"A scalable, governed, and transparent AI ecosystem for oncology: The S-RACE platform for high-quality real-world data research"

A.Traverso[1,2,3], M.Denti[1], A.Esposito[1,4], C.Tacchetti[1,4]

On behalf of the San-Raffaele Ai Center

[1]*Vita-Salute San Raffele University, Milan, Italy*

[2] *Department of Radiotherapy, Maastro Clinic, Maastricht, The Netherlands*

[3]*DIGICORE (Digital Institute for Cancer Outcomes Research), Brussels, Belgium*

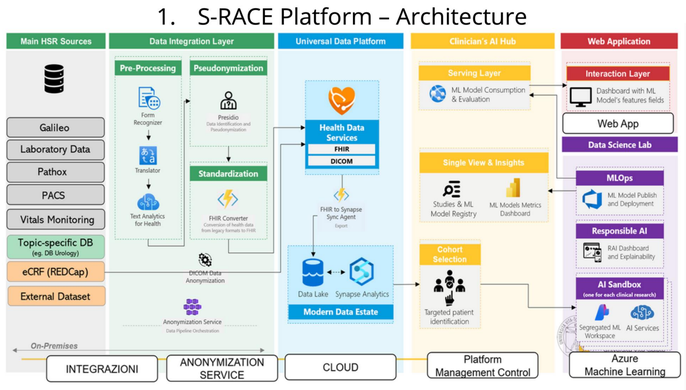
[4]*Experimental Imaging Center, San Raffaele Hospital, Milan, Italy*

RATIONALE

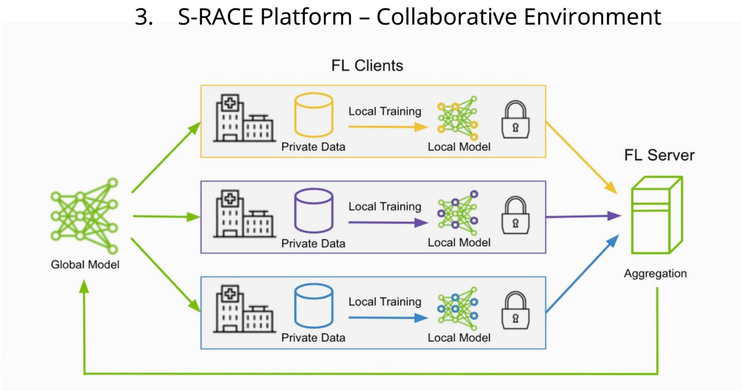
- **Personalized Medicine with AI:** RWE and AI are vital for **personalized medicine**, optimizing treatments and preventing adverse events by revealing hidden data patterns.
- **Data Quality is Paramount:** The success of clinical AI depends heavily on **RWE data quality**, which is often unstructured and requires significant manual curation.
- **Reponsible AI:** AI prognostic models should be fair, transparent, useful for clinical practice and law-compliant

DESIGN

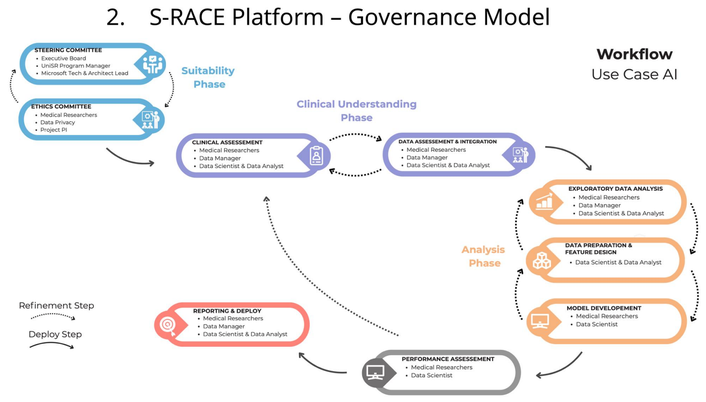
1. S-RACE Platform – Architecture



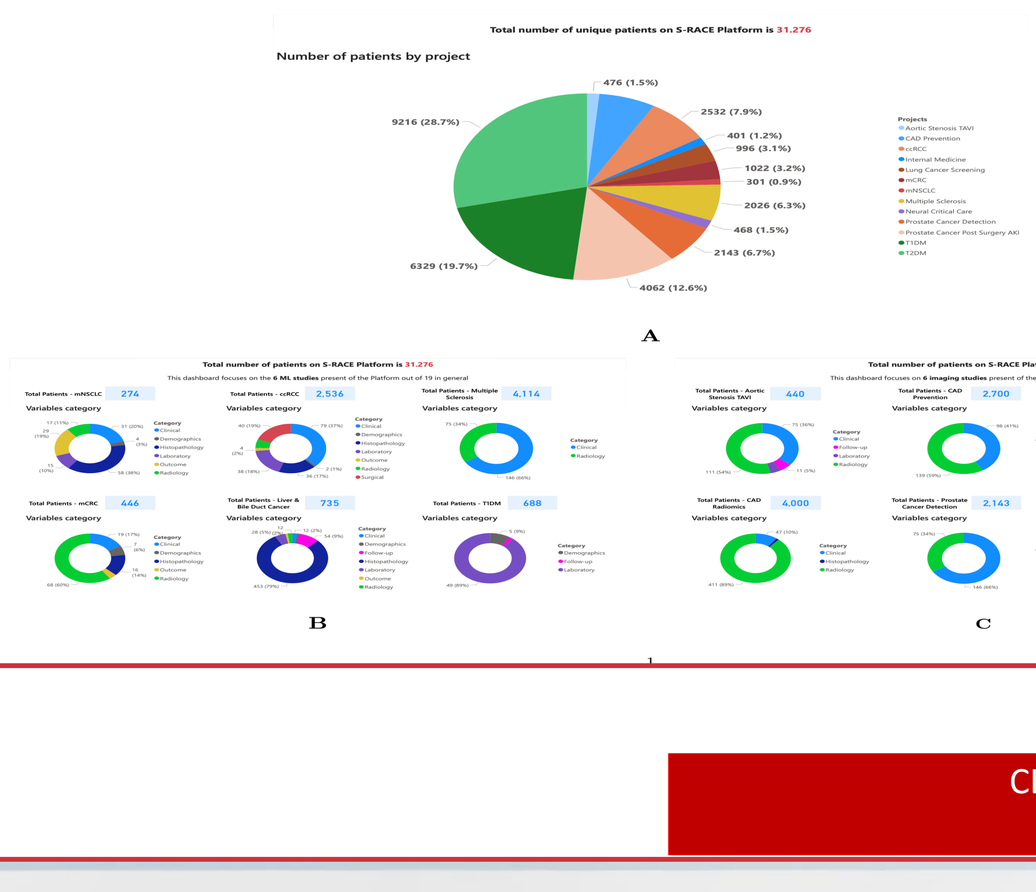
3. S-RACE Platform – Collaborative Environment



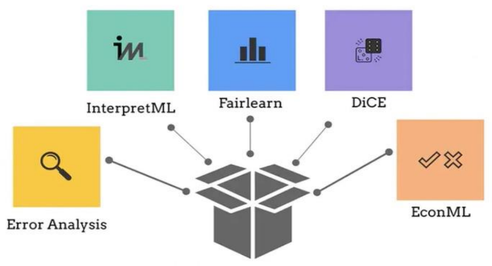
2. S-RACE Platform – Governance Model



IMPLEMENTATION



S-RACE Digital health platform: Explainable & Responsible AI



The **Responsible AI dashboard** provides a single interface to implement Responsible AI in practice. It brings together several mature Responsible AI tools.

Model overview and fairness assessment, how model's predictions affect diverse groups of people. (Fairlearn)

Data analysis, to understand and explore the dataset distributions and statistics.

Model interpretability to understand model's predictions and how those overall and individual predictions are made. (InterpretML)

Error analysis, to view and understand how errors are distributed in the dataset. (Error analysis)

Counterfactual what-if, to observe how feature perturbations would affect model predictions (DiCE)

Causal analysis, to use historical data to view the causal effects of treatment features on real-world outcomes.(EconML)

CLINICAL RESEARCH