THE EU RESEARCH & INNOVATION PROGRAMME

2021 – 2027

Cluster 1 **Health** **Work Programme 2023-2024**

Margherita FANOS
Programme officer
DG CONNECT
Unità "eHealth, Wellbeing and Ageing"
Commissione Europea

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Horizon Europe – Cluster 1 ‚Health‘

Strategic Plan 2021-24 (link) → 6 Expected Impacts

= 6 “Destinations” of :

Work Programme 2023-24 (link)

1. Staying healthy in a rapidly changing society
2. Living and working in a health-promoting environment
3. Tackling diseases & reducing disease burden
4. Ensuring access to innovative, sustainable & high-quality healthcare
5. Unlocking the full potential of new tools, technologies and digital solutions for a healthy society
6. Maintaining an innovative, sustainable & globally competitive health industry

→ Topics (Calls)

Focus on outcomes contributing to the impacts specified per Destination

Project proposals should

- make a **clear case** (*value proposition*)
- supported by a **convincing trajectory** (*pathway to impact*) for the project proposal to deliver the **output**, promote the **outcome** described in the topic, and contribute to the **impact** expected under that destination.

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Horizon Europe – Cluster 1 Health Work Programme 2023-2024

Destination 1: Staying healthy in a rapidly changing society

Destination 2: Living and working in a health-promoting environment

Destination 3: Tackling diseases & reducing disease burden

Destination 4: Ensuring access to innovative, sustainable & high-quality healthcare

Destination 5: Unlocking the full potential of new tools, technologies and digital solutions for a healthy society

Destination 6: Maintaining an innovative, sustainable & globally competitive health industry

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Policy background

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European Health Union-links with research programme

1) Better preparedness for health emergencies: **a reinforced health security framework**
Objectives: **Strengthen the EU's health security framework;**
Appropriate research support is necessary and is provided by Health Cluster

2) **Pharmaceutical strategy for Europe**
Objectives: **supporting competitiveness, innovation and sustainability of the EU's pharmaceutical industry;**
Health Cluster contributes to it by supporting pharmaceutical innovation

3) Europe's ***Beating Cancer plan***
Objectives: A set of **actions to support, coordinate and supplement Member States' efforts at every stage;**
Cross-cutting themes include **research and innovation**
Strong research component

4) Regulation on the ***European Health Data Space***
Objectives: Empower individuals to **access and control their personal health data;**
Health Cluster directly contributes to its objectives in 2023-24

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Cluster 1 contribution to the objectives of HERA, the European Health Emergency Preparedness and Response Authority

PREVENTION

- Understanding **vaccine-induced immunity**
- **Immunogenicity** of viral proteins of viruses with epidemic and pandemic potential
- **Host-pathogen interactions** of infectious diseases with epidemic potential
- Contribution to **CEPI (Coalition for Epidemic Preparedness Innovations)**

DIAGNOSIS

- **In vitro diagnostic devices** to tackle cross-border health threats

TREATMENT

- Broad spectrum **antivirals** for infectious diseases with epidemic potential
- Sustaining established coordination mechanisms for European **adaptive platform trials** and/or for **cohort networks**
- **Adaptive platform trials** for pandemic preparedness

- Maintaining the **European partnership for pandemic preparedness**
- European Partnership: **One Health Anti-Microbial Resistance**
- **Emergency funds**

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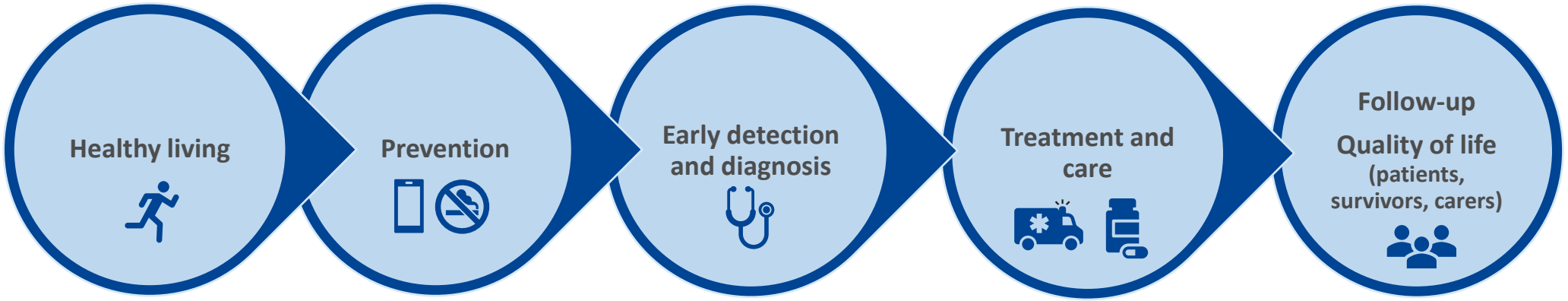
Digital technologies driving innovation in health
Across the care pathway



- ✓ Citizen empowerment through access to own health data
- ✓ mHealth apps
- ✓ COVID-19 contact tracing apps / EU Digital COVID-19 Certificate

- ✓ Diagnostic tools and AI applications
- ✓ Robotics
- ✓ 1+ Million Genomes Initiative
- ✓ European Cancer Imaging Initiative
- ✓ Virtual twins

- ✓ Virtual twins
- ✓ AI and data analytics solutions for clinical research and decision making
- ✓ Robotics
- ✓ mHealth Apps

- ✓ AI solutions to monitor health status and quality of life after treatment

➢ **Societal impact – cost efficiencies – long healthy lives – personalised care – patient empowerment**

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The European Strategy for data at a glance

The **European Strategy for data** (2020) aims to make the EU a leader in a data-driven society.

The **Data Governance Act** (2020) facilitates data sharing across sectors and Member States.

The **Data Act** (2022) clarifies who can create value from data.

Ten **European common data spaces**, ranging from industry to mobility, from European Green Deal to energy and health.

Health | Industrial & Manufacturing | Agriculture | Finance | Mobility | Green Deal | Energy | Public Administration | Skills

- Driven by stakeholders
- Rich pool of data of varying degree of openness
- Sectoral data governance (contracts, licenses, access rights, usage rights)
- Technical tools for data pooling and sharing

➢ **European Health Data Space to address specificities of health sector**

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The 2023 Work Programme

European Commission

Horizon Europe – Cluster 1 Health

Timeline for Work Programme **2023** calls for proposals (single stage)

- Opening of calls: 12 January 2023
- Closure of calls (deadline): 13 April 2023*
- Informing applicants of shortlisted proposals: early August 2023

* Except: “HORIZON-HLTH-2023-DISEASE-07-01: European Partnership on Rare Diseases”, closing on 19 September 2023

Work Programme 2023-24 document:
https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-4-health_horizon-2023-2024_en.pdf

Funding & Tender opportunities portal:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/

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Destination 1 - Staying healthy in a rapidly changing society

HORIZON-HLTH-2023-STAYHLTH-01-01: single stage

The Silver Deal - Person-centred health and care in European regions

- Call closure: 13 April 2023
- Research and Innovation Action (RIA)
- Budget 40 M€
- Project size 15-20 M€

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The Silver Deal - Person-centred health and care in European regions

Scope (address **all of the following** elements)

- **Consolidate high-quality effective, integrated, innovative and digitally enabled person-centred health and long-term care services and solutions**, both in primary care, hospital and home settings, around older people's needs for physical and mental health, care and wellbeing, strengthened disease prevention, rehabilitation and for staying active and healthy as they age.
- Such integrated and holistic solutions could include, but are not limited to, **integrated care solutions,** serious games, connected wearables, ambient sensors, social robots, assistive technologies, age-friendly environments, diagnostic screenings, self-monitoring devices, robotics and others, tackling age-related physical and mental diseases and co-morbidities
- Develop and **provide** evidenced-based new approaches, **coordinated care models and pathways, for delivering effective, person-centred health and long-term care solutions.**
- **Support adoption and market innovation of novel health and care solutions**, for older age related health conditions, through large-scale testing and deployment piloting, guidance on relevant HTA and CE procedures, demonstrating cost-effectiveness, as well as through stakeholder involvement and policy collaboration on European, local, regional, and international level.

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Destination 2: Topics in WP 2023

HORIZON-HLTH-2023-ENVHLTH-02-01:
Planetary health: understanding the links between environmental degradation and health impacts

Closure: 13.04.2023
Total: 30M€
Project size: 5-6M€

HORIZON-HLTH-2023-ENVHLTH-02-02:
Evidence-based interventions for promotion of mental and physical health in changing working environments (post-pandemic workplaces)

Closure: 13.04.2023
Total: 30M€
Project size: 5-6M€

HORIZON-HLTH-2023-ENVHLTH-02-03:
Health impacts of endocrine-disrupting chemicals: bridging science-policy gaps by addressing persistent scientific uncertainties

Closure: 13.04.2023
Total: 40M€
Project size: 6-7M€

HORIZON-HLTH-2023-ENVHLTH-02-04:
Global coordination of exposome research

Closure: 13.04.2023
Total: 3M€
Project size: 3M€

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Destination 3: Tackling diseases and reducing disease burden - 8 topics in 2023 (6 RIAs and 2 CSAs)

- HORIZON-HLTH-2023-DISEASE-03-01**:**
  Novel approaches for palliative and end-of-life care for non-cancer patients

- **Closure: 13.04.2023**
- Instrument: RIA
- Budget: 50M€
- Project size: 6-7M€

- HORIZON-HLTH-2023-DISEASE-03-03: **Interventions in city environments to reduce risk of non-communicable disease (Global Alliance for Chronic Diseases - GACD)**

- **Closure: 13.04.2023**
- Instrument: RIA
- Budget: 20M€
- Project size: 3-4M€

- HORIZON-HLTH-2023-DISEASE-03-04: **Pandemic preparedness and response: Broad spectrum anti-viral therapeutics for infectious diseases with epidemic potential**

- **Closure: 13.04.2023**
- Instrument: RIA
- Budget: 50M€
- Project size: 7-8M€

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Destination 3: 8 topics in 2023
(6 RIAs and 2 CSAs)

- HORIZON-HLTH-2023-DISEASE-03-05**: Pandemic preparedness and response: Sustaining established coordination mechanisms for European adaptive platform trials and/or for cohort networks**

- **Closure: 13.04.2023**
- Instrument: CSA
- Budget: 3M€
- Project size: 1-2M€

- HORIZON-HLTH-2023-DISEASE-03-06: **Towards structuring brain health research in Europe**

- **Closure: 13.04.2023**
- Instrument: CSA
- Budget: 1M€
- Project size: 1M€

- HORIZON-HLTH-2023-DISEASE-03-07: **Relationship between infections and non-communicable diseases**

- **Closure: 13.04.2023**
- Instrument: RIA
- Budget: 30M€
- Project size: 6-7M€

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Destination 3: 8 topics in 2023
(6 RIAs and 2 CSAs)

- HORIZON-HLTH-2023-DISEASE-03-17**:**
  Pandemic preparedness and response: Understanding vaccine induced-immunity

- **Closure: 13.04.2023**
- Instrument: RIA
- Budget: 20M€
- Project size: 7-8M€

- HORIZON-HLTH-2023-DISEASE-03-18:
  Pandemic preparedness and response: Immunogenicity of viral proteins of viruses with epidemic and pandemic potential

- **Closure: 13.04.2023**
- Instrument: RIA
- Budget: 50M€
- Project size: 7-8M€

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Destination 4: - Ensuring access to innovative, sustainable and high-quality healthcare Topics in 2023

- HORIZON-HLTH-2023-CARE-04-01**: Maintaining access to regular health and care services in case of cross-border emergencies**

- **Closure: 13.04.2023**
- Instrument: RIA
- Tot: 20M€
- Project size: 4-6M€

- HORIZON-HLTH-2023-CARE-04-02: **Resilience and mental wellbeing of the health and care workforce**

- **Closure: 13.04.2023**
- Instrument: RIA
- Tot: 20M€
- Project size: 4-6M€

- HORIZON-HLTH-2023-CARE-04-03: **Environmentally sustainable and climate neutral health and care systems**

- **Closure: 13.04.2023**
- Instrument: RIA
- Tot: 20M€
- Project size: 4-6M€

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Maintaining access to regular health and care services in case of cross-border emergencies

Call closure: 13 April 2023
Research and Innovation Action (RIA)
Budget 20 M€
Project size 4-6 M€

Scope (address **several of the following** elements)

- **Analysis, evaluation, cost studies** of different epidemics or other emergencies **response measures** in Member States and Associated Countries aimed at maintaining access to regular health and care services.
- **Development of innovative tools and models** for maintaining access to regular health and care services during cross-border emergencies e.g. modelling and foresight tools, novel technical solutions, organizational management models, incl. training.
- **Development and implementation of digital tools** and effective communication strategies based on digital health literacy studies e.g. novel digital systems connecting health and care professionals, citizens and patients at-scale for smart appointment management, chronic disease self-management, primary care and/or referral caseload prioritisation.

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Destination 5: Unlocking the full potential of new tools, technologies and digital solutions for a healthy society Topics in 2023

- HORIZON-HLTH-2023-TOOL-05-01: **Clinical trials of combined Advanced Therapy Medicinal Products (ATMPs)**

- **Closure: 13 April 2023**
- Instrument: RIA
- Tot: 50M€
- Project size: 8-10M€

- HORIZON-HLTH-2023-TOOL-05-03: **Integrated, multi-scale computational models of patient patho-physiology ('virtual twins') for personalised disease management**

- **Closure: 13 April 2023**
- Instrument: RIA
- Tot: 50M€
- Project size: 8-10M€

- HORIZON-HLTH-2023-TOOL-05-04: **Better integration and use of health-related real-world and research data, including genomics, for improved clinical outcomes**

- **Closure: 13 April 2023**
- Instrument: RIA
- Tot: 35M€
- Project size: 8-10M€

- HORIZON-HLTH-2023-TOOL-05-05: **Harnessing the potential of real-time data analysis and secure Point-of-Care computing for the benefit of person-centred health and care delivery**

- **Closure: 13 April 2023**
- Instrument: IA
- Tot: 35M€
- Project size: 8-10M€

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Destination 5: Topics in 2023

- HORIZON-HLTH-2023-TOOL-05-08: **Pandemic preparedness and response: In vitro diagnostic devices to tackle cross-border health threats**

- **Closure: 13 April 2023**
- Instrument: IA
- Tot: 40M€
- Project size: 5-7M€

- HORIZON-HLTH-2023-TOOL- 5.09: **Developing a Data Quality and Utility Label for the European Health Data Space**

- **Closure: 13 April 2023**
- Instrument: CSA
- Tot: 4M€
- Project size: 4M€

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Integrated, multi-scale computational models of patient patho-physiology ('virtual twins') for personalised disease management

Scope (address **all of the following** activities)

- Develop **multi-scale** and **multi-organ**, **dynamic**, interoperable, modular **computational models**, capable of accurately **simulating the individual patient patho-physiology**, spanning different anatomical scales from molecular to cell, tissue, organ and systems).
- Advance the state of the art in multi-scale modelling by employing **diverse modelling methodologies** as a means for **modelling the healthy state**, **disease onset, progression**, **treatment** and **recovery** with the necessary **diverse data types**.
- **Integrate** standardised **spatiotemporal multi-scale models** as a basis for developing personalised 'virtual twin' models reflecting patient's individual characteristics. This must be driven by **active involvement of end users, usability** must be demonstrated.
- **Validate** multi-scale patient-specific models, generate **evidence** on delivering clinically meaningful, real-world observations for diseases under study. **Utility vis-à-vis current practice** must be shown and an **exploitation strategy** elaborated.

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Towards Virtual Twin(s) of the human

connect knowledge and models across disciplines and spatio-temporal scales tailored to end-user needs

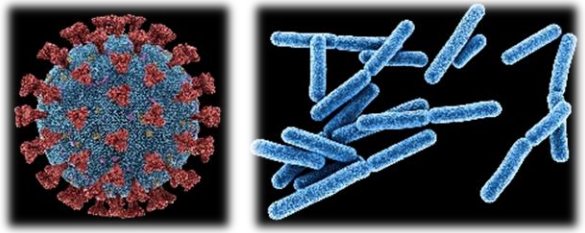
2030+

Comprehensive Virtual Human Twin

Selected organs and organ systems

2022

Integration across disciplines incl. comorbidities



Spanning across anatomical scales, time & environmental influences

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Building an Ecosystem for Digital Twins in Healthcare

- Topic ID: DIGITAL-2021-DEPLOY-01
- Project name: **An ecosystem for digital twins in healthcare (EDITH)**, ID: 101083771
- Coordination and Support Action, funding 100%, total budget €5M
- Project coordinator: Virtual Physiological Human Institute for Integrative Biomedical Research VZW (VPH Institute)
- Project duration: 1 October 2022 – 30 September2024
- 17 partners

Ecosystem

Roadmap

Repository

Simulation Platform

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Better integration and use of health-related real-world and research data, including genomics, for improved clinical outcomes

Scope (address **all of the following** elements)

- Identification of the **barriers to health data integration and access** and of specific **existing tools, technological solutions** and agreements addressing those barriers
- **New approaches** to assemble large, easily findable and lawfully accessible high-quality datasets **integrating multiple types of health data** leading to improved clinical outcomes
- **New techniques, support tools**, mechanisms and modalities to enable **GDPR compliant access to sensitive personal data**, including genomics, allowing for their **re-use across borders and integration** of different types of data relevant to human health
- **Data management** approaches for cross-border distributed **data storage and processing**, including joint data governance piloted among several clinical centres across Europe
- **Data analytics platform** applying **distributed learning and AI** to query and aggregate data securely from multiple sources and for multiple use cases

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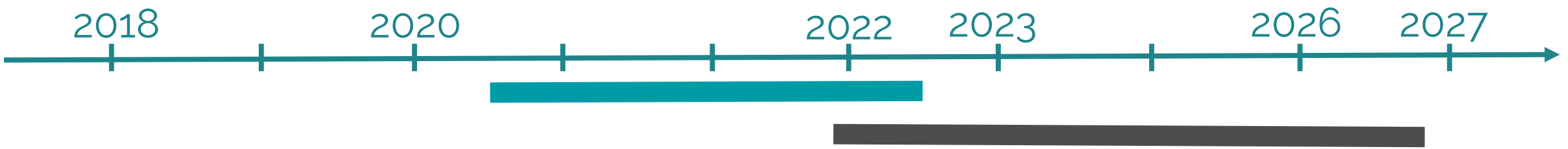
1+ Million Genomes: implementation timeline

Cross-border access to genomic data, implementation of genomics-based health & research



B 1MG Beyond one Million Genomes

European Commission
Horizon 2020
European Union funding
for Research & Innovation

European Genomic Data Infrastructure

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Harnessing the potential of real-time data analysis and secure Point-of-Care computing for the benefit of person-centred health and care delivery

Scope (address **all of the following** elements)

- Develop and validate **compact, cost- and energy-efficient, extended reality-enabled and other Point-of-Care devices and systems**, to be integrated into clinical settings
- Develop and validate **instruments, continuous monitoring systems and/or analysis algorithms for the analysis of biological samples**, enabling detection of biomarkers in body fluids and tissues in clinical settings
- Develop and validate **imaging systems with a high spatial resolution down to the cellular level allowing for immediate clinical interventions**
- Advance the use of **Point-of-Care computing, data modelling, extended reality and/or machine learning/AI technologies applied to diagnosis and risk assessment** in cases requiring very fast, near to real-time response times in clinical settings and workflows

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Destination 6: Maintaining an innovative, sustainable & globally competitive health industry - Topics in 2023

- HORIZON-HLTH-2023-IND-06-01:
  Supporting the uptake of innovative Health Technology Assessment (HTA) methodology and advancing HTA expertise across EU

- **Closure: 13 April 2023**
- Instrument: CSA
- Total: 5M€
- Project size: 5M€

- HORIZON-HLTH-2023-IND-06-02:
  Expanding the European Electronic Health Record exchange Format to improve interoperability within the European Health Data Space

- **Closure: 13 April 2023**
- Instrument: RIA
- Total: 8M€
- Project size: 3-5M€

- HORIZON-HLTH-2023-IND-06-04:
  Modelling and simulation to address regulatory needs in the development of orphan and paediatric medicines

- **Closure: 13 April 2023**
- Instrument: RIA
- Total: 25M€
- Project size: 4-6M€

- HORIZON-HLTH-2023-IND-06-05:
  Mapping the hurdles for the clinical applications of Advanced Therapy Medicinal Products (ATMPs)

- **Closure: 13 April 2023**
- Instrument: CSA
- Total: 3M€
- Project size: 3M€

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Destination 6: Maintaining an innovative, sustainable & globally competitive health industry Topics in 2023

- HORIZON-HLTH-2023-IND-06-07: **Development and harmonisation of methodologies for assessing digital health technologies in Europe**

- **Closure:** 13 April 2023
- Instrument: RIA
- Total: 15M€
- Project size: 7-8M€

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Expanding the European Electronic Health Record exchange Format to improve interoperability within the European Health Data Space

Scope (address **all of the following** elements)

- Research, develop and validate **harmonised interoperability formats** for sharing data in specific priority health information domains that should be selected with reference to the EU policies and priorities
- Leverage and scale up the potential of EHR through enhanced interoperability to **improve quality, safety, and efficiency of patient care**, enforce patients' right to **data portability**
- Address **semantic interoperability** for prioritised information domains so that the transmitted health record contains standardised coded data.
- **Maximise synergies with relevant initiatives**, activities and programmes, building upon previous and linking to on-going actions
- Closely coordinate and collaborate with various **stakeholders**, from patients and healthcare professionals to EHR providers, healthcare industry (including SMEs), policymakers and legislators to progress towards a more comprehensive HER interoperability.

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Development and harmonisation of methodologies for assessing digital health technologies in Europe

Scope (address **all of the following** elements)

- Develop and/or expand a general methodological framework and standardised approaches to assess digital health technologies with a particular focus on criteria such as privacy, cybersecurity, data quality, data storage and handling, interoperability etc.;
- Comply with the relevant requirements proposed in the European Health Data Space (EHDS) legal provisions;
- Test the robustness of the developed methodologies on minimum 3 different digital health technology use cases;
- Pilot the development of common specifications to the harmonisation of assessment frameworks (pre-market and post-market phases) throughout the EU and Associated Countries;
- Include end-users of digital health technologies (be it professionals, care users or citizens), developers of digital health technologies, producers of health services, regulators and governments;
- Collect best practice for common approaches in methodology for digital health technology assessment and develop an open access European repository for evaluation methods, studies, results and evidence of digital health technologies and services;
- Contribute to a framework to evaluate and monitor whether the uptake and use of digital health services contribute to the overall goals of the health and care system;

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Thank you!

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