



EUROPEAN  
COMMISSION

Brussels, 25.5.2022  
C(2022) 3403 final

**COMMISSION IMPLEMENTING DECISION**

**of 25.5.2022**

**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 2022 - Part II**

# COMMISSION IMPLEMENTING DECISION

of 25.5.2022

## **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 2022 - Part II**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, hereafter referred to as the ‘TFEU’,

Having regard to Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012<sup>1</sup>, hereafter referred to as the ‘Financial Regulation’, and in particular Article 110 thereof,

Having regard to Regulation (EU) No 2021/697 of the European Parliament and of the Council of 29 April 2021 establishing the European Defence Fund and repealing Regulation (EU) No 2018/1092<sup>2</sup>, hereafter referred to as the ‘EDF Regulation’, and in particular Article 24 thereof,

Whereas:

- (1) In order to ensure the implementation of the European Defence Fund for the year 2022, it is necessary to adopt a financing decision, which constitutes the annual work programme for 2022. Article 110 of the Financial Regulation establishes detailed rules on financing decisions.
- (2) The envisaged assistance is to comply with the conditions and procedures set out by the restrictive measures adopted pursuant to Article 215 of the TFEU.
- (3) Pursuant to Article 62(1)(c) of the Financial Regulation indirect management is to be used for the implementation of the programme where provided for in the Annex 1 of this financing decision.
- (4) It is necessary to allow for the payment of interest due for late payment on the basis of Article 116(5) of the Financial Regulation.
- (5) In order to allow for flexibility in the implementation of the work programme, it is appropriate to allow changes which should not be considered substantial for the purposes of Article 110(5) of the Financial Regulation.
- (6) The measures provided for in this Decision are in accordance with the opinion of the EDF Programme Committee, established by Article 34 of EDF Regulation.

---

<sup>1</sup> OJ L 193, 30.7.2018, p.1

<sup>2</sup> OJ L 170, 12.5.2021, p.149

HAS DECIDED AS FOLLOWS:

*Article 1*  
*The work programme*

The annual financing decision, constituting the annual work programme for the implementation of the European Defence Fund for 2022 – Part II, as set out in the Annex 1, is adopted.

*Article 2*  
*Union contribution*

The maximum Union contribution for the implementation of the programme for 2022 – Part II is set at EUR 668 589 193, and shall be financed from the appropriations entered in the following lines of the general budget of the Union:

- (a) budget line 13.0201 - Capability development: EUR 349 484 729;
- (b) budget line 13.0301 - Defence research: EUR 319 104 464;

The appropriations provided for in the first paragraph may also cover interest due for late payment.

*Article 3*  
*Methods of implementation and entrusted entities or persons*

The implementation of the actions carried out by way of indirect management, as set out in the Annex 1, may be entrusted to the entities or persons referred to or selected in accordance with the criteria laid down in that Annex 1.

*Article 4*  
*Flexibility clause*

Cumulated changes to the allocations to specific actions not exceeding 20% of the maximum Union contribution set in the first paragraph of Article 2 of this Decision shall not be considered to be substantial for the purposes of Article 110(5) of the Financial Regulation, where those changes do not significantly affect the nature of the actions and the objective of the work programme.

The authorising officer responsible may apply the changes referred to in the first paragraph. Those changes shall be applied in accordance with the principles of sound financial management and proportionality.

*Article 5*  
*Financial instruments*

A defence equity facility under InvestEU Regulation for SMEs and Mid-Caps is established.

The European Investment Fund shall be entrusted with providing the financial support by means of guarantees for the amount set out in the Annex 1.

Done at Brussels, 25.5.2022

*For the Commission*  
*Thierry BRETON*  
*Member of the Commission*



EUROPEAN  
COMMISSION

Brussels, 25.5.2022  
C(2022) 3403 final

ANNEX 1

**ANNEX**

*to the*

**Commission Implementing Decision**

**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 2022 - Part II**

## Table of Contents

|  |          |
|--|----------|
| <b>1. INTRODUCTION</b>   | <b>3</b> |
| <b>2. LEGAL BASIS</b>  | <b>5</b> |
| <b>3. ACTIONS IMPLEMENTED UNDER THE WORK PROGRAMME IN 2022</b>   | <b>5</b> |
| 3.1. CALLS FOR PROPOSALS AND TOPICS RELATED TO THE CATEGORIES OF ACTIONS   | 6        |
| 3.1.1. <i>Defence medical response, Chemical Biological Radiological Nuclear (CBRN), biotech and human factors (MCBRN)</i>                                 | 7        |
| 3.1.1.1. EDF-2022-RA-MCBRN-HICP: Diagnostics, treatment, transport and monitoring of highly contagious, injured and/or contaminated personnel              | 7        |
| 3.1.1.2. EDF-2022-FPA-MCBRN-MCM: European defence medical countermeasures alliance   | 8        |
| 3.1.2. <i>Information superiority (C4ISR)</i>  | 9        |
| 3.1.2.1. EDF-2022-RA-C4ISR-AIRC2: Single European Sky interoperability   | 9        |
| 3.1.2.2. EDF-2022-DA-C4ISR-EC2: European command and control system  | 10       |
| 3.1.2.3. EDF-2022-DA-C4ISR-SOFC2: Deployable special operations forces multi-environment command post and C2 System  | 10       |
| 3.1.3. <i>Advanced passive and active sensors (SENS)</i>   | 11       |
| 3.1.3.1. EDF-2022-RA-SENS-CESENS: Covert sensing   | 11       |
| 3.1.3.2. EDF-2022-RA-SENS-ART: Advanced radar technologies   | 12       |
| 3.1.4. <i>Cyber (CYBER)</i>  | 12       |
| 3.1.4.1. EDF-2022-RA-CYBER-CSACE: Adapting cyber situational awareness for evolving computing environments   | 13       |
| 3.1.4.2. EDF-2022-DA-CYBER-CIWT: Cyber and information warfare toolbox   | 14       |
| 3.1.4.3. EDF-2022-DA-CYBER-CSIR: Cybersecurity and systems for improved resilience   | 15       |
| 3.1.5. <i>Space (SPACE)</i>  | 15       |
| 3.1.5.1. EDF-2022-RA-SPACE-RSS: Responsive space system  | 16       |
| 3.1.5.2. EDF-2022-DA-SPACE-ISR: Innovative multi-sensor space-based Earth observation capabilities towards persistent and reactive ISR                     | 16       |
| 3.1.5.3. EDF-2022-DA-SPACE-SBMEW: Space-based missile early warning  | 17       |
| 3.1.6. <i>Digital transformation (DIGIT)</i>   | 17       |
| 3.1.6.1. EDF-2022-RA-DIGIT-DBIR: Shared databases and integrated systems for image recognition   | 17       |
| 3.1.6.2. EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDP: Unmanned ground and aerial systems for hidden threats detection – Participation to a technological challenge | 18       |
| 3.1.6.3. EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDO: Unmanned ground and aerial systems for hidden threats detection – Organisation of a technological challenge  | 18       |
| 3.1.7. <i>Energy resilience and environmental transition (ENERENV)</i>   | 19       |
| 3.1.7.1. EDF-2022-RA-ENERENV-CUW: Sustainable components for underwater applications   | 19       |
| 3.1.8. <i>Materials and components (MATCOMP)</i>   | 20       |
| 3.1.8.1. EDF-2022-RA-MATCOMP-PACOMP: Packaging technologies for critical defence components  | 20       |
| 3.1.8.2. EDF-2022-DA-MATCOMP-SMT: Smart and multifunctional textiles   | 20       |
| 3.1.9. <i>Air combat (AIR)</i>   | 21       |
| 3.1.9.1. EDF-2022-DA-AIR-AEW: Airborne electronic warfare  | 21       |
| 3.1.10. <i>Air and missile defence (AIRDEF)</i>  | 21       |
| 3.1.11. <i>Ground combat (GROUND)</i>  | 22       |
| 3.1.11.1. EDF-2022-DA-GROUND-CGC: Collaborative combat for land forces   | 22       |
| 3.1.12. <i>Force protection and mobility (PROTMOB)</i>   | 22       |
| 3.1.12.1. EDF-2022-RA-PROTMOB-FMTC: Future mid-size tactical cargo aircraft  | 22       |
| 3.1.13. <i>Naval combat (NAVAL)</i>  | 23       |
| 3.1.13.1. EDF-2022-DA-NAVAL-MSAS: Medium-size semi-autonomous surface vessel   | 23       |
| 3.1.13.2. EDF-2022-DA-NAVAL-NCS: Naval Collaborative Surveillance  | 23       |
| 3.1.14. <i>Underwater warfare (UWW)</i>  | 24       |
| 3.1.14.1. EDF-2022-RA-UWW-UTS: Underwater manned-unmanned teaming and swarms   | 24       |
| 3.1.14.2. EDF-2022-RA-UWW-ODAC: Underwater observation, detection, acquisition and communications  | 24       |
| 3.1.15. <i>Simulation and training (SIMTRAIN)</i>  | 25       |
| 3.1.15.1. EDF-2022-DA-SIMTRAIN-MSSI: Modelling, simulation and simulator integration contributing to decision-making and training                          | 25       |
| 3.1.16. <i>Disruptive technologies (DIS)</i>   | 26       |
| 3.1.16.1. EDF-2022-LS-RA-DIS-AC: Innovative technologies for adaptive camouflage   | 26       |
| 3.1.16.2. EDF-2022-LS-RA-DIS-EAD: Electromagnetic artillery demonstrator   | 26       |
| 3.1.16.3. EDF-2022-LS-RA-DIS-NT: Non-thematic research actions targeting disruptive technologies for defence   | 26       |
| 3.2. CALLS FOR PROPOSALS NOT RELATED TO THE CATEGORIES OF ACTIONS  | 27       |

|           |   |           |
|-----------|---|-----------|
| 3.2.1.    | <i>EDF-2022-LS-RA-SMERO: Call for proposals dedicated to SMEs and research organisations..</i>                                  | 27        |
| 3.2.1.1.  | EDF-2022-LS-RA-SMERO-NT: Non-thematic research actions by SMEs and research organisations .....                                 | 27        |
| 3.2.2.    | <i>EDF-2022-LS-DA-SME: Call for proposals dedicated to SMEs .....</i>   | 27        |
| 3.2.2.1.  | EDF-2022-LS-DA-SME-NT: Non-thematic development actions by SMEs.....  | 28        |
| 3.2.3.    | <i>EDF-2022-CSA-NFP: Call for proposals for coordination and support action to the National Focal Points (NFP) network.....</i> | 28        |
| 3.3.      | OTHER ACTIONS.....  | 29        |
| 3.3.1.    | <i>External expertise, audits and IT systems .....</i>  | 29        |
| 3.3.2.    | <i>Business Coaches in the European Defence Fund .....</i>  | 30        |
| 3.3.3.    | <i>Defence equity facility under InvestEU for SMEs and Mid-Caps (blending facility).....</i>                                    | 30        |
| <b>4.</b> | <b>INDICATIVE BUDGET FOR 2022.....</b>  | <b>32</b> |
| <b>5.</b> | <b>SUMMARY INFORMATION AND FUNDING PRINCIPLES .....</b>   | <b>33</b> |
|           | <b>APPENDIX 1: SUMMARY OF CALL TOPICS PER CATEGORY OF ACTIONS .....</b>   | <b>38</b> |
|           | <b>APPENDIX 2: 2022 ANNUAL BUDGET ALLOCATIONS PER CATEGORY OF ACTIONS .....</b>   | <b>39</b> |
|           | <b>APPENDIX 3: 2022 ANNUAL BUDGET ALLOCATIONS PER CALL FOR PROPOSALS.....</b>   | <b>40</b> |
|           | <b>APPENDIX 4: MULTIANNUAL INDICATIVE BUDGET SUMMARY PER CATEGORY OF ACTIONS .....</b>  | <b>41</b> |

## 1. INTRODUCTION

The European Union is faced with increasing geopolitical instability and a complex set of conventional and new threats while the defence sector is fragmented and lacks investments in important research and capability development projects. Therefore, the Union is taking steps to bear more responsibility for its security and defence, including in its neighbourhood, to contribute to its strategic autonomy and freedom of action and to assist in creating a more competitive and integrated European defence technological and industrial base, thus reducing its dependencies. Following the Preparatory Action on Defence Research (PADR) and the European Defence Industrial Development Programme (EDIDP), the European Defence Fund (EDF) has been created to foster competitiveness, efficiency and innovation capacity of the defence technological and industrial base throughout the Union. It should complement, leverage, and consolidate collaborative efforts and cross-border cooperation between legal entities in developing defence capabilities that respond to security challenges while strengthening and improving the agility of both defence supply and value chains. The defence capability needs and shortfalls remain significant throughout the Union, in particular regarding next generations of large-scale capabilities, but also in critical cross-cutting and enabling areas such as space and cyber. This includes making best use of existing EU/European space systems by contributing to the development of their military applications. The EDF should also foster better exploitation of the industrial potential of innovation, research and technological development at each stage of the industrial life cycle of defence products and technologies, including through cross-fertilisation with civilian innovations in various domains such as digital, artificial intelligence and cyber.

The EDF is implemented through annual work programmes from 2021 to 2027. Priorities identified in the annual work programmes are in line with the Union capability priorities commonly agreed by Member States, in particular through the Capability Development Plan (CDP)<sup>1</sup>. Due consideration has been given to legacy PADR and EDIDP work programmes, to existing proposals from the Permanent Structured Cooperation (PESCO) framework and to the Common Security and Defence Policy (CSDP) capability shortfalls.

This work programme sets out in detail the actions to be financially supported by the Fund in the year 2022 (see table below) through calls for proposals.

- The work programme identifies 16 thematic *categories of actions*, among which research and development topics are identified, where appropriate.
- The contribution of each *category of actions* to the three *fields* defined in the EDF Regulation<sup>2</sup> is also indicated.

---

<sup>1</sup> The purpose of CDP is to increase coherence between Member States' defence planning and to encourage European cooperation by looking at future operational needs and defining common Capability Development Priorities. The latest version of CDP was endorsed by the EDA Steering Board in Capability Directors formation in June 2018.

<sup>2</sup> Pursuant to article 24(3) the research topics and categories of actions shall cover products and technologies in the fields of:

- (a) preparation, protection, deployment and sustainability;
- (b) information management and superiority and command, control, communication, computers, intelligence, surveillance and reconnaissance (C4ISR), cyber defence and cybersecurity; and
- (c) engagement and effectors.



| EDF thematic <i>categories of actions</i>   | Fields covered |     |     |
|---|----------------|-----|-----|
|   | (a)            | (b) | (c) |
| 1. Defence medical response, Chemical Biological Radiological Nuclear (CBRN), biotech and human factors | X              |     |     |
| 2. Information superiority  |                | X   |     |
| 3. Advanced passive and active sensors  | X              | X   |     |
| 4. Cyber  |                | X   |     |
| 5. Space  |                | X   |     |
| 6. Digital transformation   | X              | X   |     |
| 7. Energy resilience and environmental transition   | X              |     |     |
| 8. Materials and components   | X              | X   | X   |
| 9. Air combat   | X              |     | X   |
| 10. Air and missile defence   | X              | X   | X   |
| 11. Ground combat   | X              | X   | X   |
| 12. Force protection and mobility   | X              | X   |     |
| 13. Naval combat  | X              | X   | X   |
| 14. Underwater warfare  | X              | X   |     |
| 15. Simulation and training   | X              |     |     |
| 16. Disruptive technologies   | X              | X   | X   |

In addition to the calls for proposals addressing these thematic *categories of actions*, there are:

- Non-thematic calls for proposals focused on SMEs targeting research and development actions, to foster innovation as a key objective of the EDF.
- Calls for proposals targeting other types of actions, such as a coordination and support action for the network of national focal points.

Each *category of actions* may be addressed in one or more *calls for proposals*, as described in Appendix 1. The list of *calls for proposals* and associated *topics* addressed in this annual work programme is defined in section 3.

Each *topic* targets one or more *activities*, in accordance with Article 10(3) of the EDF Regulation. The table below indicates which *activities* are eligible for research actions and for development actions. A given topic can focus more specifically on one or more mandatory *activities* but can allow additional optional *activities* that would lead to (“*upstream activities*”) or result from (“*downstream activities*”) these *activities*.

| Types of activities |  | Short name            | Coverage        |                    |
|---------------------|--|-----------------------|-----------------|--------------------|
|                     |  |                       | Research action | Development action |
| (a)                 | Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies for defence, which can achieve significant effects in the area of defence  | Generating knowledge  | Eligible        | Not eligible       |
| (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 | Eligible        | Eligible           |
| (c)                 | Studies, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solution  | Studies               | Eligible        | Eligible           |
| (d)                 | The 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 tests for risk reduction in an industrial or representative environment         | Design                | Eligible        | Eligible           |
| (e)                 | The system prototyping of a defence product, tangible or intangible component or technology  | System prototyping    | Not eligible    | Eligible           |
| (f)                 | The testing of a defence product, tangible or intangible component or technology   | Testing               | Not eligible    | Eligible           |
| (g)                 | The qualification of a defence product, tangible or intangible component or technology   | Qualification         | Not eligible    | Eligible           |
| (h)                 | The certification of a defence product, tangible or intangible component or technology   | Certification         | Not eligible    | Eligible           |
| (i)                 | The development of technologies or assets increasing efficiency across the life cycle of defence products and technologies   | Increasing efficiency | Not eligible    | Eligible           |

## 2. LEGAL BASIS

All actions that will be funded under this work programme have their legal basis in Regulation (EU) 2021/697 (EDF Regulation).

## 3. ACTIONS IMPLEMENTED UNDER THE WORK PROGRAMME IN 2022

This section lists the *calls for proposals* and their associated *topics*, together with their main characteristics. These *calls for proposals* and *topics* result from a discussion with the EDF Programme Committee composed of representatives from the Member States and associated countries.

### Management mode:

As per Article 8(1) of the EDF Regulation and unless otherwise provided for in the present work programme, the actions set out in this work programme shall be implemented in direct management by the Commission.

By way of derogation, in accordance with Article 8(2) of the EDF Regulation, specific actions may, in substantiated cases, be carried out under indirect management by bodies as referred to in point (c) of Article 62(1) of the Financial Regulation, for example in case of complex actions where a project manager has been appointed by Member States, taking into account in particular the complexity of the action and a cost benefit analysis.

The change of management mode set in the present work programme will be assessed at the time of the selection of proposals retained for funding and be subject to the prior assessment of the bodies in accordance with Article 154 of the Financial Regulation in order to ensure the protection of the financial interest of the Union.

### **3.1. Calls for proposals and topics related to the categories of actions**

Five calls for proposals will be launched in 2022, covering 15 out of the 16 thematic categories of actions:

1) EDF-2022-RA:

- **Targeted type of actions:** Research actions
- **Form of funding:** Actual costs grants following the call for proposals
- **Targeted type of applicants:** Any eligible consortium as defined in Articles 9 and 10(4) of the EDF Regulation
- **Indicative budget for the call:** The Union is considering a contribution of up to EUR 270 000 000<sup>3</sup> for this call for 12 call topics addressing 10 categories of actions.

2) EDF-2022-LS-RA-DIS:

- **Targeted type of actions:** Research actions (dedicated to disruptive technologies for defence)
- **Form of funding:** Lump sum grants following the call for proposals
- **Targeted type of applicants:** Any consortium of eligible entities as defined in Article 9 of the EDF Regulation and involving at least two legal entities established in at least two different Member States or associated countries. At least two of the eligible legal entities established in at least two Member States or associated countries shall not, during the entire period in which the action is carried out, be controlled, directly or indirectly, by the same legal entity, and shall not control each other.
- **Indicative budget for the call:** The Union is considering a contribution of up to EUR 40 000 000 for this call for 3 call topics addressing one category of actions

3) EDF-2022-LS-RA-CHALLENGE:

---

<sup>3</sup> The budget earmarked on 2022 appropriations for this call may be complemented by an amount of up to EUR 42 000 000 from 2023 appropriations. This 2023 complementary budget is subject to the adoption of a separate financing decision.

- **Targeted type of actions:** Research actions (technological challenge)
  - **Form of funding:** Lump sum grants following the call for proposals
  - **Targeted type of applicants:** Any eligible consortium as defined in Articles 9 and 10(4) of the EDF Regulation
  - **Indicative budget for the call:** The Union is considering a contribution of up to EUR 25 000 000 for this call for 2 call topics addressing one category of actions
- 4) EDF-2022-DA:
- **Targeted type of actions:** Development actions
  - **Form of funding:** Actual costs grants following the call for proposals
  - **Targeted type of applicants:** Any eligible consortium as defined in Articles 9 and 10(4) of the EDF Regulation
  - **Indicative budget for the call:** The Union is considering a contribution of EUR 510 000 000<sup>4</sup> for this call for 12 topics addressing 8 categories of actions.
- 5) EDF-2022-FPA:
- **Targeted type of actions:** To be defined at the level of further specific grants. The call for proposals leads to the signature of a Framework Partnership Agreement covering jointly agreed action plan of activities addressing one category of actions
  - **Form of funding:** Framework partnership agreement (FPA) detailing the jointly agreed action plan and the terms and conditions for receiving actual costs grants to implement the actions via specific grant agreements (SGA).
  - **Targeted type of applicants:** Any eligible consortium as defined in Articles 9 and 10(4) of the EDF Regulation
  - **Indicative budget for the call:** The Commission envisages to dedicate up to EUR 100 000 000 during the four years of the execution of this FPA. The budget, specific obligations and conditions will be set out in each SGA and depend on the specific type of action.

### **3.1.1. *Defence medical response, Chemical Biological Radiological Nuclear (CBRN), biotech and human factors (MCBRN)***

This *category of actions* will be addressed through two *calls for proposals* in 2022, EDF-2022-RA and EDF-2022-FPA, and proposals will be called for each of the following two topics:

- 3.1.1.1. EDF-2022-RA-MCBRN-HICP: Diagnostics, treatment, transport and monitoring of highly contagious, injured and/or contaminated personnel
- **Indicative budget:**

---

<sup>4</sup> The budget earmarked on 2022 appropriations for this call may be complemented by an amount of up to EUR 213 000 000 from 2023 appropriations. This 2023 complementary budget is subject to the adoption of a separate financing decision.

The Union is considering a contribution of up to EUR 25 000 000 for this topic under the call EDF-2022-RA.

- **Number of actions to be funded:** Up to one action may be funded for this topic

Research and development in detection, diagnostics, treatment, transport and monitoring of highly contagious, injured and/or contaminated personnel (HICP) provides for new life-saving techniques and strategies for soldiers on the battlefield, including surgical robots, ultra-portable telemedicine devices, CBRN containment systems, ‘porter’ or load-carrying UVs and battlefield casualty extraction devices. Battlefield logistics are a challenge regardless of the mission. Adversaries, terrain, and the environment all serve to complicate the process of delivering supplies to wounded and sick. The medical support to a force must be capable of maintaining the necessary quality and quantity of supply, treatment and evacuation activities during peace, crisis, and conflict. This requires having on hand or in reserve appropriate CBRN technologies, medical equipment, supplies, integrated medical evacuation capabilities and remote casualty care capacity, as well as having the ability to resupply and to replace medical personnel on a continuous basis.

Synergies and complementarity with ongoing activities, notably EU funded actions under EDF WP2021, Horizon2020 and Horizon Europe, shall be ensured.

**Targeted types of activities:** Design, not excluding upstream activities eligible for research actions.

3.1.1.2. EDF-2022-FPA-MCBRN-MCM: European defence medical countermeasures alliance

- **Indicative budget:** No contribution is envisaged in 2022 for this topic under the call EDF-2022-FPA. However, the Commission envisages to dedicate a total budget envelope of up to EUR 100 000 000 for the four years of the execution of this FPA. The budget, specific obligations and conditions will be set out in each SGA and depend on the specific type of action.

**Objectives, expected results and targeted types of activities:**

Unlike other fields of defence research and development, medical threats are changing rapidly and require continuously new methods of diagnoses, assessment and treatment. Defence medical countermeasures (MCMs) must be kept up-to-date, available and able to respond to the continuously changing and novel health threats posed by CBRN.

To master the evolving threats, the Commission intends to establish a stable and structured partnership with legal entities grouped in a consortium which commit themselves to:

- Create a long-term open, supportive and sustainable cooperation mechanism in Europe amplifying, connecting and strengthening EU (defence) medical research and development capabilities on selected medical threats; and,
- Contribute to the accessibility and availability of medical countermeasures and strengthen their disposability.

This partnership will enable the implementation of a multi-annual planning (roadmap) of research and development activities. The FPA will set out the framework conditions governing the award of grants to beneficiaries on the basis of the roadmap, specify the objectives, the nature of the actions planned, and the procedure for awarding specific grants.

The Commission envisages to dedicate up to EUR 100 000 000 during the four years of execution of this FPA. The budget and rules on funding will be set out in each SGA and depend on the specific type of proposed actions.

Beneficiaries will be identified after the evaluation of the applications submitted in response to the FPA call. In a subsequent step, these selected beneficiaries may be invited to submit their proposals for the award of SGAs. Framework partnership agreements do not give the partners (*i.e.*, FPA beneficiaries) any right to be awarded specific grants.

**Targeted types of activities:** activities eligible for research or development actions to respond medical countermeasures. These activities entail a large scope covering, among others, innovation, research, design, testing and analysis.

The activities subject of the FPA are expected to contribute to the following outcomes:

- Establish a technology innovation roadmap (multiannual action plan) for linking early-stage capabilities to industry developments.
- Focus on research, innovation and development of defence medical countermeasures against CBRN threats as well as their integration into MS military forces, EU and MS health sector and civil protection mechanisms.
- Establish a well-connected network at European level in order to facilitate interoperability in detecting and validating CBRN threats and enlarge capabilities by a consequent cooperation and subsequent division of labour and capacities.
- Stimulate cooperation between European military and civilian research institutes and industry to initiate a core of European research base on military health issues.

The call aims at setting up a 4-year Framework Partnership Agreements (FPA) with legal entities active in the area of CBRN for the period 2023-2026 and executed through specific grants covering the activities referred to in article 10(3) of the EDF Regulation.

### **3.1.2. Information superiority (C4ISR)**

This *category of actions* will be addressed through two *calls for proposals* in 2022, EDF-2022-RA and EDF-2022-DA, and proposals will be called for each of the following three topics:

#### **3.1.2.1. EDF-2022-RA-C4ISR-AIRC2: Single European Sky interoperability**

- **Indicative budget:**

The Union is considering a contribution of up to EUR 20 000 000 for this topic under the call EDF-2022-RA.

- **Number of actions to be funded:** Up to one action may be funded for this topic

In order to reduce fragmentation of the airspace over Europe, the Single European Sky (SES) initiative has been running since 2004. It intends to improve the performance of Air Traffic Management (ATM) in terms of safety, capacity, cost-efficiency and the environment. It hence paves the way for a European airspace that is used optimally, embraces modern technologies and complies with emerging challenges. Since the civilian and the military fleet are sharing the same environment, SES implies a necessary

coordinated modernisation of the different Air Command and Control (C2) systems which are furthermore to collaborate at national and EU levels.

Against this background, proposals should focus on the adaptation of military Air-C2 systems to cross-border and Single European Sky (SES) interoperability regulation<sup>5</sup>, especially regarding the civil-military/military-military coordination and the connected secured, reliable and real-time exchanges of sensible data.

While respecting the Member States' and Associated countries' sovereignty and national/international security, defence and law enforcement obligations in that respect, a particular attention shall be paid in order to avoid unnecessary duplication with other programmes and policies, *e.g.*, the SES ATM Research (SESAR) project, and ensure interoperability with NATO, notably with the NATO Air Command and Control System (ACCS) programme.

**Targeted types of activities:** Studies and design, not excluding upstream activities eligible for research actions

#### 3.1.2.2. EDF-2022-DA-C4ISR-EC2: European command and control system

- **Indicative budget:**

The Union is considering a contribution of up to EUR 30 000 000 for this topic under the call EDF-2022-DA.

- **Number of actions to be funded:** Up to one action may be funded for this topic

Command and control (C2) capabilities are commonly recognised as critical enablers for Common Security and Defence Policy (CSDP) operations and missions. At military level, there are remaining critical shortfalls in that area, which have direct impact on the European collective capacity to comply with the EU CSDP military level of ambition. In particular, there is a requirement for an overarching European C2 system, from strategic to tactical level, capable of directing, coordinating and controlling all EU CSDP actions, missions and operations, in an integrated approach with civilian and military actors and forces, and in the full spectrum of crises.

Complementing the results of on-going activities at European level in this domain, proposals should focus on the demonstration of a software technology model for such a European C2 system which is meant to be able to interoperate and potentially be integrated with Member States and Associated Countries, EU forces, NATO and civil agencies systems.

**Targeted types of activities:** Design, not excluding upstream and downstream activities eligible for development actions

#### 3.1.2.3. EDF-2022-DA-C4ISR-SOFC2: Deployable special operations forces multi-environment command post and C2 System

- **Indicative budget:**

The Union is considering a contribution of up to EUR 20 000 000 for this topic under the call EDF-2022-DA.

---

<sup>5</sup> Regulation (EC) No 1070/2009 of the European Parliament and of the Council of 21 October 2009, OJ L 300, 14.11.2009, p. 34. [APPLICATION IN THE EEA: cf. OJ L 154, 22.05.2014, p. 25]

- **Number of actions to be funded:** Up to one action may be funded for this topic

In the context of CSDP operations, Small Joint Operations (SJO) conducted by Special Operation Forces (SOF) can provide a wide array of flexible military options for a rapid and effective response to the whole spectrum and all the stages of the fast-evolving crisis management landscape. The use of SOF can evidently decrease the risk of escalation that is generally associated with the employment of larger and more visible combat forces. Furthermore, SOF can be used in order to prepare and incorporate the full capacity and rapid deployment of such larger EU military forces and reinforce their operational capacities when they already deployed in an operational theatre, in order to stabilise a deteriorating situation. A key element of SJO executed by SOF is their highly flexible mobility that can provide the ability to rapidly adapt and respond to a broad range of operational scenarios in every operational domain (land, sea, air and cyber) with minimum or no demands for host nation support.

Proposal shall focus on the development of a capability taking SOF specific requirements into account, which includes not only generic C2 capabilities but also those tailored for SOF, interoperability with higher level C2 System and with tactical edge communication systems for field deployed operators, rapid deploy-ability in various areas of interest supporting several SOF teams, low thermal signature power supplies and multi-environment operational capabilities as a standalone asset.

**Targeted types of activities:** Studies, design, system prototyping and testing, not excluding upstream and downstream activities eligible for development actions

### **3.1.3. Advanced passive and active sensors (SENS)**

This *category of actions* will be addressed through one *call for proposals* in 2022 EDF-2022-RA and proposals will be called for each of the following two topics:

#### **3.1.3.1. EDF-2022-RA-SENS-CSENS: Covert sensing**

- **Indicative budget:**

The Union is considering a contribution of up to EUR 25 000 000 for this topic under the call EDF-2022-RA.

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

The capability to sense without being compromised provides a key advantage in military conflicts. For efficient Intelligence, Surveillance, Reconnaissance and target acquisition, armed forces therefore need to have sensors at their disposal that reliably allow detection, classification and tracking of targets while being themselves difficult to detect, track and intercept. To achieve this goal both the sensor performance and the conceptual use of sensors must eventually be addressed. Indeed, to cope with increasingly challenging mission environments, concepts are increasingly shifting towards multi-sensor and multi-spectral approaches. Data may be acquired by multiple heterogeneous sensors with different characteristics such as levels of interconnection, mobility or detectability.

This topic aims at enhancing performance and functionalities of sensors that have a low risk of being detected and to enable innovative concepts of sensor use. Its goal is to enhance detection, classification and tracking performances with respect to low signature targets in



complex environments. Considered sensors may be electro-optical/infrared, radiofrequency and/or acoustic sensors, not excluding innovative sensor concepts. They must be passive or low-observable active. The sensors should be capable of being efficiently integrated in scalable multi-sensor architectures, *e.g.*, smart distributed sensor networks that would combine multiple types of sensors. The sensor concept therefore needs to consider interoperability and needs to allow sensor management and data fusion.

**Targeted types of activities:** Studies and design, not excluding upstream activities eligible for research actions

#### 3.1.3.2. EDF-2022-RA-SENS-ART: Advanced radar technologies

- **Indicative budget:**

The Union is considering a contribution of up to EUR 15 000 000 for this topic under the call EDF-2022-RA.

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Airborne, land and naval radars and electronic warfare systems face new types of threats that are difficult to detect and track. Facing such threats, existing radio-frequency systems are reaching their limits in terms of detection, classification and tracking capabilities. New concepts and enhanced radio-frequency technologies should be investigated to allow for the efficient detection and tracking of low radar cross-section targets.

This topic addresses technologies, electronic components and their integration to render radars highly versatile and adaptive, while being compatible with operational restrictions in term of size, weight, power consumption and cost. It will support technical solutions and components covering aspects from beamforming to data processing. These advances will also pave the way for more performant multistatic radar configurations and multiband operations.

**Targeted types of activities:** Generating knowledge, integrating knowledge, studies and design

#### 3.1.4. Cyber (CYBER)

There is an increasing collective requirement to strengthen the EU resilience to emerging, growing and evolving threats worldwide. In particular, while recognized as a military operational domain as such, cyber is also an integrant and crucial dimension of key defence capabilities. R&D actions for cybersecurity and cyber defence in the context of EDF will strengthen cyber resilience and improve cooperation, coordination and joint capability building, hence leveraging interoperability and military operations efficiency. Against this background, cyber situational awareness and operational capacity building, including responsive operation capabilities, as well as cyber training and exercises efficiency, are the key areas to be valuably supported in this category of actions.

This *category of actions* will be addressed through two *calls for proposals* in 2022, EDF-2022-RA and EDF-2022-DA, and proposals will be called for each of the following three topics:

#### 3.1.4.1. EDF-2022-RA-CYBER-CSACE: Adapting cyber situational awareness for evolving computing environments

- **Indicative budget:**

The Union is considering a contribution of up to EUR 10 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

An increasing number of malicious actions targeting governmental and strategic systems occur in cyber space. New or improved solutions, technologies and applications for enhanced cyber situational awareness (CSA) are essential to counter these threats. To address evolving and more complicated activities in cyberspace, including challenges that arise due to the ongoing evolution of battlefield network and systems, decision makers and SOC operators need the most updated CSA related to cyber threats, in real time, gathering internal and external cyber information. CSA denotes the capability for a decision-maker to know what is going on in the cyber domain in order to be able to make informed decisions and adequately respond to incidents. CSA needs to be supported by technology to collect, correlate and fuse the several sources of data as well as their different nature (network, mission and threat awareness) to provide the necessary information so that human decision-makers can assimilate the situation. Cyber threats continue to grow in complexity and scope, new and evolving threats arising from advancing adversary campaigns and tactics and at the same time the volume and diversity of cyber threat intelligence grows all the time. It poses a challenge to human operators to visualise and comprehend the variety and volumes of information produced by dynamic and fragmented networks and systems in a battlefield context.

The proposals are expected to aim at CSA-supporting technology with a view to provide the necessary technical information elements that are needed to process the vast amounts of information in order to produce common operational pictures (COPs) or other technical artifacts to be used by decision-makers in need of CSA. This includes creation of content like graphics, dashboards, and reports according to the responsibilities of each user. The action is expected to cover state of the art technologies, such as cognitive AI-enabled systems. Enhanced situational awareness information handling and visualisation systems are expected to have a capability to present overarching views of the battlefield environment through COPs, considering ongoing evolution of the military systems towards the IOMT scenario which poses additional complexity, and sustain against a massive attack to critical battlefield system. Cyber threat intelligence and situational awareness is identified as one of the CARD recommendations.

CTI supports Cyberspace Operations by providing the Commander essential intelligence about the adversary, their capabilities and objectives while operating in and through cyberspace.

Possible area of investigation may include:

- linking observed tactics and techniques to specific APT behaviour, which may assist with adversary characterization and identification,
- use of deception techniques (including decoys) to increase the collection of adversary related data.

The proposals will substantiate synergies and complementarity and avoiding unnecessary duplication with projects awarded under EDIDP calls for proposals (such as ECYSAP).

**Targeted types of activities:** Studies and design, not excluding upstream activities eligible for research actions

#### 3.1.4.2. EDF-2022-DA-CYBER-CIWT: Cyber and information warfare toolbox

- **Indicative budget:**

The Union is considering a contribution of up to EUR 33 000 000 for this topic under the call EDF-2022-DA.

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

The continuously and rapidly increasing flow of information in the cyber battlespace and in whole-of-society is a well-established fact. We are witnessing an increasing number of malicious actions targeting cyber battlespace and whole-of-society. In the more and more digitalized battlespace, the Cyber and Information domains become decisive to anticipate and manage conflicts in the full spectrum of threat activities from sub-threshold interference to open warfare. Threats posed by new and evolving cyber and hybrid tools (*e.g.*, disinformation, fake news) are fully part of Cyber and Information Warfare. These threats need to be addressed with appropriate holistic resilience measures including detection and countermeasures. Cyber and Information Warfare system performance in terms of total defence effectiveness and cooperation in cyber defence as referred in the EU Capability Development Plan Priorities, could be improved.

Proposals are expected to address development of a European coherent library of software configurable components easily integrable in Cyber and Information Warfare systems. This requires capabilities in detection, analysis, fusion and threat targeting to support activities of Cyber and Information Operational Centres for operational use cases (*e.g.*, attacks against deployed forces in operations; attacks aiming at destabilising one and/or several European countries). Various relevant technologies processing multi-sources data for Cyber and Information Warfare operations needs to be addressed. In addition, enabling items such as standardization, data exchanges rules, multi-source fusion applications, AI based analytics, method & tools for integration, qualification in defence systems should be covered.

The outcome is expected to become both a reference repository of AI based configurable applications and an experimental platform for the various AI techniques addressing the specificities of Cyber and Information Warfare (for example disinformation tracking applications). The outcome aims at optimizing the development and integration of analytics in Cyber and Information Warfare systems with the possibility of decreasing cost, improved availability and interoperability.

The project may explore the employment of limited offensive action and counterattacks to deny a contested area or position to the enemy such as cyber countermeasures and counterattacks directed at a hostile cyber actor.

Defensive cyber-attacks may employ i) Mitigation action aimed at protecting the network and reducing the damage of a cyber-attack or ii) counterattack for observation, access, disruption, or destruction purposes against the CIS infrastructure used by the attackers.

The impact deriving from the activation of these measures must be assessed in terms of necessary infrastructure, tools, attacks and skills and related doctrine implications.

The proposals will substantiate synergies and complementarity with general command and control processes and functions, avoiding duplication with projects awarded under EDIDP2020 (such as AI4DEF, CYBER4DE).

**Targeted types of activities:** Design and system prototyping, not excluding upstream and downstream activities eligible for development actions

#### 3.1.4.3. EDF-2022-DA-CYBER-CSIR: Cybersecurity and systems for improved resilience

- **Indicative budget:**

The Union is considering a contribution of up to EUR 27 000 000 for this topic under the call EDF-2022-DA.

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic for this topic

More digitalized global community, military and battlefield may be affected by increasing threats. There is a growing need for cybersecurity services, including ensuring appropriate level of control and prevention (e.g., over data, communications, systems), taking into account increasing use of Internet of Thing devices (IoT) that offers “readymade” solutions to security, surveillance, monitoring and effectors in defensive as well as offensive modes, but could be extended also to military platform architecture. All of these devices have embedded capability for data interchange, routing, storage and SW update, often done through one or more steps before ultimately connecting with intra or internet. Real cyber security can only result from security-focussed system architecture, based on highly secure foundations. True security can only be achieved with a combination of trustworthy hardware and trustworthy operating system. The topic aims to prepare, design and/or demonstrate a Cyber Physical Test lab with HW & SW test tools and supporting expertise focusing on generation of effective test, forensic dissemination, procedures and architecture to ensure cyber security for common and relevant Cyber Physical systems, products and components. It could provide cyber security analysis of the planned system architecture including a threat analysis demonstrated at a selected system component. Based on the analysis, the architecture shall be updated in order to increase the security of the system to an appropriate level.

The proposals are expected to contribute to enhanced security in the Member States critical digital information infrastructure- solutions and services within security, encryption and communication systems from strategic to tactical level. They should also contribute to the certification of systems and to the EU Cybersecurity Certification framework, including contributing to enhance "security by design" of new systems and identify threats related to the supply chain.

**Targeted types of activities:** Studies and design, not excluding upstream and downstream activities eligible for development actions

#### 3.1.5. *Space (SPACE)*

The Union is funding and running the space flagships Galileo and Copernicus and is further developing new initiatives (EU-SST, GOVSATCOM, Secure connectivity), all being of

dual-use interest. At the same time, the commercial sector is blooming with a growing number of projects from both established actors and incomers proposing disruptive concepts and services (*e.g.*, constellations of small satellites) whose potential for defence applications is not fully explored yet. Military operations rely heavily on space-based or space-enabled capabilities, including dual-use ones. Space capabilities provide fast, continuous and discreet services for situational awareness worldwide (including in Space itself), as well as support to decision making, to conduct of military operations and to the assessment of their specific results. In particular, military-class space capabilities have to provide secure, available and highly performant services in an evolving threat environment. In the context of the EDF, joint R&D actions in the space category will allow consolidation of the demand of capabilities, access to more performant services (*e.g.*, increased bandwidth, increased areal-access, continuity of surveillance), increased interoperability while contributing to the development of a European Space culture and the reinforcement of the strategic autonomy of the Union.

Proposals will be called for each of the following three topics:

#### 3.1.5.1. EDF-2022-RA-SPACE-RSS: Responsive space system

- **Indicative budget:**

The Union is considering a contribution of up to EUR 20 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Up to one action may be funded for this topic

The general objective of this research topic is to pave the way towards a future European responsive space system able to place small satellites in various types of orbits within a short notice in order to address specific operational needs, including tactical ones, and capability gaps stemming from shortage, failures and damages of existing space assets. The scope must address collaborative defence research on the concept of operations (CONOPS) and the architecture of the overall system composed of the launch infrastructure (including fixed sites and/or mobile terrestrial, maritime or airborne carriers), the launch vehicles and spacecraft (satellite platforms and payloads) concepts as well as the ground segments and stations needed to operate the launcher and the satellite/payload. Such responsive space system will enhance the resilience and autonomy of the Member States, of associated countries and of the European Union in the fields of ‘access to space’ and ‘space capabilities for defence applications.

**Targeted types of activities:** Studies, not excluding upstream and downstream activities eligible for research actions.

#### 3.1.5.2. EDF-2022-DA-SPACE-ISR: Innovative multi-sensor space-based Earth observation capabilities towards persistent and reactive ISR

- **Indicative budget:**

The Union is considering a contribution of up to EUR 40 000 000 for this topic under the call EDF-2022-DA.

- **Number of actions to be funded:** Up to one action may be funded for this topic

This topic aims at developing an affordable constellation of small satellites able to handle various types of sensor payloads (e.g., optical video, night vision, infrared, hyperspectral, radar, signals intelligence) for Intelligence, Surveillance and Reconnaissance (ISR) applications. Such constellation would complement high-end existing and future national or EU capabilities while allowing responsive tasking and data acquisition/collection, including on-board processing, for tactical use. The scope includes the definition of the concept of operations (CONOPS) for such capability, its overall architecture including system level activities (e.g., choice of orbits, inter-satellite links (ISL), data relay satellites, ground stations, raw data management and processing and ISR post-processing analysis) and the definition of each component of the end-to-end system, composed of the satellite platform, the ISR payloads and the ground segment(s).

**Targeted types of activities:** Studies and design, not excluding upstream or downstream activities eligible for development actions.

#### 3.1.5.3. EDF-2022-DA-SPACE-SBMEW: Space-based missile early warning

- **Indicative budget:**

The Union is considering a contribution of up to EUR 90 000 000 for this topic under the call EDF-2022-DA.

- **Number of actions to be funded:** Up to one action may be funded for this topic

Taking into full consideration the ongoing EU and Member States' funded activities in this domain, the general objective of this topic is to contribute to the further development of a European space-based early warning capability against various types of missile threats: ballistic, hypersonic and anti-satellites (ASAT). This topic will focus on the one hand, on the consolidation of the overall system architecture and on the other hand, on the development of the critical technologies needed for such capability.

**Targeted types of activities:** Studies and design, not excluding upstream or downstream activities eligible for development actions.

#### 3.1.6. *Digital transformation (DIGIT)*

This *category of actions* will be addressed through two *calls for proposals* in 2022, EDF-2022-RA and EDF-2022-CHALLENGE, and proposals will be called for each of the following three topics:

##### 3.1.6.1. EDF-2022-RA-DIGIT-DBIR: Shared databases and integrated systems for image recognition

- **Indicative budget:**

The Union is considering a contribution of up to EUR 25 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Image recognition technologies become essential for defence applications. There is in particular an increasing need for manned and unmanned platforms to efficiently analyse their environments, especially with the emergence of new forms of threats such as

hypersonic, swarming, miniaturised or stealth weapons, in order to enhance decision-making, responsiveness and survivability. In order to develop these technologies, there is a need to collect, annotate and curate data that is representative of military operational scenarios. Such databases should be sharable among AI system developers, and there is a need to reinforce entities able to serve the community by actively creating such databases. There is also a need to develop and evaluate integrated image sensing and recognition systems enabling real-time processing near the sensor while taking into account size, weight, power and cost constraints.

**Targeted types of activities:** Generating knowledge and integrating knowledge, not excluding downstream activities eligible for research actions

3.1.6.2. EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDP: Unmanned ground and aerial systems for hidden threats detection – Participation to a technological challenge

- **Indicative budget:**

The Union is considering a contribution of up to EUR 20 000 000 for this topic under the call EDF-2022-LS-RA-CHALLENGE

- **Range of financial contribution of the Union per proposal:** The requested funding should not exceed EUR 5 000 000

- **Number of actions to be funded:** Several actions related to the participation in the challenge and addressing different solutions may be funded for this topic

Assisting soldiers with robots and drones and detecting threats efficiently by using artificial intelligence becomes essential for soldier protection. In particular, the detection of hidden threats such as improvised explosive devices (IED) and landmines remains an important research topic, requiring complex information fusion from various sensors. This call topic aims at exploring solutions involving various combinations of intelligent robots, drones and sensing technologies for the detection and recognition of such hidden threats, in view of their avoidance or neutralisation.

These solutions should be tested under realistic scenarios in a comparable and objective manner. For that purpose, each consortium supported through this call topic will benefit from a common testing environment set up in the framework of a technological challenge (supported through topic EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDO) and will have to participate in the experiment campaigns organised in this framework.

**Targeted types of activities:** Generating knowledge, not excluding downstream activities eligible for research actions

3.1.6.3. EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDO: Unmanned ground and aerial systems for hidden threats detection – Organisation of a technological challenge

- **Indicative budget for the call:**

The Union is considering a contribution of up to EUR 5 000 000 for this topic under the call EDF-2022-CHALLENGE

- **Number of actions to be funded:** Up to one action may be funded for this topic

The detection of hidden threats such as improvised explosive devices (IED) and landmines is an important research topic for which standardised benchmarks are lacking. This call topic

aims at setting up a testing environment and organising a technological challenge, to which research teams supported through another topic (EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDP) and possibly other sources of funding will participate.

The testing environment should enable objective comparisons between different approaches. Data should be collected during field tests, annotated and shared to enable the validation of the threat detection and recognition systems under study.

**Targeted types of activities:** Integrating knowledge, not excluding upstream and downstream activities eligible for research actions

### 3.1.7. *Energy resilience and environmental transition (ENERENV)*

The aim of this category of action is to create and develop energy efficient solutions and green technologies in the defence sector. In the context of the climate change, the overall contribution of this category will support Europe in achieving its ambitious environmental objectives.

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-RA, and proposals will be called for the following topic:

3.1.7.1. EDF-2022-RA-ENERENV-CUW: Sustainable components for underwater applications

- **Indicative budget:**

The Union is considering a contribution of up to EUR 20 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Up to one action may be funded for this topic

Sonars whose  $Pb_{1-x}Zr_xTiO_3$  (PZT) ceramics are the core of the devices, are installed on European submarines, frigates, helicopters and drones. Indeed, PZT ceramics are used in most acoustic sensors for underwater military applications: hydrophones, sonobuoys, dipping sonars, variable depth and hull mounted sonars, torpedoes. With a number of major fleet renewal programmes entering the implementation phase, the naval sector is faced with the double challenge to control the environmental impact and the safety of the ships, while preserving the acoustic performances of sensing.

The objective is to replace existing lead titanate-zirconate PZT ceramics by alternative technologies such as lead-free piezoelectric materials with a minimal loss of performance. The choice of these lead-free piezoelectric materials may differ depending on the Sonar applications (passive hydrophones or active transducers). The ultimate goal would be the emergence of at least one European lead free piezoceramic supply chain, which will soon be mandatory in coherence with the European REACH regulations. The patenting of new formulations and processes would be of use for sonar applications.

The proposals will substantiate synergies and complementarity with activities carried out under other EU programmes, hence avoiding duplication of funding.

**Targeted types of activities:** Generating knowledge, integrating knowledge, not excluding downstream activities eligible for research actions.



### 3.1.8. *Materials and components (MATCOMP)*

This *category of actions* will be addressed through two *calls for proposals* in 2022, EDF-2022-RA and EDF-2022-DA, and proposals will be called for each of the following two topics:

#### 3.1.8.1. EDF-2022-RA-MATCOMP-PACOMP: Packaging technologies for critical defence components

- **Indicative budget:**

The Union is considering a contribution of up to EUR 25 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Electronic packaging technologies are key to obtain compact, robust and reliable electronic components by integrating and encapsulating multiple electronic chips. To provide the necessary performance and functionalities for future defence systems, electronic packaging technologies may need to combine components of various types, made of different materials, produced by different processes, providing digital and analogue functions in packages with short interconnections and that integrate further security and thermal management functionalities.

Packaging technologies can also increase the resilience of supply in key technology areas, reducing dependence and improve security of information by allowing the use of components of different technologies and from different sources within a quality and security assured process. This is particularly relevant for defence applications for which securing the EU supply chains of critical electronic components is challenging due to small manufacturing volumes and potential constraints such as export restrictions.

This topic addresses improvement of packaging technologies, the preparation of design tools and the preparation of pilot lines. It should focus on a use-case relevant for defence applications, such as components for radio-frequency systems (radar, electronic warfare or communication), data security or smart sensors for ammunitions. It should build on skills, technologies and associated industrial capacities that are partially available in Europe for civil applications.

This topic is linked to the sectoral analysis performed by DG DEFIS and studies performed by EDA in the framework of the CapTech TCM. Synergies between defence, space and civil technologies will be taken into account in order to avoid duplication costs.

**Targeted types of activities:** Integrating knowledge, studies and design, not excluding upstream activities eligible for research actions.

#### 3.1.8.2. EDF-2022-DA-MATCOMP-SMT: Smart and multifunctional textiles

- **Indicative budget:**

The Union is considering a contribution of up to EUR 20 000 000 for this topic under the call EDF-2022-DA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Smart and multi-functional textiles enable to integrate different components and devices in uniforms and soldier systems and to widen their range of functionalities. Functionalities can include monitoring of the environment and of the soldier's physiological state, localisation, communication, protective functionalities (e.g., signature reduction, including thermal radiation, fire protection and neutralization of dangerous chemicals).

Though single technology demonstrators have been developed in the EU, further efforts are necessary on the way to an integration of smart and multi-functional textiles as one module of performant soldier systems, which would require, amongst other, standardised interfaces. Another goal could be the development of components for energy storage and potentially energy harvesting.

Solutions should be in line with ongoing projects in the field of smart textiles and soldier systems. A particular focus will be given to potential inclusion of results from civil R&D.

**Targeted types of activities:** Studies, design, system prototyping and testing, not excluding upstream and downstream activities eligible for development actions

### **3.1.9. Air combat (AIR)**

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-DA, and proposals will be called for the following topic:

#### 3.1.9.1. EDF-2022-DA-AIR-AEW: Airborne electronic warfare

- **Indicative budget:**

The Union is considering a contribution of up to EUR 40 000 000 for this topic under the call EDF-2022-DA

- **Number of actions to be funded:** Up to one action may be funded for this topic

The proliferation of advanced long-range Integrated Air Defence Systems (IADS), incorporating threats that can operate across different frequency bands and attack aircraft at ranges up to 400 km, could create Anti Access/Area Denial (A2/AD) areas. In such A2/AD areas, which could equally affect EU Member States' and Associated Countries' airspace, air operations including projection of forces by air would not be possible in case of a crisis. Hence, there is a need for airborne capabilities able to ensure safety of aircraft wherever needed, in particular when hostile IADS threaten.

Complementing the results of on-going activities at European level in this domain, proposals should focus on the concrete development phases of such an airborne electronic warfare capability, possibly usable with unmanned aerial vehicles, with the objective to provide Europe with the ability to counter IADS threats. This will allow European air forces to safely operate within EU territories and to safely project and repatriate forces in any other potential area of operations.

**Targeted types of activities:** Design, system prototyping and testing, not excluding upstream or downstream activities eligible for development actions

### **3.1.10. Air and missile defence (AIRDEF)**

This *category of actions* is not addressed in the EDF work programme 2022 Part 2.

### **3.1.11. Ground combat (GROUND)**

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-DA, and proposals will be called for the following topic:

#### 3.1.11.1. EDF-2022-DA-GROUND-CGC: Collaborative combat for land forces

- **Indicative budget:**

The Union is considering a contribution of up to EUR 50 000 000 for this topic under the call EDF-2022-DA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

In order to cope with new challenges and threats on the battlefield (e.g., technological dissemination and porosity between different actors' systems) which make the environment ever more complex and contested, collaborative warfare is meant to gain and maintain superiority over the enemy thanks to combat systems connection, through a shared tactical picture as well as closely coordinated actions at tactical level.

The ambition of this topic is to develop innovative technologies in order to be able to understand, decide, act and react more quickly than the enemy at tactical level. The key to success relies on a clearer situational awareness to allow finer commanders' judgement and rapid action as well as on early threat detection to allow rapid reaction. This requires interconnected platforms bearing various sensors and effectors as well as an efficient (seamless, flexible, secured) communication and battle management framework, enabling operational services resorting to artificial intelligence technologies with human supervision to accelerate the tempo of operations within European coalitions.

**Targeted types of activities:** Studies, design and system prototyping, not excluding upstream and downstream activities eligible for development actions

### **3.1.12. Force protection and mobility (PROTMOB)**

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-RA, and proposals will be called for the following topic:

#### 3.1.12.1. EDF-2022-RA-PROTMOB-FMTC: Future mid-size tactical cargo aircraft

- **Indicative budget:**

The Union is considering a contribution of up to EUR 30 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Tactical transport aircrafts are the workhorses of battlefields, fulfilling missions like airdrop delivery, parachutist drop, logistics, medical evacuation (MEDEVAC), air to air refuelling, special missions under harsh and adverse conditions, which are critical for the success of military operations. Beyond their pure military role, tactical transport aircrafts are also key assets for a better civil defence/protection and EU-internal needs, with critical contribution to disaster relief, search-and-rescue and sanitary crises response.

Beside the A400M, which is on the high-performance side of the capacity, the initial conception of the majority of currently operating tactical aircraft (C130, C-295, C-27J ...) is now 40 years old, and there is a need for a new medium tactical European aircraft, lighter than the A400M that could provide a complementary capacity for tactical transport. The proposals shall cover the feasibility study phase of the possible development of such a future tactical transport aircraft.

**Targeted types of activities:** Studies, not excluding upstream or downstream activities eligible for research actions.

### 3.1.13. *Naval combat (NAVAL)*

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-DA, and proposals will be called for each of the following two topics:

#### 3.1.13.1. EDF-2022-DA-NAVAL-MSAS: Medium-size semi-autonomous surface vessel

- **Indicative budget:**

The Union is considering a contribution of up to EUR 65 000 000 for this topic under the call EDF-2022-DA

- **Number of actions to be funded:** Up to one action may be funded for this topic

The objective is to develop a medium-size semi-autonomous surface vessel with different mission modules/payloads focused on the specific conditions of the littoral environment, providing increased coastal defence capabilities. The first use case will be a patrol mission to increase Maritime Situational Awareness (MSA) but the universal fast-moving platform will be adaptable for multiple tasks. A selection of mission modules will allow for several additional operational roles ranging from peacetime and times of crisis actions to wartime operations.

**Targeted types of activities:** Studies, design, system prototyping and testing, not excluding upstream and downstream activities eligible for development actions

#### 3.1.13.2. EDF-2022-DA-NAVAL-NCS: Naval Collaborative Surveillance

- **Indicative budget:**

The Union is considering a contribution of up to EUR 65 000 000 for this topic under the call EDF-2022-DA

- **Number of actions to be funded:** Up to one action may be funded for this topic

The objective is to develop a Naval Cooperative Surveillance (NCS) capability, based on real-time Plot Level Data Exchange and Fusion (PLDEF), allowing force units within a naval coalition to share sensor plot level data in real time and to build a better tactical situational awareness, Such additional performances are critical in order to overcome new threats in Above Water Warfare (AWW), such as hyper-velocity targets, ballistic missiles and swarms of unmanned vehicles. NCS will define data interfaces, protocols and standards, develop new technologies related to data fusion and processing, and perform testing at sea.

**Targeted types of activities:** Studies, design, system prototyping and testing, not excluding upstream and downstream activities eligible for development actions

### **3.1.14. Underwater warfare (UWW)**

Power projection, force deployment and freedom of action remain key aspects of naval capabilities and forces and constitutes a cornerstone of EU continuous and unhindered access to Sea Lines of Communication. Assuring these require state of the art and robust capabilities addressing subsurface threats. This indicates a clear need for further enhanced subsurface situational awareness and its enablers. Solutions utilising unmanned systems with autonomous features incorporated with other future capability developments are foreseen to be a technological multiplier in this area.

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-RA, and proposals will be called for each of the following two topics:

#### 3.1.14.1. EDF-2022-RA-UWW-UTS: Underwater manned-unmanned teaming and swarms

- **Indicative budget:**

The Union is considering a contribution of up to EUR 25 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

This topic addresses research for future capabilities addressing moving subsurface threats and using manned-unmanned teaming and swarm technologies, possibly including surface and air platforms and components, particularly in confined and shallow waters (CSW). This System-of-Systems (SoS) should enable enhanced operational efficiency and performance. The actions in this topic should address state-of-the-art, and beyond, swarm control solutions. This includes analysis of centralised, distributed, and hybrid control models. Swarm control may employ control scheme with a global or local approach and their optimised combination. The control-scheme should adopt to mission type changes as the operation evolves from one phase to another. Guidance and control strategies for the swarm are also to be considered, where inductive and swarm internal cognitive-like self-control needs to be analysed.

**Targeted types of activities:** Generating knowledge, integrating knowledge and studies, not excluding downstream activities eligible for research actions.

#### 3.1.14.2. EDF-2022-RA-UWW-ODAC: Underwater observation, detection, acquisition and communications

- **Indicative budget:**

The Union is considering a contribution of up to EUR 30 000 000 for this topic under the call EDF-2022-RA

- **Number of actions to be funded:** Up to one action may be funded for this topic

Future capabilities need to be effective, mobile, adaptive, scalable, and flexible to counter threats from the underwater domain, leading to new technical and conceptual solutions to be developed. As traditional naval ships will become an increasingly scarce and expensive

resource and will not be sufficient to provide the necessary geographical coverage and flexibility needed for the future, research is required on modular unmanned systems for underwater warfare with prerequisite principles of unmanned air, surface and underwater (UxV) standards.

This topic focuses on underwater communication, detection, and monitoring of moving targets. These are common denominators for traditional warfare areas such as Anti-Submarine Warfare (ASW), underwater surveillance, harbour protection, and seabed warfare. Mission specific sensor solutions and tactical approaches differ in these, despite having common denominators. Timely detection of moving underwater threats at sufficient range is identified as one of the biggest challenges. Providing technical solutions for underwater target detection, allowing to prepare appropriate reaction to a subsurface threat, will therefore impact the whole range of warfare areas mentioned above.

**Targeted types of activities:** Studies and design, not excluding upstream activities eligible for research actions.

### ***3.1.15. Simulation and training (SIMTRAIN)***

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-DA, and proposals will be called for the following topic:

3.1.15.1. EDF-2022-DA-SIMTRAIN-MSSI: Modelling, simulation and simulator integration contributing to decision-making and training

- **Indicative budget:**

The Union is considering a contribution of up to up to EUR 30 000 000 for this topic under the call EDF-2022-DA

- **Number of actions to be funded:** Up to one action may be funded for this topic

Intuitive, immersive and interoperable Modelling and Simulation (M&S) capabilities are a key enabler for defence. The increasing complexity of defence equipment, systems and scenarios requires interoperable, reconfigurable and innovative modelling and simulation capabilities supporting decision making, training and education, analysis and assessment, test and evaluation, and experimentation.

Proposals must be based on an interoperable, reliable and scalable architecture, including the integration of various simulating systems already in service, allowing for individual and joint training missions, full spectrum of operations, tactics and manoeuvre, live tactical training, virtual and mixed reality environment. They must support the strategic level to support decision-making, as well as the tactical level training.

This topic aims at studies, such as feasibility studies for new or improved technologies, products, processes, services and solutions and the design of new integrated state of the art technologies in training using simulation systems, adapted to the different and new combat scenarios (for example UxVs swarm tactics), operations and missions environment and shall support multi-domain operations which models the conventional physical domains (land, maritime and air) as well as inputs from the space and cyber domain.

**Targeted types of activities:** Studies, design and system prototyping not excluding upstream and downstream activities eligible for development actions.

### **3.1.16. Disruptive technologies (DIS)**

This *category of actions* will be addressed through one *call for proposals* in 2022, EDF-2022-LS-RA-DIS, and proposals will be called for each of the following three topics:

#### 3.1.16.1. EDF-2022-LS-RA-DIS-AC: Innovative technologies for adaptive camouflage

- **Indicative budget:**

The Union is considering a contribution of up to EUR 15 000 000 for this topic under the call EDF-2022-LS-RA-DIS.

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Camouflage is an important measure to protect soldiers and military objects. The adaptation of the camouflage characteristics to the conditions, such as encountered sensors, environment and threat level, could bring this protection to a new level. Both the performance of the adaptive camouflage and material characteristics will influence the impact of this technology on military capabilities. This topic complements ongoing projects, in particular following the PADR call on research in technology and products in the context of Force Protection and Soldier Systems.

**Targeted types of activities:** Generating knowledge, integrating knowledge, studies and design

#### 3.1.16.2. EDF-2022-LS-RA-DIS-EAD: Electromagnetic artillery demonstrator

- **Indicative budget:**

The Union is considering a contribution of up to EUR 15 000 000 for this topic under the call EDF-2022-LS-RA-DIS.

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

Combination of electromagnetic artillery guns with smart ammunitions can provide long range precision strikes as well as increased air defence and anti-surface warfare capabilities to improve the effectiveness and the protection of future European land and naval systems. Electromagnetic railguns provide a drastic superiority over conventional guns due to hypersonic muzzle velocities while guided projectiles provide higher accuracy and precision. This topic complements ongoing projects, in particular following the 2019 PADR call on emerging technologies for defence.

**Targeted types of activities:** Generating knowledge, integrating knowledge, studies and design

#### 3.1.16.3. EDF-2022-LS-RA-DIS-NT: Non-thematic research actions targeting disruptive technologies for defence

- **Indicative budget:**

The Union is considering a contribution of up to EUR 10 000 000 for this topic under the call EDF-2022-LS-RA-DIS

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic
- **Range of financial contribution of the Union per proposal:** The requested funding should not exceed EUR 4 000 000.

The proposals should consist of activities aiming to create, underpin and improve disruptive technologies that can achieve significant effects in the area of defence.

**Targeted types of activities:** Generating knowledge, not excluding downstream eligible activities for research actions

### 3.2.Calls for proposals not related to the categories of actions

Three calls for proposals not related to the categories of actions will be launched in 2022:

#### 3.2.1. *EDF-2022-LS-RA-SMERO: Call for proposals dedicated to SMEs and research organisations*

- **Targeted type of actions:** Research actions (dedicated to SMEs and research organisations).
- **Form of funding:** Lump sum grants following the call for proposals
- **Targeted type of applicants:** Any eligible consortium as defined in Articles 9 and 10(4) of the EDF Regulation. Members of the consortium need to be SMEs (as defined in Commission Recommendation 2003/361/EC) or research organisations. The coordinator of the consortium needs to be an SME. The budget allocated to research organisations cannot exceed 40% of the total requested grant amount.
- **Indicative budget for the call:** The Union is considering a contribution of up to EUR 17 600 000 under this call for one call topic:

##### 3.2.1.1. EDF-2022-LS-RA-SMERO-NT: Non-thematic research actions by SMEs and research organisations

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic
- **Range of financial contribution of the Union per proposal:** The requested funding should not exceed EUR 4 000 000.

This topic addresses innovative defence technologies, materials and solutions, including those that can improve readiness, deployability, reliability, safety and sustainability of EU forces in the entire spectrum of tasks and missions, for example in terms of operations, equipment, infrastructure, basing, energy solutions, new surveillance systems.

Successful SME beneficiaries may be offered Business Coaching, to reduce the time of bringing the results to the next phase, *e.g.*, development.

**Targeted types of activities:** Any activities eligible for a research action. However, proposals must not be limited to studies.

#### 3.2.2. *EDF-2022-LS-DA-SME: Call for proposals dedicated to SMEs*

- **Targeted type of actions:** Development actions (dedicated to SMEs).
- **Form of funding:** Lump sum grants following the call for proposals



- **Targeted type of applicants:** Any eligible consortium as defined in Articles 9 and 10(4) of the EDF Regulation. Members of the consortium need to be SMEs (as defined in Commission Recommendation 2003/361/EC)
- **Indicative budget for the call:** The Union is considering a contribution of up to EUR 36 500 000 under this call for one call topic:

#### 3.2.2.1. EDF-2022-LS-DA-SME-NT: Non-thematic development actions by SMEs

- **Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic
- **Range of financial contribution of the Union per proposal:** The requested funding should not exceed EUR 4 000 000.

This topic addresses innovative defence products, solutions, materials and technologies, including those that can improve readiness, deployability, reliability, safety and sustainability of EU forces in the entire spectrum of tasks and missions, for example in terms of operations, equipment, infrastructure, basing, energy solutions, new surveillance systems.

Successful SME beneficiaries may be offered Business Coaching, to reduce the time of bringing the results to the next phase of development.

**Targeted types of activities:** Any activities eligible for a development action. However, the proposals must address at least one activity among design, system prototyping, testing, qualification, certification and increasing efficiency.

#### 3.2.3. *EDF-2022-CSA-NFP: Call for proposals for coordination and support action to the National Focal Points (NFP) network*

- **Targeted type of actions:** Action grant
- **Form of funding:** Actual costs grant following the call for proposals
- **Targeted type of applicants:** Applicants must be the hosting organisations of the national support structures (NFP or alternate NFP) responsible for the European Defence Fund and officially nominated to the Commission, from a Member State or Associated Country. A consortium should consist of national support structures of at least 10 Member States or Associated Countries.
- Indicative budget for the call:

The Union is considering a contribution of up to EUR 1 500 000 under this action

- **Applicable maximum funding rate:** 100% of the eligible costs of the action.

The maximum Union financial contribution will be calculated based on the total eligible costs (direct and indirect) provided and justified by the applicants at the time of submission of the proposal.

Indirect eligible costs must be determined by applying a flat rate of 25% of the total direct eligible costs of the action, excluding direct eligible costs of subcontracting and support to third parties and any unit costs or lump sums which include indirect costs.

- **Number of actions to be funded:** Up to 1 action may be funded under this call.

- **Other information:** The recommended duration of the action is 3 years.

This action will facilitate trans-national co-operation between National Focal Points (NFPs) with a view to identifying and sharing good practices and raising the general standard of support to (potential) programme applicants, taking into account the diversity of actors that could benefit from the programme and thus contribute to strengthening the European defence industry. It will also facilitate interactions with Enterprise Europe Network that has already good contacts with entities that are active in civil R&D and can facilitate matchmaking, with relevant national industry associations and with relevant Horizon Europe NCP networks.

This action will support:

- NFP-organised joint trainings to improve the services they provide, share experiences and best practices in relation to their support for the EDF;
- Twinning arrangements/facilities (in person visits or virtual), where NFPs can learn from their counterparts about the different approaches adopted in supporting national entities' participation in the EDF;
- The development of promotional material (both in digital and physical formats), relating to the services the NFP network is providing and on practical aspects of participating in the EDF;
- Matchmaking events at international and European defence fairs and national info days;
- The development of a website for the NFP network, including, but not limited to an overview of the services provided by the network, listing relevant events, introducing the EDF with a special focus to entities that are new to defence research and development, contribute to partner search.

These dissemination and awareness raising activities are referred to in Article 32.2 and 32.3 of the EDF Regulation.

### **3.3. Other actions**

As referred to in Article 32.3 of the Regulation (EU) 2021/697 (EDF Regulation), these actions will support communication activities on the political priorities related to the European Defence Fund, dissemination activities, matchmaking events, awareness-raising activities. EU Member States and associated countries, as well as the recipients of EDF funding as referred to in Article 32.1 of the Regulation, should aim at implementing similar communication efforts.

In addition, supporting measures for EDF implementation are also included.

#### **3.3.1. External expertise, audits and IT systems**

- Recruitment of external expertise necessary for the evaluation of EDF proposals: contracts of remunerated experts referred to in Article 237 of the Financial Regulation;
- Development and support of IT systems adapted to EDF specificities (this includes a contract for the website activities of the European Network of Defence-related Regions), including additional needs for the deployment of the Communication

Information System SUE (Secret of the EU) to be started in 2022 (in compliance with Article 27.3 of the EDF Regulation);

- Cost arising for the performance of the audits referred to in Article 30 of the EDF Regulation (contracts).

|                          |               |
|--------------------------|---------------|
| <b>Indicative budget</b> | EUR 1 789 193 |
|--------------------------|---------------|

### **3.3.2. *Business Coaches in the European Defence Fund***

Small and medium-sized enterprises (SMEs) play a role in achieving more innovative solutions. To provide an easy entrance into participating in the European Defence Fund, non-thematic calls focused on SMEs have been introduced. To reduce the time of bringing the results from the SME-specific actions to the next phase, whether the next phase being development or the market, the European Commission will provide business coaching to the selected SMEs' entities under these calls. This action will support:

- The setting up of a pool of experts that can provide targeted business coaching;
- A mechanism for matching between the skills offered by the coaches and the requirements for coaching by the SME and the actual assignment of the coaches.

In addition, such business coaching will also be proposed to SMEs involved in the non-thematic topic EDF-2022-LS-RA-DIS-NT.

|                          |                    |
|--------------------------|--------------------|
| <b>Form of funding</b>   | Public procurement |
| <b>Indicative budget</b> | EUR 1 200 000      |

These awareness raising activities are referred to in Article 32.3 of the EDF Regulation.

### **3.3.3. *Defence equity facility under InvestEU for SMEs and Mid-Caps (blending facility)***

The lack of risk capital in the EU for SME or Midcaps developing innovative defence technologies hampers their growth capacity. This market failure has been underlined already in the conclusions of the expert group on the EDF Financial toolbox. In order to tackle this market failure, the "Roadmap on critical technologies for security and defence" released by the Commission on 15 February 2022 announced the creation of a defence innovation scheme, including the establishment of a defence investment blending facility under InvestEU.

The newly established facility will allow the Commission to guarantee equity investments made by private funds into innovative and strategic defence SMEs. The facility will allow the EU, through the EIF, to financially support private funds investing in innovative and strategic defence SMEs across the EU. The facility is without prejudice to EIF/EIB policy and guidelines. This support will be made through direct investments in the funds themselves and crowding-in additional investors through signalling effects associated to the EIF's investment. It would be created by a "blending operation" as referred to in Article 8.3 of the EDF Regulation and implemented, in indirect management, by the European Investment Fund (EIF) according to InvestEU regulation and investment guidelines.

Enabling a better access to equity funding for innovative defence SMEs and mid-caps would support their growth and finally benefit to the innovativeness of the European defence technological and industrial base (EDTIB). It will also reduce their exposure to non-EU investors and benefit to the EU's strategic autonomy, in line with EDF's eligibility criteria. The creation of this facility will send a positive message to private investors on the attractiveness of the defence sector within the EU.

A global contribution of the European Defence Fund of EUR 100 million over the period 2022-2027 is expected, with a first contribution of EUR 20 million in 2022. The European Investment Fund will be contributing with its own resources. Financial intermediaries selected by EIF and entrusted with the funds will have to invest a minimum amount in specifically defence-related SMEs, to reach a global volume of EUR 350 million.

The Guarantee Agreement between the Commission and the European Investment Fund will define the terms and conditions according to which (1) The EIF will select financial intermediaries (private funds) ;(2) The financial intermediaries will implement equity operations. In line with eligibility conditions of the EDF, both financial intermediaries and final beneficiaries will have to be established in the EU and associated countries and not controlled by non-associated third-countries entities. Final beneficiaries will also be subject to limitations on the transfer or exclusive licensing of their technology to non-EU and non-associated third-countries entities.

The InvestEU guarantee agreement mirrors the categories of activities of EDF's annual work programme, ensuring that supported SMEs are relevant to the objective of the programme, and that the competitiveness of the EDTIB is supported.

#### 4. INDICATIVE BUDGET FOR 2022

| Union actions   | Total budget and percentage of 2022 appropriations |               |   |               |   |               |
|---|--|---------------|---|---------------|---|---------------|
|   | Research   |               | Development                                     |               | TOTAL   |               |
| • R&D Grants  | EUR 310 600 000                                    | 97,34%        | EUR 623 500 000 <sup>6</sup>                    | 97,50%        | <b>EUR 934 100 000</b>                          | <b>97,44%</b> |
| • Prizes  |  |               |   |               |   |               |
| • Procurement   |  |               |   |               |   |               |
| • Blending operations                                     | EUR 7 000 000                                      | 2,19%         | EUR 13 000 000                                  | 2,03%         | <b>EUR 20 000 000</b>                           | <b>2,09%</b>  |
| <i>*Among which:</i>                                      |  |               |   |               |   |               |
| <i>benefitting the cross-border participation of SMEs</i> | <i>EUR 17 600 000</i>                              | <i>5,66%</i>  | <i>EUR 36 500 000</i>                           | <i>5,85%</i>  | <i>EUR 54 100 000</i>                           | <i>5,79%</i>  |
| <i>supporting disruptive technologies for defence</i>     | <i>EUR 40 000 000</i>                              | <i>12,88%</i> |   |               | <i>EUR 40 000 000</i>                           | <i>4,28%</i>  |
| <i>for direct award</i>                                   |  |               |   |               |   |               |
| <i>Appropriations FD 2022 Part 1</i>                      |  |               | <i>EUR 290 000 000</i>                          | <i>45,56%</i> | <i>EUR 290 000 000</i>                          | <i>31,04%</i> |
| • Other actions <sup>7</sup>                              | EUR 1 504 464                                      | 0,47%         | EUR 2 984 729                                   | 0,47%         | <b>EUR 4 489 193</b>                            | <b>0,47%</b>  |
| <b>TOTAL</b>  |  |               |   |               |   |               |
| <i>Among which contribution from Norway</i>               | <b>EUR 319 104 464</b><br><i>EUR 7 265 840</i>     | <b>33,3%</b>  | <b>639 484 729 EUR</b><br><i>EUR 14 560 729</i> | <b>66,7%</b>  | <b>EUR 958 589 193</b><br><i>EUR 21 829 569</i> | <b>100%</b>   |

Appendix 2 to this work programme is providing detailed figures per *category of actions*.

Appendix 3 to this work programme is providing detailed figures per *call for proposals*.

Appendix 4 to this work programme is providing a multiannual indicative budget summary for each *category of actions*.

#### Reference of the operational budget lines:

- For Research: 13.03

- For Development: 13.02

<sup>6</sup> Including complements for actions funded with 2021 and 2022 appropriations (cf. Financing Decision 2022 Part1).

<sup>7</sup> Including contributions for costs arising from technical or administrative assistance such as preparatory, monitoring, control, audit and evaluation activities including corporate information technology system.

## 5. SUMMARY INFORMATION AND FUNDING PRINCIPLES

### Summary information

In 2022, the Commission will run the following actions:

- 8 competitive calls for proposals, among which 4 to support research actions, 2 to support development actions, 1 for establishing a framework partnership (FPA) and 1 for a coordination and support action (support to NFP)

Grants will be awarded to consortia after the publication of calls for proposals.

### Funding principles

Pursuant to Article 13 of the EDF Regulation, maximum funding rates that will apply to eligible costs of funded actions will be determined for each activity covered by the action and will be composed of:

- a baseline funding rate (see **Table 1** below);
- an increase in the baseline funding rate ('bonus') where conditions are met (see **Table 2** below).

The overall increase in the baseline-funding rate following the application of the increase of funding rates listed in Table 2 cannot exceed 35% of the total eligible costs of the activity.

The financial assistance of the Union provided under the Programme including the increased funding rates cannot exceed the values provided in **Table 3**.

Indirect eligible costs shall be determined by applying a flat rate of 25% of the total direct eligible costs, excluding direct eligible costs for subcontracting and financial support to third parties and any unit costs or lump sums that include indirect costs.

As an alternative, indirect eligible costs may be determined in accordance with the recipient's usual cost accounting practices on the basis of actual indirect costs provided that those cost accounting practices are accepted by national authorities for comparable activities in the defence domain, in accordance with Article 185 of the Financial Regulation, and that they have been communicated to the Commission by the recipient. By way of indication, this optional regime will be implemented as follows:

- Before the signature of the grant agreement:
  - Usual accounting practices of the opting applicant to calculate its indirect costs to be described in detail in the application,
  - National authority to certify that these accounting practises are accepted at national level for comparable activities in the defence domain,
  - The Commission to check if the indirect costs calculated by the applicant do not contain ineligible costs within the meaning of Article 186 of the Financial Regulation and will make adjustments, where applicable, for the calculation of the maximum grant amount.
- At the end of the action:
  - The opting beneficiary declares its actual indirect costs calculated following the methodology agreed ex ante;

- Financial statement of the opting beneficiary to be accompanied by a Certificate of Financial Statement (CFS) provided by an external auditor as foreseen in the Model Grant Agreement;
- The auditor establishing the CFS will follow the methodology agreed ex-ante to certify the amount of the actual indirect costs.
- Possibility for the Commission to audit the actual indirect costs following the methodology agreed ex ante (internal audit service or external mandated auditors).

The necessary details and forms will be part of the call documents published by the Commission on the website of the institution.

**Table 1. Applicable baseline funding rates**

| Types of activities |  | Baseline funding rate  |                             |
|---------------------|--|------------------------|-----------------------------|
|                     |  | Research action        | Development action          |
| (a)                 | Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies for defence, which can achieve significant effects in the area of defence  | 100% of eligible costs | <i>Not applicable</i>       |
| (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 | 100% of eligible costs | Up to 65% of eligible costs |
| (c)                 | Studies, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solution  | 100% of eligible costs | Up to 90% of eligible costs |
| (d)                 | The 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 tests for risk reduction in an industrial or representative environment         | 100% of eligible costs | Up to 65% of eligible costs |
| (e)                 | The system prototyping of a defence product, tangible or intangible component or technology  | <i>Not applicable</i>  | Up to 20% of eligible costs |
| (f)                 | The testing of a defence product, tangible or intangible component or technology   | <i>Not applicable</i>  | Up to 45% of eligible costs |
| (g)                 | The qualification of a defence product, tangible or intangible component or technology   | <i>Not applicable</i>  | Up to 70% of eligible costs |
| (h)                 | The certification of a defence product, tangible or intangible component or technology   | <i>Not applicable</i>  | Up to 70% of eligible costs |
| (i)                 | The development of technologies or assets increasing efficiency across the life cycle of defence products and technologies   | <i>Not applicable</i>  | Up to 65% of eligible costs |



**Table 2. Increase of funding rates (bonus) for development actions:**

| <b>Condition to be fulfilled to get the corresponding bonus</b>  | <b>Bonus</b><br>(additional number of percentage points to the baseline funding rate)   |
|--|---|
| <b>PESCO bonus</b>   |   |
| Action developed in the context of the permanent structured cooperation (PESCO)                                      | + 10%   |
| <b>SME bonus</b>   |   |
| Proportion of eligible costs allocated to SMEs established in the EU $\geq 10\%$<br>(for the activity concerned)     | Proportion of eligible costs allocated to non-cross-border SMEs established in the EU<br>(up to maximum 5%)<br><br>+<br><br>Twice the proportion of eligible costs allocated to cross-border SMEs established in the EU |
| <b>Mid-cap bonus</b>   |   |
| Proportion of eligible costs allocated to Mid-caps established in the EU $\geq 15\%$<br>(for the activity concerned) | + 10%   |

**Table 3. Applicable maximum funding rates**

| Types of activities |  | Maximum funding rate   |                              |
|---------------------|--|------------------------|------------------------------|
|                     |  | Research action        | Development action           |
| (a)                 | Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies for defence, which can achieve significant effects in the area of defence  | 100% of eligible costs | <i>Not applicable</i>        |
| (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 | 100% of eligible costs | Up to 100% of eligible costs |
| (c)                 | Studies, such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solution  | 100% of eligible costs | Up to 100% of eligible costs |
| (d)                 | The 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 tests for risk reduction in an industrial or representative environment         | 100% of eligible costs | Up to 100% of eligible costs |
| (e)                 | The system prototyping of a defence product, tangible or intangible component or technology  | <i>Not applicable</i>  | Up to 55% of eligible costs  |
| (f)                 | The testing of a defence product, tangible or intangible component or technology   | <i>Not applicable</i>  | Up to 80% of eligible costs  |
| (g)                 | The qualification of a defence product, tangible or intangible component or technology   | <i>Not applicable</i>  | Up to 80% of eligible costs  |
| (h)                 | The certification of a defence product, tangible or intangible component or technology   | <i>Not applicable</i>  | Up to 80% of eligible costs  |
| (i)                 | The development of technologies or assets increasing efficiency across the life cycle of defence products and technologies   | <i>Not applicable</i>  | Up to 100% of eligible costs |

## APPENDIX 1: SUMMARY OF CALL TOPICS PER CATEGORY OF ACTIONS

| Categories of actions                                       | Research actions                                | Development actions                              | Other                  |
|---|---|--|------------------------|
|   | Call topics                                     | Call topics                                      | Call topics            |
|   | 18  | 13   | 2                      |
| 1. Defence medical support, CBRN, biotech and human factors | EDF-2022-RA-MCBRN-HICP                          |  | EDF-2022-FPA-MCBRN-MCM |
| 2. Information superiority                                  | EDF-2022-RA-C4ISR-AIRC2                         | EDF-2022-DA-C4ISR-EC2<br>EDF-2022-DA-C4ISR-SOFCP |                        |
| 3. Advanced passive and active sensors                      | EDF-2022-RA-SENS-CESENS<br>EDF-2022-RA-SENS-ART |  |                        |
| 4. Cyber  | EDF-2022-RA-CYBER-CSACE                         | EDF-2022-DA-CYBER-CIWT<br>EDF-2022-DA-CYBER-CSIR |                        |
| 5. Space  | EDF-2022-RA-SPACE-RSS                           | EDF-2022-DA-SPACE-ISR<br>EDF-2022-DA-SPACE-SBMEW |                        |
| 6. Digital transformation                                   | EDF-2022-RA-DIGIT-DBIR                          |  |                        |
|   | EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDP             |  |                        |
|   | EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDO             |  |                        |
| 7. Energy resilience and environmental transition           | EDF-2022-RA-ENERENV-CUW                         |  |                        |
| 8. Materials and components                                 | EDF-2022-RA-MATCOMP-PACOMP                      | EDF-2022-DA-MATCOMP-SMT                          |                        |
| 9. Air combat   |   | EDF-2022-DA-AIR-AEW                              |                        |
| 10. Air and missile defence                                 | <i>Not addressed in 2022</i>                    |  |                        |
| 11. Ground combat   |   | EDF-2022-DA-GROUND-CGC                           |                        |
| 12. Force protection and mobility                           | EDF-2022-RA-PROTMOB-FMTC                        |  |                        |
| 13. Naval combat  |   | EDF-2022-DA-NAVAL-MSAS<br>EDF-2022-DA-NAVAL-NCS  |                        |
|   | EDF-2022-RA-UWW-UTS<br>EDF-2022-RA-UWW-ODAC     |  |                        |
| 15. Simulation and training                                 |   | EDF-2022-DA-SIMTRAIN-MSSI                        |                        |
| 16. Disruptive technologies                                 | EDF-2022-LS-RA-DIS-AC                           |  |                        |
|   | EDF-2022-LS-RA-DIS-EAD                          |  |                        |
|   | EDF-2022-LS-RA-DIS-NT                           |  |                        |
| Out of the scope of categories of actions                   | EDF-2022-LS-RA-SMERO-NT                         | EDF-2022-LS-DA-SME-NT                            | EDF-2022-CSA-NFP       |

## APPENDIX 2: 2022 ANNUAL BUDGET ALLOCATIONS PER CATEGORY OF ACTIONS

| Categories of actions  | Budget (in M€)*                    |              |                |  |                          |              |  |              |                |
|--|------------------------------------|--------------|----------------|--|--------------------------|--------------|--|--------------|----------------|
|  | Research                           |              | Development    |  | Research and Development |              |  |              |                |
|  | Total                              |              | Total          |  | Total                    |              |  |              |                |
| 1. Defence medical support, CBRN, biotech and human factors                              | 25                                 |              |                |  | 25                       |              |  |              |                |
| 2. Information superiority   | 20                                 |              | 50             |  | 70                       |              |  |              |                |
| 3. Advanced passive and active sensors   | 40                                 |              |                |  | 40                       |              |  |              |                |
| 4. Cyber   | 10                                 |              | 60             |  | 70                       |              |  |              |                |
| 5. Space   | 20                                 |              | 130            |  | 150                      |              |  |              |                |
| 6. Digital transformation  | 50                                 |              |                |  | 50                       |              |  |              |                |
| 7. Energy resilience and environmental transition  | 20                                 |              |                |  | 20                       |              |  |              |                |
| 8. Materials and components  | 25                                 |              | 20             |  | 45                       |              |  |              |                |
| 9. Air combat  |                                    |              | 149**          |  | 149**                    |              |  |              |                |
| 10. Air and missile defence  |                                    |              | 72**           |  | 72**                     |              |  |              |                |
| 11. Ground combat  |                                    |              | 159**          |  | 159**                    |              |  |              |                |
| 12. Force protection and mobility  | 30                                 |              |                |  | 30                       |              |  |              |                |
| 13. Naval combat   |                                    |              | 130            |  | 130                      |              |  |              |                |
| 14. Underwater warfare   | 55                                 |              |                |  | 55                       |              |  |              |                |
| 15. Simulation and training  |                                    |              | 30             |  | 30                       |              |  |              |                |
| 16. Disruptive technologies  | 40                                 |              |                |  | 40                       |              |  |              |                |
| Non- thematic calls for innovative and future-oriented defence solutions focused on SMEs | 17,6                               |              | 36,5           |  | 54,1                     |              |  |              |                |
| Other actions  | 8,5                                |              | 16             |  | 24,5                     |              |  |              |                |
| <b>TOTAL</b>   | <b>319,1 M€</b><br><b>(+42M€*)</b> | Among which  |                | <b>639,5 M€**</b><br><b>(+213 M€*)</b> | Among which              |              | <b>958,6 M€**</b><br><b>(+255 M€*)</b> | Among which  |                |
|  |                                    | Disruptive   | SMEs           |  | Disruptive               | SMEs         |  | Disruptive   | SMEs           |
|  |                                    | <b>50 M€</b> | <b>17,5 M€</b> |  | <b>-</b>                 | <b>36 M€</b> |  | <b>50 M€</b> | <b>53,5 M€</b> |

\* Including 2023 appropriations, subject to the adoption of a separate financing decision

\*\* Including EDF WP2022 Part 1, adopted through a separate financing decision

**APPENDIX 3: 2022 ANNUAL BUDGET ALLOCATIONS PER CALL FOR PROPOSALS**

| <b>Call ID</b>              | <b>Call topic ID</b>            | <b>Budget (in M€)</b>               |                                  |
|-----------------------------|---------------------------------|-------------------------------------|----------------------------------|
| <i>EDF-2022-RA**</i>        | EDF-2022-RA-MCBRN-HICP          | 25                                  |                                  |
|                             | EDF-2022-RA-C4ISR-AIRC2         | 20                                  |                                  |
|                             | EDF-2022-RA-SENS-CSENS          | 25                                  |                                  |
|                             | EDF-2022-RA-SENS-ART            | 15                                  |                                  |
|                             | EDF-2022-RA-CYBER-CSACE         | 10                                  |                                  |
|                             | EDF-2022-RA-SPACE-RSS           | 20                                  |                                  |
|                             | EDF-2022-RA-DIGIT-DBIR          | 25                                  |                                  |
|                             | EDF-2022-RA-ENERENV-CUW         | 20                                  |                                  |
|                             | EDF-2022-RA-MATCOMP-PACOMP      | 25                                  |                                  |
|                             | EDF-2022-RA-PROTMOB-FMTC        | 30                                  |                                  |
|                             | EDF-2022-RA-UWW-UTS             | 25                                  |                                  |
|                             | EDF-2022-RA-UWW-ODAC            | 30                                  |                                  |
|                             | <i>EDF-2022-LS-RA-CHALLENGE</i> | EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDP | 20<br>+ ceiling 5 per proposal   |
|                             |                                 | EDF-2022-LS-RA-CHALLENGE-DIGIT-HTDO | 5                                |
| <i>EDF-2022-LS-RA-DIS</i>   | EDF-2022-LS-RA-DIS-AC           | 15                                  |                                  |
|                             | EDF-2022-LS-RA-DIS-EAD          | 15                                  |                                  |
|                             | EDF-2022-LS-RA-DIS-NT           | 10<br>+ ceiling 4 per proposal      |                                  |
| <i>EDF-2022-LS-RA-SMERO</i> | EDF-2022-LS-RA-SMERO-NT         | 17,6<br>+ ceiling 4 per proposal    |                                  |
| <i>EDF-2022-DA**</i>        | EDF-2022-DA-C4ISR-EC2           | 30                                  |                                  |
|                             | EDF-2022-DA-C4ISR-SOFCP         | 20                                  |                                  |
|                             | EDF-2022-DA-CYBER-CIWT          | 33                                  |                                  |
|                             | EDF-2022-DA-CYBER-CSIR          | 27                                  |                                  |
|                             | EDF-2022-DA-SPACE-ISR           | 40                                  |                                  |
|                             | EDF-2022-DA-SPACE-SBMEW         | 90                                  |                                  |
|                             | EDF-2022-DA-MATCOMP-SMT         | 20                                  |                                  |
|                             | EDF-2022-DA-AIR-AEW             | 40                                  |                                  |
|                             | EDF-2022-DA-GROUND-CGC          | 50                                  |                                  |
|                             | EDF-2022-DA-NAVAL-MSAS          | 65                                  |                                  |
|                             | EDF-2022-DA-NAVAL-NCS           | 65                                  |                                  |
|                             | EDF-2022-DA-SIMTRAIN-MSSI       | 30                                  |                                  |
|                             | <i>EDF-2022-LS-DA-SME</i>       | EDF-2022-LS-DA-SME-NT               | 36,5<br>+ ceiling 4 per proposal |
|                             | <i>EDF-2022-FPA</i>             | EDF-2022-FPA-MCBRN-MCM              | No budget                        |
| <i>EDF-2022-CSA-NFP</i>     | EDF-2022-CSA-NFP                | 1,5                                 |                                  |

*\*\*Including complements from 2023 budget appropriations, subject to a separate financing decision*

#### APPENDIX 4: MULTIANNUAL INDICATIVE BUDGET SUMMARY PER CATEGORY OF ACTIONS

| Categories of actions                                       | 2017<br>(PADR) | 2018<br>(PADR) | 2019<br>(PADR &<br>EDIDP) | 2020<br>(EDIDP)    | 2021<br>(EDF) | 2022 <sup>8</sup><br>(EDF)     | Total   |        |
|---|----------------|----------------|---------------------------|--------------------|---------------|--------------------------------|---------|--------|
|   | in M€          | in M€          | in M€                     | in M€              | in M€         | in M€                          | in M€   | in %   |
| 1. Defence medical support, CBRN, biotech and human factors |                |                |                           | 13,50              | 68,50         | 25                             | 107,00  | 3,92%  |
| 2. Information superiority                                  |                |                | 107,35                    | 85,90 <sup>6</sup> | 70,00         | 70                             | 333,26  | 12,22% |
| 3. Advanced passive and active sensors                      |                |                | 10,00                     |                    | 38,00         | 40                             | 88,00   | 3,23%  |
| 4. Cyber  |                |                | 21,64                     | 14,30              | 33,50         | 70                             | 139,44  | 5,11%  |
| 5. Space  |                |                | 43,97                     | 22,50              | 50,00         | 150                            | 266,47  | 9,77%  |
| 6. Digital transformation                                   |                |                | 1,55                      | 5,70               | 58,50         | 50                             | 115,75  | 4,25%  |
| 7. Energy resilience and environmental transition           |                |                |                           |                    | 133,00        | 20                             | 153,00  | 5,61%  |
| 8. Materials and components                                 |                | 11,98          |                           |                    | 40,00         | 45                             | 96,98   | 3,56%  |
| 9. Air combat   |                |                | 15,98                     | 22,00              | 81,00         | 149 <sup>6</sup>               | 267,98  | 9,83%  |
| 10. Air and missile defence                                 |                |                |                           | 13,50              | 28,00         | 72 <sup>6</sup>                | 113,50  | 4,16%  |
| 11. Ground combat   |                | 5,40           | 40,05                     | 16,00              | 51,00         | 159 <sup>6</sup>               | 271,45  | 9,96%  |
| 12. Force protection and mobility                           | 6,55           |                | 1,53                      |                    | 50            | 30                             | 88,08   | 3,23%  |
| 13. Naval combat  | 35,48          |                | 14,29                     | 20,00              | 103,50        | 130                            | 303,27  | 11,12% |
| 14. Underwater warfare                                      |                |                |                           | 22,50              |               | 55                             | 77,50   | 2,84%  |
| 15. Simulation and training                                 |                |                |                           | 3,50               |               | 30                             | 33,50   | 1,23%  |
| 16. Disruptive technologies                                 |                |                | 4,33                      |                    | 70,00         | 40                             | 114,33  | 4,19%  |
| Undefined categories, including SME calls & other actions   | 0,95           | 1,88           | 10,32                     | 10,00              | 55,30         | 78,6                           | 157,05  | 5,76%  |
| <b>TOTAL</b>  | 42,98          | 19,26          | 271,02                    | 249,40             | 930,30        | 958,60<br>+ 255.5 <sup>9</sup> | 2727,06 | 100%   |

<sup>8</sup> 2022 budget including complements to EDF 2021 calls for proposals using 2022 appropriations (cf. Work Programme 2022 Part 1).

<sup>9</sup> Budget complements to EDF 2022 calls for proposals using 2023 appropriations. These budget complements are subject to the adoption of a separate financing decision.