



EUROPEAN COMMISSION

Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

Space Policy, Copernicus and Defence

Limited

ANNEX

Multi-Annual Work Programme for 2019 and 2020 for support to Union actions under the European Defence Industrial Development Programme¹

1. INTRODUCTION

The EU is faced with increasing geopolitical instability and a complex set of conventional and new threats while the defence sector is fragmented and lacks investments in important capability development projects. Therefore, the EU is taking steps to bear more responsibility for its security and defence, to increase its strategic autonomy and to assist in creating a more competitive and integrated defence industry. The European Defence Industrial Development Programme (EDIDP) has been created to complement, leverage and consolidate collaborative efforts by Member States in developing defence capabilities to respond to security challenges. The Multi-Annual Work Programme for 2019 and 2020 will support Union actions under EDIDP.

The objective of this Work Programme is to provide a balanced mix of priority areas in line with the EU capability priorities commonly agreed by Member States, particularly through the Capability Development Plan (CDP)² and a balanced coverage of eligible items in line with the programme objectives and relevant award criteria. Proposals in the PESCO framework have been given due consideration in the Work Programme.

Three priority areas for 2019 and 2020 have been defined for this Multi-Annual Work Programme:

1. Preparation, protection, deployment and sustainability;
2. Information management and superiority, command, control, communication, computers, intelligence, surveillance and reconnaissance (C4ISR), cyber defence and cyber security;
3. Engagement and effectors.

An additional area for cross-domain capabilities has been added. A category specifically dedicated to Small and Medium-sized Enterprises (SME) is also included to strongly encourage the participation of such enterprises and foster innovation.

¹ Regulation (EU) 2018/1092

² The purpose of CDP is to increase coherence between Member States' defence planning and to encourage European cooperation by looking at future operational needs and defining common EU Capability Development Priorities. The latest version of CDP was endorsed by the EDA Steering Board in Capability Directors formation in June 2018.

2. LEGAL BASE

All actions have their legal base in Article 6 of Regulation (EU) of the European Parliament and of the Council establishing the European Defence Industrial Development Programme aiming at supporting the competitiveness and innovative capacity of the EU defence industry (2018/1092), unless specifically declared otherwise in a specific action's description.

3. BUDGET LINE

Budget line 02 XYZ	Total Amount	% of the 2019 appropriations	% of the 2020 appropriations³
Union actions			
- For grants	TBC	TBC	TBC
- For direct award	TBC	TBC	TBC
- For procurement	TBC	TBC	TBC
- For other ⁴	TBC	TBC	TBC
TOTAL	EUR 500 000 000	49%	51%

4. ACTIONS IMPLEMENTED UNDER THE PROGRAMME

In line with the objectives of fostering the competitiveness, efficiency and innovation capacity of the defence industry throughout the Union and in line with the defence capability priorities agreed by Member States within the framework of the CSDP, this work programme contains the actions to be funded. In each category set out in the Work Programme, more than one action can be funded, if this does not lead to unnecessary duplication and further fragmentation. For the purpose of this Work Programme, upstream activities are those listed before the targeted item(s), and downstream activities are those listed after the targeted item(s) included in Article 6(1) of the regulation.

4.1. Preparation, protection, deployment and sustainability

This category pertains to military capabilities related to enabling operations, and enhancing protection and mobility, which include:

- Ensuring the resilience and protection of military forces, civilian populations, infrastructure and systems against disruptions and attacks, including land, maritime, air and missile defence as well as human-centred capabilities.
- Preparation and deployment of forces to areas of operation by ensuring freedom of movement, and strategic as well as intra-theatre transport.
- Support and sustainment of forces through the necessary equipment and materiel.
- Sustainability of defence technologies and goods throughout their life-cycle.

Within this category, the following actions (which may relate to both new defence products and technologies as well the upgrade of existing products and technologies) will be funded in this work programme:

³ The budgetary figures for 2020 are provided at this stage on an indicative basis and are subject to approval by the budgetary authorities.

⁴ Costs arising from using independent experts and the required IT system.

4.1.1. Chemical Biological Radiological Nuclear (CBRN) detection capabilities (call for proposals – 2019)

The resilience of EU 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.

The CDP analysis indicates the relevance of deploying dedicated Intelligence, Surveillance, Target acquisition and reconnaissance (ISTAR) capabilities and specialised sensors for detection and early warning of potential CBRN threats to friendly populations and military forces.

Proposals are invited against the following topic(s): CBRN detection.

Targeted type of action(s): system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 5 000 000**.

4.1.2. Chemical Biological Radiological Nuclear (CBRN) countermeasures (call for proposals – 2020)

The resilience of EU 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.

Proposals are invited against the following topic(s): CBRN countermeasures, particularly with regard to anthrax, ricine, and radio-induced, chemo-induced and thermal burns.

Targeted type of action(s): system prototyping, not excluding upstream or downstream activities. The equivalence between the CBRN counter-measures standardized process and Art. 6(1) of the EDIDP regulation shall be the following: (a) means feasibility studies; (b) means “beginning of preclinical phase”; (c) means “end of preclinical phase”; (d) means “clinical tests phase I”; (e) means “clinical test phase II or III”; (f) means TUA or MUA; (g) means pharmacovigilance.

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

4.1.3. Multipurpose unmanned ground system (call for proposals – 2019)

There are significant cooperation opportunities in Europe regarding unmanned systems, which could be based on a shared operational concept and the resulting harmonisation of requirements. The CDP analysis identifies the need to deploy unmanned systems to reduce the danger to human personnel and manned platforms, as well as to increase robustness, sustainability and resilience of ground systems. It assesses long-term capability requirements to include the ability to deploy systems in all types of environments (including denied environment) with evolving levels of autonomy and robustness for transport, force protection, interdiction, intelligence, surveillance, target acquisition and reconnaissance (ISTAR) and strike purposes.

Unmanned ground combat capabilities should address the following CDP requirements:

- Modular, open and scalable architecture for manned and unmanned joint fires capabilities;

- Unmanned ground systems (combat, soldier support, supply delivery, ISR, communication relay, medical evacuation or CBRN), assessing and implementing development of future supportive technologies;
- Integration of an increased number of unmanned systems to be remotely operated by human beings thanks to the development of future automated and autonomous platforms.

Proposals are invited against the following topic(s): multipurpose architecture for unmanned ground systems and solutions for systems integration (system of unmanned systems) and manned-unmanned teaming, cyber secure C2, logistical delivery systems and systems which reduce manning needs.

Targeted type of action(s): system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 34 000 000**.

4.1.4. Underwater control contributing to resilience at sea (call for proposals – 2020)

Considering the increasing military 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.

Proposals are invited against the following topic(s): solutions, including both manned and unmanned systems, to counter and protect against sub-surface threats.

Targeted type of action(s): design and/or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 25 000 000**.

4.1.5. Counter-UAS capabilities (call for proposals – 2020)

The growing threat of a wide scope of UASs (including with consumer mini-drones increasingly used for military 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 and technologies offering reduced size, weight and power consumption and with an inherent modularity in design in order to cover applications ranging from individual soldier and vehicle protection to protection of larger critical infrastructure.

Proposals are invited against the following topic(s): detection, tracking and identification of threatening drones, and countermeasures to engage them, including possible integration with existing Air Defense systems, Counter-rockets artillery and mortars (CRAM).

Targeted type of action(s): study, design and/or system prototyping, not excluding downstream activities.

The indicative budget for this action is **EUR 15 000 000**.

4.2. Information management and superiority, C4ISR, cyber defence and cyber security

This category pertains to military tasks and capabilities related to gaining information superiority and enhancing real-time situational awareness and command and control:

- Enhancing information collection, analysis, data integrity, information management and sharing capabilities. Both ground and space based capabilities are sought.
- Developing a European Intelligence, Surveillance and Reconnaissance capability.
- Developing cyber defence capabilities to ensure effective use of cyberspace.

Within this category, the following actions (which may relate to both new defence products and technologies as well the upgrade of existing products and technologies) will be funded in this work programme:

4.2.1. *Developing an appropriate spectrum of ISR air platforms and sensors (call for proposals – 2019/2020)*

The lack of different airborne ISR capabilities is assessed as critical. The CDP underlines the permanence of the need for tracking of ships, aircraft and other equipment through a continuous air-space wide-area via interoperable unmanned surveillance system able to operate in all weather conditions and all types of environment (including denied) and with assured data integrity.

Proposals are invited against the following topic(s): development of versatile and robust MALE and tactical RPAS as well as sensors, and RPAS integration into air-traffic management.

Targeted type of action(s): design, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 150 000 000**.

4.2.2. *Combat communication and information sharing capability (call for proposals – 2019 or 2020?)*

Combat communication capability has been identified as a critical priority. This is reinforced by the CDP analysis identifying the need to communicate and share information through employing interoperable communications systems and data-sharing platforms (including data storage and sharing capabilities).

Proposals are invited against the following topic(s): interoperable high-speed and safe data exchange/communication capabilities.

Targeted type of action(s): study and/or design, not excluding downstream activities.

The indicative budget for this action is **EUR 18 000 000**.

4.2.3. *Cyber situational awareness and defence capabilities (call for proposals – 2020)*

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 EU MS, and in particular EU and MS' command structures from tactical to strategic level.

Proposals are invited against the following topic(s): cyber situational awareness and cyber response measures, including deployable capabilities.

Targeted type of action(s): design and/or system prototyping, not excluding upstream or downstream activities.

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

4.2.4. *Space situational awareness and early warning capabilities (call for proposals – 2020)*

The CDP analysis points to a shortfall in the space situational awareness 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.

Proposals are invited against the following topic(s): Space-based early warning and military space situational awareness and surveillance, including GEO surveillance and identification services, and networking through standardized and secure data exchange.

Targeted type of action(s): design and/or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 25 000 000**.

4.2.5. *Positioning, navigation and tracking (PNT) and satellite communication capabilities (call for proposals – 2019)*

The CDP points to the need to develop EU military PNT requirements and related capabilities and promote the development of robust, secure and resilient EU military PNT capabilities. The CDP further highlights the need to develop capabilities to meet the increasing requirements for Satellite Communication.

Proposals are invited against the following topic(s): European standardized Galileo PRS navigation receiver capabilities for military purposes in air, land and naval domain developed in full conformity with the EU Common minimum standards (CMS), and satellite communication.

Targeted type of action(s): study, design and/or system prototyping, not excluding downstream activities.

The indicative budget for this action is **EUR 35 000 000**.

4.2.6. *Maritime surveillance capabilities (call for proposals – 2019)*

The CDP analysis points to the need to enhance Maritime situational awareness through a large scope of platforms, sensors, CIS capabilities.

Proposals are invited against the following topic(s): recognized Maritime Picture, Surveillance Awareness, including enduring High Altitude Platform Stations (and support to their integration into air-traffic management), Maritime Patrol Aircraft, Maritime Signal Intelligence, Long-range coastal Radar network, Tactical Radar Maritime Surveillance generated by UAV, Maritime C2 capability based on Automatic Data link systems and data fusion systems and maritime information sharing capabilities (data models, exchange standards, data analysis applications, legal frameworks and cyber security need to be further developed in order to enable data sharing).

Targeted type of action(s): study, design and/or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 40 000 000**.

4.2.7. *Strategic Command and Control (C2) system (call for proposals – 2019)*

According to the Global Strategy, the EU needs to improve the strategic planning, monitoring, conduct and assessment of CSDP missions. The CDP analysis also highlights that resilient C2 capabilities are critical enablers for CSDP operations and missions.

Proposals are invited against the following topic(s): Strategic C2 and CIS capabilities and equipment needed for establishing a strategic C2 system.

Targeted type of action(s): study and/or design, not excluding downstream activities.

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

4.3. **Engagement and effectors**

Actions in this category pertain to the ability to conduct operations in different domains:

- Enhancing land, air and naval combat capabilities;
- Enhancing capabilities for achieving air and sea superiority;
- Enhancing precision engagement and effectors.

Within this category, the following actions (which may relate to both new defence products and technologies as well the upgrade of existing products and technologies) will be funded in this work programme:

4.3.1. *Upgrade of current and development of next generation ground-based precision strike capabilities (call for proposals – 2019 or 2020?)*

Providing a high degree of accuracy while avoiding widespread collateral damage, and reducing exposure of friendly forces is a priority for EU MS armed forces. The CDP analysis identifies the need for the upgrade of current and development of next generation ground-based precision strike capabilities.

Proposals are invited against the following topic(s): the development of ground based precision strike capabilities, the development of indirect fire support capabilities, the development of accurate and versatile high-end ammunition, and the further development of anti-tank weapons.

Targeted type of action(s): study, design, prototyping and testing, not excluding downstream activities.

The indicative budget for this action is **EUR 15 000 000 €**.

4.3.2. *Ground combat capabilities (call for proposals – 2020)*

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.

Proposals are invited against the following topic(s): development of next generation and upgrade of current armoured platforms.

Targeted type of action(s): study, not excluding upstream or downstream activities.

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

4.3.3. *Air combat capabilities (call for proposals – 2019)*

Air power 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, including directed energy weapons, the ability to carry out deep strikes as well as upgrading or developing next generation attack helicopters, including self-protection systems (DIRCM) 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 topic(s): development of suppression of enemy air defence capability, including directed energy weapons, deep strikes capabilities, upgrade or development of next generation attack helicopters, including self-protection systems (DIRCM) for fixed and rotary wing aircraft and high-end air-to-air effectors.

Targeted type of action(s): study and/or design, not excluding downstream activities.

The indicative budget for this action is **EUR 46 000 000 €**.

4.3.4. *Future naval systems and technologies (call for proposals – 2020)*

Evolving operational environment and threats require the development of the next generation naval systems, and ensuring surface superiority is a priority in CDP.

Proposals are invited against the following topic(s): naval platform design for systems with lower detectability, higher survivability, and with the capability to operate in extreme climates.

Targeted type of action(s): study, not excluding downstream activities.

The indicative budget for this action is **EUR 5 000 000 €**.

4.4. **Cross-domain capabilities**

Within this category, the following actions (which may relate to both new defence products and technologies as well the upgrade of existing products and technologies) will be funded in this work programme:

4.4.1. *Simulation and virtualisation tools and equipment for training, exercises, systems design, development and integration, testing and validation (call for proposals – 2020)*

Virtual reality and simulated environments are increasingly important to best prepare armed forces for real-life operations, including requirements for command structures training from the tactical to the strategic level, but also to be used for systems design, development and integration.

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

Targeted type of action(s): design and/or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 5 000 000**.

4.4.2. *Defence technologies supported by Artificial Intelligence (call for proposals – 2020)*

The importance of Artificial Intelligence for tasks such as data and intelligence gathering, automation of big data processing, analysis, validation and prioritisation 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;
- Improve intelligence gathering and processing to provide common operational picture and situational awareness;
- Support recurrent activities such as 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(s): defence capabilities supported by Artificial Intelligence.

Targeted type of action(s): design and/or system prototyping, not excluding upstream or downstream activities.

The indicative budget for this action is **EUR 5 000 000 €**.

4.4.3. *Sub-category for SMEs – Innovative and future-oriented defence solutions (calls for proposals – 2019 and 2020)*

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(s): Innovative defence products and technologies, including those that can create a disruptive effect, for example in terms of operations, equipment, basing, energy solutions. Actions that prepare the ground for highly innovative solutions, such as feasibility or scoping studies.

The indicative budget for this action is **EUR 16 000 000 (EUR 6 000 000 in 2019, EUR 10 000 000 in 2020)**.

4.4.4. *Secure network for exchange of classified information (procurement – 2019)*

Following the adoption of EDIDP PSI, the procurement of a secure network for the electronic transmission of EU Classified Information up to the level Secret UE/EU Secret, between the European Commission and the Member States within the framework of the EDIDP, PADR and the future European Defence Fund should be needed. This includes the creation of the network, the acquisition of the necessary hardware, software, licenses, the development, installation and support services.

The indicative budget for this action is **EUR 2 600 000**.

4.5. Projects to be selected for direct award TBD

Article 15(1) on the Evaluation and award procedure of the EDIDP regulation provides that in certain duly justified and exceptional circumstances, Union funding may also be granted in accordance with Article 190 of Delegated Regulation (EU) No 1268/2012.

Article 190 of Delegated Regulation (EU) No 1268/2012 provides that Grants may be awarded without a call for proposals only for specific cases, and this would mean that with the adoption of the Work Programme, project(s) are selected.

In 2019-2020, the European Commission will run the following actions in direct management:

- **XY** calls for proposals;
- Financial contribution for the call for tenders for independent experts recruited for the evaluation of proposals submitted to the calls described above (EUR 35 000 per call);
- Financial contribution for the procurement of the network for exchange of classified information (EUR 2 600 000).

The detailed description of these actions will be provided in the Appendix of the present Annex.

Grants will be awarded to consortia after the publication of calls for proposals. Entities from all the Union Member States shall be eligible to apply. The proposals shall be evaluated on the basis of the following award criteria:

- (a) contribution to excellence in particular by showing that the proposed action presents significant advantages over existing products or technologies;
- (b) contribution to innovation in particular by showing that the proposed action includes ground-breaking or novel concepts and approaches, new promising future technological improvements or the application of technologies or concepts previously not applied in the defence sector;
- (c) contribution to the competitiveness and growth of defence undertakings throughout the Union, in particular by creating new market opportunities;
- (d) contribution to the industrial autonomy of the European defence industry and to the security and defence interests of the Union by enhancing defence technologies or products in line with defence capability priorities agreed by Member States within the framework of the Common Foreign and Security Policy, particularly in the context of the Capability Development Plan, and, where appropriate, regional and international priorities provided that they serve the Union's security and defence interests and do not exclude the participation of any Member State;
- (e) the proportion of the overall budget of the action to be allocated to the participation of SMEs established in the Union bringing industrial or technological added value, as members of the consortium, as subcontractors or as other undertakings in the supply chain, and in particular the proportion of the overall budget of the action to be

allocated to SMEs which are established in Member States other than those where the undertakings in the consortium which are not SMEs are established;

- (f) for system prototyping, testing of defence products, their qualification and/or certification, contribution to the further integration of the European defence industry through the demonstration by the beneficiaries that Member States have committed to jointly use, own or maintain the final product or technology in a coordinated way.

Under points (a) to (c), where relevant, contribution to increasing efficiency across the life cycle of defence products and technologies, including cost-effectiveness and the potential for synergies in the procurement and maintenance process, shall be taken into consideration.

Funding rates

Direct eligible costs

The funding rates of the different actions are included in Table 1. Cumulative increases in the funding rates may apply and are listed in Table 2.

Table 1. Funding rates

Action	Funding rate
Studies (such as feasibility studies)	Up to 90% of eligible costs
design	Up to 65% of eligible costs
System prototyping	Up to 20% of eligible costs
testing	Up to 65% of eligible costs
qualification, certification, development of technologies or assets increasing efficiency across the life cycle	Up to 65% of eligible costs

Table 2. Cumulative increases in the funding rates listed in Table 1⁵:

Condition	Increase in funding rate
Action developed in the context of Permanent Structured Cooperation (PESCO)	+ 10%
EU-established SME participation	+ $\frac{\sum \text{Eligible Costs of EU non crossborder SME}}{\text{Total Eligible Costs}} * 100\%$ ⁶
$\frac{\sum \text{Eligible Costs of EU SME}}{\text{Total Eligible Costs}} > 10\%$	+ $\frac{\sum \text{Eligible Costs of EU crossborder SME}}{\text{Total Eligible Costs}} * 200\%$

⁵ The overall increase in the funding rate of an action following the application of the increase of funding rates listed in Table 2 shall not exceed 35%. The financial assistance of the Union provided under the Programme including the increased funding rates shall not cover more than 100% of the eligible cost of the action.

⁶ Up to an additional 5%.

<p>EU-established Mid-cap participation</p> $\frac{\sum \text{Eligible Costs of EU MidCap}}{\text{Total Eligible Costs}} > 15\%$	<p>+ 10%</p>
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Indirect eligible costs

Indirect eligible costs shall be determined by applying a flat rate of 25% of the total direct eligible costs, excluding direct eligible costs for subcontracting.

The award of the grants is expected for 2019 and 2020 and the duration of the actions is expected to be no longer than **XY** months.