



EUROPEAN
DEFENCE
AGENCY

ANNUAL REPORT **2021**



FOREWORD

By Jiří Šedivý,
EDA Chief Executive



At the end of 2021,
EDA managed a total of

137

joint capability and research projects
to which Member States contributed

€420 million

2021 has been a year of significant developments in the security and defence realm, both for Europe and the EU institutions in general, and for the European Defence Agency (EDA) in particular.

For Europe and its citizens, it was a year of rising threats in an increasingly fragile geo-strategic environment, from cyber-attacks or hybrid threats (including disinformation) to continuous instability and tensions along the EU's borders (Ukraine), as well as growing challenges and competition in space. This tense security situation was met with a strong political signal from the EU's leaders when, for the first time ever, security and defence became the central topic of a European Council debate in February 2021. The statements afterwards that "the EU needs to take more responsibility for its security" and that, to achieve this, Member States should "make better use of the collaborative opportunities identified in the Coordinated Annual Review on Defence (CARD) and full use of the

Permanent Structured Co-operation (PESCO) to enhance investment, readiness and collaborative capability development", were timely and provided a boost in favour of European defence cooperation from the highest political level.

Another important step in that direction was Member States' decision to launch the preparatory work for an EU Strategic Compass - whose adoption is scheduled for this spring - to provide operational guidance and concrete objectives in the areas of crisis management, resilience, capabilities, and partnerships. EDA was closely associated to the Strategic Compass process throughout 2021; we notably contributed to the cross-cutting capabilities and technology dimensions with a view to developing the full spectrum of high-end capabilities.

2021 also brought to the forefront the crucial topic of defence innovation and emerging disruptive technologies, and their decisive

role in bolstering Europe's security and defence clout. And it laid the groundwork for a new important chapter in the Agency's development: in May, EU Foreign Ministers called for reinforcing the role played by the EDA in fostering defence innovation including disruptive technologies and, to that effect, invited HR/ Head of the Agency Josep Borrell to present options for that purpose later in the year. EDA's Steering Board, composed of Member States' Defence Minister, subsequently discussed the matter at their meeting in November, based on a Food-for-Thought paper presented by the Agency. The outcome was a strong support by many Member States to set up a Hub for European Defence Innovation within the Agency to serve as a network of all existing national innovation centres around Europe. The benefit of such a Hub would be to bring together Member States' defence innovation power and establish a clear link with the EU capability development priorities, the Overarching Strategic Research Agenda and the CARD



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Jiri Sedivý,
EDA Chief Executive

recommendations, and to share best practices and lessons learned; it would also promote synergies with the industrial sector and foster an ecosystem of R&D resources, expertise, and infrastructure in defence. Even though a decision was still to be taken by Member States on this matter when I wrote this foreword (March 2022), I am optimistic that the way for the establishment of such a Defence Innovation Hub within EDA can be cleared before the end of this year.

Meanwhile, throughout 2021 and despite difficult working conditions which continued to be affected by the ongoing Covid pandemic, the Agency pursued with its core mission which is to support its Member States enhance their defence capabilities - from planning, research and standardisation to development, procurement and training. At the end of last year, EDA managed a total of 137 joint capability and research projects to which Member States contributed €420 million. In addition to that, the Agency pursued

numerous own-initiative studies and work strands financed through its operational budget. It also supported 4 PESCO projects, at the request of the Member States involved.

Moreover, the Agency played central roles in the implementation of CARD (the second cycle was kicked off with first bilateral meetings with Member States held in December) and PESCO (assessment of National Implementation Plans, evaluation of project proposals ahead of the launch of the 4th wave, support given to additional projects), supported the functioning of the European Defence Fund and ensured coherence between the different tools. EDA also took initial steps for joint investment and cooperation in the six CARD focus areas identified in the 2020 report – from main battle tank and patrol ships to countering drones, defence in space and military mobility.

The Agency continued to play its role as an interface for Member States towards wider EU policies, further

broadened its working relations with the European Commission and other EU agencies and pursued its engagement with other stakeholders and third parties. Regarding our relations with third countries, a new important chapter was opened in 2021 when the US officially expressed interest in concluding an Administrative Arrangement (AA) with EDA, and Member States approved a mandate for the Agency to start such negotiations with the US Department of Defense. Though it would be premature and inappropriate to anticipate the results of these talks which are yet to start in 2022, the mere US interest in the Agency is already testament to the growing significance of European defence cooperation.

JOINT PRIORITISATION



EDA's Capability Technology Groups kicked off the implementation of all

133
OSRA roadmaps
and continued the identification of technologies and innovations

Pursuing common capability, research and defence industrial priorities

In 2021, the Agency continued to support Member States in the areas of capability planning and prioritisation through its own prioritisation framework build around the revised Capability Development Plan (CDP), the Overarching Research Strategic Agenda (OSRA) and the Key Strategic Activities (KSA):

- Progress was made on the implementation of the 11 European Capability Development Priorities, approved in 2018, with the completion and update of the Strategic Context Cases (SCC). The Agency's Steering Board endorsed complemented SCC on Information Surveillance & Reconnaissance and Space Situational Awareness, as well as updated versions of the Ground Combat Capabilities, Enhanced Logistic

and Medical Supporting Capabilities and Air Superiority SCC. EDA was also tasked by the Steering Board to reassess the need for a new CDP revision in 2022, after the finalisation of the EU's Strategic Compass scheduled for spring of this year. In the meantime, the review of potential long-term trends affecting capability development was launched in 2021.



Informal meeting of EU Defence Ministers under Portuguese EU Presidency (Lisbon, 27-28 May 2021)

- The first full cycle of OSRA development, launched in 2018, was finalised. The resulting specific Technology Building Block (TBBs) and associated roadmaps support Member States in identifying common defence research objectives. In 2021, EDA's Capability Technology Groups ('CapTechs') kicked off the implementation of all 133 roadmaps and continued the OSRA activities for the identification of technologies and innovations. The Agency also held a series of technology foresight events focused on energy for future platforms, future warfare scenarios, and propulsion for air and space.
- 10 additional capabilities and technologies were approved by the Steering Board to be assessed by the Agency for their potential to be considered as Key Strategic Activities (KSA) in the EU's endeavour to move towards industrial non-dependence in the security and defence domain. The selected topics are all related to the European Capability Development Priorities or the defence research priorities jointly agreed at EDA.

JOINT DEFENCE PLANNING & COOPERATION

"CARD is unique because it provides an unprecedented overview by bringing together Member States' different defence plans and, also, because it offers cooperation options. We present who is going to do what and when and show the benefits for European Defence if we just work collaboratively on what Member States planned to do anyway"

Thomas Eppacher,
Project Officer CARD

Implementation of first CARD recommendations

Following the conclusion of the first CARD Report in November 2020 and the identification of six focus areas, first steps were taken by EDA in 2021 to support Member States in the implementation of the CARD conclusions and recommendations. In particular, the Agency proposed options on how to take forward the work in the six focus areas, as well as objectives for related defence spending, planning and cooperation, complemented with ideas of how EDA can support the process. Together with the Portuguese EU Presidency, the Agency co-organised a high-level seminar on how the findings and recommendations of the first CARD cycle can be best used and exploited by Member States, especially through collaborative capability development projects.

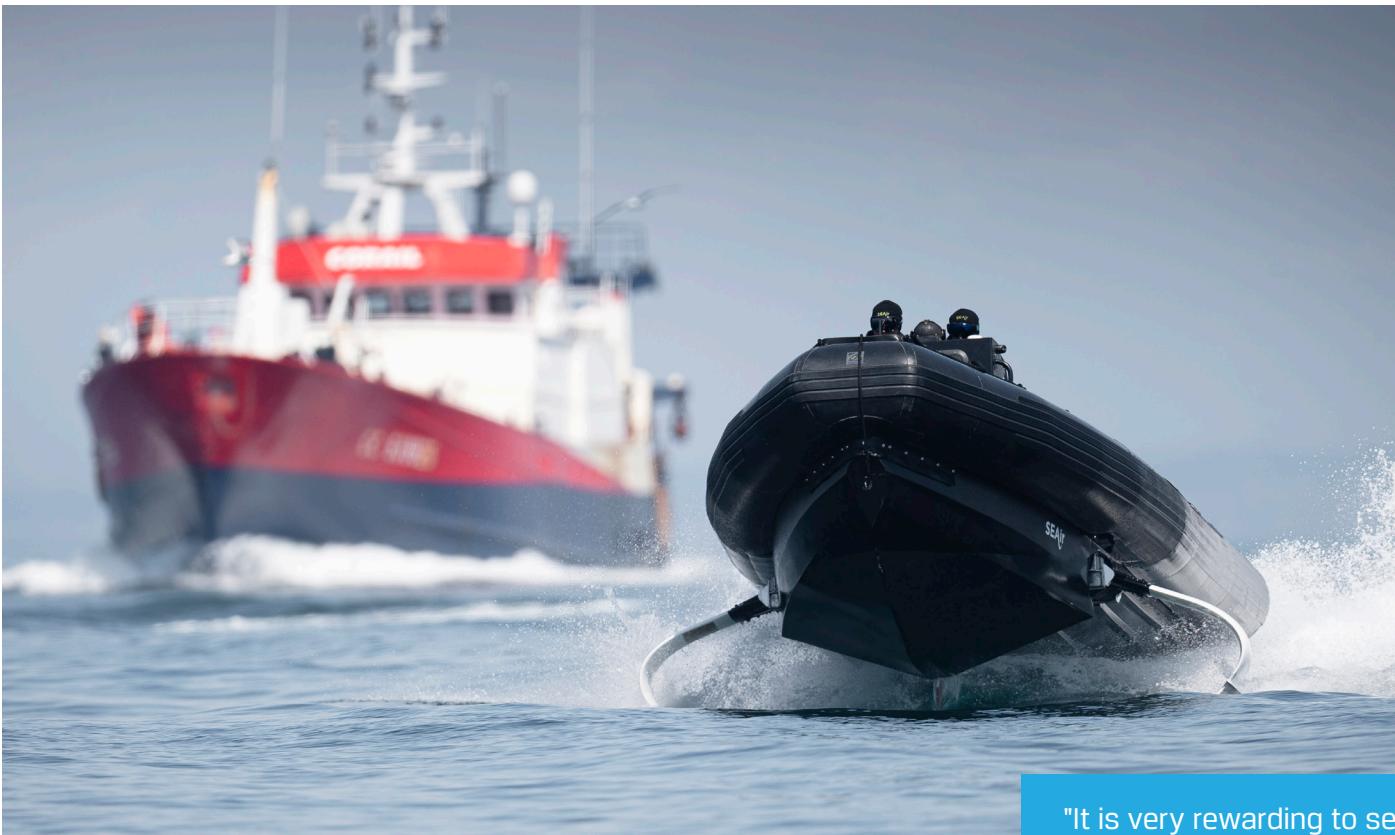
Second CARD cycle launched

In 2021, EDA prepared the second CARD cycle 2021-22 which was launched in December 2021. Aligned with NATO's Defence Planning timelines, the second CARD cycle will result in a final report to be presented to the Agency's Ministerial Steering Board in November 2022.

Taking the Permanent Structured Cooperation (PESCO) forward

As part of the PESCO secretariat, EDA contributed to the assessment of the 25 participating Member States' National Implementation Plans (NIPs). This analysis informed the High Representative's annual report on the status of PESCO implementation which provided an accurate picture as to what extent participating Member States are implementing the more binding PESCO commitments and how they take up the CARD findings and recommendations of the first CARD cycle in the context of PESCO. Furthermore, the Agency contributed to the 2021 PESCO Project Progress Report which was then submitted to the Council.

Prior to the adoption by the Council in November of the 4th wave of new PESCO projects (which saw 14 new



Supporting the European Defence Fund

projects added to the list of the 46 existing ones that have been initiated since December 2017), the Agency provided expert assessments for all new PESCO project proposals from a capability perspective.

EDA also remained involved in the implementation of some PESCO projects, upon request by the participating Member States. At the end of 2021, there were four such projects directly supported by the Agency: European Patrol Corvette (EPC), CBRN Surveillance as a Service (CBRN SaaS), Deployable Modular Underwater Intervention Capability Package (DIVEPACK), Integrated European Joint Training and Simulation Centre (EUROSIM).

In 2021, the Agency kept providing support to the European Defence Fund (EDF) whose aim is to reinforce the competitiveness of the European defence industry through financial support to defence research and development activities within the EU's 2021-2027 Multiannual Financial Framework. As an observer in the EDF Programme Committee, EDA provided its views and expertise to Member States and the Commission in preparation of the EDF 2021 work programme and the multiannual perspective. In parallel, EDA was asked by some Member States to act as a project manager for three awarded projects under the European Defence Industrial Development Programme (EDIDP), a precursor programme of the EDF.

"It is very rewarding to see that Member States continue to rely on EDA's advice and support on PESCO, be it for the technical day-to-day work, the preparation of the National Implementation Plans or for the implementation and management of the projects themselves"

Dorota Sliwa,
Project Officer PESCO

JOINT CAPABILITY DEVELOPMENT

Air Combat Training

EDA supported participating Member States in the development of a European Air Combat Training capability, with a view to optimising the use of operational fighter aircraft flight time in hostile air combat situations. In 2021, the initial focus has been on the provision of a practice enemy (red air capability). To this end, EDA harmonised the requirements between interested participating Member States and developed a business case comparing a commercial solution with an organic multinational aggressor unit.

Protection against airborne threats

To boost cooperation in the important Anti-Access/Area-Denial (A2/AD) domain, identified in the 2020 CARD report as one of the focus areas for collaborative capability development, the Agency set up a working group under the remit of the EDA Project Team Air Superiority to support Member States' efforts to develop joint projects. The Agency also pursued the development of a toolbox of countering unmanned aerial systems (C-UAS) capabilities. Workshops in this domain led to the sharing of operational requirements, opening the door for collaborative opportunities.

Air mobility

As part of EDA's Cross Border Movement Permission (CBMP) programme in the framework of its military mobility work strand, a Technical Arrangement was developed in 2021 to cover the movements of fighter aircraft, rotary wing and other specialised platforms, considering the different mission types and platform/cargo configurations, such as live armament and dangerous goods. The Agency also supported Member States in their efforts to exploit air-related cooperation opportunities in the wider 'Enhanced Military Mobility' domain which was identified in the 2020 CARD report as a focus area for European collaborations. Building on an EDA study on the current and future European airlift requirements as well as on the outcome of an airlift workshop with industry, a dedicated work strand was initiated at the Agency to pave the way for cooperation towards a European outsized cargo strategic transport capability.



RPAS Air Traffic Integration in Single European Sky

Throughout 2021, EDA continued its support to the full integration of Medium Altitude Long Endurance Remotely Piloted Aircraft System (MALE RPAS) into European airspace by 2030. To that end, the Agency pursued its close collaboration with civil and military stakeholders, particularly supporting the European MALE RPAS programme at OCCAR-EA. It also remained active in research and development (R&D) and standardisation activities to ensure the availability of the required technology for a full and seamless integration of new RPAS platforms into the European airspace in the medium term. All EDA R&D projects in this domain contribute to the standardisation activities at the European Organisation for Civil Aviation Equipment (EUROCAE) which will enable both civil and military aviation authorities to rely on recognised international standards in their future RPAS certification and operational approval processes.

European Strategic Tanker Capability

The Multinational Multirole Tanker and Transport Fleet (MMF), a project initiated and supported by EDA, grew further in 2021 when three additional Airbus A330 Multi-Role Tanker Transport (MRTT) aircraft were delivered to the fleet's main operating base in Eindhoven which, at the end of the year, counted five of them. The MMF contributes to closing the significant air-to-air refuelling capability gap in Europe.

Personnel Recovery

EDA's prototype Tactical Personnel Recovery Mission Simulator (TPRMS), on which work began in 2019, was inaugurated in November 2021 in Italy. The new simulator marks a significant achievement for the European Personnel Recovery (PR) community as no such capability currently exists within Europe. The simulator uses Virtual Reality technology and simulation-based software allowing it to quickly and easily create customisable and highly realistic operational environments which allows PR teams to rehearse tactics, techniques and procedures in a risk-free environment. The project is a first step towards the creation of a European common approach in training joint PR forces through simulation.

Furthermore, EDA's Joint Personnel Recovery Education and Training Courses (JPR-ETC) continued to offer training opportunities to all participating Member States for training their military staff as PR specialists.

"The arrangement for Cross Border Movement Permission of air assets and dangerous goods cargo accelerates the projection of European fire-power, airborne support and logistics in an unprecedented way. When, like in this case, procedures and timelines are harmonised and permissions mutually granted, then we can whole-heartedly speak of true cooperation!"

Gerd Schwiedessen,
Project Officer Aviation



Ground combat capabilities

In the 2020 CARD report, the Main Battle Tank and Soldier Systems were identified as two land-related Focus Areas in which Member States have declared interest to intensify cooperation. To further support the development of the ground combat capabilities, EDA's Steering Board agreed in April 2021 to establish a dedicated Project Team on Ground Combat Capabilities. In 2021, the Agency also successfully accomplished the Joint Procurement Arrangement concerning procurement of Carl Gustaf anti-tank munition which allowed the five contributing Member States (Estonia, Latvia, Lithuania, Czech Republic and Poland) to commonly procure ammunition worth more than €30 million. EDA's Steering Board also approved the launch of the new capability ad-hoc project on Multinational Anti-Tank Training.

Countering Improvised Explosive Devices (C-IED)

In 2021, the Agency extended a key C-IED project: the Joint Deployable Exploitation and Analysis Laboratory (JDEAL) project which delivers a critical laboratorial capability in support of technical exploitation, bringing battlefield evidence into intelligence. Also, in line with this effort, EDA has launched the new project Technical Exploitation in the Maritime Environment (TEXMAR), which aims at closing the identified gap on weapons technical intelligence collection in ships, ports and harbours. Preparations for the extension of the European Centre for Manual Neutralisation Capabilities (ECMAN) project, which develops the manual neutralisation capabilities necessary to safely neutralise complex IED, including those with chemical, biological, radiological and nuclear defence (CBRN) payload, were also initiated.

Furthermore, in 2021, the Agency actively supported the organisation of the multinational C-IED Exercise 'Bison Counter2021' hosted by Italy in Sardinia. Work was also finalised

in view of launching, in 2022, a new Bison Counter C-IED Exercises Capability Building (BC-EX), project at EDA which foresees at least three additional 'Bison Counter' exercises in 2023, 2025 and 2027. The project, supported so far by 13 Member States, will also establish a permanent expert team in charge of the planning of the exercises and its subsidiary activities.

Medical support

Over the past two years, COVID-19 has demonstrated the importance of EU military forces and their ability to implement flexible response plans. It is to this end that Member States and EDA have further strengthened medical capabilities to ensure assistance and support. In 2021, the Agency signed the Multinational Medical Evacuation Training (MN MEDEVAC Trg) project arrangement which will not only enhance



"Besides the inauguration of EDA's Tactical Personnel Recovery Mission Simulator, which was a highlight of 2021, we were also able to organise multinational Joint Personnel Recovery courses hosted by Germany, Hungary and Sweden, allowing us to significantly increase the availability of EU military staff trained as Personnel Recovery experts for CSDP missions and operations"

Constantin Ciocirlan,
Project Officer Land Programmes

European Patrol Corvette

interoperability amongst Member States, but also improve their readiness to provide medical support within multinational missions.

Moreover, the Multinational Modular Medical Unit (M3U) sought to further expand its scope and launched the Project Management Group Medical Treatment Facilities (PMG – MTF) to develop assets in the form of pre-identified medical modules for multinational engagements. This collaborative development seeks rapid and flexible integration while enhancing interoperability and EU medical capabilities among Member States.

Maritime Surveillance (MARSUR)

The Maritime Surveillance (MARSUR) network managed by the Agency was used in the first pilot phase of the new Coordinated Maritime

Presences (CMP) concept in the Gulf of Guinea, off the coast of West Africa, which was launched in January 2021 to support the EU's African partners in tackling piracy and criminal activity at sea. In this context, EDA (on behalf of the MARSUR contributing members) and the European External Action Service (EEAS) signed a bilateral arrangement on the provision of MARSUR services to the EEAS and the EU Military Staff (EUMS). The arrangement defines the terms and conditions under which EEAS is granted exceptional access to the MARSUR Network, MARSUR Technology, and related services in the scope of the pilot case of the CMP concept. In the meantime, EDA and MARSUR contributing members are working to further develop the capabilities of the system, including exchange of classified information. Progress was also made also in connecting MARSUR with the cross-sectorial EU Common Information Sharing Environment (CISE). Operational aspects for information sharing between the two networks will be further defined in 2022.

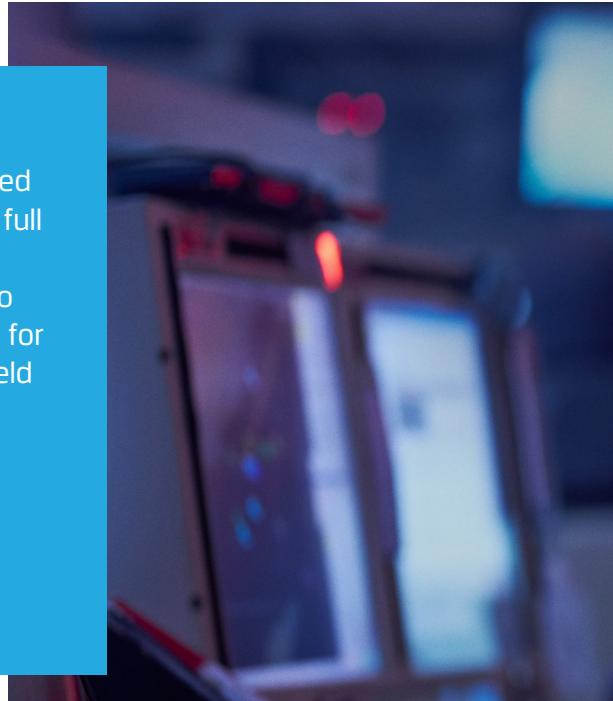
As part of the Agency's support to the PESCO project 'European Patrol Corvette' (EPC), following a request by the Member States participating in it (Italy, France, Spain, Greece), a high-level requirements document and the first draft of the Common Staff Target for the project were developed in 2021.

Improving Europe's military diving assets

EDA continued to support the PESCO project 'Deployable Modular Underwater Intervention Capability Package' (DIVEPACK) at the request of the countries participating in it (Bulgaria, France, Greece, Romania) and pursued its work on improving the interoperability among multinational diving teams. To continue and further structure this work, an EU Community of Diving Experts (EU CODE) was established as an EDA working group to develop additional work strands related to diving capabilities.

"The Bison Counter 21 exercise in Sardinia, which allowed to train and integrate all C-IED actors and enablers in a full and realistic operational cycle, was a unique display of strength and commitment from the C-IED community to increase its responsiveness and operational readiness for EU crisis management operations. This multinational field exercise series is set to become the largest and most relevant C-IED exercise among the EU and its western allies."

Pedro Basto,
Project Officer Counter-IED



Space

In the 2020 CARD report, Defence in Space was identified as a Focus Area where Member States were recommended to follow a collaborative European approach to improve access to space services and protect space-based assets. Since then, several Member States have declared their interest in this Focus Area and both France and Spain have declared willingness to act together as Area facilitators. In January 2021, a Memorandum of Intent was signed with the European Space Agency (ESA) on Next Generation Secure Satellite Communications (SatCom) to foster the good cooperation between the two Agencies. EDA also updated the EU defence user requirements for SatCom and launched an awareness campaign to better explain the benefits of SatCom for defence stakeholders. The Agency continued to support the European Commission in its efforts to establish the EU GovSatCom project.

Common staff requirements for Space-Based Earth Observation (SBEO) were endorsed in March 2021 identifying potential options to increase collection capabilities, manage multi-mission systems and share imagery to enhance support to CFSP/CSDP. Moreover, through the Radar ImagEry Applications supporting aCTIONable intelligence (REACT) project and supported by the European Union Satellite Centre (EU Satcen), EDA pursued the development of tools to assist imagery intelligence analysts to effectively improve the exploitation of synthetic aperture radar imagery for military operations. A new common endeavour (MATRIX project) was launched with EU SatCen to exploit Artificial Intelligence technologies in the context of complex Imagery Intelligence purposes. In the domain of Positioning, Navigation and Timing (PNT), EDA made progress on the development of a planning support tool for Navigation Warfare (GEONAV) operations.

A working group on Space Situational Awareness (SSA) was launched in 2021, to foster cooperation through the identification of existing operational gaps and common requirements in Europe. Furthermore, a dedicated study initiative was prepared to support the defence community in the framework of the activities for a European approach to Space Traffic Management.

The Agency also continued to facilitate the coordination and harmonisation of Member States' views and positions towards EU space programmes.



"In 2021 we set the basis to establish a network of EU Military Computer Emergency Response Teams (CERTs) and adapt in a way to provide valuable training and exercises"

David Lopes Antunes,
Project Officer Cyber Defence

Cyber Defence

EDA held the first ever EU 'MilCERT Interoperability Conference' to foster cooperation and information-sharing among Member States' military Computer Emergency Response Teams (MilCERT). It also developed a risk management model for military leaders with respect to cybersecurity risks posed to military capabilities by the supply chain, including a web-based dashboard to improve situational awareness, a first demonstrator of which was presented in October 2021.

Since December 2021, EDA is also acting as project manager of the European Cyber Situation Awareness Platform (ECYSAP), one of the projects selected under the EDIDP 2019 call. Its main objective is to develop and implement a European operational platform for enabling real-time Cyber Situational Awareness with rapid response defensive capabilities and decision-making support for military end-users.

Furthermore, the Agency launched a study with a roadmap for the implementation of an autonomous bot able to mimic the behaviour of a Red Team during a cyber training on a cyber range. It also updated the system engineering framework for cyber defence operations (CyDRE).

Under its Cyber Education, Training & Exercises programme, EDA developed as proof-of-concept a second iteration of the Cyber Operational Planning Exercise, Cyber PHALANX, which was held in September in Lisbon. A new 'Cyber Awareness Train-the-Trainer' pilot course was conducted in Germany.

Communications and Information Systems

Since late 2021, EDA is acting as project manager of the European Command and Control System from strategic to tactical level (ESC2) project selected under the 2019 call of the EDIDP. It will provide a multi-level suite of command-and-control tools designed to support decision-making, planning, and conduct of CSDP missions and operations from the strategic to the operational level, with points of presence at the tactical level.

Moreover, jointly with EU SatCen, EDA is promoting the use and supporting the implementation of the Geospatial Information Hub (GeohuB) to support decision-making at the EU Operational Headquarters (OHQ) and at national level. In 2021, GeohuB was successfully deployed at the EU OHQ in Spain.

JOINT RESEARCH & TECHNOLOGY (R&T) AND INNOVATION

"Innovation is in the Agency's DNA. Member States recognised the importance of our efforts in this domain and called in 2021 for a further strengthening of EDA's role. As the Head of Agency, Josep Borrell, said at our annual conference: 'Defence innovation or defence irrelevance!'. We will keep on working to ensure our Member States will not face defence irrelevance."

Federica Valente,

Research, Technology and Innovation Coordinator

Capability and Technology Groups (CapTechs)

Throughout 2021, Member States continued to bring additional ad hoc R&T projects into EDA, taking benefit of the Agency's expertise and incentives. New projects were launched and taken forward in key areas such as Artificial Intelligence, land systems, robotics and automation, innovative materials, or electronic components. In late 2021, there were 46 new R&T projects under negotiation. The new projects will further add to the EDA's existing R&T portfolio of around 40 ongoing ad hoc R&T projects, representing an overall value of some €233 million. Dual-use synergies were pursued on a systematic basis with the contribution of European Commission services.

Emerging disruptive technologies

EDA is involved in several projects focusing on Emerging Disruptive Technologies (EDT) such as Artificial Intelligence (AI), big data, quantum technology, robotics, autonomous systems, new advanced materials, blockchain, hypersonic weapons systems and biotechnologies applied to human enhancements, etc. which are all expected to have a disruptive impact on defence and revolutionise future military capabilities, strategy, and operations. The Agency has developed a Capability-Driven Emerging Disruptive Technologies Action Plan to monitor the EDT landscape and identify collaborative opportunities. Furthermore, it has started in 2021 the preparation of Action Plans on transversal areas such as Autonomous Systems

and dedicated Strategic Research Agendas on Energy and Space. They will allow over time to develop cross-cutting technologies in a more integrated perspective. Additionally, new feasibility studies and community building activities started in 2021 in quantum sensing, hypervelocity systems and metamaterials.



Artificial Intelligence

In 2021, EDA started the implementation of the individual actions foreseen in the EDA Artificial Intelligence Action Plan (adopted end of 2020) with the identification of high-level strategic technology building blocks and the preparation of three projects on defence data pools, trusted AI for defence and the validation and verification of AI-enabled defence applications. Additionally, the Agency's CapTechs continued developing collaborative AI-based projects and technology building block (TBB) roadmaps to further stimulate the application of AI in future defence activities.

Defence innovation

To nourish and inform the debate at its Ministerial Steering Board meeting in November 2021, the Agency prepared a food for thought paper on defence innovation, including initial scenarios to gather participating Member States' further guidance on a reinforced role for EDA in this domain. Among the scenarios proposed in the paper is also that of establishing a Defence Innovation Hub within the Agency. The benefit of such a Hub would be to bring together Member States' defence innovation power and establish a clear link with the EU capability development priorities, the OSRA and the CARD recommendations, and to share best practices and lessons learned. It would also promote synergies with the industrial sector and foster

an ecosystem of R&D resources, expertise, and infrastructure in defence. A decision by Member States on the creation of the Hub is expected in 2022.

"2021 has been yet another strong year for the R&T ad hoc portfolio with more Member States using the Agency's framework. We clearly see the positive effect of the OSRA Technology Building Block roadmaps supporting project preparation, synergies, and transparency of priorities."

Moritz Haller,
Research, Technology and Innovation
Coordinator

EDA Defence Innovation Prize

The 2021 edition of the 'EDA Defence Innovation Prize' contest - which since 2018 rewards companies and research entities who come up with innovative and ground-breaking technologies, products, processes, or services applicable in the defence domain - was devoted to innovative solutions and technologies related to Human-Machine Interfaces enabling Human-Machine-Teaming for Defence. Due to the excellent quality of the proposals, two winning projects were announced in November. The first is called ASTARTES (Air Superiority Tactical Assistance Real-Time Execution System) and was proposed by Design AI, a German deep tech

start-up specialised in Artificial Intelligence. The second winning project is called COMBI (Bidirectional Communicator) and was proposed by Thales, a global high technology company active, among others, in digital and "deep tech" innovations.

Preparatory Action for Defence Research (PADR)

EDA continued in 2021 to implement the PADR under the Delegation Agreement signed with the European Commission. Following the launch of the last three calls in March 2019, seven projects started in 2021: five projects were related to (emerging) disruptive defence technologies, one dealt with interoperability standards for unmanned armed forces systems, and one was focused on European active electronically scanned array with combined radar, communications and electronic warfare functions for military applications. 2021 saw the successful completion of OCEAN2020, the largest PADR project launched in 2018.



7

new Preparatory Action for Defence Research (PADR) projects were launched in 2021 of which

5

were related to Emerging Disruptive Technologies

COOPERATION ENABLERS & INCENTIVES



By the end of 2021, the total number of satellite communication orders delivered through EDA's EU Satcom Market since the start of the project in 2012 was close to

500

"Member States' efforts, supported by EDA, to improve Military Mobility delivered tangible results in 2021. The remaining and future challenges related to this key enabling capability will require continued focus, a need to be proactive and think in a holistic manner."

Apostolia Gkoulioni,
Project Officer Military Mobility

Military Mobility

Throughout 2021, the Agency supported the implementation of the EU Action Plan on Military Mobility, notably to foster the harmonisation of national procedures to enable, facilitate, and improve military mobility across Europe, in close coordination with the European External Action Service (EEAS), including the EU Military Staff (EUMS) and the Commission. In particular, 25 Member States (as well as Norway) developed two Technical Arrangements to optimise cross-border movement permission procedures, including to provide adequate and effective solutions for the transport of dangerous goods in the military domain. These Arrangements, one for the surface and one for the air domain, have been signed in November 2021 and will enable Member States to meet the politically agreed requirement of granting permissions within five working days. Under the 'Harmonising Military Requirements Related to Customs' programme, Member

States developed a so-called EU form 302, to be used for customs declarations purposes. In May 2021, a programme arrangement was signed by 23 Member States and Norway, to facilitate customs procedures by digitalising the data of the EU form 302.

Under the framework of the EU-NATO Joint Declaration, coordination continued to take place with relevant NATO entities, including in the framework of the staff-level structured dialogue.

Support to missions and operations

Under the AIRMEDEVAC project, which provides participating Member States (currently Austria, Belgium, Czech Republic, Germany and the Netherlands) with efficient and cost-effective commercial options for

in-theatre aeromedical evacuation services, an additional contract was activated in January 2021 for fixed-wing tactical aeromedical evacuation support of German presence in the Sahel region. At the end of 2021, EDA had two aeromedical evacuation contracts for fixed wing air assets ongoing, one for Germany and one for Belgium.

In 2021, the Agency also handled a significant number of additional orders under its EU SatCom Market project which provides Member States with options to source commercially available SatCom and Communication & Information Services (CIS). By the end of the year, the total number of orders delivered since the start of the project in 2012 was close to 500. During the summer, EDA also provided urgent operational support to a contributing Member State for the evacuation of civilians from Afghanistan, only 7 hours after the request was made.



In 2021, the Agency also provided an increased number of secure and guaranteed governmental controlled GOVSATCOM services to its Members States through EDA's GOVSATCOM Pooling and Sharing Demonstration (GSC).

EDA's JI Functional Area Service (JIFAS), a specialist software tool aimed at facilitating and supporting the management of human resources in national and international military missions, was deployed to two additional EU CSDP operations: the European Union Naval Force Mediterranean Operation IRINI (EUNAVFOR MED IRINI) and counter-piracy military operation ATALANTA at sea off the Horn of Africa.

The Agency's Smart Camps Technology Demonstrator, based at EU Training Mission Mali to test the implementation of an intelligent power management system (energy demand management, renewable production, and storage), was

transferred to the EU's Military Planning and Conduct Capability (MPCC).

EDA, together with MARSUR contributing Member States, prepared the ground for an enhanced usage of its maritime surveillance programme in CSDP operations. To this end, it is planned that the existing MARSUR capabilities will be demonstrated to EUNAVFOR MED IRINI and EUNAVFOR ATALANTA in 2022.

Standardisation

In July 2021, the Agency presented to Member States the results of its study on the functioning and efficiency of the European Defence Standards Reference System (EDSTAR), a web platform set up by EDA in 2011 to offer guidance to governments and the defence industry on existing standards

and harmonised specifications to optimise effectiveness and interoperability. The study results, currently under assessment by Member States, will serve as a basis for deciding on the way ahead in European defence standardisation.

In the air domain, substantial progress was made on the implementation of the new Airworthiness Roadmap adopted in 2018, as well as on the update of the European Military Airworthiness Requirements (EMARs). The first EMAR implementation guides were published by the Military Airworthiness Authorities (MAWA) to support Member States with national implementation. In addition, an EMAR Training Programme was agreed by participating Member States with the first EMAR Training courses to be delivered in 2022.

Training and Exercises

In the air domain, the fixed wing related Transport Pilot Training Capacity programme was completed, and the European Undergraduate Military Transport Pilot Training programme endorsed by several participating Member States. Furthermore, 16 participating Member States signed the common Technical Arrangement regarding air transport training and exercises which allows those countries to take part in training and exercises without concluding each time specific arrangements, as it was the case in the past. The common European C-27J type training programme was finalised, making it the first common training agreed between European countries operating the same air platform. Finally, a new initiative aimed at standardising common fixed wing tactical MEDEVAC procedures and enhance interoperability within C-295 aircraft operators is ongoing.

The Agency's Multinational Helicopter Training Centre (MHTC) programme

reached a significant milestone with the harmonisation of the MHTC Technical Arrangement, which was signed by 13 participating Member States and Serbia. Despite Covid-19 restrictions, EDA managed to deliver a series of helicopter trainings and exercises in 2021 including 'Hot Blade 2021', the 15th multinational helicopter exercise held under EDA's Helicopter Exercise Programme (HEP) in Portugal. The Agency also organised three Helicopter Tactics Courses (HTC), two Electronic Warfare (EW) courses and two Composite Air Operations (COMAO) courses, all delivered in the new EDA Helicopter Training Centre located in Sintra (Portugal), where simulator facilities were officially inaugurated in May 2021. EDA also resumed its Helicopter Tactics Instructor's Course (HTIC) following the relocation of its flying phase from Sweden to Hungary. It also managed the delivery of the 12th Helicopter Tactics Symposium, performed in the Czech Republic.

VAT exemption

Several new projects and programmes incorporating the provisions relating to VAT exemption were concluded in 2021, bringing the total value of collaborative EDA projects benefitting from this incentive to over €179 million. At the end of 2021, the total financial benefit generated by this VAT exemption for EDA Member States had reached €35,8 million (based on the signed contract values).



INTERFACE TOWARDS WIDER EU POLICIES

"In 2021 EDA supported the first ever cross-border flight of a Medium Altitude Long Endurance RPAS in non-segregated European airspace. It's great to be part of a team that paves the way for a safe and secure RPAS integration in the European airspace through a win-win approach: more flexibility for the military, less impact on civil air traffic."

Nathalie Hasevoets,
Project Officer UAS Certification &
ATM Research

Air Traffic Integration

EDA remained actively engaged as the military interface to facilitate the coordination between Member States' Ministries of Defence and the EU's Single European Sky (SES) programme, including on Air Traffic Integration of Remotely Piloted Air Systems (RPAS). The Agency continued in 2021 to ensure that common requirements expressed by the military community are incorporated in the framework of all future SES developments.

Regarding RPAS, EDA was active in the regulatory domain and on technical enablers to facilitate the integration of MALE type RPAS in non-segregated airspace as of 2025. It continued to lead several stakeholder groups on airspace integration and airworthiness and supported the European MALE programme in this domain. The

Agency carried out work to mitigate the implications of the growing number of small drone flights on military activities. In this context, it launched a new study to assess the current framework and prospects of Europe's so-called 'U-Space', which is the airspace for large numbers of Unmanned Aircraft Systems (UAS), with a view to facilitating a smooth and effective coexistence of civil and military operators into it.

Maritime Security

EDA continued its contribution to the implementation of the EU Maritime Security Strategy Action Plan, in complementarity with the EEAS and the Commission and in cooperation with the relevant EU agencies: the European Maritime Safety Agency,

the European Fisheries Control Agency and the European Border and Coast Guard Agency (Frontex).

In addition, EDA continued to be an active participant in the stakeholders group of the EU Common Information Sharing Environment (CISE), ensuring proper linkage and representation of the "military layer" of this cross-sectorial initiative.

Cyber

In 2021, EDA pursued the implementation of the quadrilateral cooperation established with the EU agencies working in the cyber domain - the European Union Agency for Cybersecurity (ENISA), the European Union Agency for Law Enforcement Cooperation (Europol) and the Computer



Energy & Environment

Emergency Response Team for the EU Institutions, Bodies and Agencies (CERT-EU) - as well as with the Hybrid Centre of Excellence (CoE). Together with the Hybrid CoE and the European Security and Defence College (ESDC), EDA developed a new cyber/hybrid pilot course aimed at educating military and civilian operations planners on cyber threats in a hybrid environment. It also contributed to the upcoming review of the EU's Cyber Defence Policy Framework and organised the EU MilCERT Interoperability Conference 2021 which focused on improving European cooperation between Member States' national Military Computer Emergency Response Teams (MilCERTs). Together with Portugal, EDA co-organised the Cyber Phalanx 2021, a combined course and exercise for operations planners.

EDA and the European Commission continued the implementing the third phase of the Consultation Forum for Sustainable Energy in the Defence and Security Sector (CF SEDSS III). Building on the Forum's output, the Commission and EDA worked on setting up a joint action to identify and address barriers for offshore renewable energy developments in areas reserved for defence activities. This project is expected to start in spring 2022.

In October 2021, the Agency also launched the Incubation Forum for Circular Economy in European Defence (IF CEED) with the support of the Commission's EU LIFE programme and co-funding from Luxembourg. The Forum will address topics such as critical raw materials, additive manufacturing, materials

for textiles, sustainable eco-design, as well as specific aspects under the waste framework directive, the Eco-Management and Audit Scheme (EMAS) uptake strategy, green procurement, circular data, and spare parts management.

EDA pursued its work on helping Member States to mitigate the impact of the EU's regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) on the military. A study carried out in 2021 found that in addition to the well-known REACH regulations, at least six other pieces of European chemicals and waste-related legislation have the potential to impact the defence sector and, therefore, need to be closely monitored.

"The Incubation Forum for Circular Economy in European Defence (IF CEED) started actions in 2021 to implement circularity principles in defence to help the sector incubate collaborative projects and mitigate its environmental footprint. The forum thereby contributes to the EU's Climate Change and Defence Roadmap and to the EU Green Deal goals."

Elena Garbarino,
Project Officer Circular Economy

Engagement with industry

EDA continued its work to improve information sharing with industry, encourage the creation of cross-border partnerships (for example, through the 'EDA B2B Platform'), and support the defence industry in benefiting from available EU funding tools. Currently, there are about 500 users in the B2B Platform from industry, research and technology organisations (RTOs), and academia. EDA's 'Identifunding' online tool, which allows to quickly match any defence-related project or entity with eligible funding from about 20 EU opportunities, was used by some 360 defence stakeholders from all Member States, of which 70% were from industry. The tool is constantly updated to include the funding opportunities under the EU's Multiannual Financial Framework 2021- 2027, such as the European

Defence Fund and Horizon Europe, as well as the InvestEU Programme.

EDA was also associated to the European Commission's action plan on synergies between civil, defence and space industries launched in February 2021, to ensure awareness of the Agency's activities and to avoid duplication. This framework will enable further civil-military synergies for the benefit of Member States.



PARTNERS

Relations with Third States

In 2021, the Agency has extensively worked on a review of the involvement of third countries with an existing Administrative Arrangement (AAs) in EDA activities and projects. To date, the Agency has AAs in place with four countries (Norway, Switzerland, Ukraine, and Serbia) and two international organisations (OCCAR and the European Space Agency).

A better structured framework for cooperation was developed which also included the revision of the 2017 principles governing relations between EDA and third parties. The goal is to establish a regular review mechanism, probably taking place on a yearly basis, which will provide participating Member States with greater oversight over third parties' involvement.

Administrative Arrangement countries

In the meantime, EDA further developed its relations with the four AA countries.

Norway remained the most involved of them with cooperation extending to all four areas and over 30 work strands in which it is involved. Research & Technology is the area where cooperation with Norway is the deepest.

Switzerland's involvement in EDA continued to be mainly focused on Research & Technology, even though cooperation also developed in other areas, notably cyber and helicopter training.

Whereas **Ukraine** was regularly involved in EDA's standardisation and logistics activities, the scope of cooperation with **Serbia** continued to be limited (helicopter training, standardisation, interest expressed in C-IED exercises).

Even though **Denmark** is neither a member nor linked to the Agency through an AA, it was in 2021 associated to discussions within EDA directly related to wider EU policies and regulations, and activities for which funding from the EU budget is envisaged (PADR, EDIDP/EDF, SES, Military Mobility, Energy Consultation Forum, REACH). The Agency also worked to ensure that Denmark may benefit from the use of MARSUR maritime surveillance in the pilot case of the Coordinated Maritime Presences in the Gulf of Guinea.



US request for an Administrative Arrangement with EDA

Following the EU-US summit statement of June 2021 in which both sides committed "to work towards an Administrative Arrangement for the United States with the European Defence Agency, with discussions, including on modalities and conditions for a closer and mutually beneficial cooperation in this framework, beginning as soon as possible", EDA supported its Member States in preparing the talks. In particular, the Agency prepared a common negotiation mandate setting the conditions and modalities for a mutually beneficial cooperation with the US. In November 2021, EDA's Ministerial Steering Board approved the mandate for EDA to start negotiations with the US Department of Defence on the conclusion of such an Administrative Arrangement. The exact scope and modalities of the AA will be defined during the talks which are expected to start in 2022.

NATO

In 2021, the Agency's close cooperation with NATO focused on the implementation of 30 out of the 74 common set of proposals retained in the framework of the Joint Declaration on EU-NATO cooperation, ensuring coherence of output and timelines between relevant EU and NATO defence planning processes, and other areas such as military mobility, cyber, hybrid, air-to-air refuelling, military aviation, and standardisation. The Agency also supported Member States in ensuring that there is no unnecessary duplication between PESCO projects and activities undertaken in other frameworks. EDA maintained informal contacts on selected topics of mutual interest with the United States (military mobility, REACH) and with Canada (military mobility). EDA participated in Exercise 'Locked Shields 2021', the largest and most complex

international live-fire cyber defence exercise organised in April by the NATO Cooperative Cyber Defence Centre of Excellence (CCDCOE), while NATO was invited to observe EDA's Cyber Phalanx Exercise in September. EDA also continued to contribute to the EU-NATO Structured Dialogue on Military Mobility. Both organisations also held an informal staff-to-staff workshop on counterterrorism and capability development. Furthermore, EDA continued to take part, together with the EU Military Staff, in 7 out of 8 activities of the Multinational Capability Development Campaign (MCDC), a multinational framework supported by NATO.

European Space Agency

EDA's cooperation with the European Space Agency (ESA), based on the Administrative Arrangement signed in 2011, was focused on the Implementing Arrangements related to Governmental Satellite Communications (GOVSATCOM), Cyber Defence for Space, Earth Observation (EO), Unmanned Maritime Systems (UMS), CBRNe and guidance, navigation and control (GNC). In addition, a Memorandum of Intent was signed in February 2021 with the aim to broaden up the existing ESA/EDA cooperation and further substantiate joint efforts on GOVSATCOM. In October 2021, EDA exchanged letters with ESA on expanding the Cyber Resilience Cooperation.

OCCAR

Bilateral cooperation with OCCAR continued in the frame of the Administrative Arrangement signed in 2012, with a particular focus on the Multinational Multi Role Tanker Transport Fleet (MMF), the European MALE RPAS programmes, the European Secure Software Defined Radio (ESSOR), standardisation, REACH and Military Airworthiness.

Other Partners

The cooperation with other partners such as the European Aviation Safety Agency (EASA), Eurocontrol, the Single European Sky Air Traffic Research Joint Undertaking (SESAR JU), the SESAR Deployment Alliance, the European Air Transport Command (EATC), EU SatCen and the European Security and Defence College (ESDC) continued in their respective areas of activities. Eurocontrol and EDA signed an agreement updating their complementary activities in support of the military in the context of the Single European Sky and Single European Sky Air Traffic Research (SESAR).



IN-HOUSE

"The Agency's interaction with Member States, EU institutions and industry requires the handling and exchange of EU Classified Information. Therefore, a modern, scalable, and secure IT infrastructure accredited to handle the highest classification levels and designed to preserve confidentiality, integrity and availability of the information is currently being built at EDA. We expect completion of the first phase in 2022, paving the way for future developments."

Vicente Pastor,
Chief Information Security Officer (CISO)

EU Classified information (EUCI)

EDA focused a lot of its efforts on the electronic handling of EU classified and sensitive information and to improve information security in general. The task to improve EDA's ability to handle classified information came from Steering Board conclusions in 2018 and 2019 and from the Council guidelines for EDA's Work 2020, all focusing on the need for the Agency to step up its ability to exchange EUCI with Member States and other EU stakeholders through electronic communication networks. Overall, the EUCI projects have evolved significantly in 2021, despite the difficulties related to the Covid pandemic. Work is on-going to build two separate networks, one accredited to handle classified information up to SECRET UE/EU SECRET and the other up to RESTRIENT UE/EU RESTRICTED. A new position of Chief Information Security Officer (CISO) was established in 2021 to lead the transformation of the organisation in all areas related to information security.

Information management

Throughout 2021, the Agency carried out significant work to improve its information management in support of Member States. It worked towards a centralised platform for Agency-supported defence initiatives, the so-called EU Collaboration in Defence (EUCLID) platform. This platform aims at providing a single, common user interface and improved accessibility to documents and data, thereby simplifying and encouraging the exchange of information in the context of the EU defence initiatives.

Annual Conference

'Innovation in European Defence' was the topic of EDA's 2021 Annual Conference which took place in hybrid format (due to the ongoing COVID-19 pandemic) on 7 December in Brussels and gathered more than 750 attendees and participants from national governments, armed forces, European and euro-atlantic institutions, industry, academia and media.

Among the speakers were the Head of the Agency, High Representative Josep Borrell, the President of the European Council, Charles Michel, the Defence Ministers of Belgium and Slovenia, Ludivine Dedonder and Matej Tonin, the Polish Deputy Minister, Marcin Ociepa, European Investment Bank (EIB) Vice-President Kris Peeters and the Chairman of the EU Military Committee (EUMC), General Claudio Graziano.



Access to documents

In 2021, the Agency received 17 access to documents requests under the Regulation for public access to documents – Regulation 1049/2001, which represents a slight decrease compared to the number of requests received in 2020 (21). Two of the requests were fully granted. EDA refused access to five requests while another five requests were devoid of purpose as EDA was not in possession of the documents requested. EDA granted partial access in five of the submitted requests. The exception(s) used by the Agency in the cases of refusal or partial access were the ones set out under Article 4 of Regulation 1049/2001 and in particular, Article 4(1)(a) second indent – defence and military matters, Article 4(1)(b) – privacy and integrity of the individuals in accordance with the Union legislation regarding the protection of personal and Article 4(2) first indent – protection of commercial interests. All access to documents requests submitted to EDA were received electronically.

EDA received three confirmatory applications in 2021. In all cases, the initial decision was upheld.

EDA also checked its current policy and practice against the European Ombudsman's guidance of 27/10/2021

for the EU administration on policies and practices to give effect to the right of public access to documents (SI/7/2021/DL), addressed to all EU institutions, bodies, offices and agencies.

EDA will continue to publish documents on its website under "EDA DOCUMENTS" in order to make them directly available to the public without the need to submit an access to documents request and to increase transparency and the availability of information about EDA's activities. If, however, an EDA document has not been published yet, a request for access can be made. Applications shall be made in writing and sent to the Agency by email to accesstodocuments@eda.europa.eu.

Data protection

2021 was still marked by the COVID-19 pandemic, which in addition to being an unprecedented sanitary crisis, also tested fundamental rights to data protection and privacy. The EDA Data Protection Office continued to support its hierarchy in addressing the evolving challenges brought by COVID-19 in light of EU Data Protection requirements and ensured the implementation of Regulation (EU) No 2018/1725 of the European Parliament and of the Council. EDA, its controllers, the Data Protection Officer (DPO) and the European Data Protection Supervisor (EDPS) all contribute to the application of Regulation 2018/1725 at the European Defence Agency. For instance, following the introduction of the EU Digital COVID Certificate, EDA put in place measures to manually screen the COVID immunity or infection status of visitors in line with the guidance provided by the EDPS. Together with other measures, this allowed EDA to host physical meetings on premises while ensuring safety for staff and visitors.

The EDA Data Protection Office successfully assisted its internal and external stakeholders in a large number of requests relating to data protection. No requests for access to personal data were received from data subjects in 2021.

EDA PORTFOLIO

Number of projects, programmes and activities which were in progress at year-end 2021



203



137

(46 CAP, 91 R&T)



42



4

(at request of Member States)

Member States' contribution to ongoing ad hoc Capability and R&T programmes and projects

(with effect end – 2021, in million €)*

€298,33 million



€49,17 million



€46,74 million



€25,67 million



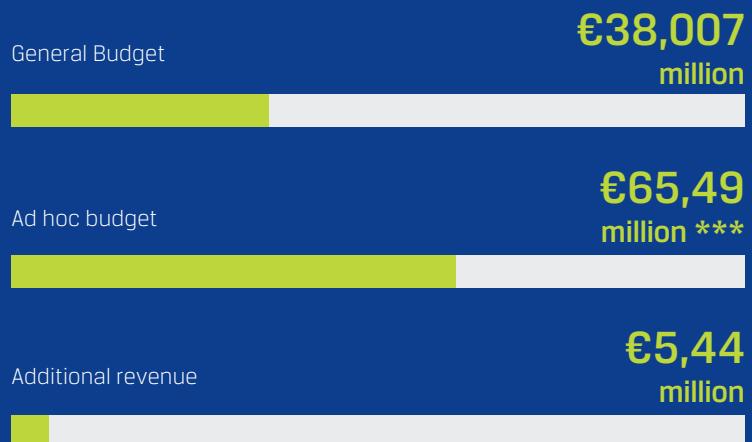
Total:

€420,03 million

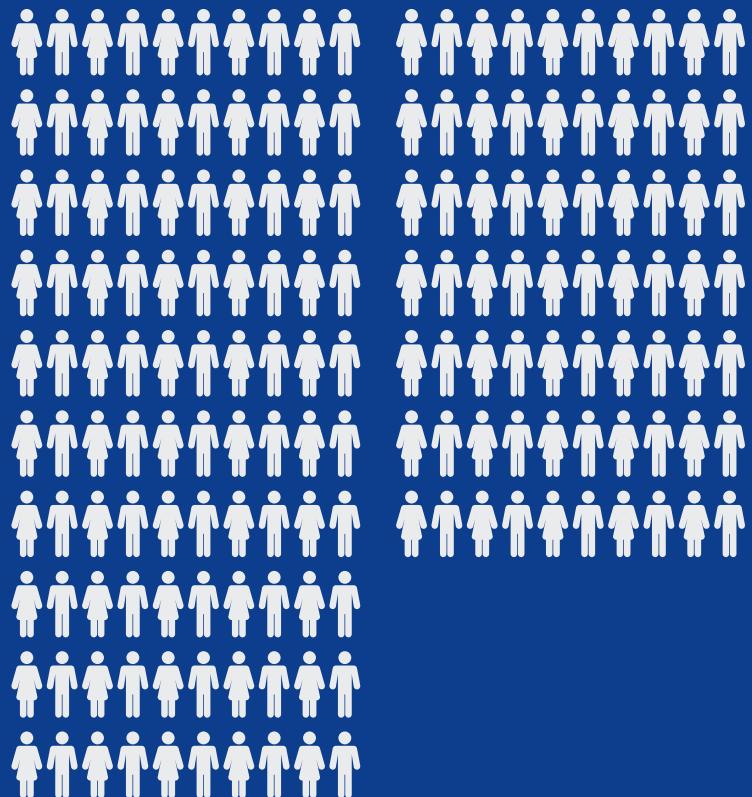
EDA Budget 2021

EDA's budget consists of the general budget, the budgets associated with ad hoc projects or programmes and budgets resulting from additional revenue for a total budget of

€108,94
million **

**EDA Staff**

170
(on 31/12/2021)



* where formal agreements have been concluded

** 2021 figures are provisional

*** Ad hoc budget figures include only financial contributions directly managed by EDA

YOUR EDA AS OF JULY 2021

EDA MANAGEMENT



From left to right: **Jean-François RIPCHE** (RTI Director), **Martin KONERTZ** (CAP Director),
Jiri SEDIVY (Chief Executive), **Emilio Fajardo** (ISE Director), **HR/VP Josep Borrell** (Head of
the Agency), **Ginette Manderscheid** (CSD Director), **Olli Ruutu** (Deputy Chief Executive)

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Cover, page 10, 11, 27, 29: Portuguese Air Force
Page 3, 17, 31, 34: EDA
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Page 7: SEAir
Page 9: KMW
Page 12-13: SAAB

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