EUROPEAN DEFENCE AGENCY

FACT SHEET

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SPACE

Neither national nor multinational military operations are conceivable without the support of space-based systems. Space-based assets and applications are essential to navigation, communication, meteorological, geospatial and imagery services, early warning and ballistic missile interception. They are vital enablers for ensuring command and control (C2) and situational awareness through the provision of intelligence, surveillance and reconnaissance (ISR) information.

Context

When the EU Capability Development Plan (CDP) was revised in June 2018 under the auspices of EDA , Member States identified the development of **Space-based information and communication services (SBICS)** as one of the 11 European Capability Development Priorities, highlighting the growing importance of space assets and applications for defence capabilities.

The approval of the CDP set in motion the elaboration of so-called Strategic Context Cases (SCC) that will facilitate the implementation of the priorities. The SCC on SBICS is focused on four specific modules through which the Agency and its Member States want to develop the Space domain, namely:

» Satellite Communications (SatCom)

» Space Based Earth Observation (SBEO)

» Positioning, Navigation and Timing (PNT)

» Space Situational Awareness (SSA).

Satellite Communications

Under this first module, EDA's Project Team SatCom is working on a wide range of topics to increase security, interoperability and independence in SatCom for Member States and EU CSDP actors. These so-called 'Avenues of Approach' will raise more awareness of the benefits that SatCom can offer in support of military missions and operations. This will also enable further development of the ongoing EDA projects such as the EU SatCom Market and the EDA GOVSATCOM project.

The overall purpose of the EU SatCom Market project is to provide contributing Members with an effective and efficient option to commercially source SatCom services as well as wider Communication and Information Systems (CIS) through a collaborative model of pooling and sharing of the demand. EDA acts in essence as an enabler providing expertise, support and continuous monitoring of the execution of services with the end-users and the contractors. EDA purchases the services requested by the end-users through framework contracts signed with commercial service providers chosen through open public competition. The project applies a 'pay-per-use' model, so end users only pay for what they order. The project is VAT exempted.

This EDA project started in 2009 with only five Member States and a few million euros spent over the first years. Today, after a strong rise in the number of orders and contract value as well as a growing service portfolio covering both SatCom and wider CIS services, the EU SatCom Market supports 34 members, including CSDP civilian missions and the Athena Mechanism. The latter implies that all services offered are also available to all EU military operations and missions as well as the Military Planning and Conduct Capability (MPCC)

The second project under the SatCom module is the EDA GOVSATCOM project. Its main objective is to meet the SatCom needs of Member States and EU military missions and operations with regards to their higher demand for security and guarantee of access. By pooling Member States' governmental capabilities , the project provides Governmental SatCom (GOVSATCOM) services that cannot be obtained on the commercial market. The EDA GOVSATCOM project is supporting its members with governmentally controlled services. This project also uses a 'pay-per-use' model and currently supports 17 members, including the Athena Mechanism through which the project also supports all EU military operations and missions.

With this enhanced and recognised expertise in the SatCom domain, EDA also takes part in collaborative initiatives within the European Space Agency (ESA) and EU frameworks such as the ENTRUSTED research project funded under H2020. Led by the European GNSS Agency (GSA), a consortium of EU Member States and EU Agencies aims at establishing a network of governmental users and agreeing upon common user needs and requirements for secure SatCom systems in support of the upcoming EU GOVSATCOM project foreseen under the new EU Space Regulation.

Earth Observation

Under the Space Based Earth Observation module, EDA is working on the definition of military user needs and high-level user requirements on Earth-observation for the time frame 2025-2030 with a view to going beyond the already planned military satellite constellations. By the end of 2020, Member States will agree on a Common Staff Requirement (CSR) document and an associated Business Case providing three potential solutions for future SBEO activities, respectively focused on the space segment (constellations of micro, mini and small satellites to complement very high resolution governmental systems), the ground segment (multi-mission ground segments) and an EU common classified capability to improve access to governmental imagery in support of EU decision-making process and CSDP missions and operations through EU SatCen. This last workstrand includes the possible set-up of a pooling and sharing mechanism to exchange imagery among Member States and EU users. Another significant activity generated by EDA in SBEO is the REACT project (RADAR ImagEry Applications supporting ACTionable intelligence) that has delivered a practical solution in the form of a software application at Member States' Imagery Intelligence (IMINT) centres to improve the interpretation of Synthetic Aperture Radar (SAR) satellite imagery within the defence operational community. Improving the awareness of SAR data and, above all, procedures for its exploitation, will increase its usage and operational benefits. The REACT initiative foresees to create a community of users to further refine the software application, exchange views, experiences and knowledge.

Another SBEO area where EDA intends to concentrate its efforts on as of 2021 is the application of Artificial Intelligence (AI) algorithms and tools (some of which have reached a certain level of maturity) to the IMINT cycle performed at SBEO system level with the objective to increase effectiveness.

Positioning, Navigation & Timing

In May 2015, EDA's Steering Board mandated the Agency to support the development of a European Military Satellite Navigation Policy. Member States subsequently endorsed a Common Staff Target (CST) on Military Positioning, Navigation and Timing (PNT) and mandated the Agency to further develop a follow-on Common Staff Requirement and Business Case on military PNT in 2021.

When it comes to PNT on project level, the Agency has recently initiated the **GEONAW project** which has the objective to create a tool that manages PNT threats in a geospatial environment to support mission planning and operations in NAVWAR scenarios. The project is assessing the technical feasibility of adding PNT threats assessment layers/functions to the existent 'GeohuB' tool, a software application which allows for the safe and reliable sharing of geospatial information (GI) within a mission operational headquarter. The 'GeohuB' tool was created in the Geospatial Information to Support Decision Making in Operations (GISMO) project run jointly by EDA and the EU SatCen.

Moreover, in 2020, the Agency has initiated the R&T project on **Resilient PNT Testing for Defence (RIPTIDE)**, with the objective to provide Member States with a framework to cooperate, share information and resources in the field of robust PNT testing in a multinational framework for the benefit of the wider EU defence community.

Space Situational Awareness

Military Space Situational Awareness (SSA) activities focus on the production of a recognized Space picture and is composed of Space Surveillance and Tracking (SST), Space Weather (SWx) and Space Intelligence, excluding Near-Earth Objects (NEO) from its scope. In the light of growing security challenges in space, SSA is progressively becoming a fundamental pillar for the military community with growing ambition for obtaining European autonomous military capabilities for SSA. The Agency's SSA ad-hoc working group is currently working on defining the military needs for SSA.

PESCO

Ongoing PESCO projects which are related to EDA's Space activities are the EU Radio Navigation Solution (EURAS) focused on developing a PNT NAVWAR (Navigation Warfare) doctrine including Galileo capabilities, and the European Military Space Situational Awareness Network (EU-SSA-N) which aims at developing a sovereign EU military SSA capability covering all orbits in the future.

There are also PESCO projects from other capability domains that have space related elements embedded in their focus, namely: the Timely Warning and Interception with Space-based TheatER surveillance (TWISTER) project which aims to strengthen the EU ability to better detect, track and counter hyper-velocity threats; the Geospatial, METeorological and OCeanographic (GeoMETOC) Support Coordination Element (GMSCE) project which seeks to enhance geospatial, meteorological and oceanographic support for missions and operations; and the 'Strategic Command and Control (C2) System for CSDP Missions and Operations' project with a SatCom element to support the long-range communication needs.

Updated: 15 November 2021