Hospital General de Granollers
Hospital Universitari
Fundació Privada Hospital Asil de Granollers

Implementació de Projectes Europeus en Ciberseguretat

Ciberseguretat a Catalunya
ACCIÓ

22 d' abril de 2021

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CUREX
SECURE AND PRIVATE HEALTH DATA EXCHANGE

SECUREHOSPITALS

HORIZON 2020

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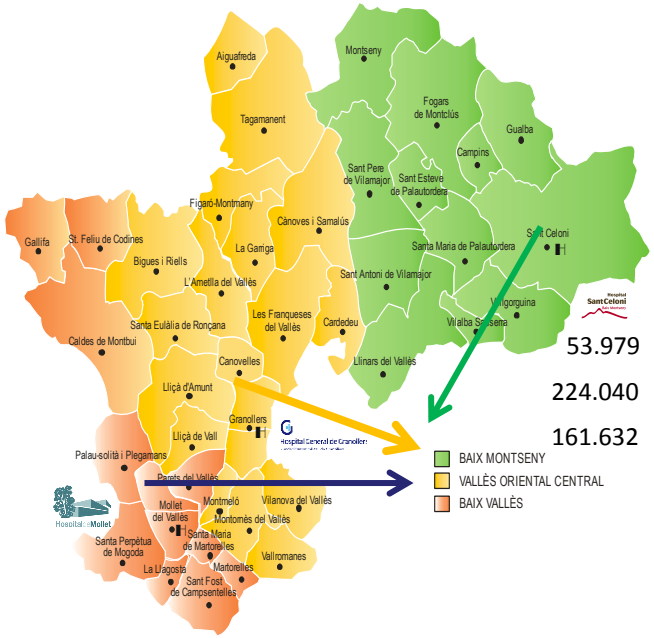
Fundació Privada Hospital Asil de Granollers

University Hospital

Reference Population

(RCA ’16; n=439.651)



340 beds
1,600 professionals

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Raising cybersecurity awareness in healthcare

- **Digital Health Sector:**
  - **more dependent** on digital information every day

- **Cyber Criminals**
  - obtain very **lucrative benefits** from stolen data

- **Breach of Integrity**
  - **tragic consequences** for the patients

- **Hospitals**
  - hosting and being responsible for healthcare datasets
- **Individuals (Patients)**
  - main data providers
- **Research Centers**
  - use an individual's data, in particular biomedical data, for scientific research purposes.
- **Private Businesses and Other Organizations**
  - industrial research enterprises & commercial enterprises

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H2020 projects at FPHAG

ICTs in healthcare

PROJECT H2020

CUREX

"Secure and private health data exchange"

(2019-2021)

Grant Agreement ID: 826404
Topic: SU-TDS-02-2018
Call: H2020-SC1-FA-DTS-2018-1
Funding Scheme: RIA - Research and Innovation action

CUREX
SECURE AND PRIVATE HEALTH DATA EXCHANGE

PROJECT H2020

Secure Hospitals

"Raising awareness on cybersecurity in Hospitals across Europe and boosting training initiatives driven by an online information hub"

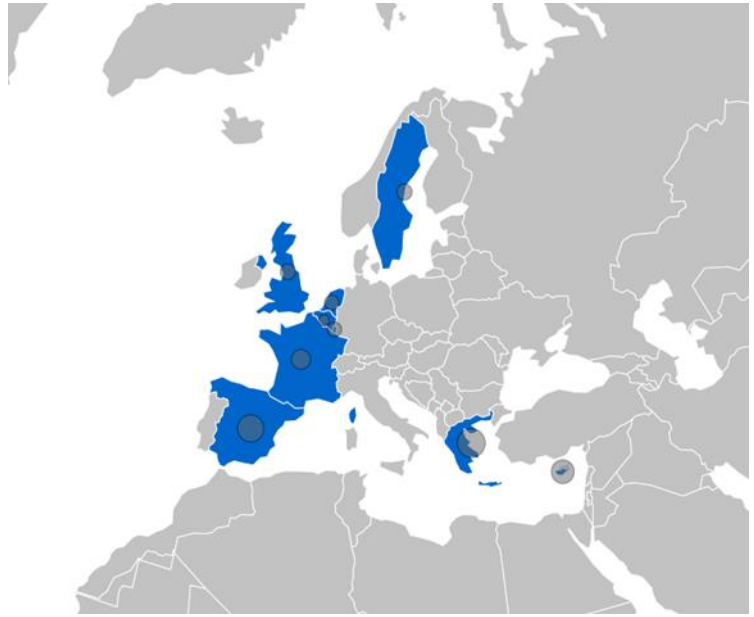
(2019-2020)

Grant Agreement ID: 826497
Topic: SU-TDS-03-2018
Call: H2020-SC1-FA-DTS-2018-1
Funding Scheme: CSA – Coordination and Support Action

SECUREHOSPITALS

CUREX consortium

- **16 partners** from **9 EU countries**
  - **2** Large industries
  - **6** SMEs
  - **6** Research Institutes and Universities
  - **2** End-users/representatives of healthcare industries



www.curex-project.eu

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CUREX
SECURE AND PRIVATE HEALTH DATA EXCHANGE

Objectives

- Protect the Security & Confidentiality (Privacy) of health data

- Maintain data Integrity

- Cyber Hygiene & Policy Making Strategies

- Ensure secure & private data transfer

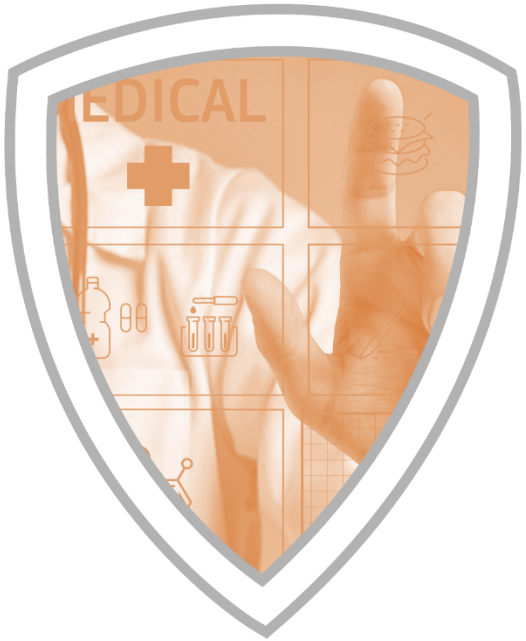
- General Data Protection Regulation (GDPR) Compliant

- Flexible and Scalable Platform
- Situational Awareness-Oriented Platform

- Decentralized Blockchain Infrastructure

- Optimal Safeguards Strategies

CUREX use cases



Use Case 1

Data exchange for cross-border patient mobility

Use Case 2

Data exchange in remote healthcare services

- **(2a) Risk Assessment for an IoT Healthcare Platform**
- **(2b) Risk Assessment for a Point of Care System**

Use Case 3

Data exchange for healthcare research

H2020 - Grant Agreement no. 826404

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The solution...

cybersecurity and **privacy** risks

secure and authorised sensitive health data exchange

Secure-by-design business network based on blockchain tech and software

CUREX will deliver a secure- and **privacy-by-design** platform

GDPR-compliant tools and applications
Privacy awareness
Accountability and **auditability** functionalities

Empower data owners (i.e. patients) with the means to control how and when their data is used (e.g. consent management)

Increase **trust** among hospitals and care centres

Proof of concept **use cases**

User driven approach

To promote **human-centric** cyber hygiene through cybersecurity and privacy awareness and training activities

Empower: (a) patients to take necessary control of their data

Blockchain
Machine learning
Big data analytics technologies

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Issues to be considered

General Procedures for data processing.

Procedures for data processing have been established. Dedicated Data management Plan.

Ethics Advisory Committee (EAC) required.

Piloting sites clearances for medical partners.

Legal and ethics compliance analysis.

Dedicated deliverable to ethics, legal and societat aspects.

Informed Consent Principles followed

Assurance that CUREX is GDPR compliant

New compliance measures adopted

FAIR principles

Findable, Accessible, Interoperable, and Reusable

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For all use cases

PARTICIPANTS - CUREX team + COWORKERS + OTHERS

DATA - SIMULATED

NO INCIDENTAL FINDINGS ENVISAGED

NO SECONDARY USE OF DATA

Dedicated deliverable on PARTICIPANT INVOLVEMENT AND USE OF PICF

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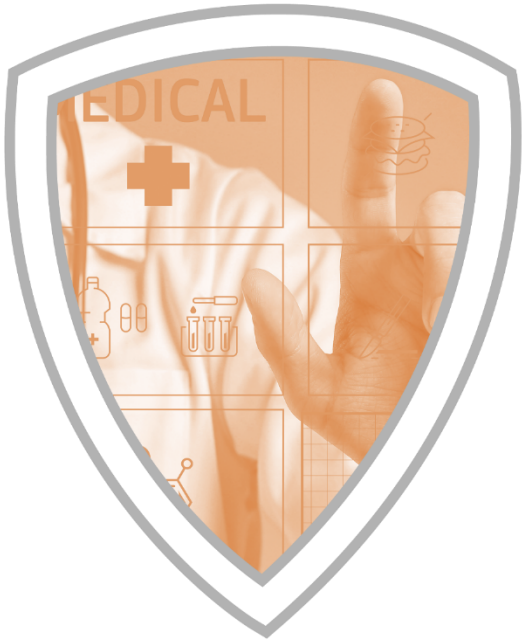
Use Case 1 summary

USE CASE 1		
Title	**Emergency in a foreign country**	
Task leader	**SERMAS**	
Brief summary	In this scenario an ill traveller from a foreign country visits a clinician, the patient's historical record is not available in the local country. In order to assist the clinician to provide a proper diagnosis of the patient's illness she/he must access the CUREX platform and get authorization to retrieve the patient's historical health record from his country of origin.	
Items	**Requirements Phase**	**Validation Phase**
Place where recruitment takes place (ex. IT department, out patient clinic, etc)	The recruitment will be done using HUPHM's healthcare IT experts from the IT department.	The recruitment will be done using HUPHM's healthcare IT experts from the IT department and Research Healthcare Institute (KI)
Person responsible for recruitment (medical doctor, co-worker, admin staff, etc)	The persons responsible for the recruitment were members of HUPHM's IT department.	The persons responsible for the recruitment were members of HUPHM's Research department and Research team
Type of participant user.	Research Team and IT experts from the HUPHM's IT department.	Medical staff and IT experts from the HUPHM's IT department and Research team
Type of data (real vs simulated, sensitive, etc) being collected and storage.	None	Simulated
Type of intervention/participation (questionnaries, interviews, focus groups) and duration of it.	None	**Reviews with Questionnaries and interviews "Hybrid Agile Predictive Approach":** Questionnaires and interviews/focus groups in D2.1 (M01-M04) Questionnaires and interviews in D6.1 (M13-M28) Questionnaires and interviews in D6.4 (M13-M36)
Image recording/ participant tracking / biometric data/ behavioural data collection.	NO	NO
Incidental findings	NO	Not expected
PREVIOUSLY COLLECTED DATA USED AND TYPE	Not apply	No previously collected data will be used

CUREX USE CASES



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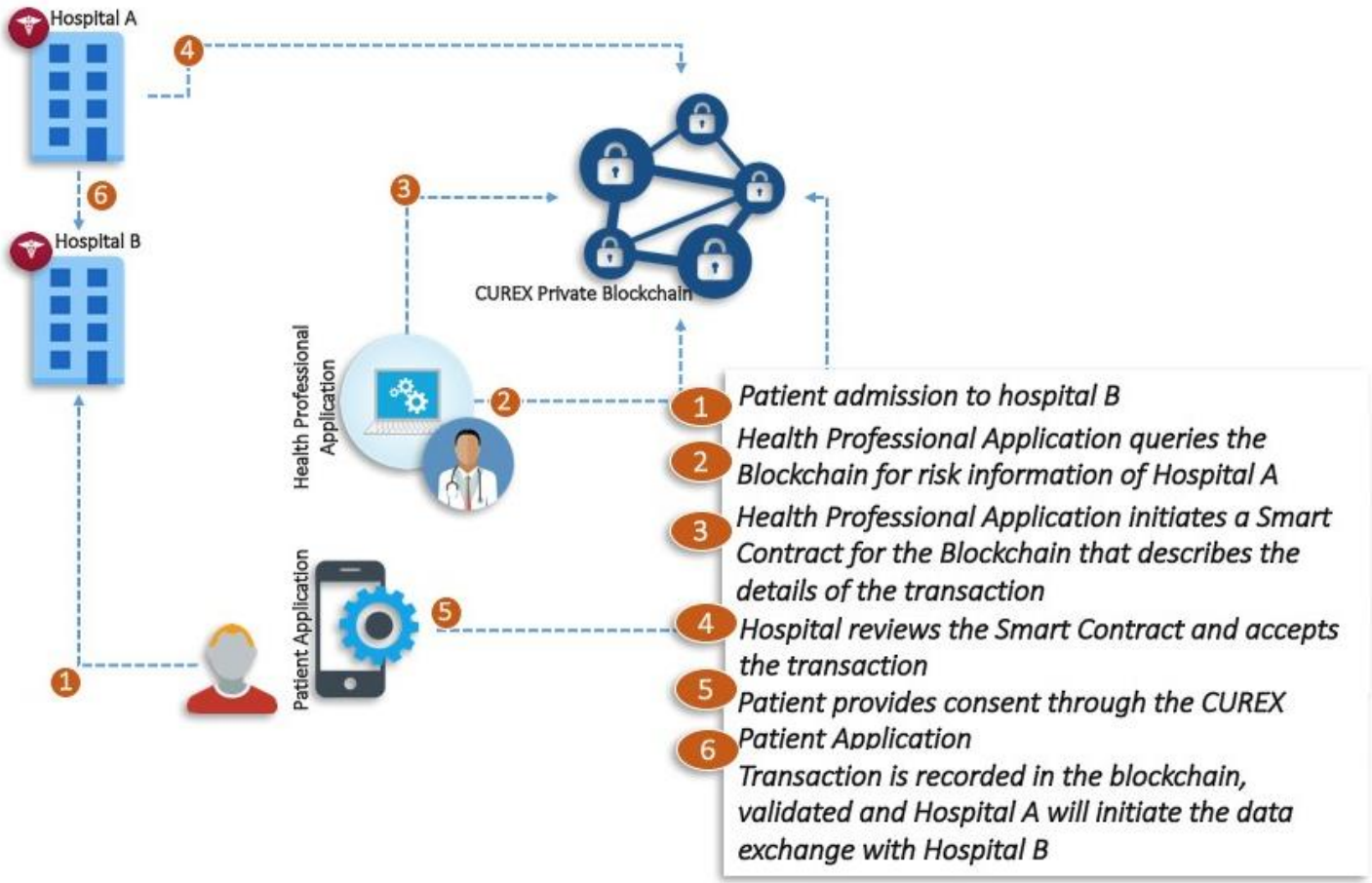
CUREX Use Case 1



Data exchange for cross-border patient mobility

EU citizens have now the option to choose or require **cross border healthcare services**. Therefore, trust between hospitals and care centers remains an open **challenge**. This becomes more crucial, since the new **GDPR** Framework is in force since 2018.

Assessing cybersecurity and privacy risks that are associated with Data Exchange, and helping **healthcare organizations** to mitigate them becomes a crucial aspect towards **trust**.

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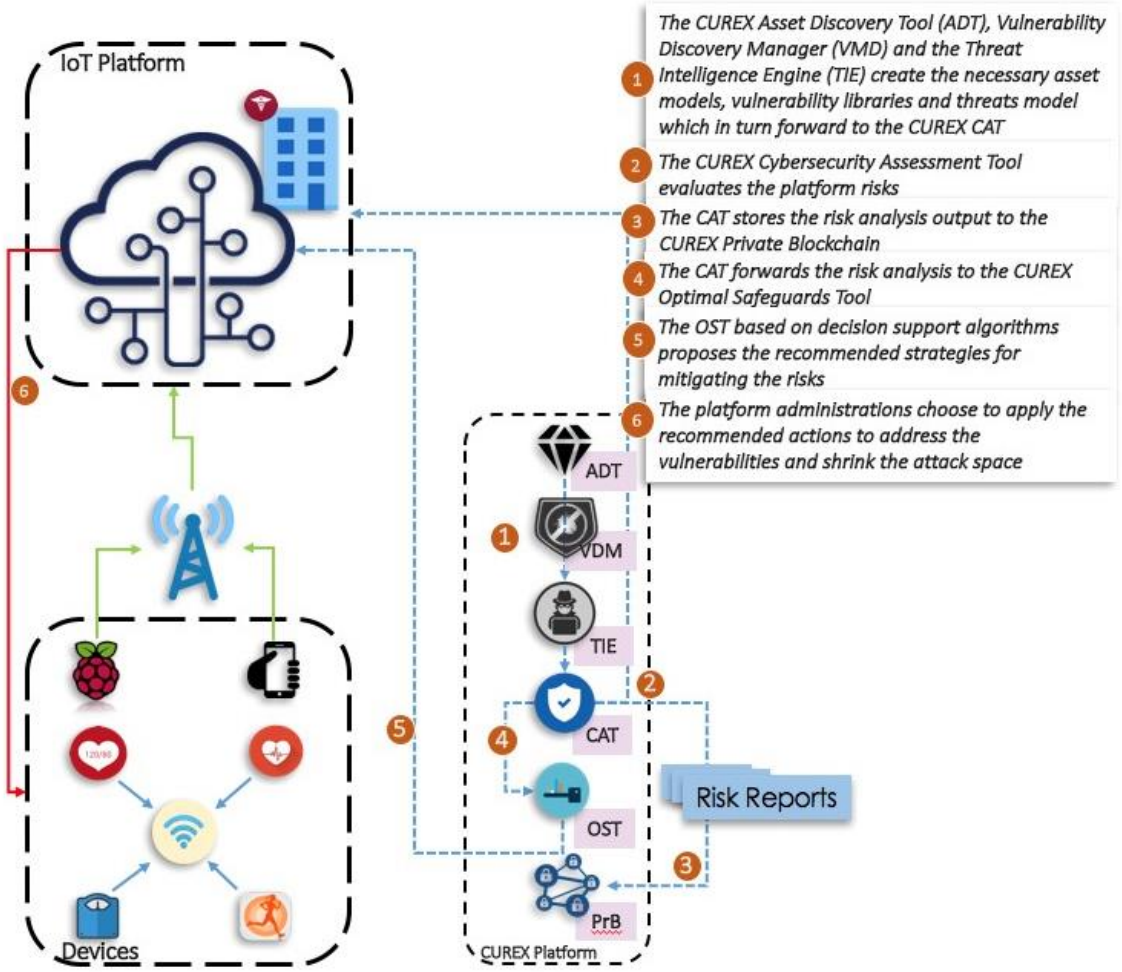
CUREX Use Case 2a



An IoT Healthcare Platform

Internet-of-Things (IoT) technologies provides means for healthcare services providers to shift to **preventive, zero-delay responsive and personalized care**

IoT **collect and transmit data** in combination with **Big Data** technologies
Based on sensors, actuators to highly sophisticated smart computers

Most IoT are insufficiently protected as **vulnerabilities** imposed/left by the manufacturer, and the fact that most of them need to transmit data over the **public Internet** exposing them threats.

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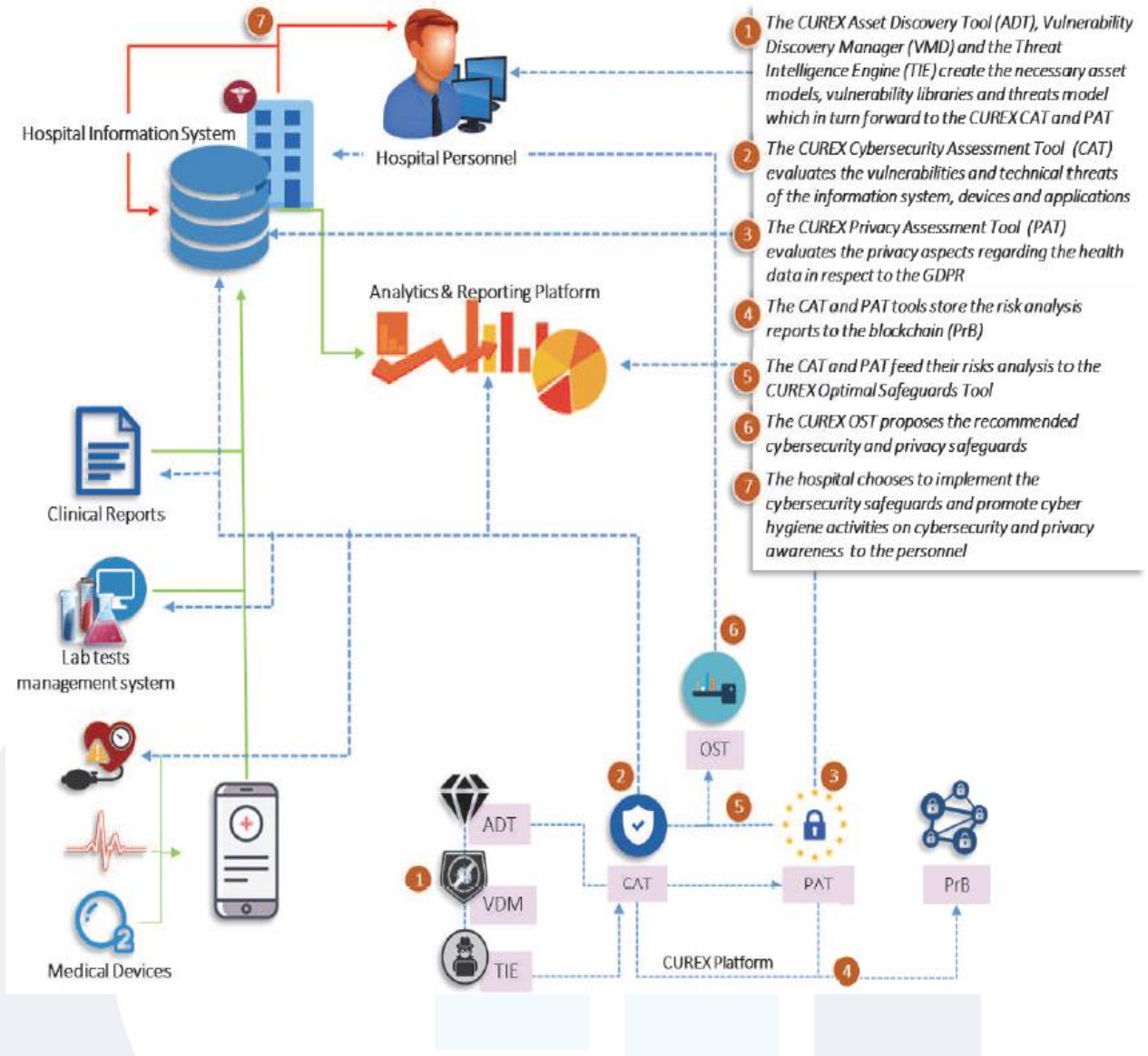
CUREX Use Case 2b



Risk assessment for a POC system

Healthcare Point of Care systems (POC) are used to respond on time and prevent critical situations.
POCs **collect**, **process** and **visualize** data: **large** amounts of data, personal identifiable information (**PII**) and sensitive medical data.

There are multiple **cyber threats** that may cause data leakages or breach **incidents**.

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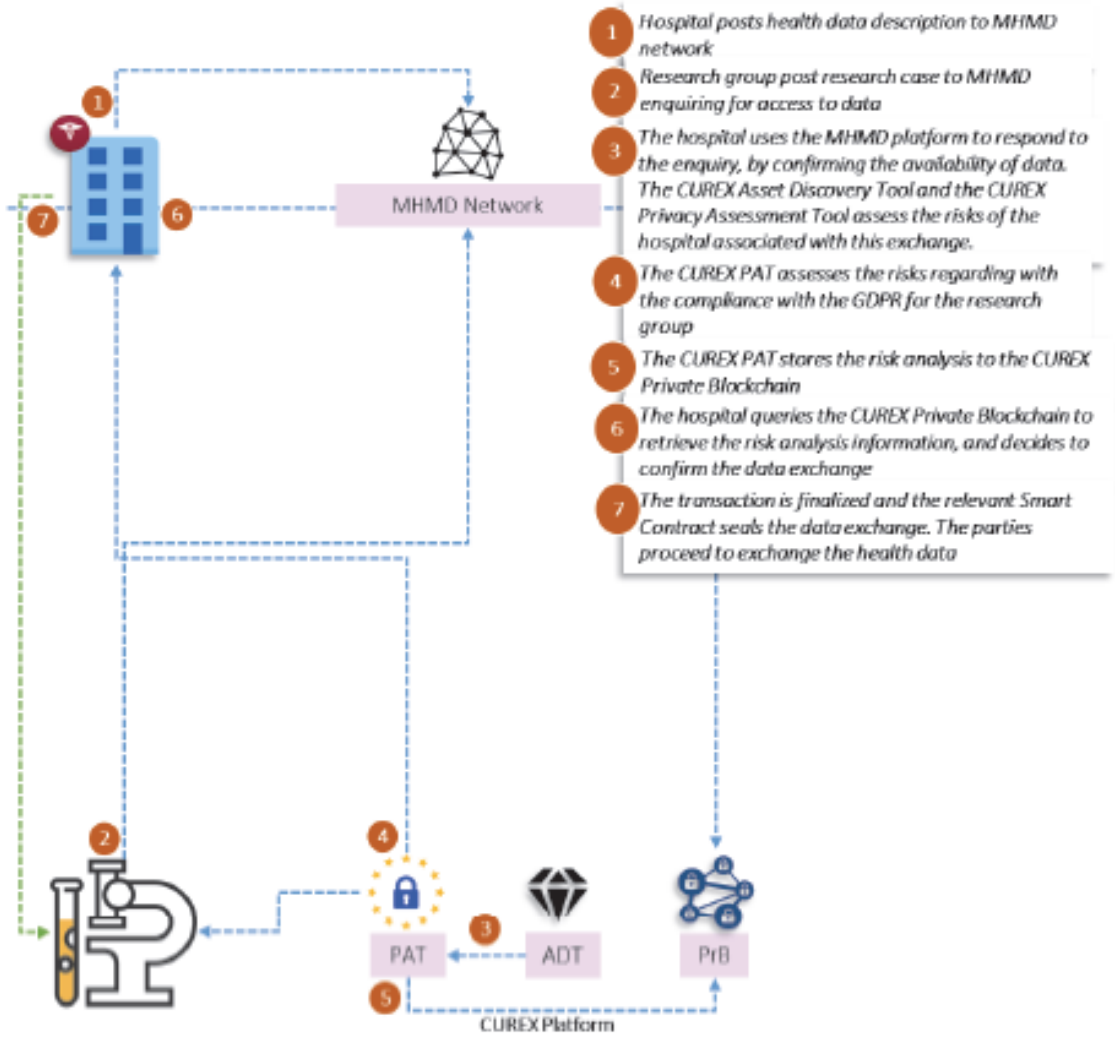
CUREX Use Case 3



Data exchange for healthcare research

Huge amounts of **health data** that is collected have enabled healthcare organizations to **advance** the **medical science**. These, with the help of big data analytics, can provide valuable **knowledge** to researchers to prevent diseases.

The **MyHealthMyData** platform facilitates the connection between
research groups and healthcare centers

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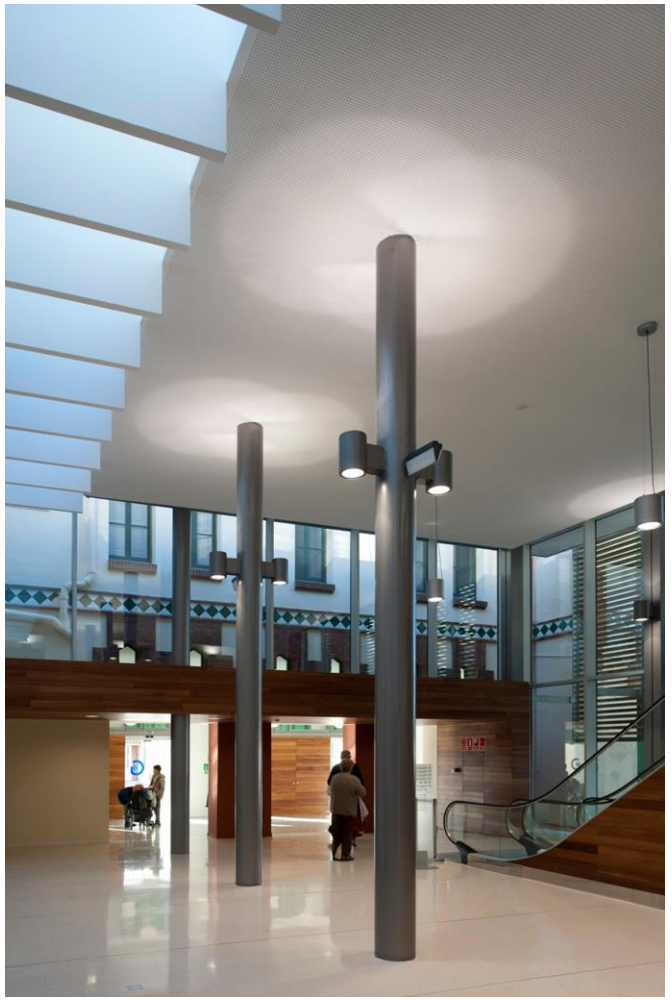
Moltes gràcies per la vostra atenció !



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