

PROGRAMME DE TRAVAIL EDIDP 2020

- *Ce document est un extrait du programme de travail 2019/2020 ;*
- *Le contenu des appels est en cours de définition ;*
- *L'appel à projet dédié aux PME (4.4.3) étant libre (aucunes spécifications techniques exigées), la liste des sujets ci-dessous est simplement indicative.*

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4.1.1. Chemical Biological Radiological Nuclear (CBRN) detection capabilities and medical countermeasures

The resilience of Union and its preparedness to deal with CBRN threats needs to be enhanced, and there are significant cooperation opportunities on CBRN reconnaissance, decontamination, individual and collective protection, as well as on training. A comprehensive set of CBRN capabilities must be capable of providing CBRN scientific and operational assessment and advice to commanders and their staffs during the planning and conduct of operations.

The CDP analysis indicates the relevance of deploying dedicated Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR), exploitation and processing capabilities and specialized sensors for detection and early warning of potential CBRN threats to friendly populations and defence forces. Early detection of CBRN threats can be supported by intelligence operations performed through web data mining in dark nets and deep web.

Proposals are invited against one of the following topics:

- Capabilities for CBRN risk assessment, detection, early warning and surveillance;
- CBRN medical countermeasures, such as preventive and therapeutic immunotherapy;
- Treatments for CBRN related injuries.

Targeted type of activities: design or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this category is **EUR 13 500 000**.

Several actions, addressing different topics, may be funded under this category.

4.1.3. Underwater control contributing to resilience at sea

Considering the increasing defence maritime forces in the world and the importance of the freedom of manoeuvre at sea, naval interdiction and force protection are key preconditions to be met before any deployment and power projection from sea. The CDP analysis identifies the need for the improved ability to detect, identify and neutralise or avoid/deceive subsurface threats, including active and passive measures. CDP highlights the importance of mine warfare, anti-submarine warfare and harbour protection.

Proposals are invited against the following topic(s): solutions including both manned and unmanned systems, Command, Control, Communication, Computers and Information (C4I) and mission management systems, sensors, as well as manned-unmanned teaming, and their basing, launching and retrieval, to detect, identify, counter and protect against sub-surface threats (including those operating at very high depths). Those solutions could be based on a modular concept of manned-unmanned systems, as well as concern defence diving.

Targeted type of activities: design or system prototyping, not excluding upstream and downstream activities.

The indicative budget for this category is **EUR 22 500 000**.

4.1.4. Counter-Unmanned Air Systems (UASs) capabilities

The growing threat of a wide scope of UASs (including with consumer mini-drones increasingly used for defence purposes as well), and the need to develop active and passive countermeasures against armed and intelligence gathering UASs has been identified to increase force protection, critical infrastructure resilience, and information security. Emphasis also needs to be placed on defence products with an inherent modularity, scalability and interoperability in design including Command and Control (C2) and decision support capabilities in order to cover applications ranging from protection of individual soldier, vehicle and command post to protection of larger critical infrastructure, including in urban areas.

Proposals are invited against the following topic: Capabilities to detect, classify, track, identify and/or counter UASs in defence scenarios.

Targeted type of activities: actions can address any activity of Article 6(1) of Regulation (EU) 2018/1092.

The indicative budget for this category is **EUR 13 500 000**.

Several actions may be funded under this category.

Attention will be paid to the civil and dual-use on-going initiatives at Union level to avoid any duplication.

4.2.2. Cyber situational awareness and defence capabilities, defence networks and technologies for secure communication and information sharing

The CDP analysis points to an increasing risk of disruption through cyber-attacks. It also underlines that cyber technologies, such as cyber situational awareness technologies and defensive cyber technologies are essential to counter cyber security threats faced by Member States, and in particular the Union and Member States' command structures from tactical to strategic level.

It also identifies the need to communicate and share information through employing deployable interoperable communications systems and data-sharing platforms (including data storage and sharing capabilities), *ad-hoc* and distributed networks.

Proposals are invited against the following topics:

- Software defined network for defence use including the development of products and technologies;
- Innovative future-oriented communication capabilities such as but not limited to quantum communications⁵ or high speed secure free space optical communication;
- Easily deployable and interconnected cyber toolbox for defence use.

Targeted type of activities: design or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this category is **EUR 14 300 000**.

Several actions, addressing different topics, may be funded under this category.

4.2.3. Space Situational Awareness (SSA) and early warning capabilities

The CDP analysis points to a shortfall in the SSA and space surveillance domain. The analysis highlights the need for highly accurate, real-time space situational awareness through collation, analysis and exploitation of information collected by space-based and terrestrial sensors. A relevant set of SSA caps must be capable of nullifying or reducing the effectiveness of hostile action in order to ensure access to and use of space domain enabled capabilities.

Proposals are invited against the following topics:

- Advanced Space Command and Control (SC2) capability to process and exploit SSA data generated from sensors and catalogues to provide a complete space picture;
- Enhanced SSA sensors for accurate identification and characterization of existing Geostationary Equatorial Orbit (GEO) and Low Earth Orbit (LEO) public and private assets;
- European defence space surveillance network for standardized and secure exchange of SSA data among Member States (allowing networking of existing private and public space based and ground based sensors);
- Capability to mitigate uncontrolled large space body re-entries, making use of open source SSA data collection and processing;
- Early warning against ballistic missile threats through initial detection and tracking of ballistic missiles before handing over to ground based radars.

Targeted type of activities: design or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this category is **EUR 22 500 000.**

Several actions, addressing different topics, may be funded under this category.

Attention will be paid to the civil and dual-use on-going initiatives at Union level to avoid any duplication of funding (especially with EU SST6).

4.2.5. Maritime surveillance capabilities

The CDP analysis points to the need to enhance Maritime situational awareness through a large scope of platforms, sensors, Computer Information Systems (CIS) capabilities. A comprehensive set of sensors and platforms should provide the capability to establish and maintain the maritime situational awareness and level of knowledge required to allow commanders at all levels to make timely and informed decisions. This is key in harbour and littoral protection as well as when maritime high value units are displaced in critical waters. The analysis of long-term trends indicates the need for the ability to collate a range of different ISTAR sensor inputs to detect, track and identify threats across a wide area of operations, including the ability to counter adversary attempts to use low-observability materials, designs and technologies to escape detection.

Proposals are invited against the following topics:

- Recognized maritime picture;
- Multifunctional capabilities, including space based surveillance and tracking, able to enhance the maritime awareness (discover, locate, identify, classify and counteract the threats) with particular focus on maritime littoral and high sea areas and harbour protection and related critical infrastructure;

- Unmanned systems including robotics and automated systems in operational environment;
- Maritime signal intelligence, supporting electronic warfare;
- Coastal radars and passive sensors with associated relevant networks;
- Tactical radar maritime surveillance generated by “Unmanned Aerial Vehicle” (UAV);
- Maritime C2 capability based on automatic data link systems;
- Data fusion systems coupled with predictive capability (e.g. hyperspectral imaging);
- Maritime surveillance generated by networks of sensors based on fixed and/or semi-fixed unmanned platforms;
- Maritime information sharing capabilities, e.g. interoperable nodes and adaptors.

Targeted type of activities: design or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this category is **EUR 20 000 000.**

Several actions, addressing different topics, may be funded under this category.

4.3.1. Upgrade of current and development of next generation ground-based precision strike capabilities

The availability of mobile precision systems able to provide the necessary high degree of accuracy and efficiency, when the use of the force is required, avoiding widespread collateral damage, and reducing exposure of friendly forces is a priority for Member States’ armed forces. The CDP analysis identifies the need for the upgrade of current and development of next generation of direct and indirect fire support capabilities for precision and high efficiency strikes, including ammunition and fire control systems.

Proposals are invited against the following topics:

- A platform for long range indirect fire support capabilities;
- Programmable and guided ammunition.

Targeted type of activities: design or prototyping or testing, not excluding upstream or downstream activities.

The indicative budget for this category is **EUR 7 000 000.**

Several actions, addressing different topics, may be funded under this category.

4.3.2. Ground combat capabilities

The evolving operational environment requires the development of next generation and the upgrade of current armoured platforms with improved robustness, agility, versatility and interoperability with next generation systems and future unmanned systems. A comprehensive combination of land systems should contribute to the capability of land manoeuvre in the joint operational environment to gain positional advantage in respect to the adversary.

Proposals are invited against the following topic: Development of next generation and upgrade of current armoured platforms, including those able to operate in extreme climates and geographical environments.

Targeted type of activities: study, not excluding downstream activities.
The indicative budget for this category is **EUR 9 000 000.**

4.3.3. Air combat capabilities

Air superiority is a key factor for European armed forces to defend European territory and citizens as well as to respond in more remote geographical areas. The CDP analysis highlights the importance of developing the suppression of enemy air defence capability, the need to integrate and combine manned and unmanned platforms in a larger operational system, the need for airborne electronic attack capabilities, the ability to carry out deep strikes as well as upgrading or developing next generation attack helicopters, including self-protection systems for fixed and rotary wing aircraft. CDP long-term capability analysis also identifies the need to ensure overmatch in air-to-air engagements, including against fully autonomous Unmanned Combat Air Vehicles (UCAVs) and to penetrate adversary-controlled airspace to achieve the desired air supremacy.

Proposals are invited against the following topics:

- Upgrading or developing next generation attack helicopters;
- High-end air-to-air effectors;
- Self-protection systems for fixed and rotary wing aircraft;
- Multi-platform mission management capabilities;
- Directed energy capabilities.

Targeted type of activities: study, design or prototyping, not excluding downstream activities.
The indicative budget for this category is **EUR 22 000.**
Several actions, addressing different topics, may be funded under this category.

4.4.1. Simulation and virtualization tools and equipment for training, exercises, systems design, development and integration, testing and validation

Virtual reality and distributed synthetic environments are increasingly important to better train armed forces for real-life operations, including requirements for command structures operations from the tactical to the strategic level, tools for decision-making and civilian-defence cooperation and CBRN training, manned-unmanned teaming, but also to be used for systems design, development and integration.

Proposals are invited against the following topic: Modelling, simulation and virtualization tools and equipment for training, exercises, systems design, development and integration, as well as testing and validation.

Targeted type of activities: design or system prototyping, not excluding upstream or downstream activities.
The indicative budget for this category is **EUR 3 500 000.**

4.4.2. Defence technologies supported by artificial intelligence

The importance of artificial intelligence for tasks such as data and intelligence gathering, automation of big data processing, analysis, validation and prioritization technologies, decision making, and deploying autonomous systems is assessed to be growing.

The following areas outlined in CDP should be prioritized:

- Support decision-making tools in command and control at all levels, including the use of predictive algorithms to anticipate threats/trends through analysis of big data and neural networks;
- Improve intelligence gathering and processing to provide common operational picture and situational awareness;

Support recurrent activities such as strategic communication (STRATCOM), logistics planning, airspace management, energy management of platforms, and analysis of lessons identified in operational context;

- Develop the desired level of autonomy of unmanned systems with autonomous and (automated) guidance, navigation and control for mobility and with autonomous decision making for responsiveness in order to operate in highly dynamic, contested and congested environments;

Proposals are invited against the following topic: Defence capabilities supported by artificial intelligence.

Targeted type of activities: study, design or system prototyping, not excluding downstream activities. The indicative budget for this category is **EUR 5 700 000**.

4.4.3. Category for SMEs – Innovative and future-oriented defence solutions

The development of innovative and future-oriented defence products and technologies relies on the innovation capacity of SMEs.

Proposals are invited against the following topic: Innovative defence products, solutions, materials and technologies, including those that can create a disruptive effect and improve readiness, deployability, reliability, safety and sustainability of Union forces in all spectrum of tasks and missions, for example in terms of operations, equipment, infrastructure, basing, energy solutions, new surveillance systems, such as:

- Cybersecurity solutions for the protection of the future security and defence systems (*e.g.* C2, logistic, embedded system, distributed simulation);
- Future compounds/smart basing technologies development;
- Development of innovative methods or methodologies for comprehensive technical requirements setting such as concurrent design;
- Future Mine Counter Measures (MCM) capabilities operating autonomous underwater systems, coping with current capability gaps in securing sea lines of communication;
- Integrated maritime surveillance system, combining legacy assets with new, innovative solutions;
- Portable bacteriological and chemical future detection systems;

- Future soldier CBRN protection equipment and integration;
- Innovative intelligence tools for early warning and countermeasure deployment support to counter CBRN threats;
- Wearable orthosis equipment and exoskeletons to increase strength capabilities and minimize stress of future soldiers;
- Autonomous and remote-controlled unmanned systems for safe medical evacuation of injured soldiers during defence operations;
- End-to-end solutions for artificial intelligence in defence & security key strategic issues;
- Command and control systems designated for individual soldier-squad up to brigade Commander, post logistic information system for maintenance, transport, medical, management;
- Armoured medium and light vehicle;
- Tactical logistic trucks;
- Protected, cooled and connected shelter solutions for fixed and mobile command post for EU operations;
- Future effective and collective CBRN protection capacity to civil population, defence forces and their equipment;
- Mobility support deployable solution for amphibious and airmobile (helicopter) operations;
- Innovative battery for future infantry portable system (radio set, optronic, etc.) and for weapon system (missile) ignition;
- Innovative solutions (bio-based) for fuel production from organic waste to support defence operations and energy self-sufficiency in remote areas;
- Innovative passive systems (solar-tracking) systems for energy production based on renewable sources to support defence operations in remote areas;
- Innovative software systems for processing of aerial images and videos through hyperspectral imaging (for metadata/telemetry information extraction and exploitation in C2 systems);
- Integrated management system for assets and services required in emergency situations in the framework of EU defence operations, in order to increase sustainability of forces;
- Nanomodified composite materials and related production processes and design procedures for reinforcement of existing armours of defence vehicles;
- Development of a minefields mapping system using unmanned aircraft;
- High capacity communications for UAVs in beyond line-of-sight applications;
- Medical virtual reality training simulator;
- Unmanned semi-fixed sea platforms;
- Additive manufacturing enhancing the logistic performance by provide to military end-users possibilities to produce spare parts using additive manufacturing solutions, particularly in the context of overseas operations;

- European glider operational and oceanographic data acquisition centre: establishing a proof of concept of an underwater oceanographic data assembly centre;
- Development of counter-UAS capability based on mini-UAS swarms;
- Secure high capacity communications for UAVs in beyond line-of-sight applications;
- Augmented-reality combat helmet featuring night-vision and ally or enemy position display, including artificial intelligence functionalities;
- Intelligent, dynamic and robust control of the quality of service in hybrid satellite-terrestrial telecommunication networks.

Targeted type of activities: actions can address any activities of Article 6(1) of Regulation (EU) 2018/1092.

The indicative budget for this category is **EUR 10 000 000**.

Several actions, addressing different defence products, solutions, materials and technologies, may be funded under this category.