

EU Human Exposome Project

The Human Exposome Assessment
Platform (HEAP)

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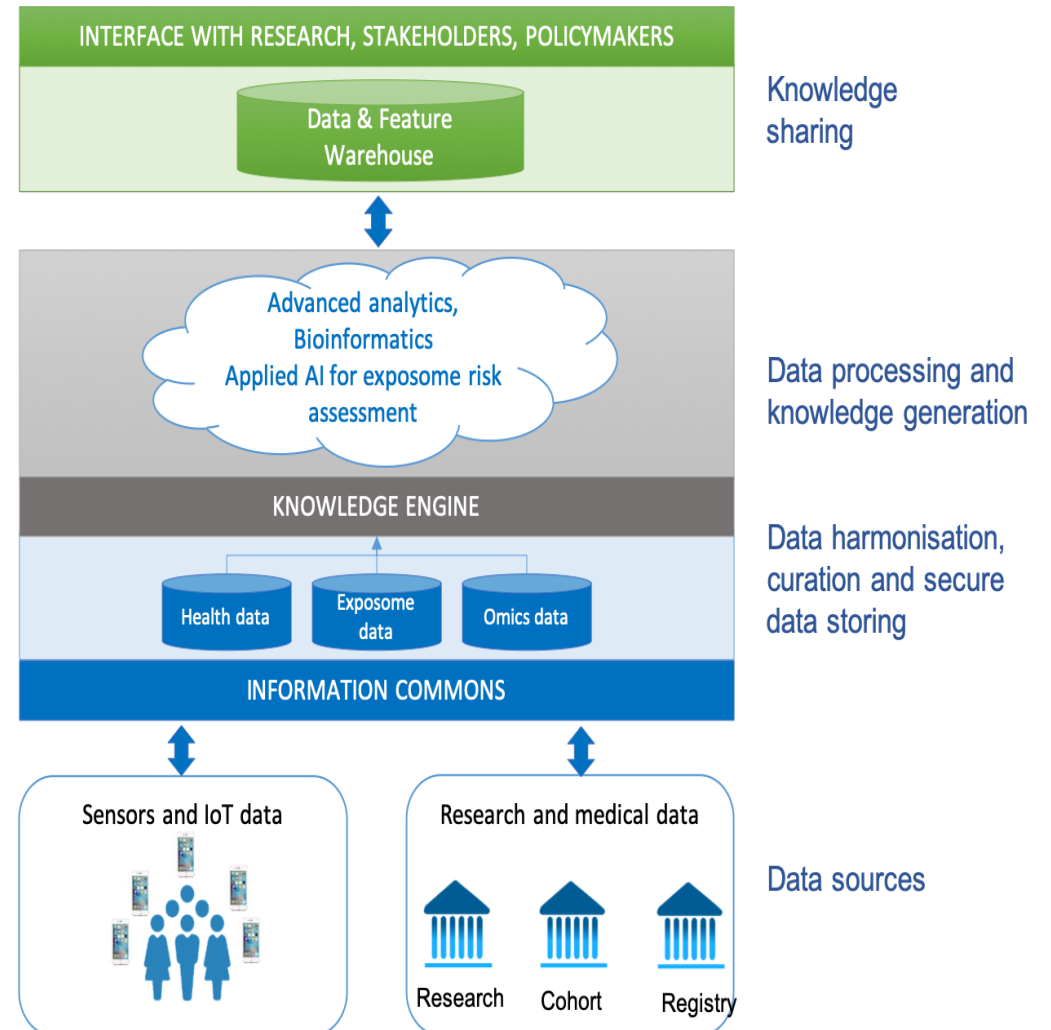
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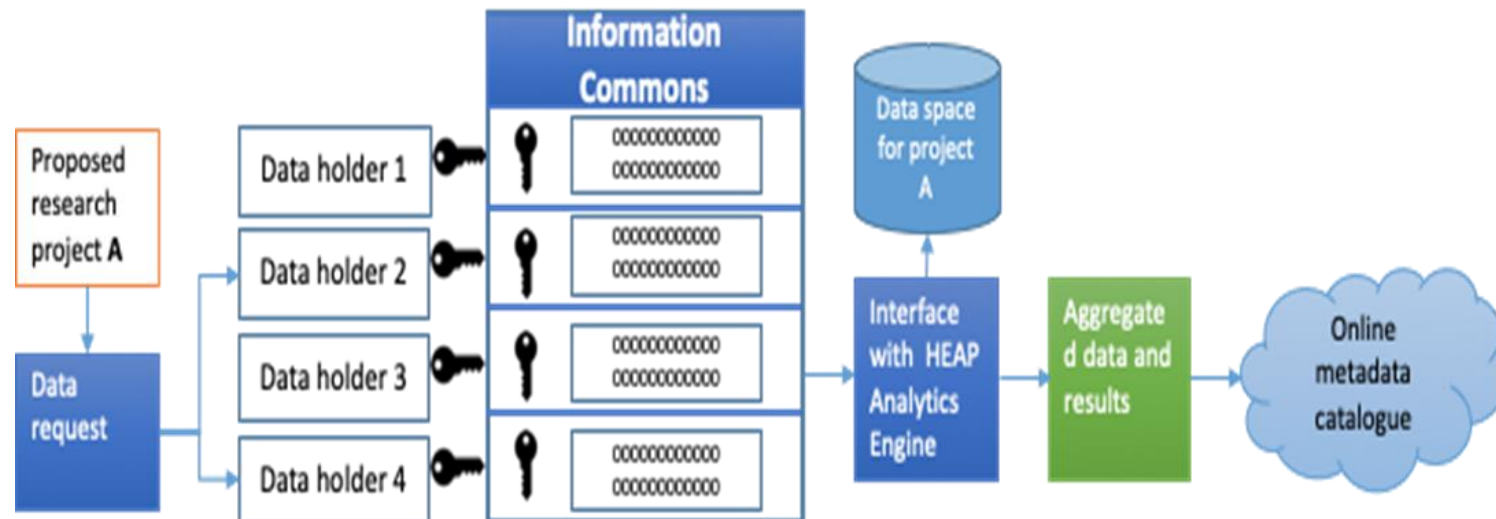
The Human Exposome Assessment Platform

- 1) Launch an integrated and reproducible informatics platform that can be deployed in computer clusters and computing centres worldwide.
- 2) Populate the platform with data from exposome assessment



Launch an integrated and reproducible informatics platform that can be deployed in computer clusters and computing centres worldwide.

Innovative data management, Open Science and Integrity Protection: Clear ethico-legal governance system. Efficient and secure sharing of data access with others



Populate the platform with data from exposome assessment

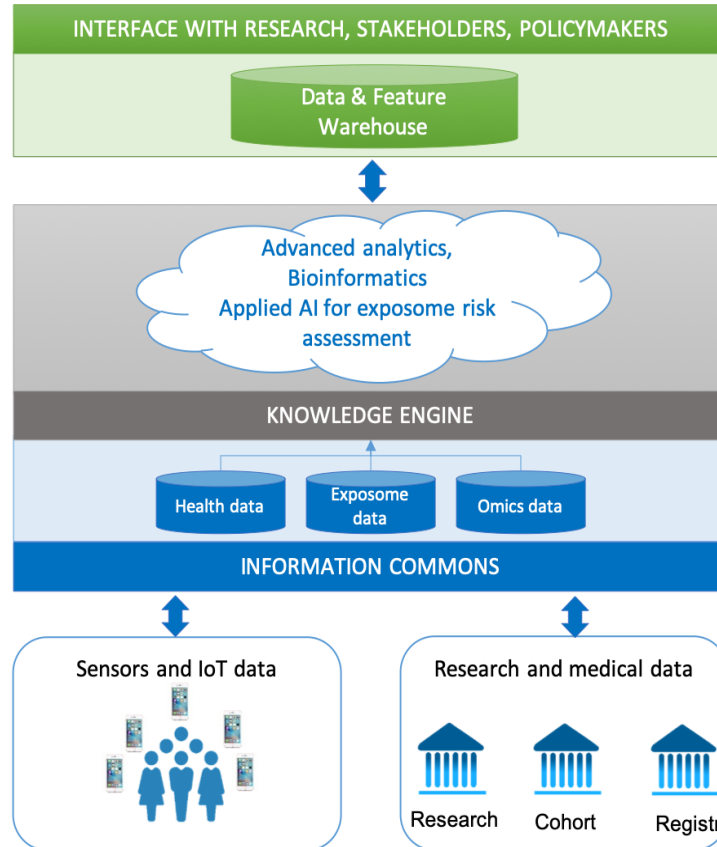
Exposome assessment using Sensors



Chemicals= Mass spectrometry



Biologics= Sequencing



-Population-based sample cohorts with advanced analyses (e.g. Metagenomics, epigenomics)

Exposome assesment using Consumer Receipts



Strategic importance of HEAP

1. Moving away from “One project on One exposure and One Disease”

Open Science: Multiple projects (also by others) on Multiple Exposures and Multiple Diseases.

Improved Integrity protection: Clear rules and security standards for data access

2. **Furthering Advances** being made in different countries using international collaboration. E.g. on:

-Improved **environmental safety:** Continuous exposure measurements using sensors

-Improved **consumer protection:** Continuous measuring if specific purchases affect health

-Improved **understanding of environmental determinants of disease:** Towards new strategies for healthy childbearing and cancer prevention

After 5 years we will have delivered

- **A flexible technical platform** (both software and hardware) proven to be efficient & safe for **data acquisition** (from e.g. **wearable sensors, purchases** and “**omics**”, for **data management, AI and knowledge discovery, visualization** and **education**).
- **Exposome data and analysis results** from four large-scale population **cohorts** and from a pilot adding wearable **sensors** for personal exposome profiling.

At least 1 case where exposome knowledge has translated to action for improving health of EU citizens: either on

Improved **environmental safety**;

Improved **consumer protection** or

Improved **understanding of environmental determinants of disease**

The EU Green Deal and the Exposome

- **New technologies, sustainable solutions and disruptive innovation are critical to achieve the objectives of the European Green Deal.**
- **Accessible and interoperable data are at the heart of data-driven innovation**
 - Digital infrastructure and artificial intelligence solutions will facilitate evidence-based decisions and expand the capacity to understand and tackle environmental challenges.
- **European food: safe, nutritious and of high quality.**
 - Low quality diets contribute to obesity and diseases such as cancer.
- **HEAP will provide a sustainable infrastructure and an improved evidence base towards these goals**

Critical needs for success

- Widespread recognition of and support for
 - i) the specific work of the Human Exposome Assessment Platform
 - ii) the concept that high quality, interoperable exposome measurements will be necessary for health & welfare of the citizens of the European Union.
- Exploit overlaps with other European Human Exposome Network projects – increased critical mass & expertise will propagate progress

The Partners in the Human Exposome Assessment Platform (HEAP)



STICHTING MLC FOUNDATION

