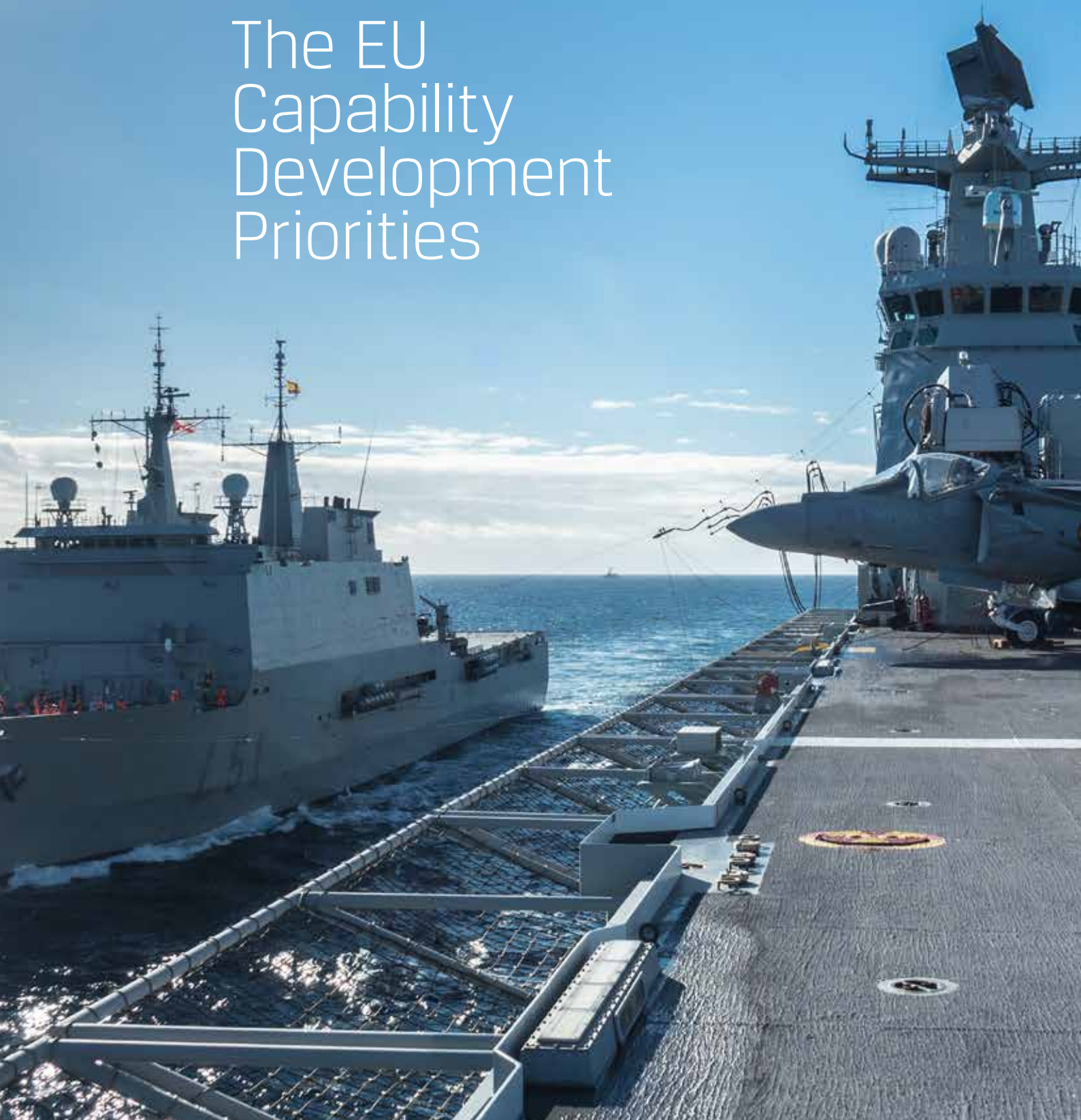


2018 CDP REVISION

# The EU Capability Development Priorities







## A KEY REFERENCE FOR MEMBER STATES' AND EU DEFENCE PLANNING

The European Defence Agency (EDA) produces regular updates of the Capability Development Plan (CDP) since 2008, in close cooperation with its Member States and with the active contributions of the EU Military Committee (EUMC) and the European Union Military Staff (EUMS).

The purpose of the periodic CDP revision, a key tasking of the Agency, is to provide a full capability picture that supports decision-making at EU and national levels regarding defence capability development. The overall objective is to increase coherence between Member States' defence planning and to encourage European cooperation by jointly considering future operational needs and defining common EU Capability Development Priorities.

On 28 June 2018 the EDA Steering Board in Capability Directors formation endorsed the 2018 CDP revision and approved the 2018 EU Capability Development Priorities derived from it. This is of particular strategic significance as the CDP serves as a key reference for the implementation of major European defence initiatives launched following the 2016 EU Global Strategy, such as the Coordinated Annual Review on Defence (CARD), the Permanent Structured Cooperation (PESCO), and the European Defence Fund (EDF). All these initiatives are strongly inter-linked: the CDP identifies the capability priorities Member States should focus their common efforts on; CARD provides an overview of existing capabilities in Europe and identifies opportunities for cooperation; PESCO offers options how to develop prioritised capabilities in a collaborative manner; and the EDF provides EU funding to support the implementation of cooperative defence projects, with a bonus for PESCO projects.

## OUTPUT-ORIENTED PRIORITIES

The most tangible output of the 2018 CDP revision are the 11 new EU Capability Development Priorities, developed together with Member States. They are the result of an in-depth assessment of short-term, mid-term and long-term capability trend analyses, integrating inputs provided by Member States, the EU Military Committee (EUMC) and the EU Military Staff (EUMS). These trends comprise the analysis of existing capability shortfalls in the CSDP context, lessons learned from recent operations, planned capabilities and associated potential for future European cooperation and finally the long-term military capability trends, taking into account innovative technologies and subsequent adaptation of military needs (2035 and beyond).

## CAPABILITY DEVELOPMENT PLAN

### SHORT-TERM PERSPECTIVE

- › General shortfalls and associated risks in the CDP context
- › Lessons learned from operations

### MID-TERM PERSPECTIVE

- › Identification of planned capabilities
- › Identification of collaborative opportunities

### LONGER-TERM PERSPECTIVE

- › Assessment of future trends (2025 – 2040 timeframe) taking into account technology innovation and R&T development

The 11 priorities are specific, detailed and output-oriented, i.e. focused on delivering capabilities needed to address existing European shortfalls. They will thus not only inform and support governments' national defence planning for the years to come but also serve as key reference for CARD, PESCO and EDF to ensure they produce a more coherent set of usable, deployable, interoperable and sustainable capabilities and forces available to EU Member States for national and multinational (EU CSDP, NATO, UN, etc.) missions and operations.

## REFLECTING THE NEW EU LEVEL OF AMBITION

The 2018 CDP revision reflects the new EU level of ambition expressed in the EU Global Strategy for Foreign and Security Policy (EUGS, published in June 2016) which set European strategic autonomy as a long-term objective and called for a *"gradual synchronization and mutual adaptation of national defence planning cycles and capability development practices"*. It also urged Member States to make use of the CDP revision to develop the capabilities stemming from the new, more ambitious political goals set out in the EUGS, and to do so with the assistance of EDA which *"has a key role to play by strengthening the Capability Development Plan"*.

The EUGS also stressed that Member States will need *"full-spectrum"* land, air, space and maritime capabilities to keep Europe safe and that, in order to acquire them, they should move towards defence cooperation *"as the norm"*. In the same vein, a long-term vision and objective of PESCO is to evolve towards a *"coherent full spectrum force package"* in complementarity with NATO. The revised CDP takes this ambition into account, the 2018 EU Capability Development Priorities having a wider scope than the CDP priorities agreed in 2014. There is also a clear trend towards high-end warfare capabilities, across all military capability domains: land, air, sea, space and cyber.

Furthermore, the revised CDP provides for the necessary coherence of output with NATO's Defence Planning Process (NDPP), ensuring complementarity and avoiding unnecessary duplication at project level.

Moreover, the 2018 EU Capability Development Priorities are designed to help guide Member States' capability development efforts irrespective of the framework and level (national, multinational, EU) at which they will be implemented. Therefore, their scope is larger in comparison to the 2014 CDP priorities, which primarily focused on potential cooperation to be conducted in an EDA framework.

## IMPLEMENTATION SUPPORTED BY STRATEGIC CONTEXT CASES

The priorities are implemented in an output-oriented way to facilitate the generation of cooperative projects aimed at closing identified capability shortfalls. To this end, the CDP implementation process is supported by the elaboration of so-called 'Strategic Context Cases' (SCC). For each of the 11 priorities, these SCCs will present an overview of the capability landscape and the reference for generating collaborative capability development projects. They will also deliver the necessary roadmaps with dedicated objectives and milestones, for those areas where Member States task EDA to be involved. The SCC are prepared by EDA with the support of a wide network of experts from Member States, EU, NATO, other relevant multinational stakeholders, as well as defence industry representatives.

## FOCUS ON THE 2018 EU CAPABILITY DEVELOPMENT PRIORITIES

Out of the 11 priorities, three are related to the Command, Control and Information/Cyber domain, two to land capabilities and logistics, two to the maritime domain, and three are dedicated to the air domain. One priority deals with cross-domain capabilities contributing to achieve the EU Level of Ambition. There is no ranking between the priorities.





# The EU Capability Development Priorities

## CYBER RESPONSIVE OPERATIONS



- » Cyber cooperation and synergies;
- » Cyber R&T;
- » Systems engineering framework for cyber operations;
- » Cyber education and training;
- » Specific cyber defence challenges in the air, space maritime and land domain.

## GROUND COMBAT CAPABILITIES



- » Upgrade, modernise and develop land platforms (manned/unmanned vehicles, precision strike);
- » Enhance protection of forces. (CBRN, CIED, individual soldier equipment).

## SPACE-BASED INFORMATION AND COMMUNICATION SERVICES



- » Earth observation;
- » Positioning, navigation and timing;
- » Space situational awareness;
- » Satellite communication.

## ENHANCED LOGISTIC AND MEDICAL SUPPORTING CAPABILITIES



- » Military mobility;
- » Enhanced logistics;
- » Medical support.

## INFORMATION SUPERIORITY



- » Radio spectrum management;
- » Tactical CIS;
- » Information management;
- » Intelligence, Surveillance and Reconnaissance (ISR) capabilities.

## NAVAL MANOEUVRABILITY



- » Maritime situational awareness;
- » Surface superiority;
- » Power projection.



### **UNDERWATER CONTROL CONTRIBUTING TO RESILIENCE AT SEA**



- » Mine warfare;
- » Anti-submarine warfare;
- » Harbour protection.

### **INTEGRATION OF MILITARY AIR CAPABILITIES IN A CHANGING AVIATION SECTOR**



- » Military access to airspace;
- » Ability to protect confidentiality of mission critical information;
- » Coordination with civilian aviation authorities;
- » Adaptation of military air/space C2 capability.

### **AIR SUPERIORITY**



- » Air combat capability;
- » Air ISR platforms;
- » Anti-Access Area Denial (A2/AD) capability;
- » Air-to-air refuelling;
- » Ballistic Missile Defence (BMD).

### **CROSS-DOMAIN CAPABILITIES CONTRIBUTING TO ACHIEVE EU'S LEVEL OF AMBITION**



- » Innovative technologies for enhanced future military capabilities;
- » Autonomous EU capacity to test and to qualify EU developed capabilities;
- » Enabling capabilities to operate autonomously within EU's LoA.

### **AIR MOBILITY**



- » Strategic air transport;
- » Tactical air transport including air medical evacuation.



## Enabling capabilities for cyber responsive operations

The wider cyber domain is identified as a key area where Europe needs to beef up its defence capabilities, taking into account that each operational domain (land, air, sea, space) has its own cyber-related challenges.

Following areas were prioritised to develop such new capabilities (or improve existing ones):

- › cooperation and synergies with relevant actors across cyber defence and cybersecurity areas, at EU level but also in the EU/NATO framework;
- › cyber defence research and technology activities, especially in crucial domains such as cyber situational awareness technologies, defensive cyber technologies, autonomous cyber response systems, cyber threat intelligence capabilities, predictive analysis and modelling and simulation;
- › a system engineering framework for cyber operations which can provide Member States' forces with common vocabulary, technical, procedural and organizational guidance and standards from which interoperable cyber capabilities can then be developed and implemented;
- › harmonised and adequate cyber education, training, exercises and evaluation;
- › cyber challenges specific for the Land, Maritime, Air and Space domain.





## Space-based information and communication services

Space-based information and communication services are imperative in any military system or platform as they enable command and control (C2), provide navigational/positioning support and enhance situational awareness through the provision of intelligence, surveillance and reconnaissance (ISR) information. In addition, space-based assets will be increasingly challenged by space debris and vulnerable to intentional and unintentional disruptions.

In this framework, identified priority areas include, among others:

- › Space-Based Earth Observation (SBE0) capability;
- › Positioning, Navigation and Timing to support military activities;
- › Space Situational Awareness as well as space surveillance and tracking capabilities;
- › satellite communication for Member States and CSDP actors.



## Information superiority

Military operations strongly rely on information and communication services, for command and control, surveillance and reconnaissance, or intelligence gathering and sharing. These services require strong, reliable and secure Communication and Information Systems (CIS) network infrastructures which need to be federated in a combined environment. In addition, they need to be provided within service-oriented architectures and offer contemporary-levels of information access. Cutting-edge technologies already used in the civil domain such as cloud, big data management tools and software-defined radios/networks will be key to meet defence forces' CIS needs in the future.

Against this rationale, the following areas have been prioritized:

- > armed forces' ability to use Radio Spectrum (RS) for military activities;
- > interoperable tactical CIS to allow for autonomous, robust, interoperable, quick and safe data/communication exchange and transfer;
- > information management within EU-led missions and operations;
- > Intelligence, Surveillance and Reconnaissance (ISR) networked capabilities.





## Ground combat capabilities

Due to the evolution of the defence context in Europe, land forces need the ability to operate in a high intensity threat environment, facing potential technically advanced adversaries. The priority Ground Combat Capabilities addresses a wide range of capabilities from the required upgrade of the different types of armoured vehicles and associated firepower to protection of forces, which addresses Counter Improvised Explosive Devices (C-IED), Chemical, Biological, Radiological, Nuclear, and Explosive materials (CBRNe) and Personnel Recovery. Protective measures and equipment for the individual soldier are included into the enhancement of soldier protection. All capabilities are to be considered within an operational environment, which will include manned and unmanned systems and the related manned-unmanned teaming.

Identified priority areas in the Ground Combat Capabilities include:

- › current and future armoured land platforms: Main Battle Tanks, Infantry Fighting Vehicles and Armoured Personnel Carriers;
- › next generation of ground-based precision strike capabilities, including indirect fire support, and anti-tank weapons;
- › unmanned ground combat capabilities;
- › the enhancement of force protection in the domains of C-IED and CBRNe capabilities and Personnel Recovery techniques;
- › individual soldier equipment.



## Enhanced logistic and medical supporting capabilities

The ability to rapidly move troops and military equipment and to ensure at any time adequate logistic and medical support, even across borders and under difficult topographical and climatic conditions, is key for EU Member States' armed forces.

Going forward, priority should therefore be given to:

- › border-crossing procedures for military mobility and accessibility and availability of civilian transport infrastructure for military platforms;
- › common European procedures for Reception, Staging, Onward Movement (RSOM);
- › cooperation with commercial logistic operators to enhance military logistics;
- › supply chain solutions;
- › procedures regarding receiving, storing and distributing of fuels and new, renewable energy solutions;
- › logistic footprint with additive and advanced manufacturing (3D-printing);
- › interoperability of national medical support capabilities and deployable field hospitals to be used in multinational operations;
- › interoperability of Medical Evacuation (MEDEVAC) capabilities, including unmanned aerial vehicles (UAVs) and unmanned ground vehicles (UGVs).





## Naval manoeuvrability

The full capability to act at sea depends primarily on the availability to establish a full and globalized picture essential for the preparation, the prevention and the potential required reaction to provide a sustainable stability. Moreover, considering the increasing military maritime forces in the world and the geopolitical importance of the freedom of manoeuvre at sea, Naval Interdiction and Force Protection are key-preconditions to be met before envisaging any deployment and Power projection from the sea. Traditional main maritime threats as well as asymmetric challenges in a broad sense require a large set of capabilities (from conventional to non-lethal capability and jamming) to be implemented by different platforms.

Several priorities were identified in this domain, notably:

- › maritime situational awareness by capabilities in the areas of Recognized Maritime Picture, surveillance awareness, maritime patrol and surveillance aircraft, maritime signal intelligence, long-range coastal radar networks, tactical radar maritime surveillance generated by UAV and maritime C2 capabilities based on automatic data link systems and data fusion systems;
- › surface superiority at sea with the help of interoperable capabilities in the domains of long endurance at sea (enabled by unmanned high end platforms), modular designed multipurpose combat ships and adaptable offshore patrol vessels;
- › power projection based on long-range logistic support, naval aviation (including strike capability) and multidimensional protection of naval forces, including through airborne anti-submarine assets.



## Underwater control contributing to resilience at sea

Assuring maritime force protection is a prerequisite to any deployment of naval forces. In this context, the undersea threat with its multiple facets has a prominent role. In addition, countering threats to harbour facilities and maritime infrastructures as well as to sea-based energy systems will become a more critical challenge, with a more contested maritime context to be expected.

Identified priority areas in this domain include:

- › maritime counter mine warfare based on a European concept of operations, dedicated unmanned systems as well as military/counter-mine diving capabilities;
- › anti-submarine capabilities, based on a concept of water space management, unmanned and fixed detection systems, counter torpedo systems and a detection/response system by air assets;
- › harbour protection based on permanent detection systems of harbour approaches from the sea and resilience of naval critical infrastructure.





## Air superiority

This priority domain covers a variety of specific topics such as air combat, air intelligence, surveillance and reconnaissance (ISR) platforms as well as anti-access area denial (A2/AD) capabilities, possibly complemented by ballistic missile protection. Air Combat touches upon the integration of air combat systems operating across Europe, the preparation of the next generation of fighter aircraft, the suppression of enemy air defence capability, the ability to carry out deep strikes and the preparation of the next generation of attack helicopter (including their weapons). In the future, all of them will be operated through a combination of manned and unmanned platforms, integrated in larger operational systems.

Against this backdrop, identified priority areas in this domain include:

- › Member States' air combat capabilities, in the domains of the integration of 5th generation fighter systems, next generation of air combat platforms with enhanced capabilities, existing and future attack helicopters fleets, armed remotely piloted aircraft systems (RPAS) with fixed and rotary wing, suppression of enemy air defence (SEAD) capabilities, precision air strike and airborne electronic attack capabilities;
- › an appropriate spectrum of ISR air platforms based on RPAS, high altitude flying platforms, maritime patrol and maritime surveillance aircraft as well as ISR related airborne payloads and sensors;
- › anti-access area denial capabilities based on long-range radars, counter UAV and tactical anti-missile capabilities as well as short range air defence systems;
- › air-to-air refuelling (AAR) based on strategic AAR for fighter aircraft transit, automated AAR (A3R) capabilities, tactical AAR capabilities;
- › ballistic missile defence (BMD) capabilities.



## Air mobility

Air mobility is relying on different capabilities in function of the phasing and the readiness required by military operations. Strategic Inter-theatre transport is essential in the early phase for swift and rapid operational worldwide deployment, while tactical airlift and medical evacuation are mostly used at later stages of operations. Both have been identified as priority areas focusing on:

- › strategic air transport capabilities based on access to outsized air cargo assets, and the development of future new transport assets;
- › tactical air transport capabilities (fixed and rotary wing), based on specific European user groups, new European transport/utility helicopter capabilities and unmanned solutions as well as improved air MEDEVAC.





## Integration of military air capabilities in a changing aviation sector

In the Single European Sky (SES) regulatory framework, the military aviation will have to accompany the change of paradigm in the Air Traffic Management, and more generally in the Aviation environment, driven by digitalisation, automation, connectivity and artificial intelligence among the other new technologies. In this context, the integration of existing and future military Air Capabilities as well as the required evolution of military AIR/SPACE C2 and Communication Navigation Surveillance capabilities are key challenges. Military forces need to ensure access to the European airspace for existing and future manned and unmanned air capabilities for training, transport, deployment and operational purposes. Priorities in this domain should be focused on:

- › Military access to airspace;
- › the ability to protect the confidentiality of mission critical information and ensure a resilient and robust data sharing network in the changing context of the civil aviation sector;
- › interoperability and coordination with civilian aviation structures, infrastructures and procedures while maintaining military-to-military interoperability;
- › Military Air/Space C2 and Communication Navigation Surveillance (CNS) capabilities adapted to the changing context of the civil aviation sector and automated airspace management activities.



## Cross-domain capabilities contributing to achieve EU's level of ambition (LoA)

A number of cross-domain activities were prioritised to help Europe achieve the new level of ambition (strategic autonomy) as set in the 2016 EU Global Strategy and to enhance the CSDP, notably:

- › innovative technologies for enhanced future military capabilities, giving priority to a few key domains such as: artificial intelligence (AI), unmanned systems, remotely-operated or autonomous medical systems, autonomous and automated guidance, navigation and control (GNC) and decision-making techniques for manned and unmanned systems, multi-robot control or advanced materials, processes and technologies;
- › an autonomous EU capability to test and qualify European developed defence capabilities prior to deployment in operations and missions;
- › enabling capabilities to operate autonomously within the EU's LoA, such as EU CSDP Permanent Strategic, Military Strategic and Tactical Command and Control and Stabilization/Capacity building capabilities.







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