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Analysis of dual use synergies (R&T)

Executive Summary

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European (EU) industries face unprecedented global competition in a changing geopolitical context, but also new opportunities with the emergence of rapidly evolving technologies and new players. In addition, as global competition is increasingly fierce, the EU technological and industrial base (TIB) should make efficient use of resources and technologies, if they intend to maintain and improve their competitiveness. This includes exploring new opportunities for innovation arising from synergies and cross-fertilisation between defence and civil industries, which could help secure strategic value chains and improve the resilience of existing industries. This could be fundamental for EU competitiveness and sovereignty in many critical economic and technological areas.

In this context, the EDA's ANDES project aims to analyse the current dual-use scenario, concerning technological developments funded under the EU framework, profiting of the knowledge and expertise collected in the Overarching Strategic Research Agenda (OSRA). The latter contains aggregated and structured set of information, called Technology Building Blocks (TBB), which captures the technological developments, enabling a functionality that provides a solution for one or more extant or foreseen capability gaps. TBBs form a common element throughout the OSRA architecture, which provides a harmonised view of relevant EU defence research priorities considering future military capability needs and emerging technologies. In addition, OSRA is the tool for R&T prioritisation in the service of Member States capable of providing input to all available EU funding instruments and initiatives.

To this end, a series of objectives were initially defined, among which the following stand out:

- To analyse the research-related work programmes (WP) of the European Commission (EC), and other EU Agencies to identify the relevant parts of these documents related to dual-use.
- To identify the dual-use dimension into the EDA TBB roadmaps and flag them for further dissemination.
- Through an inter-institutional workshop, to identify the best practices on the dual-use technology transfer mechanisms (DUT2M), involving EC, EU agencies, and Ministries of Defence (MoDs).
- To build the future scenarios for the DUT2M and investments in EU.

The project has as a final objective to pave the way for an EU DUT2M in the new EU defence context and to support the dual-use ecosystem among institutional stakeholders.

For this purpose and to lay the foundations for this project a thorough analysis of existing information (both at EU and third countries level) was performed. In addition, a set of interviews and surveys were carried out to broadening the understanding of DUT2M with relevant key stakeholders, gaining insight on the structure of potential dual-use avenues, and setting the groundwork for the workshop. The inter-institutional workshop allowed to identify key drivers and challenges for the potential development and full implementation of DUT2M, including different perspectives from the policy and technical implementation point of view. In particular, special focus was put on: the identification and agreement about best practices for dual-use technology transfer in Europe; the identification and agreement about synergies and complementarities assessing their importance and impact; and the identification and agreement on the future most appropriate DUT2M, embedding participant's perspectives.

These propaedeutic activities brought to the creation of a thorough structure for the analysis and identification of the various aspect of dual-use ecosystems. The main elements of the structure are the following:

- The dual-use avenue model. It is an avenue of approach for more coherence of the potential complementary activities within the existing EDA TBBs. This model provides specific actions to increase the awareness and availability of existing activities described in the TBB roadmaps for the short- and medium-term impact and increase participation in existing civil programmes. The model places special emphasis on encouraging spin-offs of defence research into civilian life but also spin-ins from civil technology research into defence.
- A specific set of dual-use technology transfer mechanisms. This set contains a list of the most efficient and effective technology transfer mechanisms within the techno-industrial ecosystem. These mechanisms will serve to convey dual-use technologies to a wider scope of applications and to further develop these technologies in a greater range of scientific-technological-innovative-industrial areas.
- The final set of recommendations, which are oriented to foster synergies and cross-fertilisation between defence and civil research, development and innovation at the EU level. Moreover, they place special emphasis to promote the enabling dual-use role, supporting the identification of disruptive dual-use technologies to improve the resilience of existing industries and the EU's technological sovereignty and raising awareness for these synergies and cross-fertilisation.

- A high-level framework that gives rise the dual-use collaboration model, which summarises the main questions to consider for stakeholders before, during and after collaboration to increase the dual-use ecosystem capabilities.