EOSC4Cancer

A European-wide foundation to accelerate Data-driven Cancer Research

Funded by the European Union

This project has received funding from the European Union's Horizon Europe Programme under GA 101058427 — EOSC4Cancer — HORIZON-INFRA-2021-EOSC-01

Context

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European Commission | European Health Data Space
European Cancer Mission

Alignment

EOSC-Life

UNCAN.eu

canSERV

Open data standards

International Cancer Genome Consortium

Global Alliance for Genomics & Health
Collaborate. Innovate. Accelerate.

ARGO Accelerating Research in Genomic Oncology
International Cancer Genome Consortium

elixir

Stakeholders

1+MG

B1MG Beyond One Million Genomes

EU CAN.

iPC Individualized PaediatricCure

EUCAN IMAGE

FAIR-IMPACT Expanding FAIR Solutions across EOSC

...

- ➔ EOSC4Cancer as provider of the **infrastructure for the exploitation of cancer data** for the **EU Cancer Mission**.
- ➔ EOSC4Cancer brings together comprehensive **cancer centres**, **research infrastructures**, leading **research groups**, and major **computational infrastructures** across Europe to make the exploitation of the data possible.
- ➔ EOSC4Cancer will prepare **EOSC services** for cancer research and enrich EOSC with **data**, **tools** and **services** from the cancer community.
- ➔ **Start**: 1 September 2022 (30 months)
- ➔ **Consortium**: 28 full beneficiaries, 1 associated partner & 5 affiliated entities.

Partners, associates, and affiliated entities

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Objectives

- ➔ Enable **storage, access, sharing, analysis** and processing of research data and other digital **research objects** from basic and clinical cancer research.
- ➔ Mobilise, **interconnect** and **interoperate datasets** relevant in cancer research.
- ➔ Make cancer research **data** and **analysis systems** accessible to basic and clinical scientists in the most used cancer **analysis portals**.
- ➔ Integrate digital tools, data analytics and Artificial Intelligence/Machine Learning tools for the analysis of cancer data in the cancer analysis portals.
- ➔ Contribute to the **European Health Data Space** (EHDS), the Horizon Europe **European Open Science Cloud** (EOSC) Partnership and the **Cancer Mission**

Expected Outcomes and Impact

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➔ ***Facilitate Cancer Research across Member States and Associated Countries***

Result #1: A platform that will enable **storage, sharing, access, analysis** and processing of research data and other digital research objects from **basic and clinical cancer research**.

Result #2: **Mobilisation, interconnection and interoperation** of **datasets relevant in cancer research**. Contribute with protocols and operating procedures to facilitate the progressive adoption of the **FAIR principles** across data sources but also for research software.

➔ ***Researchers, healthcare professionals, cancer patients, and survivors contributing to cancer research***

Result #3: **Cancer research data and analysis systems** made **easily accessible** to basic and clinical scientists in open cancer analysis portals.

Expected Outcomes and Impact

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Result #4: Integrated **digital tools, data analytics and Artificial Intelligence/Machine Learning method**s for the analysis of cancer-related data in the **cancer analysis environments**.

➔ ***Contribute to the Horizon Europe EOSC Partnership and other relevant partnerships related to cancer research.***

Result #5: Roadmap for EOSC support to an **European Cancer Data Space in the European Health Data Space (EHDS)** in partnership with the **Cancer Mission**. **Participation of patient/survivors associations** in the project's Stakeholder forum and in the Scientific Advisory Board together with the Ethics Advisory Board.

The patient journey

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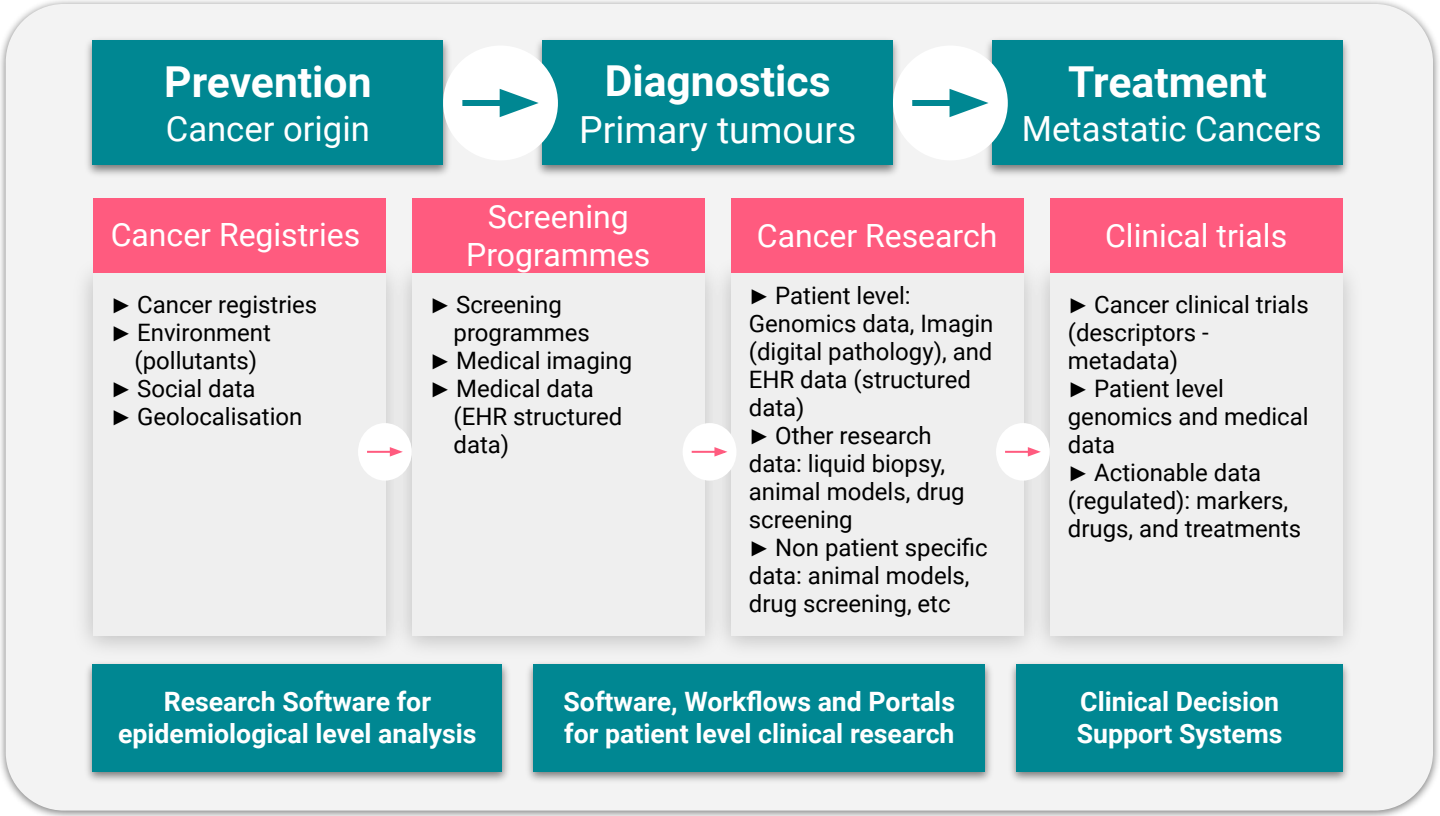

Technical overview

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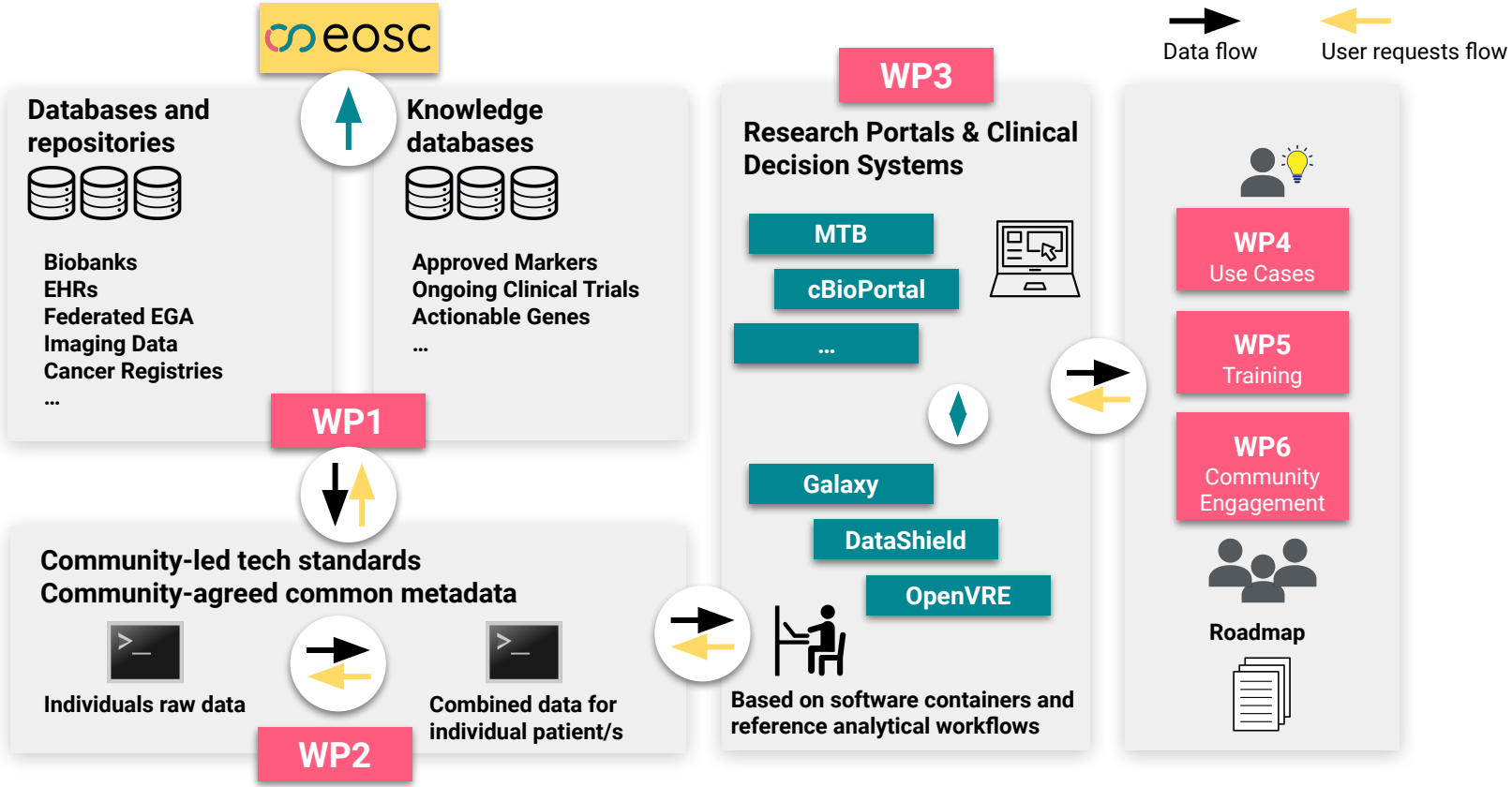

Technical WPs overview

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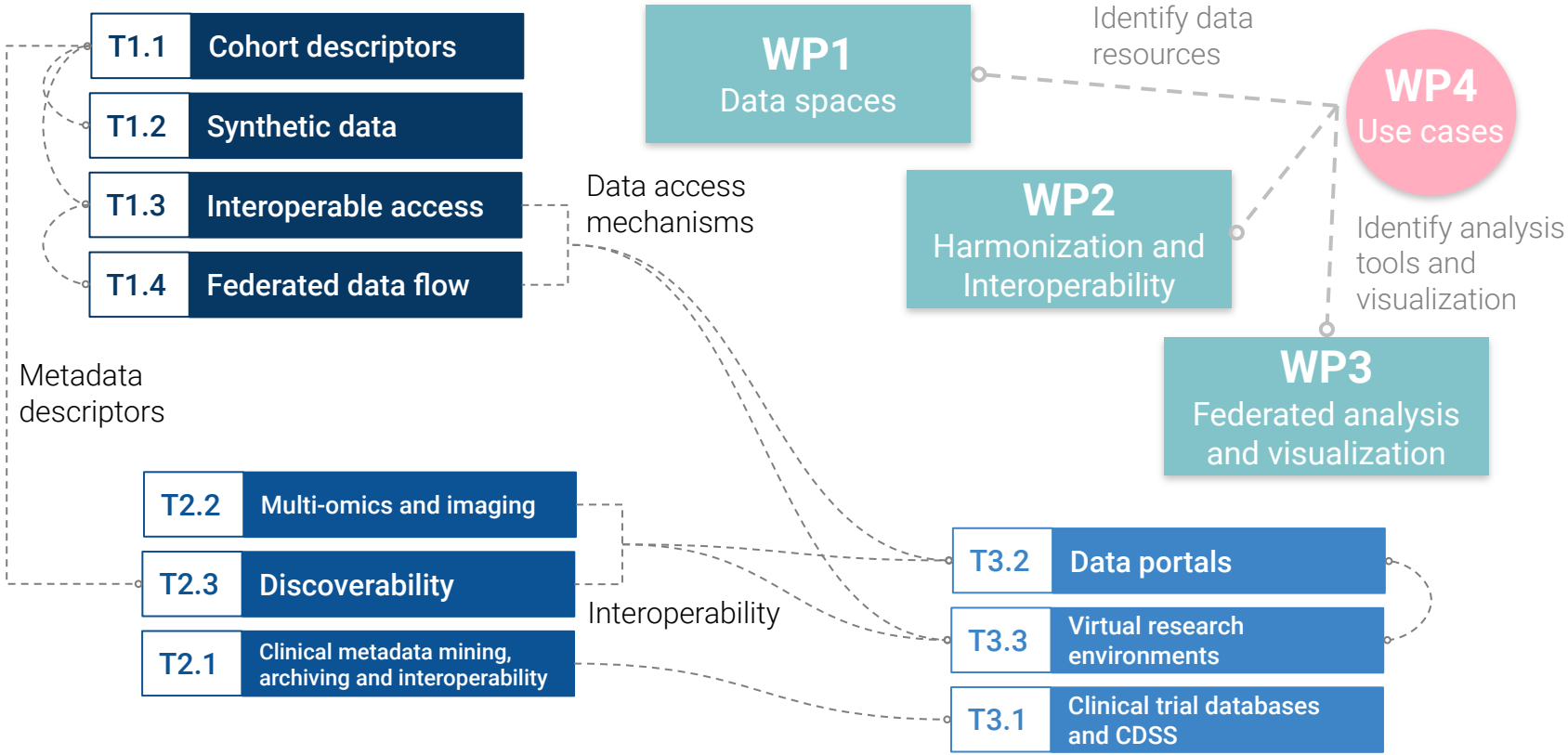

Use-cases overview

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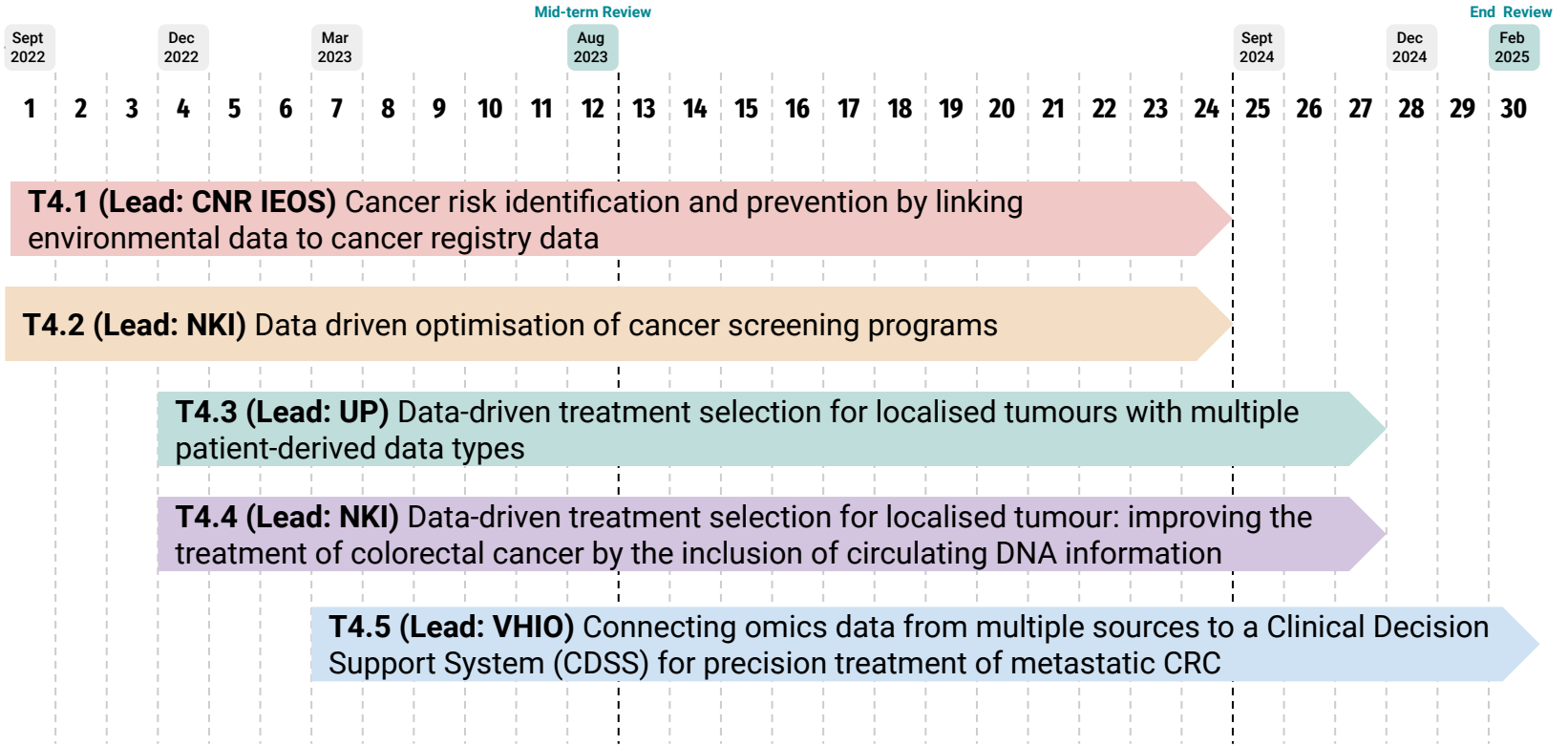

Kick-off meeting Outcomes: Squads

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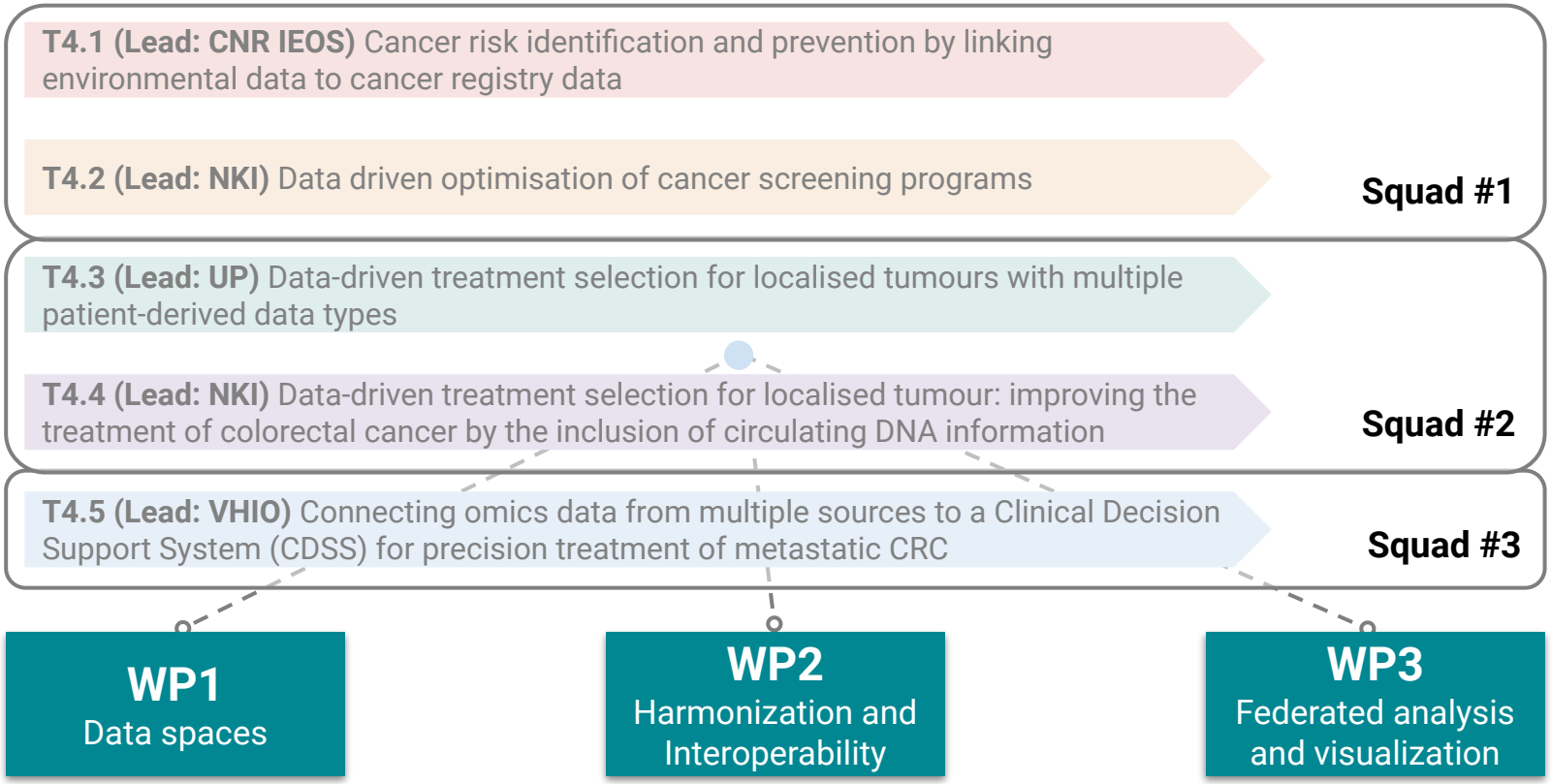

Collaborations with other INFRAEOSC projects

- **BY-COVID** and **EOSC4Cancer** share the same conceptual architecture. Thus, lesson learnt in BY-COVID, e.g. on data access and mobilization, can be leveraged by EOSC4Cancer. Similarly, any technological development can be taken up, maintained and extended by EOSC4Cancer.

- **EuroScienceGateway** will leverage existing technologies (e.g. Galaxy, Pulsar, Dirac) and extend them to allow smart workflow execution scheduling around Europe. **EOSC4Cancer** represents the ideal scenario to tackle the challenges on analyzing sensitive data across different places.

BY-COVID

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EOSC Assoc: Technical and Engagement Challenges

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Top 3 technical challenges

- Accessibility of cancer-related datasets
- Harmonization and interoperability of cancer-data resources and analysis systems (FAIR principles)
- Integration of digital tools, data analytics, and Artificial Intelligence/ Machine learning tools in the cancer analysis portals and federated systems

Top 3 engagement challenges

- Align and engage with with large international and EU coalitions, e.g., ICGC-Argo, GA4GH, 1+MG/B1MG, UNCAN.eu, canSERV
- Contribute to EOSC services, the European Health Data Space (EHDS) and the Cancer Mission
- Learn from and create value for five use cases following the patient journey, laying the foundation for prospective studies

- *Metadata and data quality*
- *Technical challenges on EOSC*
- **Infrastructures for quality research software**

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Thank you!

Contact: info@eosc4cancer.eu

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