EUDI Wallet workshop General principles, first use cases in eHealth, and testing strategy

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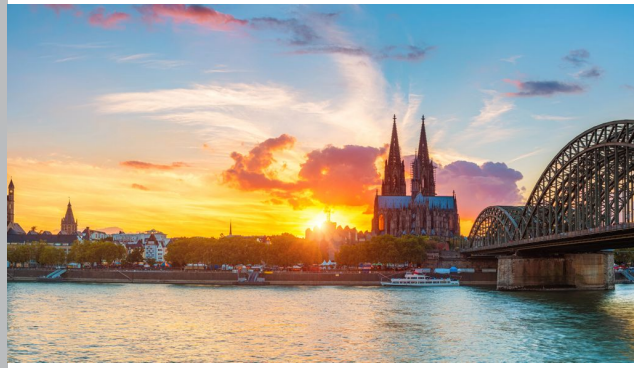
Shaping the Future of FHIR® in Europe



HL7® Europe

Working Group Meeting
1-5 December 2025
Cologne, Germany

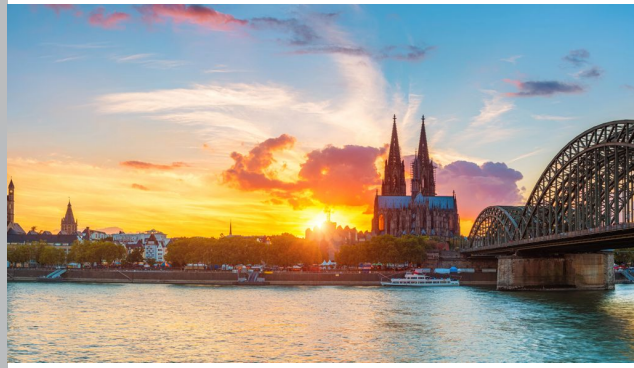
Agenda

- EUDI Wallet workshop General principles
- Discussion
- Use cases in the projects
- Testing Lab in EU Projects
- Continuous testing session for EHDS
- Demo on Gazelle
- Discussion

EUDI Wallet workshop
General principles

Alberto Zanini - Maggioli Group

Shaping the Future of FHIR® in Europe



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State of play in Europe (1/2)

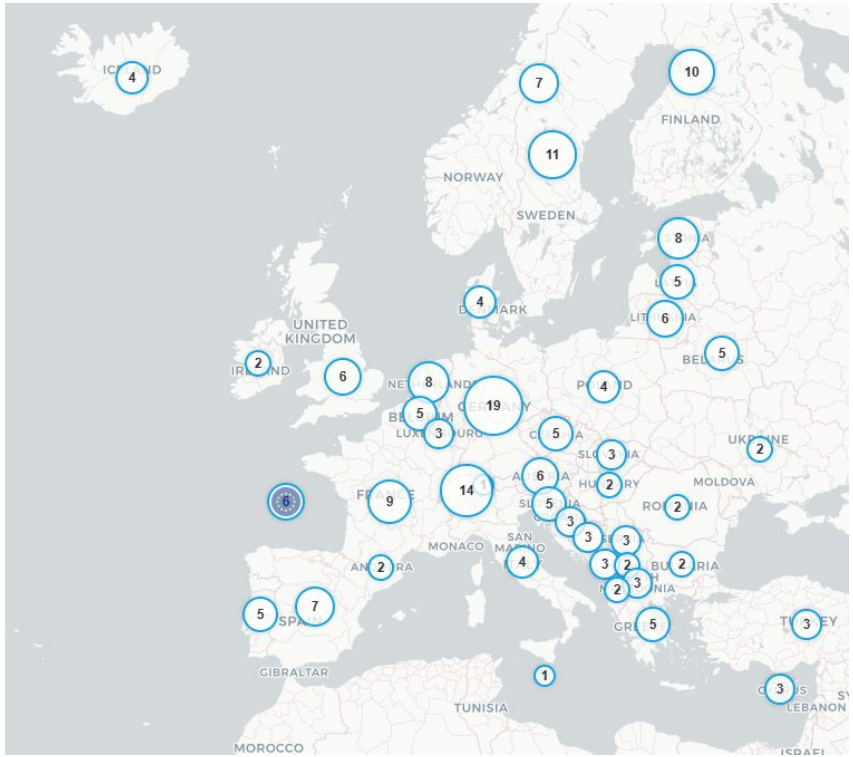
27 Member States, how many digital identity solutions?

State of play in Europe (2/2)

100+ among the EU MS

200+ in 43 Countries mapped

(source: https://www.digital-identity-landscape.eu/)



The need for interoperability

- EU Citizens should be able to use their digital identity for accessing services in the Union, regardless of their Country of Affiliation

- Regulation eIDAS (910/2014) tried to provide a solutions with the infrastructure “eIDAS login”, still operational, yet:
  - for online public services only
  - limited adoption between MS since 2016

The European Digital Identity Wallet (EUDIW)

- The idea is to provide a secure digital identity for all EU citizens, promoting a common approach in the 27 MS, according to specific standards

- Aligned with the ambition of the EU Digital Compass: 100% of EU citizens having access to digital ID by 2030

- The EUDIW will store this EU-wide accepted electronic identity

Some key features

- System trusted and user-controlled, allowing citizens to manage their digital identity securely and disclosing just the necessary information

- Seamless access to online and offline services in the EU, including private services

- Free for use for citizens, on voluntary basis

Timeline for adoption (1/2)

Timeline for adoption (2/2)

Each EU Member State will develop its own national digital wallet, integrating it into its existing infrastructure

Two milestones (**eIDAS 2 Regulation** and their **Implementing Acts**) [2] :

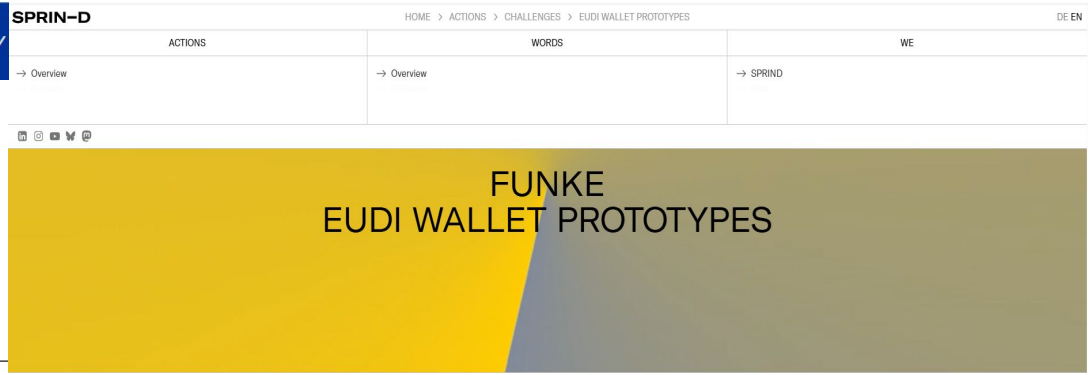
- by **December 2026**, all MS must provide a Wallet app - built to uniform specifications - free of charge to citizens, residents, and businesses

  and by the same date, **online public services** shall accept EUDIW as authentication method for users
- by **December 2027**, **online private platforms** shall support EUDIW as authentication method for users

[2] https://eur-lex.europa.eu/eli/reg/2024/1183/oj/eng

Work in progress

Germany



Italy

News

Italy launches the EU Digital Identity Wallet

Monday 16 December 2024 11:07 CET | News

Italy has announced the launch of its iteration of the EU Digital Identity Wallet scheme, the IT-Wallet, allowing residents to digitise their identity documents through a single application.

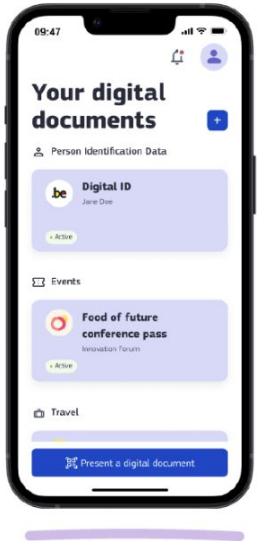
Passed in 2023 regardless of criticisms from privacy specialists informing about a potential expansion in surveillance and security risks, the EU Digital Identity Wallet scheme aims to deliver a safe, reliable, and secure option for digital identification for every individual in Europe. In addition, the EU Commission adopted regulations governing the technical functionalities and certification of the EU Digital Identity Wallets in November 2024, including five implementing laws intended to ensure interoperability, security, and privacy across the region. These included uniform technical standards, privacy-focused design, and certification frameworks.

Cyprus

Cyprus to Launch EU-Compliant Digital ID System with Early Adoption Incentives

January 21, 2025

Main functionalities

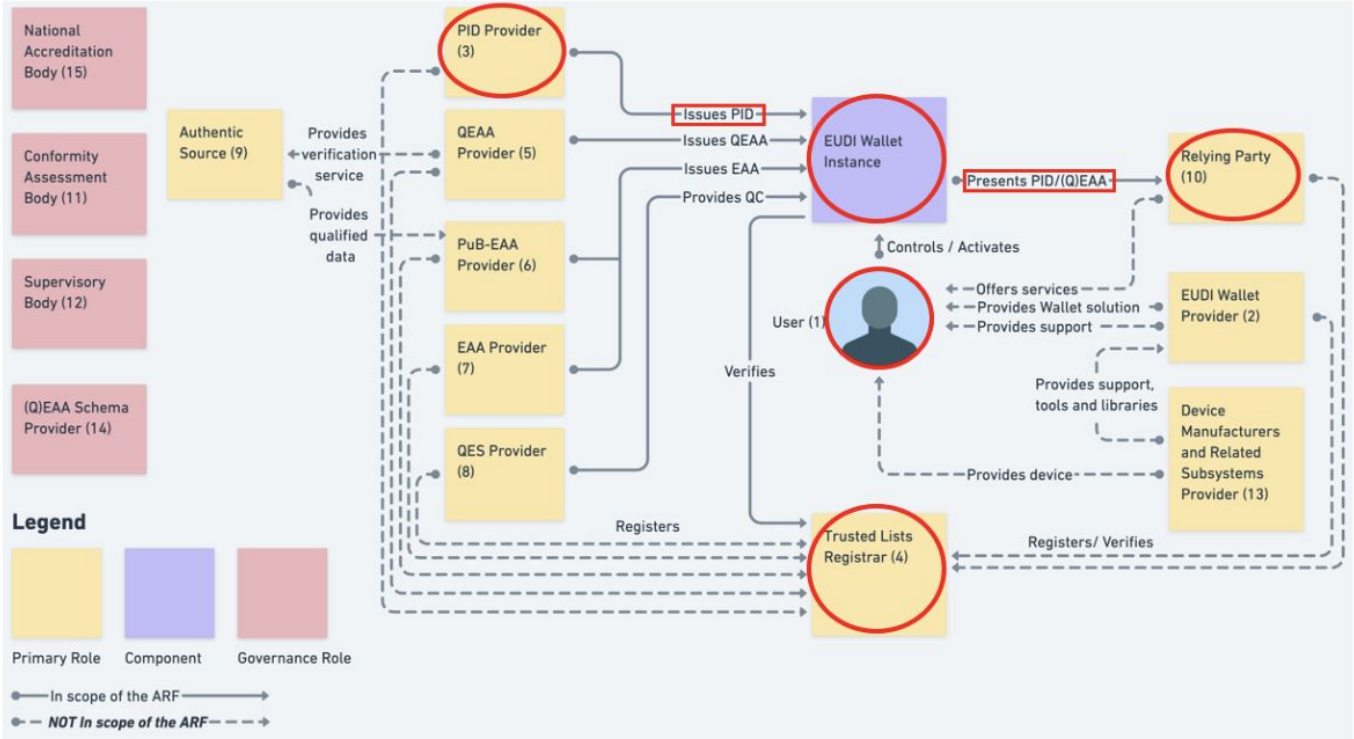


Identification and authentication

Presentation of “attributes”

Digital signature

Roles in the EUDIW ecosystem



Identification and authentication (1/2)

- Each EUDI Wallet has a PID (*Person Identification Data*), created during the initialization process, typically derived from another government-issued ID solution (LoA High)
- The PID structure can be presented to a Relying Party
- Selective disclosure principle: the user can share specific attributes (e.g. date of birth)

Identification and authentication (1/2)

- Expected that MS will introduce the EUDIW as *additional* authentication means

- Possible use online and offline
    - remote
    - proximity: the Relying Party is in physical proximity with the User and the EUDIW

- Same device or cross-device

Presentation of attributes (1/3)

- Attributes: piece of data, digitally signed, provided by an Issuer

- An EAA is a digital document that officially confirms a specific piece of information (an attribute) about an individual or entity. These are issued by authorized public or private providers and stored in the EUDIW

Presentation of attributes (2/3)

- Different types of Attributes:
  - EAA, or Electronic Attestation of Attributes
  - QEAA, Qualified EAA
  - Pub (Q)EAA, Public (Q)EAA

- Examples of EAA: mobile driving license, diploma, certificate of residence, health data (e.g. ePrescription), …

Presentation of attributes (3/3)

- The Issuer prepares and signs the EAA, but data are retrieved from an Authentic Source

- Examples:

EAA	*Authentic Source*
Diploma	School, University
Mobile driving license	Government authorities
Certificate of Residence	Municipality

Digital signature

- Each EUDIW Instance is equipped with a private key, with capabilities of digitally sign documents, after a preview (“*What you see is what you sign*”)

- The private key can be stored on the mobile device or remotely (HSM Hardware Secure Module, or similar), depending on the certification scheme

- Examples: user could sign a consent form

Standards and technologies

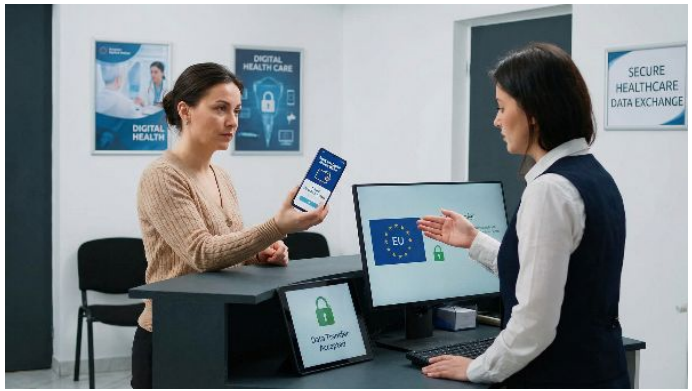
- OIDC4VCI OpenID for Verifiable Credential Issuance
- OIDC4VP OpenID for Verifiable Presentations
- SD-JWT Selective Disclosure for JWTs
- mdoc (ISO 18013-5/7)
- QrCodes (*for device engagement! not for carrying actual data*)
- BLE Bluetooth Low Energy (*proximity use cases only*)
- NFC Near Field Communication (*proximity use cases only*)

EUDIW Large Scale Pilots

LSP	Main focus	Highlights
POTENTIAL (2023-25)	eGovernment services, eSignatures, mobile driving licence, **ePrescription**, bank onboarding	19+ Member States; testing interoperability of key citizen services
DC4EU (2023-25)	Education and social security credentials	Focused on diplomas, professional qualifications, and eHealth cards
NOBID (2023-25)	Cross-border **digital payments**	Led by Nordic–Baltic countries, testing wallet-based authorization and interoperability
EWC EUDI Wallet Consortium (2023-25)	Travel, **payments**, and organizational identity	Broadest consortium; piloting digital travel credentials and large-scale usability
WE BUILD (from 2025)	Led by NL and SE; ~200 partners	"Business Wallet" – legal representation, UBO attestation, B2G/B2B digital interactions
APTITUDE (from 2025)	Led by France; 118 partners in 11+ countries	Expanding trusted digital identity use cases and accelerating EU-wide deployment

Possible applications in eHealth

- The EU-funded project MyHealth@MyHands is exploring ways of using the EUDIW for **patients** (authentication means + secure data carrier)
- **Health Professionals** might use the EUDIW (e.g., their affiliation with an hospital, or their role, could be stored as an EAA)
- (and possibly, Business Wallet for institutions/hospitals/…)



Wallet for Health Professionals

European Commission

DG SANTE
Unit C.1 – Digital Health

FAQ no. 19

While the impact on patients is widely acknowledged - ensuring they have the right to authenticate themselves for health data access services using reliable electronic identification methods, such as those aligned with the European Digital Identity Framework, the implications for healthcare professionals require particular attention:

Frequently Asked Questions on the European Health Data Space

Last updated 5 March 2025

💡 "Health professionals can use the same kind of identification means compliant with the European Digital Identity Framework. Many Member States already provide national electronic identification means to their licensed health professionals. Their use could continue as long as they are compliant with common specifications to be adopted through implementing acts under the EHDS Regulation (Article 36). At the same time, health professional access services provided by public sector bodies or by private parties (except small and medium size enterprises) will always have to accept the European Digital Identity Wallets where the requirements of Article 5f(1)-(2) of Regulation 910/2014 are met"

Wallet for Patients (1/3)

Different ways for integrating EUDIW

First option:

As authentication means via International Search Mask

The patient from Country A has an instance of EUDIW where they have stored the necessary identity data as an EAA, e.g. the patient's social security number and date of birth

Pros: change proposals required, with limited impact on the ISM and no impact on the NCPeH; overall security improved, no manual input needed

Cons: eP data not immediately available, and retrieved via IHE API as today happens in MyHealth@EU

Wallet for Patients (2/3)

Different ways for integrating EUDIW

Second option:

Presentation of an ePrescription

There is a key distinction from the current MyHealth@EU setup:
instead of being retrieved by Country A, the ePrescription is presented directly by the patient, as QEAA or EAA

Pros: eP data immediately available

Cons: change proposals required to be deployed on MyHealth@EU (today, XCPD must be performed before XCA to retrieve eP)

Wallet for Patients (3/3)

Different ways for integrating EUDIW

Third option:

Presentation of an ePrescription list

This scenario is similar to the previous one, and the list of available ePrescription is available either through a QEAA or an EAA

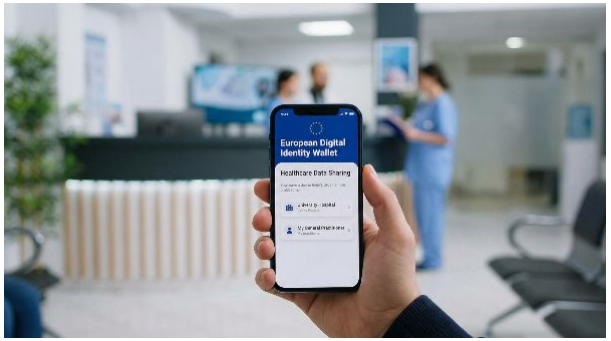
Pros: eP list data immediately available

Cons: change proposals required to be deployed on MyHealth@EU (today, XCPD must be performed before XCA to retrieve eP list)

Anticipated use cases in MyHealth@EU

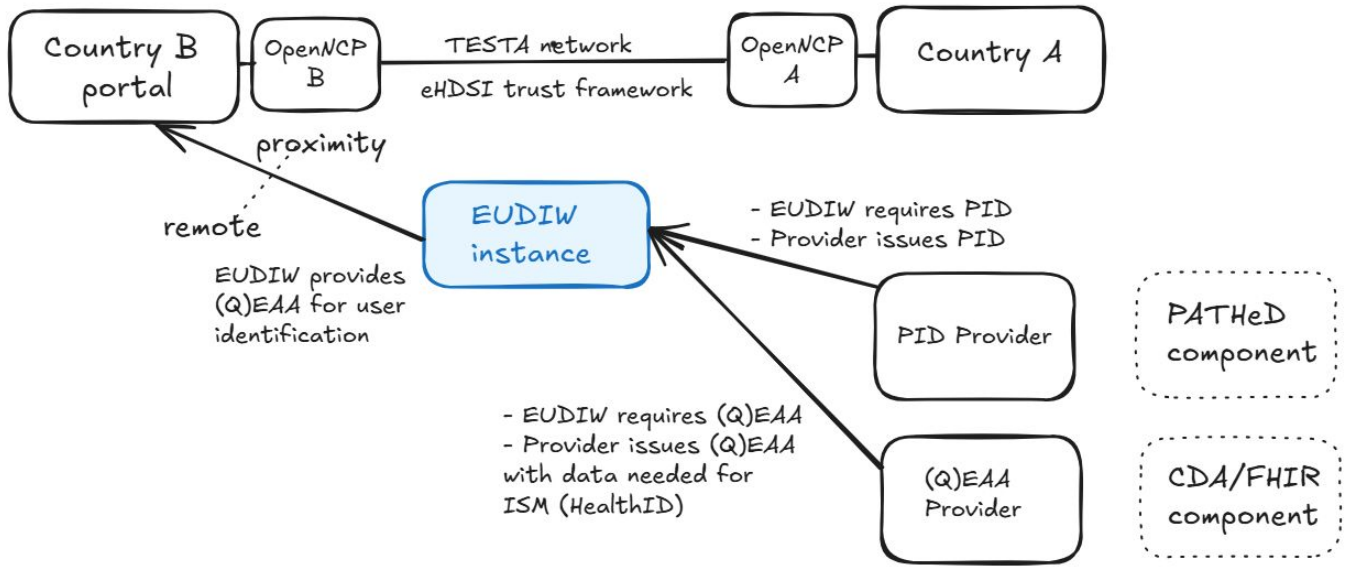
Alongside the eP/eD scenario, the possible introduction of the EUDIW could potentially be exploited by other clinical documents/use cases:

- Access to the **PS / translated PS** (deploying the translation components developed by the EU-funded project PATHeD)
- Use cases promoted by the new EU-funded project MyHealth@MyHands (**change proposal** for using EUDIW as identification means submitted in September 2025)
- **Online pharmacies**, for the secure identification of the patient in the online setting (EHDS)



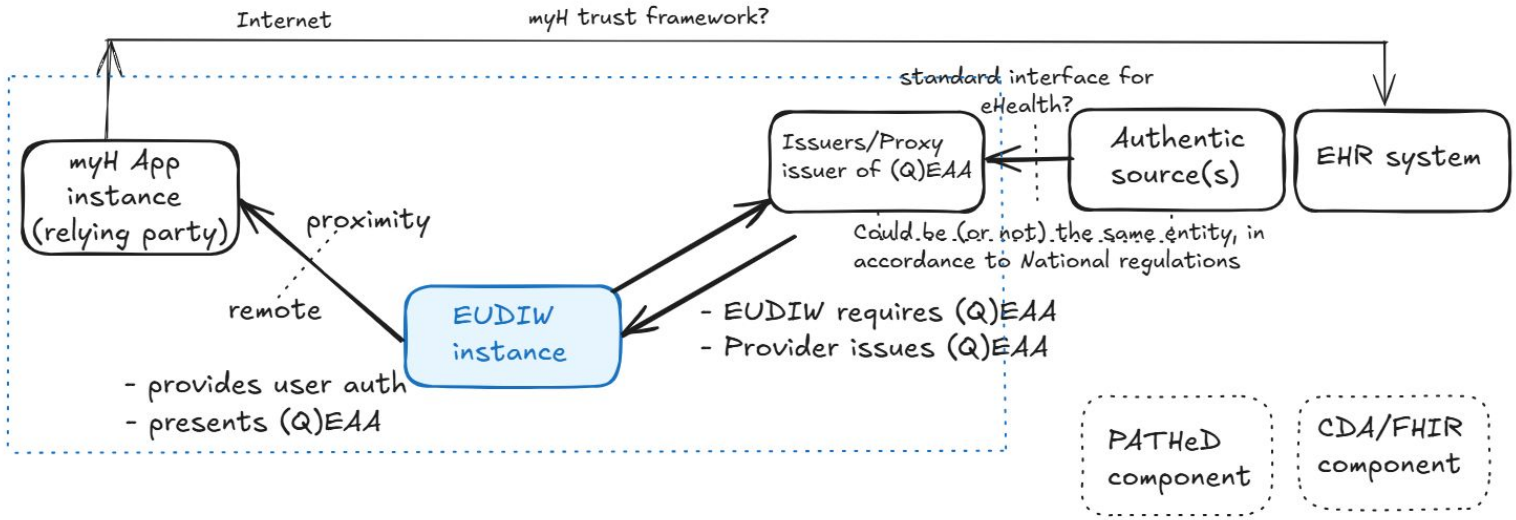
MyHealth@MyHands: scenario 1

MyHealth@EU scenario



MyHealth@MyHands: scenario 2

Wallet-based scenario



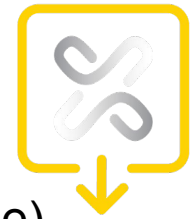
Discussion

Use cases in EU projects

Nicole Veggiotti and Argiris Gkogkidis

xShare use cases (Download/Upload/One time share)

- Step 1: Create your IPS document (v1.2 FHIR IPS)
  - Step 1.1: Convert your CDA to FHIR (Optional)
- Step 2: Validate the conformance of your IPS document against xShare FHIR Implementation Guide
- Optional step: Authenticate and authorize user
- Step 3: Use of the Yellow Button in an application
- Step 4: UC1 Download IPS in machine readable format (FHIR Bundle)
  - Step 4.1: UC1 Upload IPS on consumer application/visualize FHIR Bundle
- Step 5: UC2 Share IPS using Smart Health Links
  - Step 5: UC2.1 Consume of SHL

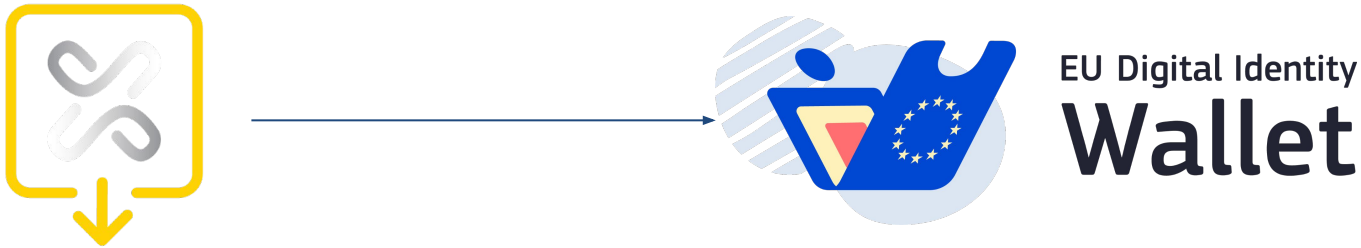


One-time Share Link in xShare

- Step 1: Create your IPS document
  - Step 1.1: Convert your CDA to FHIR (Optional)
- Step 2: Validate the conformance of your IPS document against xShare FHIR Implementation Guide
- Step 3: Login
- Optional step: Authenticate according to the European Regulations
- Step 4: Use the selection step of your app to show that you are able to search for a specific document for a specific person
- *Step 5: Generate the SHL*
- *Step 6: Access the SHL Manifest through the SHL and access the document through the SHL Manifest*

xShare & Wallet in these use cases

- UC3 - xShare Yellow Button to act as Issuer in EDUI Wallet.
  - Still needs to be defined the mDoc format and content (ex SHL)



MyHealth@MyHands use cases

- UC1 Authenticate user in an Online pharmacy context
  - Request for HealthID, and PID attributes, authenticate user
  - Retrieve available eP for the user
  - eD is out of scope

- UC2 Issuer to provide in mDoc current medication list, allergies or vaccination information to the wallet
  - We need to define the namespaces needed for these new mDoc(s)

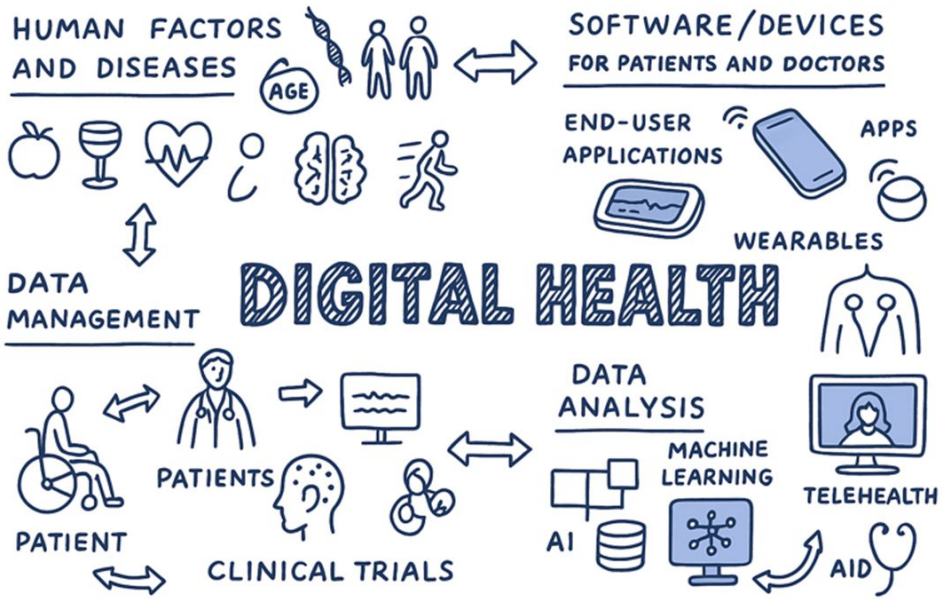
Similar use case for i2X (EEHRxF)

- Prepare the clinical document (priority categories) in line with IGs
- Define a way to exchange the document, there is no actually clear specification for sharing, ***but proposing IHE profile like MHD (FHIR-based and already widely tested)*** for query and retrieve content (FHIR documents)
- Showing that the consumer is able to see the document through a screenshot (computer readable format/human readable format)

Testing Lab in EU Projects

Alexander Berler

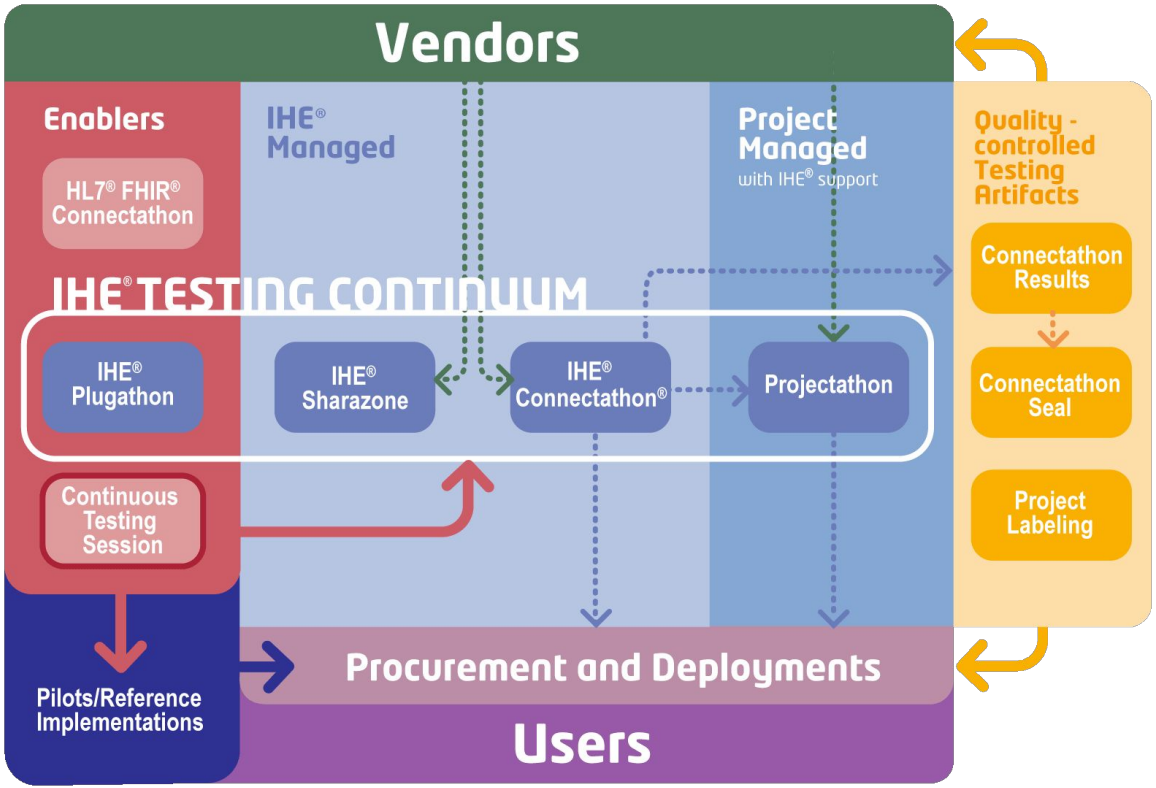
Healthcare is changing… need Interoperability by design



Interoperability is a race without a finish line:

- New clinical knowledge
- New technologies and data resources
- Organization and regulatory shifts
- New requirements of data flow and consumption across the ecosystem
- New data standards to mapped to legacy
- Ensuring compliance is key

IHE Testing Continuum



IHE Methodology for specifications

Define Use Cases: Testing begins from real-life clinical and technical workflows.

Map to IHE Profiles/Project Specifications: Each use case is linked to the appropriate IHE profiles. Actors, transactions, and interoperability roles are clearly identified.

Create Test Scenarios: Test cases are defined.

Execute Testing in Iterative Phases: Self-testing to verify readiness and on-site peer-to-peer testing for final validation and alignment

Track Progress and Report Results: Results are documented, maturity levels are monitored, and feedback loops ensure continuous improvement.

IHE Testing strategy

EHDS Testing lab tools:

- Continuous Session for EHDS open for EU projects
- Validation only is not enough, so we need the concept of use cases
- Different type of testing (no-peer and peer-to-peer testing)
- Educational session: workshop on IHE profiles
- Type of events (IHE Connectathon, IHE Plugathon, Projectathon)

Type of testing events

Event Type	Purpose	Audience	Formality	Scope
IHE Plugathon	Learn and experiment with standards, APIs, and IHE/FHIR profiles e.g Vienna IHE Plugathon with EHDS track 2025 — developers test FHIR APIs and IHE profiles in a sandbox environment	Developers, startups, researchers	Informal	Early-stage, innovation and education
Projectathon	Validate interoperability within a specific project, national program, or regulation e.g. epSOS Projectathon and MyHealth@EU Projectathon — testing cross-border health data exchange and project-specific use cases	National/EU projects, implementers, public authorities	Semi-formal	Project or domain-specific (IHE + local specs)
IHE Connectathon	Verify interoperability and conformance between vendor systems using IHE profiles e.g. IHE-Europe Connectathon Vienna	Vendors, integrators, test engineers	Formal	IHE profiles and interoperability testing

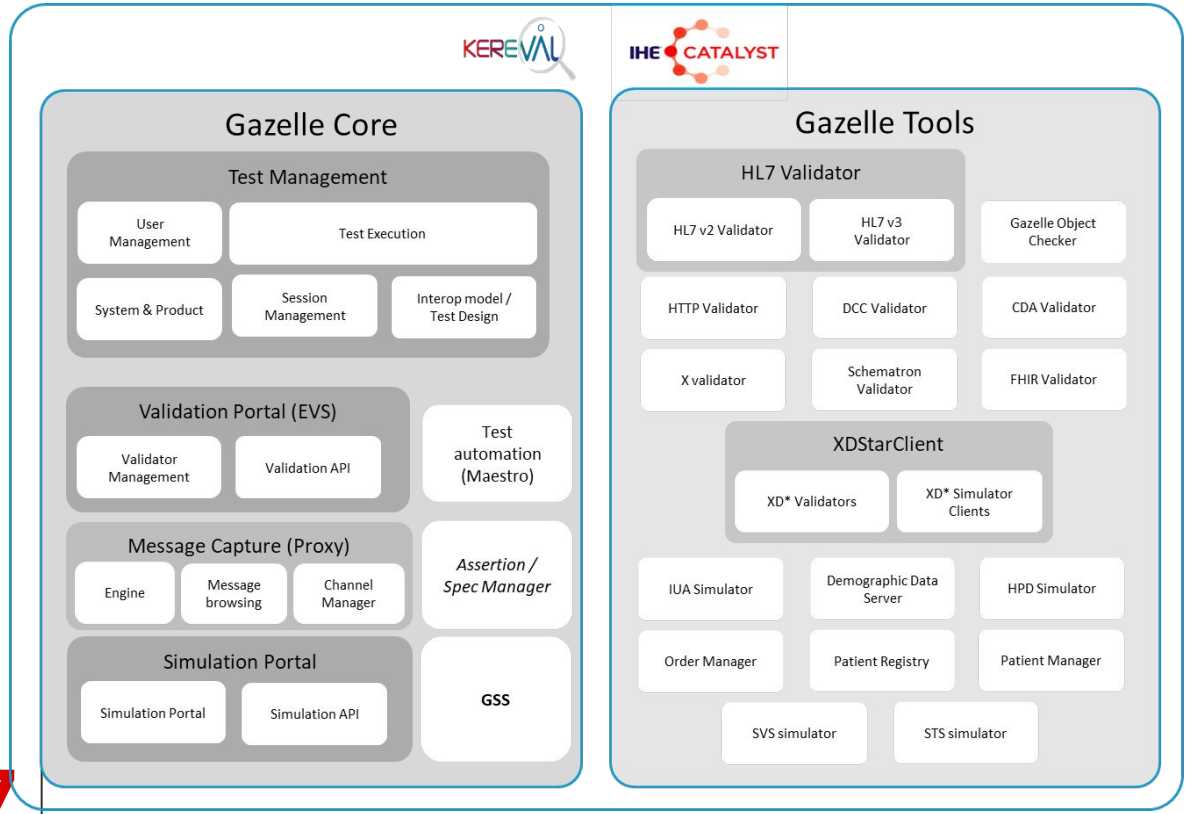
Type of testing

In IHE, no-peer testing is conducted without live partner systems. The implementation is tested against automated tools or simulators that replicate the behavior of a peer. This type of testing is useful for verifying basic compliance with IHE specifications and for preparing a system for subsequent testing phases. Peer-to-peer testing, on the other hand, involves two or more real systems from different vendors connecting directly to exchange data and validate interoperability. This approach simulates real-world interactions and provides a more robust confirmation that systems can communicate effectively in practice.

The Lab concept

- Create and operate an **interoperability framework** as the cornerstone of building complex digital transformation strategies in healthcare
- **Bring experts together** and solve problems
- **Test** before you implement
- **Reuse, collaborate, co-create** do not re-invent the wheel
- **Align implementation with real capacity** of the stakeholders and make realistic roadmaps
- Perform **continuous education** and capacity building
- **Enable the ecosystem** of stakeholders

Ecosystem of connected testing tools

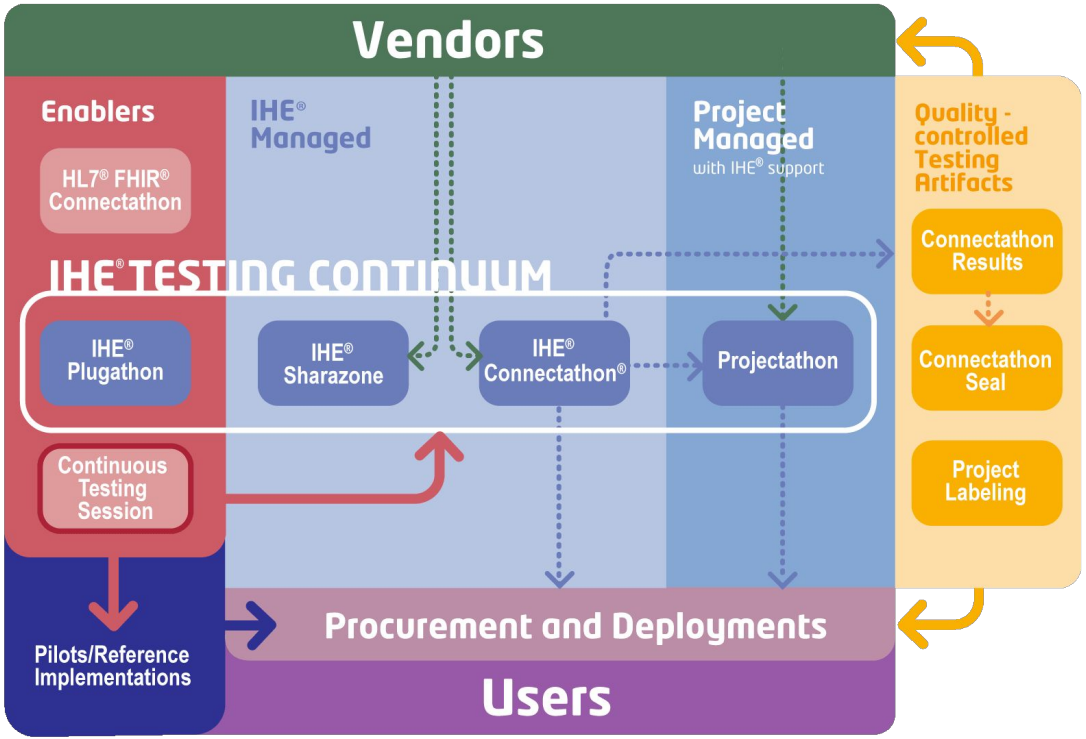


Continuous Testing Session for EHDS

Nicole Veggiotti

Continuous Testing Session for EHDS

The Continuous Testing Session for EHDS in support of EHDS-related projects serves as a preliminary and preparatory step towards the IHE Plugathon and Projectathon activities. It offers both a training opportunity and a chance for vendors to collaborate with support teams between events.



The three pillars

No-peer testing: The focus will be on validator and simulator-based testing, without peer-to-peer evaluations. In IHE, no-peer testing is conducted without live partner systems.

Facilitators: A facilitator is a Subject Matter Expert (SME) who will follow, help and guide participants in the will accompany participants throughout the process, offering guidance and support to ensure they are prepared for the event.

Online space: To support communication and collaboration, participants will also be included in a dedicated Zulip channel, organized by domains.

New things are coming..

We will adapt the Continuous Testing Session for EHDS based on the requirements and needs of these projects

Putting new things into practice like:

- new validators and introduction of simulators
- peer-to-peer testing
- automated test cases

Gazelle presentation

Anne-Gaëlle Bergé

The mission of Gazelle

Enforce interoperability standards by relying on tests

Conformity

System tested alone with a validation tool to verify that it complies with the standard.

Group

Several systems interact together in a coordinated scenario (e.g., a complete care pathway).

Peer-to-peer

Two systems test their interoperability directly.

What is Gazelle ?

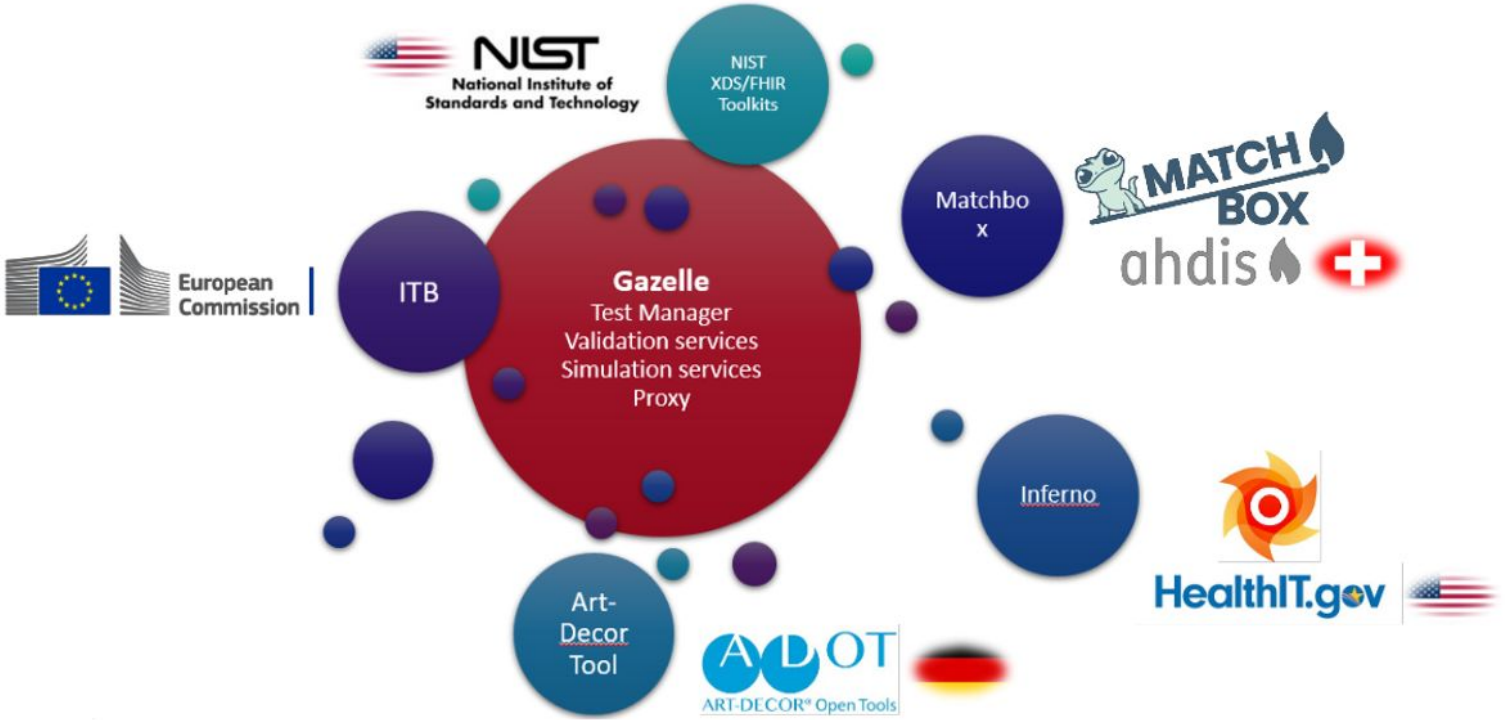
Open source

Collaborative

International

Adaptable

Gazelle in the ecosystem



Innovative and user-friendly modules

Gazelle Test Management

- Orchestrator for executing test cases and gathering evidence
- Support connection to several test execution engine, including ITB

Validation /Simulation portals

- Open API to easily integrate validation and simulation services
- Integration of third-party services

Message capture

- Capture the messages exchanged between the systems
- Searching capabilities
- Bound with validation services

Gazelle demo

Anne-Gaëlle Bergé

Testing EHDS-related projects with

Set up for the EHDS-related Plugathons in Vienna (June 2025)

- Gazelle Test Management to manage test cases
- Matchbox for validating the content

More to come as use cases and testing needs evolve.

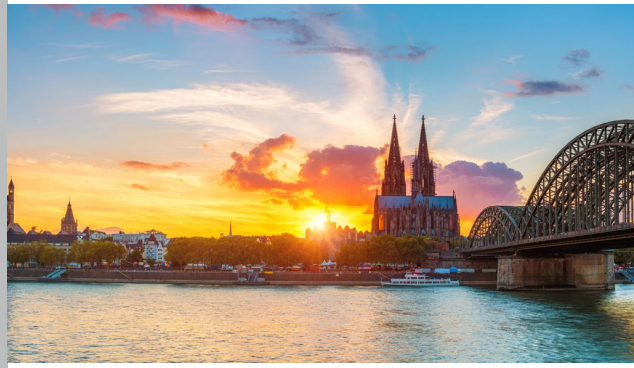
https://ehds.gazelle-platform.net

Discussion

EUDI Wallet workshop

Thank you!!

Shaping the Future of FHIR® in Europe



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