Technological innovation

Technological ecosystem

The Gatekeeper Technological Ecosystem represents a groundbreaking platform meticulously crafted to revolutionize healthcare research. Designed to meet the highest standards of reliability and interoperability, our ecosystem serves as a trusted hub for primary and secondary data utilization, aligning seamlessly with EHDS objectives.

Our innovative approach enables effortless development and deployment of advanced AI-driven solutions, specifically targeted at early detection and intervention in both lifestyle and clinical domains. Operating across diverse regions in Europe, Gatekeeper stands as a beacon of proactive healthcare innovation, empowering stakeholders to tackle challenges with agility and precision.

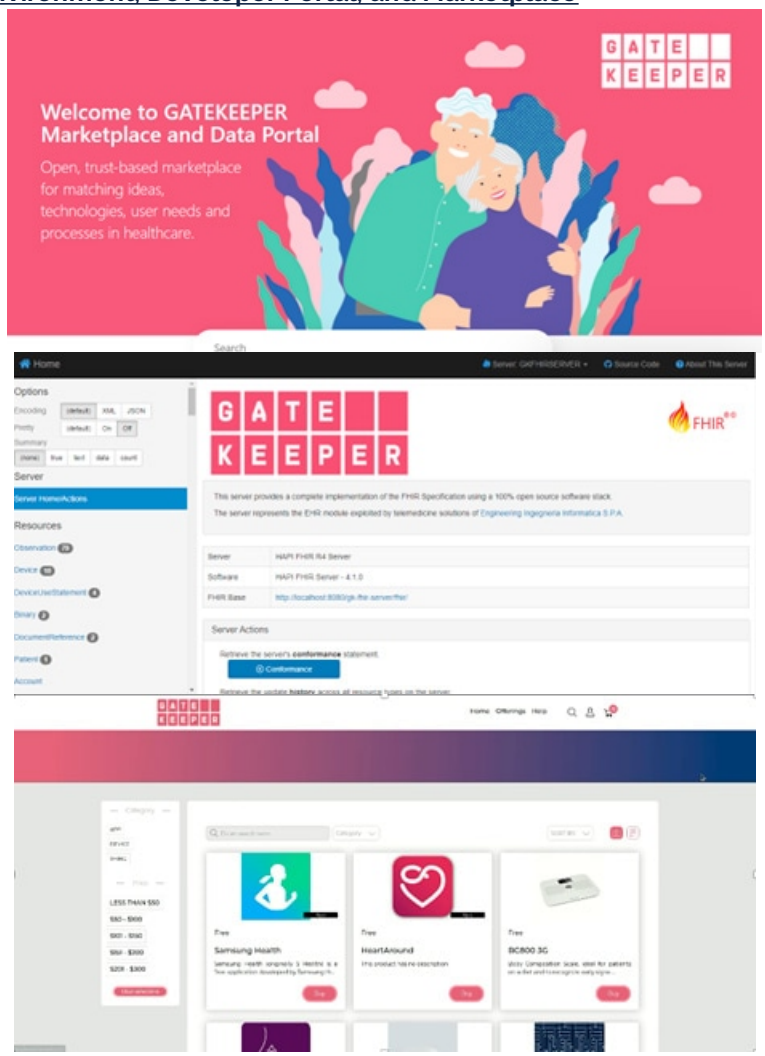
Key Components

With these components seamlessly integrated, the research ecosystem fosters collaboration, accelerates innovation, and ultimately enhances healthcare outcomes across Europe.

1. **Dedicated Data Center**: Built on top of open-source solutions, our dedicated data center ensures secure and efficient on-premise migration.
2. **Container Platform:** Our container platform enables resource segregation and scalability, ensuring privacy-preserving data processing.
3. **Federated Services Platform:** Designed for interoperable data collection, our federated services platform prioritizes privacy, security, and GDPR compliance by default.
4. **Big Data Platform**: Our big data platform offers data science at scale, empowering the design, development, and validation of novel AI interoperable solutions.
5. **Integrated Web Environment:** Our integrated web environment includes a marketplace featuring AI-based healthcare solutions, providing a centralized hub for collaboration and innovation.

Main results

Secure and privacy preserving environment Together, the **Gatekeeper Dedicated Data Center** and **Container Platform** establish a robust and secure multi-tenant environment, ensuring privacy and confidentiality while facilitating efficient data processing and resource management for all federated tenants within the Gatekeeper ecosystem. **Scalable and interoperable Data management and Data science environment Gatekeeper's Federated Services** Platform enables interoperable data collection with privacy and security priorities, scaling effortlessly. Leveraging the **FHIR Common Data Model**, Gatekeeper establishes a standardized foundation for healthcare data exchange, ensuring interoperable and scalable data management. The **Big Data Platform** empowers scalable data science endeavors, facilitating AI solution design and validation while promoting interoperability based on FHIR (e. g. Federated learning on FHIR). **GATEKEEPER web environment, Developer Portal, and Marketplace**



Main innovations and EHDS recommendations

DEvSECOPS Approach

Gatekeeper integrates an automated, secure image building pipeline to ensure that every artifact deployed within it undergoes rigorous vulnerability risk analysis, ensuring compliance, or is automatically rejected.

Gatekeeper DEVSECOPS is a proactive measure that aligns with best practices in cybersecurity. It not only protects against potential threats but also fosters a culture of security and continuous improvement within the development process.

EHDS recommendations

Ensuring the security of every EHDS processing environment is imperative, and it necessitates the incorporation of essential functionality.

This critical feature is particularly crucial during the deployment of artifacts, underscoring the indispensable need for an

automated, secure image building pipeline.

FHIR based interoperability

Gatekeeper rigorously assessed various interoperability standards, ultimately designating FHIR as the indisputable leader in providing a standardized approach for health data management.

EHDS recommendations:

- Gatekeeper has been an early adopter of FHIR.
- Gatekeeper has a lot of lessons learnt to share on usage of FHIR within its pilots.
- On the other hand THEDAS project has already provided a Common Assessment Method for Standards and Specifications (CAMSS) and suggested to adopt FHIR for EHDS.

A trusted research environment for primary and secondary use of data

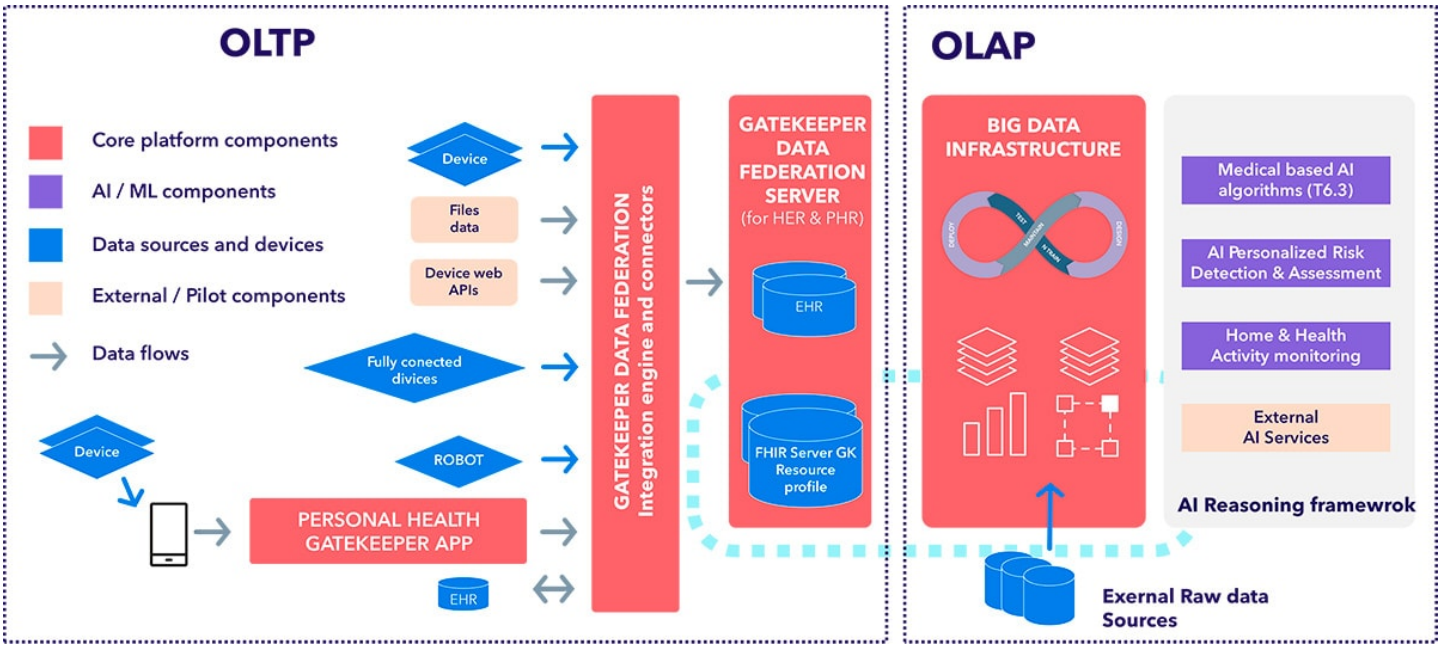
It is a multi-tenant microservice based platform that integrates secure interoperable transactional systems (OLTP) with analytics systems (OLAP) for massive data management and building AI services.

The OLTP enables primary use of DATA

The OLAP enables secondary use of DATA

EHDS recommendations:

Integrating OLTP and OLAP systems within a shared Secure Processing environment facilitates both primary and secondary data use, ensuring privacy by enabling local data processing.



Additionally. Gatekeeper take advantage of flexibility of FHIR standard for describing services for exchange AI models and services across different pilots that share the same FHIR implementation guide.

EHDS recommendations:

Reproducibility of AI training and AI validation is fundamental for healthcare data spaces, Gatekeeper provides and easy and standard based solution for AI models and services.

CONTACT

If you want to contact the GATEKEEPER Coordination Team, please send an email to the address below:

coordinator@gatekeeper-project.eu

In addition, we encourage you to meet the GATEKEEPER management board here so you can redirect you question accordingly.

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