



THE CHAIMELEON PROJECT

ACCELERATING THE LAB TO MARKET TRANSITION
OF AI TOOLS FOR CANCER MANAGEMENT

GA NO: 952172



Motivation (1)

- **Health imaging-based AI approaches** can become **useful clinical tools for improved cancer management**
 - E.g., in the areas of tumor characterization, prediction of tumor features, staging of tumor spread, stratification of patients, selection of most appropriate therapies, and estimation of clinical prognosis
- **Large quality-controlled datasets are needed** for the development to AI tools and bringing them to the market
- **Current challenges:**
 - **Limited quantity, quality, and representativeness** of the datasets hinder development of AI tools
 - **Lack of consistency** of medical image sources
 - **Ethics, integrity** and compliance with the **data protection** regulatory framework



Motivation (2)

- The CHAIMELEON project will address these challenges by
 - Developing an **open cloud-based tumor imaging data repository**
 - Providing **remote access** to the images and **processing pipelines for ingestion, curation, annotation, and harmonisation** of the data
 - Using the images in the repository to **train AI tools** aimed at assisting clinicians in cancer management
 - **Clinically validating the developed AI tools** via observational (non-interventional) studies





Objectives

- Provide **access to large databases** in line with legal and ethical requirements
- Establish an **EU-wide interoperable repository** with **quality-checked imaging data (about 40,000 cases)** as a resource for developing and testing AI tools for cancer management
- Set up a **distributed infrastructure** building on existing initiatives
- Explore disruptive **harmonisation** approaches and provide an online processing pipeline for images harmonisation
- Implement **online processing pipelines** enhancing the integrity and interpretability of AI solutions
- **Evaluate and validate** the repository internally and externally
- Perform **early clinical external validation of AI-based solutions**
- Ensure the **sustainability** of the repository beyond the project runtime and build a large and active userbase





Expected Impact

**Improved management
of the four most
prevalent cancer types
worldwide**

**Enabling
experimentation and
training of AI-based
solutions to improve
diagnosis, treatment
and follow-up**

**Assistance to
clinicians in daily
decision making**

**Reducing the social
and economic burden
through precise and
personalised cancer
management**

**Contributing to the
development of
technical,
organisational and
ethical standards for
AI in health imaging**

**Potential for
expansion of
repository to other
types of cancer**

**Increased trust in AI
solutions among users**





Consortium

- 18 partners from 10 countries

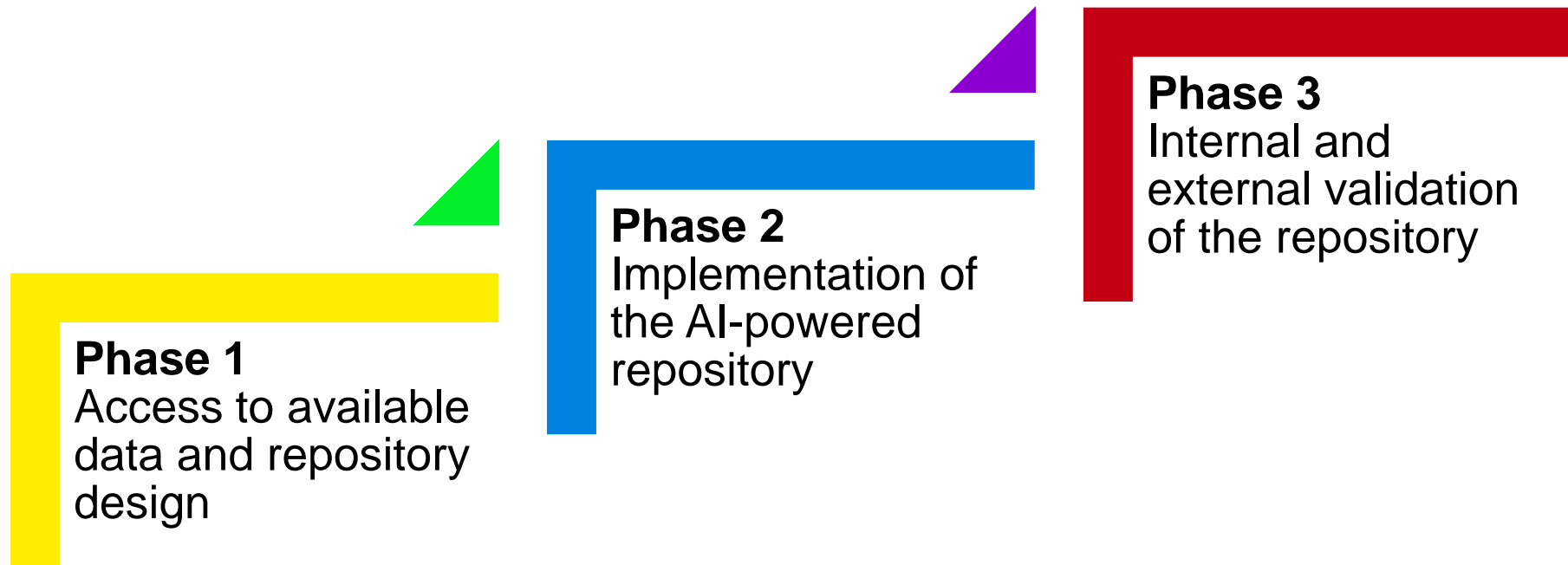


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952172

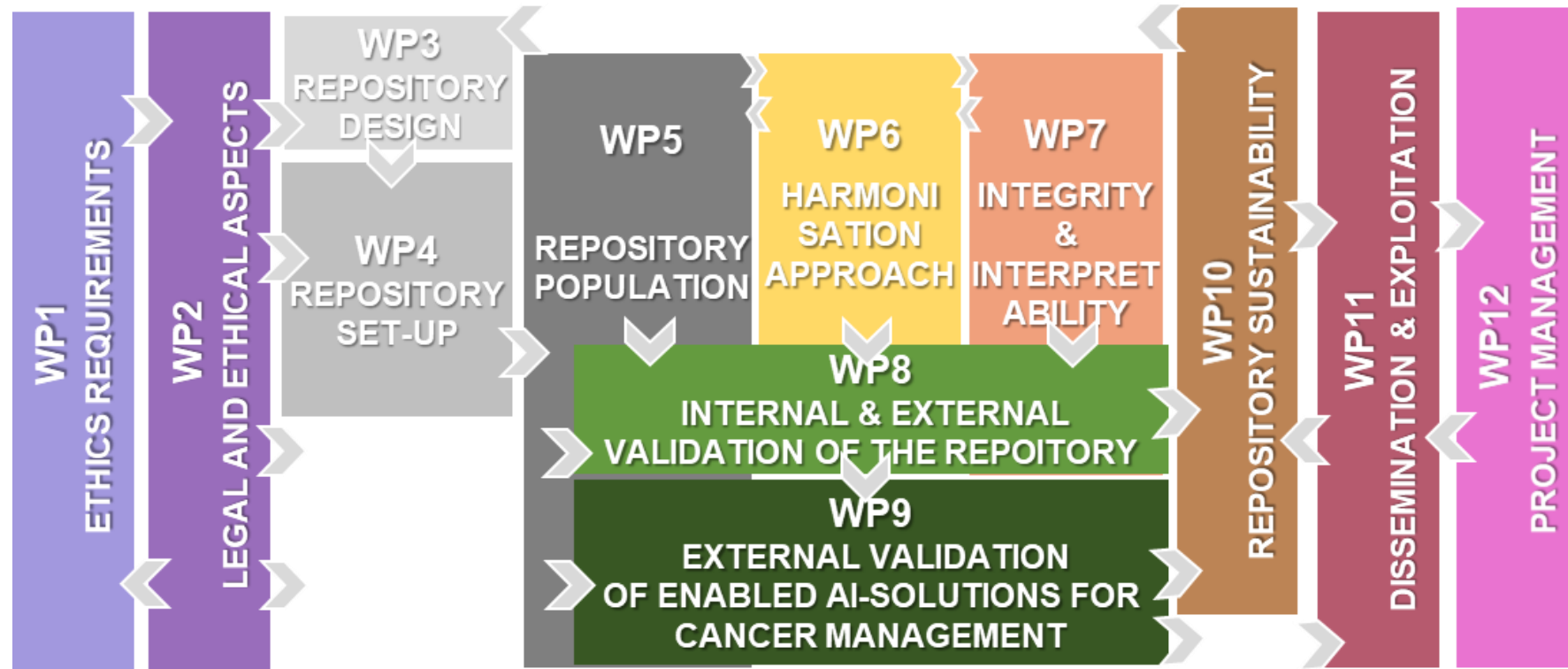




Work Plan



Work Packages

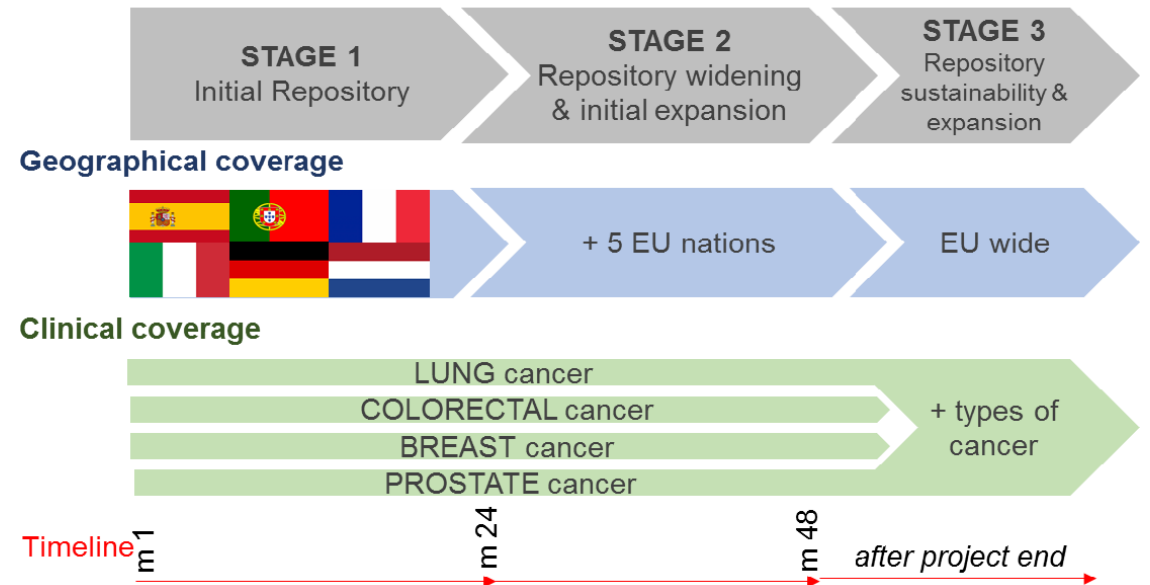




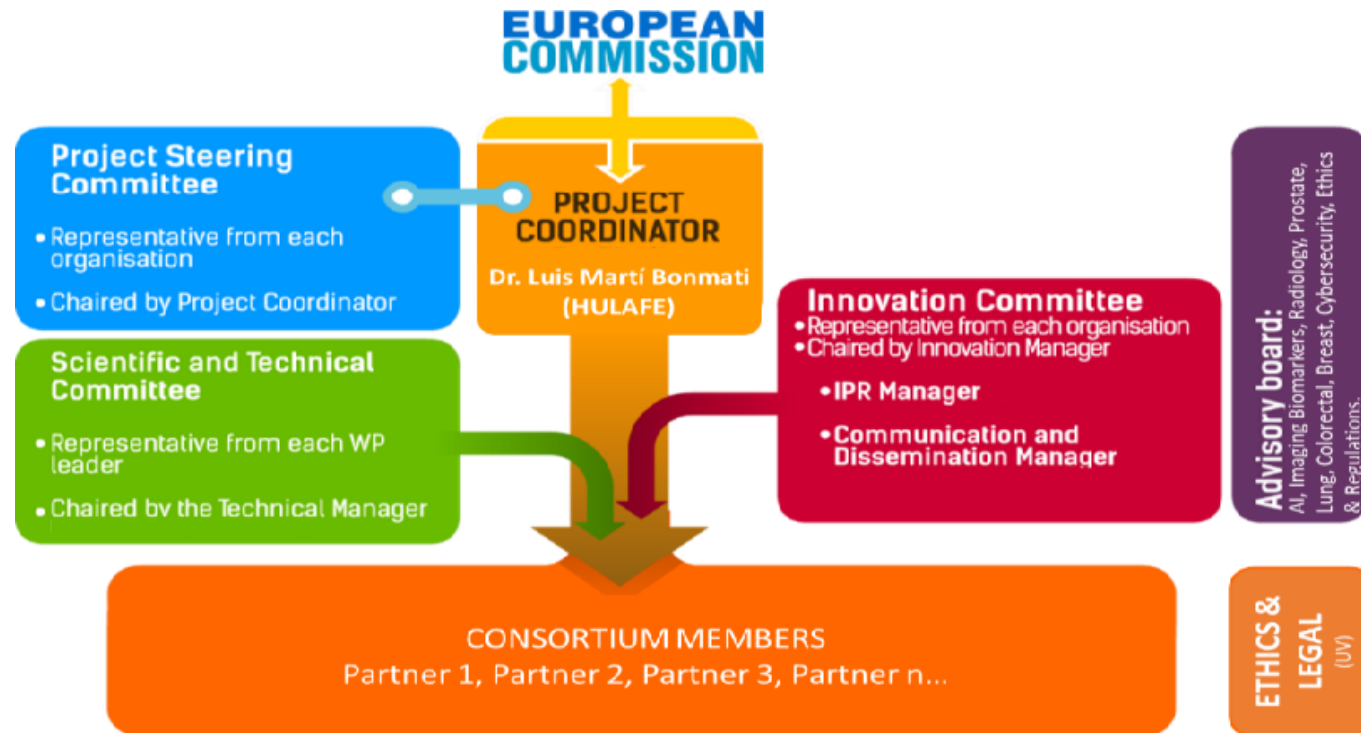
The CHAIMELEON Repository

- **Distributed infrastructure, interoperable** with existing repositories and biobanks
- **Imaging data in DICOM format** linked to the correspondent e-form (incl. data on patient profile, tumour, treatment and outcomes)
- **40,000 use cases** => approx. 20 million images
- **4 cancer types:** lung, breast, colorectal, and prostate
- **Secure, freely accessible** resource for AI experimentation in cancer management

CHAIMELEON Implementation Stages



Governance Structure





Key Facts

Name

Accelerating the lab to market transition of AI tools for cancer management

Acronym

CHAIMLEON

Runtime

September 1, 2020 - August 31, 2024

Project Coordinator

Prof. Luis Marti-Bonmati, HULAFE

Total funding

€ 8 784 038,75





**FOR MORE
INFORMATION VISIT**

WWW.CHAIMELEON.EU

