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EUROPEAN DEFENCE FUND

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Technologies supported by the European Defence Fund

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Deputy Head of Unit

DEFIS A.3
EDF Implementation
–
Defence Technologies

European Commission | DEFIS

Brussels & Online

29 June 2023

European Defence Fund : The EU defence R&D programme

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Support **collaborative and cross-border** research and development projects, including **disruptive technologies**

Contribute to the **competitiveness and innovation capacity** of the EDTIB

Encourage the **participation of SMEs and other actors** not usually active in the defence field

Help **reducing fragmentation** of the European defence and industrial landscape

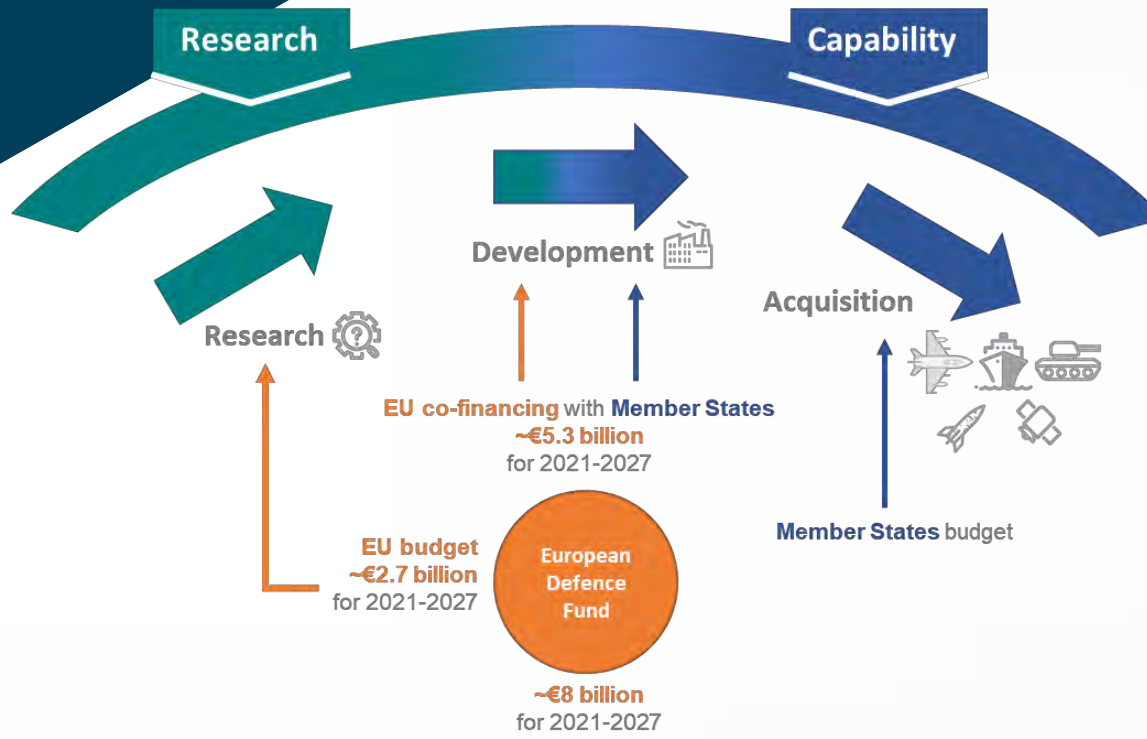
Build partnerships between defence actors, on both demand and supply sides

Help **maximising the outcome** of defence spending

Lead to **close defence technological gaps**

Strengthen other **security and defence initiatives**

Strengthen **Europe's resilience** and **strategic autonomy**



- *EDF financial support mainly in the form of grants*
- *Open to EU Member States and Norway*
- *Security-based participation conditions for entities controlled by third-countries*

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General Principles governing implementation

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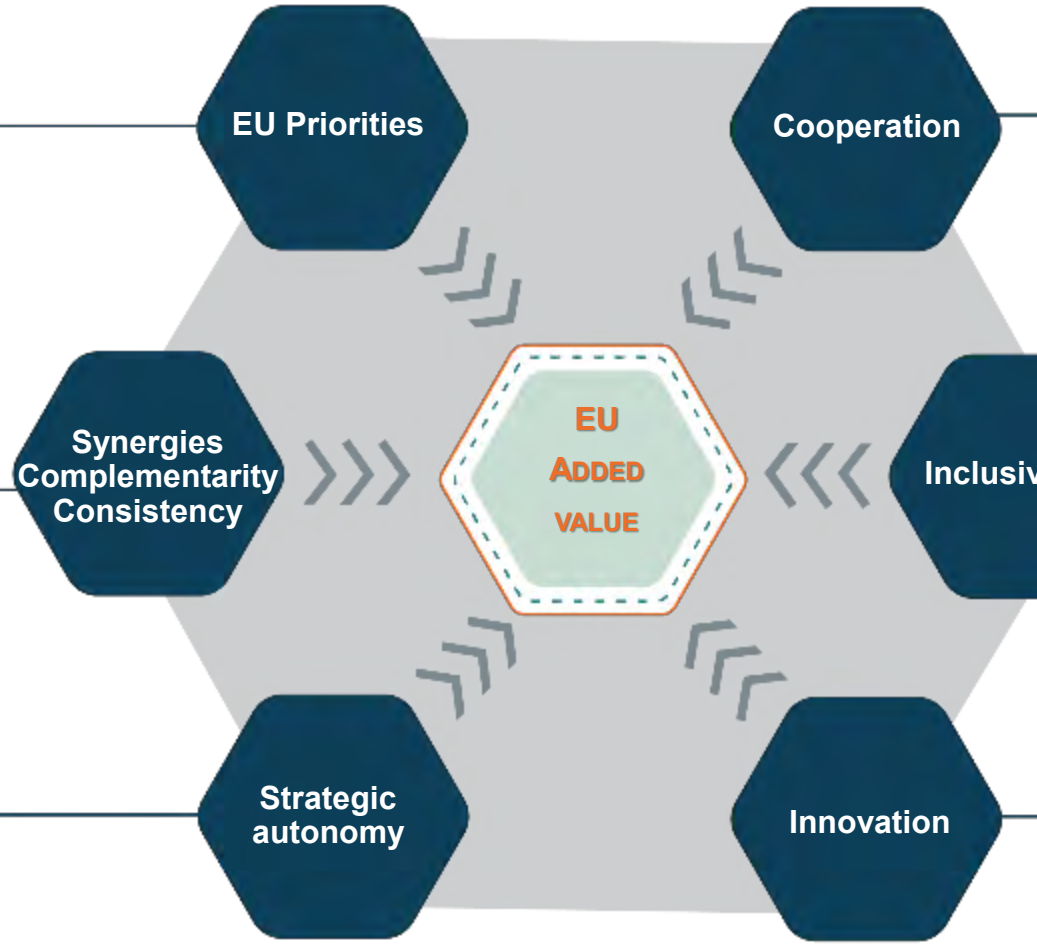

Priorities defined in coordination with Member States

Take into account EU prioritisation instruments

Cooperation between entities established in different Member States

Multiannual perspective

Projects supported by several Member States

Leverage effect

Fair opportunities for companies of all sizes

Incentives for SME participation

Participation for EU and NO entities

Absence of non-EU control restrictions on results

Support broader EU defence innovation scheme

4%-8% of the EDF budget dedicated to disruptive technologies

FIVE EUDIS INNOVATION TRACKS

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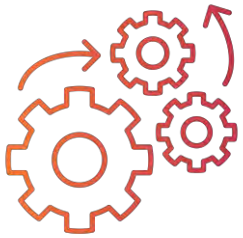
CHALLENGE YOUR IDEA

- Technological challenge
- Hackathons

EMPOWER SMEs

- Open SME R&D calls
- Disruptive technologies research calls
- Matchmaking
- Business coaching for grant receivers



TEST & ACCELERATE YOUR INNOVATION

- Innovation test hub

IMPROVE ACCESS TO FINANCE

- Proposed Defence Equity Facility under InvestEU

MIGRATE YOUR INNOVATION FROM CIVIL TO DEFENCE

- Spin-in calls

EDF CATEGORIES OF ACTIONS
Addressed by annual work programmes & calls for proposals

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- Medical response, CBRN & human factors
- Information superiority
- Sensors
- Cyber
- Space
- Digital transformation
- Energy resilience & environmental transition
- Materials and components

- Air combat
- Air and Missile defence
- Ground combat
- Force protection and mobility
- Naval combat
- Underwater warfare
- Simulation and training

Horizontal categories

- Disruptive technologies
- Innovative defence technologies (SMEs)

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European Defence Fund:
Results of 2021 Calls for proposals (in Grant Amount)

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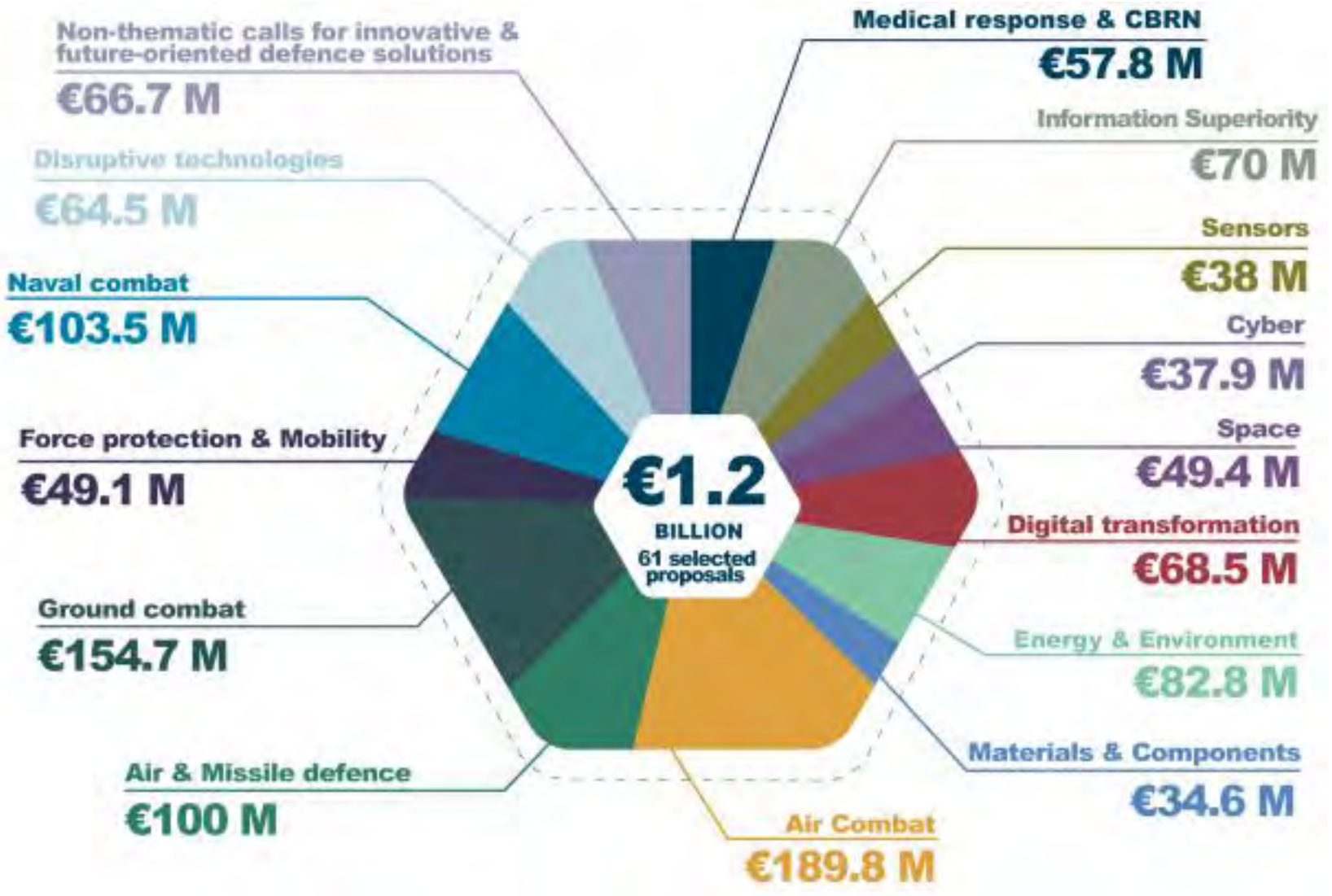

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EDF Work Programme 2023

EUR 1.18 billion

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34 topics | Content published on 30 March | Deadline for submission: **22 November 2023**

Medical Response & CBRN	• Federated CBRN systems	15 M€
	• 1st SGA under FPA on medical countermeasures	25 M€
Information superiority	• Laser communications	17 M€
	• Tactical RPAS	42 M€
	• Detect and avoid	40 M€
Sensors	• Electromagnetic signal propagation	22 M€
	• Optronics detector	20 M€
	• Sensor grid	27 M€
Cyber	• Automation of security penetration tests (spin-in)	14 M€
	• Cyber situational awareness	20 M€
	• Deployable Autonomous AI Agent	26 M€
Space	• Threats surveillance and protection of space assets	25 M€
	• Space situational awareness	100 M€
Digital transformation	• Dedicated hardware architectures for energy-efficient AI	20 M€
	• Human language technologies (challenge, 2 topics)	25 M€
Energy & Environment	• Innovative propulsion systems (spin-in)	25 M€
Materials & Components	• High-performance materials (spin-in)	20 M€
	• Maintenance, joining and repair (cross-border defence innovation network)	30 M€

Air combat	• Smart technologies for next generation fighter systems	30 M€
	• Self-protection systems	33 M€
Air & missile defence	• Counter-UAS	43 M€
	• Endo-atmospheric interceptor (dual sourcing/direct award)	80 M€
Ground combat	• Main battle tank technologies	20 M€
	• Long range indirect fire support	27 M€
Protection & Mobility	• Defeating unexploded explosive ordnances and IEDs	25 M€
	• Strategic air transport for outsized cargo	20 M€
Naval combat	• Modular and multirole patrol corvette	154.5 M€
Underwater warfare	• Unmanned anti-submarine and seabed warfare	45 M€
	• Mine countermeasures	45 M€
Disruptive technologies	• Laser-based directed-energy weapons	25 M€
	• Non-thematic research	16 M€
SMEs	• Non-thematic research for SMEs and ROs	36 M€
	• Non-thematic development for SMEs	36 M€
Others	• External expertise, audits, IT, indirect management	8.5 M€
	• Business coaching for SMEs	1.2 M€
	• Blending facility for equity funding for SMEs/Mid-Caps	20 M€
	• EDF hackathon events	0.6 M€

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Legend: Research Development EUDIS-related

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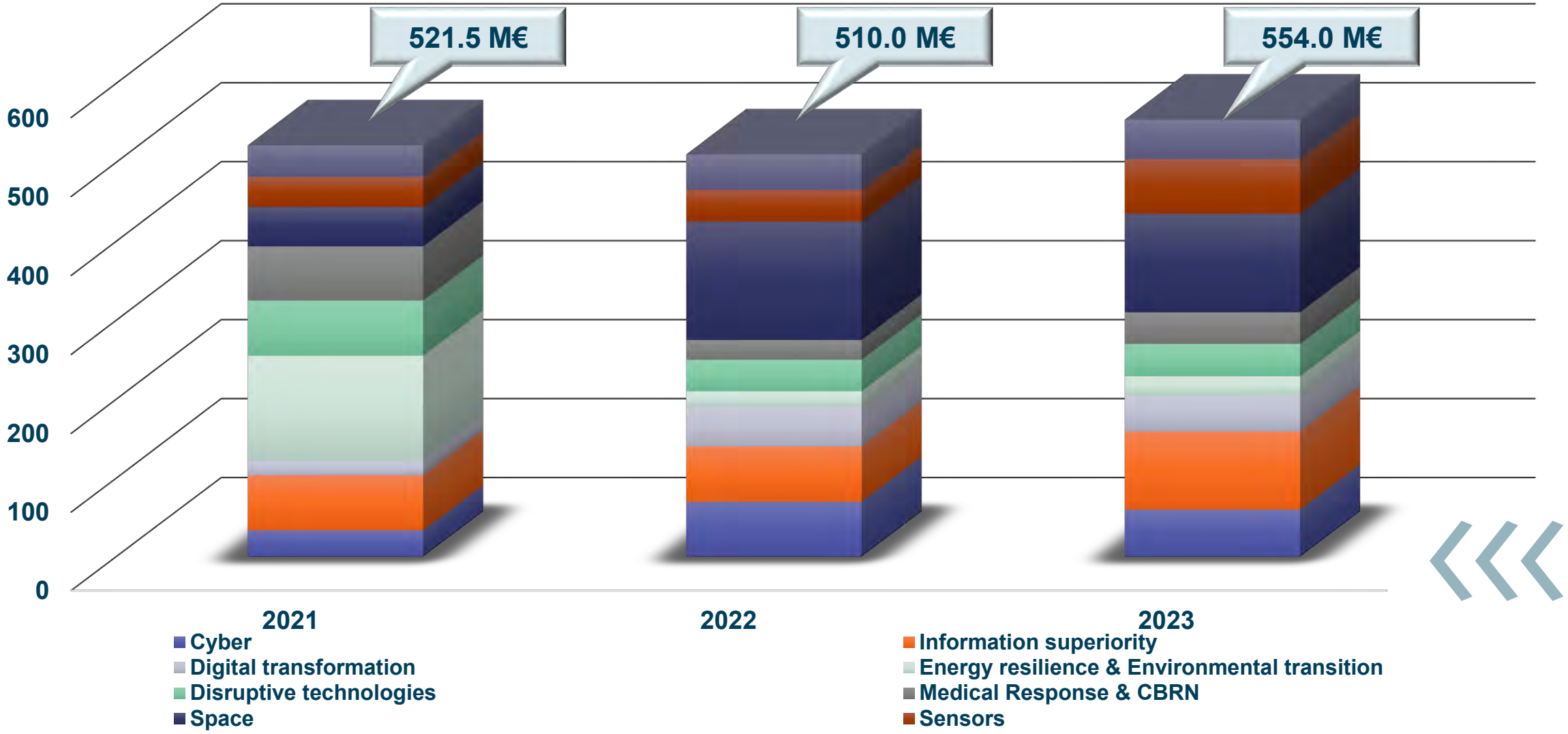
Categories with wider application areas Budgets



Examples (I) - Cyber

Improving cyber defence and incident management with AI

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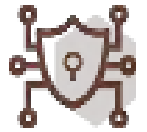

- Funded under EDF 2021 with 13.5 **M€**
- Description of the call:

This call seeks proposals that help increase the level of automation in incident management and cyber defence activities through the use AI. In this setting, the engagement of state-of-the-art AI methods should be used to automate incident management and cyber defence activities, including incident detection and response, carried out by security operation centres (SOCs), and cyber defence teams (or similar entities) when they detect and analyse events and determine what actions to take.

Examples (II) - Medical Response & CBRN

Diagnostics, treatment, transport and monitoring of highly contagious, injured and/or contaminated personnel

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- Will be funded under EDF 2022, indicated budget 25.0 **M€**
- General objective of the 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, concepts and strategies for soldiers on the battlefield, including surgical robots, ultra-portable telemedicine devices and diagnostics sensors, Chemical Biological, Radiological and Nuclear **(CBRN) containment systems, 'porter' or load**-carrying Unmanned Vehicles (UVs) and battlefield casualty extraction devices.

Examples (III) - Information Superiority

Single European Sky interoperability

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- Will be funded under EDF 2022, indicated budget 20.0 **M€**
- General objective of the topic:

In order to cope with sustained air traffic growth and operations 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 emerging **disruptive technologies, facilitates the integration of "new entrants"** such as all types of drones, High Altitude Platform Systems (HAPS) to super- and hyper-sonic aircraft, trans-atmospheric and suborbital vehicles, and complies with emerging challenges.

Examples (IV) - Materials and components

Smart and multifunctional textiles

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- Will be funded under EDF 2022, indicated budget 20.0 **M€**

- General objective of the topic:

Smart and multi-functional textiles pave the way to multiple possibilities for developing high-tech garments responding to multiple needs in an elegant solution. These materials enable to integrate different components and devices, in a comfortable and ergonomic way, providing a wide range of functionalities that can improve the safety, performance and wellbeing of the soldiers. Moreover, those textiles also offer new integration opportunities with platforms and systems.

Examples (V) - Energy resilience & environmental transition

Innovative propulsion systems for defence

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- Will be funded under EDF 2023, indicated budget 25.0 **M€**

- Specific objective of the topic:

The specific objective of this topic is to spin-in results generated in other civil EU-funded research programmes to the defence **sector. [...] This spin**-in of knowledge into the defence sector should aim to the highest possible reduction of greenhouse gases integrating new technologies. The solutions should consider **alternative sources of sustainable fuels (...), used standalone or** mixed with conventional fuels, and propulsion solutions.
As a first step, the proposals must define the gradual adaptation for the land and naval domain.

Examples (VI) - Sensors

Sensor Grid

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- Will be funded under EDF 2023, indicated budget 27.0 **M€**
- General objective of the topic :

Driven by the changing geopolitical situation, Europe is facing new and evolving threats that are smaller, faster, and more diverse, with increased manoeuvrability, in greater numbers and with denial-of-service capabilities. There is a strong need to detect and characterise challenging targets. Those include small size, high speed, low signature (stealthy) targets and targets in congested and contested electromagnetic environments, e.g. urban environments.

Examples (VII) - Space

Threat surveillance and protection of space assets

INFO DAYS 2023

- Will be funded under EDF 2023, indicated budget 25.0 **M€**
- General objective of the topic :

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

Examples (VIII) – Digital transformation

Dedicated hardware architectures for energy-efficient AI

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- Will be funded under EDF 2023, indicated budget 20.0 **M€**
- General objective of the topic :

Artificial Intelligence (AI) is becoming increasingly important for most defence capabilities. However, the energy consumption of AI implemented on classical processors limits its practical usage, especially for embedded systems and edge computing. Indeed, existing processors are far from optimal for most AI applications in terms of efficiency and energy consumption, due to their **architecture (…). The proposals must address research on** new hardware architectures for AI that offer very significant gains in term of power consumption, processing speed and latency, as well as in terms of size, weight and cost.

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