BM SESSION - MODERATORS

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BM SESSION - PRESENTATIONS

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BM-01-02

BM-01-02		
	Sara García	sgarcia@gradiant.org
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	Paola Fratantoni	paola.fratantoni@zanasi-alessandro.eu

- *Sara Garcia Garrido*
- *sgarcia@gradiant.org*
- *Gradiant (RTO, Spain)*

- Role: *Potential proposal coordinator. WP leader, S/T provider.*

Proposal activity: **HORIZON-CL3-2024-BM-01-02 Interoperability for border and maritime surveillance and situational awareness**

Needs and interests

- **Tethered UAV:** Unmanned Aerial Vehicle that is physically connected, by means of a cable (called "tether"), to a ground equipment. The tether, in addition to physical support, can provide power to the UAV (unlimited flight time) and a wired data link between the UAV and the ground station.
  - Surveillance missions: they act as "aerial cameras" (periscope mode): control of mass events, surveillance of large areas.
  - Communications repeaters: increase the coverage radius of the system.

- **UxV BrAIn**: technology solution whose objective is to improve the situational awareness and communications of UxVs (USVs, UGVs, UAVs). ***TRL:*** 3-7
  - Improved positioning accuracy through GALILEO,
  - sensor fusion and the possibility of integrating high-precision local positioning based on UWB.
  - Redundant communication system based on datalink (LoS) and cellular communications (3G, 4G & 5G), possibility of integrating satellite communication
  - Route planning and replanning in real time ("provides the vehicle with intelligence to make decisions autonomously")

Sara García Garrido/ sgarcia@gradiant.org

Needs and interests

- **Radio-frequency anomaly and threat detection:** Tool based on hardware spectral probes and RF Machine Learning techniques aimed to automatically detect and classify electromagnetic emissions, providing information about their authorized/unauthorized nature, characteristics, location and level of threat. Hardware probes could be based in traditional antennas or in quantum RF sensors (potentially more sensitive and enabling broader bandwidths).

  - Detection of wireless systems used for unlawful purposes (IEDs, unauthorized trackers, listening devices, etc.)
  - Detection of devices that exploit vulnerabilities of wireless communications and positioning systems (jammers, rogue base stations, GNSS, spoofers, etc.)
  - Detection of unauthorized use of radiofrequency spectrum (operation of non-licensed wireless systems in licensed frequency bands)

Sara García Garrido/ sgarcia@gradiant.org

Contribution

- **Existing consortium**: TBD

- **Proposed coordinator**: Gradiant
  - Tethered UAV
  - UxV BrAIn
  - Radio-frequency anomaly and threat detection tool

Gradiant has taken part in more than 35 European projects, including communications for unmanned vehicles, payloads integration, data analytics and security measures.

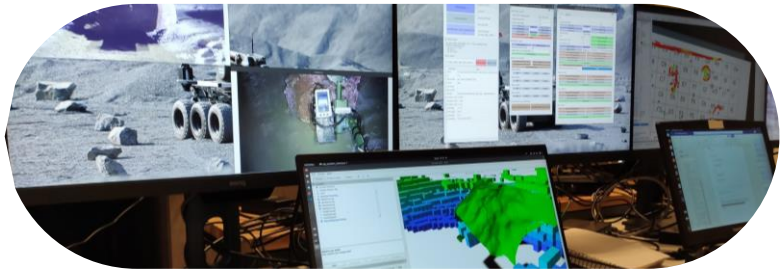
- **Partners / Other participants**: looking for partners with the following expertise/ technology/ application field.
  - Law enforcement authorities
  - Border control agencies
  - Technology integrators
  - UAV operators
  - Legal and ethical experts

Sara García Garrido/ sgarcia@gradiant.org

MARINA: Maritime Interoperability Network for Advanced Surveillance

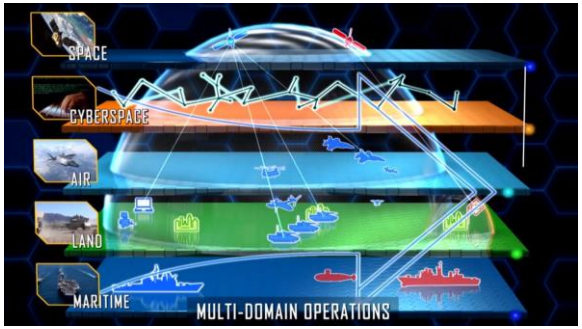
- *Jakub Główka*
- *jakub.glowka@piap.lukasiewicz.gov.pl*
- *Łukasiewicz - PIAP*
- Role: *Proposal coordinator / WP leader*

- Topic to be addressed: HORIZON-CL3-2024-BM-01-02



MARINA: Proposal idea/content

- ***Open architecture*** *C2 systems:*
  - *Design and implementation of C2 systems with open standards for APIs and data models*
  - *interoperability across different equipment suppliers.*
- *Using NATO experimentation as a baseline*
  - Collaborative Autonomy Tasking Layer (CATL) - NATO SCI-343 RTG
  - *STANAG 4817 (multidomain C2)*
- **Concepts of operation** and standard operating procedures:
  - Defining clear guidelines for using interoperable systems in joint operations.
  - Participation in annual exercises (REPMUS)



Jakub Główka jakub.glowka@piap.lukasiewicz.gov.pl

MARINA: Project participants

- Existing consortium:
  - Proposed coordinator: *Łukasiewicz – PIAP / …*
  - Partners / Other participants:
    - HES
    - End-users
    - In contact with NATO SCI-343 RTG (CATL): RTOs, Industry

- Looking for partners with the following expertise/ technology/ application field:
  - *End-users / practitioners*
  - *C2 system providers*
    - *Industry – looking for interoperability*
    - *SMEs – with market presence or clear commercial strategies*

Jakub Główka jakub.glowka@piap.lukasiewicz.gov.pl

HE CL3 Project Proposal

- *Wael Obeid*
- *w.obeid@digital-earth-solutions.com*
- *Digital Earth Solutions*

- Role: *WP leader, S/T provider*

- Topic to be addressed: *HORIZON-CL3-2024-BM-01-02: Interoperability for border and maritime surveillance and situational awareness*

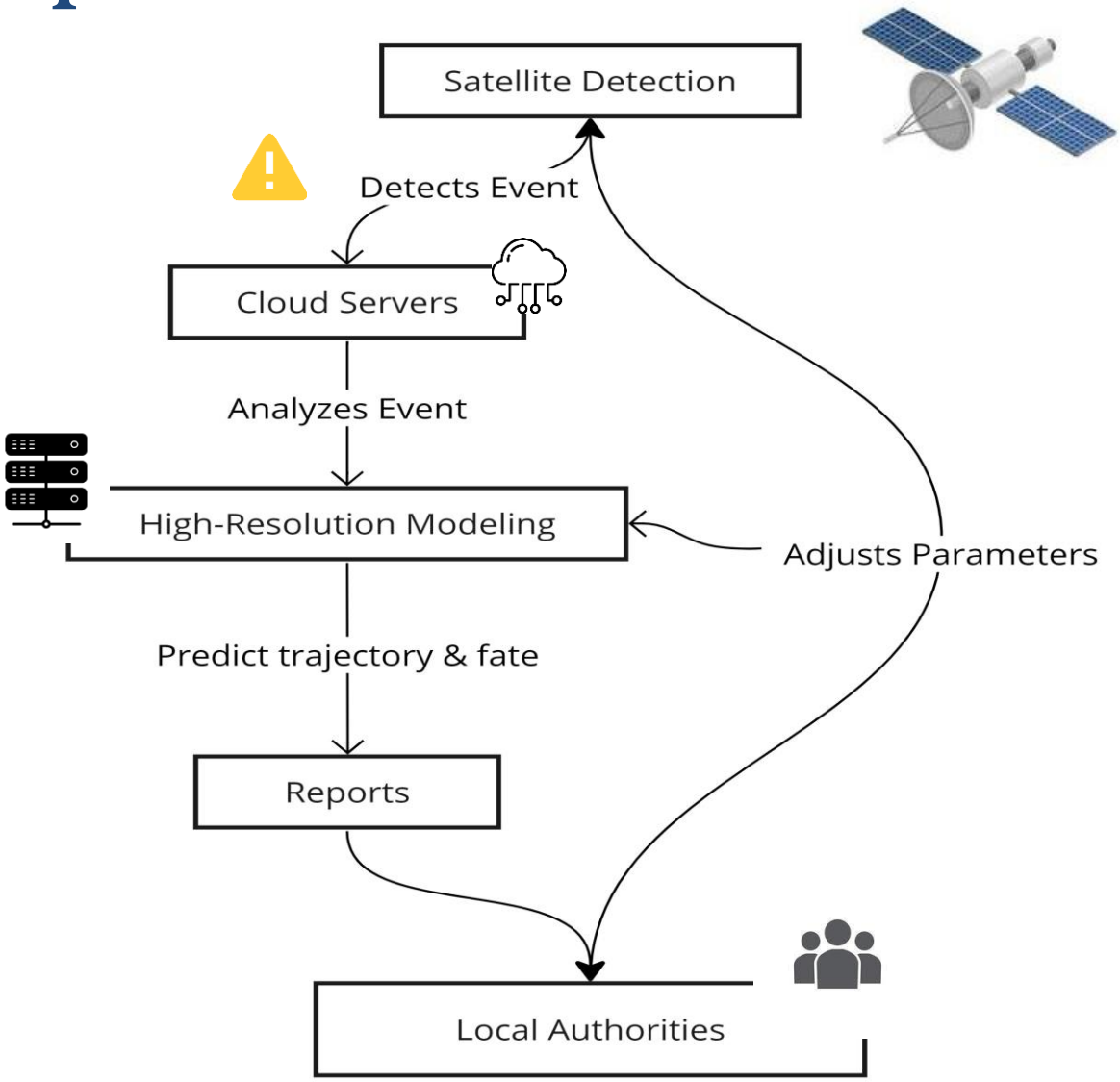
Proposal idea/content

- *Description of the proposed project:*

Accurate, satellite-driven & early detection of critical maritime events (oil spills, containers drop, plastic drop, drug bales, contraband, toxic microorganisms, migration boats, human trafficking) across EU maritime borders, and application of high-resolution modelling (order of 50-100m) in critical zones towards sharp contingency & (emergency/security) action plans.

Wael Obeid / w.obeid@digital-earth-solutions.com

Proposal Illustration



Wael Obeid / w.obeid@digital-earth-solutions.com

Project participants

- Existing consortium:
  - Proposed coordinator: *large multinational company specialized in (satellite) technology-based solutions for defense & security*
  - Partners / Other participants: ocean modelling (confirmed), cybersecurity (confirmed), oceanography consultancy (confirmed), security & satellite monitoring (confirmed), public port authority as end-user (tbc partner), official security bodies as end-user (e.g. police) (tbc partner), official rescue bodies as end-user (e.g. red cross) (tbc partner)

- Looking for partners with the following expertise/ technology/ application field:
  - *defense & security technology*
  - *Practitioners & (social) security bodies*

Wael Obeid / w.obeid@digital-earth-solutions.com

inTeroperable platform for enHanced situAtional awareness and surveiLlAnce at Sea, borderS and maritime infrAstructures

- Paola FRATANTONI Zanasi & Partners Security Research and Advisory

paola.fratantoni@zanasi-alessandro.eu

- Role: *Administrative coordinator*
- Topic : *CL3-BM-01-02*

The idea

THALASSA will build an AI-based platform to detect abnormal situations at sea and raise an alert to the relevant authorities across the EU.

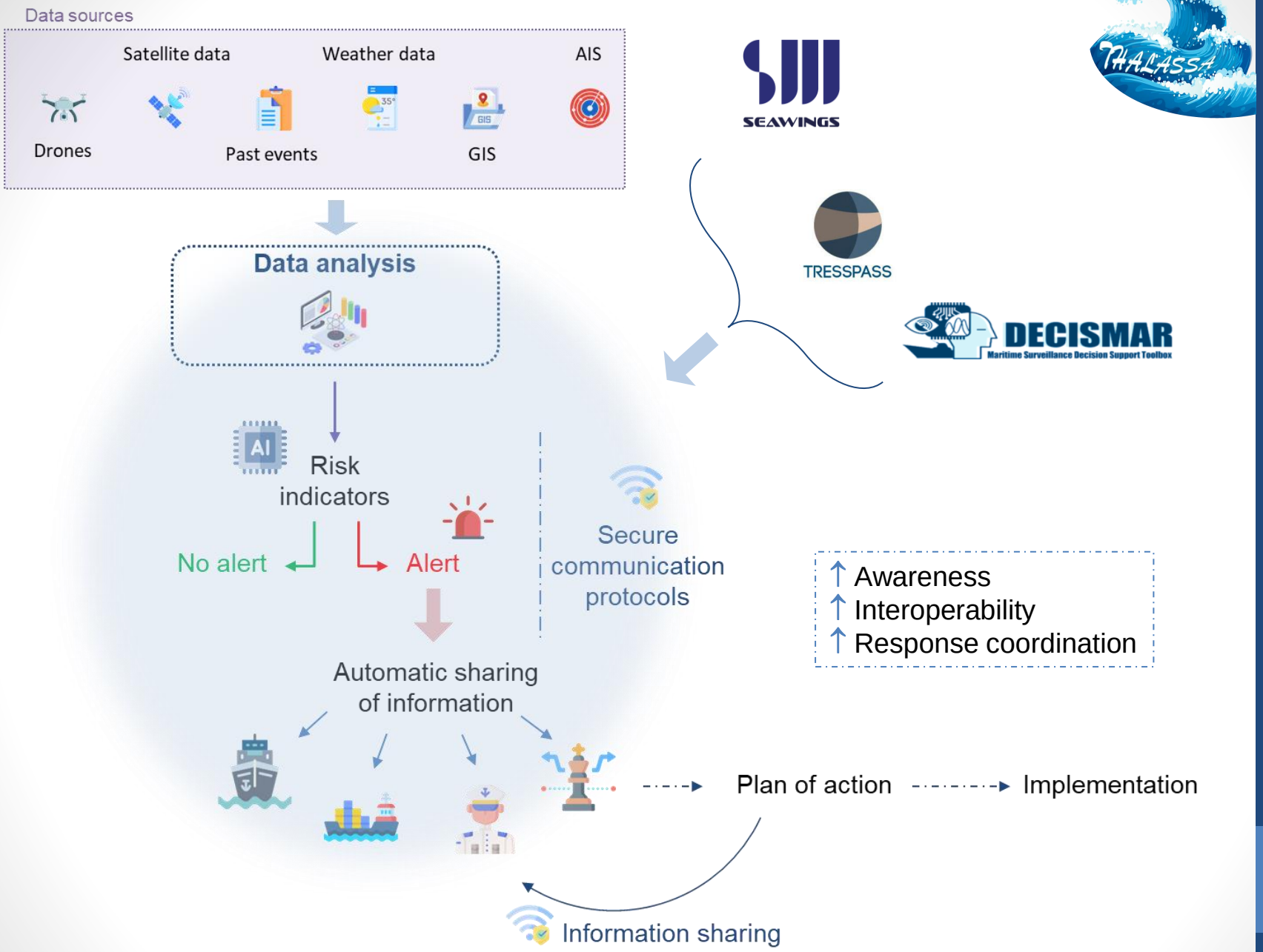
THALASSA platform would rely on

- Multiple data sources (e.g. drones, sensors, etc.)
- Faster and more efficient sharing of information
- Automated alert mechanism

Our expertise

- Several projects in Border Management and Maritime security
- 5 projects in defence (PADR, EDIDP, EDF)
- Data analysis and machine learning
- Risk assessment methodology
- Extended network of practitioners across Europe

Paola Fratantoni – paola.fratantoni@zanasi-alessandro.eu



Paola Fratantoni – paola.fratantoni@zanasi-alessandro.eu

Project participants

Existing consortium

- Proposed coordinator and technical scientific coordinator:

Zanasi & Partners
Security Research and Advisory

RINA

- Other participants:

DRI
Defence Research Institute

Defence and research

POLITÉCNICA

rinicom
secure communications

Technical partners

LPRC

Tecoms
security through research

Legal and ethics

Looking for

- *Shipping companies*
- *Sensor providers*
- *Border or Coast Guard authorities*
- *Environmental experts*

Paola Fratantoni – paola.fratantoni@zanasi-alessandro.eu

BM-01-03

BM-01-03		
	Raúl Orduña	rorduna@vicomtech.org
	Lucía Gregorio	lucia.gregorio@treetk.com
	Ahmad Montaser	montaser.awal@idnow.io

Self-Sovereign Consent Mgmt

- *Raúl Orduna*
- *rorduna@vicomtech.org*
- *VICOMTECH*
- Role: *WP Leader*

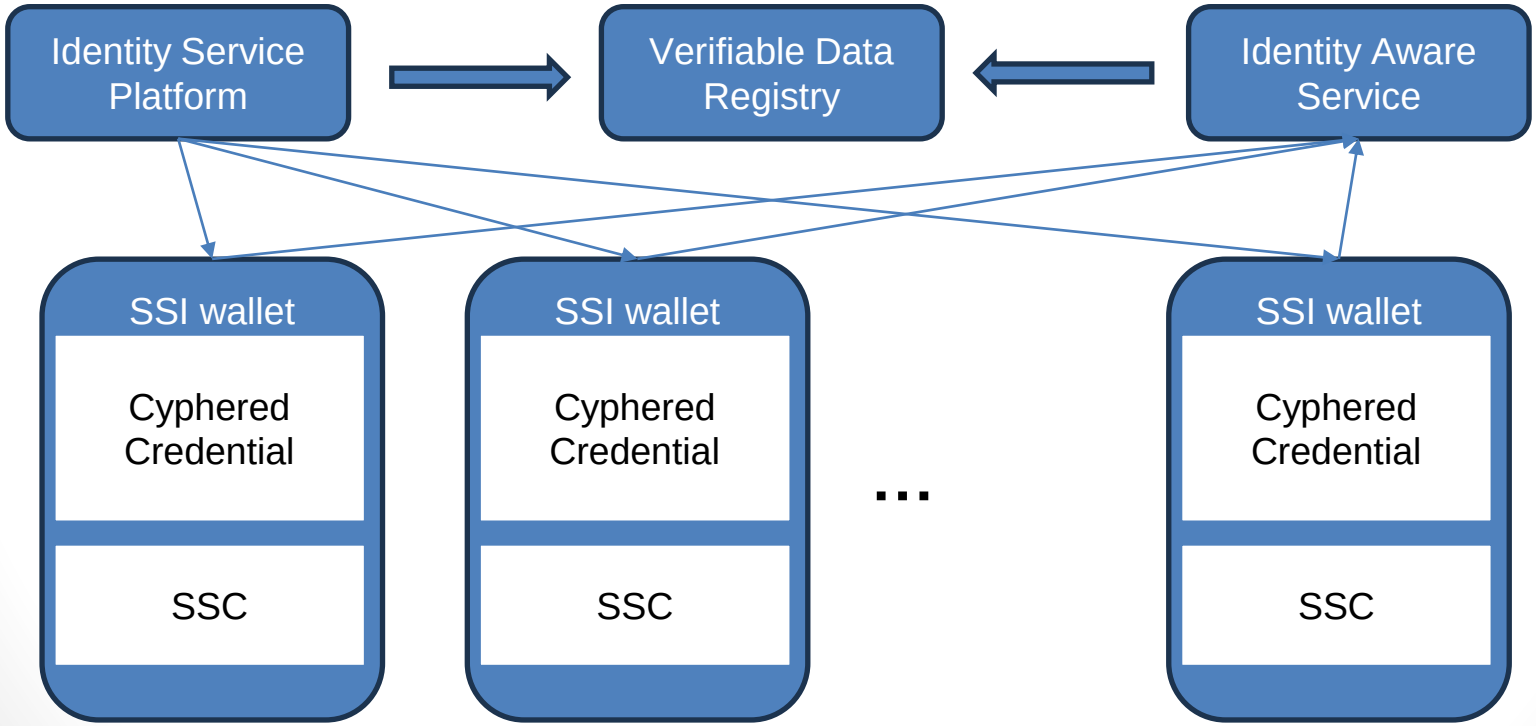
- Topic to be addressed: *CL3-BM-01-03*

"Advanced user-friendly, compatible, secure identity and travel document management"

- Related to eIDAS2 regulation and implementation

Proposal idea/content

- *Design and implement a friendly identity toolkit devoted to securely manage credentials using homomorphic encryption and a new Self-Sovereign Consent*



Raúl Orduna: rorduna@vicomtech.org

Project participants

- Existing consortium:
  - Proposed coordinator: *Not yet*
  - Partners / Other participants:
    - SSI wallet development and integration
    - SSC design and implementation
    - Homomorphic encryption for secure credentials
- Looking for partners with the following expertise/ technology/ application field:
  - Identity Management Service Provider (Lead)
  - Cryptographic experts (post quantum computing)
  - Trusted Execution Environments service developer
  - Standard Developers
  - Ethics and privacy experts
  - *End users: LEA, Health*

Raúl Orduna: rorduna@vicomtech.org

- *Lucia Gregorio*
- *lucia.gregorio@treetk.com*
- *Tree Technology (SME)*
  - Spanish SME
  - Field of expertise: Big Data, AI, Cybersecurity
  - >30 EU projects. 11 (EU) ongoing +6 national PPI on cybersecurity
  - 10 projects on H2020-SEC. 3 ongoing: TRUSTaWARE, TeamAware and Nightingale.
  - 3 proposals under HE-CL3 recently approved

- *CL3-BM*
- *CL3-2024-BM-01-03*

Needs and interests

- *Needs and problems:*
  - *4 official systems to monitor the status of travellers.*
  - *Private stakeholders obligued to report travellers' personal data (isolated from the previous)*
  - *Travellers share info that is usefull to track movements in the Schengen area*

- *Project idea:*

  *Enrol all types of stakeholders (public and private) around an **interconnected eWallet** that stores **verified identification documents** and forwards required metadata and customized information to each of the public systems it interacts with **for seamless travelling**.*
  - ***Interoperate all the existing systems** with the eID /ePassport wallet to serve, in a seamless way, with the most updated information to the purposes of the public authorities.*
  - *Provide a tool to private stakeholders (airlines, accommodations, etc) with capacity to **receive/integrate metadata of validated electronic documents** (fully recognised by the public authorities)*
  - *Analyse Ethical and Legal aspects of a tool that will allow public authorities to fully track movements of travellers*
  - *Market Analysis*

Lucia Gregorio / lucia.gregorio@treetk.com

Contribution

- Looking for partners with the following expertise.
  - Final users: border authorities/police (in particular we need countries that requires visas or issue visas to enter the EU)
  - Final users: Company managing touristic apartments; touristic apartments association, …
  - Expert on market analysis, business development, etc.
  - Experts on legal and ethical aspects related to the exchange of information in the context of travelling/inmigration
  - IT experts currently working on eID

- Which role do you prefer in a consortium?
  - Technical provider – expand the capabilities of IMPULSE eWallet to cover foreingn passports/IDs. Interoperate with public systems.
  - We could be also leaders if needed.

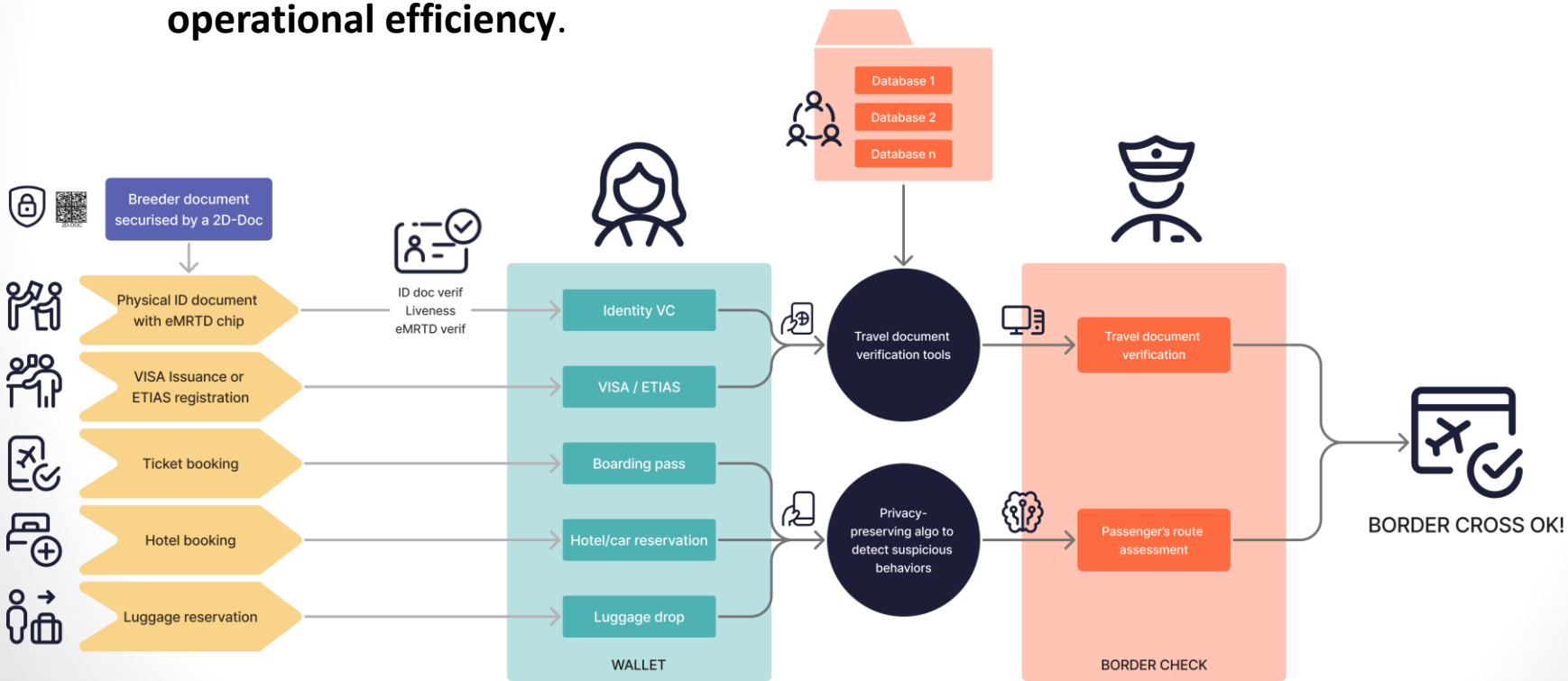
Lucia Gregorio / lucia.gregorio@treetk.com

- Ahmad Montaser AWAL
- montaser.awal@idnow.io
- IDnow SAS
- Role: Proposal coordinator

- Topic to be addressed: CL3-2024-BM-01-03

Proposal idea/content

- PROJECT intends to leverage the **EUDI wallet** to provide solutions and tools, **interoperable and compatible** with the existing or future digitalized travel documents format and system, to facilitate both the work of border authorities and the passenger life while increasing **security**, **privacy**, and **operational efficiency**.



Montaser AWAL – montaser.awal@idnow.io / N. THOMAZO – noemi.thomazo@idnow.io

Project participants

- Existing consortium:
  - Proposed coordinator: *IDnow*
  - Partners / Other participants:
    - *Confirmed: KU Leuven (Cryptography experts)*
    - *Under discussion: Amadeus, Unissey (Biometrics), Inria (Privacy), NOVA Information Management School (SSH)*

- Looking for partners with the following expertise/ technology/ application field:
  - *Board/coast guards authorities, police authorities*
  - *Legal expert (GDPR, eIDAS) and/or ethics expert*
  - *Consumers association (oriented toward travel)*

Montaser AWAL – montaser.awal@idnow.io / N. THOMAZO – noemi.thomazo@idnow.io

BM-01-04

BM-01-04

Jorge García jgarciac@vicomtech.org

Aishvarya Kumar Jain Aishvarya.Kumar.Jain@emi.fraunhofer.de

ISA – Identity Situational Awareness

- *Jorge García-Castaño*
- *jgarciac@vicomtech.org*
- *VICOMTECH*

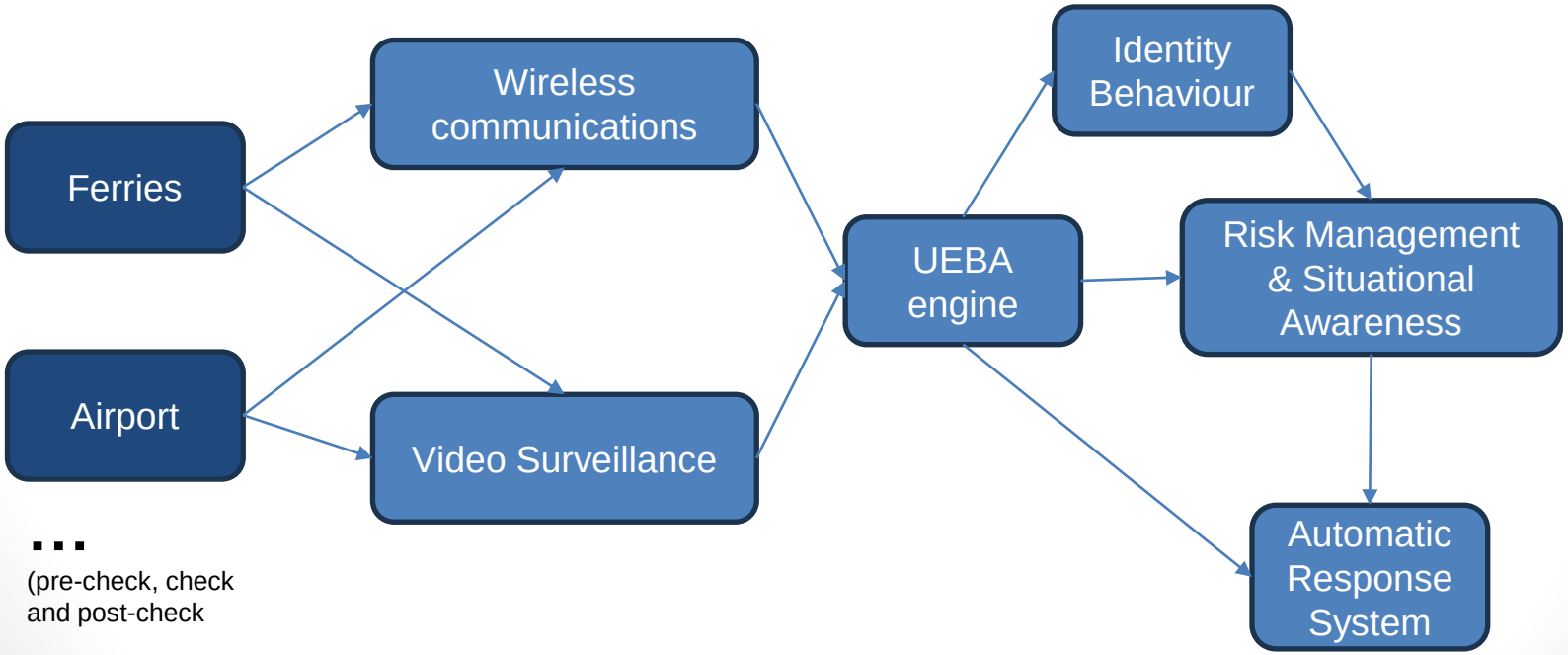
- Role: *WP Leader*

- Topic to be addressed: *CL3-BM-01-04*

"Integrated risk-based border control that mitigates public security risk, reduces false positives and strengthens privacy"

Proposal idea/content

- *Risk management and quick informed response toolkit, using anomaly behaviour analysis during border-check processes*



Jorge García-Castaño: jgarciac@vicomtech.org

Project participants

- Existing consortium:
  - Proposed coordinator: Not yet
  - Partners / Other participants:
    - *Image behaviour analysis*
    - *Radioelectric spectrum analysis (wi-fi, Bluetooth, radio, GSM, 5G)*
    - *User and Entity Behaviour Analysis (CCTV, camera, video analytics)*
    - *Identity Management*
    - *Wide network of practitioners*
- Looking for partners with the following expertise/ technology/ application field:
  - *Risk Management Services*
  - *Social media / GNSS analysis*
  - *Ethics and privacy Experts*
  - *Interested End Users*

Jorge García-Castaño: jgarciac@vicomtech.org

Border Management

- *Aishvarya Kumar Jain, Corinna Köpke*
- *Aishvarya.Kumar.Jain@emi.fraunhofer.de, Corinna.Koepke@emi.fraunhofer.de*
- *Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach Institut, EMI, 79588 Efringen-Kirchen, Germany*

Fraunhofer EMI | Fraunhofer SIRIOS

- *WP leader*
- Topic to be addressed: HORIZON-CL3-2024-BM-01-04

Risk-assisted agent-based modelling and simulation

- *Modeling and simulation of border infrastructure (BCP) using **hybrid methods combining risk assessment and agent-based digital-twin approaches.***
- *Innovation:*
  - *Multidimensional performance assessment and sustainable resource optimization in **real-time and 3D visualization**.*
  - *Configuration for training purpose.*

Hybrid simulation methodology

Risk assessment simulation and optimization (TRESS PASS) + Agent based simulation (SATIE)

3D Infrastructure model

Threat assisted traveler profiles and expert derived distributions

Risk assessment model

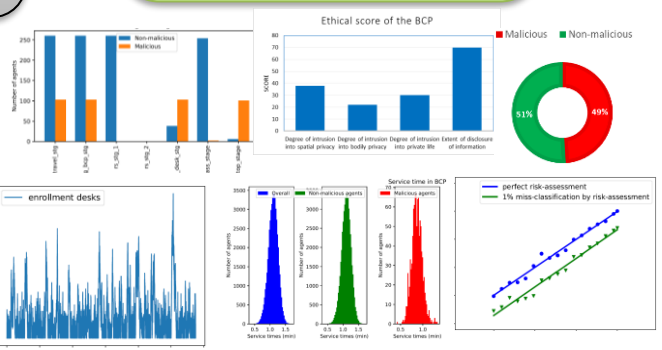
Optimization conditions

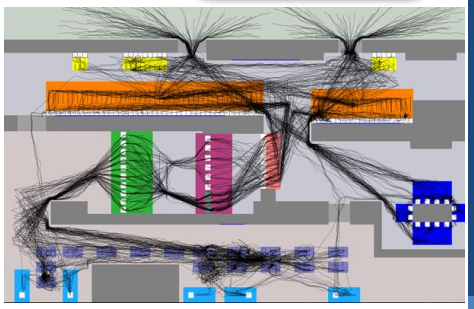
Risk assessment simulation and optimization

Output:
- Optimized resources
- Time distributions
- Traveler profiles
- Ethical performance
- Security assessment
- Operational cost

ABM digital twin and simulator

Output:
- Real time 3D simulation
- Flow assessment
- 3D visualization





[1] Jain, A.K.; Ruiter, J.d.; Häring, I.; Fehling-Kaschek, M.; Stolz, A. Design, Simulation and Performance Evaluation of a Risk-Based Border Management System. Sustainability 2023, 15, 12991. https://doi.org/10.3390/su151712991
[2] Jain, A.K.; Satsrisakul, Y.; Fehling-Kaschek, M.; Häring, I.; Rest, J.V. Towards Simulation of Dynamic Risk-Based Border Crossing Checkpoints. 30th European Safety and Reliability Conference and the 15th Probabilistic Safety Assessment and Management Conference 2020, https://www.rpsonline.com.sg/proceedings/esrel2020/html/4000.xml
[3] Köpke, C., Srivastava, K., Miller, N., Branchini, E. (2022). Resilience Quantification for Critical Infrastructure: Exemplified for Airport Operations. In ESORICS 2021 International Workshops. Springer, Cham. https://doi.org/10.1007/978-3-030-95484-0_26
[4] Meyer, R.; Schmidt-Collberg, A.; Kruse, A.; Eberhardt, D. and Köpke, C. Towards a specification of behaviour models for crowds. In Advances in Social Simulation, Proceedings of the 18th Social Simulation Conference 2024, Springer, https://link.springer.com/book/9783031577840

Aishvarya Kumar Jain, Aishvarya.Kumar.Jain@emi.fraunhofer.de

Project participants

- We are in the phase of building up the core consortium.
- Looking for partners with the following expertise/ technology/ application field (in phase of core consortium build up):
  - *Project coordinator.*
  - *EU Organizations.*
  - *Border guards.*
  - *Border authorities.*

Domain Knowledge:

Other EU projects:

Aishvarya Kumar Jain, Aishvarya.Kumar.Jain@emi.fraunhofer.de

BM-01-05

BM-01-05	George Pallis	g.pallis@t4ieng.com
	Gontran REBOUD	gontran@h3dynamics.com
	Sylvie Naudet	Sylvie.NAUDET@cea.fr

Detection and tracking of illegal and trafficked goods

- George Pallis, PhD
- *g.pallis@t4ieng.com*

- *T4i engineering (winner of EC Security Innovation Award 2023)*
- Role: *<WP leader, S/T provider>*
- Topic to be addressed: *< CL3-2024-BM-01-05>*

Proposal idea/content

- *A fully automated detection and tracking concept of operations for customs control*
- *Use of sensors, robotics, ML & AI for the detection of illegal goods tracking and trafficking*

George Pallis [T4i] – g.pallis@t4ieng.com

Project participants

- Existing consortium:
  - Proposed coordinator: *<Ongoing discussions>*
  - Partners / Other participants: *3 partners*

- Looking for partners with the following expertise/ technology/ application field:
  - *Technology providers, both SMEs and RTOs (Robotics, automation, sensors/detection, tracing)*
  - *Practitioners (Customs control, Police Forces)*
  - *Coordinators of relevant past/ongoing EU projects*

George Pallis [T4i] – g.pallis@t4ieng.com

Interest in collaboration:

Topic	Title
HORIZON-CL3-2024-DRS-01-01	Prevention, detection, response and mitigation of chemical, biological and radiological threats to agricultural production, feed and food processing, distribution and consumption
HORIZON-CL3-2024-DRS-01-04	Hi-tech capacities for crisis response and recovery after a natural-technological (NaTech) disaster
HORIZON-CL3-2024-FCT-01-01	Mitigating new threats and adapting investigation strategies in the era of Internet of Things

For more information please contact us at:
g.pallis@t4ieng.com

H3 Dynamics RASPID project idea

- *Gontran REBOUD*
- *gontran@h3dynamics.com*
- *H3 Dynamics France*

- Role: *WP leader and technical authority*

- *Topic to be addressed:* ***HORIZON-CL3-2024-BM-01-05****:* ***Detection and tracking of illegal and trafficked goods***

- *Project Name :* ***RASPID - Robotics-Assisted Security & Protection for Illicit Detection***

Proposal idea/content

RASPID - Robotics-Assisted Security & Protection for Illicit Detection

- *The RASPID project aims to enhance customs and supply chain security, particularly in **combating drug trafficking in port areas**. This entails systematically **tracking containers to and from other ports, as well as cruise passenger luggage**.*

*The solution involves the **use of autonomous robots and drones equipped with non-intrusive sensors capable of scanning container and baggage contents**. Implemented in partnership with several ports, including the major port of Guadeloupe, RASPID targets global ports to enhance the detection of illicit goods.*

1. ***Streamlined Security Checks**: By replacing large X-ray portals that cause delays in port operations, the integration of autonomous drones and robots equipped with various sensors offers a streamlined approach to security checks. This **eliminates the need for trucks to wait for extended periods under X-ray portals**, reducing operational disruptions and enhancing the efficiency of port activities.*
2. ***Enhanced Detection Accuracy:** The **combination of various types of sensors,** including those specialized in detecting drugs, weapons, and explosive goods, significantly improves detection accuracy compared to traditional methods like X-ray scanning**. Autonomous drones and robots equipped with these sensors can conduct thorough and precise inspections of containers and port area**s, ensuring that even sophisticatedly concealed illicit substances are detected with high reliability.*
3. ***Real-time Surveillance and Response**: Autonomous drones and robots enable continuous and real-time surveillance of port activities, enhancing the **ability to detect and respond to potential threats promptly**. **With constant monitoring and immediate detection capabilities**, security personnel can take swift actions to prevent criminal activities, ensuring the safety and security of the port environment.*

REBOUD gontran@h3dynamics.com

Project participants

- Existing consortium:
  - H3 Dynamics (France) : Robotics, Drones, sensor integration
  - DLR (Germany) : Sensors and skills in drugs, weapons, and explosive materials detection : X-ray scanners, gas and vapor detection systems, radioactivity detectors, heat detection systems, and chemical signature detection systems.
  - End user : Two international ports in France freight and passengers having a sophisticated tele surveillance system as well as robots
- Looking for
  - a coordinator
  - additional partners with the following expertise
    - **AI interpretating images** from scanned cargo; interpreting data; tracking goods; and/or identifying anomalies that support the detection of threats, smuggling or illicit trade
    - detection, tracking and risk-based anticipation. trustworthy algorithms for recognition that minimize false positives and biases. image (shape) recognition and interpretation, and/or a trace detection approach
  - End users : Practitioners border surveillance organization

REBOUD gontran@h3dynamics.com

AI improved non-intrusive detection and tracking of valuable contraband (AI4trackCBAND)

- *Henrik LARSEN*
- *henrik@legind.com*
- *Legind Technologies A/S (Ltd)*
- Role: *Proposal coordinator*

- Topic to be addressed: *CL3-BM-01-05*

Proposal idea/content

- Enhanced detection and tracking of valuable goods in cargoes.
- Specific use cases: **cultural goods, art, valuables**

Central elements of the proposed solution:

- Advanced risk assessment of cargoes, using advance cargo information, plus data/information from relevant sources, including LEA databases.
- AI powered object recognition in the scanning image.
- AI powered visions-based tracking of cargo containers of different kinds

We will rely on the results of BAG-INTEL project and connected projects such as ARIEN. We are developing AI powered visions-based object reidentification and risk assessment tools in the context of airport borders.

Henrik LARSEN henrik@legind.com

Project participants

- Existing consortium:
  - Proposed coordinator: *Legind Technologies A/S*
  - Partners / Other participants (tbc): Customs, LEAs, technology providers (including software and object recognition), equipment providers (sensors, including scanners and cameras). Countries: Denmark, France, Greece, Norway, Spain.

- Looking for partners with the following expertise/ technology/ application field:
  - *Use case institutions/organisations (cultural goods, art, valuables)*
  - *Customs and LEAs*
  - *NII sensor/scanning technology*

Henrik LARSEN henrik@legind.com