European Defence Fund (EDF)

Call for proposals

EDF-2023-RA

Call for EDF **research actions**
implemented via actual cost grants

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HISTORY OF CHANGES			
Version	**Publication Date**	**Change**	**Page**
1.0	13.04.2023	– Initial version.	
1.1	22.06.2023	– Update of table of contents (page numbers only) – Addition of reference to adopted EDF work programme 2024 part 1 and removal of caveat on 2024 budget – Update of the call opening date – Addition of provisions following the Council Implementing Decision (EU) 2022/2506 of 15 December 2022 on measures for the protection of the Union budget against breaches of the principles of the rule of law in Hungary	– 4-5 – 6 42 – 43 – 45-46
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EUROPEAN COMMISSION
Directorate-General for Defence Industry and Space

DEFIS.A – Defence Industry

CALL FOR PROPOSALS

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0. Introduction

This is a call for proposals for EU **action grants** in the field of collaborative defence research and development under the **European Defence Fund (EDF)**.

The regulatory framework for this EU Funding Programme is set out in:

- Regulation 2018/1046 (EU Financial Regulation)
- the basic act (EDF Regulation 2021/697[1]).

The call is launched in accordance with the Work Programmes 2023 Part II[2] and 2024 Part I[3] and will be managed by the **European Commission, Directorate-General for Defence Industry and Space (DG DEFIS)**.

The call covers the following **topics**:

- **EDF-2023-RA-SENS-EMSP: Electromagnetic signal propagation**
- **EDF-2023-RA-SENS-OPTD: Optronics detector technologies**
- **EDF-2023-RA-SPACE-PSA: Threat surveillance and protection of space-based assets**
- **EDF-2023-RA-DIGIT-HAAI: Dedicated hardware architectures for energy-efficient AI**
- **EDF-2023-RA-PROTMOB-DEXPLO: Demonstrators and technologies to defeat threats posed by Unexploded Explosives Ordnances (UXO) and Improvised Explosive Devices (IED)**
- **EDF-2023-RA-PROTMOB-SATOC: Strategic air transportation of outsized cargo**
- **EDF-2023-RA-DIS-LDEW: Laser-based directed energy weapons**

Each project application under the call must address only one of these topics. Applicants wishing to apply for more than one topic, must submit a separate proposal under each topic.

We invite you to read the **call documentation** carefully, and in particular this Call Document, the Model Grant Agreement, the EU Funding & Tenders Portal Online Manual and the EU Grants AGA — Annotated Grant Agreement.

These documents provide clarifications and answers to questions you may have when preparing your application:

- the Call Document outlines the:
  - background, type of action and funding rate, objectives, scope and types of activities, functional requirements, expected impact and specific topic conditions (sections 1 and 2)

[1] Regulation (EU) 2021/697 of the European Parliament and of the Council of 29 April 2021 establishing the European Defence Fund and repealing Regulation (EU) 2018/1092 (OJ L 170, 12.5.2021).

[2] Commission Implementing Decision C(2023) 2296 final of 29.03.2023 on the financing of the European Defence Fund established by Regulation (EU) No 2021/697 of the European Parliament and the Council and the adoption of the work programme for 2023 - Part II.

[3] Commission Implementing Decision C(2023) 4252 final of 21.06.2023 on the financing of the European Defence Fund established by Regulation (EU) No 2021/697 of the European Parliament and the Council and the adoption of the work programme for 2024 - Part I.

  - timetable and available budget (sections 3 and 4)
  - admissibility and eligibility conditions, including mandatory documents (sections 5 and 6)
  - criteria for financial and operational capacity and exclusion (section 7)
  - evaluation and award procedure (section 8)
  - award criteria (section 9)
  - legal and financial set-up of the Grant Agreements (section 10)
  - how to submit an application (section 11)
- the Online Manual outlines the:
  - procedures to register and submit proposals online via the EU Funding & Tenders Portal ('Portal')
  - recommendations for the preparation of the application
- the AGA — Annotated Grant Agreement contains:
  - detailed annotations on all the provisions in the Grant Agreement you will have to sign in order to obtain the grant *(including cost eligibility, payment schedule, accessory obligations, etc.)*.

You are also encouraged to visit the DG DEFIS webpage to consult the list of projects funded previously.

1. Background

The European Defence Fund (EDF) fosters the competitiveness, efficiency and innovation capacity of the European defence technological and industrial base (EDTIB).

It contributes to the EU strategic autonomy and its freedom of action, by supporting collaborative actions and cross-border cooperation between legal entities throughout the Union, in particular SMEs and mid-caps, as well as by strengthening and improving the agility of both defence supply and value chains, widening cross-border cooperation between legal entities and fostering the better exploitation of the industrial potential of innovation, research and technological development, at each stage of the industrial lifecycle of defence products and technologies.

The EDF funds projects which are consistent with the defence capability priorities commonly agreed by EU Member States within the framework of the Common Foreign and Security Policy (CFSP), through:

- collaborative research that could significantly boost the performance of future capabilities, aiming to maximise innovation and introduce new defence products and technologies, including disruptive technologies for defence, and aiming to make the most efficient use of defence research spending in the EU

or

- collaborative development of defence products and technologies, thus contributing to the greater efficiency of defence spending in the EU, achieving greater economies of scale, reducing the risk of unnecessary duplication and thereby fostering the market uptake of European defence products and

technologies and reducing the fragmentation of defence products and technologies, ultimately leading to an increase in the standardisation of defence systems and a greater interoperability between Member States' capabilities.

In line with the Work Programmes 2023 part II and 2024 part I, this call covers thematic topics addressing research actions which will be implemented through actual cost grants.

2. Type of action and funding rate — Objectives — Scope and types of activities — Functional requirements — Expected impact — Specific topic conditions

Type of action and funding rate

The topics under this call for proposals concern EDF Research Actions (RA).

Research Actions are reimbursed at a funding rate of 100%.

Specific topic conditions

For all topics under this call:

- multi-beneficiary applications are mandatory and specific conditions for the consortium composition apply *(see section 6)*
- the following reimbursement option for equipment costs applies: depreciation only *(see section 10)*

EDF-2023-RA-SENS-EMSP: Electromagnetic signal propagation

Objectives

General objective

Situational awareness is one of the key elements affecting military field actions and planning. Most of the military detection and control methods are based on the use of electromagnetic (EM) radiation, either for detection and ranging, or data transfer. In the recent years, military activity has significantly increased, especially in the northern and eastern Europe and Arctic areas, where specific environment parameters prevail.

The performance of radar and communication systems depends on the characteristics of the electromagnetic signal propagation in the atmosphere. Properties of the atmosphere and the Earth’s surface may lead to situations where propagation deviates drastically from normal, leading to situations where the radars and radio communications do not function as expected, including degradation of signal quality or even loss of signal. Under anomalous propagation conditions, radars and radio communications may have unusually long range or may be unable to reach and monitor certain locations. The latter may result in targets being invisible to radars and a loss of radio communications with any object traveling into, or operated from, an area.

The reflection and ducting in the troposphere can affect a large range of frequencies from VHF (50-100MHz) to EHF (40GHz) that are relevant for radar and communication applications. Due to its relatively frequent occurrence and intermittent nature, this phenomenon can have a heavy impact on the operations of defence systems.

Therefore, there is a need for forecasts of future environmental conditions that can be

used to assess and predict the propagation conditions of electromagnetic signal in different relevant wavelengths with limit estimates for expected variability. The resulting anticipation and forecasting capability of system performance would increase the situational awareness of military planners on both operational and tactical levels. It would also allow advance identification of locations and occurrences when alternative means of monitoring might be necessary.

The current openly or commercially available propagation models have limited functionality and/or accuracy, leading some nations to develop their own national propagation models tailored to national needs. The challenges are however common for all EU Member States and EDF associated countries (Norway) and require joint cross-border research as the current knowledge is fragmented, and many nations lack partly or fully the capability to address the problem. The relevant area of interest in e.g. radar surveillance for all nations stretches hundreds - or thousands of kilometres - behind the actual borders of a country, above the neighbouring countries and sea areas, thus requiring knowledge not only over a particular state, but over the whole region.

Simultaneously, new stealth capabilities, electronic counter measures or specific characteristics of new threats such as hypersonic threats, have compromised the detection capabilities of existing radars and radar networks used by all military branches. The performance of such systems must be known accurately and improved to ensure the capability to plan and conduct tactical military operations including monitoring, detecting, concealing, counter-measuring, and electronic counter-counter measuring of such threats.

Endo-atmospheric hypersonic weapons pose an entirely different challenge. Hypersonic weapons such as Hypersonic Glide Vehicles and Hypersonic Cruise Missiles are surrounded by a plasma sheath causing signal reflections to behave differently, including a distortion of radar signatures. The electromagnetic interaction with the plasma sheath, accurate models and experimental validation are not fully available up to now.

Specific objective

The main objective is to develop and test an efficient model of electromagnetic wave propagation capable of assessing and predicting EM signal propagation conditions to contribute to the creation of a tactical decision-making aid (TDA).

It is challenging to forecast and assess the prevailing environmental conditions affecting electromagnetic signal propagation, due to limited vertical resolution in the current meso-scale numerical weather prediction (NWP) models and accuracy of surface boundary condition fields. Another challenge is validating the model results. Above the ocean, where anomalous propagation conditions like ducting frequently occur, and in the Arctic areas, this is particularly challenging due to a limited number of meteorological and sea surface in-situ observations. Even more challenging is the Baltic Sea and its heterogeneous coastal environment, with low salinity creating unique reflection conditions for electromagnetic signal propagation. Current forecasting tools available to the military planners and operators are insufficient and often outdated with respect to the forecast of tropospheric ducting. In particular naval assets could benefit from a performant tool.

The rise of new, remotely controlled autonomous platforms is another rapidly developing field with strict requirements for electromagnetic data transfer. Awareness of data transfer performance will contribute to the optimisation of the usage of drone and other unmanned assets.

Additionally, another challenge arises for the detection and tracking of threats in endo-atmospheric hypersonic flight conditions. The study of plasma effects requires

the definition of an aerothermodynamic model, an EM plasma model, and a radiation and scattering model. To date, this overall set of models does not possess an established validation with experiments reproducing the actual flight conditions. Such investigations can only constitute a first step to the longer-term objective to develop specific tools that ensure the best detection and tracking performance during each phase of the hypersonic flight path (i.e. long range detection for Over-the-Horizon radar, short range detection and tracking ground radar, on-board radio-frequency missile seeker) and to identify innovative sensor architectures and techniques appropriate for hypersonic threat defence.

Scope and types of activities

Scope

The proposals must provide the first steps towards a joint European capability to estimate and address the impacts of anomalous atmospheric electromagnetic signal propagation on radar performance and RF communication over the ocean and ice-covered areas in and around Europe. The proposals should also address anomalous atmospheric electromagnetic signal propagation over land, over and around Europe. The proposals must consider atmospheric conditions up to 30km in height and may consider atmospheric conditions at other heights.

The proposals must aim at quantifying the frequency of occurrence and geographical extent of anomalous propagation conditions. They must address the key processes causing anomalous propagation and their occurrence.

They must also include research into a joint modular propagation model. They should improve understanding of the needs and quality requirements for in-situ instrumentation and observations of key environmental variables to support anomalous propagation forecasting.

The proposals should address the functional requirements and suggest a design for nowcasting and forecasting tools for signal propagation conditions and radar and communication performance.

The proposals must also address and aim to partially validate physical assumptions and electromagnetic signal interaction properties related to hypersonic threats, in particular related to the plasma sheath induced by hypersonic flight regime.

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

Types of activities (art 10(3) EDF Regulation)		**Eligible?**
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (mandatory)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (mandatory)

	Types of activities (art 10(3) EDF Regulation)	Eligible?
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (mandatory)
(e)	**System prototyping**[4] of a defence product, tangible or intangible component or technology	No
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[5] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[6] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

- Generating knowledge:
  - provide the state of the art on and determine the frequency and occurrence of sea (including the Baltic Sea and its heterogeneous coastal environment) and land surface ducting and anomalous signal propagation conditions in Europe;
  - provide in-situ observations and accurate information on Earth's surface characteristics (e.g. topography, land cover and vegetation, temperature, waves, currents, evaporation, ice and snow cover), whether above the sea or land and identify and define the most efficient modelling approach(es) suited for nowcasting and forecasting electromagnetic signal propagation;
  - define a Hypersonic Glide Vehicle and Hypersonic Cruise Missile radiation and scattering model of electromagnetic signals based on an aero-thermodynamic and an electromagnetic plasma model for those threats;

[4] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

[5] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.

[6] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.

- aim at partial validation of the computational models and the underlying physical assumption (e.g. by reproducing hypersonic flight conditions in a test environment);

- Studies:
  - assess the impact on radar performance (e.g. detection performance, classification of threats, tracking…) linked to anomalous atmospheric propagation conditions, including for new threats;

- Design:
  - design the models required for nowcasting and forecasting radar and electromagnetic signal propagation;
  - conduct tests of the designed electromagnetic propagation model.

In addition, the proposals should cover the following tasks:

- Generating knowledge:
  - assess necessary requirements to establish an accurate signal propagation model over different areas, including marine environments, such as vertical and horizontal resolution requirements of NWP models, refractivity conditions and surface heterogeneity (e.g. for archipelagos, mountains, sea ice) and sea surface properties (e.g. sea surface temperature, waves, sea-ice cover);
  - investigate plasma sheath specifications for the models by estimating hypersonic threat trajectories, e.g. using Artificial Intelligence techniques or others;
  - examine the signal frequency dispersion induced by the plasma sheath;

- Integrating knowledge:
  - investigate a joint observation approach and protocols for supporting and validating the forecasting;
  - assess different options for the transfer of information on anomalous propagation condition forecast to users to adapt it to the available bandwidth;
  - examine and suggest methodologies for using multiple assets to map anomalous signal propagation, e.g. by integrated multi-type radar mapping;
  - investigate signal modulation, such as scale effect and intra-pulse Doppler signal modulation, in presence of objects with hypersonic flight trajectories;

- Design:
  - design requirements for a future joint European electromagnetic signal propagation now- and forecasting tool;
  - design requirements for an interoperable European reference observation network providing in-situ data to support electromagnetic signal propagation forecasting.

The proposals may also cover the following tasks:

- Generating knowledge:
  - identify necessary modifications and/or improvements of existing operational weather and ocean models to provide possible variable and boundary fields for assessment of electromagnetic signal propagation;
- Studies:
  - elaborate guidelines to enhance cost-efficiently the performance of existing radar networks used by all military branches in the context of anomalous atmospheric propagation conditions, including for hypersonic scenarios;
  - address the benefits of cooperative and multi-static radar architectures to enhance target detection and tracking in the context of anomalous atmospheric propagation conditions, including for hypersonic scenarios;
- Design:
  - identify the requirements for a European ducting and anomalous propagation forecast message format;
  - based on the defined models, provide recommendations on signal waveforms;
  - provide recommendations on detection, classification and tracking approaches for hypersonic threats and propose innovative solutions.

Functional requirements

The proposed technologies should meet the following functional requirements:

- be based on a solid open-source strategy, for EU Member States and EDF associated countries (Norway), that ensures the possibility to share source code, documentation and executables in accordance with the provisions and the objectives of the EDF regulation and with a licence scheme compatible with further development and commercial exploitation of the results;
- the determination of the frequency and occurrence of sea and land surface ducting and anomalous signal propagation should be based on existing military, marine and weather radars, and suitable sources of signal, e.g. AIS and radio transmitters;
- the meteorological and signal propagation observations should cover all seasons and include the following types of areas: sea surface, land surfaces with different vegetation cover types, and ice- and snow-covered areas;
- the modelling system should be applicable in varying specific circumstances, especially terrain, e.g. environment conditions like topography, surface roughness, vegetation (height and nature), urban structures, open sea or coastal conditions with varying electric conductivities, waves (height and direction), snow, ice surface conditions;
- the model should be compatible with inputs and outputs of radar performance modules and tactical decision aid (TDA) modules;
- the signal propagation modelling and in-situ observation approach(es) should be wavelength dependent and suitable for the frequency range used by the

military radars and for radio communication, covering VHF to EHF (up to at least 20GHz);

- the electromagnetic signal propagation model should take into account realistic conditions, such as land, sea and hydrometeors clutter as well as thermal noise and compute signal-to-thermal noise ratio and signal-to-clutter ratios;
- the signal propagation modelling approach should make optimal use of existing operational weather and ocean models and should be compatible with operational weather and ocean models used by the national (civil / military) operational weather and ocean model service providers, if useful for efficiency gains;
- the electromagnetic signal propagation model should cover a height of at least up to 30km;
- the electromagnetic propagation model should take into account refractive conditions (i.e. modified refractivity profiles including evaporation layer), diffraction (above land and sea), multipath (above land and sea) and hydrometeor attenuation (rain, snow...);
- the electromagnetic signal propagation model should be able to support estimates of the confidence interval of detection and communication ranges, based on uncertainty of atmospheric propagation characteristics;
- should be able to ensure some level of anomalous signal propagation forecasts and nowcasts under conditions where in-situ observations are not available or are unreliable, e.g. by extrapolation of suitable data;
- accuracy, resolutions of the nowcasting and forecasting should meet or outperform the state of the art;
- execution time of the electromagnetic propagation model should be compatible with modern multi-mode radars (e.g. less than few seconds for 400x400 altitude distance spatial grid for one radar mode), even without implementation on a GPU;
- the forecasting of ducting should cover time ranges at least up to 36h;
- the nowcasting and forecasting should include estimates of the generic communication distances, surveillance radar detection ranges and confidence interval of detection and communication ranges;
- the forecasting should give predictions of changes of propagating conditions.

Expected impact

The outcome should contribute to:

- providing a vital tactical advantage to the military performance of EU Member States and EDF associated countries (Norway) by improving the joint enhanced monitoring and situation awareness capability including with respect to stealth and hypersonic targets, the capability for stealth operations, the usage of Unmanned Aerial Vehicles and the performance of self-defence systems;
- the reduction of resources duplication and creation of collaborative long-term tactical advantages for the armed forces of EU Member States and EDF associated countries (Norway) by a reduction of the fragmentation of current methodologies;

- the overall improvement of resilience of communication methods for military and civil applications;
- supporting mission planning and strengthening hypersonic defence capabilities, amongst other through hypersonic system performance forecasting;
- the strengthening of the competitiveness of European radar and military communication industrial and technological base.

EDF-2023-RA-SENS-OPTD: Optronics detector technologies

Objectives

General objective

The domain of infrared (IR) detectors encompasses a variety of technologies that operate in different spectral bands for a variety of applications. IR detectors are key elements to increase detection/recognition/identification (DRI) ranges of sensors and thus improve the global efficiency of the system with respect to situational awareness and targeting. Passive systems based on high-performance electro-optical (EO) thermal imaging are mandatory for realising these advantages under stealth conditions. IR thermal detectors usually operate either in the mid-wavelength (3-5µm[7], MWIR) or in the long-wavelength (8-12 µm[1], LWIR) atmospheric window.

For armed forces, sensor systems with maximised detection, recognition and identification ranges are key to prevail on the battlefield. In the naval domain, typical applications like surveillance against non-conventional threats require several sensors (active and passive) and visual confirmation is required in many cases. In the land domain, situational awareness in armoured vehicles requires sophisticated IR sensors. Soldiers greatly benefit from IR sensors that are robust and comply with size, weight, power consumption and cost requirements (SWAP-C), especially in low visibility conditions. SWAP is also an important requirement for payloads of observation satellites. In the air domain, Missile Warning System (MWS) will also benefit from progress in IR technology. Similarly, for airborne surveillance, new generation of IR sensors will improve the trade-off between range and field of view.

The specific requirements of demanding military applications often require adapting existing products or developing specific products within the defence community. Several IR detector materials are particularly interesting for defence applications, amongst which II-VI compounds, where European manufacturers are currently able to offer state-of-the-art IR detectors and III-V compounds, which are regarded as possible cost-efficient and performant alternatives. One particular type of detectors are the Type-II superlattice materials, which are made of periodic structures of two III-V compounds (e.g. InAs and GaSb or other combinations). Additionally to the semiconductor material, most infrared sensors necessitate a Read-Out Integrated Circuit (ROIC) to convert the collected infrared light into a corresponding electrical signal. Finally, many IR sensors need cooling technology as, depending on the materials used and the wavelength of the radiation to be detected, high performance IR detectors must commonly operate at low temperatures to cope with the relatively small characteristic infrared energy and in order to achieve an adequate signal-to-noise ratio.

Infrared technology is an important element of Europe’s technological sovereignty in key value chains. In this regard, the European defence industrial and technological base faces a threefold challenge in the field of optronic detectors: achieving high

[7] Usually quoted frequency range.

performance, maintaining international competitiveness and securing non-dependency of supply chains.

Specific objective

Currently, three domains in European cooled infrared sensors supply chain need further investment in cooperative R&D to answer to those challenges: detector materials, ROIC bumping technology and cryocoolers.

Concerning detector material, Type-II superlattice (T2SL) materials have been identified as a potential alternative to current technologies (like InSb and CMT) in the mid wave infrared (MWIR) range and may also be a viable alternative in the long wave infrared (LWIR) range. They may be usable for bi-spectral / multispectral applications and High Operating Temperature focal plane arrays, be more cost-effective, and also provide for very compact solutions. T2SL based technology may offer very fine pitch and process flexibility needed for future defence applications. T2SL have been under intensive development and promotion in the U.S., Israel and in some European countries. South Korea and China are also becoming very active in this field. T2SL offer in terms of supply chain and eco system remains for the time being poor in the EU and EDF associated countries, despite some already existing competitive fielded products in relevant military programmes. For example, European providers are facing today dependency on non-European suppliers of Gallium Antimonide material substrates (GaSb) and lack an industrial III-V epitaxy source, only available in the U.S.

Concerning the ROIC, critical steps to manufacture such circuits were addressed by the EDF-2021-SENS-R-IRD topic. Complementary activities are necessary on ROIC bumping technology in order to prepare for hybridisation of detection circuits on the ROICs. As defence applications require lower volumes of infrared detectors compared with civil applications, these activities need to be shared by IR manufacturers in Europe.

Cryocooling components needed for cooled infrared sensors must face both high requirements and strong competition from other continents, on a wide spectrum of products (handheld, embedded, airborne high-end). Fundamental technological improvements are necessary for the European cryocooling supply chain in order to remain competitive, both economically and performance-wise. Cryogenics technologies adapted for temperatures higher than 150K, are expected to bring significant gains in power consumption and volume, and will most likely require more efficient cryogenic solutions contributing to SWAP-C improvement.

Scope and types of activities

Scope

This topic aims at consolidating a fully sovereign common supply chain of some critical technology building blocks for the next generation of high performance infrared detectors for defence applications in all battlespace dimensions.

The proposals must address IR detector technologies based on Type-II Superlattice (T2SL) materials, including the necessary competences and know-how to supply large-diameter high-quality substrates to the infrared sensor providers, as well as a corresponding epitaxy process.

The proposals should also address advanced silicon ROIC technology with the objective to develop a common post-processing of future ROICs to prepare them for bumping and bumping technology.

Finally, the proposals must aim to improve the fundamental knowledge of cryocoolers

and find innovative solutions in order to improve the performances of European cryocoolers solutions for IR sensors.

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

	Types of activities (art 10(3) EDF Regulation)	**Eligible?**
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (optional)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (mandatory)
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (optional)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (optional)
(e)	**System prototyping**[8] of a defence product, tangible or intangible component or technology	No
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[9] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[10] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

- Integrating knowledge:

[8] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

[9] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.

[10] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.

- acquire necessary knowledge on substrate production processes, suitable for T2SL detectors;
- acquire necessary knowledge on epitaxy for T2SL detectors, including epitaxial structure modelling activities, epitaxial structure growth, validation through test chip processing and electrical characterisations.

In addition, the proposals should cover the following tasks:

- Generating knowledge:
  - concerning the aspect of cryocoolers, create a complete thermodynamical model of cryocoolers based on an innovative principle;
- Integrating knowledge:
  - concerning the aspect of ROIC technology, improve the technology of common ROIC bumping process steps (e.g. Under Bump Metallisation and indium bumps) and process flow;
  - concerning the aspect of cryocooler technologies, investigate characteristics of cryocoolers with improved performances with respect to cost, size, weight and efficiency, low vibrations and acoustic noise of cryocoolers;
  - concerning the aspect of cryocooler technologies, investigate new materials, concepts, manufacturing technics to improve the thermal transfer internal to the cooler and its interfaces;
- Studies:
  - identify physical parameters and sensors allowing to predict the time-to-failure of coolers and of solutions to provide efficient Health monitoring of cryocoolers;
- Design:
  - design of innovative and improved cryocoolers adequate for T2SL applications and demonstration by partial testing of the designed solutions in a relevant environment.

The proposals may also cover the following tasks:

- Design:
  - validation of substrate and epitaxy processes using sample focal plane arrays;
  - implementation of an IR T2SL detector with high-resolution / small pitch based on the substrate and epitaxy processes investigated;
  - complete testing of the designed solutions in a relevant environment.

In addition, the proposals should substantiate synergies and complementarity with foreseen, ongoing or completed activities in the field of infrared technologies, notably those performed or foreseen in the context of the call topic EDF-2021-SENS-R-IRD[11].

[11] Infrared detectors

Functional requirements

The proposed technologies should meet the following functional requirements:

- reduction of size, weight, power, and cost;
- the solutions of substrates for T2SL detectors should:
  - be suited for all IR detector providers in the EU and EDF associated countries;
  - be suited for at least MWIR and LWIR wavelengths;
  - address large diameter (≥3''), cost-effective bulk crystal growth;
  - ensure an epi-ready surface preparation that is compatible with imagery requirements (e.g. low dislocation density, high homogeneity, low bow, low warp, adequate doping…);
- the epitaxy solutions for T2SL should:
  - be suited for all IR detector providers in the EU and EDF associated countries;
  - ensure a material quality in accordance with IR detectors requirements (operating temperature for defence applications, suited for at least MWIR and LWIR wavelength bands, high homogeneity and low defectivity on large wafers (≥3'') …);
  - ensure an epitaxial stack in accordance with the detector design;
- the ROIC post processing should:
  - be compatible with 300mm Silicon wafers;
  - be compatible with the common bumping process with low defectivity (< 0.05% defects) and high homogeneity;
- the proposed cryo-coolers solutions should:
  - be compliant with SWAP-C requirements;
  - exhibit vibration and noise reduction for stealthiness;
  - be based on innovative cryocooler models valid for temperatures ranging from 120K to 200K.

Expected impact

The outcome should contribute to:

- improved situational awareness and decision-making thanks to sensors with better detection, recognition and identification performance;
- improved characteristics of infrared detectors, including SWAP-C, available to the armed forces of EU Member States and EDF associated countries (Norway);

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https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/edf-2021-sens-r-ird.

- preparation of technologies necessary for a sovereign European supply chain for substrates, epitaxial wafer and ROIC processing for infrared imaging based on T2SL;
- preparation of technologies necessary for a sovereign European supply chain for cryo-coolers adapted to new high performance infrared image sensors based on T2SL technology with improved characteristics;
- improving the competitiveness and innovation capacity of the EDTIB in the field of infrared detectors by providing complementary technological know-how to ongoing efforts and established solutions.

EDF-2023-RA-SPACE-PSA: Threat surveillance and protection of space-based assets

Objectives

Space has become a domain of strategic and military competition. While space capacities have become strategically important to Europe's civil and commercial objectives, and are critical to ensure vital functions in military operations, the easier access to space, the growing number of space debris in orbit and the existence of counterspace capabilities and actions introduce increasing risks and threats to space assets. This implies the necessity to protect European space assets in their outer space environment.

Protection can be achieved by active and passive measures. This includes steps such as anti-jamming protection and other on-board countermeasures. It also includes means to characterise and attribute actions and effects of adversaries to enable satellite operators to restore functions, capabilities, or capacities after a human-made space incident.

Passive protection allows the detection and the characterisation of any attempt and action considered as hostile in order to limit the effects or to propose a counter action.

Considering the increasing threats and hazards towards space-based capabilities, technologies for passive protection of space assets should be developed for a better efficiency, safety and resilience of core missions. Such technologies should in particular address local detection, identification and characterisation of threats and protection mechanisms (including manoeuvres) with a focus on the capability to complement ground-based observations by leveraging on the use of space-based sensors.

General objective

The general objective of this topic is to conduct research activities on space-based technologies contributing to the protection of space-based assets against a wide range of threats and to demonstrate the feasibility of selected technological solutions.

Specific objective

The specific objectives of this topic are to identify and consolidate the potential threats to space assets and an overall preliminary system layout with associated functional chains of the different components (open architecture with interfaces and the possibility to integrate other and legacy systems), to study and select the best promising technologies to counter such threats based on this overall preliminary system layout, and to elaborate the associated technological roadmap as well as to start its implementation on some technological blocks.

In addition, this topic aims at studying the repartition of functionalities between ground- and space-based components to achieve an effective protection of the space assets, taking into account the interfaces with a wider space surveillance network for military space situational awareness: e.g. repartition of the sensors (on-board – as a primary or secondary sensor – or on the ground) and an overall preliminary system layout linked to a command and control (C2) approach to gather data and then elaborate a common operational picture of threats.

Scope and types of activities

Scope

The proposals must address the identification and consolidation of the main threats against generic space assets and associated vulnerabilities, the identification of technical solutions or adaptation of procedures to counter these threats, as well as the definition of the overall preliminary architecture for the elaboration of a comprehensive approach (satellite, C2 and system layout) to deal with these threats.

The proposals must consider at least the following threats:

- interference, uplink and downlink jamming and spoofing;
- electromagnetic pulse attacks, high-energy lasers and high-powered microwave weapons;
- physical attacks (e.g. threatening objects coming from intended space debris generation, as well as co-orbital and ground based anti-satellite weapons (ASAT)).

The proposals must consider technologies contributing:

- to the detection and identification of the threats, including, but not limited to, anti-satellite weapons and space objects with unexpected behaviour, using data processing for space applications and spectral signature;
- and to the protection of the space assets;

such as:

- passive or active optical sensors, radar sensors, on-board processing for proximity surveillance and tracking, including AI[12]-based on-board elaboration for high-level actionable information extraction from measurements to support autonomous decision-making and manoeuver;
- manoeuvrability to protect platform and payload, including technologies for instantaneous, rapid and agile evasive manoeuvres to escape objects that carry out suspicious/attacking proximity manoeuvres;
- technologies to protect satellite communication resources and C2 activities access from unwanted usage;
- electronic support measures (ESM) sensors for space assets;
- protection against high-energy laser, electromagnetic pulse attack and high-power microwave (HPM) weapons;

[12] Artificial intelligence.

- technologies allowing various level of autonomy and generation of pre-processed information for data volume reduction during transmission to ground.

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

Types of activities (art 10(3) EDF Regulation)		**Eligible?**
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (mandatory)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (optional)
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (mandatory)
(e)	**System prototyping**[13] of a defence product, tangible or intangible component or technology	No
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[14] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[15] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

- Generating knowledge:

[13] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

[14] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.

[15] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.

- the identification and analysis of current and expected threats against space assets and evaluation of associated vulnerabilities;

- Studies:
  - the consolidation of technological solutions to address these threats, their technology readiness level (TRL), the performance required and the evaluation of their interest/operational added value;
  - the elaboration of a technological roadmap at equipment level to further develop the best promising technological solutions;
  - the analysis/study of the space system protection architecture (including ground control) to propose solutions trade-off in order to answer to each identified threat (e.g. dedicated satellites, on-board payload integrated in satellites as a secondary mission, inter-satellite links, impact on the ground segments);
  - the analysis of the integration constraints of each technological block (e.g. SWaP[16] requirements, class of satellite platform on which it is integrable).
  - the development of an overall and preliminary system layout, based on the threat analysis. The system layout must address the operational use of identified self-protection solutions and include:
    - the operational scenarios to be taken into account;
    - the level of automation of the technical solutions;
    - the data needed at C2 level to contribute to the monitoring of the space situation limited to the threatened space asset and counteraction;

- Design:
  - the definition and design of selected technological blocks (sensors, on-board processing and passive counter actions). A layout as hosted payloads for big satellites and small satellites as well as a single payload for dedicated "protection" small satellites must be considered for each proposed technological solution;
  - the risk reduction tests/demonstration of these technological blocks.

In addition, the proposals must substantiate synergies and complementarity with foreseen, ongoing or completed activities in the field of Space situational awareness (SSA), notably those performed in the context of the call topics EDIDP-SSAEW-SC2-2020[17] and EDIDP-SSAEW-SSAS-2020[18], or foreseen in the context of the call topic EDF-2023-DA-SPACE-SSA[19].

Functional requirements

[16] Size, weight and power.

[17] Advanced Space Command and Control (SC2) capability to process and exploit SSA data generated from sensors and catalogues to provide a complete space picture (edidp_call-texts-2020_en.pdf (europa.eu)).

[18] Enhanced SSA sensors for accurate identification and characterisation of existing Geostationary Earth Orbit (GEO) and Low Earth Orbit (LEO) public and private assets (edidp_call-texts-2020_en.pdf (europa.eu)).

[19] Initial operational capacity for Space situational awareness C2 and sensors (cf. section 2.5.8.).

The technologies for space asset protection should meet the following requirements:

State of the art of the threats: ability to detect, to identify and to mitigate a wide range of threats (see *Scope* section above) in terms of power, origin and destination (e.g. LEO[20] to LEO, ground to LEO, GEO[21] to GEO, ground to GEO).

On-board autonomy:

- enable autonomous extraction of actionable information from the captured imagery/data including through AI-based techniques (see Scope section for examples of sensors and technologies);
- enable autonomous decision-making to implement safety procedures on the satellite and/or payload, including manoeuver execution and mission operation rescheduling (see Scope section for additional examples of targeted mitigation measures).

Space-to-ground efficiency: the transfer of data should minimise the impact on the primary missions.

Feasibility of integration in space assets: adaptability to various space platforms (EU, Member States and EDF associated countries (Norway) assets) taking into account the technological constraints linked to the integration of secondary missions on space assets (cost, volume, energy…).

Expected impact

The outcomes should contribute to:

- the development of technological components that will have a major impact on the detection and identification of threats and protection of space assets;
- the development of technological solutions against space threats;
- the future integration of the developed components in Member States and EDF associated countries (Norway) solutions and in European programmes space assets;
- the resilience of space systems and a better space domain awareness associated to the protection of space-based assets;
- EU approaches regarding "Defence in Space".

EDF-2023-RA-DIGIT-HAAI: Dedicated hardware architectures for energy-efficient AI

Objectives

Artificial Intelligence (AI) is becoming increasingly important for most defence capabilities. However, the energy consumption of AI implemented on classical processors limits its practical usage, especially for embedded systems and edge computing. Indeed, existing processors are far from optimal for most AI applications in terms of efficiency and energy consumption, due to their architecture (digital representation of information, separation of memory and computing). While this issue has been overridden for decades by the steady technological progress of these processors in terms of miniaturisation and performance following Moore's law, this

[20] Low Earth Orbit.
[21] Geostationary Earth Orbit.

trend is reaching its limit, and the need to move to dedicated architectures is coming to the fore.

In particular, moving from digital to analogue computing has the potential to improve computing in terms of speed and/or energy-efficiency by several orders of magnitude (expectedly by a factor of at least thousands). Furthermore, it can benefit from the increasing versatility of artificial neural networks to address a variety of AI applications. In addition, it offers enhanced security by coding the information in a way that strongly limits information leaks, as this information is deeply intertwined with the processing hardware. Besides, sensing functionalities can be integrated into analogue processors to produce very low power consumption smart sensors or to increase the frequency range of radiofrequency signals that can be processed.

In addition, this is an emerging technological domain within the field of processors where competition is relatively open and where there is an opportunity to build on European competencies.

The goal of the topic is thus to create new types of processors for AI that offer very significant performance gains for defence applications, and to develop European supply chains offering a technological autonomy for these technologies.

Scope and types of activities

Scope

The proposals must address research on new hardware architectures for AI that offer very significant gains in term of power consumption, processing speed and latency, as well as in terms of size, weight and cost. Any type of architecture deemed suitable to address the objectives may be investigated (e.g. magnetic tunnel junctions (MTJ), memristors, in-memory computing, etc., possibly combined with other relevant hardware and software technologies in hybrid architectures).

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

Types of activities (art 10(3) EDF Regulation)		**Eligible?**
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (optional)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (optional)
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (mandatory)

Types of activities (art 10(3) EDF Regulation)		Eligible?
(e)	**System prototyping**[22] of a defence product, tangible or intangible component or technology	No
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[23] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[24] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

- Studies:
  - study of new processing architectures and their physical implementation;
- Design:
  - design and small-scale fabrication of such innovative processors;
  - integration in technology demonstrators, and measurement of performances on AI data and tasks relevant for defence applications.

The proposals should describe how synergies and complementarities with activities funded by other sources of funding, including civil ones such as Horizon Europe, are sought and maximised.

Functional requirements

The proposed solutions should meet the following functional requirements:

- They should offer very significant gains over classical hardware architectures in terms of computing power (speed and/or energy efficiency) and compactness (size, weight and cost), including for complete systems (e.g. including thermal dissipation management). The gains are expected to be of several orders of magnitude. The proposals should clearly describe and justify the expected gains;
- These gains should be measured on well-identified defence AI use cases, with clear metrics and on data sets that are representative of military mission profiles. The proposals should describe clearly these use cases, metrics and

[22] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

[23] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.

[24] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.

data. They should also describe how the absence of bias in the measurements and comparability with state-of-the-art approaches can be ensured;

- Solutions addressing the detection and recognition of radiofrequency signals should address frequencies up to several tens of GHz.

Expected impact

The outcome should contribute to:

- the ability to integrate high-end AI features into various embedded defence equipment while offering reasonable battery life and at a reasonable cost;
- enhanced security of AI-based systems;
- strengthened European supply chains and technological autonomy in the domain of high-efficiency computing and processors for AI.

EDF-2023-RA-PROTMOB-DEXPLO: Demonstrators and technologies to defeat threats posed by Unexploded Explosives Ordnances (UXO) and Improvised Explosive Devices (IED)

Objectives

General objective

In the context of a changing geopolitical landscape, Member States and EDF associated countries (Norway) armed forces are facing new and evolving threats encountered in asymmetrical and potentially in symmetrical operational situations. This is the case of IED[25] (subsurface, surface, directional/side attack; suicide person- and vehicle-borne) and UXO[26] (bombs, shells, grenades, land mines and cluster munitions), which entail a significant hazard for military personnel, critical infrastructures and equipment in both urban and out-of-area operations. Obtaining effective countermeasures (detection and mitigation) against these threats is therefore essential to improve force mobility and freedom to act, by increasing the security in operation areas.

An important challenge of counter-IED, and UXO capabilities lies in the fact that the threat evolves constantly (e.g. IED systems carried by UAVs[27], or IEDs using frequencies that are not yet addressed by our electronic counter measure (ECM) equipment/systems, etc.). As a consequence, our systems need to be adapted accordingly to remain up-to-date with these evolutions, while keeping up compatibility with the operational use (not requiring a high level of expertise) and the rhythm of the manoeuvre.

[25] Improvised Explosive device (IED): a device placed or fabricated in an improvised manner incorporating explosive material, destructive, lethal, noxious, incendiary, pyrotechnic materials or chemicals designed to destroy, disfigure, distract or harass. They may incorporate military stores, but are normally devised from non-military components (Source: IMAS 04.10 Second Edition, Amendment 10, February 2019). Note: an IED may meet the definition of a mine, booby trap, and/or other type of explosive ordnance depending on its construction. These devices may also be referred to as improvised, artisanal, or locally manufactured mines, booby traps, or other types of explosive ordnance.

[26] Unexploded Ordnance (UXO): explosive ordnance that has been primed, fused, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other reason. (Source: IMAS 04.10 Second Edition, Amendment 10, February 2019). This term includes explosive weapons such as bombs, shells, grenades, mines and cluster munitions.

[27] Unmanned aerial vehicles.

This research topic aims at developing technologies to defeat the threats posed by explosive ordnance (UXO and/or IED), in complex and diverse environments within the military domain.

Specific objective

The main objective of this topic is to prepare a next generation of explosive hazards countermeasures (equipment, materials, etc.) using innovative technologies in order to perform the following functional tasks:

- threat detection (including identification, classification and data fusion) - Rapid and improved (e.g. remote or stand-off) detection of buried or hidden UXO/IED, including threat identification and classification, including area monitoring for the presence of explosive threats. Sensor fusion to achieve a more reliable output is considered under this topic, as well as the use of UAV/UGV[28] for remote detection;
- threat investigation - Following the UXO/IED first alert, obtained either by means of device/explosive detection or from a suspicious behaviour/event, the confirmation of it being a real or false alarm may be necessary. Technologies for threat investigation operations are considered in this topic (e.g. land digging by specialised UGV);
- neutralisation and disposal;
- decoying;
- electronic counter measures;
- breaching.

This topic will contribute to studies aiming at maturing innovative technologies in order to overcome current and new threats (UXOs and/or IEDs).

Scope and types of activities

Scope

The proposals must focus on the research of new technologies and adaptations of existing technologies addressing the above-mentioned counter-IED/UXO functional tasks, including (but not limited to) the following technologies:

- threat detection: visible/infrared (IR) imagery, laser, integration of electro-optical (EO)/IR passive (including hyper/multispectral) and active (LIDAR[29]) sensors, integration of non-linear junction detection, wire detection, change detection, radar (GPR[30], SAR[31]), terahertz imager, artificial intelligence (AI) techniques, IMS[32], DMS[33], LIF[34], gamma detection, fluorescent nanoparticles, etc.;
- threats investigation: camera, laser, tools;

[28] Unmanned ground vehicle.
[29] Light detection and ranging.
[30] Ground penetrating radar.
[31] Synthetic aperture radar.
[32] Ion mobility spectrometer.
[33] Differential mobility spectrometry.
[34] Laser-induced fluorescence.

- neutralisation and disposal: high-energy weapons (laser beams), high-power electromagnetic (HPEM) beams, chemical desensitisation of explosive materials, among others;
- decoying: mass, mechanical, magnetic, heat (IR);
- ECM: evolutions for ECM systems (innovative antennas, e.g. planar, ability to characterise signal in order to avoid interference to friendly Electronic systems including friendly ECM systems...);
- breaching: evolutions for tools, energetic materials and machinery (hand, mechanical or explosive or combination of those) to create safe passage through obstacle (landmines, minefields).

The compromises cost/performances and lifetime/recyclability must be highlighted. The technologies used should be without end-user restrictions by non-associated third countries.

The proposals must substantiate synergies and complementarity with foreseen, ongoing or completed activities in the field of the technological challenge on hidden threats detection *Unmanned ground and aerial systems for hidden threats detection* (EDF-2022-DIGIT-R-HTP-P and O), as well as to the development topic *Mine counter-measures capabilities* (EDF-2023-DA-UWW-MCMC), or in the context of the EDA activities conducted.

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

Types of activities (art 10(3) EDF Regulation)		**Eligible?**
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (mandatory)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (mandatory)
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (optional)
(e)	**System prototyping**[35] of a defence product, tangible or intangible component or technology	No

[35] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

Types of activities (art 10(3) EDF Regulation)		Eligible?
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[36] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[37] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

- Generating knowledge:
  - RCIED[38]: research innovative jamming techniques for remote-controlled IED;
  - (S)PBIED[39] and (S)VBIED[40]: research sensor technology for standoff detection and neutralisation of person- and vehicle-borne IED including suicide PBIED and suicide VBIED;
  - countermine: research sensor technology for standoff detection, methods and techniques for decoying and effectors for neutralisation of surface, subsurface and directional landmines;
- Integrating knowledge:
  - research and compare several multisensor data fusion (algorithms) concepts for RCIED, (S)PBIED and (S)VBIED with synthetic and real sensor data;
  - provide the requirement needed to integrate the equipment on a military platform (size, weight, power...);
  - evaluate the impact of the C-IED equipment on the other system that could already be integrated (radio, sensors...) on a military platform;
- Studies:
  - define a realistic military scenario with the generated and integrated knowledge, taking into account both IED and UXO threats; RCIED, (S)PIED and (S)VBIED have to be included;

[36] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.
[37] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.
[38] Radio Controlled Improvised Explosive Device.
[39] (Suicide) Person Borne Improvised Explosive Device.
[40] (Suicide) Vehicle Borne Improvised Explosive Device.

- feasibility studies on choosing specific sensors and effector sets for the three threat scenarios IED, landmines and UXO;
- feasibility studies on operational time criticality of IED and landmine scenarios and expected capability gain;

In addition, the proposals should cover the following tasks:

- Design:
  - design of a threat (IEDs, landmines, UXOs) detection, classification and signalling system, preferably using unmanned systems;
  - design of a system to neutralise, deactivate or disrupt threats (IEDs, landmines, UXOs), preferably using unmanned systems;
  - design of low cost, small size and easily replaceable UGV systems for threat manipulation (IEDs, landmines, UXOs).

In accordance with the maturity of the technology under study, the proposals should also include:

- state-of-the-art technologies offering opportunities to respond to the different counter explosive threats functions listed above in the scope section;
- research of innovative technologies offering opportunities to respond to the different counter explosive threats listed above in the scope section;
- demonstrations of the feasibility to use the technologies developed for counter explosives threat purposes, in different scenarios;
- evaluation of the performances of demonstrators in relevant environments.

Functional requirements

The proposed technologies should meet the following functional requirements:

- ability to detect and map threats (IEDs, UXOs and landmines) in a given area, with maximum accuracy;
- ability to classify threats, with maximum accuracy;
- ability to investigate and identify threats, including with the support of AI;
- ability to neutralise and dispose of threats;
- ability to decoy threats;
- ability to jam threats;
- ability to breach an obstacle with the help of hand, mechanical or explosive means or a combination of such means;
- ability to be used in an operational environment with IEDs, UXOs or landmines.

The performances associated with these technologies should be measurable through evaluation campaigns conducted in the framework of the present project, using shared protocols and metrics.

Demonstrators should be able to record the data acquired through their sensors, in order to enable reproduction of experiments and comparison of technologies in a simulated environment.

Expected impact

Thanks to the studies validated through demonstrators and field experiments, the following impacts should be delivered:

- significantly improve counter-mine IED and UXO technologies to deal with new and evolving threats;
- facilitate the development of new technologies that each Member State, EDF associated country or industry partners cannot achieve easily on its own;
- reduce the development time of counter explosive threat solutions;
- contribute to increasing the industrial cooperation and integration between European defence companies and SMEs;
- contribute to the strategic autonomy of the EU.

EDF-2023-RA-PROTMOB-SATOC: Strategic air transportation of outsized cargo

Objectives

General objective

Strategic Air transport for Outsized Cargo (SATOC) is a core capability for the rapid projection of military capabilities over long distances and mission support worldwide. All operations carried out so far have always had to fall back on this important capability for deployment and subsequent sustainment. Beyond their military role, SATOC aircraft are also key assets for providing better civilian support for EU-internal needs, including critical and essential contributions to immediate logistic support over large distances, disaster relief and fast general crisis response. However, there is currently no adequate service provider who has the appropriate capability to meet the needs of the Member States and EDF associated countries (Norway). Therefore, this topic proposes to study the possibility of a future aircraft development or the acquisition of an appropriate contractor support.

Specific objective

"Strategic airlift requirements and strategic airlift, notably of oversized cargo, have been provided almost entirely by third countries, creating a critical dependency for the EU. The Russia-Ukraine war has significantly reduced the ANTONOV logistics fleet. This has created a looming strategic capability gap in the upcoming years with no clear solutions for a replacement. In addition, a certain degree of uncertainty about the supportability of the remaining fleet constitutes a significant factor. This is true in particular with respect to the availability of replacement parts and replaceable units as well as the availability and integrity of design information, should, for example, new structural issues arise.

In order to preserve European sovereignty and enable global force projection, it is critical to establish a strategic airlift capability by either re-designing / adapting an existing or developing a new solution.

Furthermore, from a European perspective it is of vital importance to underline the fact that strategic airlift capability is not exclusively restricted to military purposes,

but is also an asset in various crisis scenarios as well as on humanitarian aid missions.

Scope and types of activities

Based on the Member States and EDF associated countries (Norway) requirements, the objective of this topic is to explore the range of options towards creating a new European SATOC capability. The proposals are to identify, define, and evaluate short-term and lasting strategic airlift solutions. More precisely, the study must map the individual solutions against their respective parameters such as economic or military performance and availability. The study is expected to not only assess re-design options of various existing aircraft and civilian outsized cargo solutions, but also to identify development options, resulting in possibly two different life-cycle timeframes. Furthermore, the platform solutions must also be evaluated in various possible operating schemes, including either the full acquisition of aircraft and/or the provision of services, while taking into consideration the respective certification (military vs. civilian) aspects. It is understood that SATOC will play a support role and not a combat/in-theatre role. The study may involve the identification of potential economies of scale through parallel civilian and military applications (dual-use) of the chosen solution in an effort to reduce the overall development and operating costs associated with a small fleet. The study is to address a possible future operation and service provision from a common military (e.g. NATO's AWACS[41] base, MMF[42] base) or civilian hub.

The proposals should draft conceptual assessment of options able to achieve initial and possibly partial capability in the short term, and a full capability in-service solution in the next decade. However, the timeline can be accelerated if deemed necessary to meet the requirements of EU Member States and EDF associated countries (Norway). The scope might well consist of a staggered two- (or multi-) fold approach, for example:

- Solution A: desired solution with desired capability and clearly defined IOC/FOC[43]; required to have maximum life cycle;

- Solution B: (interim) solution with less than desired capability and no clearly defined IOC/FOC; required to be supportable and to have a life cycle enabling operations until FOC is reached.

Nevertheless, the key element of this topic will be to establish the feasibility of the common European requirements for this capability, aiming for unity of effort among Member States and EDF associated countries (Norway) in order to create a single platform. This will maximise the cost efficiency of SATOC and also create a basis for interoperability, at least among the Member States and EDF associated countries (Norway).

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

[41] Airborne Warning And Control Systems.
[42] Multinational Multi-Role Tanker Transport Fleet.
[43] Initial Operational Capability / Final Operational Capability.

Types of activities (art 10(3) EDF Regulation)		Eligible?
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (optional)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (optional)
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (optional)
(e)	**System prototyping**[44] of a defence product, tangible or intangible component or technology	No
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[45] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[46] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

Technical studies:

- analysis of the requirements of the Member States and EDF associated countries (Norway) and its translation into potential solutions;
- identification of possible solutions – both short- and long-term – (technical modifications on existing solutions or developments of new solutions) or combination of solutions to best meet the desired capability;
- studies, such as feasibility studies to explore the feasibility of new or improved technologies, products, processes, services and solutions;

[44] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

[45] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.

[46] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.

- pre-design, including pre-definition of technical specifications and partial tests for risk reduction;
- feasibility analysis of each solution or combination of solutions;
- evaluation of achievable performances and response to operational needs (partially or totally) of each solution or combination of solutions;
- preliminary life cycle analysis.

Operations studies:

- support the drafting of CONOPS for each proposed solution;
- Identification of logistic solutions (in-service support).

Programme studies:

- market analysis to quantify demand across European nations, and export-potential analysis, including civil dual-use applications, and, accordingly, description of the capability. Identification of the potential specific military features of the proposed solutions and analysis of their impact on a potential dual-use civil commercial activity and on profitability;
- definition and analysis of procurement and sustainment models (for example the renting of a flight-hours contingent or the acquisition of the capability), deployment possibilities and associated proposal by an industrial organisation;
- impact of the proposed solutions on infrastructure;
- establishment of the programme schedule, IOC and FOC target dates and pre-development plans;
- conduct of an economic analysis (global cost analysis);
- identification and analysis of risks, including SWOT analysis, related to technical issues, market, implementation, costs, schedule, organisation, operations, maintenance, safety, sovereignty, production and disposal;
- preliminary requirement reviews for each assessed option or combination of options to confirm technical feasibility and programmatic industrial and market impact of the proposed solution to allow the Member States and EDF associated countries (Norway) to assess all elements and identify a preferred option which must be carried forward through a development, manufacturing, and certification phase;
- proposition of the best solution (which could be for example a combination of short-term partial-capability and long-term full-capability solutions), including platform acquisition vs. service provision.

In addition, the proposals should cover the following tasks:

Generating knowledge:

- use of new materials in view of weight reduction and performance increase (composite, hybrid, multifunctional materials, with advanced production technologies);
- use of technologies towards lower or zero emission production and operation;

- application of integrated design and production methods based on the platform's dynamic digital twin concept, to be used in all phases of the platform's life cycle (not only design and construction, but also use, maintenance and dismiss);
- definition of an Integrated System Health Management (ISHM) system to be applied to the platform for an efficient and high availability management of the life cycle and an increase in the overall safety of the aircraft;
- assessment of the integrated survivability characteristics of the platform (also considering the use of physical and electronic deterrence technologies) with respect to the threats identified within the different scenarios defined in the CONOPS.

Functional requirements

The proposed deliverables should fulfil the following common requirements:

- competitive overall flight hours in line with current market solutions (recurring and non-recurring costs);
- ability to transport oversize/overweight loads that do not fit in existing solutions (without significant maintenance act);
- flexibility to operate on different logistics missions (compatible with pelletised cargo);
- ensure fast (with limited turnaround time and limited footprint) and self-contained (autonomous, e.g. roll-on/roll-off or on-board-installed) handling of transported goods (also consider existing/future EU multimodal logistics hubs). This should include:

  A) equipment like armoured vehicles, heavy transport helicopters (considered as routine cargo), RPAS[47];

  B) main battle tanks (considered as exceptional cargo, potentially loaded with support of dedicated external equipment, excluding cranes);
- include the transport of goods of all kinds, including dangerous goods as specified by (but not limited to) ICAO TI[48] / IATA[49] Dangerous Goods Regulation (DGR) and optionally forbidden;
- ensure worldwide operations in accordance with all international and national air traffic regulations for all airspaces.

Expected impact

This outcome should contribute to:

- establishing EU autonomy for SATOC;
- EU technological sovereignty and strategic autonomy;
- improving European deployment and sustainment capabilities on a global scale.

[47] Remotely Piloted Aircraft Systems.
[48] International Civil Aviation Organization Technical Instructions.
[49] International Air Transport Association.

EDF-2023-RA-DIS-LDEW: Laser-based directed energy weapons

Objectives

General objective

Threats of various kinds are growing (traditional as well as low-cost, swarming or proliferating targets), in asymmetrical conflicts as well as in more conventional high-intensity warfare. Moreover, a sovereign, highly precise, agile and graduated response against conventional and unconventional threats is a must-have for the European end-users.

Recent developments show that Laser-based Directed Energy Weapons (LDEW) systems have the potential to be a game changer on the battlefield, particularly when facing evolving conventional and unconventional threats where there is an emerging need for highly-precise, targeted and agile weapon systems. LDEW systems could provide a cost-effective answer to all these capability needs.

Investing in LDEW technologies is paramount in order to bring High Energy Laser (HEL) weapons closer to an end-user uptake in the medium term, and to provide sovereign capabilities with a European supply chain.

Specific objective

Ongoing EU-funded research (with a dedicated call in PADR 2018[50]) paved the way to the design and build of an EU high-power laser effector to be integrated in military systems once mature.

However, the limited budget available under PADR constrained the TRL increase. Hence, some further research activities should be performed in order to increase the level of maturity of some of the most critical LDEW technologies and subsystems to ensure strategic autonomy and security of supply in this critical domain.

In particular, the development of a future LDEW capability requires to address specifically:

a) operational challenges. Laser weapons must be able to operate safely and efficiently in two different categories of use cases:

   (1) Use case type 1: easy targets such as NATO class 1 UAV, ground robots, antennas, radars must be neutralised within a populated environment, which requires a low probability of collateral damage.

   (2) Use case type 2: more difficult targets such as fast boats, NATO class 2 UAVs, unmanned surface vehicles (USVs), rocket, and missiles must be neutralised within an open field environment.

Those two-type scenarios induce the challenge for a broad approach that covers:

- a first situation with moderate power [5-20kW] and intrinsic limited collateral damage probability, especially associated with an eye-safer wavelength;
- a second situation with high power [50-100kW] capacity associated with moderate SWaP[51].

[50] Call – Effects - PADR-EF-2018.
[51] Size, Weight and Power.

b) technological challenges.

(3) Coherent beam combining is one of the challenging parts of high-power generation for laser weapons. This technological part is a major contributor to the complexity and volume of the laser weapon architecture as well as to the long times observed in all the development roadmaps on both shores of the Atlantic Ocean. The European HEL strategies and technological basis rely on solid-state lasers, mainly fibre lasers, and amplifiers. This leads to the main challenge of mastering a European combination technology that allows compact and rugged addition of laser power. The capabilities sought for combination should be compatible with established 1µm wavelength and other safety re-enforced wavelengths.

(4) Propagating of a high-power beam within the laser system while minimising thermal distortions.

(5) Increasing power density on target through higher quality fine tracking and pointing.

(6) Maximising operators and third parties safety.

(7) Compensating atmospheric detrimental effect.

(8) Making 1µm narrow bandwidth amplifier and relevant component industrial sector accessible to EU and EDF associated countries (Norway) stakeholders and implemented in the EU and EDF associated countries.

(9) Making 2µm narrow bandwidth amplifier and relevant component industrial sector accessible to EU and EDF associated countries (Norway) stakeholders and implemented in the EU and EDF associated countries.

(10) Designing a compact laser system optimising SWaP.

(11) LDEW integration and compatibility with the hosting platform in full harmonisation with other on-board armaments and without compromising the platform's mobility.

Scope and types of activities

Scope

HEL weapons need to highly concentrate light energy on designated targets to defeat incoming threats. The laser beam must dwell and remain focused on target during several seconds, after having propagated through a turbulent atmosphere. Moreover, it should be possible to repeat this action as many times as needed to achieve the desired effect and address all incoming threats.

Hence, the proposals must address in priority:

- beam combining techniques;
- development of laser sources, allowing significant output power increase;
- shaping and propagation of the beam;
- fine tracking and pointing;
- electrical and thermal management.

Types of activities

The following table lists the types of activities which are eligible for this topic, and whether they are mandatory or optional *(see Article 10(3) EDF Regulation)*:

	Types of activities (art 10(3) EDF Regulation)	**Eligible?**
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence (**generating knowledge**)	Yes (mandatory)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies (**integrating knowledge**)	Yes (mandatory)
(c)	**Studies**, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	**Design** of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such a design has been developed, including any partial test for risk reduction in an industrial or representative environment	Yes (optional)
(e)	**System prototyping**[52] of a defence product, tangible or intangible component or technology	No
(f)	**Testing** of a defence product, tangible or intangible component or technology	No
(g)	**Qualification**[53] of a defence product, tangible or intangible component or technology	No
(h)	**Certification**[54] of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets **increasing efficiency** across the life cycle of defence products and technologies	No

The proposals must cover at least the following tasks as part of the mandatory activities:

- Generating knowledge:
    - the effects of high-energy lasers on the considered targets need to be assessed, including the effect of simple countermeasures such as protective coatings. This will allow the LDEW system sizing to be

[52] 'System prototype' means a model of a product or technology that can demonstrate performance in an operational environment.

[53] 'Qualification' means the entire process of demonstrating that the design of the product, component or technology meets the specified requirements, providing objective evidence by which particular requirements of a design are demonstrated to have been met.

[54] 'Certification' means the process by which a national authority certifies that the product, component or technology complies with the applicable regulations.

tailored to the need and the end-users to determine how LDEW will be used on the battlefield;

- the proposals must include an assessment of the capability of a HEL effector to defeat the considered targets, with particular reference to the two above-mentioned use cases (see "Specific objective"): range of effect and neutralisation time, with respect to laser power and atmospheric conditions;

- an analysis of the failure modes of these targets and a characterisation of the possible types of effects must be provided. This analysis will require the development of performance models.

- Integrating knowledge: LDEW require both quite high power and high beam quality in order to reach high brightness laser beam. These two characteristics are essential to obtain high optical power density on target and produce the desired effects. Whatever the considered emitted wavelength, fibre lasers are limited in power to a few kW. In order to obtain a laser beam of tens or hundreds of kW, it is necessary to combine elementary laser beams into one output beam.

  - different kinds of combining techniques must be considered: coherent and incoherent. The proposals must consider the various possible combination solutions and identify those which will be investigated in the study;

  - the following criteria must be used:

    - power increase potential;

    - availability of European components;

    - global efficiency of the combining method;

    - compactness (SWaP optimisation);

    - industrialisation capacity of the technology.

- Studies:

  - one or several of the above-mentioned combining technologies must be matured during the study. A demonstrator combining several high energy laser beams must be included in the proposals. The objective is to reach TRL 5;

  - by a proper choice of wavelength, intrinsic low collateral laser damage low bandwidth amplifier must be scaled in power. The proposals must assess the possibility of developing European high power components at the considered wavelengths;

  - a roadmap for the two use cases must be given in the study, taking into account possible operational updates given lessons learned from recent conflicts. This roadmap will propose to reach TRL 8 in a few years with a power up to 100kW class. An outline of the roadmap should be included in the proposals.

In addition, the proposals should address the following tasks:

- generating knowledge on other types of lasers, especially on solid-state lasers, such as advantages and viability of novel and scalable laser sources and short or ultrashort pulse lasers;
- an assessment of the capability of a HEL effector to defeat targets that have employed reasonable countermeasures that do not influence the performance of the system significantly or lead to largely increased cost;
- propose technical solutions for the optics able to transport and to shape the laser beam in a HEL system. Large optics for laser beams having high energy should be considered. Laser damage threshold and minimisation of thermal distortion of the optics should be addressed;
- design and demonstrate a fine tracking system able to accurately track [<5µrad] a large variety of targets;
- address the measurement and correction of atmospheric perturbations;
- design solutions or rules providing safe use of the laser effectors in their operational environments. Different operational scenarios could be considered, inducing different technical solutions and different operating rules to address the safety of the high energy laser effector;
- design and demonstrate European high power 1µm and 2µm laser sources meeting the specific needs of the laser effectors and enabling a large access to EU and EDF associated countries (Norway) stakeholders. Development of critical laser components not currently available in the EU or EDF associated countries (Norway) should be considered.

Functional requirements

The proposed product/technologies should meet the following functional requirements:

- optimise the power density of the laser beam on target in order to reduce the neutralisation time and to be able to address harder targets, such as targets with protective surface treatments and RAM;
- optimise the operational range of the high energy laser;
- optimise the SWaP of the high energy laser and integration of the HEL effector on different platforms (ground vehicles, ships);
- address the safety of the HEL by technical solutions and by rules for the operational use;
- provide a demonstration of laser combining at 1µm for HEL effector. Integrability of the combining system and the HEL effector on various platforms and resistance to associated environments should be taken into account and analysed;
- mature and test a high power laser source (oscillator and power amplifier) adapted to combination and atmospheric propagation, which limits potential collateral damages.

Expected impact

The outcomes should contribute to:

- increasing maturity of the critical technological blocks of an LDEW and prepare the development of an operational demonstrator. As above mentioned, the objective is to reach TRL 5;
- providing European solutions for these blocks, and especially a secured supply chain;
- providing EU Member States and EDF associated countries (Norway) armed forces with an operational capability in the medium term to fill capability gaps. This capability will allow to address the two types of scenarios identified by EU Member States and EDF associated countries (Norway) end-users, and ensure operational safety;
- a strong and more competitive and technologically independent EDTIB and enhance cross-border cooperation (from large industrial groups to SMEs) in a high-tech sector;
- European technological sovereignty and strategic autonomy.

3. Available budget

The estimated available call budget is **EUR 157 000 000**.

Specific budget information per topic can be found in the table below:

Topic	Topic budget	Fixed maximum number of projects
EDF-2023-RA-SENS-EMSP: Electromagnetic signal propagation	**EUR 22 000 000**	No (but normally 1 expected)
EDF-2023-RA-SENS-OPTD: Optronics detector technologies	**EUR 20 000 000**	No
EDF-2023-RA-SPACE-PSA: Threat surveillance and protection of space-based assets	**EUR 25 000 000**	No
EDF-2023-RA-DIGIT-HAAI: Dedicated hardware architectures for energy-efficient AI	**EUR 20 000 000**	No
EDF-2023-RA-PROTMOB-DEXPLO: Demonstrators and technologies to defeat threats posed by Unexploded Explosives Ordnances (UXO) and Improvised Explosive Devices (IED)	**EUR 25 000 000**	No
EDF-2023-RA-PROTMOB-SATOC: Strategic air transportation of outsized cargo	**EUR 20 000 000**	No
EDF-2023-RA-DIS-LDEW: Laser-based directed energy weapons	**EUR 25 000 000**	No

We reserve the right not to award all available funds or to redistribute them between the call priorities (i.e. topics), depending on the proposals received and the results of the evaluation.

4. Timetable and deadlines

Timetable and deadlines (indicative)	
Call opening:	22 June 2023
Deadline for submission:	22 November 2023 – 17:00:00 CET (Brussels)
Evaluation:	November 2023 - May 2024
Information on evaluation results:	June 2024
GA signature[55]:	June - December 2024

5. Admissibility and documents

Proposals must be submitted before the **call deadline** *(see timetable section 4)*.

Proposals must be submitted **electronically** via the Funding & Tenders Portal Electronic Submission System (accessible via the Topic page in the Search Funding & Tenders section). Paper submissions are NOT possible.

Proposals (including annexes and supporting documents) must be submitted using the forms provided *inside* the Submission System (⚠ NOT the documents available on the Topic page — they are only for information).

Proposals must be **complete** and contain all the requested information and all required annexes and supporting documents:

- Application Form Part A — contains administrative information about the participants (future coordinator, beneficiaries and affiliated entities), the ethics issues table and the summarised budget for the project *(to be filled in directly online)*
- Application Form Part B — contains the technical description of the project *(to be downloaded from the Portal Submission System, completed and then assembled and re-uploaded)*
- mandatory **annexes and supporting documents** *(templates available to be downloaded from the Portal Submission System, completed, assembled and re-uploaded together with Application Form Part B)*:
  - detailed budget table (EDF RA)
  - participant information (including previous projects, if any)
  - list of infrastructure, facilities, assets and resources
  - actual indirect cost methodology declarations (if actual indirect costs used)
  - ownership control declarations
  - PRS declaration (if the project requires access to Galileo PRS information).

[55] In case of change in the management mode for a given action (see Section 3 of the EDF Work Programme), this timeframe may be different.

Please note that the amounts entered into the summarised budget table (filled in directly online) must correspond to the amounts calculated in the detailed budget table. In case of discrepancies, the amounts in the online summarised budget table will prevail.

At proposal submission, you will have to confirm that you have the **mandate to act** for all applicants. Moreover, you will have to confirm that the information in the application is correct and complete and that the participants comply with the conditions for receiving EU funding (especially eligibility, financial and operational capacity, exclusion, etc.). Before signing the grant, each beneficiary and affiliated entity will have to confirm this again by signing a declaration of honour (DoH). Proposals without full support will be rejected.

Your application must be **readable**, **accessible and printable**.

Proposals (Part B) are limited to maximum **100 pages**, counting the work package descriptions. Evaluators will not consider any additional pages.

You may be asked at a later stage for further documents *(for legal entity validation, financial capacity check, bank account validation, etc.)*.

For more information about the submission process (including IT aspects), consult the Online Manual.

6. Eligibility

Applications will only be considered eligible if their content corresponds wholly (or at least in part) to the topic description for which it is submitted.

Eligible participants (eligible countries)

In order to be eligible, the applicants (beneficiaries and affiliated entities) must:

- be legal entities (public or private bodies)
- be established in one of the eligible countries, i.e.:
  - EU Member States (including overseas countries and territories (OCTs))
  - non-EU countries :
    - listed EEA countries ('EDF associated countries', *see list of participating countries*)
- have their executive management structure established in eligible countries
- must not be subject to control by a non-associated third country or non-associated third-country entity (unless they can provide guarantees – *see Annex 2* - approved by the Member State or EDF associated country where they are established)

Beneficiaries and affiliated entities must register in the Participant Register — before submitting the proposal — and will have to be validated by the Central Validation Service (REA Validation). For the validation, they will be requested to upload documents showing legal status and origin.

Other entities may participate in other roles, such as associated partners, subcontractors, third parties giving in-kind contributions, etc. *(see section 13)*.

⚠ Please note that, in EDF, subcontractors involved in the action[56] and associated partners must also comply with the above-listed conditions concerning establishment and control.

Associated partners which are not established in one of the eligible countries (or which are subject to control by a non-associated third country or non-associated third-country entity) may however participate exceptionally if certain conditions are fulfilled *(not contravene EU and MS security and defence interests; consistent with EDF objectives; results not subject to control or restriction by non-associated third countries or non-associated third-country entities; no unauthorised access to classified information; no potential negative effects over security of supply of inputs which are critical for the project)*, subject to agreement by the granting authority and without any funding under the grant.

Specific cases

Natural persons — Natural persons are NOT eligible (with the exception of self-employed persons, i.e. sole traders, where the company does not have legal personality separate from that of the natural person).

International organisations —International organisations are not eligible, unless they are international organisations whose members are only Member States or EDF associated countries and whose executive management structure is in a Member State or EDF associated country.

Entities without legal personality — Entities which do not have legal personality under their national law may exceptionally participate, provided that their representatives have the capacity to undertake legal obligations on their behalf, and offer guarantees for the protection of the EU financial interests equivalent to that offered by legal persons[57].

Associations and interest groupings — Entities composed of members may participate as 'sole beneficiaries' or 'beneficiaries without legal personality'[58]. ⚠ Please note that if the action will be implemented by the members, they should also participate (either as beneficiaries or as affiliated entities, otherwise their costs will NOT be eligible).

Subcontractors involved in the action — Subcontractors with a direct contractual relationship to a recipient *(i.e. beneficiary or affiliated entity)*, other subcontractors to which at least 10 % of the total eligible costs of the action is allocated, and subcontractors which may need access to classified information in order to carry out the action.

Following the Council Implementing Decision (EU) 2022/2506, as of 16th December 2022, no legal commitments (including the grant agreement itself as well as subcontracts, purchase contracts, financial support to third parties, etc.) can be signed with Hungarian public interest trusts established under Hungarian Act IX of 2021 or any entity they maintain. Affected entities may continue to apply to calls for proposals. However, in case the Council measures are not lifted, such entities are not eligible to participate in any funded role (beneficiaries, affiliated entities, subcontractors, recipients of financial support to third parties). In this case, co-

[56] 'Subcontractors involved in the action' means subcontractors with a direct contractual relationship to a beneficiary or affiliated entity, other subcontractors to which at least 10 % of the total eligible costs of the action are allocated, and subcontractors which may need access to classified information in order to carry out the project.

[57] See Article 197(2)(c) EU Financial Regulation 2018/1046.

[58] For the definitions, see Articles 187(2) and 197(2)(c) EU Financial Regulation 2018/1046.

applicants will be invited to remove or replace that entity and/or to change its status into associated partner. Tasks and budget may be redistributed accordingly.

EU restrictive measures — Special rules apply for certain entities *(e.g. entities subject to EU restrictive measures under Article 29 of the Treaty on the European Union (TEU) and Article 215 of the Treaty on the Functioning of the EU (TFEU)*[59] *and entities covered by Commission Guidelines No 2013/C 205/05*[60]*)*. Such entities are not eligible to participate in any capacity, including as beneficiaries, affiliated entities, associated partners, subcontractors or recipients of financial support to third parties (if any).

For more information, *see Rules for Legal Entity Validation, LEAR Appointment and Financial Capacity Assessment*.

Consortium composition

For all topics under this call, including EDF-2023-RA-DIS-LDEW, proposals must be submitted by:

- minimum 3 independent applicants (beneficiaries; not affiliated entities) from 3 different eligible countries.

Eligible actions and activities

Eligible actions and activities are the ones set out in section 2 above.

Please note that the evaluation will also take into account how the proposals address the 'must', 'should' and 'may' requirements included in the subsections 'Scope and types of activities' and 'Functional requirements'. Failing to address a 'must' may give grounds to consider the proposal out of scope; failing to address a 'should' may give grounds for impacting the scoring negatively; addressing a 'may' may give grounds for impacting the scoring positively.

The following actions and activities are not considered as eligible for funding under this call:

- projects that do not implement the objectives set out in Article 3 of the EDF Regulation
- projects that do not concern new defence products or technologies or the upgrade of existing defence products or technologies
- projects that do not relate to at least one of the types of activities set out in Article 10(3) of the EDF Regulation
- projects that do not cover the mandatory types of activities set out in section 2
- projects that concern products and technologies whose use, development or production is prohibited by international law
- projects that concern the development of lethal autonomous weapons without the possibility for meaningful human control over selection and engagement decisions when carrying out strikes against humans (with the exception of the development of early warning systems and countermeasures for defensive

[59] Please note that the EU Official Journal contains the official list and, in case of conflict, its content prevails over that of the EU Sanctions Map.

[60] Commission guidelines No 2013/C 205/05 on the eligibility of Israeli entities and their activities in the territories occupied by Israel since June 1967 for grants, prizes and financial instruments funded by the EU from 2014 onwards (OJEU C 205 of 19.07.2013, pp. 9-11).

purposes).

- projects where background or results:
  - would be subject to control or restriction by a non-associated third country or non-associated third-country entity, directly, or indirectly through one or more intermediate legal entities, including in terms of technology transfer
  - and, for pre-existing information (background), this would impact the results.

Projects should take into account the results of projects supported by other EU funding programmes. The complementarities must be described in the project proposals (Part B of the Application Form).

Projects must comply with EU policy interests and priorities *(such as environment, social, security, industrial and trade policy, etc.)*.

Geographic location (target countries)

Proposals must relate to activities taking place in the eligible countries *(see above).*

⚠ Please note that moreover, in EDF, only infrastructure, facilities, assets and resources which are located or held in an eligible country may be used. Other assets, infrastructure, facilities or resources may be used only exceptionally if certain conditions are fulfilled (*no competitive substitutes are readily available; not contravene EU and MS security and defence interests; consistent with EDF objectives; results not subject to control or restriction by non-associated third countries or non-associated third-country entities)*, subject to agreement by the granting authority and without any funding under the grant.

Duration

Project duration:

- for all topics: between 12 and 48 months

Projects of longer duration may be accepted in duly justified cases. Extensions are possible, if duly justified and through an amendment.

Project budget

Project budgets (maximum grant amount):

- for all topics under this call: should not exceed the budget available for the topic *(see table in section 3)*

This does not however preclude the submission/selection of proposals requesting other amounts. The grant awarded may be lower than the amount requested.

Ethics

Projects must comply with:

- highest ethical standards (including highest standards of research integrity) and
- applicable EU, international and national law.

Proposals under this call will have to undergo an ethics review to authorise funding and may be made subject to specific ethics rules (which become part of the Grant Agreement in the form of ethics deliverables, *e.g. ethics committee opinions/notifications/authorisations required under national or EU law*).

Security

Projects involving classified information must undergo security scrutiny to authorise *funding* and may be made subject to specific security rules (detailed in a security aspects letter (SAL) which is annexed to the Grant Agreement).

Projects where the Member States of the participating beneficiaries and affiliated entities decide to establish a specific security framework under Article 27(4) of the EDF Regulation, will be subject to this specific security framework and classified foreground information (results) generated by the project will be under the originatorship of these Member States.

If no such specific security framework is set up by the signature of the grant agreement, the security rules will be governed by Commission Decision 2015/444[61] and its implementing rules[62].

These rules provide for instance that:

- projects involving information classified TRES SECRET UE/EU TOP SECRET (or equivalent) can NOT be funded
- classified information must be marked in accordance with the applicable security instructions in the SAL
- information with classification levels CONFIDENTIEL UE/EU CONFIDENTIAL or above (and RESTREINT UE/ EU RESTRICTED, if required by national rules) may be:
  - created or accessed only on premises with facility security clearing (FSC) from the competent national security authority (NSA), in accordance with the national rules
  - handled only in a secured area accredited by the competent NSA
  - accessed and handled only by persons with valid personnel security clearance (PSC) and a need-to-know
- at the end of the grant, the classified information must either be returned or continue to be protected in accordance with the applicable rules
- action tasks involving classified information may be subcontracted only with prior written approval from the granting authority and only to entities established in an EU Member State or in a non-EU country with a security of information agreement with the EU (or an administrative arrangement with the Commission)
- disclosure of classified information to third parties is subject to prior written approval from the granting authority.

Please note that facility security clearing may have to be provided before grant signature. The granting authority will assess the need for clearing in each case and will establish their delivery date during grant preparation. Please note that in no

[61] See Commission Decision 2015/544/EU,Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).
[62] See Article 27(4) EDF Regulation.

circumstances can we sign any grant agreement until at least one of the beneficiaries in a consortium has facility security clearing.

Further security recommendations may be added to the Grant Agreement in the form of security deliverables *(e.g. create security advisory group, limit level of detail, use fake scenario, exclude use of classified information, etc.)*.

Beneficiaries must ensure that their projects are not subject to third-country/international organisation security requirements that could affect implementation or put into question the award of the grant *(e.g. technology restrictions, national security classification, etc.)*. The granting authority must be notified immediately of any potential security issues.

More information on security aspects can be found in Annex 3.

7. Financial and operational capacity and exclusion

Financial capacity

Applicants must have **stable and sufficient resources** to successfully implement the projects and contribute their share. Organisations participating in several projects must have sufficient capacity to implement all these projects.

The financial capacity check will be carried out on the basis of the documents you will be requested to upload in the Participant Register during grant preparation *(e.g. profit and loss account and balance sheet, business plan, audit report produced by an approved external auditor, certifying the accounts for the last closed financial year, etc.)*. The analysis will be based on neutral financial indicators, but will also take into account other aspects, such as dependency on EU funding and deficit and revenue in previous years.

The check will normally be done for all beneficiaries, except:

- public bodies (entities established as public body under national law, including local, regional or national authorities) or international organisations
- if the individual requested grant amount is not more than EUR 60 000.

If needed, it may also be done for affiliated entities.

If we consider that your financial capacity is not satisfactory, we may require:

- further information
- an enhanced financial responsibility regime, i.e. joint and several responsibility for all beneficiaries or joint and several liability of affiliated entities *(see below, section 10)*
- prefinancing paid in instalments
- (one or more) prefinancing guarantees *(see below, section 10)*

or

- propose no prefinancing
- request that you are replaced or, if needed, reject the entire proposal.

For more information, *see Rules for Legal Entity Validation, LEAR Appointment and Financial Capacity Assessment*.

Operational capacity

Applicants must have the **know-how, qualifications** and **resources** to successfully implement the projects and contribute their share (including sufficient experience in projects of comparable size and nature).

This capacity will be assessed together with the 'Implementation' award criterion, on the basis of the competence and experience of the applicants and their project teams, including operational resources (human, technical and other) or, exceptionally, the measures proposed to obtain it by the time the task implementation starts.

If the evaluation of the award criterion is positive, the applicants are considered to have sufficient operational capacity.

Applicants will have to show their capacity via the following information:

- general profiles (qualifications and experiences) of the staff responsible for managing and implementing the project.
- description of the consortium participants (including previous projects, if any).

Additional supporting documents may be requested, if needed to confirm the operational capacity of any applicant.

Public bodies, Member State organisations and international organisations are exempted from the operational capacity check.

Exclusion

Applicants which are subject to an **EU exclusion decision** or in one of the following **exclusion situations** that bar them from receiving EU funding can NOT participate[63]:

- bankruptcy, winding up, affairs administered by the courts, arrangement with creditors, suspended business activities or other similar procedures (including procedures for persons with unlimited liability for the applicant's debts)
- in breach of social security or tax obligations (including if done by persons with unlimited liability for the applicant's debts)
- guilty of grave professional misconduct[64] (including if done by persons having powers of representation, decision-making or control, beneficial owners or persons who are essential for the award/implementation of the grant)
- committed fraud, corruption, links to a criminal organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking (including if done by persons having powers of representation, decision-making or control, beneficial owners or persons who are essential for the award/implementation of the grant)
- shown significant deficiencies in complying with main obligations under an EU procurement contract, grant agreement, prize, expert contract, or similar (including if done by persons having powers of representation, decision-making or control, beneficial owners or persons who are essential for the award/implementation of the grant)
- guilty of irregularities within the meaning of Article 1(2) of EU Regulation 2988/95 (including if done by persons having powers of representation,

[63] See Articles 136 and 141 of EU Financial Regulation 2018/1046.

[64] Professional misconduct includes: violation of ethical standards of the profession, wrongful conduct with impact on professional credibility, false declarations/misrepresentation of information, participation in a cartel or other agreement distorting competition, violation of IPR, attempting to influence decision-making processes or obtain confidential information from public authorities to gain advantage.

decision-making or control, beneficial owners or persons who are essential for the award/implementation of the grant)

- created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin or created another entity with this purpose (including if done by persons having powers of representation, decision-making or control, beneficial owners or persons who are essential for the award/implementation of the grant).

Applicants will also be rejected if it turns out that[65]:

- during the award procedure they misrepresented information required as a condition for participating or failed to supply that information

- they were previously involved in the preparation of the call and this entails a distortion of competition that cannot be remedied otherwise (conflict of interest).

8. Evaluation and award procedure

The proposals will have to follow the **standard submission and evaluation procedure** (one-stage submission + one-step evaluation).

An **evaluation committee** (assisted by independent outside experts) will assess all applications. Proposals will first be checked for formal requirements (admissibility, and eligibility, *see sections 5 and 6*). Proposals found admissible and eligible will be evaluated (for each budget envelope; *see section 3*) against the operational capacity and award criteria *(see sections 7 and 9)* and then ranked according to their scores.

For proposals with the same score (within a budget envelope) a **priority order** will be determined according to the following approach:

Successively for every group of *ex aequo* proposals, starting with the highest scored group, and continuing in descending order:

1) Proposals will be prioritised according to the scores they have been awarded for the criterion 'Excellence and potential of disruption'. When these scores are equal, priority will be based on scores for the criterion 'Innovation and technological development'. When these scores are equal, priority will be based on scores for the criterion 'Competitiveness. When these scores are equal, priority will be based on scores for the criterion 'Creation of new cross-border cooperation'

2) If necessary, any further prioritisation will be based on the number of Member States or EDF associated countries, in which applicants involved in the proposal are established

All proposals will be informed about the evaluation result (**evaluation result letter**). Successful proposals will be invited for grant preparation; the other ones will be put on the reserve list or rejected.

⚠ No commitment for funding — Invitation to grant preparation does NOT constitute a formal commitment for funding. We will still need to make various legal checks before grant award: *legal entity validation, financial capacity, exclusion check, etc*.

Grant preparation will involve a dialogue in order to fine-tune technical or financial aspects of the project and may require extra information from your side. It may also

[65] See Article 141 EU Financial Regulation 2018/1046.

include adjustments to the proposal to address recommendations of the evaluation committee or other concerns. Compliance will be a pre-condition for signing the grant.

If you believe that the evaluation procedure was flawed, you can submit a **complaint** (following the deadlines and procedures set out in the evaluation result letter). Please note that notifications which have not been opened within 10 days after sending will be considered to have been accessed and that deadlines will be counted from opening/access *(see also Funding & Tenders Portal Terms and Conditions)*. Please also be aware that for complaints submitted electronically, there may be character limitations.

9. Award criteria

The **award criteria** for this call are as follows:

1. Excellence and potential of disruption (5 points)

- Excellence of the overall concept and soundness of the proposed approach for the solution, including main ideas, technologies and methodology

- Compliance of the proposal with the objectives, scope and types of activities, functional requirements and expected impact of the topic as set out in section 2

- Extent to which the objective and expected outcome of the proposed project differs from (and represents an advantage at strategic, technological or defence operational level over) existing defence products or technologies, or has a potential of disruption in the defence domain

2. Innovation and technological development (5 points)

- Extent to which the proposal demonstrates innovation potential and contains ground-breaking or novel concepts and approaches *(e.g. new products, services or business and organizational models)*, new promising technological improvements, or the application of technologies or concepts previously not applied in the defence sector

- Integration of existing knowledge and previous or ongoing R&D activities in the defence and/or civil sectors, while avoiding unnecessary duplication

- Extent to which the innovations or technologies developed under the proposal could spin-off to other defence applications and products

3. Competitiveness (5 points)

- Foreseen competitive advantage of the product/technology/solution vis-a-vis existing or planned products/technologies/solutions across the EU and beyond, including consideration given to the balance between performance and cost-efficiency of the solution

- Potential to accelerate the growth of companies throughout the EU, based on an analysis of the EU internal market and the global market place, indicating, to the extent possible, the size and the growth potential of the market it addresses, as well as expected volumes of sales both within and outside of the EU.

- Strength of the IP strategy *(e.g. patents)* associated with the solution to support the competitiveness and growth of the applicant companies

4. EDTIB autonomy (5 points)

- Extent to which the proposed project will contribute to the autonomy of the European Defence Technological and Industrial Base (EDTIB) by increasing the EU's industrial and technological non-dependency from third countries

- Beneficial impact that the proposed activities will have on the strength of the European security of supply, including the creation of a new supply chain

- Extent to which the project outcome will contribute to the defence capability priorities agreed by Member States within the framework of the Common Foreign and Security Policy (CFSP), and in particular in the context of the Capability Development Plan (EDA version releasable to the industry); where appropriate, extent to which the proposal addresses regional or an international priorities which serve the security and defence interests of the EU as determined under the CFSP and do not exclude the possibility of participation of Member States or EDF associated countries

5. Creation of new cross-border cooperation (5 points)

- Extent to which the proposed project will create new cross-border cooperation between legal entities established in Member States or EDF associated countries, in particular SMEs and mid-caps, especially compared to former activities in the technological area of the call and taking into account the specificity of the market

- Planned future cross-border cooperation between legal entities established in Member States or EDF associated countries and cooperation opportunities created by the proposed activities

- Extent to which SMEs and mid-caps which cooperate cross-border participate substantially, and industrial or technological added value brought by them

6. Implementation (5 points)

- Effectiveness and practicality of the structure of the work plan (work breakdown structure), including timing and inter-relation of the different work packages and their components (illustrated by a Gantt chart, Pert chart or similar)

- Usefulness and comprehensiveness of the milestones and deliverables of the project; coherence and clarity of the criteria for reaching the milestones, which should be measurable, realistic and achievable within the proposed duration

- Appropriateness of the management structures and procedures, including decision-making mechanisms, to the complexity and scale of the project; quality of the risk management, including identification and assessment of the project specific critical risks, which could compromise the achievement of the stated project's objectives and detail of proposed risk treatments *(e.g. mitigation measures)*

– Appropriateness of the allocation of tasks and resources between consortium members, ensuring that all participants have a valid and complementary role; allocation of the work share that ensures a high level of effectiveness and efficiency for carrying out the project.

Award criteria	Minimum pass score	Maximum score	Weighting
Excellence and potential of disruption	n/a	5	2
Innovation and technological development	n/a	5	2
Competitiveness	n/a	5	1
EDTIB autonomy	n/a	5	1
Creation of new cross-border cooperation	n/a	5	2
Implementation	n/a	5	1
Overall weighted (pass) scores	**30**	**45**	N/A

Maximum points: 45 points.

There is no minimum pass score for individual criteria.

Overall threshold: 30 points.

Proposals that pass the overall threshold will be considered for funding — within the limits of the available budget (i.e. up to the budget ceiling). Other proposals will be rejected.

10. Legal and financial set-up of the Grant Agreements[66]

If you pass evaluation, your project will be invited for grant preparation, where you will be asked to prepare the Grant Agreement together with the EU Project Officer.

This Grant Agreement will set the framework for your grant and its terms and conditions, in particular concerning deliverables, reporting and payments.

The Model Grant Agreement that will be used (and all other relevant templates and guidance documents) can be found on Portal Reference Documents.

Starting date and project duration

The project starting date and duration will be fixed in the Grant Agreement *(Data Sheet, point 1)*. Normally the starting date will be after grant signature. A retroactive starting date can be granted exceptionally for duly justified reasons — but never earlier than the proposal submission date.

Project duration: *see section 6 above*

[66] In case of change in the management mode for a given action (see Section 3 of the EDF Work Programme), these rules may be different.

Milestones and deliverables

The milestones and deliverables for each project will be managed through the Portal Grant Management System and will be reflected in Annex 1 of the Grant Agreement.

The following deliverables will be mandatory for all projects:

- progress reports (every 6 to 12 months, to be agreed during grant agreement preparation)
- a special report[67]

Form of grant, funding rate and maximum grant amount

The grant parameters *(maximum grant amount, funding rate, total eligible costs, etc.)* will be fixed in the Grant Agreement *(Data Sheet, point 3 and art 5)*.

Project budget (maximum grant amount): *see section 6 above*.

The grant will be a budget-based mixed actual cost grant (actual costs, with unit cost and flat-rate elements). This means that it will reimburse ONLY certain types of costs (eligible costs) and costs that were *actually* incurred for your project (NOT the *budgeted* costs). For unit costs and flat-rates, you can charge the amounts calculated as explained in the Grant Agreement *(see art 6 and Annex 2 and 2a)*.

The costs will be reimbursed at the funding rate fixed in the Grant Agreement. This rate depends on the type of activities and participants *(see section 2)*.

Grants may in principle NOT produce a profit (i.e. surplus of revenues + EU grant over costs). Where the no-profit rule is activated in the Grant Agreement, for-profit organisations must declare their revenues and, if there is a profit, we will deduct it from the final grant amount *(see art 22.3)*.

Moreover, please be aware that the final grant amount may be reduced in case of non-compliance with the Grant Agreement *(e.g. improper implementation, breach of obligations, etc.)*.

Budget categories and cost eligibility rules

The budget categories and cost eligibility rules are fixed in the Grant Agreement *(Data Sheet, point 3, art 6 and Annex 2)*.

Budget categories for this call:

- A. Personnel costs
  - A.1 Employees, A.2 Natural persons under direct contract, A.3 Seconded persons
  - A.4 SME owners and natural person beneficiaries
- B. Subcontracting costs
- C. Purchase costs
  - C.1 Travel and subsistence

[67] 'Special report' means a specific deliverable of a research action summarising its results, providing extensive information on the basic principles, the aims, the outcomes, the basic properties, the tests performed, the potential benefits, the potential defence applications and the expected exploitation path of the research towards development, including information on the ownership of IPRs but not requiring the inclusion of IPR information (see art 2(23) EDF Regulation).

- C.2 Equipment
- C.3 Other goods, works and services

- D. Other cost categories
  - D.1 Financial support to third parties (not allowed)
  - D.2 Internally invoiced goods and services
- E. Indirect costs

Specific cost eligibility conditions for this call:

- personnel costs:
  - average personnel costs (unit cost according to usual cost accounting practices)[68]:Yes
  - SME owner/natural person unit cost[69]: Yes
- subcontracting costs:
  - country restrictions for subcontracting costs: Yes, subcontracted work must be performed in the eligible countries
- travel and subsistence unit cost[70]: No (only actual costs)
- equipment costs:
  - depreciation only (for all topics)
- other cost categories:
  - costs for financial support to third parties: not allowed
  - internally invoiced goods and services (unit cost according to usual cost accounting practices)[71]: Yes
- indirect cost:
  - flat-rate: 25% of the eligible direct costs (categories A-D, except subcontracting costs, financial support to third parties and exempted specific cost categories, i.e. internally invoiced goods and services and PCP procurement costs)

  or

  - actual costs

  ⚠ The indirect cost method selected will be fixed for the project and cannot be changed lateron.
- VAT: non-deductible VAT is eligible (but please note that since 2013 VAT paid by beneficiaries that are public bodies acting as public authority is NOT eligible)
- other:

[68] Decision of 27 February 2023 authorising the use of unit costs for staff costs and costs for internally invoiced goods and services for specific actions under the European Defence Programme.

[69] Commission Decision of 20 October 2020 authorising the use of unit costs for the personnel costs of the owners of small and medium-sized enterprises and beneficiaries that are natural persons not receiving a salary for the work carried out by themselves under an action or work programme (C(2020)7115).

[70] Commission Decision of 12 January 2021 authorising the use of unit costs for travel, accommodation and subsistence costs under an action or work programme under the 2021-2027 multi-annual financial framework (C(2021)35).

[71] Decision of 27 February 2023 authorising the use of unit costs for staff costs and costs for internally invoiced goods and services for specific actions under the European Defence Programme.

- in-kind contributions for free are allowed, but cost-neutral, i.e. they cannot be declared as cost
- kick-off meeting: costs for kick-off meeting organised by the granting authority are eligible (travel costs for maximum 2 persons, return ticket to Brussels and accommodation for one night) only if the meeting takes place after the project starting date set out in the Grant Agreement; the starting date can be changed through an amendment, if needed
- project websites: communication costs for presenting the project on the participants' websites or social media accounts are eligible; costs for *separate* project websites are not eligible
- eligible cost country restrictions: Yes, only costs for activities carried out in eligible countries are eligible
- other ineligible costs: Yes, costs related to the use of assets, infrastructure, facilities or resources located or held outside the eligible countries are not eligible (even if their use was authorised, *see section 6*).

Reporting and payment arrangements

The reporting and payment arrangements are fixed in the Grant Agreement *(Data Sheet, point 4 and art 21 and 22)*.

After grant signature, you will normally receive a **prefinancing** to start working on the project (float of normally **55%** of the maximum grant amount; exceptionally less or no prefinancing). The prefinancing will be paid 30 days from entry into force/starting date/financial guarantee (if required) — whichever is the latest.

For projects of more than 18 months, there may be one or more **additional prefinancing payments** linked to a prefinancing report and one or more **interim payments** (with detailed cost reporting).

In addition, you will be requested to submit one or more progress reports not linked to payments.

Payment of the balance: At the end of the project, we will calculate your final grant amount. If the total of earlier payments is higher than the final grant amount, we will ask you (your coordinator) to pay back the difference (recovery).

All payments will be made to the coordinator.

⚠ Please be aware that payments will be automatically lowered if one of your consortium members has outstanding debts towards the EU (granting authority or other EU bodies). Such debts will be offset by us — in line with the conditions set out in the Grant Agreement *(see art 22)*.

Please also note that you are responsible for keeping records on all the work done and the costs declared.

Prefinancing guarantees

If a prefinancing guarantee is required, it will be fixed in the Grant Agreement *(Data Sheet, point 4)*. The amount will be set during grant preparation and it will normally be equal or lower than the prefinancing for your grant.

The guarantee should be in euro and issued by an approved bank/financial institution established in an EU Member State. If you are established in a non-EU country and would like to provide a guarantee from a bank/financial institution in your country, please contact us (this may be exceptionally accepted, if it offers equivalent security).

Amounts blocked in bank accounts will NOT be accepted as financial guarantees.

Prefinancing guarantees are formally NOT linked to individual consortium members, which means that you are free to organise how to provide the guarantee amount *(by one or several beneficiaries, for the overall amount or several guarantees for partial amounts, by the beneficiary concerned or by another beneficiary, etc.)*. It is however important that the requested amount is covered and that the guarantee(s) are sent to us in time to make the prefinancing (scanned copy via Portal AND original by post).

If agreed with us, the bank guarantee may be replaced by a guarantee from a third party.

The guarantee will be released at the end of the grant, in accordance with the conditions laid down in the Grant Agreement.

Certificates

Depending on the type of action, size of grant amount and type of beneficiaries, you may be requested to submit different certificates. The types, schedules and thresholds for each certificate are fixed in the Grant Agreement *(Data Sheet, point 4 and art 24)*.

Liability regime for recoveries

The liability regime for recoveries will be fixed in the Grant Agreement *(Data Sheet point 4.4 and art 22).*

For beneficiaries, it is one of the following:

- limited joint and several liability with individual ceilings — *each beneficiary up* to their maximum grant amount
- unconditional joint and several liability — *each beneficiary up to the maximum grant amount for the action*

or

- individual financial responsibility — *each beneficiary only for their own debts*.

In addition, the granting authority may require joint and several liability of affiliated entities (with their beneficiary).

Provisions concerning the project implementation

Security rules: *see Model Grant Agreement (art 13 and Annex 5)*

Ethics rules: *see Model Grant Agreement (art 14 and Annex 5)*

IPR rules: *see Model Grant Agreement (art 16 and Annex 5):*

- background and list of background: Yes
- protection of results: Yes
- limitations to transfers and licensing: Yes
- rights of use on results: Yes
- for Research Actions: access to results for policy purposes: Yes
- for Research Actions: access to special report: Yes

– for Research Actions: access rights to further develop results: Yes

Communication, dissemination and visibility of funding: *see Model Grant Agreement (art 17 and Annex 5):*

– additional communication and dissemination activities: Yes

Specific rules for carrying out the action: *see Model Grant Agreement (art 18 and Annex 5):*

– specific rules for EDF actions: Yes

– specific rules for PCP Grants for Procurement: No

– place of performance obligation for PCP Grants for Procurement: No

– specific rules for Grants for Financial Support: No

– specific rules for blending operations: No.

Other specificities

n/a

Non-compliance and breach of contract

The Grant Agreement (chapter 5) provides for the measures we may take in case of breach of contract (and other non-compliance issues).

For more information, *see AGA — Annotated Grant Agreement*.

11. How to submit an application

All proposals must be submitted directly online via the Funding & Tenders Portal Electronic Submission System. Paper applications are NOT accepted.

Submission is a **2-step process**:

a) **create a user account and register your organisation**

To use the Submission System (the only way to apply), all participants need to create an EU Login user account.

Once you have an EULogin account, you can register your organisation in the Participant Register. When your registration is finalised, you will receive a 9-digit participant identification code (PIC).

b) **submit the proposal**

Access the Electronic Submission System via the Topic page in the Search Funding & Tenders section (or, for calls sent by invitation to submit a proposal, through the link provided in the invitation letter).

Submit your proposal in 2 parts, as follows:

– Part A includes administrative information about the applicant organisations (future coordinator, beneficiaries, affiliated entities and associated partners) and the summarised budget for the proposal. Fill it in directly online

– Part B and Annexes through a password-protected single zip archive:

- Part B (description of the action) covers the technical content of the proposal. Download the mandatory word template from the Submission System, fill it in and add to the zip archive as a PDF
- Annexes (*see section 5*). Download the templates, and add to zip archive as PDFs (— unless other format specified).

The zip archive must be submitted password-protected (using AES-256 encryption method), with a size of less than 100 MB. The password (and any other passwords used in the documents) must be communicated before the deadline for submission to the following email address: DEFIS-EDF-PROPOSALS-PWD@ec.europa.eu (together with the proposal ID and the name of the zip archive).

⚠ If your proposal includes **classified information**, please contact us at DEFIS-EDF-PROPOSALS@ec.europa.eu — well in time before the deadline, in order to arrange the delivery of the classified documents. Please be aware that such documents MUST NOT under any circumstances be submitted online through the Funding & Tenders Portal.

The proposal must keep to the **page limits** *(see section 5)*; excess pages will be disregarded.

Documents must be uploaded to the **right category** in the Submission System otherwise the proposal might be considered incomplete and thus inadmissible.

The proposal must be submitted **before the call deadline** (*see section 4*). After this deadline, the system is closed and proposals can no longer be submitted.

Once the proposal is submitted, you will receive a **confirmation e-mail** (with date and time of your application). If you do not receive this confirmation e-mail, it means your proposal has NOT been submitted. If you believe this is due to a fault in the Submission System, you should immediately file a complaint via the IT Helpdesk webform, explaining the circumstances and attaching a copy of the proposal (and, if possible, screenshots to show what happened).

Details on processes and procedures are described in the Online Manual. The Online Manual also contains the links to FAQs and detailed instructions regarding the Portal Electronic Exchange System.

12. Help

As far as possible, ***please try to find the answers you need yourself***, in this and the other documentation (we have limited resources for handling direct enquiries):

- Online Manual
- FAQs on the Topic page (for call-specific questions in open calls; not applicable for actions by invitation)
- Portal FAQ (for general questions).

Please also consult the Topic page regularly, since we will use it to publish call updates. (For invitations, we will contact you directly in case of a call update).

Contact

For individual questions on the Portal Submission System, please contact the IT Helpdesk.

Non-IT related questions should be sent to the following email address: DEFIS-EDF-PROPOSALS@ec.europa.eu.

Please indicate clearly the reference of the call and topic to which your question relates *(see cover page)*.

13. Important

IMPORTANT

- **Don't wait until the end —** Complete your application sufficiently in advance of the deadline to avoid any last minute **technical problems**. Problems due to last minute submissions *(e.g. congestion, etc.)* will be entirely at your risk. Call deadlines can NOT be extended.
- **Consult** the Portal Topic page regularly. We will use it to publish updates and additional information on the call (call and topic updates).
- **Funding & Tenders Portal Electronic Exchange System —** By submitting the application, all participants **accept** to use the electronic exchange system in accordance with the Portal Terms & Conditions.
- **Registration —** Before submitting the application, all beneficiaries, affiliated entities, associated partners must be registered in the Participant Register. The draft participant identification code (PIC) (one per participant) is mandatory for the Application Form.

  If your project applies for the SME/Mid-cap bonuses, registration (draft PIC and SME self-assessment wizard) is also mandatory for all participants claiming SME/Mid-cap status (beneficiaries, affiliated entities and subcontractors involved in the action; *see section 2*).

  Moreover, registration (draft PIC) is required for entities that must submit an ownership control assessment declaration (beneficiaries, affiliated entities, subcontractors involved in the action and associated partners).
- **Consortium roles —** When setting up your consortium, you should think of organisations that help you reach objectives and solve problems.

  The roles should be attributed according to the level of participation in the project. Main participants should participate as **beneficiaries** or **affiliated entities**; other entities can participate as associated partners, subcontractors, third parties giving in-kind contributions. **Associated partners** and third parties giving in-kind contributions should bear their own costs (they will not become formal recipients of EU funding). **Subcontracting** should normally constitute a limited part and must be performed by third parties (not by one of the beneficiaries/affiliated entities). Subcontracting going beyond 30% of the total eligible costs per beneficiary/affiliated entity must be justified in the application and may be accepted by the granting authority if the topic is not subject to a fixed subcontracting limit *(see section 10)*.
- **Coordinator —** In multi-beneficiary grants, the beneficiaries participate as consortium (group of beneficiaries). They will have to choose a coordinator, who will take care of the project management and coordination and will represent the consortium towards the granting authority. In mono-beneficiary grants, the single beneficiary will automatically be coordinator.
- **Affiliated entities** — Applicants may participate with affiliated entities (i.e. entities linked to a beneficiary which participate in the action with similar rights and obligations as the beneficiaries, but do not sign the grant and therefore do not become beneficiaries themselves). They will get a part of the grant money and must therefore comply with all the call conditions and be validated (just like beneficiaries); but they do not count towards the minimum eligibility criteria for consortium composition (if any).
- **Associated partners** — Applicants may participate with associated partners (i.e. partner organisations which participate in the action but without the right to get grant money). They participate without funding and therefore do not need to be validated.

- **Consortium agreement** — For practical and legal reasons it is recommended to set up internal arrangements that allow you to deal with exceptional or unforeseen circumstances (in all cases, even if not mandatory under the Grant Agreement). The consortium agreement also gives you the possibility to redistribute the grant money according to your own consortium-internal principles and parameters (for instance, one beneficiary can reattribute its grant money to another beneficiary). The consortium agreement thus allows you to customise the EU grant to the needs inside your consortium and can also help to protect you in case of disputes.

- **Balanced project budget —** Grant applications must ensure a balanced project budget and sufficient other resources to implement the project successfully *(e.g. own contributions, income generated by the action, financial contributions from third parties, etc.)*. You may be requested to lower your estimated costs, if they are ineligible (including excessive).

- **No-profit rule —** Grants may in principle NOT give a profit (i.e. surplus of revenues + EU grant over costs). Where the no-profit rule is activated in the Grant Agreement, this will be checked by us at the end of the project.

- **No double funding —** There is a strict prohibition of double funding from the EU budget (except under EU Synergies actions). Outside such Synergies actions, any given action may receive only ONE grant from the EU budget and cost items may under NO circumstances be declared to two different EU actions.

- **Completed/ongoing projects —** Proposals for projects that have already been completed will be rejected; proposals for projects that have already started will be assessed on a case-by-case basis (in this case, no costs can be reimbursed for activities that took place before the project starting date/proposal submission).

- **Combination with EU operating grants —** Combination with EU operating grants is possible, if the project remains outside the operating grant work programme and you make sure that cost items are clearly separated in your accounting and NOT declared twice *(see AGA — Annotated Grant Agreement, art 6.2.E)*.

- **Multiple proposals —** Applicants may submit more than one proposal for *different* projects under the same call (and be awarded a funding for them).

  Organisations may participate in several proposals.

  BUT: if there are several proposals for *very similar* projects, only one application will be accepted and evaluated; the applicants will be asked to withdraw one of them (or it will be rejected).

- **Resubmission —** Proposals may be changed and re-submitted until the deadline for submission.

- **Rejection —** By submitting the application, all applicants accept the call conditions set out in this this Call Document (and the documents it refers to). Proposals that do not comply with all the call conditions will be **rejected**. This applies also to applicants: All applicants need to fulfil the criteria; if any one of them doesn't, it must be replaced or the entire proposal will be rejected.

- **Cancellation —** There may be circumstances which may require the cancellation of the call. In this case, you will be informed via a call or topic update. Please note that cancellations are without entitlement to compensation.

- **Language —** You can submit your proposal in any official EU language (project abstract/summary should however always be in English). For reasons of efficiency, we strongly advise you to use English for the entire application. If you need the call documentation in another official EU language, please submit a request within 10 days after call publication (for the contact information, *see section 12*).

- **Transparency —** In accordance with Article 38 of the EU Financial Regulation, information about EU grants awarded is published each year on the Europa website.

  This includes:
  - beneficiary names
  - beneficiary addresses
  - the purpose for which the grant was awarded
  - the maximum amount awarded.

  The publication can exceptionally be waived (on reasoned and duly substantiated request), if there is a risk that the disclosure could jeopardise your rights and freedoms under the EU Charter of Fundamental Rights or harm your commercial interests.

- **Data protection —** The submission of a proposal under this call involves the collection, use and processing of personal data. This data will be processed in accordance with the applicable legal framework. It will be processed solely for the purpose of evaluating your proposal, subsequent management of your grant and, if needed, programme monitoring, evaluation and communication. Details are explained in the Funding & Tenders Portal Privacy Statement.

Annex 1

EDF types of action

EDF uses the following actions to implement grants:

Research Actions

Description: Research Actions (RA) target activities consisting primarily of research activities, in particular applied research and where necessary fundamental research, with the aim of acquiring new knowledge and with an exclusive focus on defence applications.

Funding rate: 100%

Payment model: Prefinancing — (x) additional prefinancing payment(s) — (x) interim payment(s) — final payment

Development Actions

Description: Development Actions (DA) target activities consisting of defence-oriented activities primarily in the development phase, covering new defence products or technologies or the upgrading of existing ones, excluding the production or use of weapon.

Funding rate: variable per activity (rates depend on activity and bonuses for SME and mid-cap participation and PESCO)

Payment model: Prefinancing — (x) additional prefinancing payment(s) — (x) interim payment(s) — final payment

PCP Grants for Procurement

Description: PCP Grants for Procurement (PCP) target activities that aim to help a transnational buyers' group to strengthen the public procurement of research, development, validation and, possibly, the first deployment of new solutions that can significantly improve quality and efficiency in areas of public interest, while opening market opportunities for industry and researchers active in Europe. Eligible activities include the preparation, management and follow-up, under the coordination of a lead procurer, of one joint PCP and additional activities to embed the PCP into a wider set of demand-side activities.

Funding rate: variable (to be defined in the work programme)

Payment model: Prefinancing — (x) additional prefinancing payment(s) — (x) interim payment(s) — payment of the balance

Lump Sum Grants for Research Actions

Description: Lump Sum Grants (LS-RA) reimburse a general lump sum for the entire project and the consortium as a whole. The lump sum is fixed ex-ante (at the latest at grant signature) on the basis of a methodology defined by the granting authority (either on the basis of a detailed project budget or other pre-defined parameters). The lump sum will cover all the beneficiaries' direct and indirect costs for the project. The beneficiaries do not need to report actual costs, they just need to claim the lump sum once the work is done. If the action is not properly implemented, only part of the lump sum will be paid.

Lump Sum Grants for Research Actions cover the same type of activities as Research Actions and follow — where relevant — similar rules *(e.g. for funding rates, etc.)*.

Funding rate: 100%

Payment model: Prefinancing — (x) additional prefinancing payment(s) — (x) interim payment(s) — final payment

Lump Sum Grants for Development Actions

Description: Lump Sum Grants (LS-DA) reimburse a general lump sum for the entire project and the consortium as a whole. The lump sum is fixed ex-ante (at the latest at grant signature) on the basis of a methodology defined by the granting authority (either on the basis of a detailed project budget or other pre-defined parameters). The lump sum will cover all the beneficiaries' direct and indirect costs for the project. The beneficiaries do not need to report actual costs, they just need to claim the lump sum once the work is done. If the action is not properly implemented, only part of the lump sum will be paid.

Lump Sum Grants for Development Actions cover the same type of activities as Development Actions and follow — where relevant — similar rules *(e.g. for funding rates, etc.)*.

Funding rate: variable per activity (rates depend on activity and bonuses for SME and mid-cap participation and PESCO)

Payment model: Prefinancing — (x) additional prefinancing payment(s) — (x) interim payment(s) — final payment

Framework Partnerships (FPAs) and Specific Grants (SGAs)

FPAs

Description: FPAs establish a long-term cooperation mechanism between the granting authority and the beneficiaries of grants. The FPA specifies the common objectives (action plan) and the procedure for awarding specific grants. The specific grants are awarded via identified beneficiary actions (with or without competition).

Funding rate: no funding for FPA

SGAs

Description: The SGAs are linked to an FPA and implement the action plan (or part of it). They are awarded via an invitation to submit a proposal (identified beneficiary action). The consortium composition should in principle match (meaning that only entities that are part of the FPA can participate in an SGA), but otherwise the implementation is rather flexible. FPAs and SGAs can have different coordinators; other partners of the FPA are free to participate in an SGA or not. There is no limit to the amount of SGAs signed under one FPA.

Funding rate: depending on the type: 100% or variable per activity

Payment model: Prefinancing — (x) additional prefinancing payment(s) — (x) interim payment(s) — final payment

Annex 2

Guarantees pursuant to Article 9(4) of the EDF Regulation

All calls under the EDF Programme are subject to ownership control restrictions, meaning that they exclude the participation of legal entities which are established in the EU territory or in an EDF associated country, but are controlled by a non-associated third country or non-associated third country legal entity.

Thus, for the purposes of participating in EDF actions, beneficiaries, affiliated entities, associated partners and subcontractors involved in the action must not be subject to control by a non-associated third country or non-associated third-country entity and undergo an ownership control assessment procedure before grant signature.

Entities that do not comply with this requirement may however exceptionally nevertheless participate, if they can provide guarantees approved by the Member State/EDF associated country in which they are established. Such guarantees must be provided at the latest by grant signature.

The guarantees must provide assurance to the granting authority that the participation of the entity will not contravene the security and defence interests of the EU and its Member States as established in the framework of the Common Foreign and Security Policy (CFSP) pursuant to Title V of the TEU, or the objectives set out in Article 3 of the EDF Regulation. They must also comply with the provisions on ownership and intellectual property rights (Articles 20 and 23 of the EDF Regulation).

They must in particular substantiate that, for the purposes of the action, measures are in place to ensure that:

- **control** over the legal entity is not exercised in a manner that would restrain or restrict its ability to carry out the action and to deliver results, that would impose restrictions concerning its infrastructure, facilities, assets, resources, intellectual property or knowhow needed for the purposes of the action, or that would undermine its capabilities and standards necessary to carry out the action

- **access** by a non-associated third country or non-associated third-country entity to sensitive information relating to the action is prevented and the employees or other persons involved in the action have national security clearance issued by a Member State or an EDF associated country, where appropriate

- **ownership** of the intellectual property arising from, and the results of, the action remain within the beneficiary or affiliated entity during and after completion of the action, are not subject to control or restriction by a non-associated third country or non-associated third-country entity, and are neither exported outside the EU/EDF associated countries nor accessible from outside the EU/EDF associated countries without the approval of the Member State/EDF associated country in which the legal entity is established and in accordance with the objectives set out in Article 3 of the EDF Regulation.

The guarantees may refer to the fact that the legal entity's executive management structure is established in the EU/EDF associated country or, if considered appropriate, to specific governmental rights in the control over the legal entity.

If considered appropriate by the Member State/EDF associated country, additional guarantees may be provided.

For more information, *see also* *Guidance on participation in DEP, HE, EDF and CEF-DIG restricted calls*.

Annex 3

Security aspects

Introduction

Pursuant to Article 27(4) of the EDF Regulation, in case the implementation of the grant involves the handling of classified information, Member States on whose territory the beneficiaries and affiliated entities are established must decide on the originatorship of the classified foreground information (results) generated in the performance of the project. For that purpose, those Member States may decide on a specific security framework for the protection and handling of classified information relating to the project and must inform the granting authority. Such a security framework must be without prejudice to the possibility for the granting authority to have access to necessary information for the implementation of the action.

If no such specific security framework is set up by those Member States, the security framework will be put in place by the granting authority in accordance with Decision 2015/444.

In either case, the security framework will be put in place at the latest by the signature of the Grant Agreement.

The applicable security framework will be detailed in the security aspect letter (SAL) which will be annexed to the Grant Agreement.

When you implement a classified grant, please bear in mind the following key rules.

Access to classified information

The creation, handling or access to information classified CONFIDENTIAL or SECRET (or RESTRICTED where required by national rules) on the premises of a participant is only possible if a valid Facility Security Clearance (FSC) at the appropriate level exists for the premises. This FSC must be granted by the National Security Authority (NSA/DSA) of the participant concerned.

The participant must hold a duly confirmed FSC at the appropriate level. Until a secured area is in place and accredited by the national NSA, the handling of classified information above RESTRICTED level on their premises is not allowed.

Access to and handling of classified information for the purposes of the project must be limited to individuals with a need-to-know and which are in possession of a valid personnel security clearance.

At the end of the Grant Agreement when EUCI is no longer required for the performance of the grant, the participant must return any EUCI they hold to the contracting authority immediately. If authorised to retain EUCI after the end of the grant, the EUCI must continue to be protected in accordance with Decision 2015/444.

Marking of classified information

Classified information generated for the performance of the action must be marked in accordance with the applicable security framework, as described in the SAL.

Grants must not involve information classified 'TRES SECRET UE/EU TOP SECRET' or any equivalent classification.

Other provisions

Where a participant has awarded a classified subcontract, the security provisions of the grant agreement must apply *mutatis mutandis* to the subcontractor(s) and their personnel. In such case, it is the responsibility of the participant to ensure that all subcontractors apply these principles to their own subcontracting arrangements.

All security breaches related to classified information will be investigated by the competent security authority and may lead to criminal prosecution under national law.

Table of equivalent security classification markings

	Secret	Confidential	Restricted
EU	SECRET UE/EU SECRET	CONFIDENTIEL UE/EU CONFIDENTIAL	RESTREINT UE/EU RESTRICTED
Austria	GEHEIM	VERTRAULICH	EINGESCHRÄNKT
Belgium	SECRET (Loi du 11 Dec 1998) or GEHEIM (Wet van 11 Dec 1998)	CONFIDENTIEL (Loi du 11 Dec 1998) or VERTROUWELIJK (Wet van 11 Dec 1998)	*(Note 1, see below)*
Bulgaria	СЕКРЕТНО	ПОВЕРИТЕЛНО	ЗА СЛУЖЕБНО ПОЛЗВАНЕ
Croatia	TAJNO	POVJERLJIVO	OGRANIČENO
Cyprus	ΑΠΌΡΡΗΤΟ ABR:(ΑΠ)	ΕΜΠΙΣΤΕΥΤΙΚΌ ABR:(ΕΜ)	ΠΕΡΙΟΡΙΣΜΈΝΗΣ ΧΡΉΣΗΣ ABR:(ΠΧ)
Czech Republic	TAJNÉ	DŮVĚRNÉ	VYHRAZENÉ
Denmark	HEMMELIGT	FORTROLIGT	TIL TJENESTEBRUG
Estonia	SALAJANE	KONFIDENTSIAALNE	PIIRATUD
Finland	SALAINEN or HEMLIG	LUOTTAMUKSELLINEN or KONFIDENTIELL	KÄYTTÖ RAJOITETTU or BEGRÄNSAD TILLGÅNG

France	SECRET SECRET DÉFENSE *(Note 2, see below)*	CONFIDENTIEL DÉFENSE *(Notes 2 and 3, see below)*	*(Note 4, see below)*
Germany ***(Note 5, see below)***	GEHEIM	VS - VERTRAULICH	VS - NUR FÜR DEN DIENSTGEBRAUCH
Greece	ΑΠΌΡΡΗΤΟ ABR:(ΑΠ)	ΕΜΠΙΣΤΕΥΤΙΚΌ ABR:(ΕΜ)	ΠΕΡΙΟΡΙΣΜΈΝΗΣ ΧΡΉΣΗΣ ABR:(ΠΧ)
Hungary	TITKOS!	BIZALMAS!	KORLÁTOZOTT TERJESZTÉSŰ!
Ireland	SECRET	CONFIDENTIAL	RESTRICTED
Italy	SEGRETO	RISERVATISSIMO	RISERVATO
Latvia	SLEPENI	KONFIDENCIĀLI	DIENESTA VAJADZĪBĀM
Lithuania	SLAPTAI	KONFIDENCIALIAI	RIBOTO NAUDOJIMO
Luxembourg	SECRET LUX	CONFIDENTIEL LUX	RESTREINT LUX
Malta	SIGRIET	KUNFIDENZJALI	RISTRETT
Netherlands	Stg. GEHEIM	Stg. CONFIDENTIEEL	Dep. VERTROUWELIJK
Poland	TAJNE	POUFNE	ZASTRZEŻONE
Portugal	SECRETO	CONFIDENCIAL	RESERVADO *(Note 6, see below)*
Romania	STRICT SECRET	SECRET	SECRET DE SERVICIU
Slovakia	TAJNÉ	DÔVERNÉ	VYHRADENÉ
Slovenia	TAJNO	ZAUPNO	INTERNO
Spain	RESERVADO *(Note 6, see below)*	CONFIDENCIAL	DIFUSIÓN LIMITADA
Sweden	HEMLIG	KONFIDENTIELL	BEGRÄNSAT HEMLIG

Notes:

Note 1 Belgium: 'Diffusion Restreinte/Beperkte Verspreiding' is not a security classification in Belgium. Belgium handles and protects RESTREINT UE/EU RESTRICTED information and classified information bearing the national classification markings of RESTRICTED level in a manner no less stringent than the standards and procedures described in the security rules of the Council of the European Union.

Note 2 France: Information generated by France before 1 July 2021 and classified SECRET DÉFENSE and CONFIDENTIEL DÉFENSE continues to be handled and protected at the equivalent level of SECRET UE/EU SECRET and CONFIDENTIEL UE/EU CONFIDENTIAL respectively.

Note 3 France: France handles and protects CONFIDENTIEL UE/EU CONFIDENTIAL information in accordance with the French security measures for protecting SECRET information.

Note 4 France: France does not use the classification 'RESTREINT' in its national system. France handles and protects RESTREINT UE/EU RESTRICTED information in a manner no less stringent than the standards and procedures described in the security rules of the Council of the European Union. France will handle classified information bearing the national classification markings of RESTRICTED level in accordance with its national rules and regulations in force for 'DIFFUSION RESTREINTE'. The other Participants will handle and protect information marked 'DIFFUSION RESTREINTE' according to their national laws and regulations in force for the level RESTRICTED or equivalent, and according to the standards defined in the present document.

Note 5 Germany: VS = Verschlusssache.

Note 6 Portugal and Spain: Attention is drawn to the fact that the markings RESERVADO used by Portugal and Spain refer to different classifications.