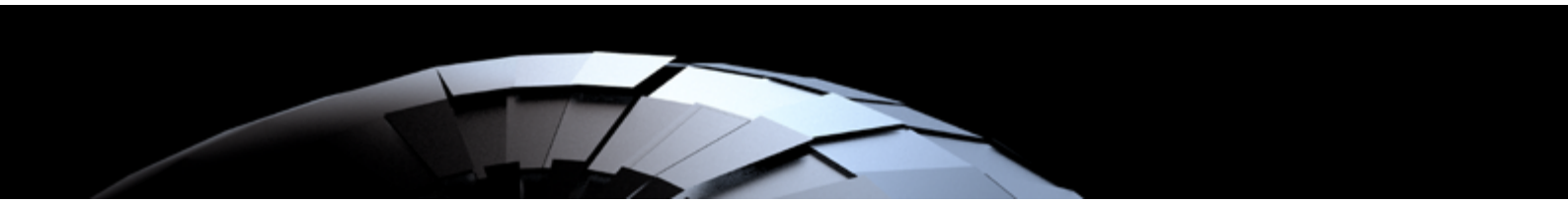
Introducing GENESIS-AI

GENESIS-AI

Trustworthy, Self-Improving and Regulation-Aware Generative AI for Next-Generation Cybersecurity

October 2026



The Horizon Europe project GENESIS-AI is a pioneering European initiative dedicated to transforming cybersecurity through the development of a trustworthy, self-improving, and regulation-aware Generative AI ecosystem. The project brings together leading universities, research organisations, technology providers, SMEs, and industrial stakeholders to create a new generation of AI-driven cybersecurity solutions capable of adapting to evolving threats while ensuring compliance with European regulations and ethical values.

GENESIS-AI addresses the growing complexity of the cybersecurity landscape, where traditional defence mechanisms struggle to keep pace with increasingly sophisticated attacks. By combining Generative AI, Multi-Agent Systems (MAS), Mixture-of-Experts (MoE), federated learning, explainable AI, and compliance-by-design principles, the project aims to establish a secure and resilient framework for proactive cyber defence across critical sectors.

Key objectives of GENESIS-AI include:

- Developing a trustworthy Generative AI ecosystem capable of autonomous reasoning and adaptive cyber defence.
- Establishing a governance framework that embeds transparency, explainability, accountability, and regulatory compliance throughout the AI lifecycle.
- Advancing privacy-preserving and federated learning approaches for secure collaboration across distributed environments.
- Deploying specialised AI agents for threat detection, incident response, vulnerability analysis, and cyber resilience.
- Integrating self-healing and adaptive security capabilities that continuously evolve in response to emerging threats.
- Validating the GENESIS-AI ecosystem through large-scale demonstrations and real-world use cases across critical infrastructures and industrial environments.

Aligned with the objectives of Horizon Europe, GENESIS-AI contributes to Europe's digital sovereignty by strengthening cybersecurity capabilities, supporting trustworthy artificial intelligence, and promoting the secure adoption of advanced digital technologies. The project combines cutting-edge research with practical validation, creating solutions that can be deployed in real-world environments while supporting the implementation of the AI Act, NIS2, GDPR, and other European regulatory frameworks.

GENESIS-AI brings together a multidisciplinary consortium of 15 partners from 11 European countries, representing academia, research organisations, SMEs, and industry leaders. Together, the consortium covers the full innovation chain, from fundamental research and technology development to validation, demonstration, and exploitation.

For more information about the GENESIS-AI project, visit our website or contact the project coordinator:

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