Enterprise Architecture & Design Authority

Interoperability Testing and Certification
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eHealth Ireland: Eamon.coyne@hse.ie
Driving Healthcare Transformation

Delivering eHealth Ireland

Office of the Chief Information Officer



DATASET SPECIFICATIONS & INTEROPERABILITY

Dataset Specification Management
Data Dictionary
Data Modelling
Clinical Information Architecture
Clinical Document Modelling
Business Information Management
Data Management Planning
Information Governance
Data Interoperability Framework
Enterprise Data Sharing Platform
EU E.H.R National Portal
EU E.H.R Data Sharing Exchange
Testing Platform
Enterprise Terminology Services

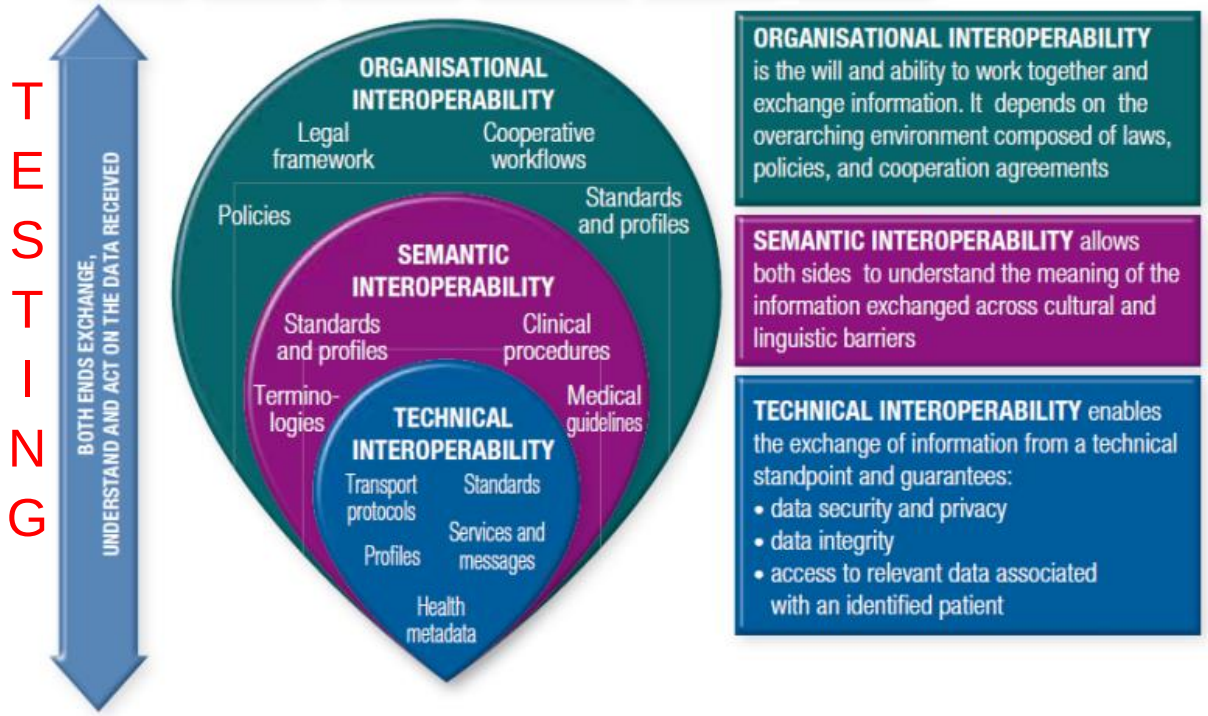
Key Deliverables
Dataset Specification Standardisation
DD -Website with published content
Irish SNOMED CT
Good information Practices – Self Training
Data Management Planning Documentatio
Clinical Document Templates
Test Harness
Interoperability Specifications

eHealth Interoperability

- In relation to eHealth it can be defined as follows…
  "In healthcare, interoperability is the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged. "
  (definition HIMSS 2013)

- Testing is the backbone to interoperability.

Bringing it all together through Testing



1. **Organisational interoperability** refers to the broader environment **of laws, policies, procedures** and bilateral cooperation needed to allow the seamless exchange of information between different organisations, regions and countries.

2. **Semantic interoperability** refers to the ability to ensure that the **precise meaning** of exchanged information is interpretable by any other system or application not initially developed for this purpose.

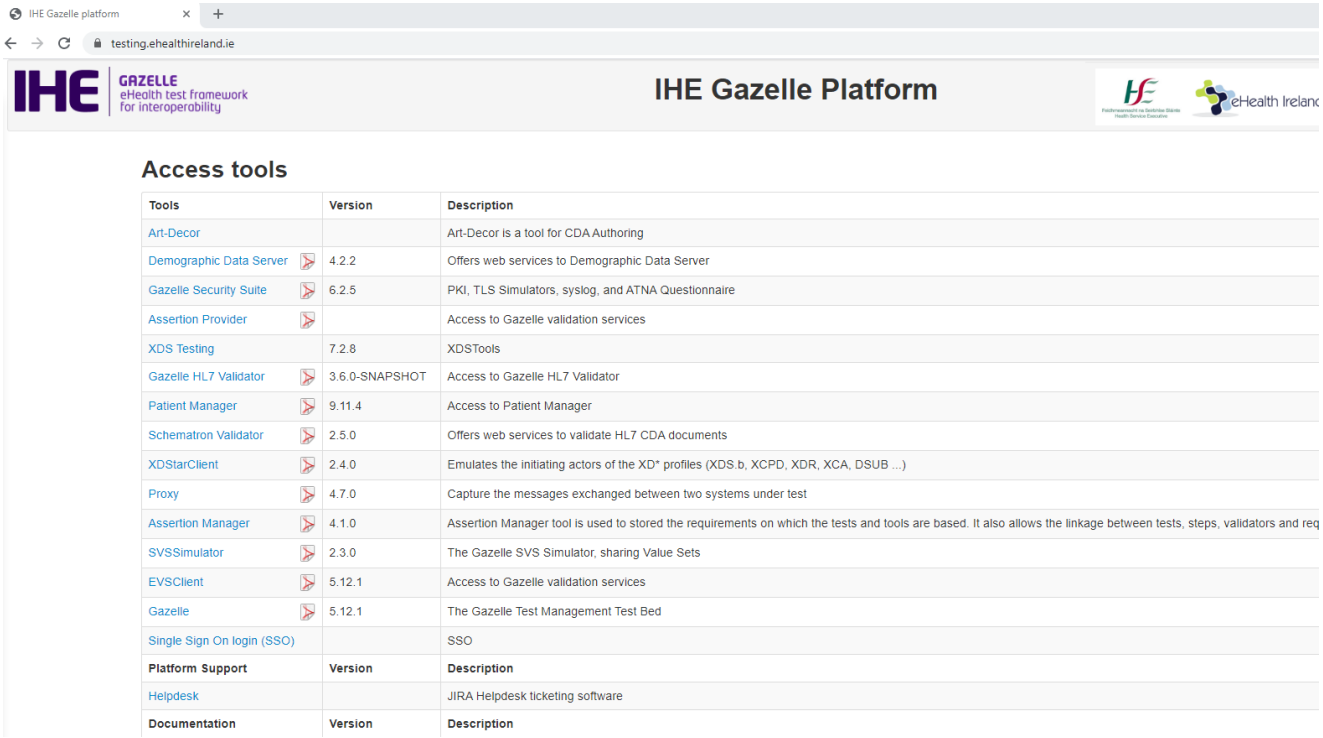
3. **Technical interoperability** refers to the ability of two or more ICT applications to **accept data from each other** and perform a given task in an appropriate and satisfactory manner without the need for extra operator intervention.

Interoperability of digital health solutions leads to

- ✓ Easier and faster access to patient's information
- ✓ Better diagnosis, better quality of treatment, better patient safety
- ✓ Improved cost efficiency
- ✓ More end-to-end security for data transfers

Test Platform

- 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/



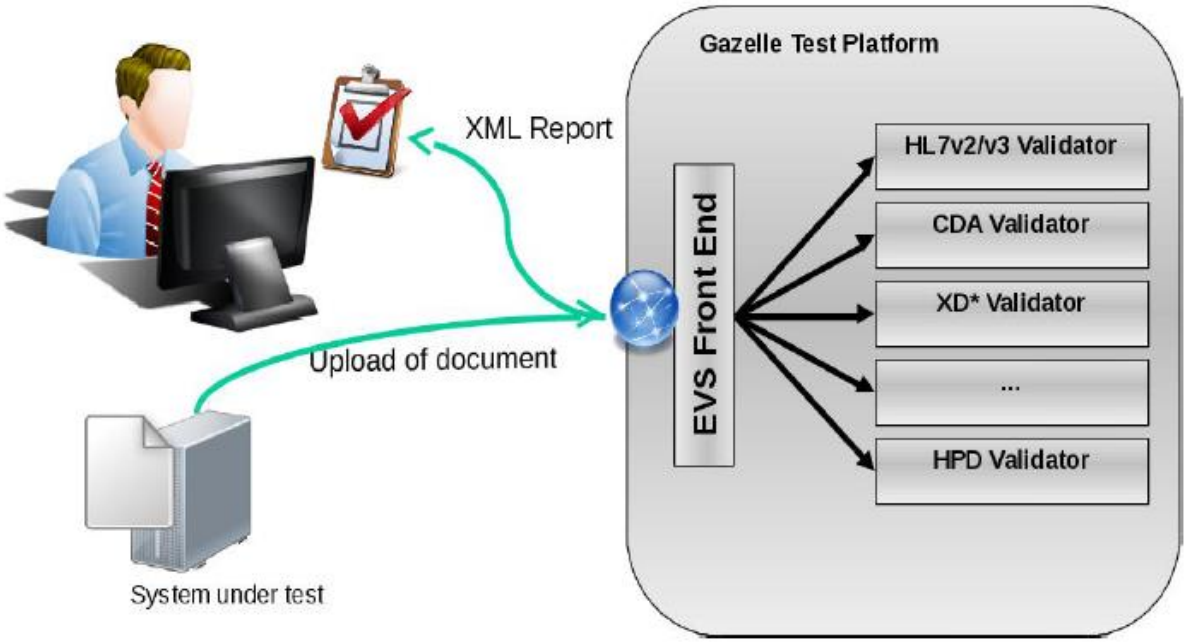
Access tools

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**

Test Platform scenario validating a HL7 message

A first for Ireland, EA and colleagues in A2I have worked with IHE and NIST (American Standards Body) to create implementation guides in the NIST tool IGAMT based on the Healthlink messaging specifications.

Once complete the implementation guides are subsequently uploaded to the Test Platform which then serves as the conformance basis for the testing/validation of those messages by the relevant stakeholders for e.g a Hospital supplying a Discharge Summary

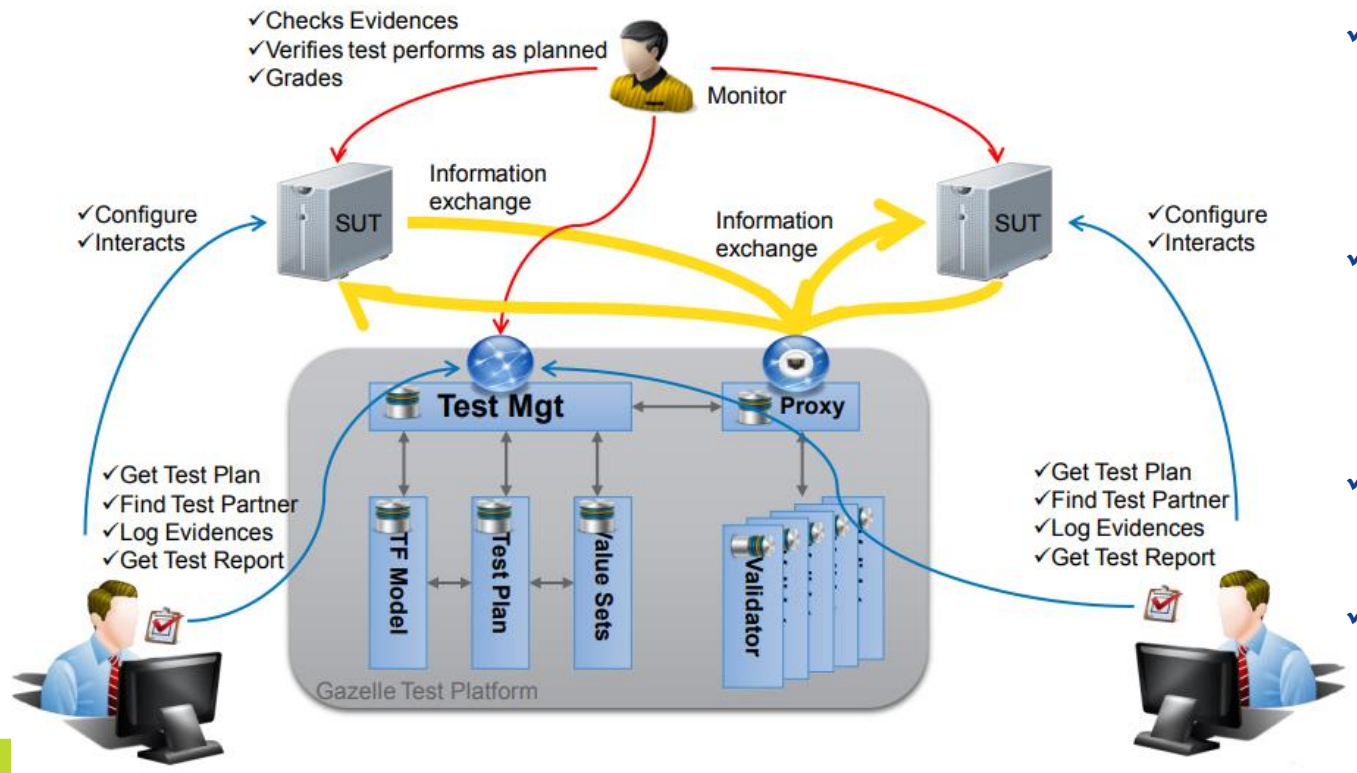


- ✓ Automates testing
- ✓ Detailed feedback to vendor to fix any identified issues
- ✓ Increased governance and transparency
- ✓ Conformance achieved
- ✓ For future projects that need to send/receive messages via Healthlink smoother implementation

Test Platform scenario to enable Test Event

The Test Platform will also be used for national test events termed 'Projectathons'.
The aim is to have the relevant actors/systems in the data exchange/use case register their system for the test event to enable testing of the systems required role in the implementation of the project.

Ireland will host 2 national Projectathons in 2020 as part of it's delivery of the EU Cross Border services i.e. transmission of Patient Summary and ePrescription data for Irish citizens in need of unscheduled treatment abroad. An actor/system here for example will be the identity provider i.e. IHI registry which will be tested for conformance to the required Patient Identification tests.



- ✓ 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.

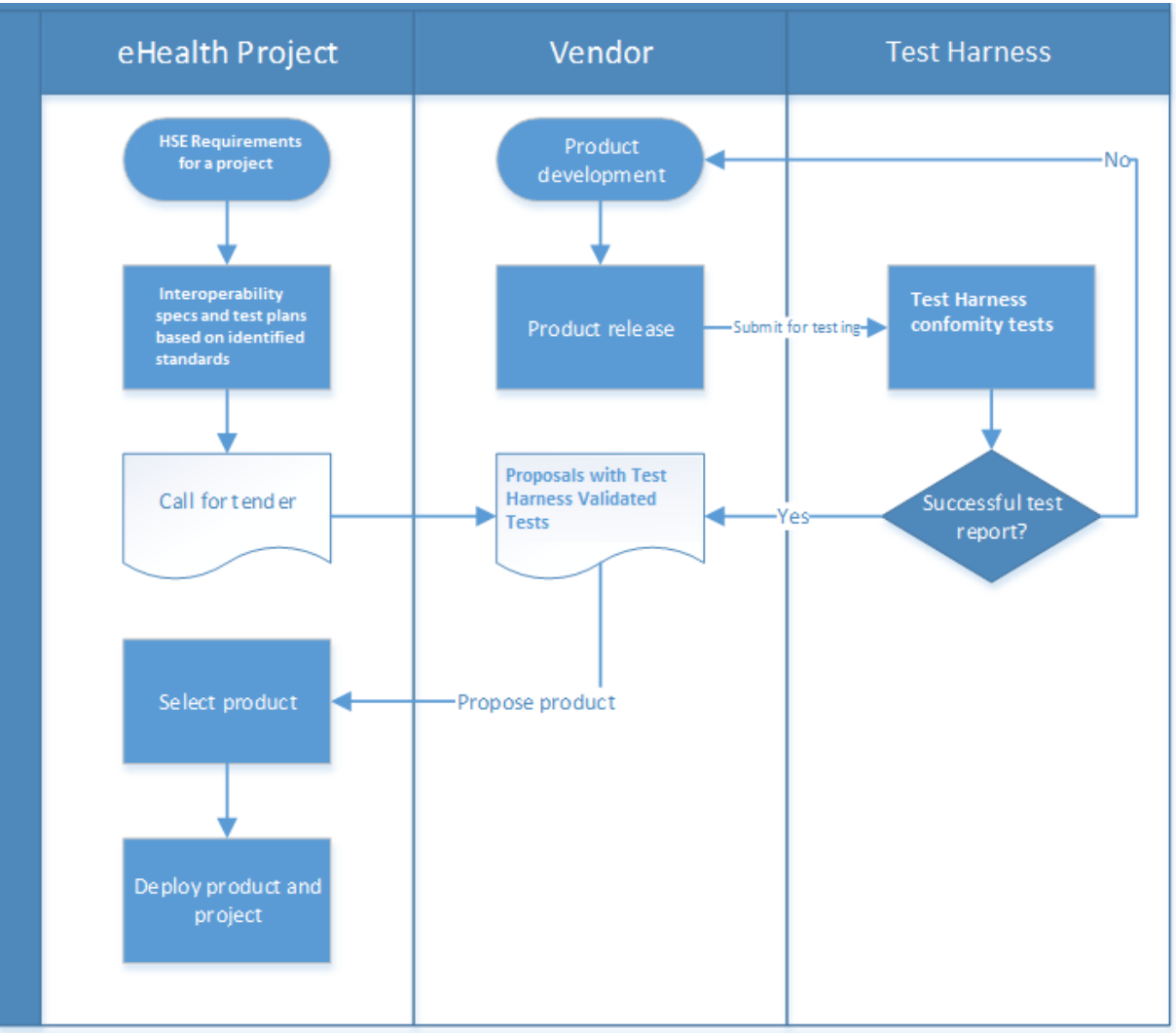
Irish participation in recent EU Test Event

Recently Ireland participated in a 5 week EU Projectathon test event whereby we successfully exchanged PS and eP data with 10 Member States for each use case.

Submissions - 2019-10 eHDSI Wave 3 Preparatory Pre-Production Testing

A \ B	Cyprus	Czech Republic	Estonia	Finland	France	Greece	Ireland	Netherlands	Poland	Spain	Sweden
Cyprus			PS:CY2EE(1990-01-01_1) PS:CY2EE (1990-01-01_1)	eP : CY2FI (1990-01-01_1) eD: FI2CY (1990-01-01_1)	PS: CY2FR(1990-01-01_1)	PS: CY2GR (1990-01-01_1) eP:CY2GR(1990-01-01_1) eD: GR2CY - 1990-01-01_1			eD: PL2CY (1990-01-01_1)	PS:CY2ES(1990-01-01_1)	
Czech Republic				eP: CZ2FI (222333069)							
Estonia	PS: EE2CY (50708319990)				PS: EE2FR (50708319990)	PS: EE2GR (50708319990)					
Finland		eP:FI2CZ (251094-901h)									eP:FI2SE(010143-900K)
France											
Greece	PS: GR2CY(01059902062) eP:GR2CY – (01059902062) eD: CY2GR(01059902062)	eD: CZ2GR(01059902062) eP: GR2CZ (XXX)	PS:GR2EE(01059902062)	eP :GR2FI (01059902062) eD: FI2GR (01059902062)	PS: GR2FR (01059902062)					PS: GR2ES(01059902062)	eP:GR2SE(01059902062)
Ireland	PS: IE2CY (539305450000074414) eP: IE2CY (539305450001604603)	eP: IE2CZ (XXX)	PS:IE2EE(539305450000074414)	eP:IE2FI(539305450001604603) eD:FI2IE(539305450001604603)	PS:IE2FR (539305450000074414)	PS: IE2GR (539305450000074414) eP:IE2GR(539305450001604603) eD:GR2IE (539305450001604603)				PS:IE2ES(539305450000074414)	eP: IE2SE (539305450000917018)
Netherlands											
Poland	eP:PL2CY (79092303809) eD: CY2PL - 79092303809	eP:PL2CZ (44041889204)		eP:PL2FI (73111130096)		eP: PL2GR (96050409265) eD: GR2PL (96050409265)					eP:PL2SE(8108120901)
Spain											
Sweden	eD:CY2SE(200002282382)			eP:SE2FI(199501112388) eD:FI2SE(199501112388)		eD: GR2SE (2002040623848)					

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 CHI project team.

Test Platform scenario to support procurement

Example of an Interoperability function to test: Requester of an imaging report

Use Case	Interoperability function	Services	Opt	Technical actor	Opt	Profile/transactions	Interoperability specifications
Request Radiology examination	Requester of Imaging report	Request for imaging report	R	Order Placer	R	IHE Scheduled workflow	HSE specifications for EHR

Use Case

Interoperability Specifications

Sample text for tender specification:

Products or solutions that are referenced in the *HSE Project Proposal* for the interoperability function *Request of imaging report* shall implement the interoperability requirements as described in the *HSE specifications for EHR* interoperability specification.

Sample text for tender evaluation:

The product or solution has conformed to the interoperability requirements as described in the « *name of the interoperability specifications* » for the interoperability function « *name of the interoperability function* » Answer Yes/No (please provide evidence of test report)

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