ICT National Integrated Services Framework Update

(Information Architecture)

Peter Connolly **HSE**
René Schippers **ERS**
Dr Gerard Freriks **ERS**

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Topics

- Introduction to ERS
- Information Architecture
- Approach
- Deliverables
- Roadmap & Timelines
- Stakeholders

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Introduction to ERS

Founded in 2007

Business:

- Consultancy
- Software (CESIL™)
- Services
- Research (FP7)

Markets/Type of Customers:

- National and Regional (e)Health body's
- Healthcare Provider (Organisations)
- Life Science Industry
- Health IT Systems Vendors

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Introduction to ERS

René Schippers, Director:

- Master degree Public Health (Dentistry)
- > 16 years in Health IT
- Business Consultant eHealth/research domain
- President EN13606 Association and ProRec-NL

Gerard Freriks, Director:

- Trained in medicine and GP > 20 years and > 16 years in Health IT and standards development
- Former Convenor of CEN/TC251 wg1
- Co-founder of HL7 SGML/XML SIG (later CDA) and IHE-NL
- Former vice-president EuroRec and Board Member of ProRec-NL

Both Directors participate in several EU FP7 projects

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Why a Standards based Information

Any significant level of healthcare systems integration requires the development and use of a **standards based Information Architecture**.

The HSE need a model that defines the **structure** of a **complex data** environment in an **unambiguous** and **meaningful** manner.

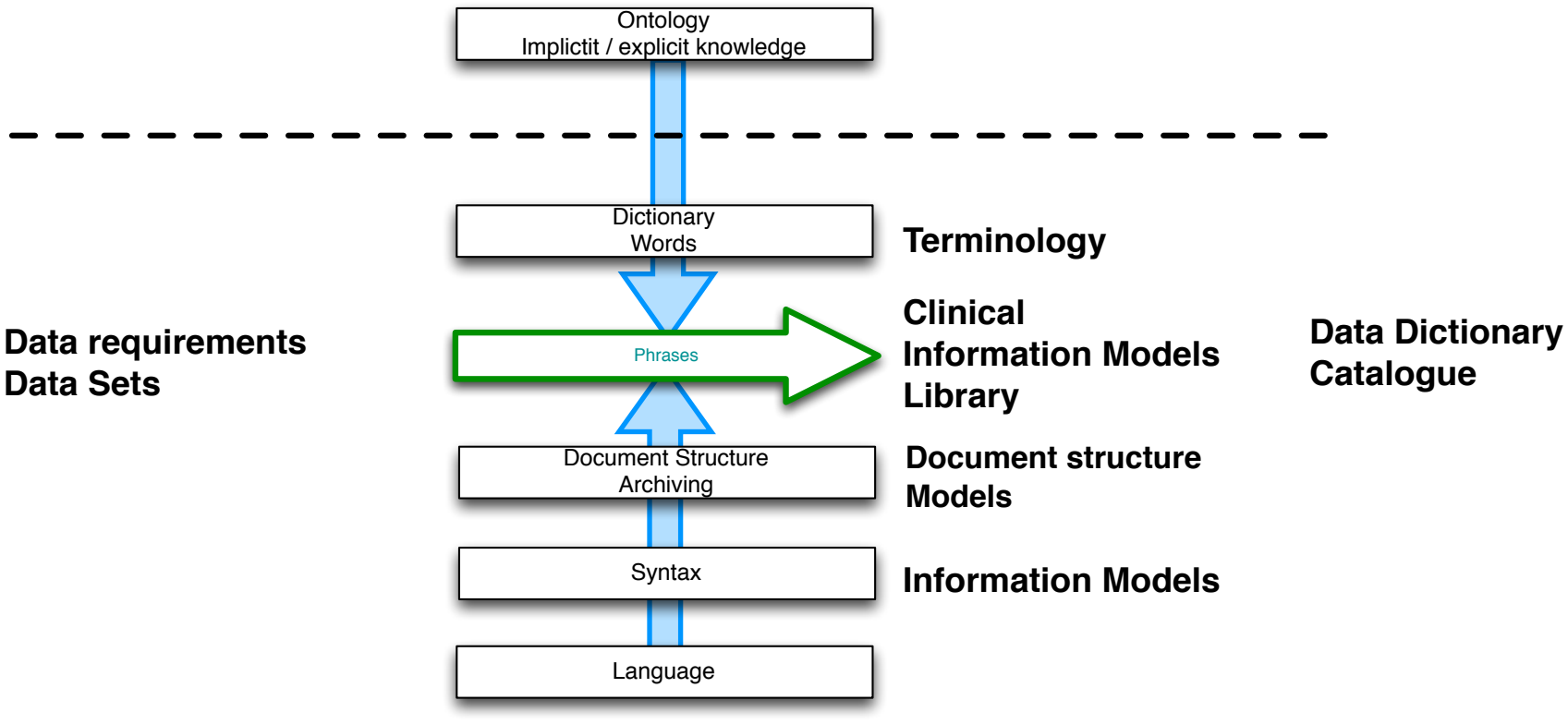
With a standards based Information Architecture (**IA**) substantial healthcare systems **integration** can occur.

The **IA Model enables** healthcare systems **integration** not previously possible.

Semantic Interoperability -> Co-operability
without Open International Standards as foundation
is impossible.

A standards based Information Architecture (better Health Data Architecture?) makes interoperability as co-operability possible

Semantic Stack



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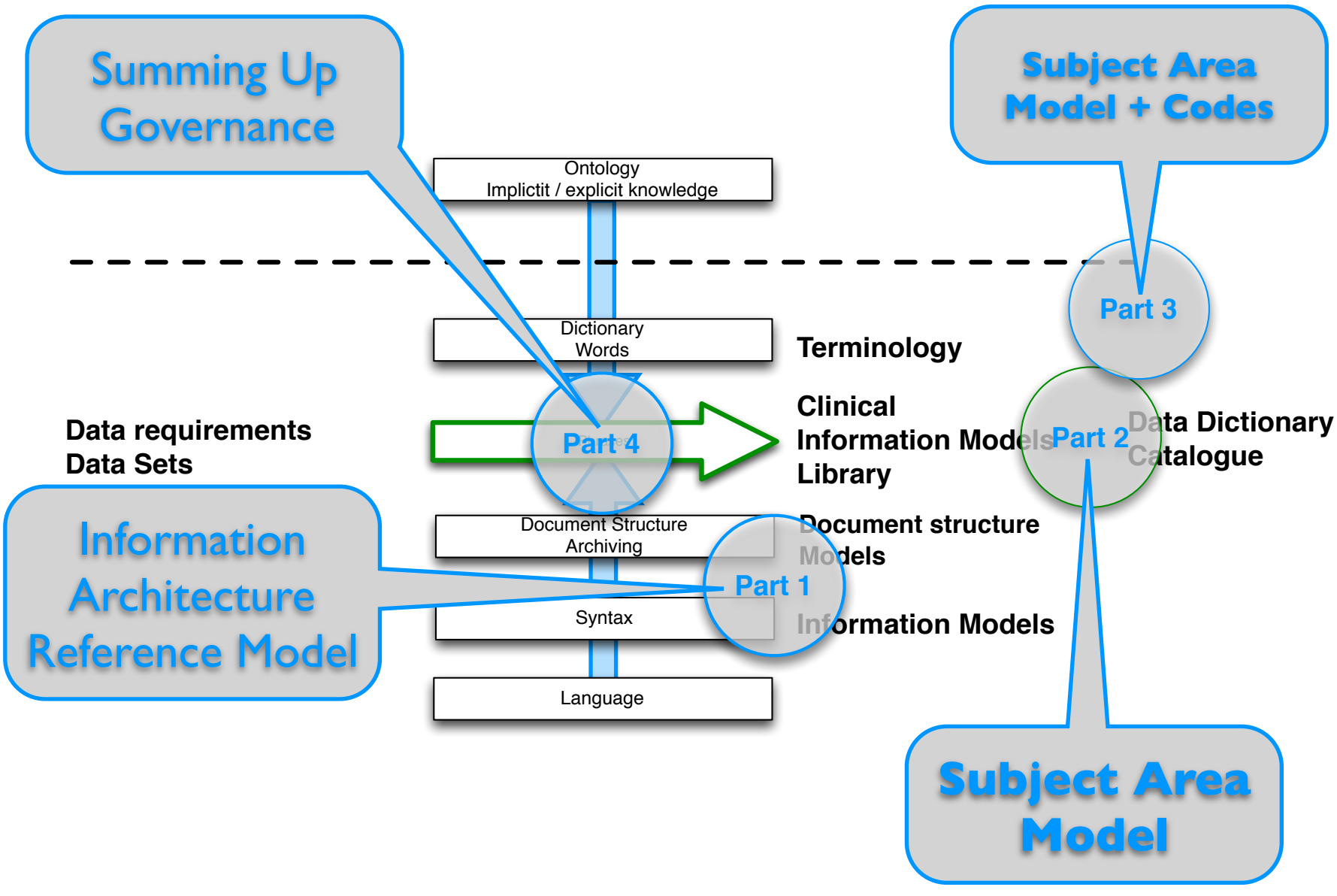
For **human discourse** we need:

1. to know the Language
2. the language rules = syntaxe
3. a dictionary with defined words
4. to construct sentences/phrases
5. Behind the dictionary there is the encyclopedian body of common shared knowledge, the Ontology

Starting from data needs Clinical Information Models (with semantic interoperability artefacts) are produced and maintained and published in a Library.
In order to maintain consistency data elements are defined in a Data Registry

Each lever has its own set of Models that generate the Semantic Interoperability Artefacts (SIA's)

HSE Project and Semantic Stack



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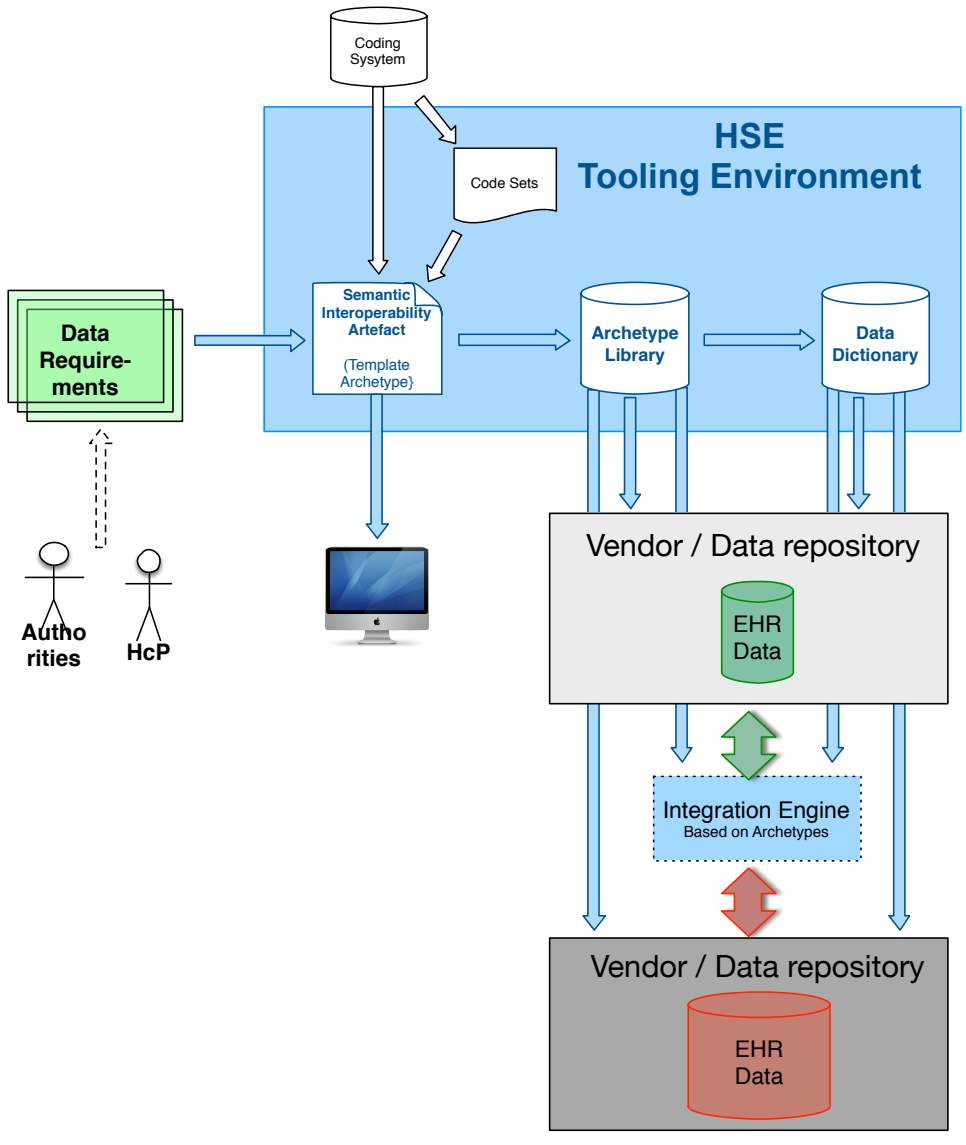
1. Each part addresses its specific topic

Information Architecture (short term 1)



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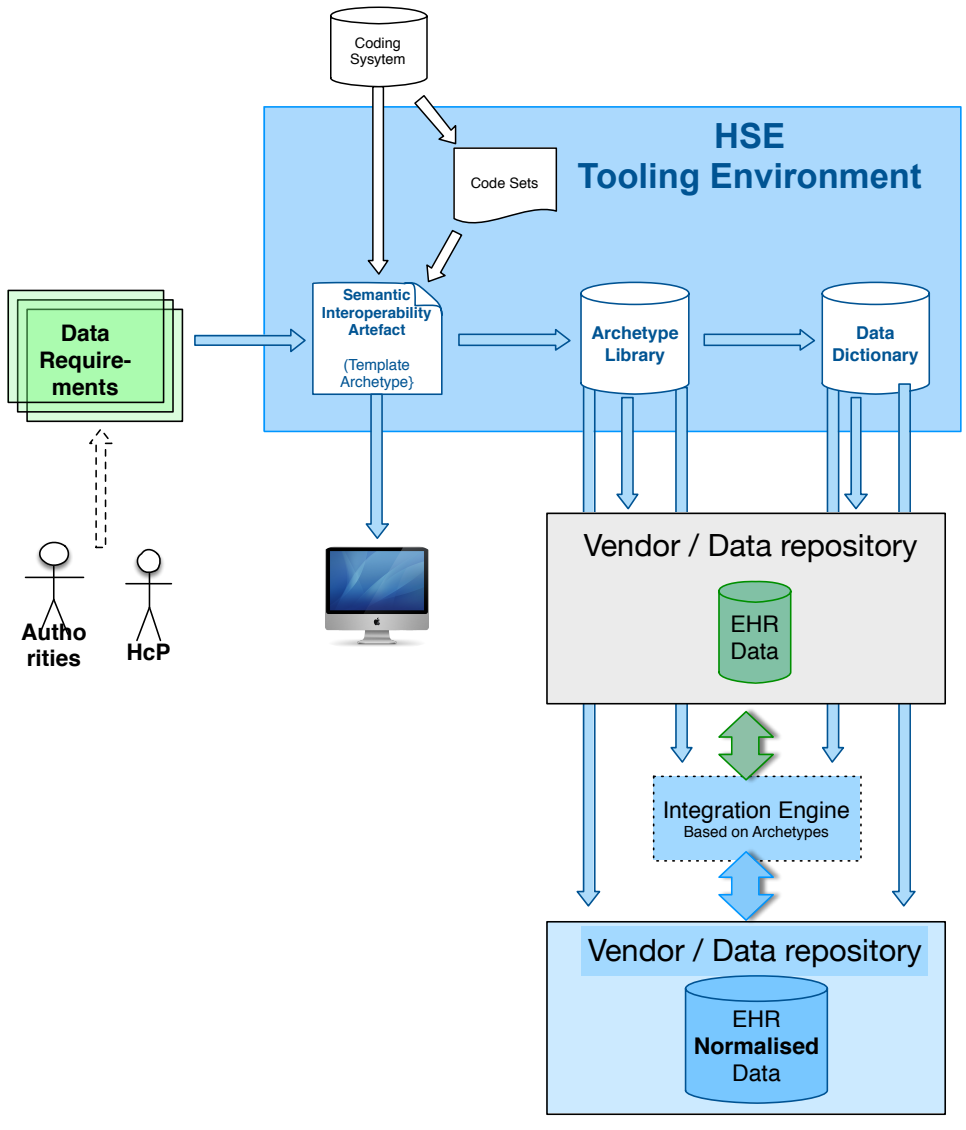
The picture describes the short term:

1. Data Requirements from authorities and Healthcare providers
2. Archetypes/Templates as Semantic Interoperability Artefacts
3. With inserted/attached relevant codes from coding systems (SNOMED, …)
4. With Codes and Value sets as defined by the data requirements
5. A Tooling environment to produce, manage and publish the semantic interoperability artefacts (SIA=archetypes and templates)
6. Including a Data Dictionary to maintain integrity of the SIA's
7. HCP and Authorities can see the SIA's and inspect and validate them
8. Vendors or National/regional registries know what data elements their system has to be able to store, retrieve and present or report because they can get access to computer processable SIA's and the definitions in the Data Dictionary.
9. When vendors want to transform their proprietary format to one based on SIA's, an agile model driven Integration Engines exists that using SIA's can flexibly transform between EHR-systems.
10. Systems that have an SIA enabled interface can exchange without the need of an Interface Engine, but they need the SIA's.

In the example:

- The SIA's produced by the HSE/ERS Tooling Environment are used by the proprietary EHR-systems.
- The SIA's express the data/information needs by the Healthcare Providers and Authorities.
- Vendors with proprietary systems will use the SIA's to make t possible that their

Information Architecture (short term 2)



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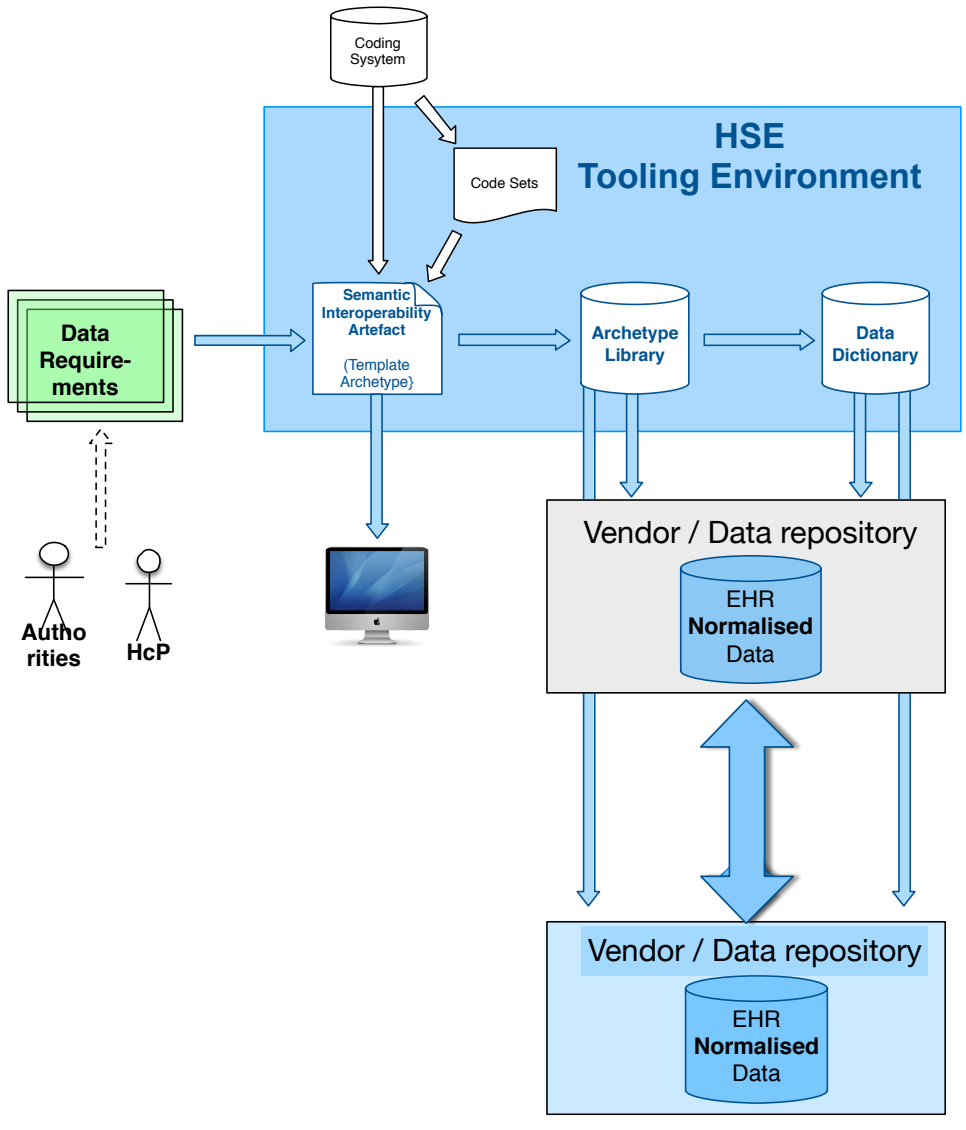
In the example:
Proprietary data is transformed to an EHR_systems that deals internally with normalised data.

Information Architecture (long term)



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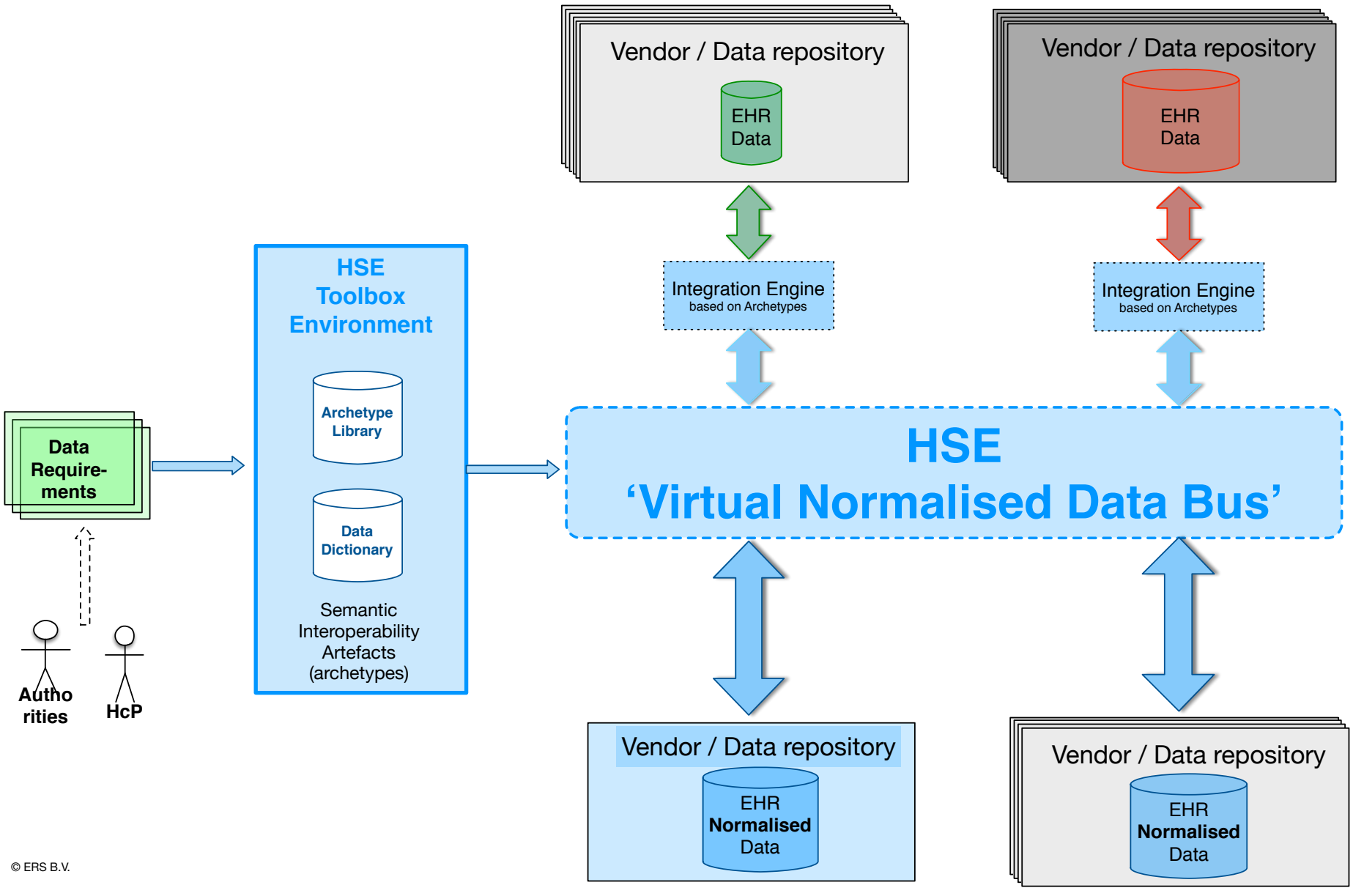
This picture describes the long term situation.

When systems are internally based on data standards or provide an standardised interface using the Semantic Interoperability Artefacts
NO Integration Engine is necessary.
Systems can be federated easily.

Semantic Interoperability Framework



Data elements, as shared and common basic building blocks, as defined by SIA's, make possible a HSE 'Virtual Normalised Data Bus'.

EHR-systems and Data repositories can be functional initialy.
A managed evolutionary process can transform all EHR-systems and Repositories to one using normalised data.
These EHR-systems and Repositories can be federated: exchange any data ad-hoc.

Approach

Embrace a broad stakeholder base

Eight (Small Group) Workshops (4x2)

Use an Interactive basis

Questionnaire type structure

Missed Stakeholders followed up by phone and email

Feedback opportunity

Reach both high level and technical audiences

We have to **optimally engage** Stakeholders

ERS/HSE execute a project leading to a description and demonstration of a possible ‘HSE Virtual Data Bus; consisting of a standards based HSE/ERS Tooling Environment that produce, maintain, govern and publish Semantic Interoperability Artefacts that make the HSE Virtual Data Bus possible.

It is a path all stakeholders are invited to travel with us.
Their input will be indispensable for a successful journey.

Basic notion of any common and shared infrastructure is:
By all, for all.
Meaning that we all must benefit in the end, in order to create success.

Workshop Dates

28th October: Workshop 1 for Parts 1 and 2
29th October: Workshop 2 for Parts 1 and 2

11th November: Workshop 3 for Parts 1 and 2
12th November: Workshop 4 for Parts 1 and 2

2nd December: Workshop 1 for parts 3 and 4
(Including demo data dictionary)
3rd December: Workshop 2 for parts 3 and 4
(Including demo data dictionary)

16th December: Workshop 3 for parts 3 and 4
(Including demo data dictionary)
17th December: Workshop 4 for parts 3 and 4
(Including demo data dictionary)

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LOT 4 INFORMATION ARCHITECTURE

Part 1: Information Architecture

Part 2: Data Dictionary

Part 3: Terminology

Part 4: Operations (Governance)

Part 1 - Determination of the

1. Establish suitable standards based Information Architecture Reference Model (IA-RM)
2. The provision of a standards based subject area model (SAM)
3. The determination of which technical systems should participate in the subject area model (SAM)
4. Recommendation of a Governance Framework and Tooling for Model maintenance and expansion
5. A catalogue with the Standards and associated sub-sections for the Model

Part 2 - Data Dictionary

1. The determination of a Standards Based Data Dictionary including the specification of meta data structure, data classes, entities and attributes
2. Validation (Proof-of-Concept) of the Data Dictionary
3. Recommendation of a Governance Framework and Tooling for Dictionary maintenance and expansion
4. A catalogue with the Standards and associated sub-sections for the Dictionary

Part 3 - Terminology Assurance

1. Provision of a blueprint for the deployment, management and maintenance of the terminology service
2. Validation of the proposed model thought the binding of SNOMED CT concepts to a specified clinical data set
3. A catalogue with the Standards and linkages associated with its operation and maintenance

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Part 4 - Support Process and Services

1. What standards based toolsets and support structure are required and available to manage the collective practical outputs and relationships of the information components listed above
2. A brief comparison of the products that best meet this need including commercial and open source toolsets
3. The recommendation of an established toolset and management approach to facilitate integrated governance of the data model, data dictionary and terminology service

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Stakeholders

WORKSHOP-1:
28th October 2pm-4:30pm
Data Model & Data Dictionary

STAKEHOLDER GROUP - BUSINESS & STRATEGY

1.	Reform Group	Leo Kerrins
2.	Corporate Planning & Corporate Performance	Jane Carolan
3.	Health Intelligence	Dougie Beaton
4.	Business Improvement	John McLoughlin
5	Strategic Programmes	Frank McGuinness
6.	HSE Procurement	John Swords
7.	DOHC	Kevin Conlon

WORKSHOP-2:
29th October: 10am-12:30pm
Data Model & Data Dictionary

STAKEHOLDER GROUP - CLINICAL, SAFETY & RESEARCH

1.	Clinical Programmes	Aine Carroll
2.	Public Health	Stephanie O' Keeffe
3.	Health & Safety	Philip Crowley
4.	Pharmacy	Jack Shanahan
5.	Irish Medicines Board	S. McDonald
6.	HIQA	Jane Grimson
7	HIQA	Kevin O' Carroll

Stakeholders

WORKSHOP-3:	STAKEHOLDER GROUP - TECHNICAL	
11th November: 10am-12:30pm	1. Healthlink	Gemma Garvan
Data Model & Data Dictionary	2. Health Identifier /Access Management	Roisin Doherty
	3. HSE Clinical System Delivery	Vincent Jordan
	4. ICGP	Brian O' Mahony
	5. RCSI	Gerard Kelliher
	6 DATHs Hospitals Rep	Deirdre Hyland
	7 Health Informatics	Pam Henry

WORKSHOP-4:	STAKEHOLDER GROUP - ALLIED AGENCIES	
12th November: 10am-12:30pm	1. Health Research Board (HRB)	Hamish Sinclair
Data Model & Data Dictionary	2. ESRI	Miriam Wylie
	3. PCRS	Paddy Bourke
	4. Patient Level Costing (PLC)	Brian O' Donovan
	5. RCPI	Gary Courtney
	6 Health Intelligence	Howard Johnson
	7. NSAI -HISC	Damon Berry

Stakeholders

OTHER STAKEHOLDER GROUPS / SUPPLIERS WHO MAY BE CONSULTED

Health Research Board (HRB)

Core Systems Suppliers iSOFT / McKesson / Cerner

IBM / Oracle / SAP

NSAI HISC Work Group

Academia

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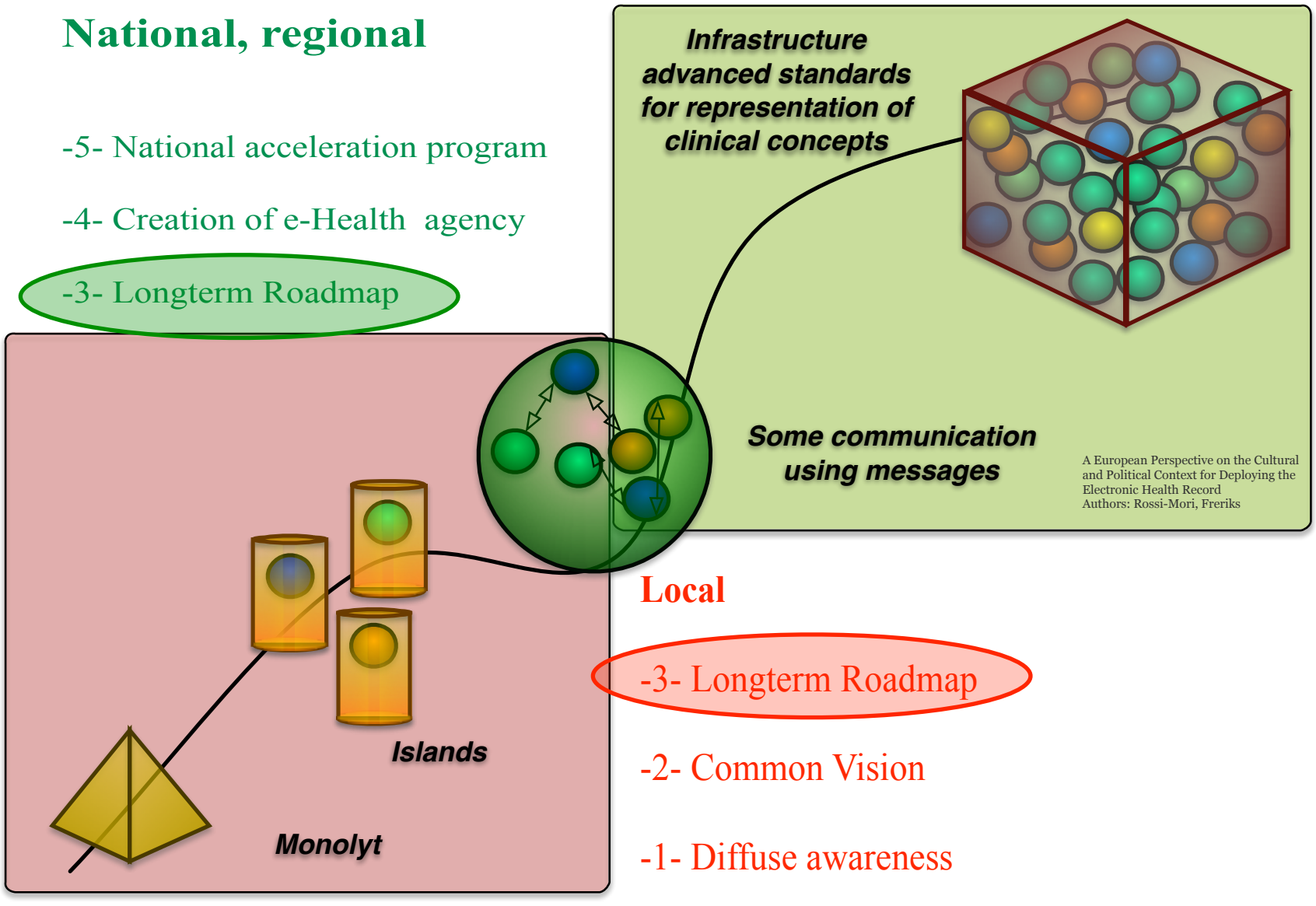
EHR-system developments

National, regional

-5- National acceleration program

-4- Creation of e-Health agency

-3- Longterm Roadmap



Local

-3- Longterm Roadmap

-2- Common Vision

-1- Diffuse awareness

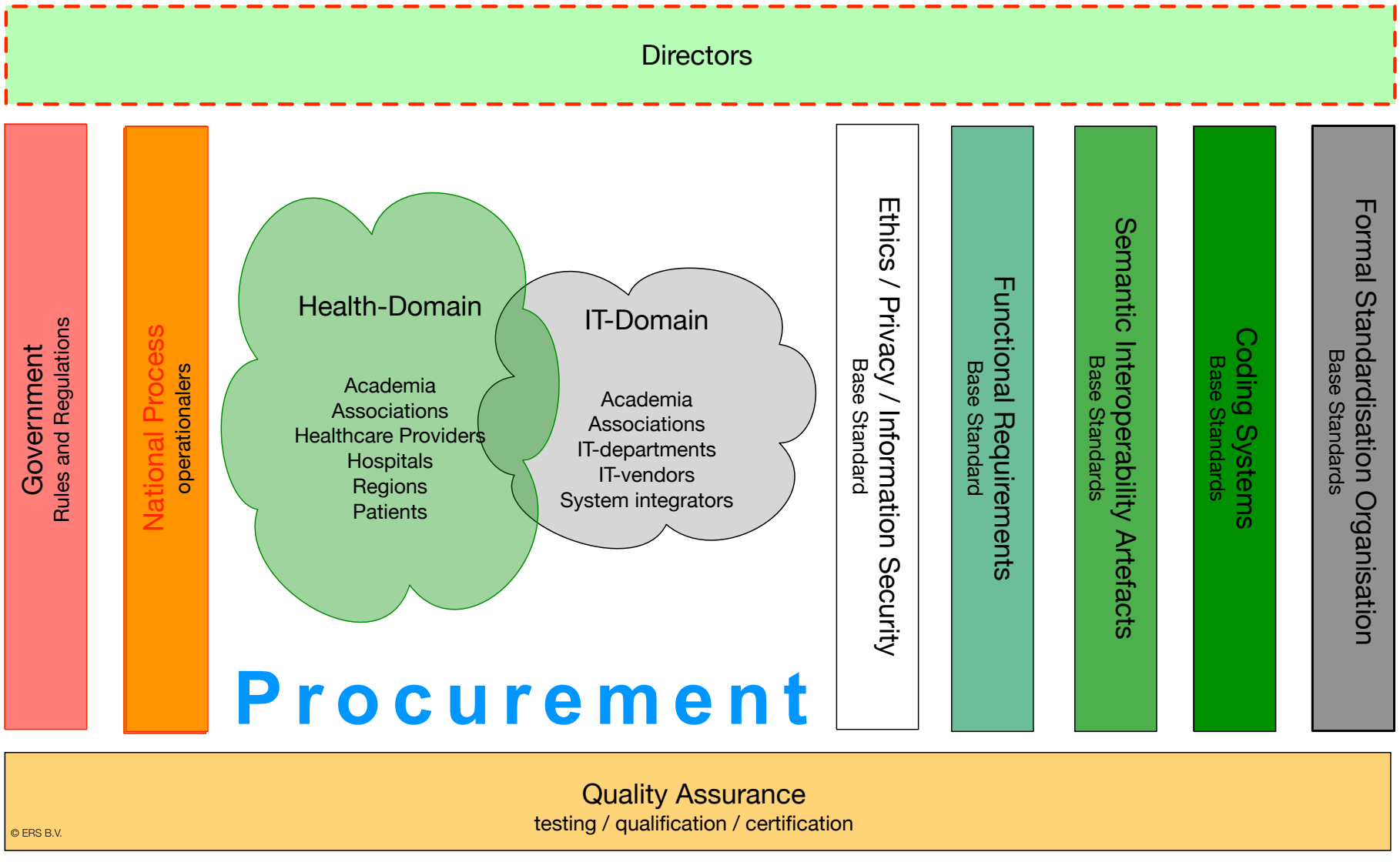
From Monolyt to Standards Based (National / European) Data Bus
via Silo's, Best of Breeds, and Messaging systems.

This transition to the next level is:
- a technical manageable challenge
- but foremost a political, psychological and economical challenge
- And finally it is a long term never ending transition process.

It is the complex trajectory of instituting a new governed large scale infrastructure for semantic interoperability in health and social care.

Important aspects of this Roadmap are discussed in the next slide

Important aspects of any Roadmap



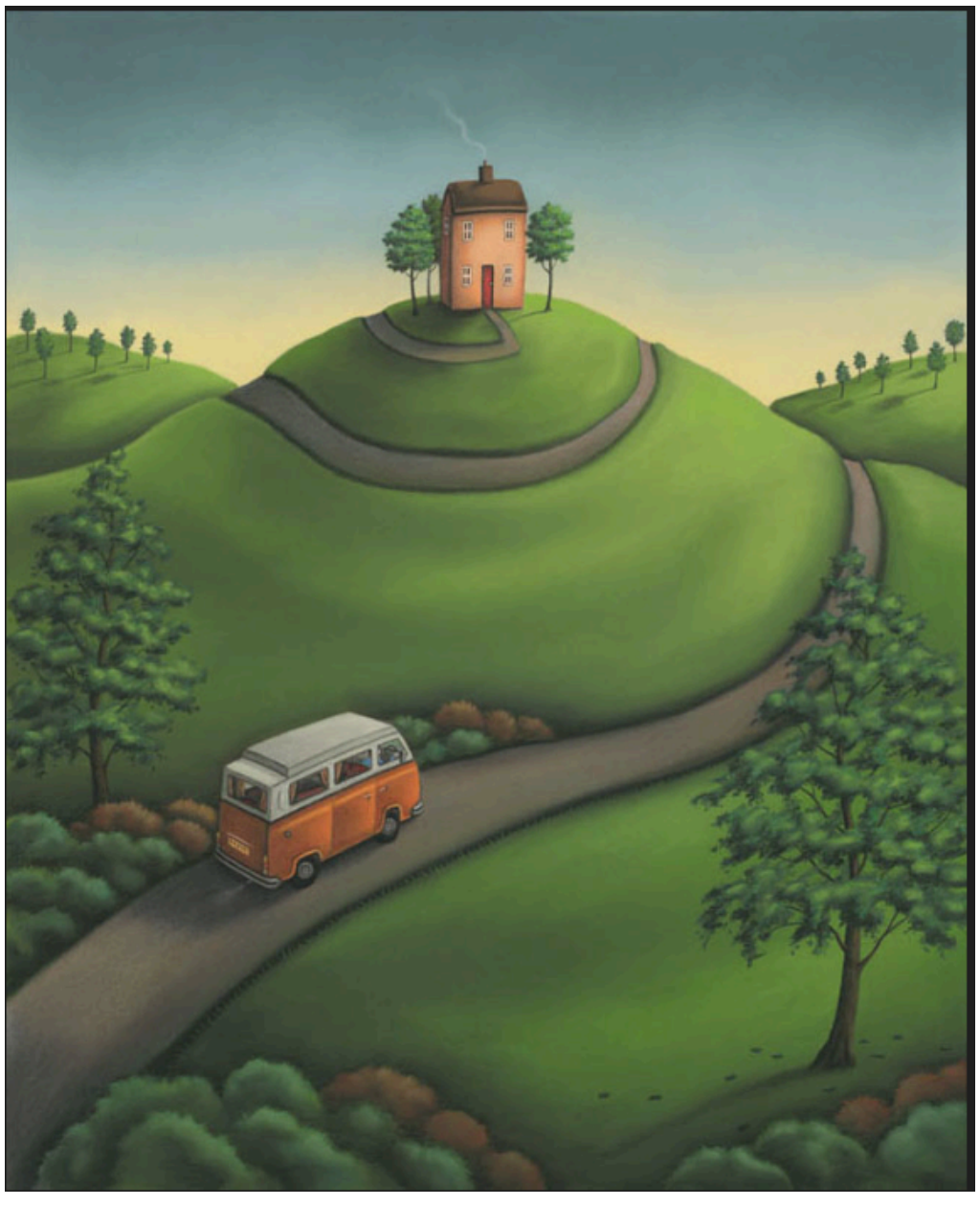
Important aspects of any Roadmap.

What will be created is a Governance structure for a continuing process and NOT one or more projects.

1- Government: initiates: Policies, Rules and Regulations securing quality of healthcare , health outcomes and quality of IT-systems
2- National: project operationalises
3- Compliance with the rules and regulations entails conformance to a set of standards for aspects: IT-technology, Semantic Interoperability, Coding systems, shared Clinical Models, Functional requirements
4- A framework for quality assurance, qualification cq certification used for Procurement of Health and Care IT-systems
5- A set of tailored incentives (remunerations, fines, training, support) for actors in the Health (knowledge) domain and IT (Knowledge) domain. Health and Care payors play a role
6- A body with 'champions', with authority, to advice all actors to take the correct steps at the correct moments in time.

Remarks:
- Each actor must operate in its **Natural Role**
- 'Directors' must use authority and convincing argument to execute their role and preferably do NOT fund projects and processes.

Journey together to the common INFOstructure



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We, HSE and ERS, take you, stakeholders, on an exciting journey..

Will we find fulfillment in the inviting and not to be missed house with the burning stove?
Or is it behind the hill?

We, ERS, have a vision of the travel plan and the supporting standards based technology.
we now some potential pitfalls we will encounter,
we now some dead-end streets, we should not take.

We can be successful only when we travel all together.
We all have to be willing to be taught, and discuss benefits and barriers, to learn from each other.

We are talking about a standards based infrastructure for semantic interoperability, for co-operability, in health nad socials care.
We are talking about a **common and shared INFOSTRUCTURE.**

By all, for all.