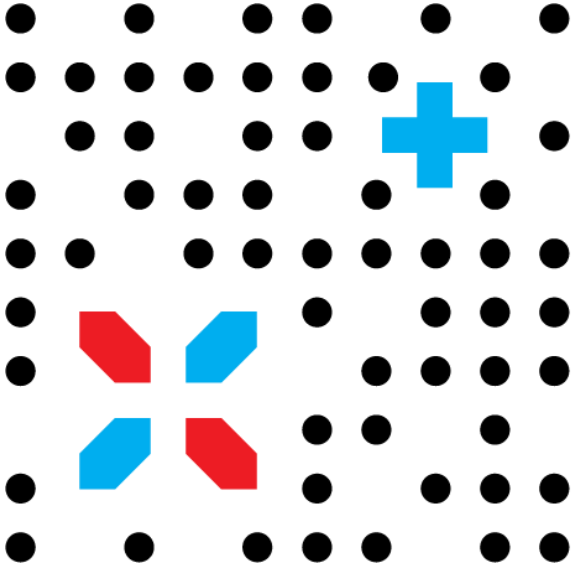
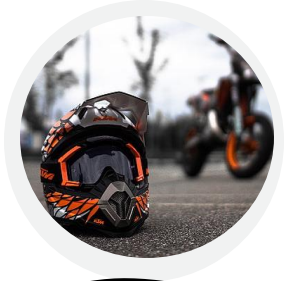


DATASPACE 4HEALTH

LUXEMBOURG

Data Week 2024
Dec, 10th 2024

A User Journey



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DATASPACE 4HEALTH
LUXEMBOURG

Wouldn't it be beneficial if I could make my data available?

… for emergency cases…

… for secondary use …

… across borders …

… in a compliant way…

… where I have control…

The WHY

- The project is motivated by the need for a new approach to health **data sharing** that respects the **GDPR** and the **patients' rights.**
- Currently health data is often siloed, fragmented and underutilized, which limits the potential for **innovation and research.**
- The project will explore how to leverage the Data Space concept in combination with **Gaia-X** technology to ensure the interaction between healthcare stakeholders on the basis of common standards.
- It will also demonstrate the benefits **of data-driven innovation** and AI for healthcare and research, such as improving diagnosis, treatment, and prevention of diseases, enhancing patient outcomes and quality of life, and advancing scientific knowledge and discovery.
- This initiative aims to address both business and patient needs by ensuring compliance with regulations, unlocking the value of health data through **valorisation**, and exploring the potential of data and AI to develop **new treatment options.**

Sensitivity Label: General

Context

Time & Money

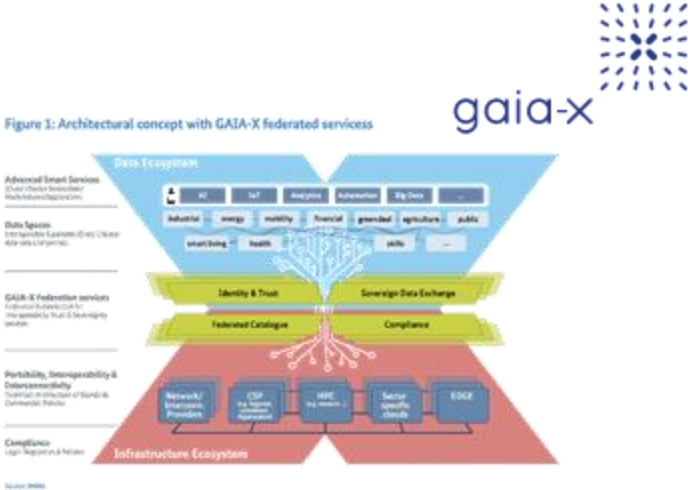
- 2 years
- financially funded by the Ministry of Economy

Framework

- Gaia-x / DSBA

Technical main Goal

- Interoperability, Trust, Data sovereignty



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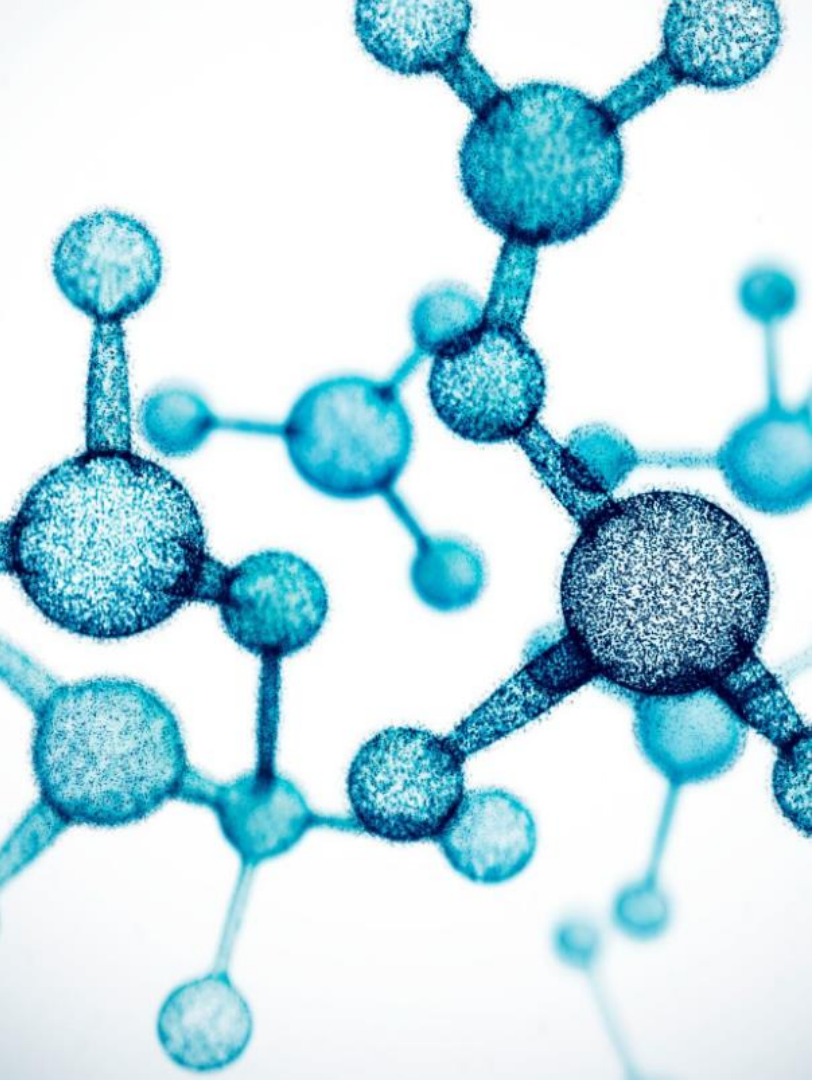
Our collaboration system: consortium

Oncology use case

Project Lead

Diabetes use case



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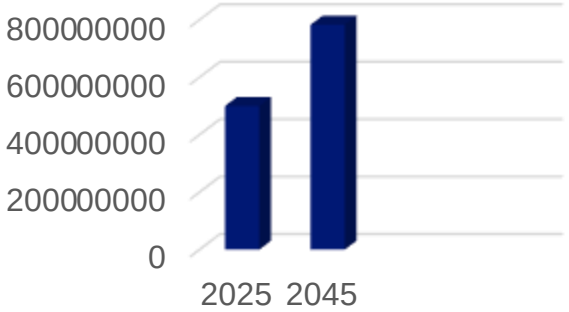
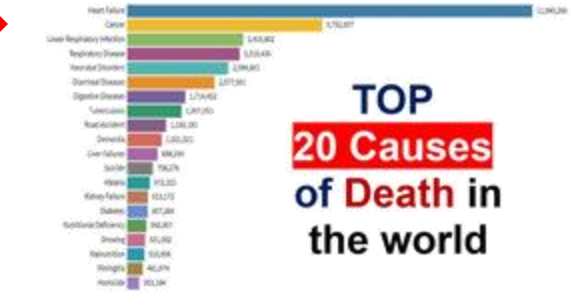
1 Diabetes - Digital Twin



2 Cancer - Precision Oncology Program



Use case 1: Diabetes

More than half a billion people live with diabetes worldwide, and it is expected to rise to 783 million by 2045. Diabetes is not a homogenous disease (type 1, type 2…), leading to a variety of complications requiring personalized care. AI is seen as a promising technology to prevent them.

- AI-based diabetes complication prevention decision support system
- A trustworthy **decision** support system based on the **digital twin** concept
- Use **AI machine learning-based** techniques, both **unsupervised** and **semi-supervised**
- Leverage the +10.000 patient records mapped to the Digital Twin of persons/patients from LIH

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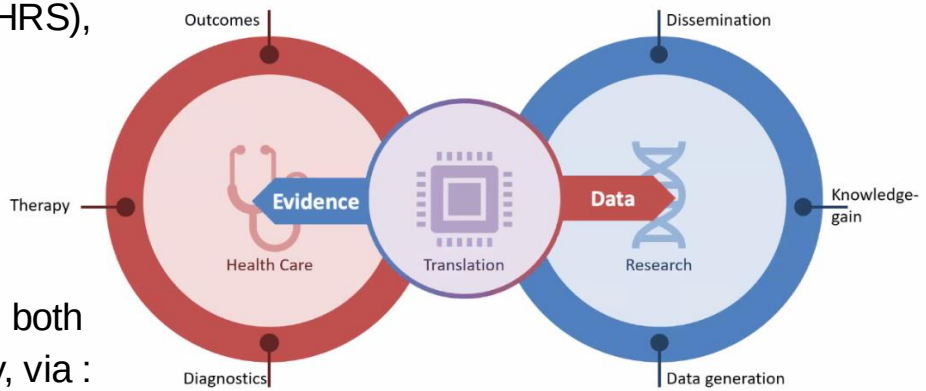
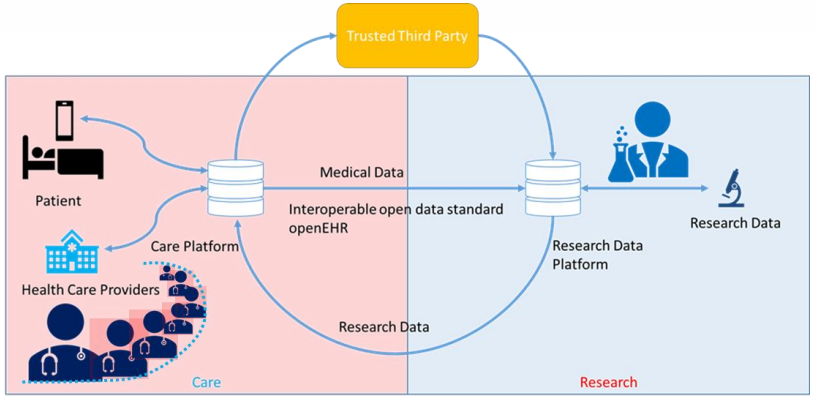
Use case 2: Oncology

- Existing of a clear Separation between Patient Care (HRS), Genetics (LNS) and disease modeling platforms (LIH)
  - Hospital: Diagnostics and the therapy
  - Researchers are bringing new solutions, treatments, and knowledges to the oncology case
- Build a self-learning health system by putting together both sides (care and research) on the same patient journey, via :
  - starting the flow by transferring the patient data from the hospital to be shared with LNS and LIH
  - diagnosing the case (taking advantage from the latest research advances)
  - defining together the convenient therapeutics (via the Molecular Tumor Board Model)
  - and continuing the journey back in the care side





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1st Draft of Workpackages

DATASPACE 4HEALTH LUXEMBOURG

WP1		Lux-X DataSpace4Health in the Luxemburgish Health ecosystem: **Business** aspects	Security	Gaia-X Compliancy / Governance - Business
WP2		Lux-X DataSpace4Health in Luxembourg: **Compliancy** aspects		- Compliancy
WP3		Lux-X DataSpace4Health Architecture, blueprint, and templates		- Functional - Process - Information
WP4		Research case 1 AI based complication prevention system for diabetics		- Process - Functional
WP5		Research case 2 Precision Oncology		- Process - Functional
WP6		Functions and Processes		- Functional
WP7		eSanté Services Integration		- Information - System
WP8		Data space Platform Setup		- Process - Information - System
WP9		LIH Data Space Integration		- Information - System
WP10		End-to-end solution Integration and Testing		- Functional - Process - Information - System

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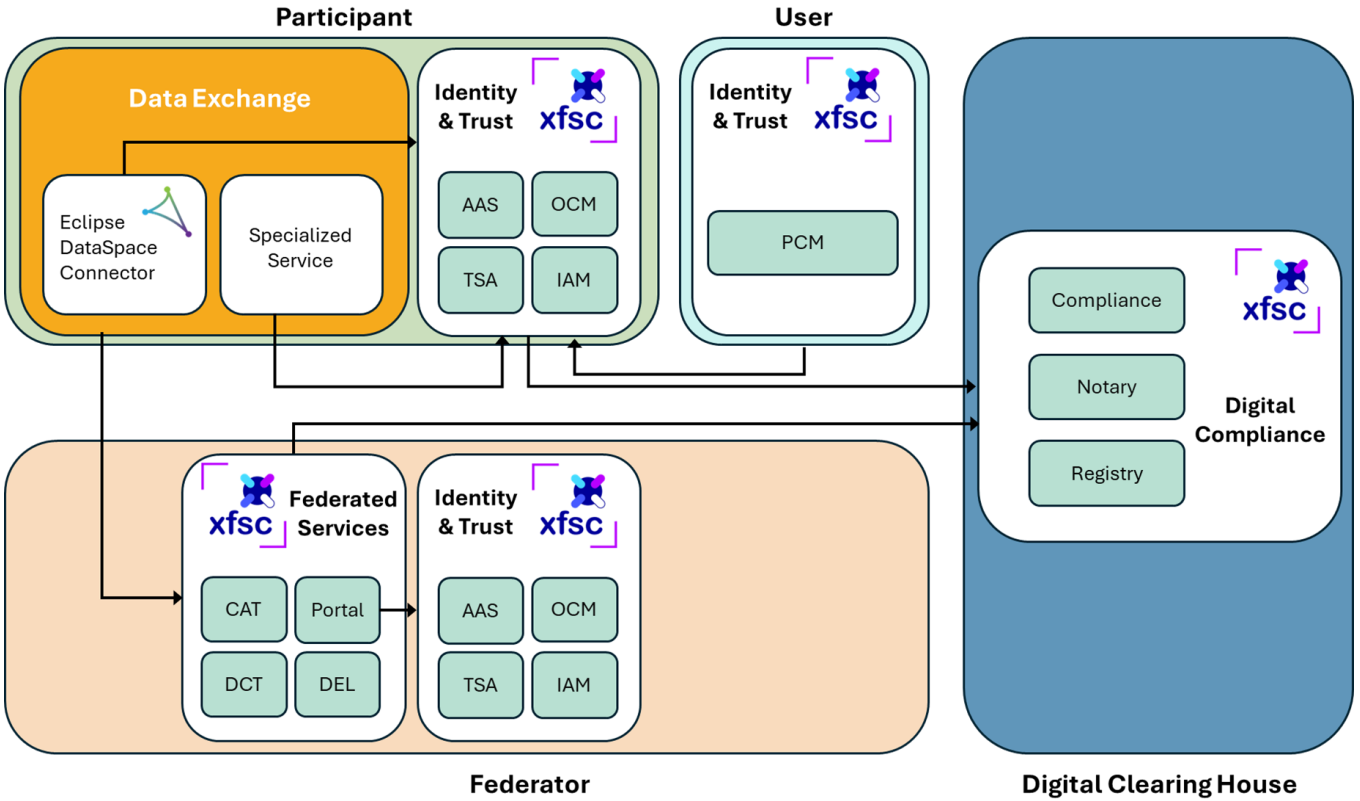
Draft Architecture



Sensitivity Label: General

Outcomes

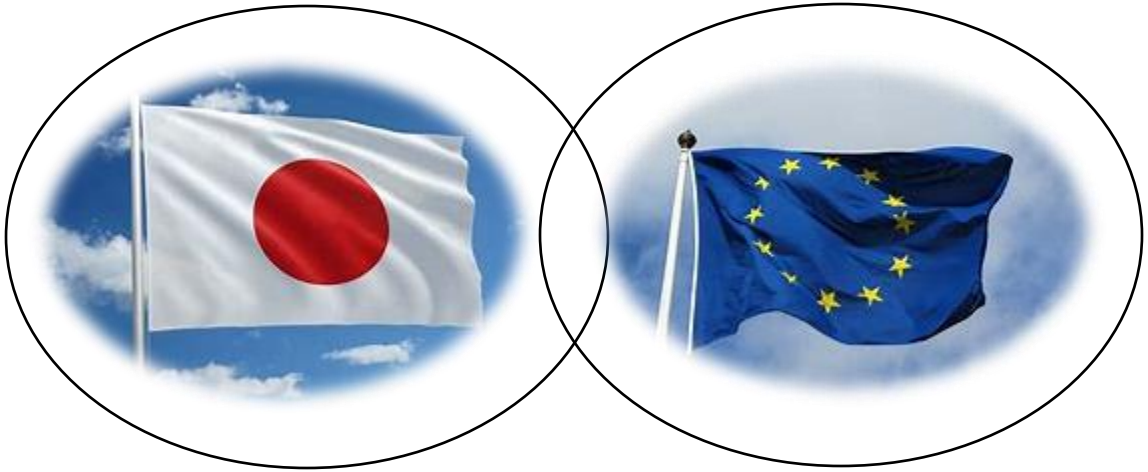
- Validated in the first two use cases based on **Diabetes and Oncology**
- Use case driven data space platform that allows easy **deployment of new healthcare use cases**
- Provides the **foundation** in Luxembourg **for Data Spaces** in other verticals

Ushering in a New Era of Healthcare

Sensitivity Label: General

What’s next?

- **International initiative** leveraging the **LNDS testbed** for secure health data exchange between Luxembourg and Japan.



Collaboration across different legal frameworks

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Thank you!

DATASPACE 4HEALTH LUXEMBOURG

The initiative is a collaborative effort led by domain and industry leaders and is open to onboard additional members.

Want to join us?
Have questions?