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STARTING DATE:	01/06/2023
PROJECT DURATION:	24 MONTHS
PROJECT COORDINATOR:	UBITECH
TOTAL COST:	€533.100

CYGNUS

CONSORTIUM

UBITECH ubiquitous solutions
ACCELIGENCE
istognosis power through knowledge

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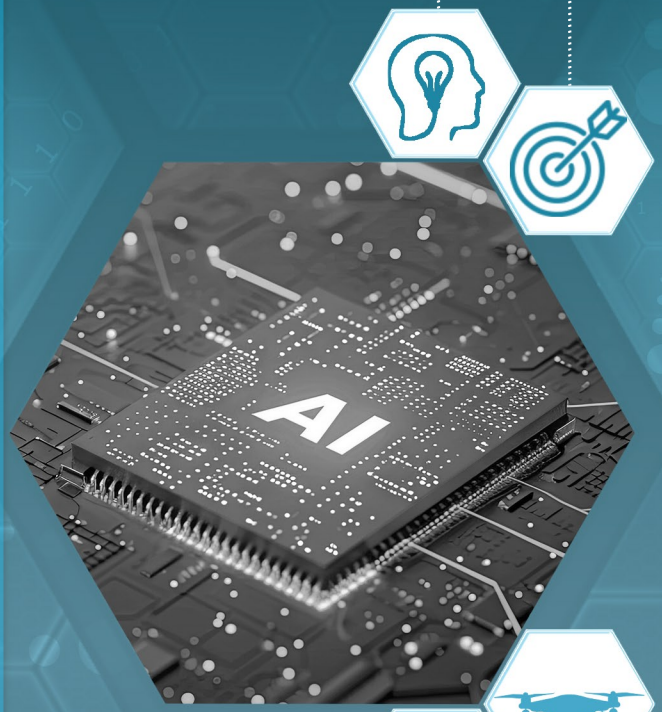
Funded by the European Union NextGenerationEU
Cyprus tomorrow RECOVERY AND RESILIENCE PLAN
Republic of Cyprus
RESEARCH & INNOVATION FOUNDATION

FOSTERING AI-FUELLED TECHNOLOGIES TO FUSE AND ANALYSE SENSORIAL KNOWLEDGE FOR CAUSAL CIVILIAN SITUATIONAL AWARENESS AND DECISION-MAKING

THE PROJECT

The vision of CYGNUS is to develop a bouquet of big data and AI services that enable human-in-the-loop capabilities for sensing, harvesting, harmonizing, and aggregating sensor data, training AI models to detect entities and patterns, and reducing the analysis load through scalable big data processing methods and Explainable AI (XAI).



OBJECTIVES

Objective 1: Big Data Lifecycle Management & Benchmarking

Enhance the management of big data through interoperability, open data exchange standards, reusability, and AI model explainability.
Establish a benchmarking mechanism to optimize AI models based on relevant KPIs.

Objective 2: Technology Advancement

Develop scalable big data services for efficient sensor data processing and advanced AI services for precise real-time analytics and justified decision-making.
Integrate components, tools, AI models and human-in-the-loop capabilities into the CYGNUS Platform.

Objective 3: Validation & Dissemination

Validate the CYGNUS Platform in civilian applications, using drones and IoT devices, to prove its applicability and effectiveness.
Disseminate results to research communities, promote clustering activities amongst stakeholders, and accelerate digitization and AI adoption in the Cyprus Civilian Protection sector.

TECHNOLOGY ADVANCEMENT

- Human-in-the-Loop with boosted AI explainability, trustworthiness and transparency.
- Flexible edge and cloud deployments for "almost-zero latency", smart placement and high-computational capabilities.
- Accelerated AI automation concept through greener and more precise AI models with Probability Scores, increased true positives, adversarial robustness, autonomous and scalable federated learning.
- AI-specific KPIs validation concept via the M/O Optimisation Solver to derive cause-and-effect relationships, prescribe actions more effectively and act more autonomously.

PILOT USE CASES

Pilot Use case 1: Forest Protection

Drones equipped with advanced sensors and cameras can efficiently survey vast areas, detecting human presence and identifying unusual thermal activities or smoke, facilitating proactive monitoring and swift interventions for effective forest fire evention and management.

Pilot Use case 2: Critical Infrastructure and Emergency Response

Drones monitor critical infrastructures, such as dams, to identify structural issues and detect unauthorized access or potential threats, enabling rapid and comprehensive responses to enhance the security and safety of these facilities.