

Press Release

TWIN-X Project Launches with €15 Million in EU Funding to Advance Patient-Centred Medicine through Trustworthy Digital Twins

Munich, Germany, 22 June 2026 – Complex conditions such as cancer and cardiovascular diseases are often difficult to diagnose because clinicians must consider many different types of medical information, including medical images, physical examinations, and laboratory test results. The newly launched TWIN-X project aims to use the power of artificial intelligence (AI) to combine these diverse data sources and create a virtual copy of a patient, known as a digital twin. This innovative approach has the potential to improve diagnostic accuracy and enable the virtual testing of different treatment options before they are applied in clinical practice.

The four-year project, coordinated by Technical University of Munich (TUM), brings together 19 partners from 13 European countries and is funded with approximately €15 million through the European Union’s Horizon Europe programme. By developing innovative digital twin technologies, TWIN-X aims to improve treatment options for cardiovascular diseases and cancer, two leading causes of death across the European Union.

Putting Trustworthiness and Explainability First

Digital twins have emerged as a promising technology for patient-centred medicine. However, many AI systems function as a “black box”, making it difficult to understand how they arrive at their conclusions. TWIN-X will instead develop an explainable AI model that allows healthcare professionals to see and understand how the system generates diagnoses and treatment recommendations.

To achieve this, the research consortium will establish methodologies that are aligned with ethical values, mitigate bias, and ensure transparency regarding model limitations. This framework is expected to strengthen trust in AI-driven healthcare and support better-informed clinical decisions.

A Novel Structure-First Approach to Harness the Potential of Digital Twins

While many existing digital twin models combine all available information into a single mathematical representation, TWIN-X follows a different approach. The project develops a modular, hierarchical information structure that organises patient data into clinically



meaningful units. These units, known as modular expert AI models, can be activated or recombined depending on the clinical question being addressed.

"By organising patient data according to clinical logic before any modelling, TWIN-X produces digital twins that remain explainable by construction," says **Keno Bressem**, project coordinator at TUM Klinikum rechts der Isar. "This gives us a transparent and verifiable basis for decision-making."

The hierarchical data structure is embedded within a multi-layered architecture that enables different types of patient information to be organised and analysed efficiently. Data from medical imaging, clinical narratives, and laboratory results are first structured according to their source and characteristics before being combined to generate context-specific insights tailored to the clinician's query.

Joining Forces to Strengthen Digital Health in Europe

The project is organised into nine work packages covering all major aspects of development, including the design of the AI architecture, the integration of different types of patient data, the implementation of explainability, trustworthiness, and ethical safeguards. Furthermore, the consortium will test and validate the model in clinical settings within the fields of oncology and cardiology.

By advancing the development of trustworthy and responsible digital twins, the project will help strengthen Europe's digital health ecosystem and support the safe and effective integration of AI technologies into clinical practice.

Key Facts:

Full name: TWIN-X: Multimodal Digital TWINS with Generative AI for eXplainable Precision Medicine

Start Date: 1 June 2026

Duration: 48 months

Budget: approx. €15 million

Coordinator: TUM Klinikum rechts der Isar

Website: twin-x.eu

LinkedIn: <https://www.linkedin.com/showcase/twin-x>





Project Partners:

Germany:

- Klinikum der Technischen Universität München (TUM-MED)
- Berliner Hochschule für Technik (BHT)
- European Research & Innovation Office (EURICE GmbH)
- Basebox GmbH (basebox)

Greece:

- Panepistimio Kritis (UoC)
- Aristotelio Panepistimio Thessalonikis (AUTH)

Switzerland:

- 3R Swiss Imaging Network SA (3R)

Serbia:

- Institut za onkologiju Vojvodine – Oncology Institute of Vojvodina (IOV)

Italy:

- Università degli Studi di Salerno (UNISA)

France:

- Medipath (Medipath)
- Centre Hospitalier Régional et Universitaire de Lille (CHUL)
- Association EDHEC Business School (EDHEC)

Bulgaria:

- Sofia University St. Kliment Ohridski (INSAIT)

Austria:

- Europäische Gesellschaft für Informatik in der Medizinischen Bildgebung (EuSoMII)

Lithuania:

- Lietuvos sveikatos mokslų universitetas (LSMU)

Cyprus:

- Linac-Pet Scan Opco Limited (GOC)

Netherlands:

- Stichting Radboud Universitair Medisch Centrum (RUMC)

Croatia:

- Research and Innovation Services d.o.o. za usluge (RISE)

Poland:

- Uniwersytet Medyczny im. Piastów Śląskich we Wrocławiu (WMU)





Building Trustworthy Digital Twins for Patient-Centred Medicine

Project Coordinator

TUM Klinikum rechts der Isar
PD Dr Keno Bressemer
Email: keno.bressemer@tum.de

Project Management

Eurice GmbH
Michaela Scheid
Email: m.scheid@eurice.eu



**Funded by
the European Union**

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or HaDEA. Neither the European Union nor the granting authority can be held responsible for them.