



StairwAI, LETHE and AI4PublicPolicy

Insight to the platform architectures

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TLP: WHITE Public

- **Introduction**
- **StairwAI**
Ville Tenhunen
- **LETHE**
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- **AI4PublicPolicy**
Marco Rorro and Andrea Cristofori

Introduction these 3 projects



The Artificial Intelligence on-demand platform for low-tech SMEs



A project designed to prevent cognitive decline in an ageing population at an early time point by a person centric solution.



The platform will provide policy development and management functionalities based on AI, ML, DL, NLP and chatbots.

STAIRWAY



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017142

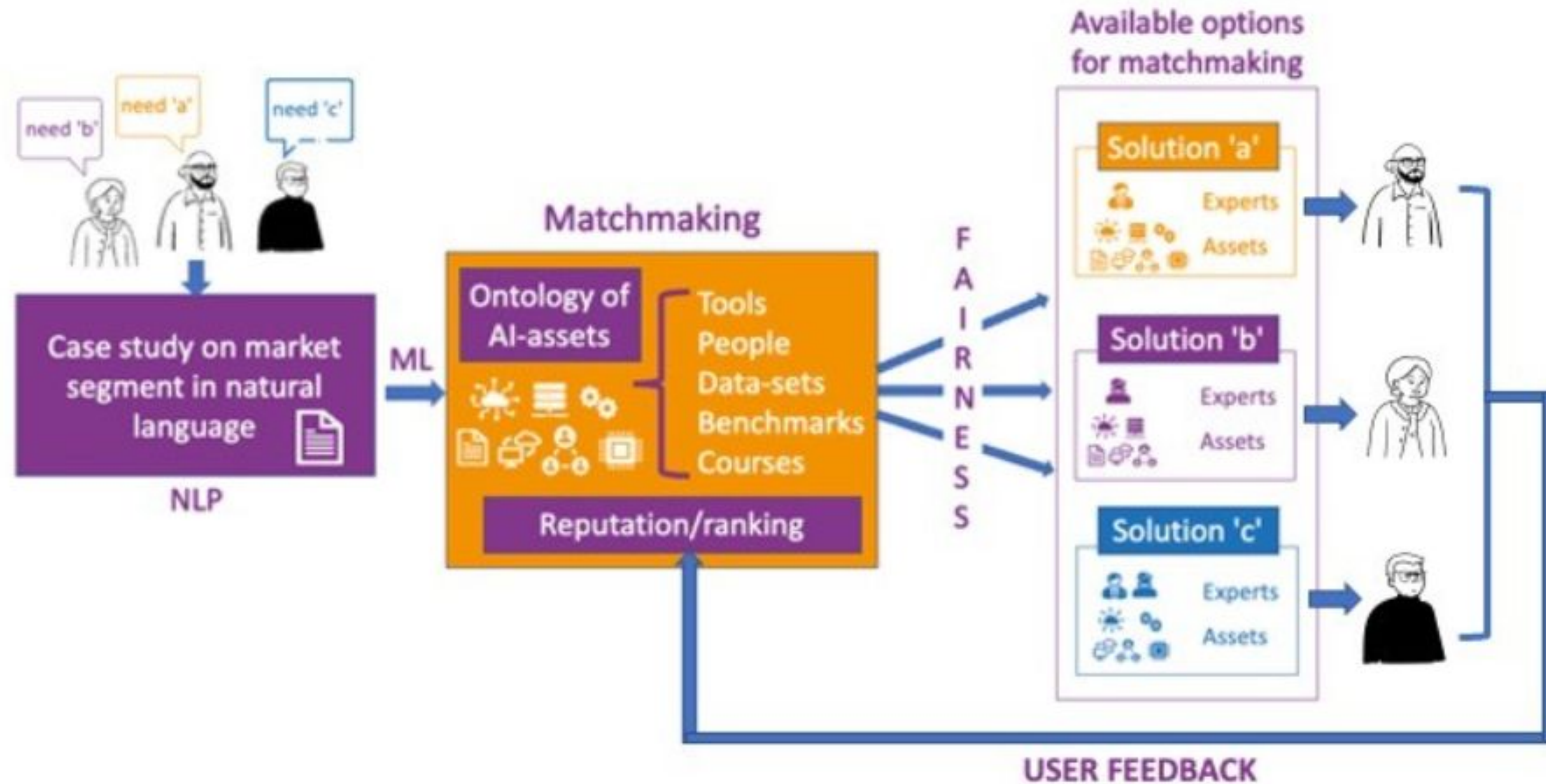
StairwAI in nutshell

StairwAI (*Stairway to AI: Ease the Engagement of Low-Tech users to the AI-on-Demand platform through AI*) is an EU-funded project targeting low-tech users with the goal of facilitating their engagement in the AI4EU platform. This will be achieved through a new service layer enriching the functionalities of the on-demand platform and containing:

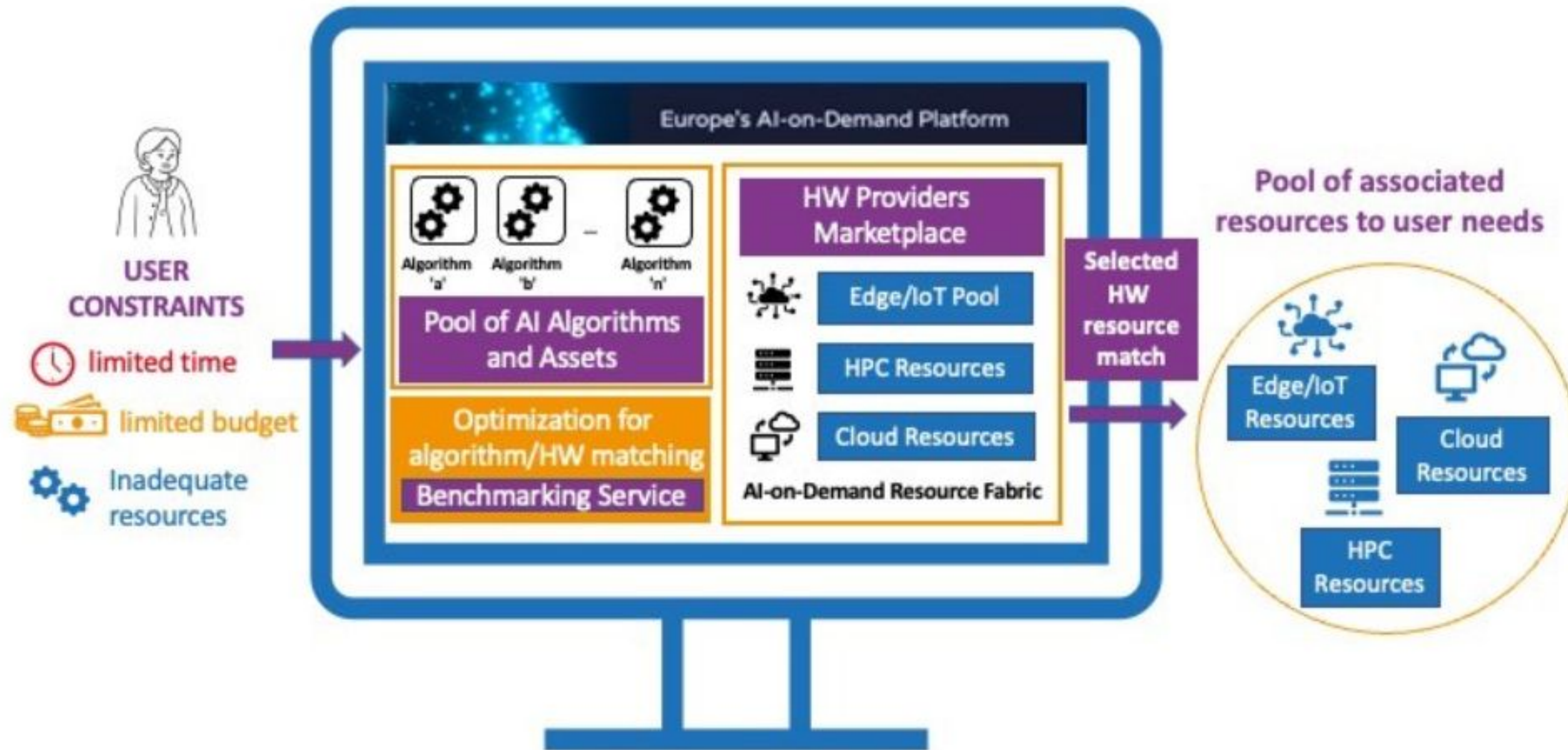
- **a multilingual interaction** layer enabling conversations with the Platform in the user's own language,
- **a horizontal matchmaking** service for the automatic discovery of AI assets (tools, data sets, AI experts, consultants, papers, courses etc.) meeting the user business needs and
- **a vertical matchmaking** service that will dimension and provision hardware resources through a proper hardware provider (HPC, Cloud and Edge infrastructures).

The StairwAI project is coordinated by UNIBO (ALMA MATER STUDIORUM – UNIVERSITA DI BOLOGNA) and involves 11 partners from nine EU countries.

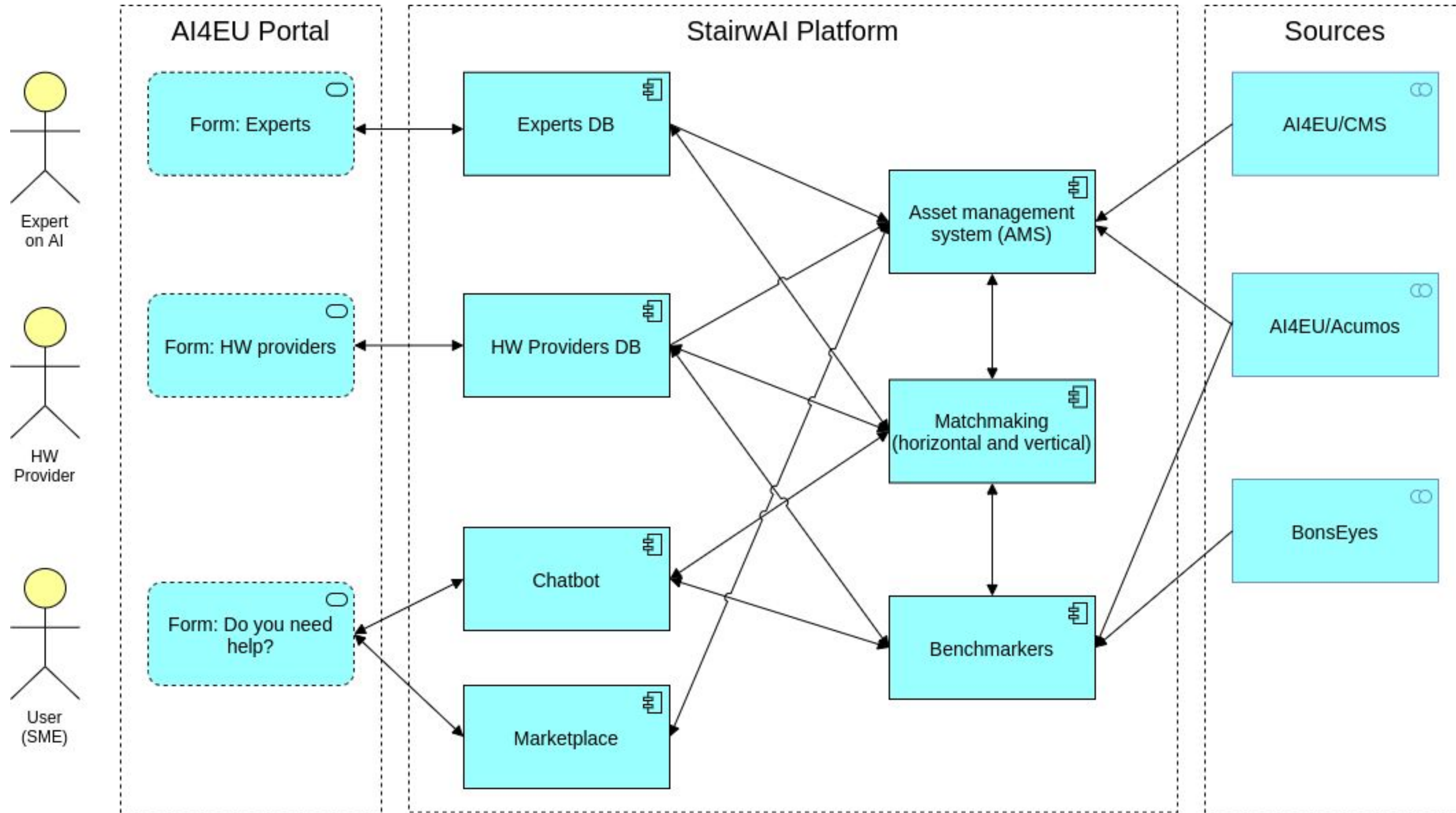
Horizontal matchmaking



Vertical matchmaking



Conceptual architecture



EGI2022

**THE LETHE
PLATFORM
ARCHITECTURE -
OVERVIEW**



LETHE

A personalized prediction and intervention model for early detection and reduction of risk factors causing dementia, based on AI and distributed Machine Learning

Programme

Horizon 2020 Framework Programme

Work programme part

Health, demographic change and wellbeing

Call

Digital transformation in Health and Care (H2020-SC1-DTH-2018-2020) – H2020 RIA

Personalised early risk prediction, prevention and intervention based on Artificial Intelligence and Big Data technologies

TOPIC ID: SC1-DTH-02-2020

Project duration: 48 months

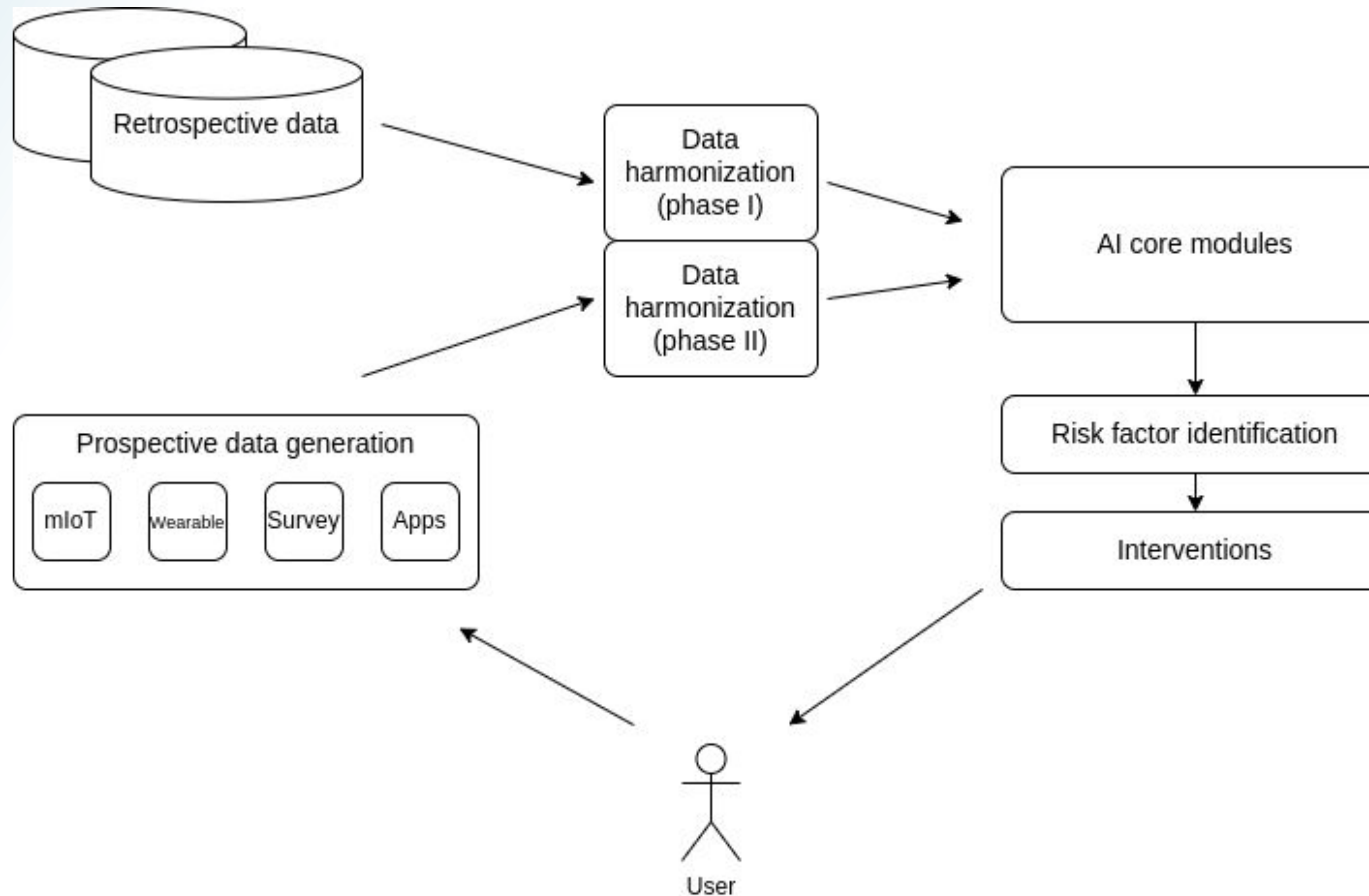
Total Budget: 6 Mill.

OBJECTIVES

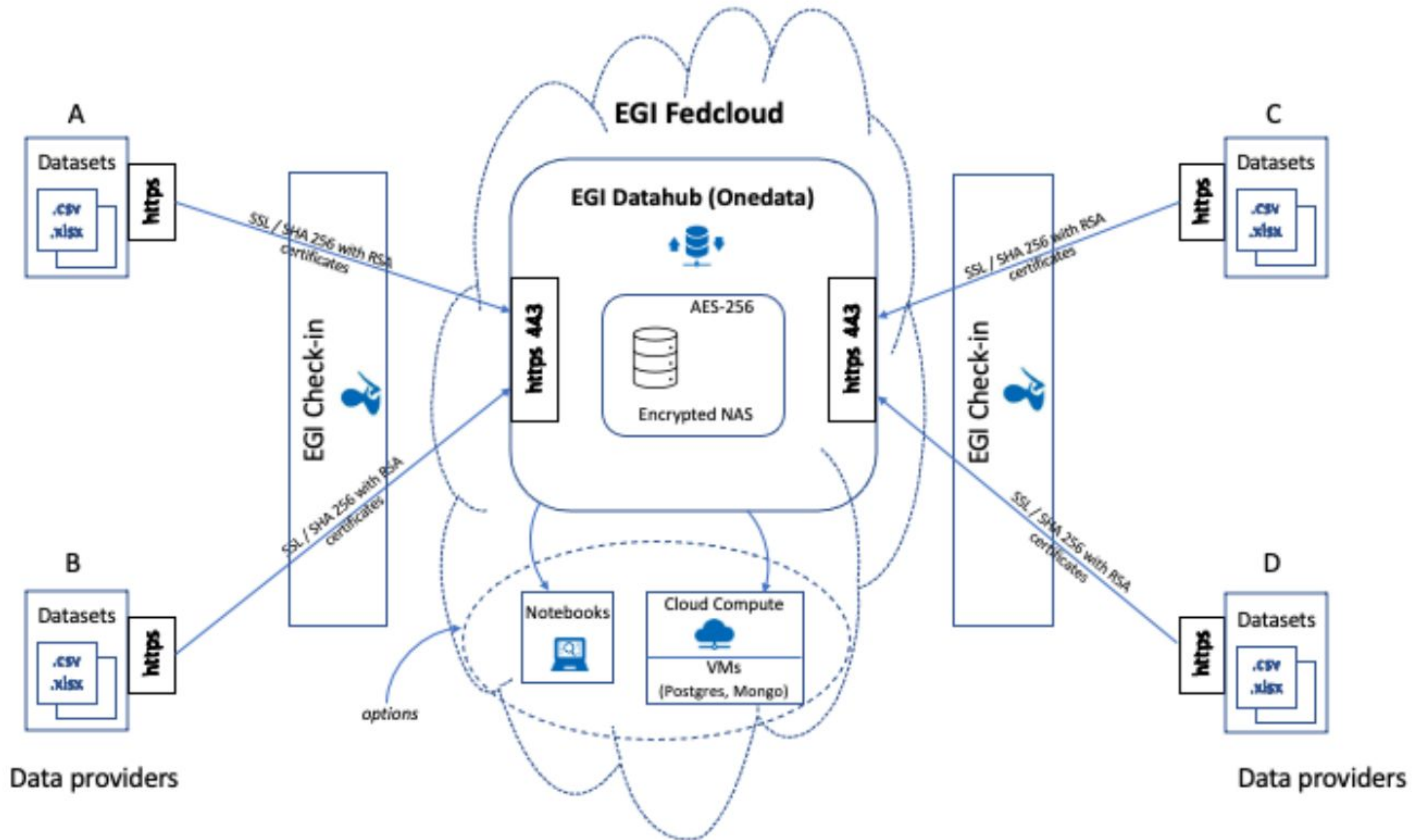


Overview of LETHE objectives

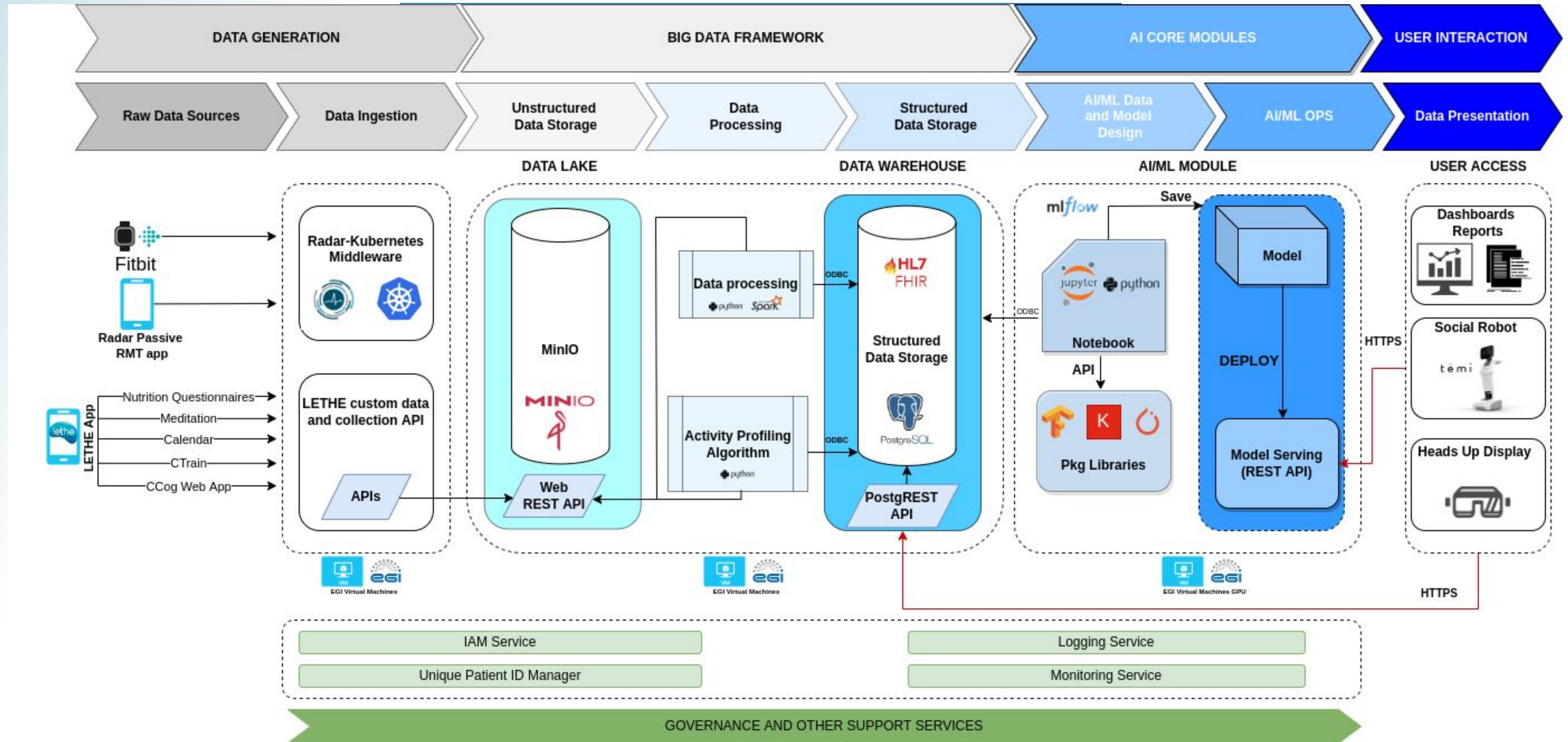
Simplified concept



Phase I architecture



Phase II architecture



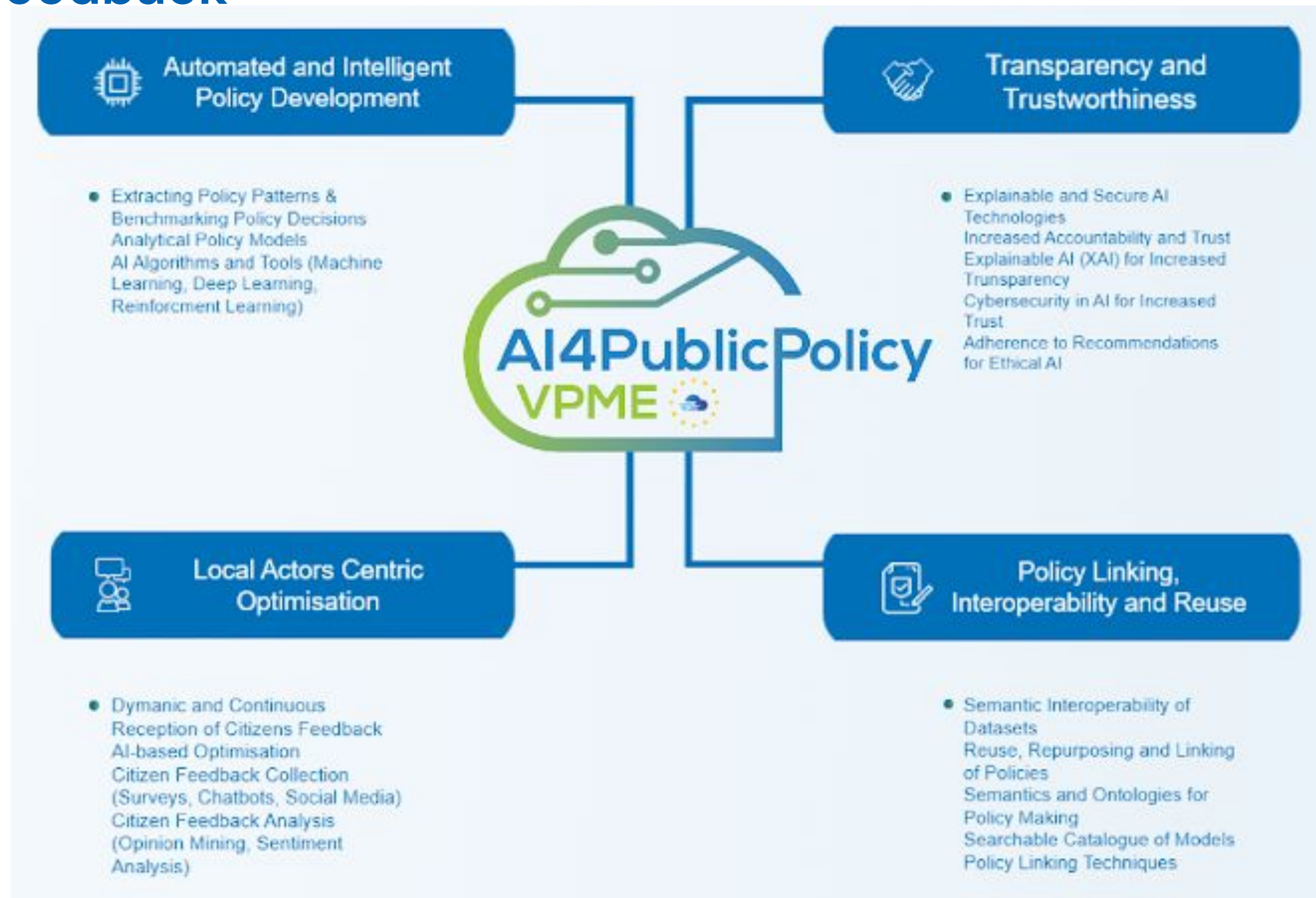


THE PROJECT

AI4PublicPolicy is a joint effort of policy-makers and Cloud/AI experts to deliver, validate, demonstrate and promote a novel open cloud platform for automated, scalable, transparent and citizen-centric policy management **based on unique AI technologies.**

The AI4PublicPolicy Platform

An Open Virtualized Policy Management Environment (VPME) provides fully-fledged policy development/management functionalities based on AI technologies such as Machine Learning (ML), Deep Learning (DL), NLP and chatbots while leveraging citizens' participation and feedback



The AI4PublicPolicy VPME

VPME First version

UPM premise
EGI Fedcloud

Policy Definition

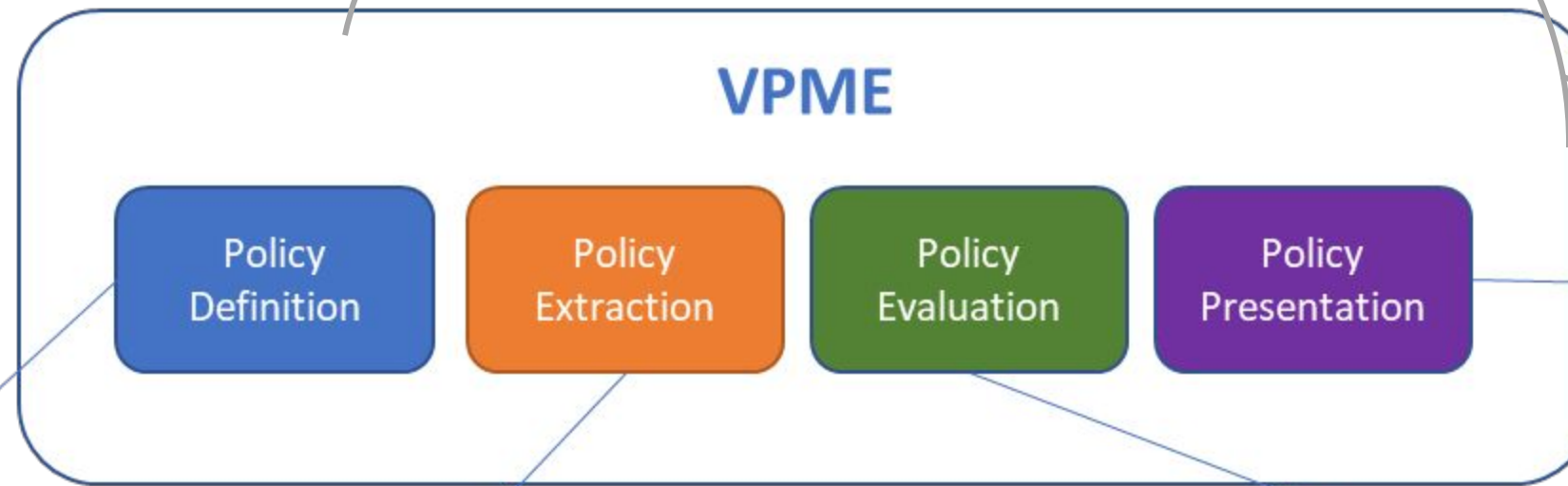
Register a new policy

Area
 -- Select an area --

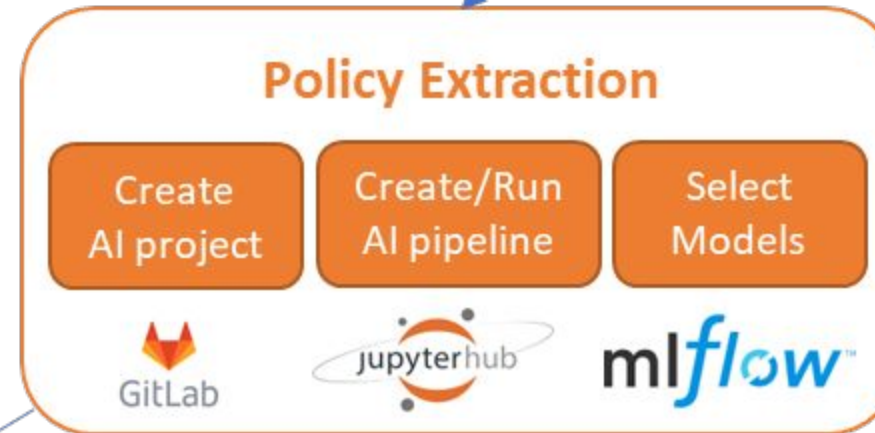
Policy Name: _____ Owner: _____

Policy description: _____

- Define a Dataset schema
- Upload a Dataset (from an endpoint or manually)
- View Dataset list
- View Dataset details
- Create a Policy
- View Policy List
- View Policy Detail
- Update a Policy



- Interact with the models
- View Model explanation (data insights)
- Explainable AI (to be discussed)



- Select a Policy
- Initialize an AI project
- Develop Jupyter Notebooks
- Create an AI pipeline
- Run experiments
 - Train an AI Model
 - Evaluate AI Model performance
- Test and select AI Models (Policy Maker)

Policy: Parking availability prediction

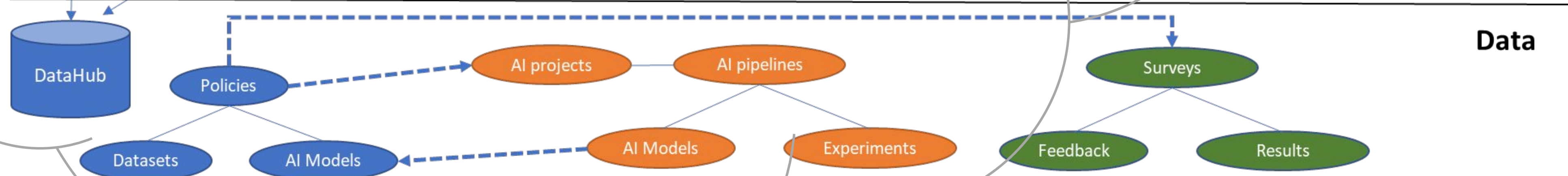
+ Create App Survey + Create Social Survey

List of surveys associated to Parking availability prediction

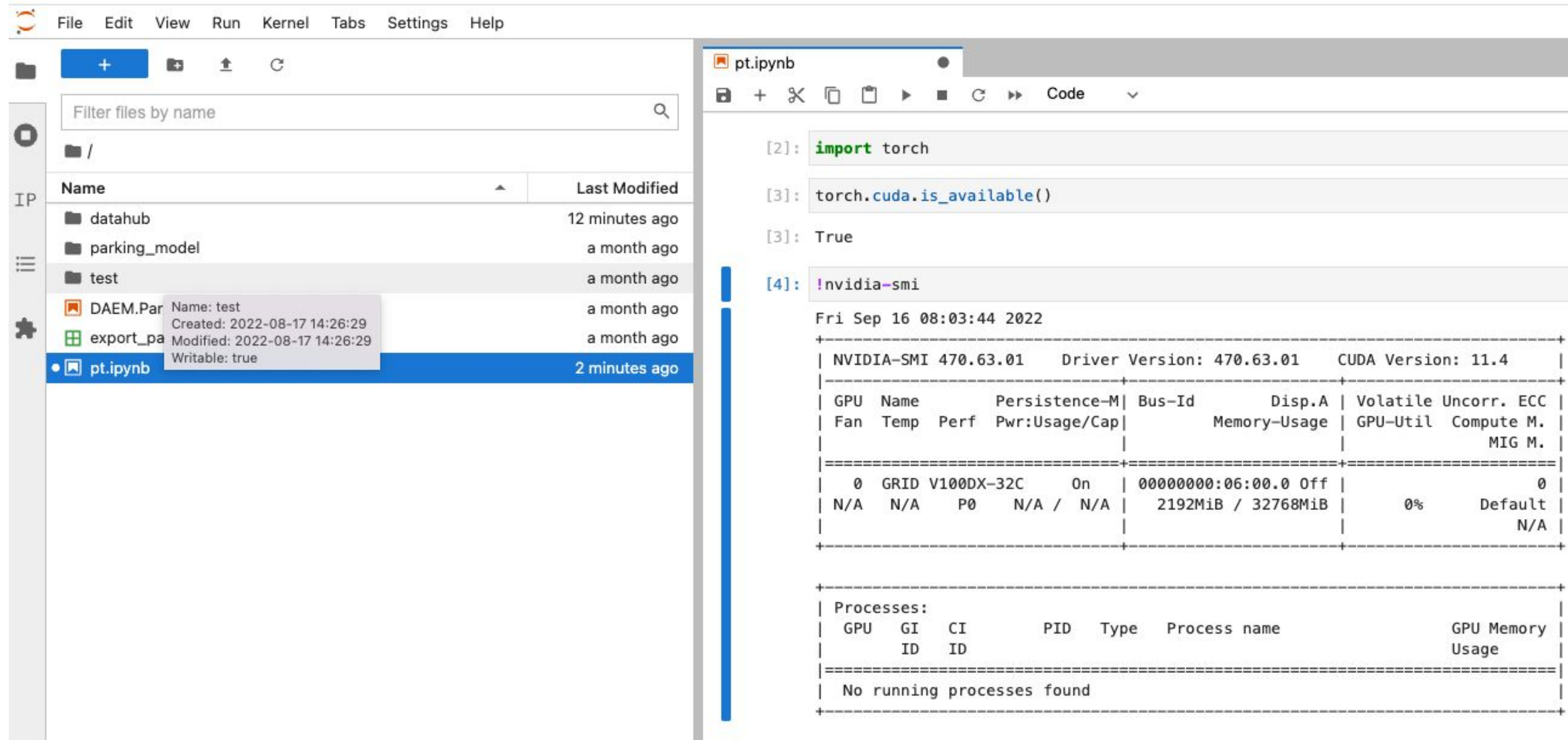
Name	Created at	Open until	Status
TestComment	May 10th 2022, 9:56:50 am	June 30th 2022, 9:53:00 am	●
Comment2	May 6th 2022, 1:38:30 pm	May 21st 2022, 1:38:00 pm	●

- Create a Survey
- View Survey List
- Provide feedback
- Close Survey
- View survey results

RB premise



AI4PublicPolicy GPU enabled Notebooks



The screenshot shows a Jupyter Notebook interface with a file explorer on the left and a code editor on the right. The file explorer shows a directory structure with folders like 'datahub', 'parking_model', and 'test', and files like 'DAEM.Par', 'export_pa', and 'pt.ipynb'. The code editor shows the following code and output:

```
[2]: import torch
[3]: torch.cuda.is_available()
[3]: True
[4]: !nvidia-smi
```

The output of the `!nvidia-smi` command is as follows:

```
Fri Sep 16 08:03:44 2022
+-----+
| NVIDIA-SMI 470.63.01    Driver Version: 470.63.01    CUDA Version: 11.4     |
+-----+-----+
| GPU   Name                Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf    Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
|                                           MIG M.         |
+-----+-----+
|    0  GRID V100DX-32C      On          | 00000000:06:00.0 Off  |      0          0      |
| N/A   N/A    P0     N/A /  N/A | 2192MiB / 32768MiB |      0%      Default  |
|                                           N/A              |
+-----+-----+

+-----+
| Processes:
| GPU   GI    CI          PID    Type   Process name                  GPU Memory
|      ID    ID                                   |              Usage
+-----+-----+
| No running processes found
+-----+
```



Thank you

Andrea Cristofori
Marco Rorro
Ville Tenhunen

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