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ANNEXES 1 to 2

ANNEXES

to the

COMMISSION IMPLEMENTING DECISION

on the financing of the European Defence Industrial Development Programme and the adoption of the work programme for the years 2019 and 2020

ANNEX I

Multiannual work programme for 2019 and 2020 for support to Union actions under the European Defence Industrial Development Programme

1. INTRODUCTION

The Union 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 Union is taking steps to bear more responsibility for its security and defence, to contribute to 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 companies in developing defence capabilities to respond to security challenges, as well as to foster the competitiveness, efficiency and innovation capacity of the defence industry throughout the Union. EDIDP should also foster better exploitation of the results of defence research and contribute to development after the research phase. The multiannual 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 Union capability priorities commonly agreed by Member States, particularly through the Capability Development Plan (CDP)[1]. Proposals in the Permanent Structured Cooperation (PESCO) framework and Common Security and Defence Policy (CSDP) capability shortfalls have been given due consideration in the work programme.

Four priority areas for 2019 and 2020 have been defined for this multiannual work programme:

(a) Preparation, protection, deployment and sustainability;

(b) Information management and superiority, command, control, communication, computers, intelligence, surveillance and reconnaissance (C4ISR), cyber defence and cyber security;

(c) Engagement and effectors;

(d) Cross-domain capabilities.

A category specifically dedicated to Small and Medium-sized Enterprises (SME) is also included to underline the participation of such enterprises and foster innovation as a key objective of EDIDP. Pursuant to Article 17 of Regulation (EU) 2018/1092, the Commission will draw up a retrospective evaluation report which will analyse cross-border participation, including of SMEs and mid-caps, as well as the integration of SMEs and mid-caps in the global value chain.

2. LEGAL BASIS

All actions have their legal basis in Article 6 of Regulation (EU) 2018/1092, unless specifically declared otherwise in a specific action's description.

[1] 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 Capability Development Priorities. The latest version of CDP was endorsed by the EDA Steering Board in Capability Directors formation in June 2018.

3. BUDGET LINE

Union actions	Total Amount	% of the 2019 appropriations	% of the 2020 appropriations[2]
- Grants	EUR 497 100 000	EUR 242 950 000	EUR 254 150 000
among which for direct award	*EUR 137 000 000*	*EUR 46 350 000*	*EUR 90 650 000*
- Other[3]	EUR 650 000	EUR 300 000	EUR 350 000
TOTAL	**EUR 497 750 000**	**48,87%** **EUR 243 250 000**	**51,13%** **EUR 254 500 000**

Reference of the operational budget line: 02.07 01

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 categories for actions to be funded. Inside some of these categories addressing a wide scope of capabilities, several topics of interest have been identified. In some categories, more than one action may be funded, if this does not lead to unnecessary duplication and further fragmentation. A call for proposals, inviting the submission of proposals for actions to be funded, will be released based on the content of this work programme. Unless otherwise specified, where a category covers more than one topic, applicants to the related call will have to choose one topic against which they will answer.

To be considered eligible for funding, the proposed action shall address at least the activities (*e.g.* prototype) mentioned in the "targeted type of activities", but this does not restrict consortia to additionally include other activities in their proposals, provided that they are necessary to fulfil the objective of the activities. 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 Regulation (EU) 2018/1092.

The targeted "type of activities" associated to each topic identified in this work programme is further detailed in the call for proposals.

Targeted type of applicants: any eligible entity as defined in Regulation (EU) 2018/1092.

Management mode: unless otherwise specified, any action detailed below will be implemented in direct management.

4.1. Preparation, protection, deployment and sustainability

This area pertains to defence capabilities related to enabling operations, and enhancing protection and mobility, which include:

- Ensuring the resilience and protection of defence forces, civilian populations, infrastructure and systems against disruptions and attacks, including land, maritime, air and missile defence as well as human-centred capabilities;

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

[3] Costs arising from using independent experts and the required IT system.

- 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 area, actions in the following categories (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:

4.1.1. Chemical Biological Radiological Nuclear (CBRN) detection capabilities and medical countermeasures (call for proposals – 2020)

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 specialised 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[4]: 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.

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

There are significant cooperation opportunities in the Union regarding unmanned systems, which could be based on a shared operational concept and the resulting harmonisation of requirements. Moreover, 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. A comprehensive set of unmanned systems should contribute to the capability of land manoeuvre in the joint operational environment to gain positional advantage in respect to the adversary.

[4] The equivalence between the CRBN counter-measures standardized process and Art. 6(1) of Regulation (EU) 2018/1092 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 temporary authorisation for use or marketing authorisation; (g) means pharmacovigilance.

Capability requirements include the ability to deploy systems in all types of geographic and operational environments (including denied environment) with evolving levels of autonomy and robustness for transport, force protection, interdiction, ISTAR and strike purposes.

The CDP long-term analysis identifies the need to develop unmanned ground combat capabilities addressing:

- Modular, open scalable and cyber-secure architecture for manned and unmanned joint fires capabilities;
- Unmanned ground systems (combat, soldier support, defence engineering support, supply delivery, Intelligence, Surveillance and Reconnaissance (ISR), communication relay, medical evacuation or CBRN protection), 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:

- Multipurpose architecture for unmanned ground systems and solutions for systems integration and manned-unmanned teaming.

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

The indicative budget for this category is **EUR 30 600 000.**

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

Considering the increasing defence maritime forces in the world and the importance of the freedom of manoeuver 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 (call for proposals – 2020)

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. Information management and superiority, Command, Control, Communication, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), cyber defence and cyber security

This area pertains to defence 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 ISR capability;
- Developing cyber defence capabilities to ensure effective use of cyberspace.

Within this area, actions in the following categories (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. Permanent air or space capabilities for Intelligence, Surveillance and Reconnaissance (ISR) and communication, tactical Remotely Piloted Air Systems (RPAS) and sensor suite for integration into air-traffic management (call for proposals – 2019)

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. Permanent ISR and communication air and space platform, tactical RPAS and sensors should contribute to information collection and the timely delivery of the information obtained for use in the production of intelligence and situational awareness.

Proposals are invited against the following topics:

- Development of a low-observable tactical RPAS with the capability to provide near real time information and with modern self-protection;
- European Detect and Avoid (DAA) function based on new sensors and processing for RPAS integration into air-traffic management;
- European High Altitude Platform Station (Euro-HAPS) solution for Union defence (surveillance of maritime zones, land borders or critical assets);

- Persistent earth observation from space with automated interpretation of data and information, including artificial intelligence, cloud solutions and real time on-board processing by sensors.

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

The indicative budget for this category is **EUR 43 700 000.**

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

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

4.2.2. Cyber situational awareness and defence capabilities, defence networks and technologies for secure communication and information sharing (call for proposals – 2019 and 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 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:

For the call for proposals in 2019:

- Modular and adaptive tactical networks to control, change and manage network behaviour, including cyber security;
- Software suite enabling real-time cyber defence situational awareness for defence decision-making;
- Software suite solution, enabling real-time cyber threat hunting and live incident response, based on shared cyber threat intelligence.

For the call for proposals in 2020:

- 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 communications[5] 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 32 000 000 (EUR 17 700 000 in 2019 and EUR 14 300 000 in 2020).**

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

[5] Synergies may be explored with regard to possible ways to have satellite communications in a future European quantum key distribution testbed.

4.2.3. Space Situational Awareness (SSA) and early warning capabilities (call for proposals – 2020)

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 SST[6]).

4.2.4. Positioning, Navigation and Timing (PNT) and satellite communication capabilities (call for proposals – 2019)

The CDP points to the need to develop Union defence PNT requirements and related capabilities and promote the development of robust, secure and resilient Union defence PNT capabilities. The CDP further highlights the need to develop capabilities to meet the increasing requirements for Satellite Communication. A comprehensive set of PNT and SATCOM capabilities should contribute to enhance dissemination, and must be capable of distributing timely data, information, intelligence and specialist and all-source analysis, in an appropriate and accessible form, across and between networks as required.

Proposals are invited against the following topics:

- Development of a European standardized and sovereign Galileo PRS[7] navigation receiver capabilities compatible with GPS/PRS solution for defence purposes;

[6] EU Space Surveillance and Tracking.

[7] Public Regulated Service of Galileo.

- Development of a European protected waveform to secure defence satellite communications in peacetime, missions and operations.

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

The indicative budget for this category is **EUR 44 100 000.**

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 Galileo).

4.2.5. Maritime surveillance capabilities (call for proposals – 2020)

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.

4.2.6. European Command and Control (C2) system from strategic to tactical level (call for proposals – 2019)

According to the EU Global Strategy[8], the Union 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:

- Capabilities and equipment needed for establishing C2 system from strategic to tactical level, complementing existing European External Action Service's systems.

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

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

4.3. Engagement and effectors

Actions in this area 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 area, actions in the following categories (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 and 2020)

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:

For the call for proposals in 2019:

- Beyond Line Of Sight (BLOS) anti-tank capabilities.

For the call for proposals in 2020:

- 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 13 500 000 (EUR 6 500 000 in 2019 and EUR 7 000 000 in 2020).**

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

[8] Shared Vision, Common Action: A Stronger Europe. A Global Strategy for the European Union's Foreign And Security Policy (http://eeas.europa.eu/archives/docs/top_stories/pdf/eugs_review_web.pdf).

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. 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 (call for proposals – 2019 and 2020)

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:

For the call for proposals in 2019:

- Airborne electronic attack capability;
- Combat jet training platforms.

For the call for proposals in 2020:

- 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 34 000 000 (EUR 12 000 000 in 2019 and EUR 22 000 000 in 2020).**

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

4.3.4. Future naval platforms and related technologies (call for proposals – 2019)

Naval power superiority is a key factor for the European armed forces to defend European territory and citizens as well as to have power projection in more remote geographical areas.

Evolving operational environment and threats require the development of the next generation naval systems, and ensuring surface superiority is a priority in CDP. The increasing diversity and evolution of operational threats, such as swarming, surface and/or high speed air threats, wider proliferation of anti-ship missiles and new threats like hypersonic weapons or anti-ship ballistic missiles, require new naval defence capabilities supported by risk assessment. Additionally, the expanding operational environment (*e.g.* the Arctic) as well as environmental legislation require the development of the next generation naval systems and tactics to ensure surface superiority in the domains Anti-Air Warfare (AAW), Anti-Surface Warfare (ASuW), and Anti-Submarine Warfare (ASW).

Proposals are invited against the following topic:

- Naval platform technologies for defence purposes, 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 14 500 000.**

4.4. Cross-domain capabilities

Within this area, actions in the following categories (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 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 (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 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 (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: 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 CRBN 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 17 500 000 (EUR 7 500 000 in 2019 and EUR 10 000 000 in 2020)**

Several actions, addressing different defence products, solutions, materials and technologies, may be funded under this category both in 2019 and in 2020.

4.5. Direct awards

Regulation (EU) 2018/1092 provides in its Article 15(1) the possibility in certain duly justified and exceptional circumstances, that Union funding may also be granted in accordance with Article 195 of The Financial Regulation.

The following actions could be selected for direct award procedure:

4.5.1. Development of European Medium-Altitude Long-Endurance Remotely Piloted Air System (MALE RPAS)

Scope of the action

The objective is to support the development of a European MALE RPAS with an innovative Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) and armed ISTAR capability that will exceed the capabilities of comparable current systems and should exceed the capabilities of systems available at the entry into service time or, at least, be comparable with them.

The grant will cover the first phases of a development for a European MALE RPAS, in particular:

- Defined work packages leading to a more detailed design of the system, including but not limited to the Preliminary Design Review (PDR).

Justification for direct award:

Article 195 (f) of the Financial Regulation: "grants […] for activities with specific characteristics that require a particular type of body on account of its technical competence, its high degree of specialisation or its administrative powers, on condition that the activities concerned do not fall within the scope of a call for proposals".

The action presents exceptional technological characteristics with an innovative ISTAR and armed ISTAR capability that will exceed the capabilities of comparable current systems. It will enhance the capability to integrate high performance sensors, as the system is not limited to a Maximum Take-Off Mass (MTOW) of 5.7 tons like comparable systems nowadays. Because the system is certifiable, as RPAS with a MTOW above 5.7 tons, and additionally gets air traffic integration into civil air spaces, the European MALE RPAS generates new opportunities of operational use for the armed air forces of the Member States.

The Development of a European MALE RPAS is a strategic enabler for European defence. The use of MALE RPAS has become an integral part of defence operations. To date there is no European product that is able to satisfy the existing defence demand. Instead, Member States rely on products developed and produced outside the Union, resulting in a technological dependency on third countries and/or third country entities. In addition, the

European Council has identified as early as 2013 the development of MALE RPAS as one of the key strategic challenges for the Union[9].

European MALE RPAS is a collaborative effort with the aim to develop, produce and sustain a system that provides this critical defence capability to respond to future security challenges. It is an overarching objective to strengthen European sovereignty in this strategically relevant area. Hence, the proposal shall result in a step-changing programme in line with European defence objectives and ensuring European strategic autonomy and technological as well as industrial competitiveness.

Following the European Council Conclusions referred above to develop a MALE RPAS in the 2020 – 2025 timeframe, four Member States (Spain, Germany, Italy and France) have firmly committed to the programme, already establishing a dedicated programme division within the Organisation for Joint Armament Cooperation (OCCAr) for implementation of the programme and providing funds for the project. Two more Member States have expressed their interest of joining the programme.

European MALE RPAS closes a critical shortfall in due time. The specific technological characteristics of the project provide a decisive step forward in capability that is much needed. The project has achieved a level of maturity that is unparalleled in Europe. It will deliver capability in time as called for by European Council. The development is based on common defence requirements jointly agreed by the Participating States.

The intention is to build a strong European supply chain across all levels to foster the European Defence Technological and Industrial Base (EDTIB) on a long term basis. The supply chain will not become a pre-determined black box, but will be open for competitive supplier in a largely open tender process, whereby the suppliers for critical mission or safety relevant systems are intended to be European or EU-based. In this process all competitive companies of all Member States have a chance to be part of the programme in all phases. The manufacturer will introduce a mechanism to identify and, where appropriate, qualify new suppliers ensuring the agility of the supply chain.

The named beneficiaries, on account of their technical competence and high degree of specialization, are well placed to perform the above mentioned activities.

Article 195 (c) of the Financial Regulation: "grants to bodies with a de jure or de facto monopoly or to bodies designated by Member States, under their responsibility, where those Member States are in a de jure or de facto monopoly situation".

The current project nations designated the named beneficiaries, under their responsibility, to develop, produce and procure, in the 2020 – 2025 timeframe, the 'Eurodrone', European MALE RPAS project as a complete and operative system. There is no other European project known of this type and magnitude within the timeframe above and that has achieved that level of maturity in the Union. Therefore there is a monopoly situation.

Beneficiaries: Airbus Defence & Space GmbH, Dassault S.A., Leonardo, Airbus Defence & Space S.A.U.

Maximum amount of Union contribution: **EUR 100 000 000 (EUR 26 350 000 in 2019 and EUR 73 650 000 in 2020).**

[9] European Council Conclusions EUCO 217/13 of 19/20 December 2013: "[…] the development of Remotely Piloted Aircraft Systems (RPAS) in the 2020-2025 timeframe: preparations for a programme of a next-generation European Medium Altitude Long Endurance RPAS; the establishment of an RPAS user community among the participating Member States owning and operating these RPAS […]". https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/140245.pdf.

4.5.2. Interoperable communication activities for waveforms at tactical level compliant with European Secure SOftware defined Radio (ESSOR) and Software Communication Architecture (SCA) software defined radio platforms

Scope of the action

The objective is to support the development of an interoperable secure defence communications system compliant with ESSOR and SCA software defined radio platforms.

The grant will cover the development of a High Data rate Wide Band Software Defined Radio (ESSOR OC1), a Custodianship Centre, Narrowband Waveform (NBWF), Ultra High Frequency Military Satellite Communications (UHF SATCOM), three-Dimensional Waveform (3DWF) and Joint Advanced Data Links (JADL), in particular:

- Development of a base waveform (ESSOR OC1) compliant with the ESSOR SDR architecture in UHF band which will be able to fulfil operational requirements of high data rate tactical terrestrial network;
- Implementation of the target waveform (ESSOR OC1) onto several European SDR radios, and associated field testing;
- Preparation of the evolution of the waveform (ESSOR OC1) through a study encompassing waveform upgrades and associated cost estimations;
- Dissemination of information related to ESSOR OC1 waveform and ESSOR architecture, allowing international standardisation;
- The initial phases of development of a ESSOR NBWF, a ESSOR SAT UHF WF and a ESSOR 3DWF;
- The definition of a custodianship centre for SDR[10] waveforms;
- The initial phases of the development for a common family of hardware terminals (enhanced Link-16 and advanced intra-flight datalink), including standardised crypto modules without dependencies with third parties, to fit a wide variety of defence platforms.

Justification for direct award:

The ESSOR PESCO project activities are currently performed by the consortium a4ESSOR through a contract managed by OCCAr.

A4ESSOR is a Joint-Venture between companies Thales (FR), Leonardo (IT), Indra (SP), Radmor (PL), Bittium (FI) and soon Rhode & Schwarz (DE). The objective of the ESSOR programme is to focus on interoperable (coalition) solutions for the armed forces. The two main products of this more than 10-year programme are the coalition High Dynamic Range WaveForm (HDRWF) (specifications, base waveform, ported on different target platforms, interoperability tested) and the definition of the ESSOR architecture, conceived to become the European standard. The consortium gets some full IPR attached to these products and any future activities related to other coalition waveform will need to reuse this background information. Only a4ESSOR gets this particular know-how related to the SDR architecture, called ESSOR architecture.

European competitiveness will be enhanced through the availability of several vendors in Europe to provide tactical radios encompassing some common waveforms which would ensure interoperability between armed forces of Member States.

[10] Software Defined Radio

Article 195 (f) of the Financial Regulation: "grants […] for activities with specific characteristics that require a particular type of body on account of its technical competence, its high degree of specialisation or its administrative powers, on condition that the activities concerned do not fall within the scope of a call for proposals."

The actions present exceptional technological characteristics: are all based on the state of the art technology in the radio field (*e.g.* software defined radio) and aims at developing the most advanced concepts and solutions for communication, applied to all the waveform layers. These waveforms (and related activities) cover all the radio communications needs, complementing each other. They overall build up a complete set of capabilities satisfying the most stringent, modern and future communication requirements.

The action is a strategic enabler for European defence: complete communication capabilities are critical assets; when they are accessible, shared and used by all Member States, provide for an unprecedented optimization and effectiveness of the joint operations. Management and custodianship of such products complete the overall communication assets.

The action is able to contribute to and solve a critical shortfall: so far communication interoperability has been weak; the proposed activities provide for availability and usability in a short time period.

The action contributes to the inclusiveness of EDIDP as well as to foster the European Defence Technological and Industrial Base (EDTIB) on a long term basis: through the PESCO initiative more Member States are willing to join the ESSOR framework Memorandum of Understanding increasing the opportunities to jointly use, own and maintain the final products.

The named beneficiaries, on account of their technical competence and high degree of specialization, are well placed to perform the above mentioned activities.

Article 195 (c) of the Financial Regulation: "grants to bodies with a de jure or de facto monopoly or to bodies designated by Member States, under their responsibility, where those Member States are in a de jure or de facto monopoly situation".

The current project nations designated the named beneficiaries, under their responsibility, to develop ESSOR. There is no other European project known of this type and magnitude within the timeframe above and that has achieved that level of maturity in the Union. Therefore there is a monopoly situation.

Beneficiaries: Thales, Leonardo, Indra, Radmor, Bittium and Rhode & Schwarz.

Maximum amount of Union contribution: **EUR 37 000 000 (EUR 20 000 000 in 2019 and EUR 17 000 000 in 2020).**

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

- 21 calls for proposals (9 in 2019 and 12 in 2020);
- 2 non competitive calls (direct awards);
- Financial contribution for the call for tenders for independent experts recruited for the evaluation of proposals submitted to the calls described above: 15 000 EUR per call;

Within these actions, the following grant agreements may be implemented, after the award decision, through a limited delegation of budget tasks entrusted to the Organisation Conjointe de Coopération en matière d'Armement (OCCAr):

- Development of European MALE RPAS;
- Interoperable communication activities for waveforms at tactical level compliant with ESSOR and SCA software defined radio platforms.

Grants will be awarded to consortia after the publication of calls for proposals or after application of Article 195 of the Financial Regulation (direct award).

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

Activity	Baseline 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 1[11]:

Condition	Increase in funding rate
Action developed in the context of PESCO	+ 10%
EU-established SME participation $\frac{\sum Eligible\ Costs\ of\ EU\ SME}{Total\ Eligible\ Costs} > 10\%$	$+\frac{\sum Eligible\ Costs\ of\ EU\ non\ crossborder\ SME}{Total\ Eligible\ Costs} * 100\%$[12] $+\frac{\sum Eligible\ Costs\ of\ EU\ crossborder\ SME}{Total\ Eligible\ Costs} * 200\%$
EU-established Mid-cap participation $\frac{\sum Eligible\ Costs\ of\ EU\ MidCap}{Total\ Eligible\ Costs} > 15\%$	+ 10%

[11] 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 and in any event should be without prejudice to the co-financing principle.

[12] Up to an additional 5%.

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 48 months.

ANNEX II

Reimbursement of personnel costs of beneficiaries

Introduction

In order to simplify the declaration and verification of costs of beneficiaries under the European Defence Industrial Development Programme (EDIDP), Article 3 of this Decision authorises the reimbursement of personnel costs declared as unit costs on the basis of beneficiaries' usual accounting practices and the reimbursement of personnel costs of SME owners who do not receive a salary declared as unit costs. This Annex lays down methods to determine annual productive hours and hourly rates.

1. Rationale for the reimbursement of personnel costs declared as unit costs

1.1. Experience from the Horizon 2020 Programme

Based on experience drawn from the implementation of the Horizon 2020, the use of unit costs would facilitate the implementation of the EDIDP for the following reasons:

Majority of beneficiaries have long established systems for the use of unit costs declared on the basis of the beneficiary's usual cost accounting practices for direct personnel costs;

Use of unit costs will bring a simplification and reduce administrative burden for all concerned parties.

1.2. The specific case of SME owners who do not receive a salary

SMEs are expected to participate in actions funded under the EDIDP. It should thus be possible to provide support for the work carried out by SME owners who do not receive a salary. However, in the absence of a salary, there is no actual cost recorded in the accounts of the beneficiary related to the work of these persons. This leads to the Union being incapable of co-financing such work which is otherwise real and necessary for the implementation of an action. The use of unit costs to support SME owners who do not receive a salary carried out in Union funded actions in accordance with Article 181(7) of the Financial Regulation would allow overcoming this difficulty.

Therefore, costs related to the work of SME owners who do not receive a salary shall be declared on the basis of unit costs in grants awarded under the EDIDP taking the form of reimbursement of eligible costs.

It is expected that the EDDIP will attract similar population of beneficiaries as the Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020). For the sake of consistency and administrative simplification for the beneficiaries, the same rules should be applied to the same beneficiaries which may receive funding under both programmes.

Reduction of risk

The use of unit costs will reduce the risk of irregularities, overstatements and fraud since personnel costs will be calculated according to established formulas set out in point 2. In addition, it will also contribute to the objective of simplification and cost-effectiveness of controls.

2. Methods to determine and update the amounts

2.1. Unit costs determined according to the beneficiary's usual cost accounting practices

Beneficiaries may declare eligible costs for the work carried out under the action for all categories of personnel, other than SME owners and natural persons not receiving a salary, using unit costs determined according to the beneficiary's usual cost accounting practices using annual productive hours.

Eligible staff costs shall be calculated according to the following steps:

STEP 1: Determine actual annual personnel costs for the year, as recorded in the beneficiary's accounts, excluding ineligible costs, costs included in other budget categories, and costs covered by other forms of grant (where applicable), in particular any indirect costs and provisions.

"Personnel" means staff working under an employment contract (or equivalent appointing act) assigned to the action, under the conditions set in the grant agreement. The personnel costs must be limited to salaries (including amongst others during parental leave), social security contributions, taxes and other costs included in the remuneration, if they arise from national law or the employment contract (or equivalent appointing act). Personnel costs may also cover the costs for natural persons working under a direct contract and the costs of personnel seconded by a third party against payment.

Calculating the actual annual personnel costs must be done according to the beneficiary's usual cost accounting practices, provided that they comply with the following cumulative criteria:

(a) they are calculated on the basis of the total actual personnel costs recorded in the participant's general accounts for the personnel carrying out work for the action; this may be adjusted by the beneficiary on the basis of budgeted or estimated elements; those elements must be relevant for calculating the personnel costs, reasonable and correspond to objective and verifiable information;

(b) the cost accounting practices are applied in a consistent manner, based on objective criteria independent from the source of funding;

(c) they ensure compliance with the non-profit requirement and the avoidance of double funding of costs.

Among the boundary conditions to be applied, beneficiaries must ensure that the costs declared can be directly reconciled with the amounts recorded in their general accounts.

STEP 2: Determine a person's 'annual productive hours', for which beneficiaries may choose among 3 options:

(a) On the condition that either the contract of employment, or the applicable collective labour agreement, or the national working time legislation allow to determine the annual workable hours, the total number of hours worked by the person in the year for the beneficiary calculated as follows:

Annual productive hours =

{annual workable hours of the person } plus {overtime worked} minus {absences}

– *annual workable hours* means the period during which the personnel must be working at the employer's disposal and carrying out his/her activity or duties under the employment contract, applicable collective labour agreement or national working time legislation;

– *absences* means for example sick leave and special leave.

(b) The 'standard number of annual hours' generally applied by the beneficiary for its personnel in accordance with its usual cost accounting practices. This number must be at least 90% of the 'standard annual workable hours'.

If there is no applicable reference (i.e. employment contract, collective labour agreement or national law) for the standard annual workable hours, this option cannot be used.

(c) 1 720 hours for persons working full time (or corresponding pro-rata for persons not working full time).

For all options under points (a), (b) and (c), the actual time spent on parental leave by a person assigned to the co-funded action may be deducted from the number of annual productive hours.

The total number of hours declared in Union or Euratom grants, for a person for a year, cannot be higher than the annual productive hours used for the calculations of the hourly rate. Therefore, the maximum number of hours that can be declared for the grant are:

{number of annual productive hours for the year minus total number of hours declared by the beneficiary, for that person for that year, for other Union or Euratom grants}.

STEP 3: Determine the hourly rate for a person (the 'unit cost') as follows:

actual annual personnel costs for the person for the year
divided by
number of annual productive hours.

The beneficiaries must use the annual personnel costs and the number of annual productive hours for each financial year covered by the reporting period concerned. If a financial year is not closed at the end of the reporting period, the beneficiaries must use the hourly rate of the last closed financial year available.

STEP 4: Multiply the hourly rate (the 'unit cost') with the number of actual hours worked on the action.

The number of actual working hours declared for a person must be identifiable and verifiable; they must be necessary for implementing the action and must be actually used during the action. Evidence regarding the actual hours worked shall be provided by the participant, through a time recording system for which the minimum requirements are set out in section 2.3.

2.2. Unit costs for SME owners and natural persons not receiving a salary

The direct personnel costs of **SMEs owners not receiving a salary** shall be based on a unit cost per hour worked on the action to be calculated as follows:

{Monthly living allowance fixed at EUR 4 880 multiplied by the country-specific correction coefficient as set out in the Appendix} divided by 143 hours

The fixed unit cost amount has been increased from 2017 to2018 as based on the monthly living allowance for a researcher fixed in Commission Decision C(2017) 6855[13].

Futhermore, the country specific correction coefficient has been updated for 2018 as provided for in the Appendix.

The value of the work of the SME owners not receiving a salary shall be determined by multiplying the unit cost by the number of actual hours worked on the Action.

The total number of hours declared, in a year, in Union and Euratom grants for one SME owner or natural person not receiving a salary may not be higher than 1 720 hours.

2.3. Time records

Beneficiaries must keep time records for the number of hours declared under the action. The time records may be either on paper or in a computer-based time recording system. They must be approved by the persons working on the action and their supervisors, at least monthly. The absence of an adequate time recording system is considered to be a serious and systematic weakness of internal control.

As an exception, for persons working exclusively on the co-funded action, there is no need to keep time records, if the beneficiary signs a declaration confirming that the persons concerned have worked exclusively on the action, or it is clearly indicated in their contract of employment (or equivalent appointing act).

3. No-profit and co-financing principles and absence of double financing

The conditions for reasonably ensuring that the no-profit principle is complied with are:

The calculation method of unit costs is based on the actual costs recorded on an annual basis in the beneficiary's accounts;
The unit cost covers only a part of the eligible costs;

The absence of profit will be verified at the time of payment of the balance according to the conditions stated in each grant agreement.

The conditions for reasonably ensuring the absence of double funding are:

The specification/identification of the categories of eligible costs subject to the unit cost;
Ex-ante and ex-post controls may verify the declaration of hours / units across several funded actions in order to ensure there is no abuse of the number of hours for individuals declared in a given action.

[13] Commission Decision C(2017)6855 of 16 October 2017 amending Decision C(2013)8194 authorising the use of reimbursement on the basis of unit costs for Marie Skłodowska-Curie actions under the Horizon 2020 Framework Programme.

Compliance with the co-financing principle will be ensured by application of a co-financing rate laid down in each grant agreement to the amount of the eligible costs.

Verification of compliance with the above principles for the funding on the basis of unit costs of the work carried out by SME owners not receiving a salary is limited, since the value of their work are not personnel costs borne by the beneficiaries. This exception is provided for by Article 181(7) of the Financial Regulation.

Appendix

Country correction coefficient (for 2018 onwards)

Country Code (*)	CCC
BE	100.0%
BG	62.0%
CZ	81.78%
DK	135.0%
DE	97.0%
EE	79.4%
IE	115.6%
EL	88.7%
ES	95.4%
FR	115.7%
HR	83.9%
IT	104.4%
CY	82.6%
LV	77.7%
LT	72.5%
LU	100.0%
HU	77.4%
MT	84.4%
NL	107.9%
AT	106.7%
PL	75.5%
PT	84.2%
RO	68.8%
SI	86.1%
SK	80.4%
FI	120.8%
SE	121.8%
UK	139.8%

(*) ISO 3166 alpha-2, except for Greece and the United Kingdom (EL and UK used respectively instead of GR and GB)