

# EDRIN

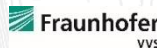
European Defence  
Research and Innovation Network

## Enhancing support for R&D involving technologies with dual-use potential

-  
EDRIN's answers and feedback



TNO innovation  
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# 1. EDRIN PRESENTATION

## 1.1. EDRIN'S MISSION

The European Defence Research and Innovation Network (EDRIN) is the group of independent solution-driven not-for profit European applied research and technology organizations (RTOs) with a substantial role in defence research and development (R&D) within a broader innovation portfolio.

Our mission is to:

- Act as a coordinated voice of RTOs in defence R&D and cooperation.
- Offer a one-stop-shop for political and industrial stakeholders to access defence R&D expertise thanks to our key role in the innovation ecosystem, in-depth experience in national, bilateral and multinational collaborative projects, large networks of excellent researchers and unique test facilities.
- Provide strategic guidance and consolidated long-term roadmaps for key R&D priorities
- Act as the bridging link between academia, applied research, SMEs, industry, and end-users in both traditional defence domains as well as an interface to civilian technologies and applications.

## 1.2. OUR OFFER

EDRIN is the pivot in the value chain of European defence R&D and cooperation. Its members bring decades of experience in working for Ministries of Defence, Armed Forces, and multinational defence organisations such as EDA and NATO. EDRIN members connect academia, applied research, SMEs, industry, and end-users, including non-traditional defence industries.

## 1.3. OUR ADDED VALUE

EDRIN proactively engages with all relevant stakeholders to foster the competitiveness and innovation capacity of the European defence technological and industrial base (EDTIB), including through maximizing the successful implementation of the European Defence Fund (EDF).

## 1.4. WHO WE ARE

As of 2024, EDRIN has nine members from eight countries:

- Commissariat à l'énergie atomique et aux énergies alternatives (CEA), France
- Fraunhofer-Gesellschaft, Germany
- Baltijos pažangių technologijų institutą (BPTI), Lithuania
- Totalförsvarets forskningsinstitut (FOI), Sweden
- Instituto de Engenharia de Sistemas e Computadores Inovação (INOV), Portugal
- Ινστιτούτο Τεχνολογιών Πληροφορικής και Επικοινωνιών (ITI), Greece
- Office National d'Etudes et de Recherches Aérospatiales (ONERA), the French aerospace lab, France
- Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (TNO), The Netherlands
- Teknologian tutkimuskeskus (VTT), Finland

## 2. INTRODUCTION

EDRIN, as the leading group of RTOs involved in defence industry, carefully considers any evolution of the regulatory framework regarding the dual-use technologies. Facing itself the situation mentioned by the Commission, EDRIN welcomed with interest the White paper about the dual-use technologies and the possible options to strengthen the support to R&D in the field of potential dual-use technologies. This document aims at presenting EDRIN's analysis and point of view about these options.

## 3. DUAL-USE TECHNOLOGIES: A NEED FOR DEFINITION

One of the recurring problems about dual-use technologies emerges when we try to grasp properly their scope and, therefore, when we try to define them. The questions that arise then, and whose answers are, in nature, changing, are the following:

- When does a technology become dual?
- Are there technologies, by nature, dual?
- Are they all dual?
- Are the foreseen usages the only ones that make a technology dual?
- Is it an evolving/evolutive perception throughout time?

The answers might vary from an actor to another and thus we understand that the border between what is dual and what is not is mobile. Consequently, we have to find the right balance between the need for openness and cooperation demanded by science and the confidentiality requested by sovereignty in the defence sector.

According to EDRIN, the list of critical technologies established by the European Union in the COM 2023/6689 annexe and the list of *emerging and disruptive technologies* (EDT) from NATO are a good basis to define what a dual technology is. In fact, those two top-tier organizations have identified critical technologies perimeters that almost completely overlap, the first one for the European industry, the second one for its members' defence.

Based on the six technological fields identified by the Commission, the following technologies appears as being potentially dual:

- Among highly sensitive technological fields: advanced semiconductors, artificial intelligence and quantum technologies.
- Among the other fields : digital technologies, advanced connectivity and navigation, advanced sensors, space and propulsion technologies, energy technologies, advanced materials, additive manufacturing, robotics and autonomous systems technologies.

EDRIN underlines that the terms "dual technologies" (or "potentially dual technologies") as defined in the White paper, and "dual-use technologies or goods" must be clearly distinguished. The first refers to technologies that might potentially interest both civilian and military sectors. The second refers to a legal concept as expressed in the European regulation (Regulation (UE) 2021/821 from the European Parliament and Council of May the 20th 2021).

Thus this paper refers to “technologies with dual-use potential”. However, EDRIN raises concern about the legal implications resulting from the adopted position in order not to bring additional burden in scientific research projects.

## **4. ANALYSIS OF THE OPTIONS PROPOSED BY THE COMMISSION**

### **4.1. OPTION 1: GOING FURTHER BASED ON THE CURRENT SET-UP**

The current overall structure is organized as follow: a specific programme is devoted to civilian technologies: Horizon Europe (HEU); while another is specifically dedicated to military technologies: the European Defence Fund (EDF). Although having a common operating base, some mechanisms and especially the final involvement of Member States differs. This architecture has its advantages and disadvantages.

As stated by the Commission itself, option 1 has the advantage of being the only feasible option under the current multiannual financial framework (MFF). Moreover, by keeping the interesting technologies for the defence sector in the EDF, this option ensures an optimal control over technologies with dual use potential. However, particular attention should be paid to Security programmes from Cluster 3 of HEU, for those a great proximity in terms of technology and use-cases might be observed, which advocates for more synergies.

Nevertheless, the partitioned architecture of the current set-up (resulting in large part from the lack of coordination between both programmes) doesn't confer to option 1 the necessary flexibility for innovative actors, but of smaller size, to effectively contribute to the military sector. Therefore the latter doesn't fully benefit the advantages of technologies initially developed within civilian sector.

In addition, from EDRIN's point of view, potential solutions that might be applied to this architecture as detailed don't seem ambitious enough to solve the problem of partitioning as mentioned above. If option 1 is implemented, synergies between civilian and defence research should nevertheless be exploited more strongly and systematically

#### **4.2. OPTION 2: REMOVE THE EXCLUSIVE FOCUS ON CIVIL APPLICATIONS IN SELECTED PARTS OF THE SUCCESSOR PROGRAMME TO HORIZON EUROPE**

With respect to the previous option, option 2 consists in departitioning the current overall architecture allowing technologies with dual use potential to be hosted within HEU. Those dual technologies would be subject to specific restriction though.

EDRIN's opinion is that this organization has many advantages as mentioned by the Commission:

- It would preserve the key strategic features of HEU such as the openness of framework programmes to third countries and would enable dual technologies to benefit from its great capacity to foster and boost innovation.
- While allowing restrictions in specific parts of the programme dealing with dual technologies.
- This option enable supporting, in specific parts of the programme, strategic emerging technologies *"which would avoid discarding excellent proposals that do not target exclusively civil applications"*.
- EDRIN sees with great interest the possibility to *"program spin-in calls involving defence-related projects results directly in the successor programme to Horizon Europe, whilst in turn the successor programme to the EDF would provide follow-up funding for defence capability development of the most promising civil-related project results"*.
- Lastly, it would make it possible to take certain fundamental safety parameters into account while drawing up the Commission's proposals.

However EDRIN would like to underline that option 2 raises major concerns as well:

- The restrictions to non-member states is a prerequisite but it is not sufficient, in terms of sovereignty, and must be accompanied by specific measures related to the parties themselves.
- The consolidation of European abilities to develop projects for technologies with dual use potential within the successor of HEU shall not weaken EDF's *Research* pillar. In fact, EDF's major advantage is to boost and foster applied research or disruptive research focused on purely military applications. Thus, the *Research* pillar is a natural extension of projects initiated in calls for technologies with dual use potential.
- The budget of the successor programme to HEU will have to be increased in proportion to this new priority and additional activity, and not subtracted from the resources devoted to the traditional civilian themes supported by the programme.

If option 2 were to be adopted, it should take into account the following elements:

- Technological sectors that might be labelled as "potential dual technologies calls" shall be identified ;
- Targeted technological calls (i.e. « open ») within above-mentioned sectors shall be launched, with the aim to demonstrate the relevance of both civilian and military use-cases ;
- Such calls shall have a strengthened security level with respect to other HEU calls, while presenting a greater flexibility than purely defence calls, in order not to discourage partners mainly interested in civilian applications ;
- Such calls shall be limited to Member-States identified as eligible to EDF criteria ;
- Such calls might be extended with further calls within the successors of EDF and HEU programmes.



#### **4.3. OPTION 3: CREATE A DEDICATED INSTRUMENT WITH A SPECIFIC FOCUS ON R&D WITH DUAL-USE POTENTIAL**

This option would create a new *ad hoc* financing instrument for technologies with dual use potential. While option 3 has the advantage, attractive at first glance, of having a tailor-made programme that would take into account the particularities of technologies with dual use potential, especially in terms of security, it also has the disadvantage of fragmenting and making the European research support ecosystem a little more complex, in addition to the other drawbacks identified by the Commission, which would probably deter the smallest players, who are often the most innovative, eventually leading to the same problem as in the current situation. Finally, such an *ad hoc* programme would potentially lead to financially less ambitious projects, and therefore less interesting for both the civil and military sectors.

### **5. OPTIONS PROPOSED BY EDRIN**

Therefore, and after having analysed the three options, EDRIN would reject the option 3.

Then, as things stand, EDRIN would not favour any of the two remaining options over the other since the consequences of potentially removing the exclusive focus on civil applications in selected parts of the successor programme to HEU (option 2) cannot be conclusively assessed at present. This requires a comprehensive and in-depth impact assessment that also considers options for shaping the funding policy framework. Furthermore, this option must not be implemented at the expense of funding for the successor programmes to HEU and EDF. Budgetary transfers between programmes must not be allowed, as is the case at present.

Moreover both options present pros and cons as stated bellow:

- Option 1 has the advantage of being feasible within the current MFF, but its lack of flexibility reduces its innovative potential for the military sector.
- Option 2 offers significant potential for cross-fertilization and for attracting innovative players, but at the cost of major uncertainties as to the security of calls for technologies with dual use potential and their restriction to EDF beneficiary countries (currently EU member states and Norway). While opening up HEU to non-member countries is a major advantage when it comes to developing purely civilian research and technologies, it is a disadvantage when it comes to dual-use technologies (in the meaning of export control regulations) that could potentially be employed by European armed forces. In fact, it would be contradictory if some European programmes were to finance, even partially, developments that were ultimately military in countries not identified as eligible for EDF funding.

Regardless of the chosen option, EDRIN advocates for calls for technologies with dual use potential to be more focused on technology and less on end product, thus allowing a greater innovation while offering more precise use-cases in both civilian and military fields.

In addition, EDRIN pleads for the need to link up with schemes launched as part of the Strategic Compass and implemented by DG DEFIS and the European Defence Agency, the latter having developed some very interesting skills as interface between civilian and military European policies, particularly in dual research.

Moreover, attention is drawn to a **better use of research tools and facilities**, sometimes unique, for test and evaluation, already funded thanks to the European public programmes. An orientation of these tools toward military use-cases might be sought thanks to specific calls. Such facilities, often operated by RTOs, might benefit to a wider range of industrial actors, whatever their size, in order to validate upstream the potential for innovation of technologies both for civilian and military industries. Defence sector doesn't benefit much from these facilities in the current system yet.

Finally EDRIN calls for a greater recognition in calls for scientific organizations having already adopted good practices in terms of research security (through bonuses in calls for organizations having established a process of third parties assessment for instance). Besides, many RTOs such as EDRIN's members, have a long experience and track records in developing technologies with dual use potential. Therefore EDRIN advocates for a better recognition of RTO position as intermediary between military actors and academic actors who are not familiar with technologies with dual use potential or armed forces and might wonder what contribution they could make to dual research, and the benefits they could derive from it.

## 6. EDITORIAL NOTE

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Published: April 2024