

MEETING REPORT

Frontex Industry Day: Space-based Solutions for Secure Asset Management 23 November 2023

Responsible Unit:	Research and Innovation Unit (RIU)
Place of meeting:	Online Webex presentations

Background

Frontex supports European Union Member States in the development of modern technologies for the European Border and Coast Guard community. As part of its mandate, Frontex regularly meets with industry, researchers, and experts from the Member States to provide a platform for discussion and help to develop new technologies and innovations related to border control.

In this context, Frontex Industry Days (I-Days) are meetings with industry, organised to increase awareness among Frontex staff and stakeholders on the current market offer in innovative technologies and solutions applicable to border management. The I-Day on 23 November took place in an online format and covered the topic of space-based solutions for secure asset management. Frontex staff from the Research and Innovation Unit and the Information Fusion Centre attended presentations of commercial solutions by industry experts and had the opportunity to interact with them and ask questions.

Following the publication of a dedicated [announcement](#), seven (7) companies were invited to present their technological solution in the online meeting format. The objective of the call was to attract service providers offering space-based solutions for secure asset management.

Frontex is currently running large-scale operational activities at the land, sea, and air external borders of the European Union. The main objectives are to control irregular immigration movements, to tackle cross-border crime and to enhance European cooperation on coast guard functions and law enforcement activities. In this framework, the main instrument to provide technical and operational assistance to a Member State is to deploy and finance technical equipment which includes aerial, maritime and terrestrial assets. All the assets deployed in a specific operation are coordinated from a single International Coordination Centre (ICC) and multiple Local Coordination Centres (LCC). Situational awareness is a key aspect for successful coordination of those operational activities and knowing the position of the Agency's own assets is important for ICCs/LCCs because it can decisively improve our reaction capability.

In this context, Frontex is interested in satellite-based solutions for secure real-time tracking of its own land, maritime and aerial assets. The usage of satellite-based positioning system should provide availability, accuracy, continuity, integrity, robustness to spoofing and jamming, and authentication. Frontex' main interest is to exploit the usage of Galileo Public Regulated Service and Open Service Navigation Message Authentication service, as the reliability and security of the data plays a key role in the operations at the external borders. The integration of satellite communication for secure exchange of data and inclusion of RESTREINT UE/EU RESTRICTED certified solutions for embedded devices and IoT is also of interest. The meetings enabled a direct and comprehensive discussion on the solutions included in the submissions.

Industry presentations

Each industry representative was given 40 minutes to present their solution and to answer attendees' questions. The following service providers were invited to present:

SES Space and Defence (Luxembourg)

With over 70 satellites in two different orbits, SES combines a vast, intelligent network of satellite and ground infrastructure with industry-leading expertise to manage and deliver high-performance data solutions around the globe. Their technological solution, O3b mPOWER, is a high throughput, low-latency satellite communication system. It is designed to provide connectivity with high-speed (up to 10gbps per link), and low latency (150ms) globally between +50 and -50 latitude. mPOWER can provide connectivity support, as well as robust and resilient communication across Europe.

LaterationXYZ GmbH (Germany)

LaterationXYZ is a German company specialised in the field of localisation. Their proposed solution is an ad-hoc IoT sensor network that can monitor large areas and detect movement of people or vehicles using ultra-wideband technology. This type of technology is extremely secure as it is difficult to jam and disturb it. It is independent of existing infrastructure, and it can also be used as a Global Navigation Satellite System (GNSS)/ Global Positioning System (GPS) extension alternative. It can be deployed manually or via unmanned aerial vehicles. Furthermore, the proposed solution is very precise and is independent of any weather and visual conditions.

Ansur Technologies (Norway)

AnsuR Technologies' focus area is ultra-bandwidth-efficient photo and video communications. They specialise in high-definition communications at very low bitrates from the network edge. The proposed solution centres on the integration of cutting-edge high-definition, low-bandwidth geo-spatial video communication software, with computer vision technology. Their interactive communication of photo and video clips can save 99% bandwidth. This solution guarantees real-time monitoring and aims to provide an innovative approach to asset tracking and management, particularly in geospatial contexts.

Qascom (Italy)

Qascom is a high-tech provider of satellite navigation and cybersecurity solutions for space agencies and large defence industries. Qascom presented several solutions they have developed. Robust GNSS receiver for drones and satellites; Galileo OSNMA module, to be used by third parties' receivers; GNSS vulnerability assessment to understand weaknesses or flaws; GNSS jamming and spoofing for the detection of drones is under development; interference monitoring to be able to detect complex spoofing.

Blue Dot Solutions (Poland)

Blue Dot Solutions is a space sector company which specialises in earth observation and GNSS data for urban development, mobility, civilian security, and agriculture. Blue Dot Solutions works under Horizon, the European Space Agency (ESA), and commercial schemes with various partners across Europe. They presented a "multi-tool" approach to monitor GNSS signal quality and ensure an independent system measuring the quality of GNSS signal. They have been carrying out several activities to detect GNSS jamming, such as the use of algorithms to detect unusual signals, identification, and classification of potential threats.

SES TechCom (Luxembourg)

SES TechCom is a wholly owned subsidiary of SES that develops and delivers innovative and tailored end-to-end satellite-enabled solutions and services to governmental, institutional, and supranational partners and customers. SES TechCom introduced REACH, their Governmental Satellite Communication (GOVSATCOM) solution, which guarantees secure, resilient, and affordable access to government communication services for Europe. This solution relies on an adaptive platform to fit the needs of customers, providing capacity from a multi-orbit constellation. Furthermore, they presented service extensions; Pooling and Sharing Interfaces Definitions (P&S ID), a set of common standardised PSS-solution agnostic interfaces which allow interoperability between individual systems and other operators, and their MEO Satellite Capacity extension.

GMV (Spain)

GMV is the sixth largest industrial group in the space sector in the European Union. They design ground and flight systems for a wide variety of space missions that provide positioning, navigation, communication, earth observation and security services. GMV presented several devices and services. *PRESENCE2* is a full Galileo Public Regulated Service (PRS) receiver capable to navigate in GPS, Galileo Open Service and PRS. *ASGAARD* is a Galileo OSNMA receiver that covers the last Galileo Open Service Navigation Message Authentication Interface Control Document (OSNMA ICD) and is designed for maritime environment. The Secondary Channel Concept is a system to distribute keys and navigation assistance information and recover receiver positions. Lastly, a Multinetwork Secure Communication Service Orchestrator was presented, a solution to orchestrate the secure connectivity of Frontex' assets and own network to additional air and/or satellite (MEO/LEO satellites+HAP) communication services.