

Enterprise Architecture & Design Authority

Irish and IHE Services
eHealth Building Blocks
14th April 2020

eHealth Ireland: Eamon Coyne
Driving Healthcare Transformation



Delivering eHealth Ireland

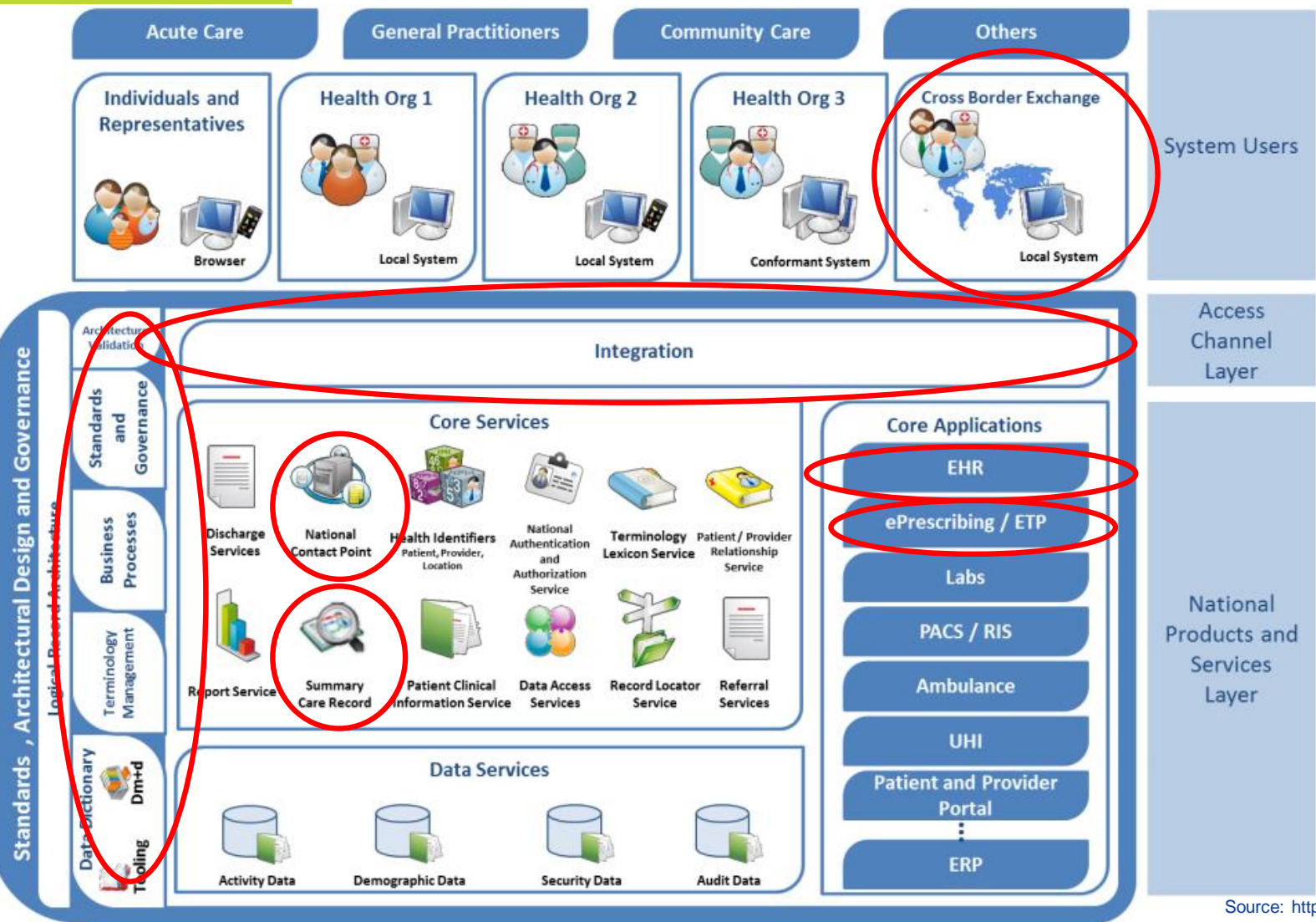


Office of the Chief Information Officer



- The **Health Service Executive (HSE)** is responsible for the provision of health and personal social services for everyone living in Ireland (population 4.7m), with public funds.
- The HSE is the operational side of it's parent organisation the Department of Health.
- The HSE is Ireland's largest employer with over 67,000 direct employees, and another 40,000 in funded health care organisations.
- The Office of the Chief Information Officer is the team delivering eHealth Ireland through the implementation of the Knowledge and Information plan and the more recent Sláintecare Plan (10 year health plan for Ireland).

Irish eHealth Strategy Architecture Blueprint



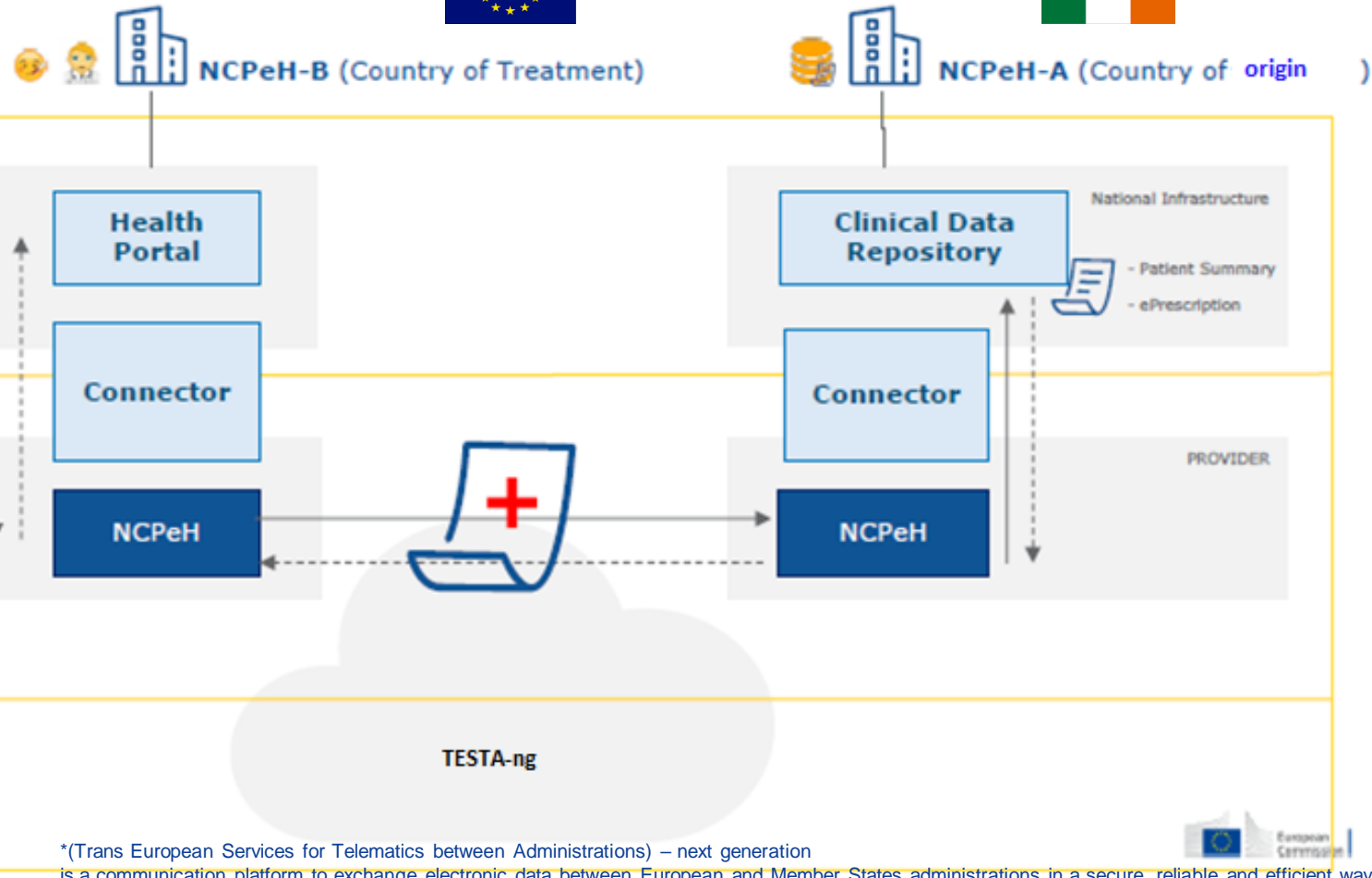
- The Knowledge and Information Plan first key document of the Office of the CIO
- Holistic Blueprint of what needed to be put in place in the Irish eHealth ecosystem
- Enterprise Architecture function a corner stone of delivery

Source: <http://www.ehealthireland.ie/Knowledge-Information-Plan/Knowledge-and-Information-Plan.pdf>

The Irish – IHE Challenge

The interoperability challenge

Required component
 Optional component



*(Trans European Services for Telematics between Administrations) – next generation is a communication platform to exchange electronic data between European and Member States administrations in a secure, reliable and efficient way)

- ❖ The Irish Health Service and IHE Partnership was formed at the beginning of 2018
- ❖ Tasked with helping Ireland deliver the EU Open NCP Project for Patient Summary and ePrescription
- ❖ Ireland not a participant in epSOS so playing catch up.



IHE – Irish Use Case driven approach

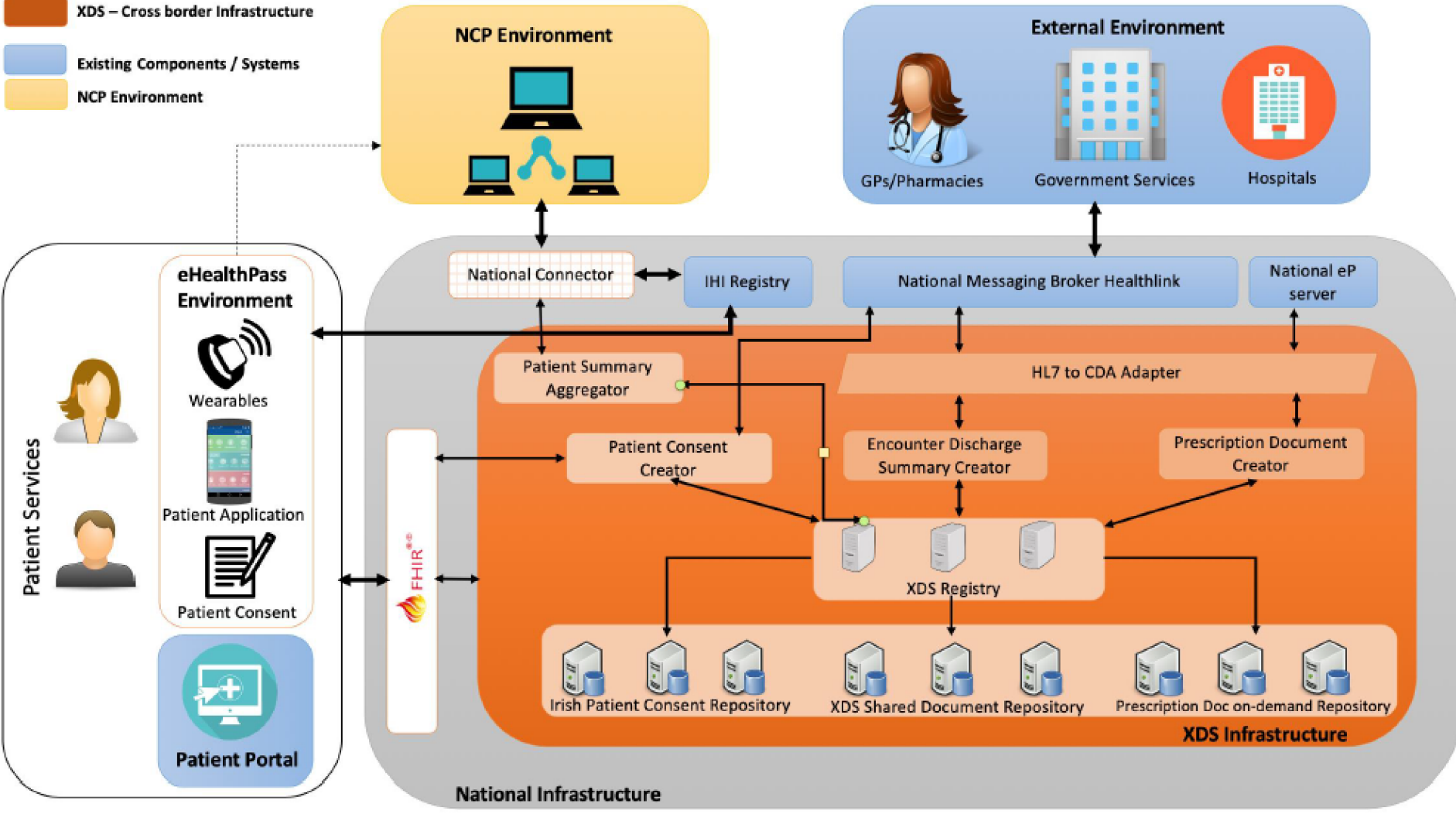
- Define Use cases and their prioritisation to answer the eHealth strategy objectives of nation/region;
- From use cases to design the interoperability infrastructure and specifications based on IHE profiles
- To define the testing strategy and identify test plan and test methods (test cases, test tools and test data)
- To support Project teams to procure products or solutions for their eHealth Project (Telemedicine, national/regional EHR, replacement of product in hospitals...)

Use Case driven approach Irish activities with IHE

■ Use Case Workshops x 2	Q1 2018	✓
■ Architecture Workshop	Q2 2018	✓
■ IOP Specifications Stable	Q4 2018	✓
■ Test Harness installed	Q4 2018	✓
■ Test Tools with Irish Extension	Q4 2019	✓
■ Projectathon 1	Q2 2020	
■ Projectathon 2	Q3 2020	

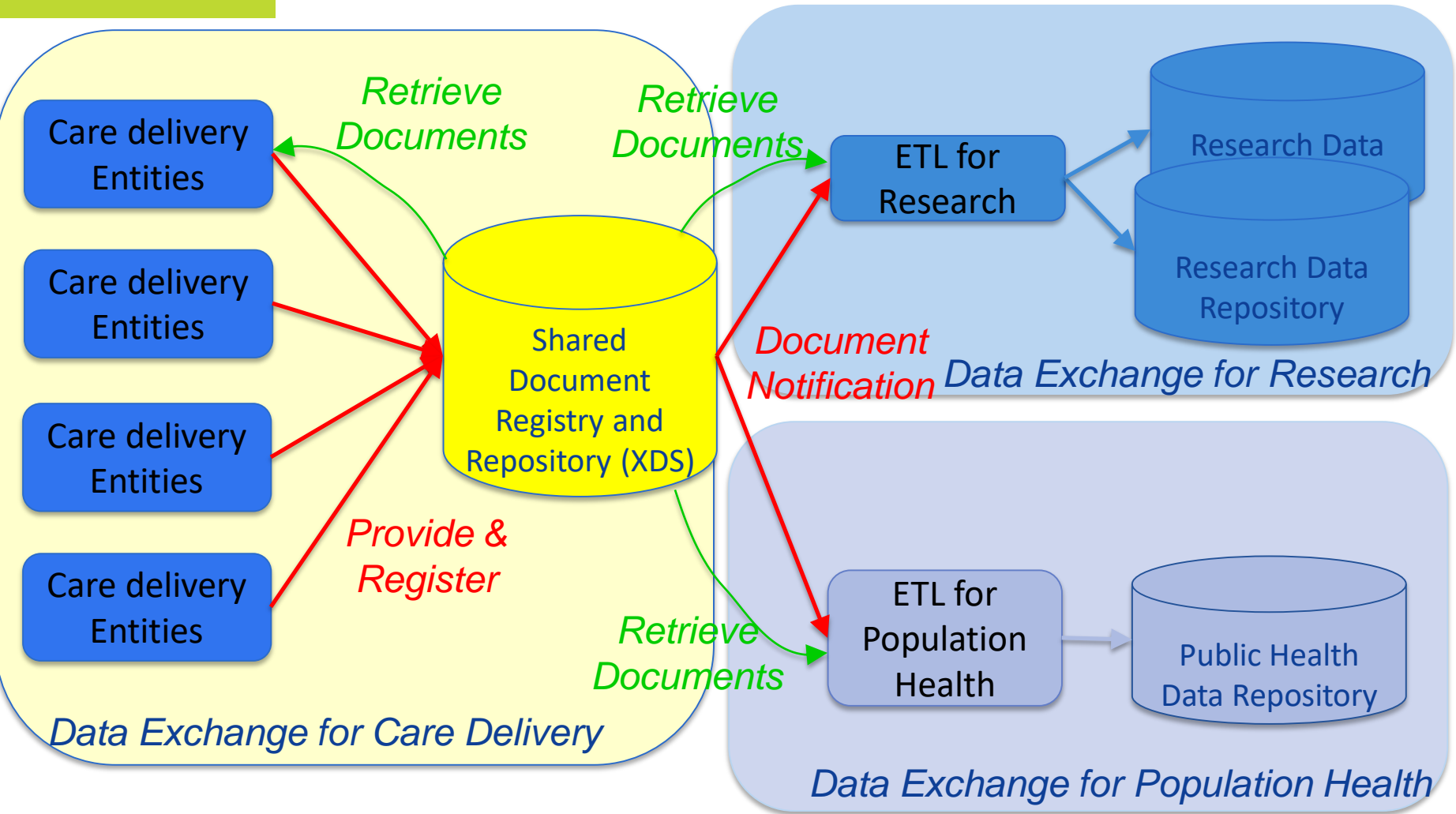
Cross Border Architecture

- XDS – Cross border Infrastructure
- Existing Components / Systems
- NCP Environment



- ✓ Standardised XDS based Architecture
- ✓ Allows storing / sharing of clinical documents
- ✓ Avoids Vendor Lock in
- ✓ Different data providers / consumers can be added as we go forward
-> Labs
-> Imaging
etc
- ✓ Aligned to EU EHR Roadmap
- ✓ Reduced governance with a harmonised national / xBorder architecture

XDS Supporting Health Data Repositories

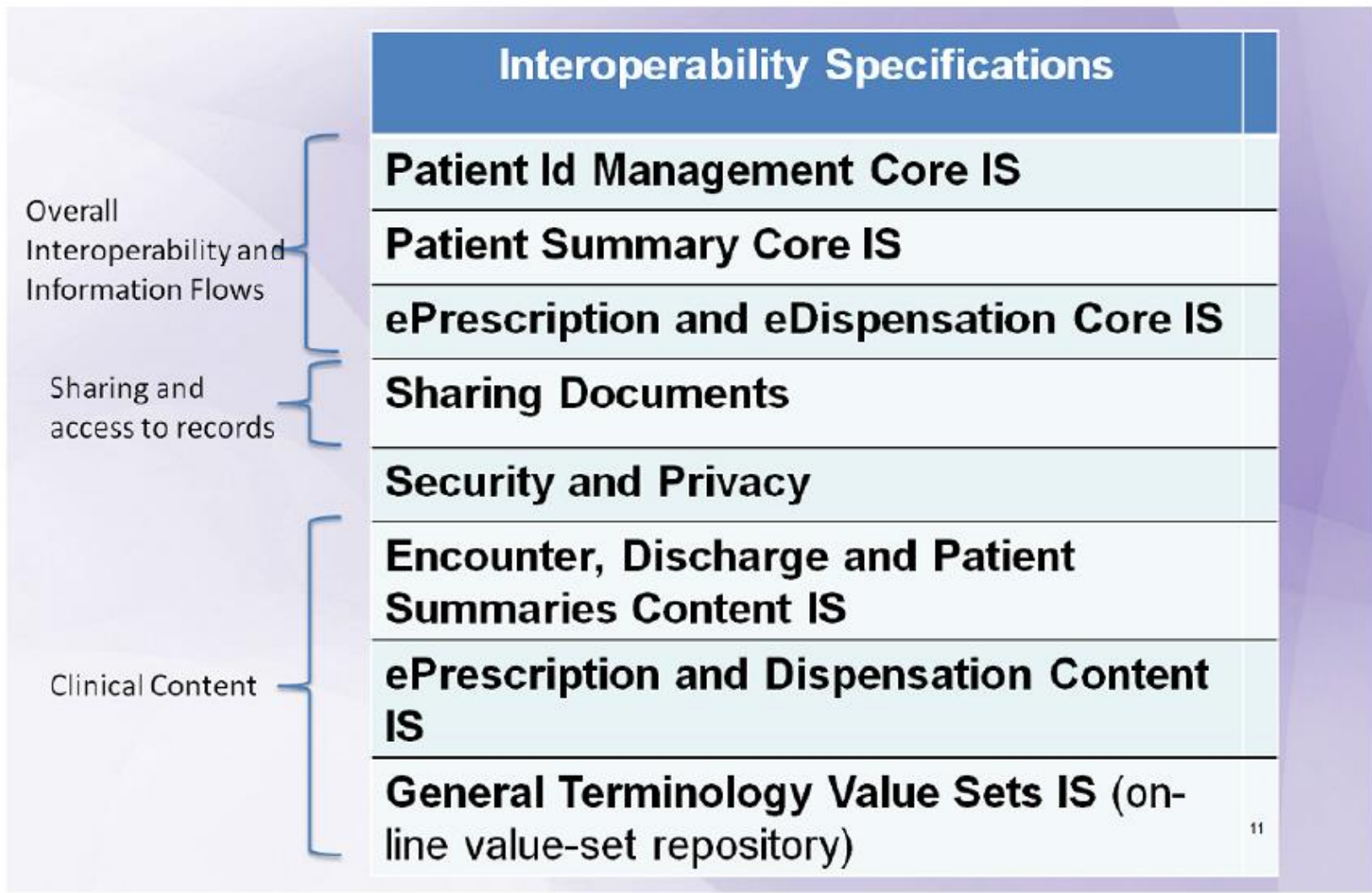


The build up of Clinical Documents in a standardised repository can also provide data as shown for both

- ✓ Research
- and
- ✓ Population Health purposes

Wikipedia: In computing, extract, transform, load (**ETL**) is the general procedure of copying **data** from one or more sources into a destination system which represents the **data** differently from the source(s) or in a different context than the source(s).

Cross Border IOP Spec Framework

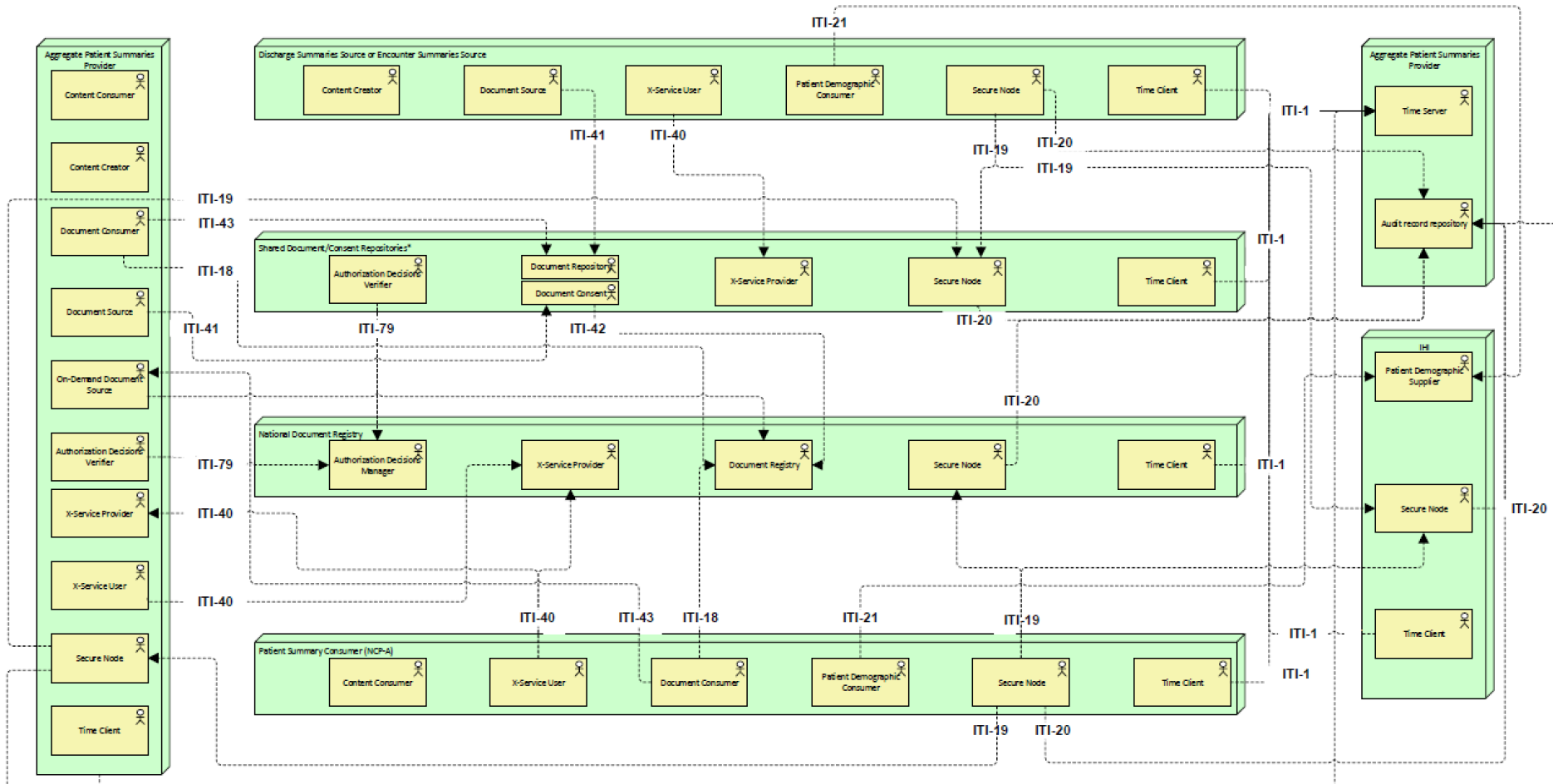


- ✓ To support the architecture IHE and HSE developed a number of supporting interoperability specifications
- ✓ These covered the fundamental elements of safe secure clinical data exchange
- ✓ Form the basis of the testing
- ✓ These specifications can also be utilised by other national and cross border use cases
- ✓ The specifications underpin the architecture and in essence form an Irish interoperability framework

Patient Summary interoperability blueprint

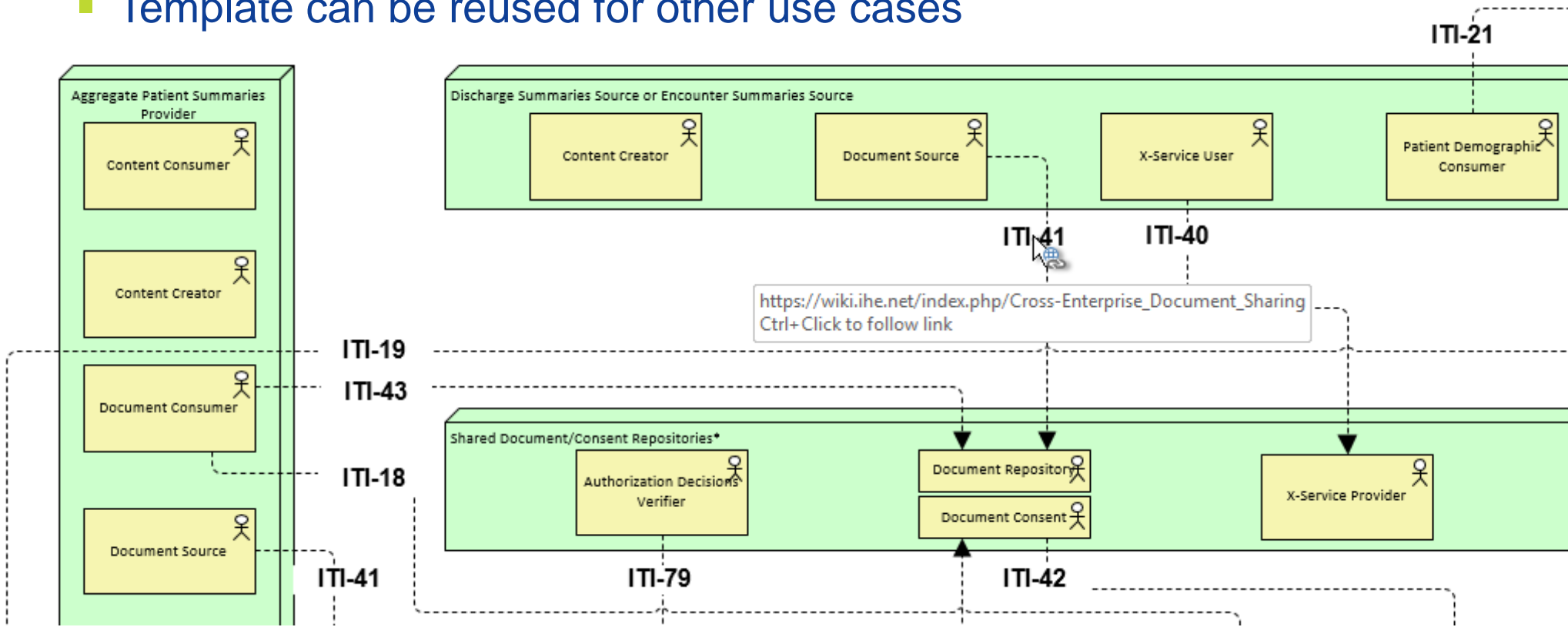
- From the architecture and the interoperability specifications IHE and HSE created the blueprints

HSE Patient Summary					
AM03 EXT Technology Model Viewpoint	VERSION:	AUTHOR:	06/03/2019 by System Administrator	VERSION AUTHOR:	01/06/2019 by Sandra Ryan 4



Patient Summary interoperability blueprint detailed



- The interoperability blueprints have been modelled in the EA tool using Archimate
- The blueprint provides additional information on each of the transactions needed
- Template can be reused for other use cases



Architecture Building Block eHealth Ireland CDA Template for ePrescription

- Irish Art Décor will enable OoCIO staff to model clinical documents and templates to ensure the appropriate standards based interoperability and governance.
- Below is the ePrescription CDA Document and attributes for Cross Border.

← → ↻ 🏠 <https://testing.ehealthireland.ie/art-decor/decor-templates--EHI-?section=templates> ☆ 🌐 ⋮

eHealthIreland - Templates  

🏠 🔍 🔄 🗑️ ⏪ Project Datasets Scenarios Terminology Templates Issues 👤

EHI-ePrescription – 🔗

Id	1.2.372.980010.4.10.2	Effective Date	2019-03-08 17:37:26
Status	🟡 Draft	Version Label	20190308
Name	EHI-eP	Display Name	EHI-ePrescription

▶ Description

Context Pathname /

Classification CDA Document Level Template

Open/Closed Open (other than defined elements are allowed)

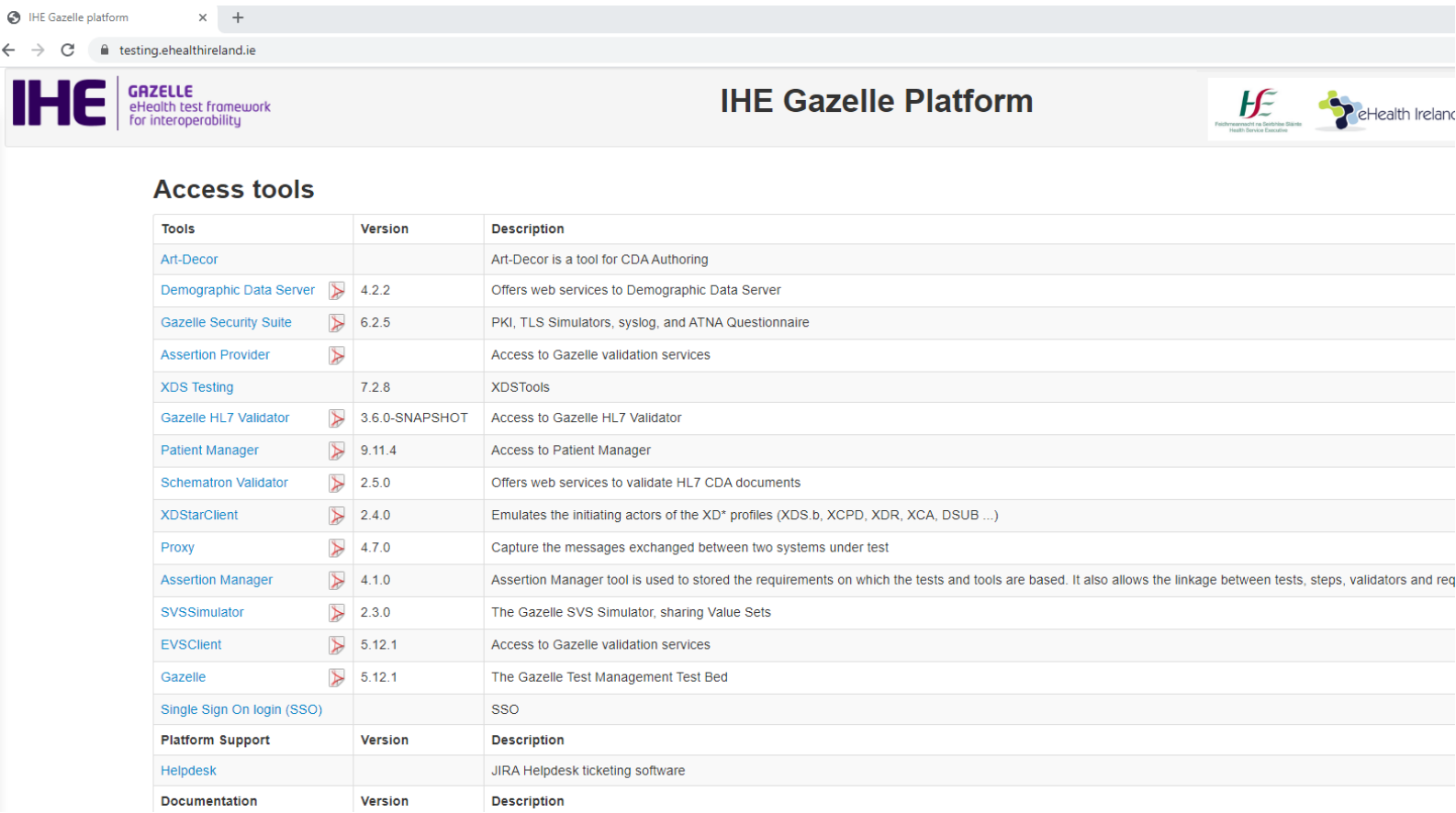
Used by / Uses ▶ Used by 0 transactions and 0 templates, Uses 8 templates

Relationship
 Specialization: template [1.3.6.1.4.1.12559.11.10.1.3.1.1.1](#) *epSOS-ePrescription* (2018-11-14 10:49:44) ref epsos-
 Specialization: template [2.16.840.1.113883.10.12.1](#) *CDA ClinicalDocument* (2005-09-07) ref ad1bbr-

Expand All Collapse All Search by name

Item	DT	Card	Conf	Description	Label
▼ hl7:ClinicalDocument			R	CDA header	EHI-eP
▼ hl7:realmCode	CS	1 ... 1	R		EHI-eP
@code	CONF	0 ... 1	F	IE	
▼ hl7:typeId	II.EPSOS	1 ... 1	M	The clinical document typeId identifies the constraints imposed by CDA R2 on the content, essentially acting as a version identifier. The @root and @extension values of this element are	EHI-eP

Irish Test Platform



The screenshot shows the IHE Gazelle Platform website. The header includes the IHE logo and the text 'GAZELLE eHealth test framework for interoperability'. The main heading is 'IHE Gazelle Platform'. Below this is a table titled 'Access tools' with columns for 'Tools', 'Version', and 'Description'. The table lists various tools such as Art-Decor, Demographic Data Server, Gazelle Security Suite, Assertion Provider, XDS Testing, Gazelle HL7 Validator, Patient Manager, Schematron Validator, XDStarClient, Proxy, Assertion Manager, SVSSimulator, EVSClient, Gazelle, Single Sign On login (SSO), Platform Support, Helpdesk, and Documentation.

Tools	Version	Description
Art-Decor		Art-Decor is a tool for CDA Authoring
Demographic Data Server	4.2.2	Offers web services to Demographic Data Server
Gazelle Security Suite	6.2.5	PKI, TLS Simulators, syslog, and ATNA Questionnaire
Assertion Provider		Access to Gazelle validation services
XDS Testing	7.2.8	XDSTools
Gazelle HL7 Validator	3.6.0-SNAPSHOT	Access to Gazelle HL7 Validator
Patient Manager	9.11.4	Access to Patient Manager
Schematron Validator	2.5.0	Offers web services to validate HL7 CDA documents
XDStarClient	2.4.0	Emulates the initiating actors of the XD* profiles (XDS.b, XCPD, XDR, XCA, DSUB ...)
Proxy	4.7.0	Capture the messages exchanged between two systems under test
Assertion Manager	4.1.0	Assertion Manager tool is used to stored the requirements on which the tests and tools are based. It also allows the linkage between tests, steps, validators and req
SVSSimulator	2.3.0	The Gazelle SVS Simulator, sharing Value Sets
EVSClient	5.12.1	Access to Gazelle validation services
Gazelle	5.12.1	The Gazelle Test Management Test Bed
Single Sign On login (SSO)		SSO
Platform Support	Version	Description
Helpdesk		JIRA Helpdesk ticketing software
Documentation	Version	Description

- The Irish Test Platform (based on Gazelle) is an interoperability test bed that offers a variety of testing tools to verify

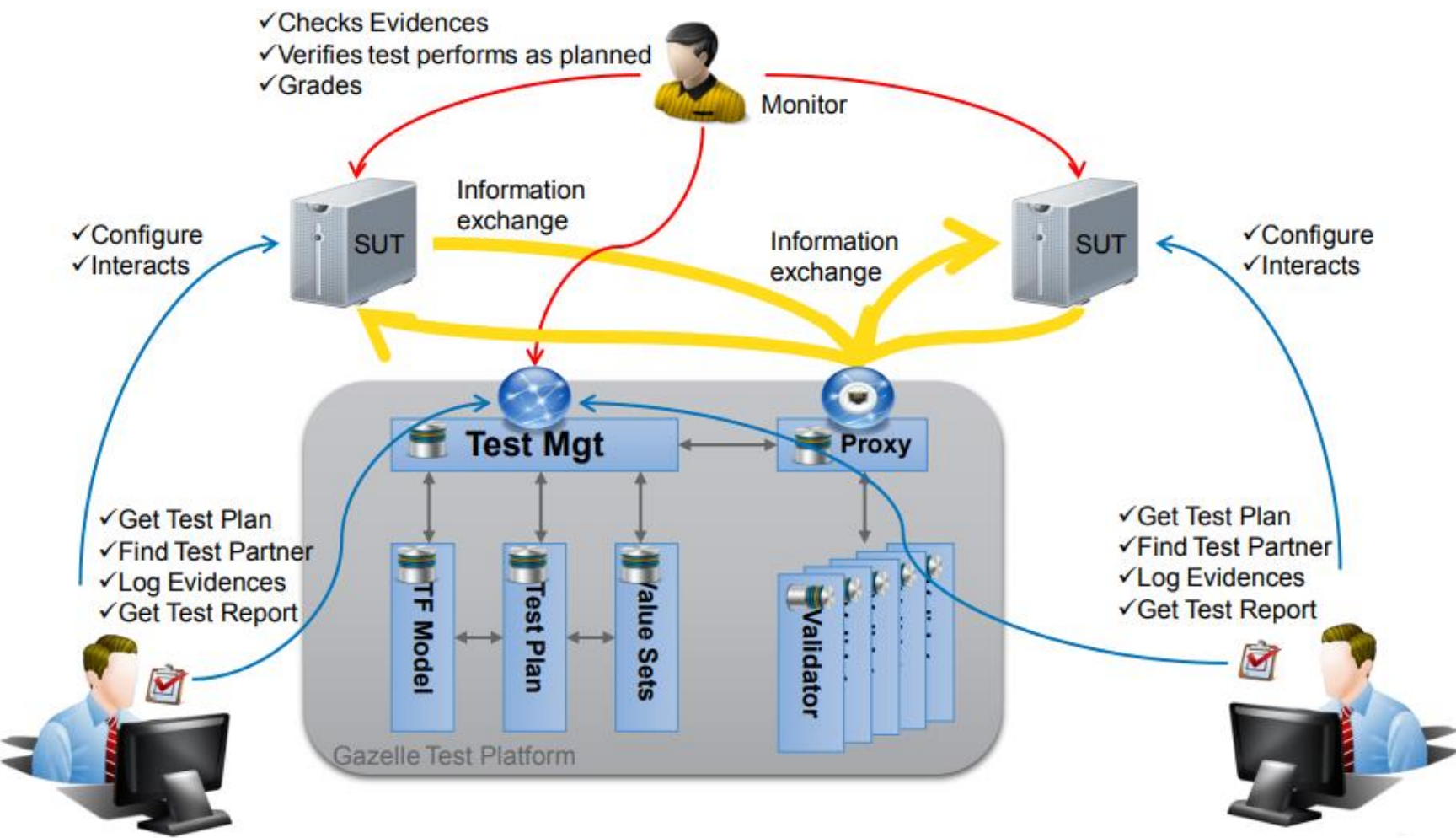
-> conformance of messages supplied by a system

-> conformance of information exchanged between systems

-> conformance of systems to relevant interoperability standards

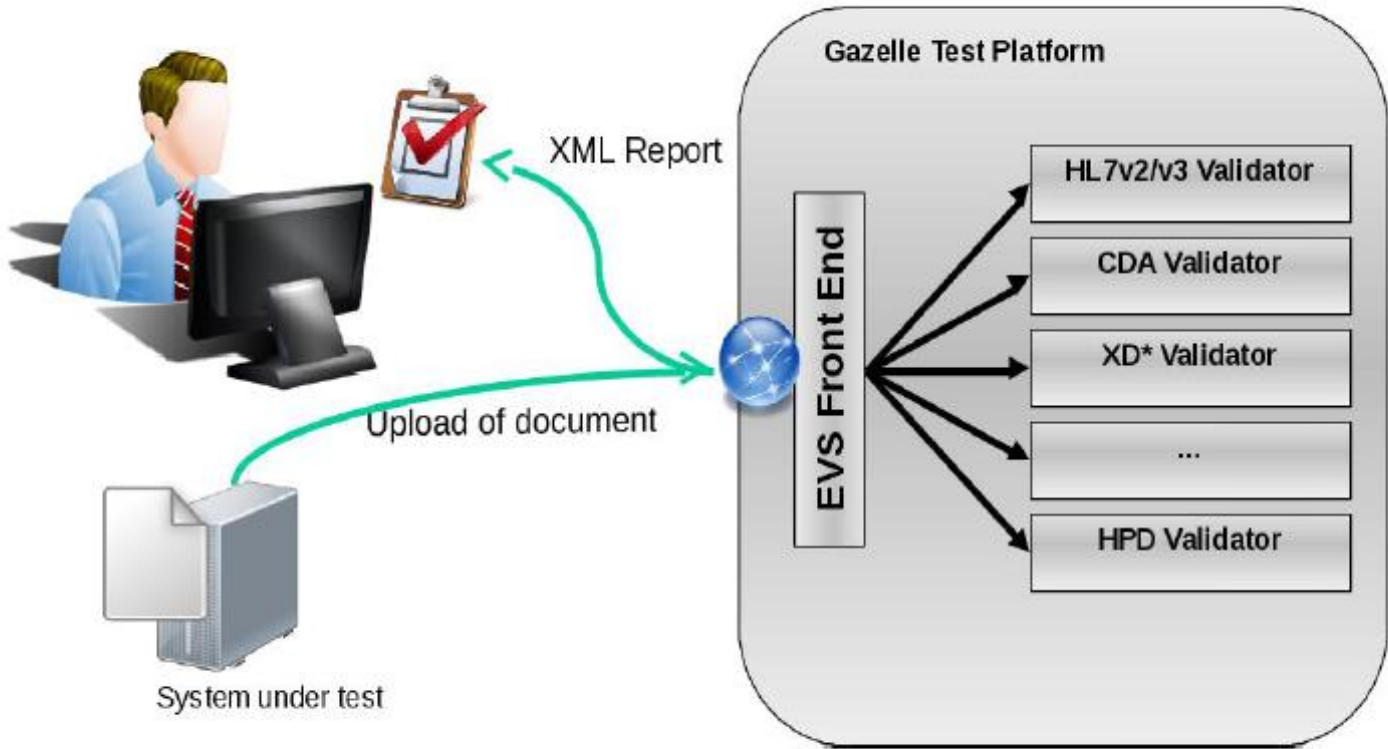
Available at <https://testing.ehealthireland.ie/>

Test Platform scenario to enable Test Event



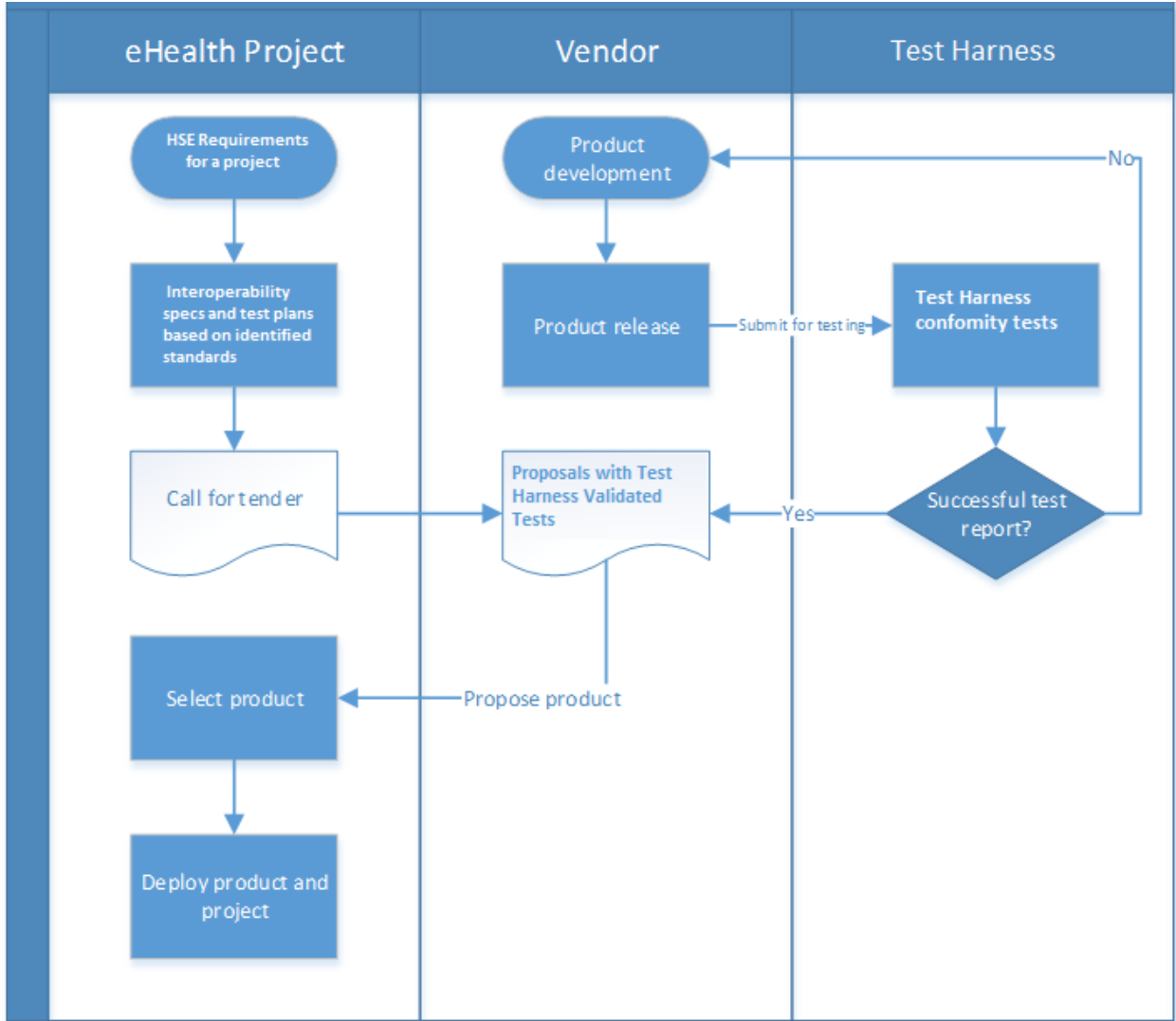
- ✓ As part of Ireland's Open NCP delivery together with IHE we will host 2 National Projectathons in 2020
- ✓ Saves time for all Project stakeholders during testing and for users during field deployment.
- ✓ Saves money for all Project stakeholders with corrections made on the fly during the test event.
- ✓ Gives users higher levels of confidence.
- ✓ Reduces clinical risk.

Test Platform scenario validating a HL7 message



- ✓ Another first for Ireland with IHE we create implementation guides in the NIST tool IGAMT based on the Healthlink (National Broker) messaging specifications.
- ✓ Implementation guides uploaded to Test Platform which then allows testing/validation of different message types e.g a Hospital Discharge Summary is uploaded and tested for conformance
- ✓ Detailed feedback to vendor to fix any identified issues
- ✓ Increased governance and transparency
- ✓ Conformance achieved
- ✓ For future projects that need to send/receive messages via Healthlink smoother implementation

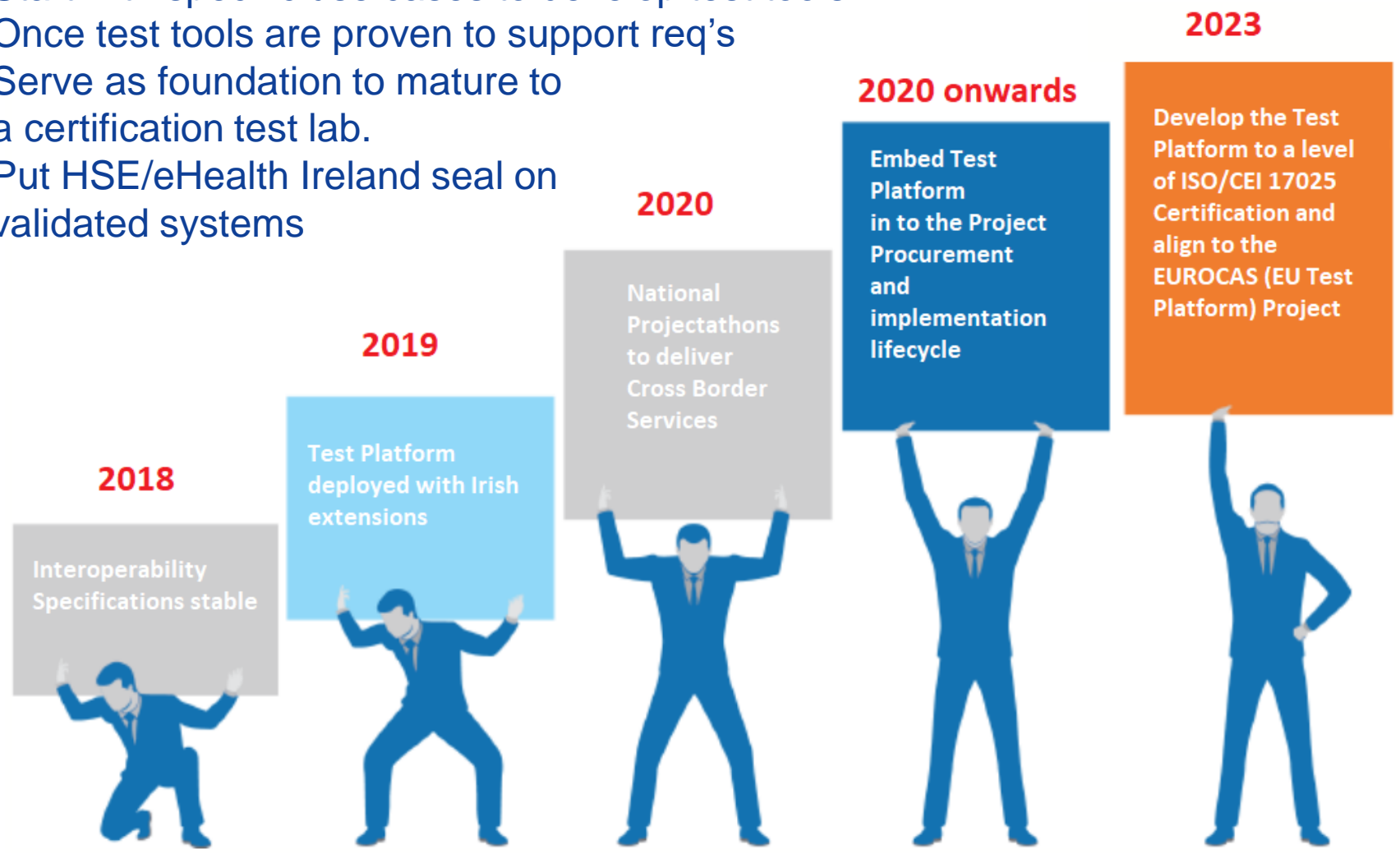
Test Platform scenario to support procurement



- ✓ During the procurement process Project Managers can outline what the required standards are to support the interoperability Use Case(s)
- ✓ During the procurement process vendors can configure the system/product to comply with the identified standards
- ✓ Avoids costly re-works post implementation
- ✓ Reduces risk levels for both HSE and the vendors whilst enhancing/delivering the solution
- ✓ Greater efficiency of operation enables enhanced patient care
- ✓ Currently scoping Use Cases with National projects such as National Children’s Hospital EHR, National ePrescribing etc.

Evolving Test Platform for certification

- ✓ Start with specific use cases to develop test tools.
- ✓ Once test tools are proven to support req's
- ✓ Serve as foundation to mature to a certification test lab.
- ✓ Put HSE/eHealth Ireland seal on validated systems



The Irish and IHE Services Partnership

IHE SERVICES | Building trust in eHealth interoperability

 **An Roinn Sláinte**
DEPARTMENT OF HEALTH


Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



- ✓ IHE have a highly skilled and professional team
- ✓ Bringing a wealth of experience from projects in other countries
- ✓ Collaboration with different stakeholders and departments
- ✓ Huge knowledge sharing with the Irish team
- ✓ International best practices and tools embedded in Irish eHealth ecosystem