




# A scalable and practical privacy-preserving framework


## ENCRYPT

# At a glance

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 **ENCRYPT: A Scalable and Practical Privacy-preserving Framework**

 ENCRYPT develops a scalable, practical, adaptable **privacy preserving framework**, allowing researchers and developers to process data stored in federated cross-border data spaces in a GDPR compliant way.

 **Horizon Europe – Work Programme 2021-2027 | Increased cybersecurity 2021**  
**Call:** HORIZON-CL3-2021-CS-01 | **Topic:** HORIZON-CL3-2021-CS-01-04 | **GA Number:** 101070670


 **Duration:** July 2022 – June 2025

 **Funding Scheme:** Research & Innovation Action | **Budget:** €4.392.540 | **EU contribution:** €4.392.540

# ENCRYPT Consortium

14 partners from 8 European countries

 1 x Start up

 3 x SMEs

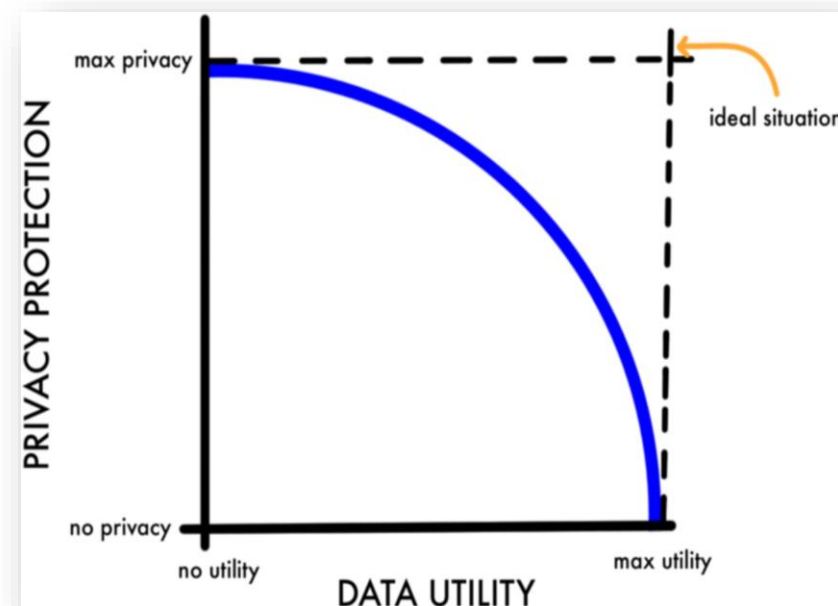
 2 x Enterprises

 8 x Research Institutes & Universities



# Challenge & Vision

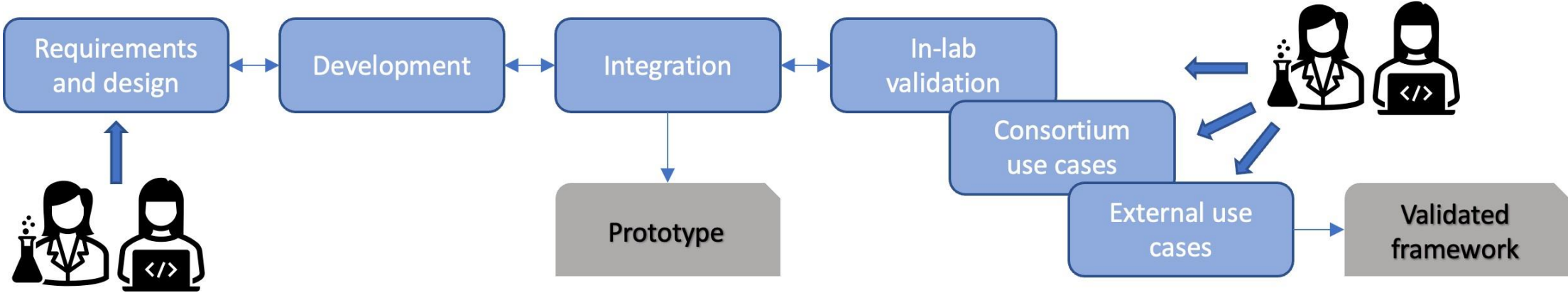
- Existing PP technologies such as HE, MPC, TEE or DP, are promising at a small-scale level
- For becoming mainstream security solutions they need to overcome several limitations, as envisioned by ENCRYPT:
  - ✓ Scalability issue
  - ✓ Drawbacks of each technology threats & performance
  - ✓ Slow computation times
  - ✓ Easier to interact technologies
  - ✓ Provide AI based recommendation system for personal data and performance
  - ✓ GDPR Compliant



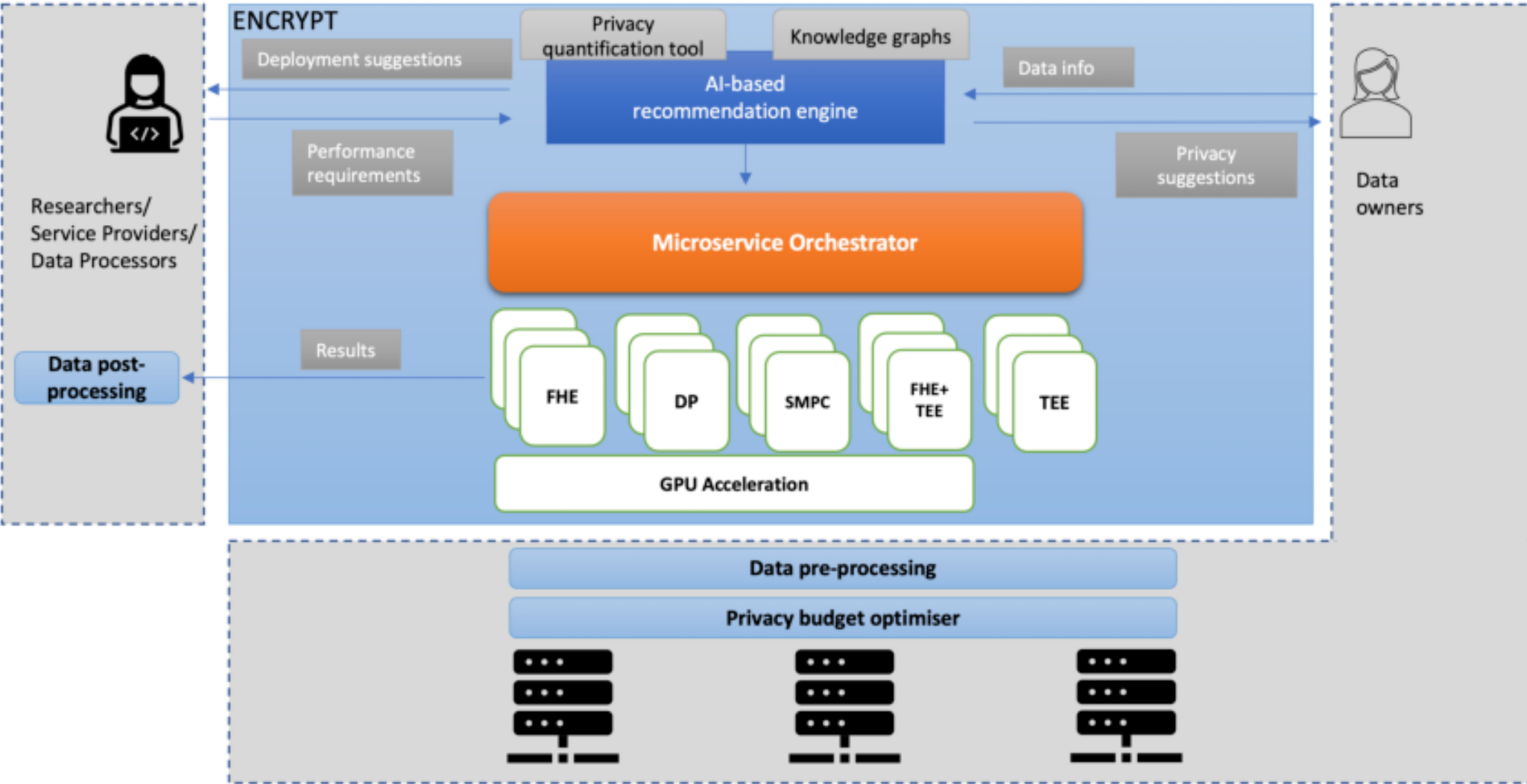
# Objectives

1. To **improve the applicability** and **performance** of PP technologies towards GDPR compliant, cross-border federated processing of personal and other sensitive data, developing a **toolset of scalable, practical, and reliable PP technologies**
2. To **improve the user-friendliness** of PP technologies facilitating the identification, understanding, selection, and adoption of PP technologies **by all actors**
3. To foster, and inherently support **interoperability for PP processing of similar data** types across organisations, and across sectors.
4. To promote GDPR-compliant common **European Data Spaces** and facilitate the **exchange of CTI**, liaising with relevant initiatives and projects with a focus on standardisation
5. To ensure the **applicability** of the developed solutions, **co-designing them with end-users**, and validating them in **realistic use cases** including federated data infrastructures with personal data
6. To **strengthen the ecosystem** of open-source developers and researchers of privacy-preserving solutions disseminating, and exploiting open-source project results, as well as upskilling researchers.

# High-level methodology



# Encrypt Platform



# Use cases

- **Health Domain:** supported by the Hospital Clinic of UNINA; it will validate TEE and TEE+HE technologies & **will result in protecting data from safety and privacy violations, while enabling full automation of the treatment process, at a fraction of the cost**
- **Cyber Threat Intelligence Domain:** supported by CERTH as service provider/data processor, and EXUS, DBC, 8BELLS as data owners and end-users; it will validate DP and MPC technologies and the Knowledge Graph building software, & **will result in increased CTI awareness and resilience for data owners**
- **Fintech Domain:** supported by EXUS as the service provider/data processor, EPIBANK as the data steward, and their customers as the data owners; it will validate FHE in a federated context and GPU hardware accelerator, & it will **unlock the value in sharing financial data without compromises on privacy and confidentiality**



# Impact

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1. Improved scalable and reliable privacy-preserving technologies for federated processing of personal data and their integration in real-world systems
2. More user-friendly solutions for privacy-preserving processing of federated personal data registries by researchers
3. Improving privacy-preserving technologies for cyber threat intelligence and data sharing solutions
4. Contribution to promotion of GDPR compliant European data spaces for digital services and research (in synergy with topic DATA-01-2021 of Horizon Europe Cluster 4)
5. Strengthened European ecosystem of open source developers and researchers of privacy-preserving solutions



# Thank you!

## Stay in touch

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