TURING

NEWSLETTER NO 1

June 2026 - M10

Trustworthy Unified Robust Intelligent Generative Systems

Advancing trustworthy, physics-aware AI for complex physical systems

This project has received funding from the Horizon Europe Framework Programme (2021-2027) under the **grant agreement No 101215032**.

The TURING Project in Brief

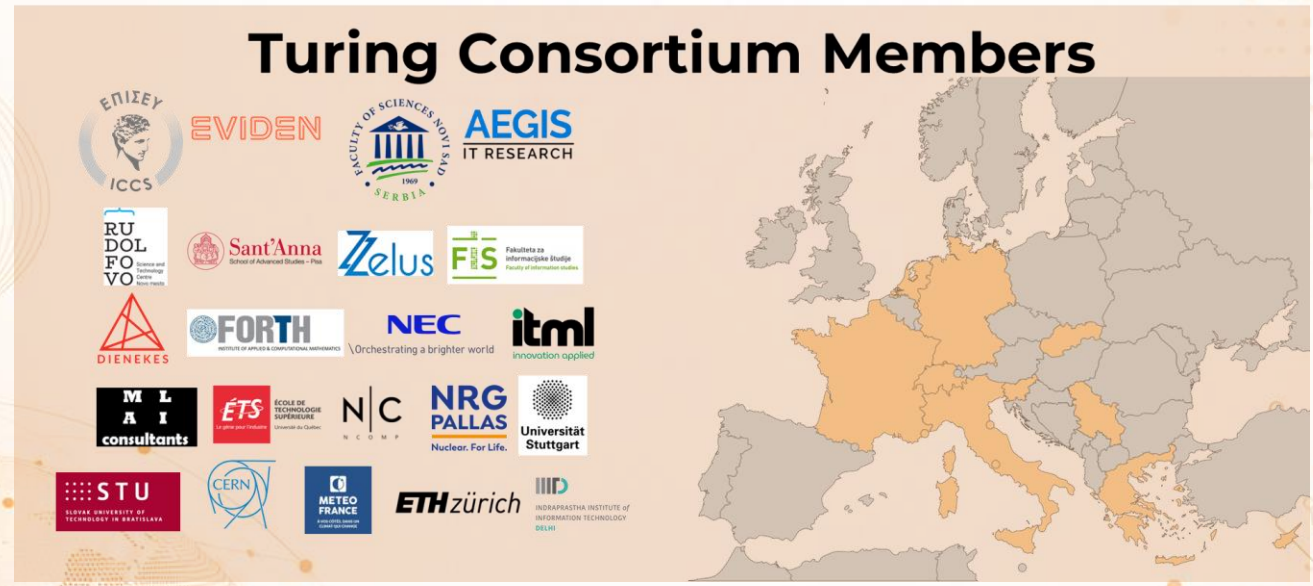
TURING pioneers a new generation of trustworthy and physics-aware Artificial Intelligence capable of simulating complex physical systems more efficiently than traditional numerical models. Its vision is to bridge artificial intelligence, physics and engineering to develop foundation models that can understand, predict and reproduce the dynamics of real-world physical phenomena.

The project brings together a multidisciplinary consortium to develop robust, explainable and efficient AI models for priority scientific and industrial domains, including nuclear energy and safety, high-energy physics, and meteorology and climate modelling.

Start	01/09/2025
Duration	36 months
Consortium	23 participating organisations from 12 countries
Coordinator	ICCS / NTUA - Konstantinos Tserpes, Maria Pateraki, Dora Varvarigou
Funding	Horizon Europe Framework Programme, Grant Agreement No 101215032

Consortium footprint

TURING connects leading research organisations, universities, technology companies and domain experts from Europe and associated partners, enabling close collaboration between AI, physics, engineering and societal-impact expertise.



TURING consortium members and European footprint.

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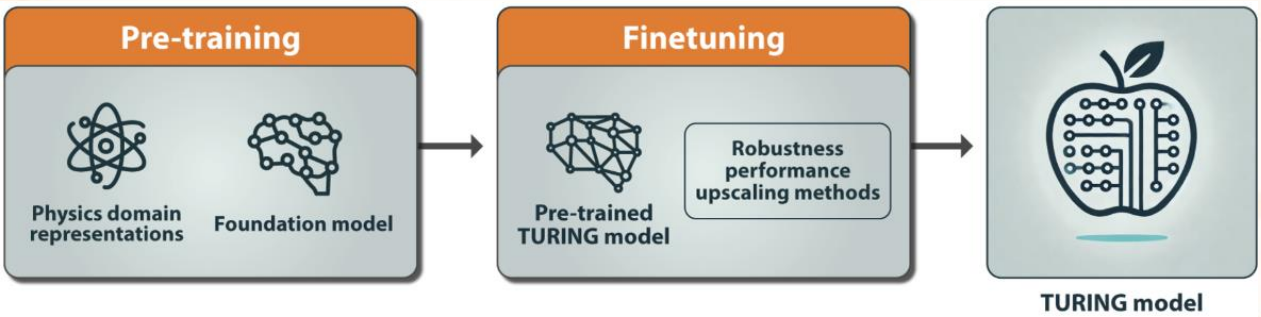
Scientific Approach and Objectives

TURING combines data-driven and physics-informed modelling to pre-train generative, multimodal foundation models that integrate physical laws with experimental data. These models are designed to generalize across multiple domains and, once fine-tuned, deliver high accuracy, robustness and interpretability for scientific and engineering applications.



From physics-domain representations to pre-trained and fine-tuned TURING models.

Core objectives

- Leverage numerical methods and AI to create physically consistent models of complex phenomena.
- Advance generalization capabilities while maintaining robustness and reliability.
- Develop a Unified Physics-Aware Generative AI Framework focused on efficiency and usability.
- Validate and refine TURING models through high-impact experiments in nuclear energy, particle physics and meteorology.
- Maximize impact through dissemination, standardization, open science and alignment with EU innovation and regulatory frameworks.

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Consortium Meetings

Kick-off Meeting - Athens, Greece

The TURING Project officially kicked off on 22-23 September 2025 at the Titania Hotel in Athens, bringing together researchers and innovators from across the EU, Canada and Switzerland.

During the two-day meeting, partners discussed the project vision, roadmap and initial plans for developing physics-aware, robust and explainable generative AI for complex physical systems. The sessions included presentations, workshops and collaborative discussions, fostering strong engagement and teamwork among all partners.

TURING Kick-off Meeting group photo, Athens.

Project sessions and collaborative discussions.

Why it mattered

The Kick-off Meeting set a common foundation for the next 36 months of work. Partners aligned on the project ambition: trustworthy AI models and a user-centric framework for researchers, industry and policy-makers.

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First Plenary Meeting Successfully Held in Pisa

The first TURING Plenary Meeting was held in Pisa on 19-20 January 2026, hosted by Scuola Superiore Sant'Anna. The meeting brought together the consortium for two intensive days of coordination, technical discussion and collaborative planning.

Partners exchanged updates across work packages and aligned on the project technical vision, framework architecture, use-case driven requirements, ethics-related activities and the roadmap for the next phase. Discussions covered model and simulation white-box analysis, assessment of existing foundation models, data requirements and data availability, and requirements analysis for the TURING Framework.

First TURING Plenary Meeting, Pisa, January 2026.

Key meeting outcomes

The meeting consolidated a common understanding of TURING objectives and strengthened coordination across the consortium.

Partners aligned on technical priorities, data requirements, ethics activities and the roadmap for the next project phase.

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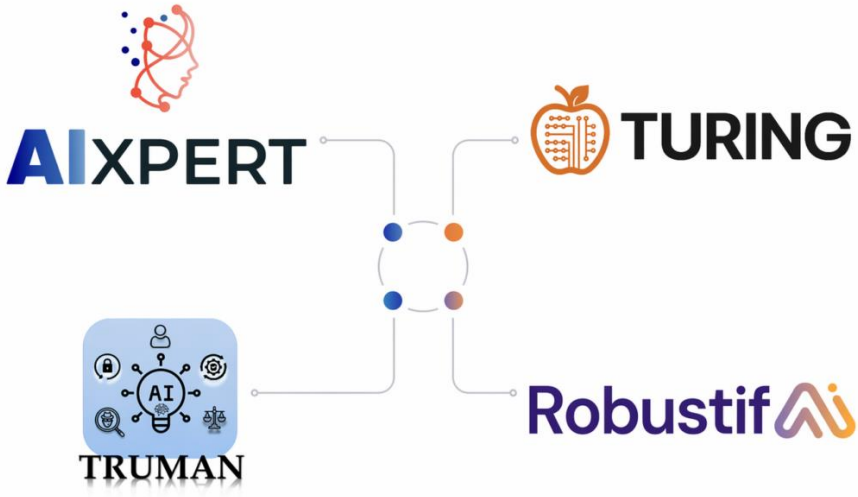
Synergies of TURING

A strategic innovation cluster for trustworthy AI

TURING joined forces with AIXPERT, ROBUSTIFAI and TRUMAN to form a strategic innovation cluster for trustworthy, robust and human-centric AI. The collaboration creates opportunities for knowledge exchange, cross-project dialogue and joint outreach activities that strengthen Europe's digital future.



TURING synergy with AIXPERT, ROBUSTIFAI and TRUMAN.

Data Week 2026 - Oslo, Norway

During the BDVA Data Week 2026 event in Oslo on 5-6 May 2026, TURING co-organised the workshop "When Data Pipelines Decide AI Trust and Efficiency: Theory and Practice" with sibling projects including PANDORA, AI-DAPT, MANOLO and RAIDO.

TURING was represented by **Dr Konstantinos Tserpes (ICCS-NTUA**), who presented the project's perspective on efficient and trustworthy AI. His contribution highlighted TURING's work on **physics-informed and hybrid AI** solvers, where model outputs can be interpreted against known physical laws, equations and simulation logic, as well as the project's focus on **uncertainty quantification and explainability strategies**. Through this contribution, TURING emphasised that explainability is not an additional feature, but a core requirement for building AI systems that are robust, efficient and usable in complex scientific and engineering domains.

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A key takeaway from the workshop was that, across different projects and technological approaches, trustworthy AI requires explainability, and explainability must be designed with the human in the **loop**.

TURING takes the stage at Data Week 2026.

Communications and What Comes Next

Stay tuned for Newsletter No 2

- More on the TURING architecture and methodology.
- Publications and scientific outputs.
- Inside information from the 2nd General Meeting, 20-21 June 2026, Heraklion.

Media of TURING

Website: turing-project.eu/
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