

Technology Priorities for the EU Preparatory Action on CSDP-related research

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About ASD

ASD represents the Aeronautics, Space, Security and Defence industries in Europe. Based in Brussels, the organisation's membership today comprises 15 major European aerospace and defence companies and 26 member associations in 19 countries (Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey and the UK). These industries reach a turnover of 197.3 billion euro, invest 20 billion euro in R&D, employ close to 778,000 people and counts over 3000 companies, 80,000 suppliers, many of which are SMEs.

Introduction

In February of this year, ASD issued a Position Paper ‘Considerations on the Proposed EU Preparatory Action on CSDP-Related Research’, expressing the European defence industry’s initial views on the Preparatory Action. The Position Paper was written on the premise that the Preparatory Action should be a major milestone towards a fully-fledged EU defence research programme as part of the next Multi-Annual Financial Framework (2021-2027). It focused on initial observations and recommendations on the overall strategy, rules and conditions, work programme and operational procedures for the Preparatory Action. It considered issues of structure, governance and IPR. Industry believes not only that these are important, but also that it is imperative that industry views on these be taken into account in planning both the Preparatory Action and potential follow-on defence research programme.

The purpose of the present paper is to examine in more depth the technology priorities that industry feels should inform the Preparatory Action. As such, it is intended to be an Industry contribution to the current discussions being held amongst all the relevant stakeholders. Different technical priorities will impact differently on structure, governance and IPR of the Preparatory Action, and vice versa, but the focus of this paper is on the technology priorities themselves.

Context

Key attributes for success of the Preparatory Action are the demonstration of EU-added value, and related to this, complementarity with existing funding mechanisms (national programmes, European Defence Agency projects, and Horizon 2020). In addition, eventual market uptake is crucial in order to ensure that EU-funded defence research generates new capabilities for armed forces in Europe and business opportunities for the European Industry. The potential follow-on programme must therefore be tailored in a way that leads – directly or indirectly - to concrete procurement projects. All of this will be politically and institutionally challenging, since the final customers will be national ministries of defence (MoD).

The major factor causing the current vulnerability of the European Defence Industry is the lack of prospect for large system procurements at a European level in the near future. Indeed the EDA has carried out studies (Future Land Systems and Future Air Systems), which analyse these vulnerabilities and define the minimum level of R&D required to prevent further irretrievable loss of capability in the European industry. The Preparatory Action, and more importantly the potential follow-on programme, can play a vital role at the technology level to cope with this challenge.

Research activities can have various CSDP-related objectives, all of which will offer EU-added value, but each of which implies a different approach for identifying and managing research projects. In essence, support for CSDP may be considered along three main pillars: Missions, Capabilities, EU autonomy (freedom of action at EU level). This immediately leads to three categories of technical activity:

- a) Capability driven technology demonstrator – to foster European cooperation and pave the way to joint procurement projects;
- b) Interoperability and common standards – to support CSDP missions;
- c) Security of supply at European level for key defence technologies – to enhance European freedom of action.

In addition, two more cross-cutting categories are proposed:

- d) New technologies (emerging, disruptive, or coming from other sectors) with major defence potential – prepare for the unexpected;
- e) Governance and modalities for the potential follow-on programme.

These categories are developed in more detail below.

In identifying technology topics, it must be recognised that the budget for the Preparatory Action is limited – at most €50-100M over a period of three years (2017-2020). In addition, the primary purpose of the Preparatory Action is to prepare and test approaches for a potential follow-on programme. For these reasons, we recommend that a small number of topics be selected – at most one or two for each category - and the emphasis of the topics be in each case on testing the approach. However, in order to ensure the defence specificity and complementarity with existing European programmes, the research should focus on higher Technology Readiness Levels (TRL) than current H2020 activities, hence there is an emphasis on the first three, with the demonstrator being the most important.

By selecting a topic from each of the above categories, it is our expectation that this will lead to a portfolio that will test a wide variety of the attributes for the potential follow-on programme, whilst being affordable within the anticipated budget for the Preparatory Action. In addition, not only are the categories designed to lead to EU added value, but they are also planned both to conform to the requirement stated above for complementarity, but also to be of interest to the Member States. This last is essential, if the investment is to contribute eventually to concrete procurement programmes, thereby ensuring that the work is relevant to the European Industry and to defence capabilities.

In the Sections below, some specific capability areas are mentioned for illustrative purposes only.

Research categories

1. Capability driven technology demonstrator – foster European cooperation

In order to ensure that the Preparatory Action has industrial relevance, it is essential to include a technology demonstrator that will support future joint programmes. This would also demonstrate the potential of EU funded research to foster European cooperation further down the procurement cycle and to contribute thereby to a much needed consolidation of the demand side. Such a project

will require a significant proportion of the overall budget of the Preparatory Action, so it will only be possible to support one such demonstrator. Indeed it is our recommendation that at least 50% of the budget be devoted to this, in order that meaningful progress can be made within the three years of the Preparatory Action.

Based on the current threat environment, an example could be taken from maritime surveillance, but including integration with air and ground assets, and involving the use of unmanned systems. It is important that the chosen demonstrator prepares the ground for work-strands of a potential follow-on programme.

2. Interoperability and Common Standards – support CSDP missions

One of the key issues for CSDP missions is for the armed forces of Member States to be able to communicate with each other and to interoperate. This will require interoperability of enhanced battlespace information systems and communication services, including generation of a common operational picture. Indeed successful Command and Control is critically dependent on this. In many cases, the situation will be compounded by the need for the military to work with civil authorities and non-Governmental organisations. All of this is evident in the current focus on maritime surveillance, but applies equally to land and air operations. Closely related is the need to adopt harmonised standards and open standard system architectures for future land, air and naval platforms, and for the integration of weapon and sensor systems onto these platforms.

However, any work done within this category must avoid duplicating activity within the NATO framework. One possible domain to explore is hybrid warfare, where there is scope for a close collaboration between NATO and the EU, with each adopting complementary roles. At the same time, any work done needs to have industrial relevance. It is also important to ensure that any work leads to meaningful progress within the 3 years duration of the Preparatory Action. Moreover, because of the limited budget, we suggest to focus on one domain. The final decision should be taken after consultation with the MoD Joint Staffs as to what their mission priorities are. We envisage less than 20% of the overall Preparatory Action budget for this category.

3. Security of supply of key defence technologies – enhance European freedom of action

There are a significant number of technologies critical for defence for which Europe is either dependent on external sourcing, or threatened with being so, and this number is in danger of increasing. This dependency threatens not only European Member States' operational freedom of action, but also the competitiveness of the European Defence Industry. Considerable work has been done by the European Defence Agency, with support, through ASD, of the European Defence Industry, on identifying critical technologies at particular risk, as well as attempting to quantify the level of investment needed to rectify the situation. The topic has also been addressed

by the European Space Agency. Although this work was done some years ago, the examples remain relevant.

Criteria for selecting topics within this category should include: demand for the technology at EU level, demand within Member States, industrial and technological relevance. Again the Preparatory Action will only be able to fund one or two topics in this category, a condition being that meaningful progress can be made within the three years. Examples that appear to meet the criteria are technologies for multifunction sensor systems or lasers. We propose that about 20% of the budget of the Preparatory Action should be reserved for this category.

4. New technologies with major defence potential – prepare for the unexpected

There are a number of technologies, either emergent or available from other sectors, which have the potential to be ‘game changers’ for defence. Exploring them helps Europe to stay at the technological edge, and also helps prevent technological breakthrough by others (‘future shock’) taking Europe by surprise. Examples could come from novel materials or quantum capabilities. Some budget should be reserved to support research in these technologies, but care needs to be taken to ensure that any work supported under the Preparatory Action is specific to defence applications, at least potentially. Although significant contribution to this will come from research organisations, it is essential that topics chosen have a real potential for downstream industrial exploitation.

A recommended option for a call in this category is to use an approach of ‘competition of ideas’ for the selection of topics. We propose that a maximum of 10% of the budget be devoted to this category.

5. Modalities – organise the follow-on programme

It is recommended that a small part of the budget for the Preparatory Action is reserved to support work to study in detail the modalities for the potential follow-on programme. The specificities of defence are such that modalities that are suitable for civil research may not be optimum for defence related research. Already it is recognised that the funding, governance, and IPR regimes are likely to be different from civil programmes, but the details need to be spelled out with care. Consideration should also be given as to whether arrangements such as Joint Undertakings could be applied or adapted for the governance of a follow-on programme. It is therefore crucial to develop in time a framework which ensures that the follow-on programme follows a long-term strategy, remains relevant to industry and pertinent to the needs of the end-users. Since planning for the follow-on programme will need to run concurrently with the Preparatory Action, it is necessary to start work examining the implications of different modalities in parallel with the research work to be undertaken in the Preparatory Action.

Conclusions

The purpose of this Position Paper is to summarise the views of the European Defence Industry concerning topics for the proposed Preparatory Action. Imperative is to demonstrate EU added value, as well as to ensure complementarity with existing national and European research programmes. However, paramount is to use the Preparatory Action as a means of testing for the potential follow-on programme. Hence it is recommended to choose a small number of topics, which are diverse so as to test as many aspects as possible. It is also essential to use the PA as a means to ensure that the future programme will have industrial relevance, and hence that it should help to enable real joint procurement in Europe in the future. A specific challenge that needs to be addressed is how to feed the lessons learnt from the research activities of the Preparatory Action in time into the governance and modalities of the follow-on programme.
