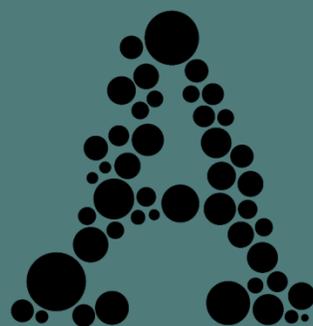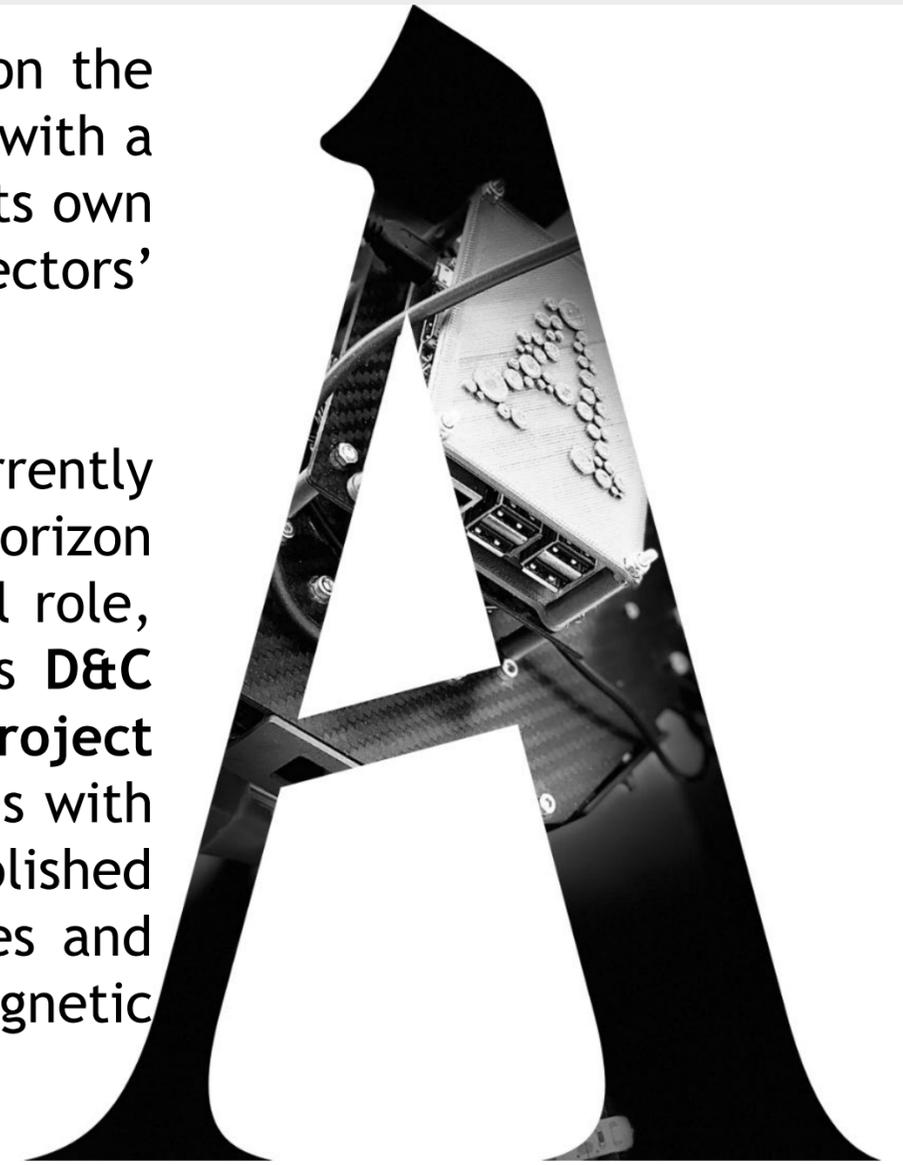# ACCELIGENCE LTD

ACCELIGENCE

Katerina Margariti

Director – ACCELIGENCE HELLAS Ltd

About Company

ACCELIGENCE Ltd has been established in 2019 in Nicosia, Cyprus. ACCELIGENCE focuses on the design, development and system integration - verification of custom-made robotic solutions, with a particular focus on Unmanned Aerial Vehicles (UAVs). ACCELIGENCE is building from scratch its own UAV prototypes, of varying technical requirements tailored to different applications and sectors' needs.

ACCELIGENCE is emphasizing on **innovation and research excellence**. The company is currently running 15 European Research and Research and Innovation projects, of both H2020 and Horizon Europe funding programmes, of a **total funding of around 4.5MEuros**. Besides its technical role, the company has also experience in Dissemination & Communication activities, serving as **D&C Manager** is several projects, but also in managing such type of projects, as is currently the **project coordinator of CHAMELEON project** (GA: 101060529). ACCELIGENCE is seeking collaborations with universities and other institutions in its fields of interest. The company has already established collaborations with the academia and private sector, to jointly research novel technologies and applications in areas of interest to the company, including the integration of novel magnetic sensors in the company's UAVs for security applications, and field surveillance.

ACCELIGENCE
Footprint

▷ Offices in 3 Countries

▷ 25 Employees

▷ 15 EU Programmes
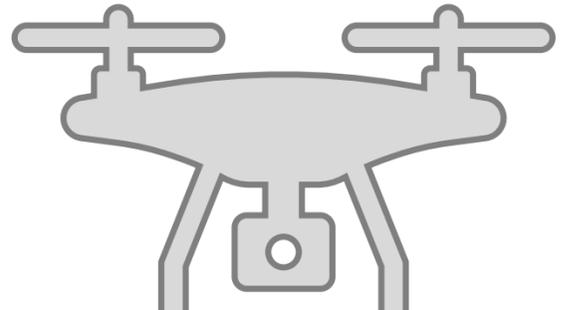
ACCELIGENCE (MAY 2019)
Cyprus

ACCELIGENCE HELLAS (DECEMBER 2020)
Greece

ACCELIGENCE UK (MAY 2021)
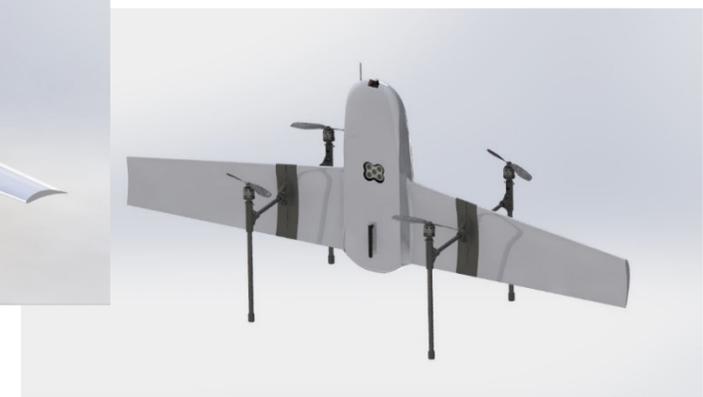United Kingdom

Prototypes

CERBERUS

F1T

Saita

DUMMY

Dioptra

CERBERUS

Cerberus is an octa-rotor UAV versatile platform that can support a variety of missions. It is designed and built around the powerful NVIDIA Jetson AGX Xavier AI-oriented computer, to provide it with unlimited on-board computational capabilities. It can be equipped with various payloads (cameras etc.) that seamlessly interact with the on-board computer to deliver the objectives of each specific mission and according to the customer's requests.

Characteristics:

- Max flight time - no payload (Jetson included) – 30 min
- Average flight time – with typical payload - 25 min
- Max payload weight - 5kg
- Max take-off weight - 16kg
- Easily detachable carbon fiber airframe and cover: Yes
- Precision automated take-off/landing: Yes (equipped with GNSS antenna)

Examples of Optional Payloads:

- Flir Duo Pro R HD Dual-Sensor Drone Thermal Camera
- DragonEye2 dual EO-IR stabilized camera
- Micasense RedEdge-MX multispectral camera
- Mag-03MS100 Magnetometer (Bartington Instruments)

F1T

F1T is a tethered UAV, designed to work with Elistair SAFE T 2 - Intelligent Tethered Drone Station, to form a complete UAS. Since the electric power is supplied from the ground, flight time is theoretically unlimited. Drone is typically equipped with a DragonEye2 dual EO-IR stabilized camera, so the system can function as a 360°surveillance system from a height of up to 100m above the ground station.

Characteristics:

- Flight time – theoretically unlimited (depended on ground power supply and maintenance requirements)
- Max altitude of flight – 100m from ground (restriction of the tethering cable length)
- Max payload weight - 1kg
- Max takeoff weight – 7,5kg (weight of 100m cable included)
- Emergency backup battery: Yes
- Precision automated takeoff/landing: Yes (equipped with GNSS antenna)
- Easily detachable cover: Yes

Examples of Optional Payloads:

- DragonEye2 dual EO-IR stabilized camera
- Other payloads available at request

SAITA

Saita is a medium size dodecarotor UAV. It is a quiet agile and very steady drone due to its six pairs of coaxial motors. This mechanical characteristic also gives it an increased robustness against potential motor and/or ESC faults. It is mainly used for filming purposes using lightweight action cameras.

Characteristics:

- Flight time no payload – 18 min
- Max payload weight – 0.4kg
- Max takeoff weight – 2.8kg
- Average payload flight time 10 min
- Precision automated takeoff/landing: Yes

Examples of Optional Payloads:

- Raspberry Pi 3, 4 single-board computer
- Action camera

DUMMY

Dummy is a low cost, lightweight UAV, which consists mainly of 3D printed parts. Its simple design with just four rotors and a low profile landing gear, makes it easy to control, and thus it constitutes an ideal drone for testing flight algorithms. To further enhance this capability, Dummy can be equipped with a raspberry Pi (3,4) single-board computer.

Characteristics:

- Max flight time no payload – 22 min
- Max payload weight – 0.2kg
- Max takeoff weight – 1.3kg
- Average payload flight time 18 min
- Precision automated takeoff/landing: Yes
- 3D printed body and landing gear

Examples of Optional Payloads:

- Raspberry Pi 3, 4 single-board computer

DIOPTRA

Dioptra is an electric tailsitter fixed wing UAV with VTOL characteristics that is currently under development. Dioptra has been designed to host Micasense RedEdge Mx which is a rugged and precise multispectral camera for advanced agricultural analysis. This high-performance tool captures all of the spectral bands needed for crop health indices (green, red, red edge, and near-infrared), as well as a blue band for deeper insights into specific issues and composite RGB imagery.

Specifications:

- Maximum takeoff weight – Approximately 3 kg
- Empty Weight – 2.260 kg (Battery is not included)
- Payload Weight – 0.232 kg (MicaSense RedEdge Mx)
- Wing Span – 1440 mm
- Fuselage – 520 mm
- Cruising speed – 16 m/s
- Battery Type - LiPo
- Estimated Flight Time – 60 min
- Typical Flight Altitude – 120 m

Features:

- Precision automated take off and landing Vertically (equipped with GNSS antenna) Autonomous Flight
- Support FPV flight with analogue camera (Foxeer T-Rex mini 1500 VTL)
- There are no control surfaces (ailerons, elevators, or rudder) and the direction is changed using a differential steering mechanism
- One-button Return To Home (RTO) function
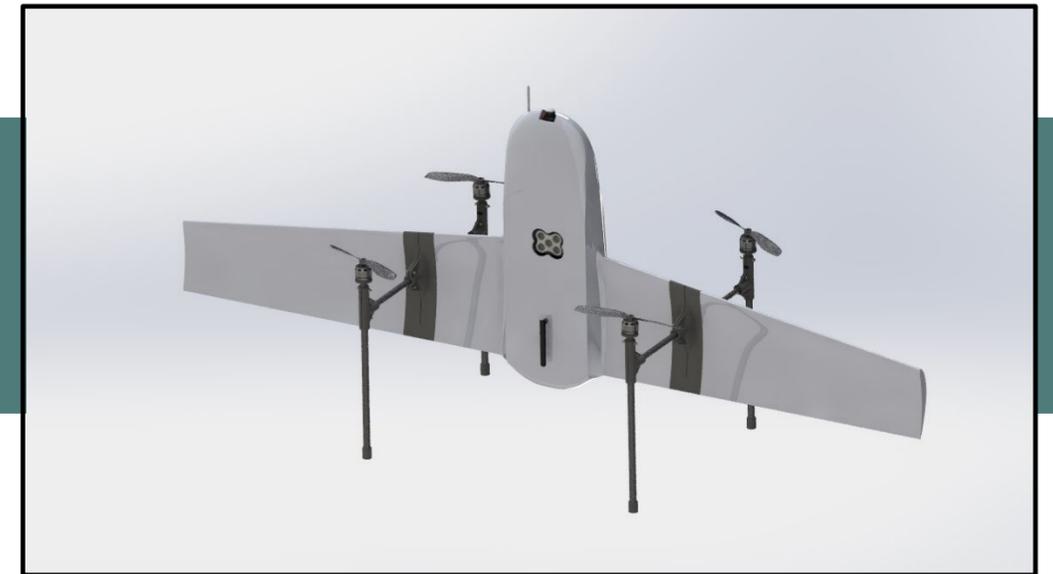
RECONFIGURABLE UAV
CHAMELEON INNOVATION

**Reconfigurable UAV Architecture:**

The drone body has eight 3-position telescopic arms. The arms are joined together in pairs by two straight pieces

Batteries of different capacities will also be available for various combinations.

The main body of the drone will have the ability to connect to a permanent power supply by cable (Tethered mode)

Advantages of the proposed implementation:
• All parts (except rotors) are permanently mounted on the vehicle
• The user has the option to choose (via the application) different sizes of propellers
• The size of the UAV is also adjustable – Different configurations for different missions
• In any position of the telescopic arms (except fully extended) there is also an alternative to the configuration of the intermediate parts (central joint facing outwards).
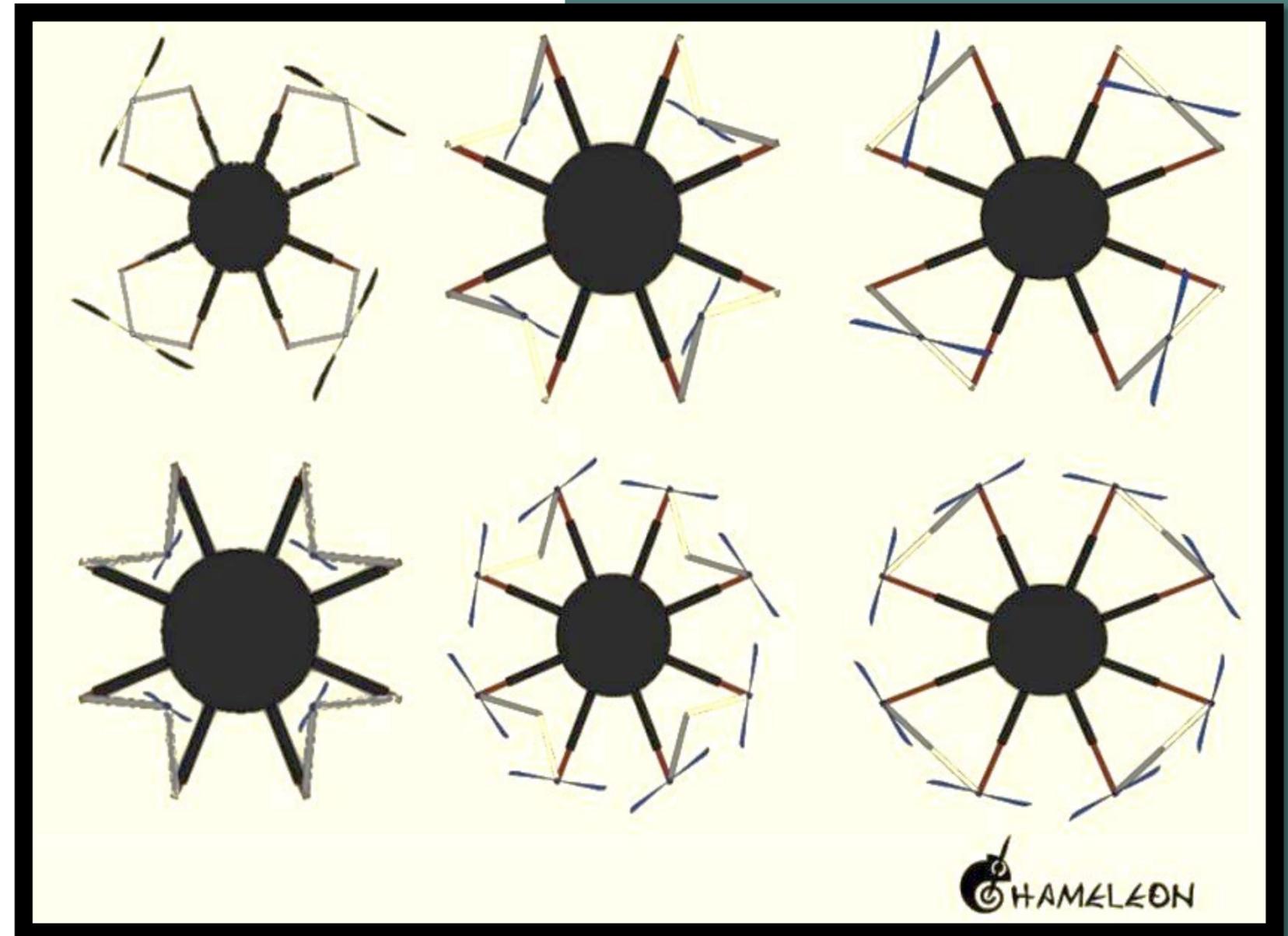
Industries

ACCELI's drones may be implemented in different industries depending on project's needs
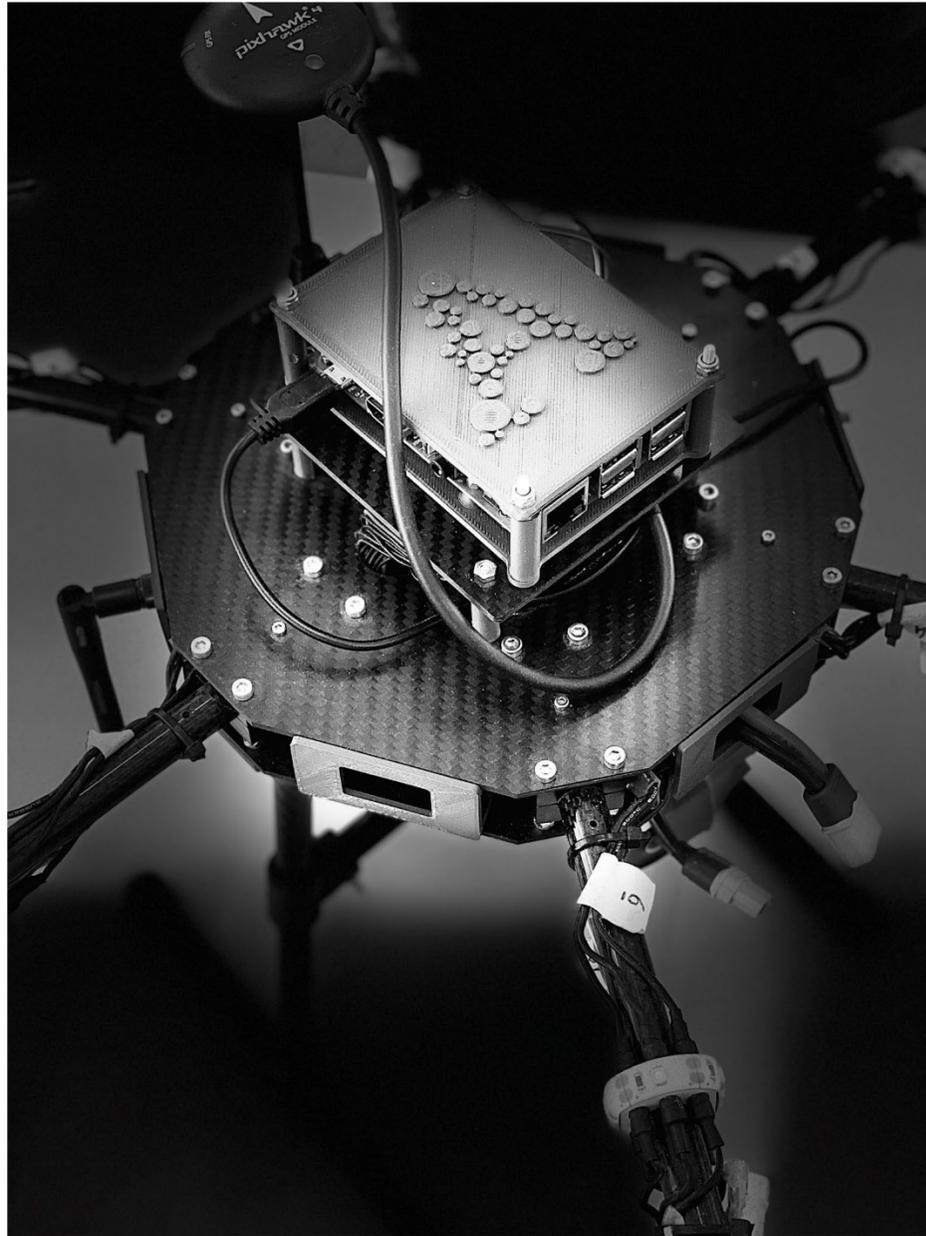
Security

Shipping

Agriculture

Forest

Aviation

Environment

Our Services

01 **CNC Prototyping On Demand**

On-demand production and rapid prototyping of custom parts

02 **3D printing Prototyping on Demand**

On line 3D printed parts

03 **Design and manufacturing of UAVs**

Design, development and prototyping of autonomous aerial systems

04 **Embedded AI**

Analysis and development of algorithms related to artificial intelligence (object detection, semantic segmentation)

05 **Consulting Services**

Horizon Europe Application

Project Overview

- H2020 SU-BES-02-2019 | **ISOLA**: On board Security of passenger ships

- H2020 INFRA-01- 2019 | **7 SHIELD**: Protection of Ground Space Infrastructures

- H2020 SPACE-2019 | **CALLISTO**: Copernicus artificial intelligence services

- H2020 MSCA-RISE-2019 | **RECOMBINE**: 5G future networks

- H2020 LCCI-2020-EASME-singlestage | **AQUASPICE**: Digital and Circular Water Innovative Services

- H2020 CE-SPIRE-07-2020 | **AQUASPICE**: Water Stakeholders Engagement

- H2020 LC-GD-1-1-2020 | **TREEADS**: Wildfire Management

- HORIZON CL4-DATA-01-01 | **TRUSTEE**: Trust And Privacy Preserving Computing Platform For Cross-border Federation Of Data

- HORIZON-CL6-2021-GOVERNANCE-01-21 | **CHAMELEON**: Multipurpose Drone for Agroforestry App (Coordinator)

- HORIZON-CL3-2021-BM-01-03 | **ODYSSEUS**: Border Management

- NGIN-IOT: Open Call, Smart UAV platform

- HORIZON-CL4-2022-RESILIENCE-01-01 | **Plooto**: Product Passport through Twinning of Circular Value Chains (under GA preparation)

- HORIZON-CL4-2022-RESILIENCE-01-25 | **DiMAT**: Digital Modelling and Simulation for Design, Processing and Manufacturing of Advanced Materials (under GA preparation)

- HORIZON-CL4-2022-RESILIENCE-01-06 I **Mine.io:** Digital Technologies for mines (under GA preparation)

- HORIZON-CL2-2022-TRANSFORMATIONS-01-02 I **MOBI-TWIN:** Impact of global transition process (under GA preparation)
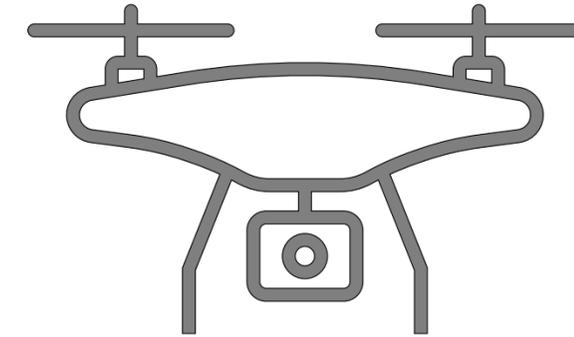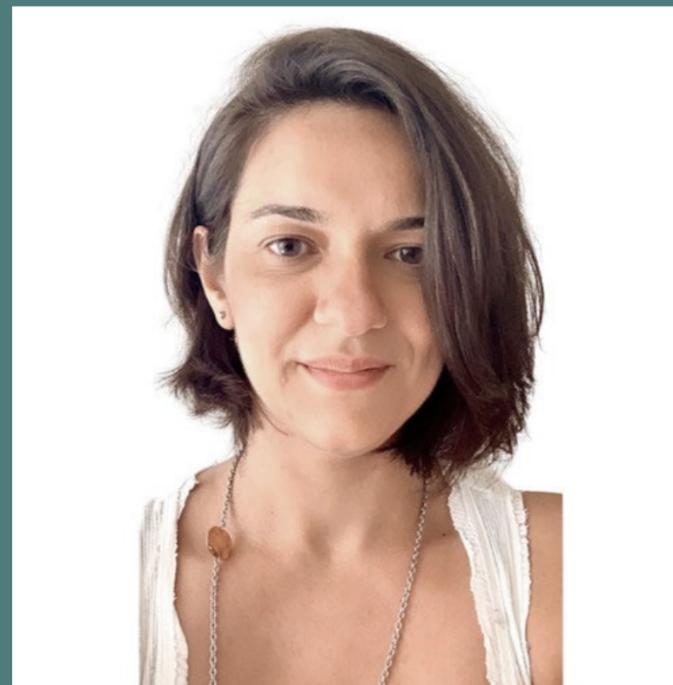
The Management Team

Board of Directors

Dr. Pantelis Velanas

CEO & Owner ACCELIGENCE Cyprus

Katerina Margariti

CEO ACCELIGENCE Hellas

Aristotelis Zompras

CEO ACCELIGENCE UK

The Technical Management Team

Epistimi Papanikolaou

Head of Software Engineering

Spyros Velanas

Chief Technical Officer

Giorgos Koustas

Head of Production Line

Thank You

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