SAMVA

SBAS Adoption in Multicopter VTOL Aircraft

Funded by the European Union

EUSPA European Union Agency for the Space Programme

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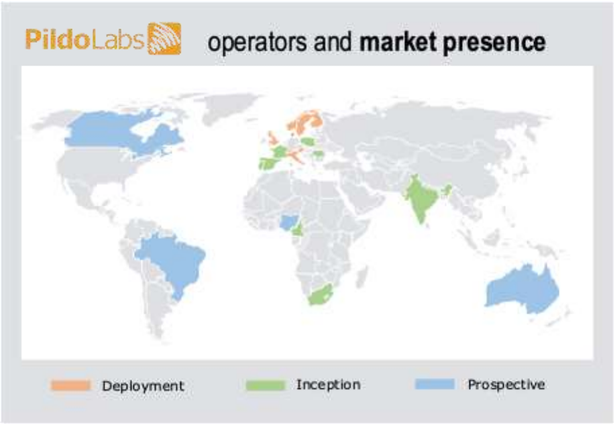
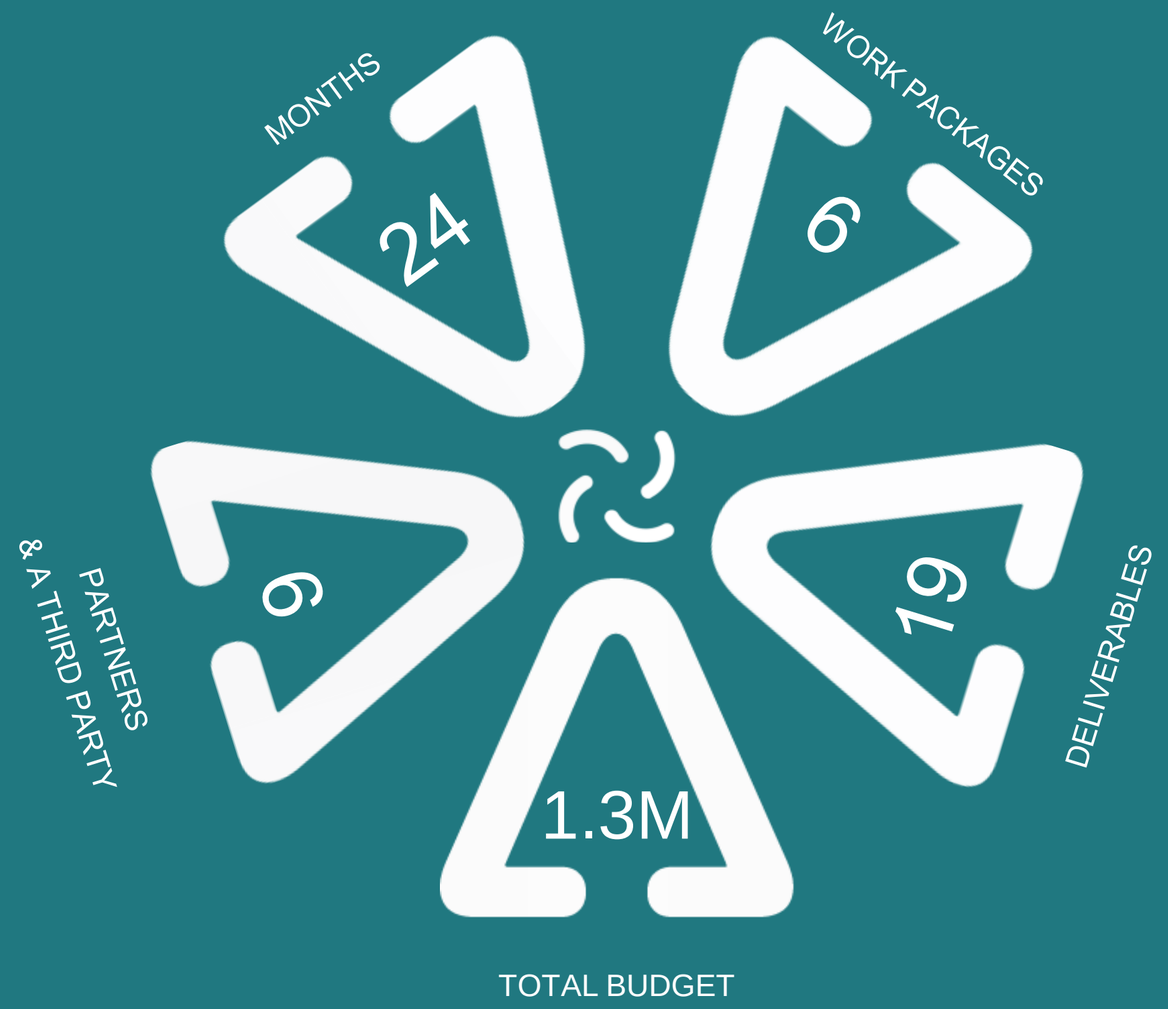
PildoLabs
move smart



Leading EGNOS adoption within helicopter industry & co-founder of FLAG Working Group

Key Figures


MONTHS
24
WORK PACKAGES
6
PARTNERS
& A THIRD PARTY
6
DELIVERABLES
19
1.3M
TOTAL BUDGET

Partners

PildoLabs move smart

EHANG 亿航

eliance ALWAYS READY

Aeroports de Catalunya

ThalesAlenia Space a Thales / Leonardo company

ARC AIRPORT REGIONS COUNCIL

UPT Universitatea Politehnica Timișoara

The main objective is to increase the adoption of EGNOS technology within the provision of rotorcraft and eVTOL services

Key Focus Areas:

Deployment of PinS and LLR Procedures

- Connect Catalonia HEMS Operator (Spain) ops bases:
  - ▻ Hospital Parc Taulí (Sabadell)
  - ▻ Lleida Firemen Station (Lleida)

Enhancement of EHang 216 UVCA:

- Upgrade for EGNOS Required Navigation Performance (RNP)
- Design and Test Specific RNP Criteria with current and advanced EGNOS Integrity Concept
  - ▻ Lleida-Alguaire Airport (Catalonia)

Map of Catalonia

HEMS operations 24/7

Catalan Emergency Services System (SEM) Initiatives:

- Since 2019, SEM has established a network of night visual flight rules (nVFR) routes across 15 heliports
- Ensures H24 service in favorable weather conditions, but operations are halted when visual conditions are not met

Challenges in Poor Visibility Conditions:

- Operations limited when required visual conditions are not met, leading to cancellations
- Low cloud ceilings particularly affect HEMS bases: Hospital Parc Taulí (Sabadell) and Lleida Firemen Station (Lleida)

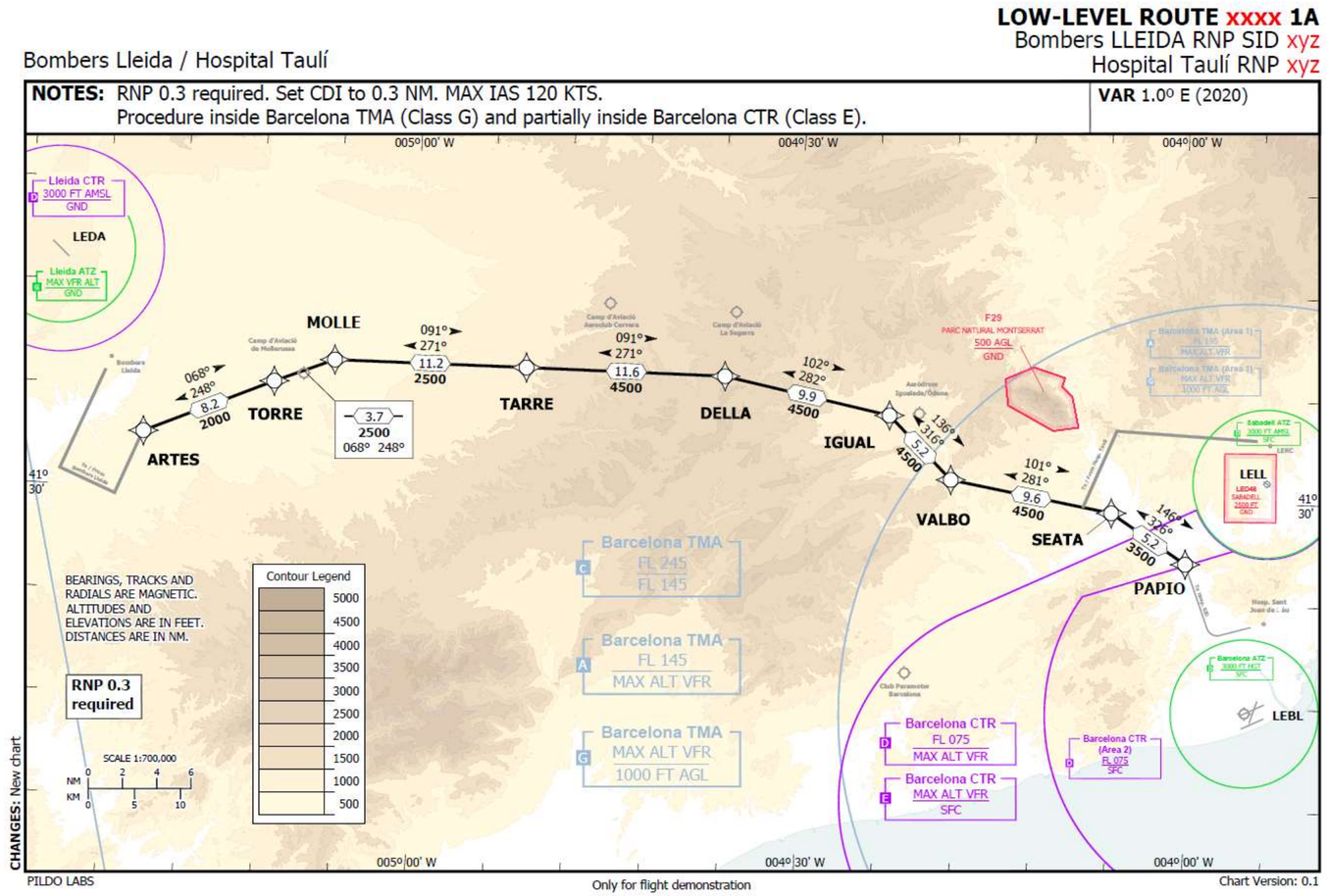
SAMVA's Proposed Enhancements:

- Upgrade nVFR network with PBN (IFR) capabilities
- Connects Hospital Parc Taulí and Lleida Firemen Station, overcoming challenges posed by low cloud ceilings
- Aims to reduce inter-hospital cancellations and ensure safe return-to-base operations for primary missions

WP1 – Rotorcraft PinS/LLR LEDA (ELI)

- Design a PinS approach/departure (including LPV minima) at Sabadell/Barcelona area and Lleida

- Implement a low-level IFR route connecting both locations



eVTOL RNP procedures

EHang 216 (EH216): World's First UVCA

- 100% electric, low-altitude, short-to-medium distance range
- Features autonomous driving technology
- Navigation system based on GPS and GLONASS

EGNOS Integration for EH216

- Forward fit with a commercial EGNOS GNSS receiver
- Capable of computing and extracting integrity information
- Enables EH216 to conduct RNP procedures using EGNOS integrity

Supporting Challenging Scenarios

- Development of specific RNP design criteria
- Advanced integrity concept supported by EGNOS
- Integration of EH216 in challenging scenarios

Lleida-Alguaire Airport Testing

- Initial tests to be conducted at Lleida-Alguaire airport in Catalonia, Spain
- The airport will adapt to accommodate eVTOL operations for future services

WP2 – eVTOL RNP/LLR LEDA (APC)

- Design and validate the firsts EGNOS based procedures for eVTOLs in Lleida airport
- Adapt Lleida airport into one of the first airports ready to accept and manage eVTOLS operations
- Build the required infrastructure (e.g., vertiport) to safely accommodate eVTOL users

WP3 – EHANG 216 Forward-Fit (EHA)

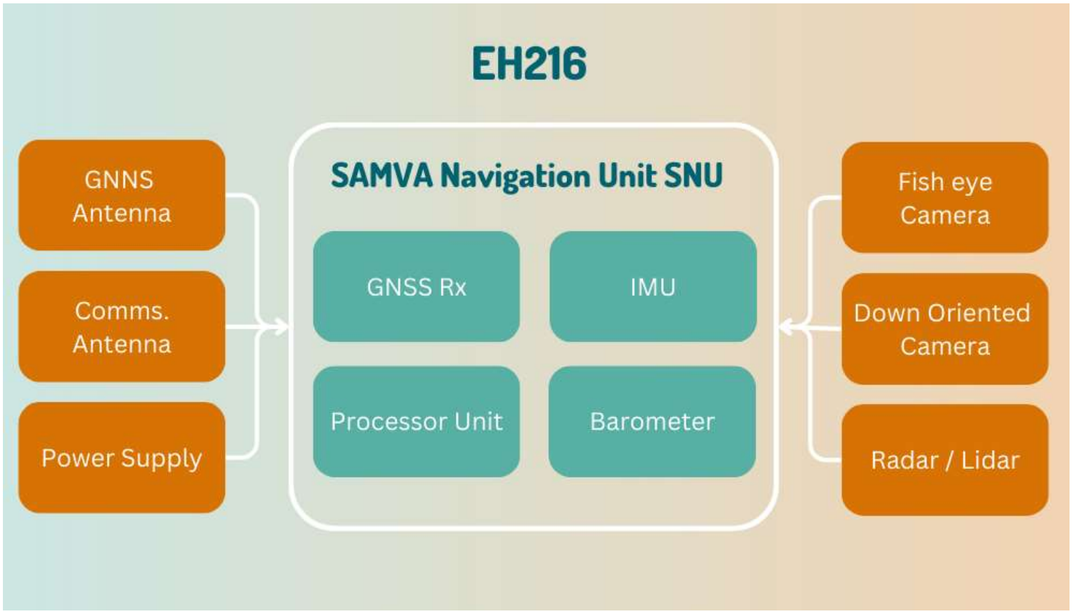
- Conduct a forward-fit over the EHANG EH-216 EVTOL by installing an EGNOS GNSS receiver with the capabilities to compute and extract integrity information
- Upgrade the EVTOL navigation functionality to allow the development of RNP procedures backed up by EGNOS integrity
- Develop additional functions to ease EVTOL integration into airspace

WP4 – eVTOL Autonomous Flight Operations (PLD)

- Develop an operational framework to support the definition and implementation of eVTOL autonomous flight operations
- Define eVTOL Concept of Operations
- Define an experimental design criterion for eVTOL Instrumental Flight Procedures (IFP)

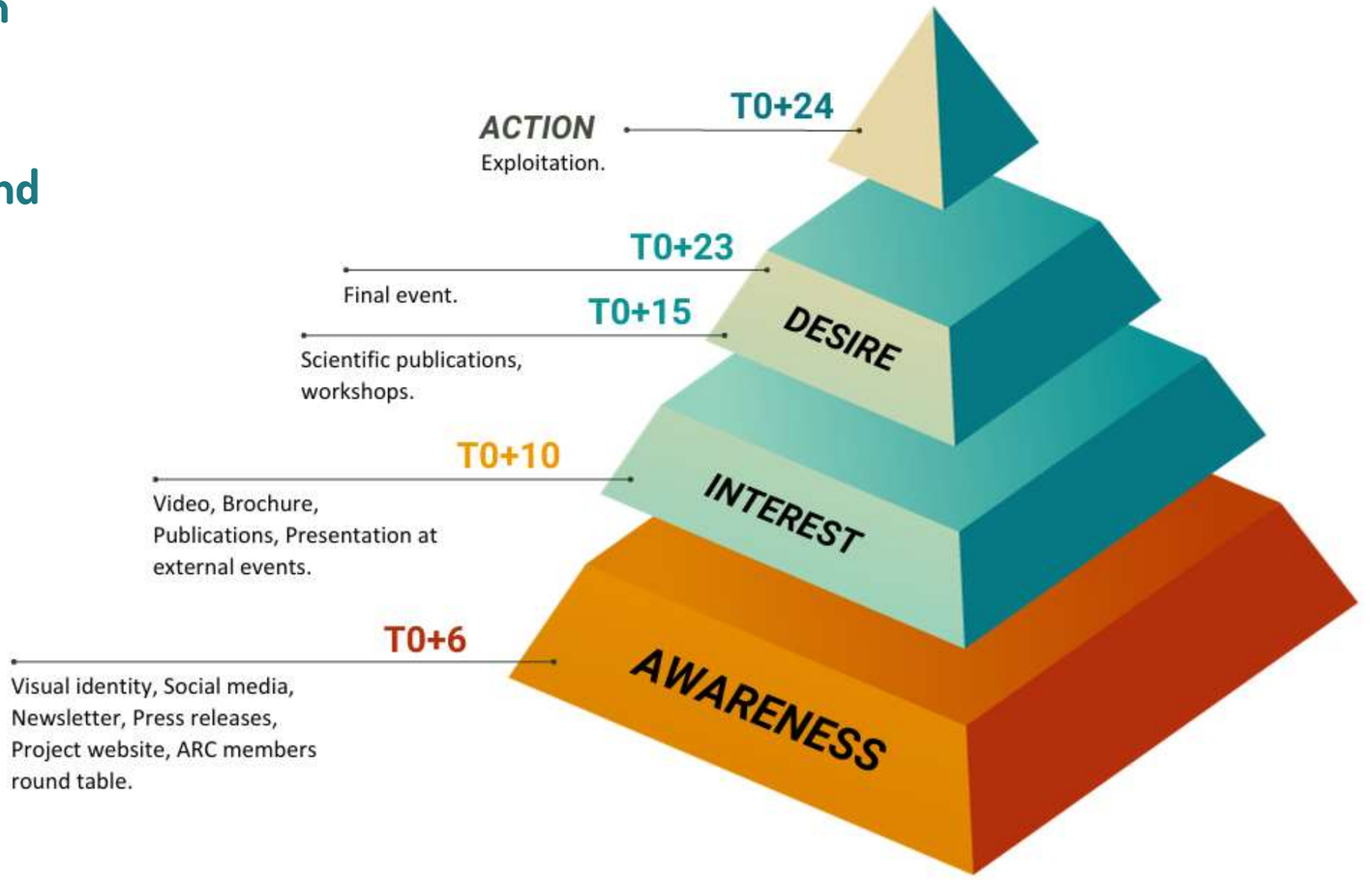
WP5 – eVTOL Specific Integrity Concept (TASF)

- Develop an EVTOL integrity concept which will ensure high reliability and compliance to safety requirements for drone operations
- Facilitate the adoption of reduced RNP procedures per eVTOL vehicles
- Conduct flights in order to characterize the eVTOL in terms of RNP



WP6 – Communication, Dissemination & Exploitation (ARC)

- Support the increase of the EGNOS adoption in aviation
- Inform the target groups, the general public and the media about the project results
- Enable use and uptake of the project results
- Optimise the use of results and ensure technology transfer



SAMVA contributes to at least 3 out of 6 Commission priorities for 2019-24

European Green Deal

Benefits of EGNOS Procedures:

- Reduced fuel consumption and CO2 emissions

Contribution to Green Aviation:

- Supports the transition to 100% electric autonomous vehicles

Europe Fit for the Digital Age

European Goals for Drones:

- Enhance sustainable services and transport through digitalization and automation

EU Space Data and Innovation:

- EGNOS and Galileo play crucial roles in advancing digital innovation in the Digital age

Economy that Works for people

Job Creation Impact:

- Jobs result from both project funding and local solution deployment
- Opportunities for international market expansion further bolster job growth

Share your opinion with us!

SAMVA

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