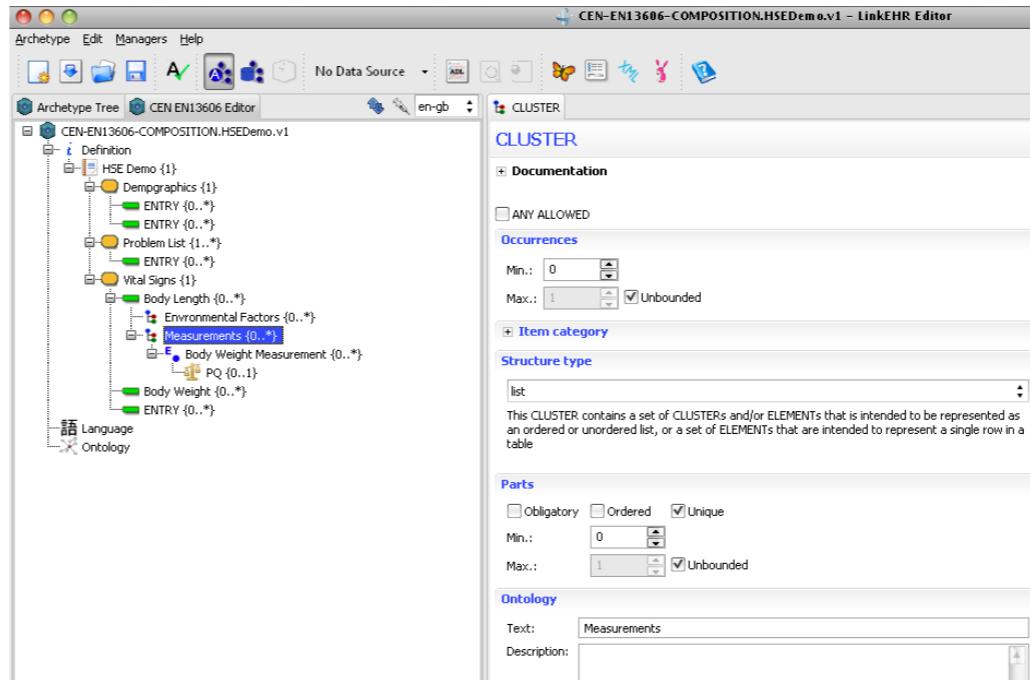
ERS

Electronic Record Services BV

**The Content Model Editor uses pre-defined re-usable shared components from the HSE Content Model Library.**

**The pre-defined components have codes from SNOMED-CT attached to it.  
Local codes can be mapped to the reference codes.**

**In this way any data set can be defined and data can be re-used.**



```
CEN-EN13606-COMPOSITION.HSEDemo.v1.adl
1 archetype (adl_version=1.4)
2   CEN-EN13606-COMPOSITION.HSEDemo.v1
3
4 concept
5   [at0000]
6
7 language
8   original_language = <[ISO_639-1::en-gb]>
9
10 description
11   original_author = <
12     ["organization"] = <"ERS B.V.">
13     ["email"] = <">
14     ["name"] = <"GR">
15     ["language"] = <"en-gb English (United Kingdom)">
16     ["date"] = <"20131024">
17   >
18   lifecycle_state = <"Draft">
19   details = <
20     ["en-gb"] = <
21       language = <[ISO_639-1::en-gb]>
22     >
23   >
24
25 definition
26   COMPOSITION[at0000] occurrences matches (1..1) matches ( -- HSE Demo
27     content existence matches (0..1) cardinality matches (0..*; unordered) matches (
28       SECTION[at0001] occurrences matches (1..1) matches ( -- Demographics
29         members existence matches (0..1) cardinality matches (0..*; unordered; unique) matches (
30           ENTRY[at0008] occurrences matches (0..*) matches ( -- ENTRY
31             items existence matches (0..1) cardinality matches (0..*; unordered; unique) matches (*)
32           )
33           ENTRY[at0009] occurrences matches (0..*) matches ( -- ENTRY
34             items existence matches (0..1) cardinality matches (0..*; unordered; unique) matches (*)
35           )
36         )
37       )
38     SECTION[at0002] occurrences matches (1..*) matches ( -- Problem List
39       members existence matches (0..1) cardinality matches (0..*; unordered; unique) matches (
40         ENTRY[at0007] occurrences matches (0..*) matches ( -- ENTRY
41           items existence matches (0..1) cardinality matches (0..*; unordered; unique) matches (*)
42         )
43       )
44     )
45   )
46 
```

# Why a Data Dictionary

ERS

Electronic Record Services BV

## One language, one meaning More than one way to express the same

Information entity

No Previous History:

Information entity

Past History: Yes No Unknown

Information entity

Past History:

1 History

Symptoms / Problems Choose ...  Chest Pain

Family History Heart Failure Yes  No  Unknown

Diabetes Yes  No  Unknown

Organ Failure Diagnosis

Organ Heart Status Suspected

Caused by Physical Exercise Yes  No  Unknown

2 History

Symptoms / Problems Choose ...  Symptom | Site Pain Chest

Family History Choose ...  Heart Failure Yes No Unknown

Other diseases: Choose ...  no diabetes

Diagnosis

Suspected heart failure caused by physical exercise

3 History

Symptoms / Problems Choose ...  Chest Pain

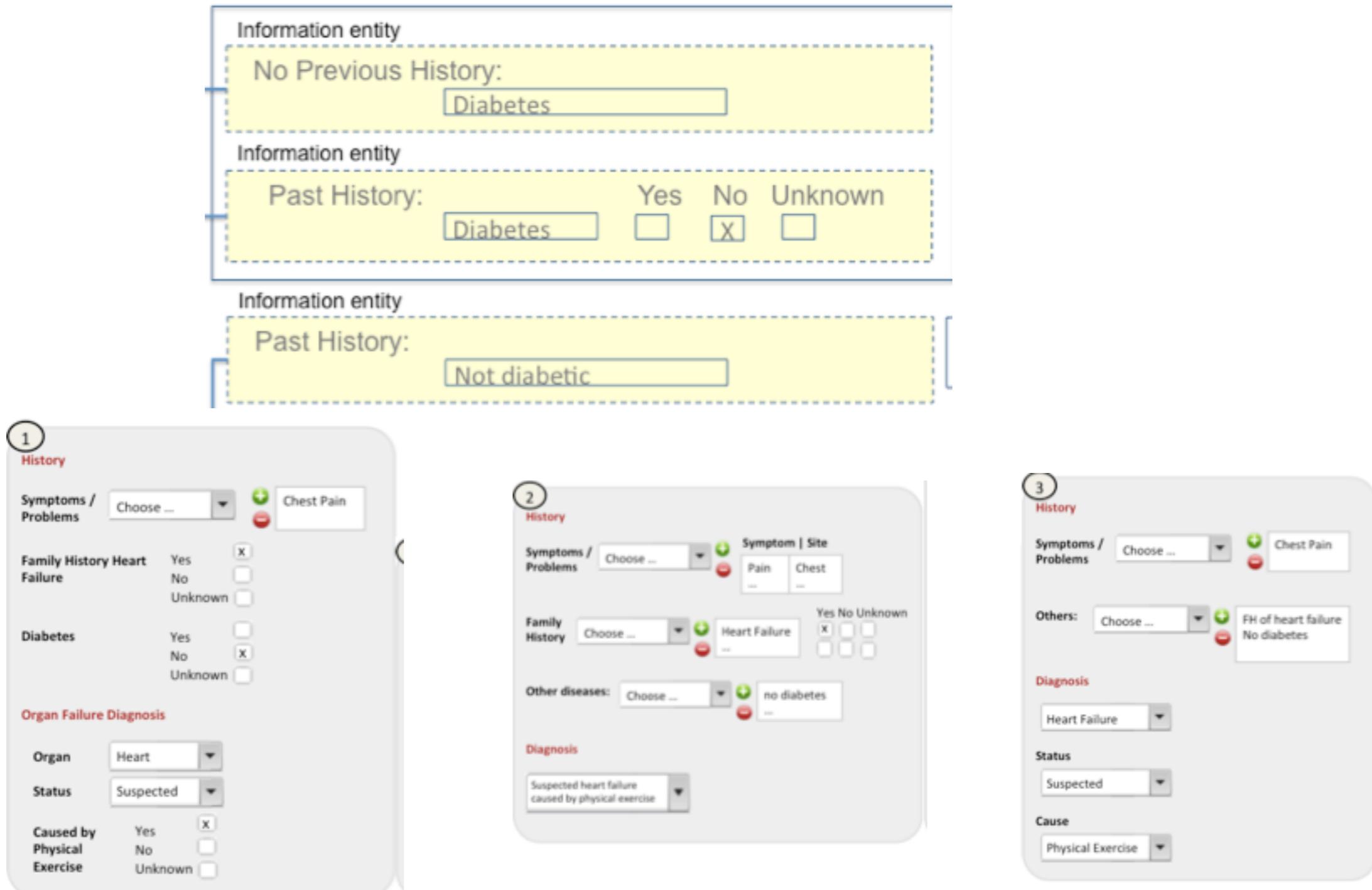
Others: Choose ...  FH of heart failure No diabetes

Diagnosis

Heart Failure

Status Suspected

Cause Physical Exercise



# Why a Data Dictionary

**ERS**

Electronic Record Services BV

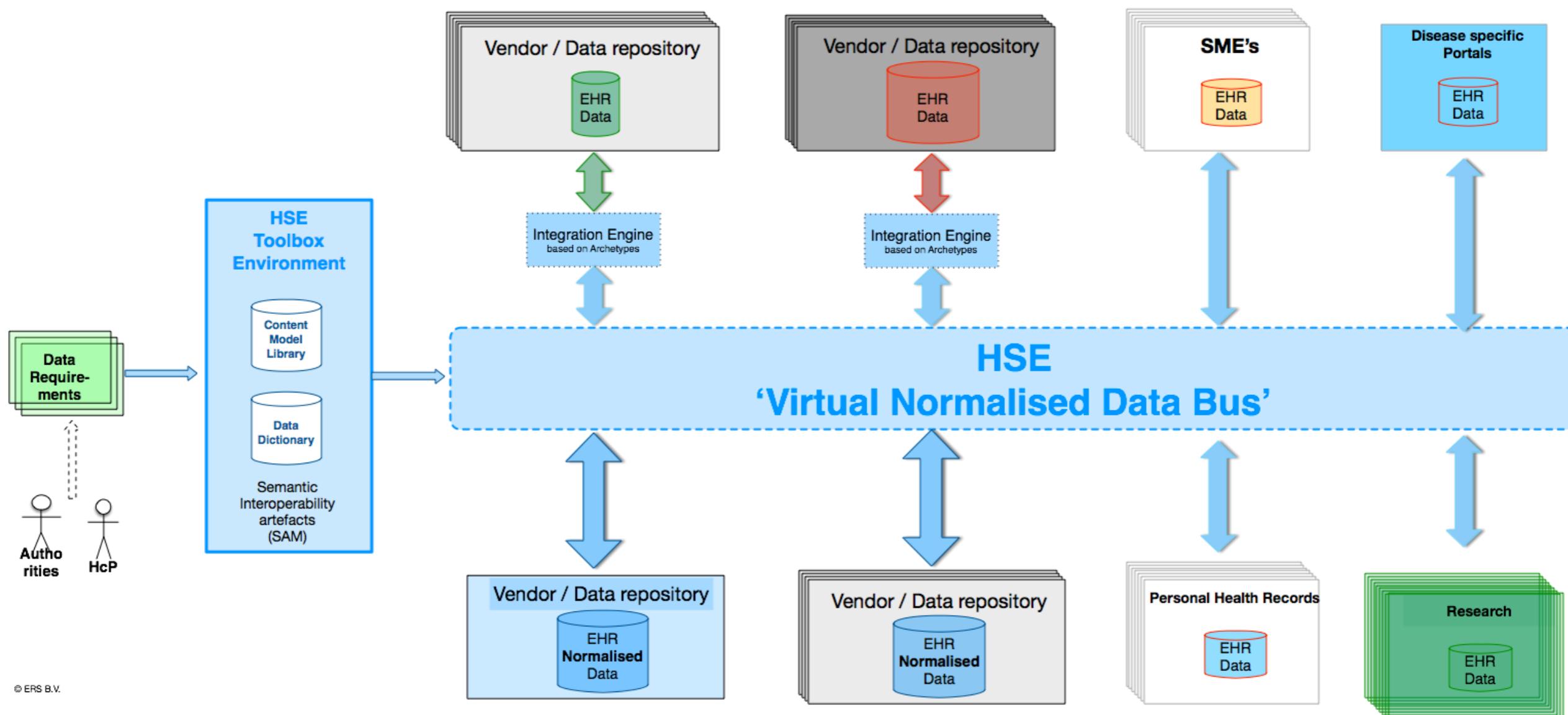
The Data Dictionary contains standard data definitions and data elements for use in any Irish health or community services data collection.

The Data Dictionary is the authoritative source of information about endorsed national data standards and provide the basis for consistent national collection, exchange and reporting.

# Benefits

ERS

Electronic Record Services BV



**Your expectations for data exchange and usage?**

**Your experience or perception of the major obstacles to achieving your data requirements?**

**What existing datasets, codes or standards if any you currently use?**

**Relevant current and emerging business activity?**