THEIA - Enhancing Copernicus Security services – EU governmental crisis management hub for forced population displacement

EU Space Days 25

Session: “Meet the latest Horizon projects for the evolution of the Copernicus Services”

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GEOSYSTEMS HELLAS S.A.

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About

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Funding Frame: Horizon Europe

Call: HORIZON-CL4-2024-SPACE-01/ Topic: HORIZON-CL4-2024-SPACE-01-36, Copernicus for Security/ Type of action: HORIZON Research and Innovation Actions

Project Grant Agreement Nr.: 101190051

Granting Authority: HaDEA

Duration: 30 months divided in 2 periods **(M1-M15 & M16-M30)**.

Project start: 01/12/2024 - **Project end:** 31/05/2027

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Consortium

Partner legal name	Short name
GEOSYSTEMS HELLAS	GSH
EUROPEAN UNION SATELLITE CENTRE	SATCEN
OHB DIGITAL SERVICES GMBH	OHB DS
LUXSPACE SARL	LUXSPACE SARL
EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON	ICCS
CENTER ODLICNOSTI VESOLJE, ZNANOST IN TEHNOLOGIJE	SPACE-SI
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH	AIT
EUROPEAN DYNAMICS LUXEMBOURG SA LU	ED LUXEMBOURG
CREOTECH INSTRUMENTS SPOLKA AKCYJNA	CREO
C3I INTELLIGENT SYSTEMS LTD	C3I
WEB2CLIMATE IKE	WTOC
PAPAKONSTANTINOU EVANGELOS	MPL Brussels

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Objectives

“The overall project scope is to develop SW tools and applications which enable a more resilient and inclusive society via better-informed and integrated emergency response services”

Objectives

- Enhance CSS state to better respond to evolving policy and user requirements
- Create beyond State-of-the-Art reusable information tools tailored to users’ needs
- Improve integration of non-space data along end-user intelligence supply chains
- Integration of GeoAI and EO data analytics with a variety of other application-specific data sources

Ambition

To enhance civil security, law enforcement operations and crisis management practices across Europe.

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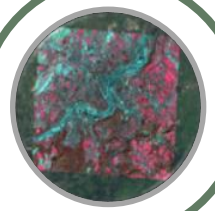
Theia Approach

Component specifications, overall architecture, and design of demonstration use cases to be conducted

Development of key components such as the VHR EO



The micro-satellites Cubesats and UAS based data acquisition

Ground-based data integration

Data federation and handling of both existing and new datasets

Development of the GeoAI and ML tools of THEIA

Integration of the various components and tools into the THEIA platform

Demonstration and validation

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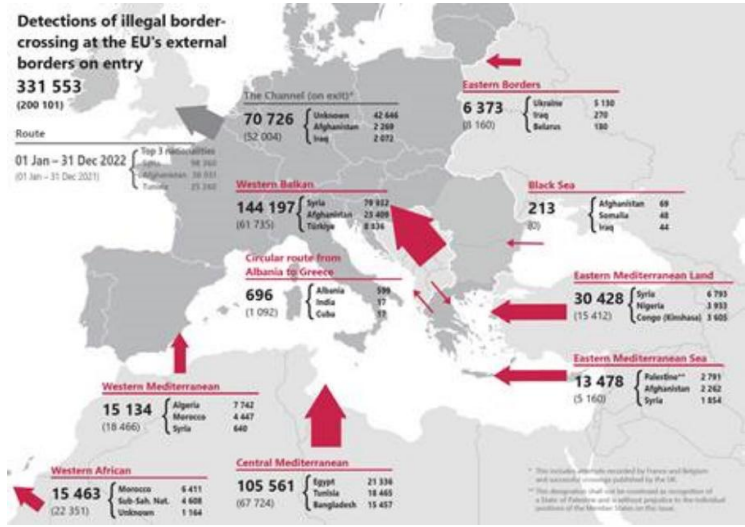
Use Cases Relevant To CSS

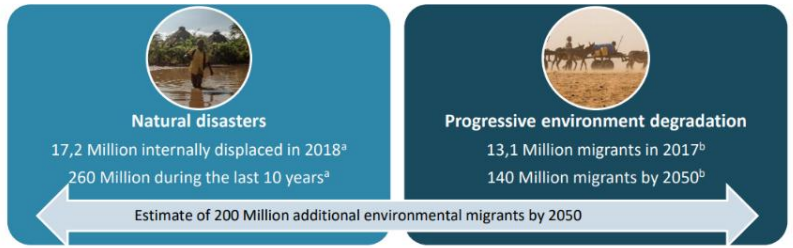
Numerous potential THEIA applications are related to forced displacement of people following marine or land routes.

For THEIA's demonstration activities, the following real-world scenarios have been selected:

- ✓ **Use Case 1** – Enhanced border and maritime surveillance capabilities in response to migration flows.
- ✓ **Use Case 2** – Terrestrial surveillance of population displacement and flows.
- ✓ **Use Case 3** – Population displacement due to climate change and extreme weather events.

** These activities will take place in the Mediterranean region, and in a third-country area.*





[a] *Global report on Internal Displacement 2019, Internal Displacement Monitoring Center.*
[b] *International Organization for Migration and United Nations Convention to Combat Desertification (2019): Addressing the Land Degradation – Migration Nexus: The Role of the United Nations Convention to Combat Desertification. IOM, Geneva.*

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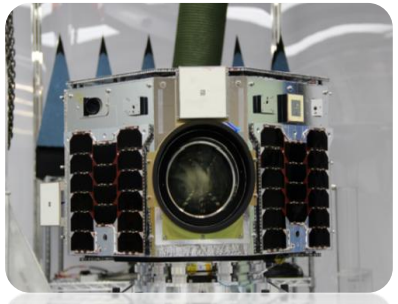
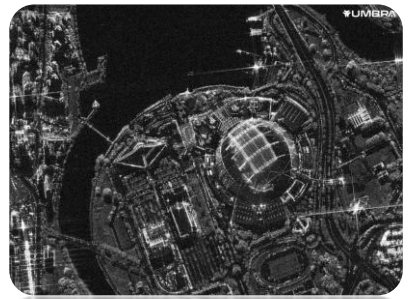
Complementary added-value components to CSS

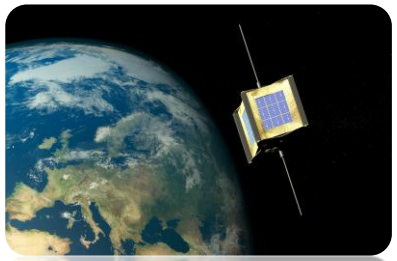
The project leverages various advanced security-related capabilities, including:

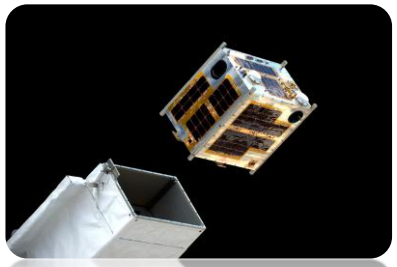
- ✓ Utilisation of diverse **satellite data, sensors and services** with including **VHR optical imaging, thermal, SAR data and optical video**



- ✓ Deployment of **micro- and pico-satellites, as well as national constellations**, in security operations.





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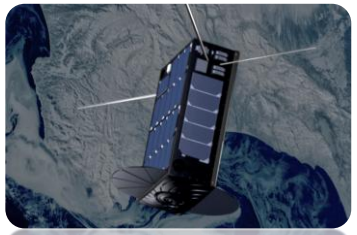
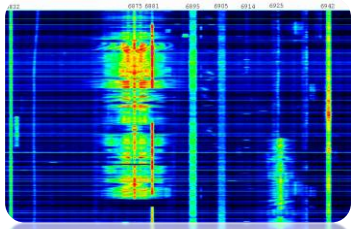
Complementary added-value components to CSS

- ✓ Exploitation of Radio Frequency (RF) analytics tailored for both maritime and terrestrial cases





- ✓ Integration of UAV acquired data to enhance these applications

- ✓ Integration of social media and crowdsourced data for comprehensive analysis.

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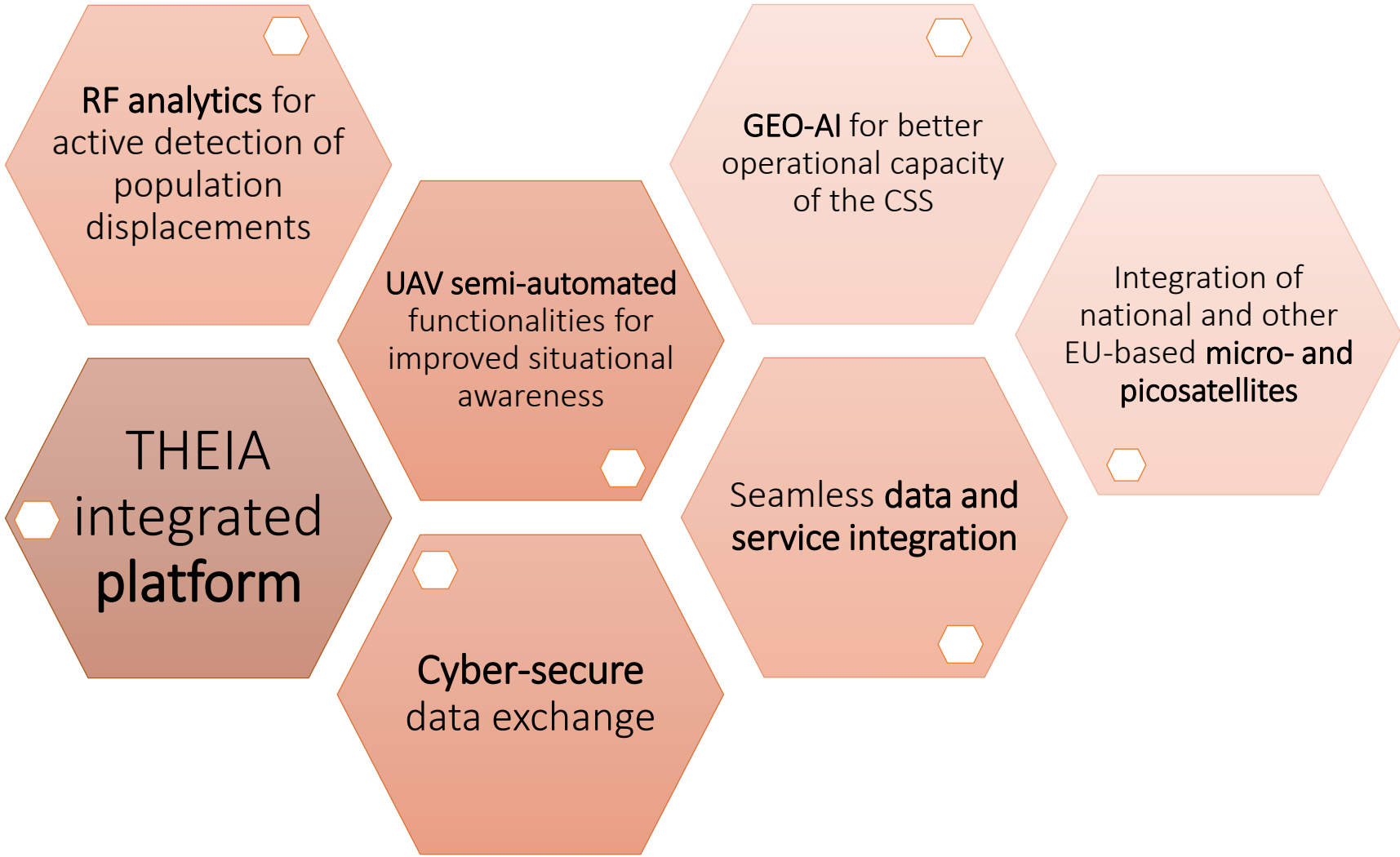
Main expected results of the project



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Thank you for your attention!

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