



# **Position Paper on the Roadmap on critical technologies for security and defence**

***12 April 2022***

## Foreword

ASD welcomes the Commission's roadmap on critical technologies for security and defence. The roadmap is a strategic document that sets out a vision and broad intentions rather than concrete actions. Still, we consider it as an important step towards a new, more strategic approach to the technological base of Europe's security and defence. This ASD Position Paper presents industry's views on the Commission's proposed way forward, following the structure and the different sections of the roadmap.

## 1. Introduction

It is undeniable that critical technologies for security and defence are increasingly driven by innovation in commercial sectors. Consequently, we support the objective of developing a comprehensive approach towards defence and security technologies, across the civ-mil dividing line and combining European with national levels. We agree that the EU is the appropriate framework for developing and implementing this approach, as European cooperation is essential for investing finite resources more efficiently. We therefore share the ambition to develop the future European security and defence technological and innovation landscape under EU cooperative frameworks from the outset.

At the same time, we realise the magnitude of the change that this implies. Due to the long-standing separation of civilian and defence RTD&I, there are deep-rooted regulatory and reputational hurdles to civ-mil synergies in Europe and a general lack of interest in pursuing dual-use goals. On top of that comes the challenge to bring coherence into the multiplicity of responsibilities, policies and programmes. Dots must be connected between many different organisations from different constituencies, which enhances complexity and can easily lead to friction losses. We hope that the war in Ukraine creates enough awareness and political pressure to overcome these obstacles and speed up the necessary changes.

The exploitation of dual-use potentials and synergies is essential for the capacity of the defence and security sector to cope with the dynamics and pace of technological evolution. However, the return of war in Europe shows also that there is more than that: In Europe, defence and security technologies have suffered for decades from under-investment. Developing capabilities that can withstand a large-scale hybrid and military aggression needs therefore not only enhanced civ-mil synergies, but also an adequate level of funding for defence and security-specific RTD.

## 2. Critical technologies and strategic dependencies

### 2.1. Identification of relevant technologies for each capability

We welcome the recognition of the specificities of the security and defence markets, which is the precondition for framing industrial policies and instruments in a suitable and efficient way.

We also agree on the scope of the roadmap, which brings together defence and security, with space and cyber as critical enablers. Companies and RTOs operating in these areas form the industrial and technological ecosystem that develops the means for enhancing Europe's security and resilience.

## 2.2. Mapping critical technologies and strategic dependencies

The mapping of critical technologies and strategic dependencies is the starting point of any strategic industrial policy. Given the speed of technological evolutions and the complexity of supply- and value chains, the challenge is to identify which technologies are critical and which dependencies are strategic. This necessitates a threefold assessment of a) defence and security capability needs, b) the nexus between these capabilities and relevant technologies, and c) the value- and supply chains underpinning these technologies. ASD has been working on a methodology for this assessment and stands ready to support the European Commission in this endeavour. We also recommend that the mapping of critical technologies and dependencies uses to the maximum the results of the work already undertaken in other frameworks (e.g. CDP, OSRA and CARD).

We take note that the Commission has started in-depth reviews of defence and security technology areas, including two case studies on autonomous systems and semiconductors. Industry should be actively involved in the (apparently already ongoing) review of other technology areas.

## 2.3. The Observatory of Critical Technologies (OCT)

The OCT will play a central role in the successful implementation of the roadmap. The list of its proposed tasks is comprehensive: technology foresight and strategic reflection; identification, monitoring and assessment of critical technologies, their potential applications and related value and supply chains; monitoring and analysis of existing and predictable technology gaps, root causes of strategic dependencies and vulnerabilities. Given the scope of its mission and the importance of its tasks, we call upon the Commission to provide the OCT with all the resources that are necessary to execute them successfully. Equally important will be to establish an effective and efficient cooperation with existing relevant bodies, like the EDA or the Joint Task Force (ESA-EDA-Commission), to learn from their experience, generate synergies and avoid unnecessary duplication of efforts.

One of the keys for the success of the OCT will be the input it gets from capability development processes for the identification of critical technologies. In this respect, we are concerned about the work on the capability-driven approach for security, which was launched last year as action 1 of the Synergies Action Plan. We find the announcement in the roadmap, that Commission services will produce by mid-2022 a paper summarising the proposals for fostering the adoption of capability-driven approaches to be applied across security sectors, a rather modest and sobering outlook after 12 months of work. We therefore call upon the Commission to raise its ambition level in this field and give a fresh impetus to this action. This is also a precondition for generating synergies with defence, where the capability development process is already much more advanced.

The OCT should build on what already exists in defence. From our point of view, it would make sense, for example, to assess which of the 136 Technology Building Blocks in OSRA could benefit from an integration of civil technologies. Another complementary approach would be to assess systematically if and how the use of civil technologies can contribute to a more rapid and effective development of the six capability focus areas of CARD (Main Battle Tank, Soldier Systems, European Patrol Class surface ship, Anti Access Area Denial capacities and Countering Unmanned Aerial Systems, Defence in Space, Enhanced Military Mobility). Using such already existing building blocks would enable the OCT to rapidly deliver tangible and concrete results.

We welcome the intention to establish within the OCT a dedicated expert group for exchange and discussion with Member States in a classified environment. In defence and security, a trustful cooperation between Commission services and competent national authorities is indispensable. At the same time, we regret that the roadmap does not foresee any mechanism for cooperation with industry. While the definition of capability needs is the prerogative of end-users and political decision-makers, input from industry is indispensable for the assessment of the capability/technology nexus and critical dependencies.

In their current form, the existing fora established by DG DEFIS (on the aerospace and defence ecosystem) and DG GROW (on the Industrial Strategy) do not seem appropriate for an in-depth and detailed exchange on these matters. We therefore call upon the Commission to establish a suitable mechanism for gathering data and exchange with industry on critical supply chains and dependencies.

We also welcome a possible extension of the scope of the OCT to other industries, as it would increase the potential for synergies. At the same time, we recommend limiting this extension to other strategic sectors that are essential for the security of citizens' lives and way of life. Moreover, we suggest starting an extension beyond security and defence only when the OCT has proven its full operational capacity.

### 3. Boosting RTD&I on critical technologies for security and defence

The success of the OCT will depend not only on the input it receives on capability needs, but also on the uptake of its findings on technologies and dependencies. According to the roadmap, the Commission will, "based on the assessments of the Observatory, prepare roadmaps that will underpin activities ranging from programming RTD&I to developing larger flagship initiatives to strengthen the EU's competitiveness and resilience in the security and defence sectors..." It will be important to specify which Commission services will develop such roadmaps, and how these roadmaps will underpin which activities. Ownership and clear responsibilities are key for a successful development and implementation of roadmaps that will probably involve several Directorate Generals and different EU programmes. Engagement with industry will also be crucial for the preparation and framing of possible flagships.

#### 3.1. Overcoming the separation between EU civilian and defence RTD&I

We welcome the Commission's intention to extend action 2 of the Action Plan on synergies ("enhancing internal coordination between EU programmes and instruments") beyond 2022, and, even more importantly, to develop in 2023 an approach for encouraging dual-use RTD&I at EU level to be fully implemented in the medium to long term. Based on our assessment, technological enablers and digital technologies are the most promising areas for achieving fast and upfront civ-mil synergies.

We count on the Commission to closely coordinate its new approach with the new EIB Strategic European Security Initiative that will make available financing of up to € 6 billion by 2027 for dual-use RDI, civilian security infrastructure and cutting-edge technology projects.

We understand that the announced approach will also address legal provisions in the basic acts of EU programmes and instruments that set practical constraints to synergies. On top of this, we also encourage the Commission to introduce new forms of integrated programming and planning that allow synergies to occur not by coincidence but by design.

### **3.2. Linking EU and national programmes and instruments supporting RTD&I on critical technologies for security and defence**

We also welcome the Commission's invitation to Member States to develop together an EU-wide strategic coordinated approach for critical technologies relevant for security and defence from the outset. Member States' commitment to such an endeavour is indispensable for approving and tailoring EU funding and for ensuring coherence with national funding. Involving both the Innovation Hubs for Internal Security under Europol and for Defence under the EDA is another promising move to bridge the civ-mil dividing line. However, whether it will actually lead to more synergies depends also on how far and fast the security sector can catch up with defence in terms of capability planning and cooperative R&D.

Member States' involvement is crucial also because there will continue to be critical technologies that are specific to defence applications, such as stealth materials and technology, reliable and secure communications, and high-performance sensing. These technologies will certainly benefit from the increasing influx of technologies developed in the civil domain, but even more important for them will be to rapidly enhance synergies in defence cooperation between Member States through joint defence R&D and procurement.

### **3.3. Supporting security and defence innovation and entrepreneurship – creating an EU Defence Innovation Scheme**

Start-ups and SMEs are key drivers of innovation and play an important role in synergies, as they often operate in different sectors and across the dividing line between civil and defence. Their agility is a big advantage to respond rapidly to end-user needs, in particular for smaller and targeted solutions. When it comes to complex and long-lasting projects, they will most of the time contribute as suppliers to bigger system integrators. Policy and funding instruments aimed at SMEs and start-ups should take into account lessons learned from similar initiatives in other strategic sectors (e.g. CASSINI in space) and focus on concrete achievements and successful integration in industrial value chains.

The proposed measures to support innovation and entrepreneurship at the micro level are welcome, but they should be linked to concrete industrial policy initiatives aimed to overcome strategic dependences at the macro-level (as described for example in the recent Commission Staff Working Document on "Strategic dependencies and capacities").

### **3.4. Skills**

We welcome the mention of skills in the roadmap, as it indicates the importance of this issue for critical technologies in defence and security. We also appreciate the efforts the Commission has put into the Pact for Skills and the inclusion of the aerospace and defence ecosystem in the first wave of skills partnerships. At the same time, we regret that the roadmap does not give any indication for further action in this field.

#### 4. Reducing strategic dependencies in critical technologies and value chains for security and defence

We welcome the recognition that greater strategic independence requires the combined use of a wide range of policies and instruments beyond RTD&I (investment, industrial alliances, trade, standards, etc.). This will be key for the successful translation of roadmaps into fully-fledged flagships.

The announcement to systematically assess security and defence considerations when implementing and reviewing existing or designing new EU industrial and trade instruments reflects the duality of most technologies, but also the security dimension of many purely civilian technologies. At the same time, first experiences on cloud and semiconductors have shown the challenge to include defence and security work-strands in industrial alliances that are primarily commercial- and competition-driven. A learning process will be necessary on both sides to overcome the repulsive effects of diverging market logics. In this respect, we hope that the impact of the pandemic and the war in Ukraine on all global supply chains will lead to a convergence of perceptions on the importance of security of supply and an appropriate degree of control over strategic value chains.

Based on our own work on Technological Sovereignty, we believe that the best way to foster synergies is to assess not only individual technologies and their underpinning value chains, but to look also at the ecosystem in which the respective value chains are embedded. From our point of view, it is between the members of these ecosystems that the transfer of technologies between civil and defence applications is most likely to happen.

#### 5. External dimension

We as industry share the vision that cooperation with like-minded partners is essential for enhancing the Union's resilience and security of supply. In this context, the relationship with the US is obviously of utmost importance. We fully support the ongoing work of the EU-US Trade and Technology Council and the envisaged dialogue on security and defence. In this context, we recall the importance of the close involvement of industry in these discussions. The establishment of 10 stakeholder groups mirroring the TTC working groups is an important step in this direction, but we do believe that transparency and consultation of industry could be improved.

#### 6. Conclusion

Industry supports the roadmap as an important step towards a new, more strategic approach to the technological base of Europe's security and defence. From our point of view, it sketches a model for the interaction between commercially driven emerging technologies and strategic sectors that can become a truly European alternative to the Chinese and the American approaches.

The roadmap is a strategic document that sets out a vision and broad intentions rather than concrete actions. The challenge lies in the structural changes the roadmap will have to induce in a complex institutional and political landscape. With a view to its concrete implementation, we would like to stress the following points, to which the roadmap pays only limited attention:

- ***The contribution of industry*** to the work of the Observatory, but also in the selection and framing of flagships. Industry's expertise and knowledge is indispensable for the assessment of critical technologies, supply chains, strategic dependencies, and vulnerabilities. We are fully aware of the difficulties to share sensitive and classified information but would be happy to engage in a dialogue with the Commission on how to mitigate such problems.
- ***The links between the different phases of the technology and industrial cycle***, from the identification of critical technologies to RD&I, industrialisation, and procurement. Each transition from one phase to another is risky and a potential breaking point. To manage these transitions successfully, we need coherence not only horizontally (between civil and defence programmes), but also vertically (between RTD&I activities and deployment programmes).
- ***The importance of pure defence technologies***. The roadmap focuses on dual-use technologies and new emerging technologies that are driven by commercial investments. Notwithstanding the increasing influx of these technologies into the defence sector, there will continue to be a need for defence-specific technologies. For categories like optronics, radar, components, materials and communication, navigation and inertial systems, strategic dependencies are a major issue as well and should be addressed accordingly as part of the roadmap.
- ***The sense of urgency***: The roadmap is driven by the awareness of the ever-faster pace of technological transformation and the risks of strategic dependencies for Europe. The Russian invasion of Ukraine and its impact on European security has given a completely new urgency to the course of action that is needed. We therefore call upon the European Commission and Member States to accelerate the implementation of the roadmap to the maximum and consider it as a top priority.

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[Signed by] Jan Pie, Secretary General of ASD

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