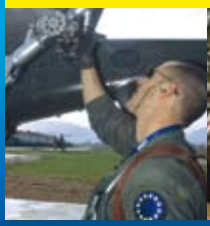
A EUROPEAN DEFENCE RESEARCH & TECHNOLOGY STRATEGY




An Introduction to the EDRT Strategy
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Enhancing the effectiveness of the European Defence Research and Technology (EDRT) is one of the main objectives of the European Defence Agency. The EDRT Strategy, endorsed by the EDA Steering Board on 10 November 2008, is focused on addressing the R&T needs of European Security and Defence Policy "as it stands now and develops in the future".

Investment in Research and Technology (R&T) is vital for EDA participating Member States (pMS) to maintain their future defence and industrial capabilities. However, for two reasons this is becoming quite difficult. Firstly, the margins to increase R&T spending are small as national defence budgets remain constrained. Secondly, by spending most of the Defence R&T money nationally – currently about 87% – the EU Member States miss opportunities for economies of scale. Hence, Javier Solana – the Head of the Agency – has called for spending better and more together on Defence R&T, an aim supported by European Ministers of Defence. They agreed in November 2007 collective benchmarks to increase Defence R&T spending to 2% of all defence expenditure and to bring European collaborative Defence R&T spending to a level of 20%.

Investing more effectively and more together requires a strategy to guide the different Defence R&T shareholders in their investment. The need for a guidance-providing EDRT Strategy is further reinforced by a number of trends such as the introduction of a European capability drive for Research and Technology programming for the development of defence equipment and systems, the restructuring of the European defence industry and the growing cross-border ownership of companies in the supply chain, the multi-lateralisation of collaborations and the need for creating synergies between civil and military activities.

The EDRT Strategy takes into consideration the above factors aiming towards the achievement of a step change in Defence R&T Collaboration in Europe through the convergence of the participating Member States' defence investment. Such convergence will improve the coherence in the R&T-related activities of capability planners, researchers and technology developers, serving the military users.

To achieve this convergence, the Strategy covers three important strategic elements. Firstly the "Ends": the technologies we should invest in to improve European future military capabilities. Secondly the "Means": the mechanisms, structures or processes that would increase the effectiveness of this investment. Finally, the "Ways": the roadmaps and action plans through which the "Ends" and "Means" should be implemented.

The identification, prioritisation and delivery of the strategic elements will be a living process, fully integrated with the other EDA Strategies: the Capability Development Plan as "overall strategic tool", the European Armaments Co-operation Strategy and the European Defence Technological and Industrial Base Strategy. The EDA participating Member States have already progressed significantly by approving a first list of 22 common R&T priority areas that should be developed or preserved in Europe. Furthermore they are addressing a number of means for improving collaboration, including inter-alia the use of Joint Investment Programmes, better management of collaborative R&T projects, closer co-operation between European Defence Research Centres and the review of Intellectual Property Rights conditions applicable to collaborative R&T projects.

All these actions are confirming the commitment of the EDA and its participating Member States to the Strategy and its vision of enhancing and developing more effective R&T collaboration in science, technology and demonstrators to deliver in time the right technologies in support of military capabilities for short, medium and long term needs.

INTRODUCTION

1. According to the Council Joint Action 2004/551/CFSP on the establishment of the European Defence Agency (EDA), the mission of EDA is to support the Council and the participating Member States (pMS) in their effort to improve the EU's defence capabilities in the field of crisis management and to sustain ESDP as it stands now and develops in the future. For this purpose, four functions and tasks are allocated to the Agency. These are the development of defence capabilities in crisis management, the promotion and enhancement of European armaments co-operation, the strengthening of the European Defence Technological and Industrial Base (EDTIB) and the enhancement of the effectiveness of European Defence Research and Technology (EDRT).

2. The establishment of an EDRT Strategy will enable the EDA to better perform its role in each of the above functions, and particularly in the enhancement of the effectiveness of EDRT. The need for a EDRT Strategy is reinforced by the following trends: growing need for research and technology in order to face new defence and security challenges, introduction of a European capability drive for research and technology programming for the development of defence equipment and systems, restructuring and cross-border ownership on the industrial supply side, and multi-lateralisation of collaborations.

3. Furthermore, the EDRT Strategy should be implemented in concert with the on-going work on the "Capability Development Plan" (CDP) – endorsed by the EDA Steering Board (SB) on 8 July 2008 - and the "EDTIB Strategy" - endorsed by the EDA SB on 14 May 2007 - which have already recognised R&T collaboration as a key factor for success. The synergy between these three strategies, in addition to the "European Armament Co-operation Strategy" – endorsed by the EDA SB on 15 October 2008, will enable the achievement of the main objective of improving European defence capabilities.

4. In this context, an EDRT Strategy is an ambitious guide for the different Defence R&T stakeholders (pMS, industry & research suppliers, European Commission, NATO, OCCAR, ESA,...) in their investment. In addition to main-

taining a strong link with the other strategies in the Capability, EDTIB and Armament Co-operation areas, the EDRT Strategy should support the efforts of pMS to improve their investment and collaboration in R&T.

VISION

To enhance and develop more effective research collaboration in science, technology and demonstrators to deliver in time the right technologies in support of military capabilities for short, medium and long term needs.

5. The EDRT Strategy covers two phases: a planning phase and an implementation phase. The "Ends" represent the areas where R&T investment is required in order to improve European defence capabilities; the "Means" describe the tools which may improve the efficiency and accelerate the implementation of the "Ends". The implementation phase of the EDRT Strategy embraces R&T collaborative projects which will deliver the "Ends" effectively through the use of appropriate "Means". Roadmaps and action plans will be crucial tools to describe the "Ways" and connect the planning and the implementation phases of the EDRT Strategy.

STRATEGIC AIM : THE "ENDS"

Defining a list of key technologies for European Defence R&T

6. The "Ends" are the technologies to which investment should be directed to serve the ambitions of pMS for improved European defence operational and industrial capabilities. The immediate questions are how to identify and accomplish these "Ends"? A prioritised European list of key technologies in which to invest will provide the core of the EDRT Strategy. All other objectives will contribute to the achievement of these priorities or "Ends", delivering the right technologies with the performances required by the operational needs, at the right time.

7. The "Ends" need to be substantiated in order to justify pMS investment. Firstly, the capability-driven approach in research and technology programming dictates that they should be linked with operational requirements. Such a link would need to be established through a translation process deriving R&T priorities from the capability priorities identified through the CDP; and to be indicated through the integrated roadmaps showing the "Ways" of implementing the R&T. Other criteria also need to be considered such as the impact of technological breakthroughs on capabilities, EDTIB strengthening, less- or non-dependence on critical technologies, opportunities for collaboration, options for acquisition, etc.

8. Considering the time and effort needed to provide this level of substantiation, a preliminary European defence key technologies exercise has provided initial R&T priorities at the European level. This first guidance will now be progressively refined by the outputs of the CDP through successive translation exercises.

9. The initial list of "Ends" will include both key-technologies and skills that need to be developed or preserved in Europe. However, a fully adequate DTIB is no longer sustainable on a strictly national basis and pMS need therefore to press on with developing a truly European DTIB, which is more than a sum of its national parts. On this basis, the initial list of "Ends" represents a first alignment of pMS needs which should be used, together with other inputs, to guide the defence suppliers towards a better integrated European DTIB.

10. The "Ends" should be accomplished through collaborative R&T projects detailed in roadmaps, with an adequate balance between capability driven research projects and more scientific and bottom-up projects to anticipate new threats and to stay aware of progress in science and technology for operational superiority. In particular, a special attention on disruptive technologies and emerging technologies must be carried out by pMS to evaluate their potential defence applications. The roadmaps should take

into consideration appropriate "Means" that may enable a more effective accomplishment of the "Ends". These roadmaps will bridge the planning and the implementation phases of the EDRT Strategy.

11. Appropriate use of funds should be made to accomplish the "Ends" taking into account projects which are currently in the pipeline and also results of previous collaborative efforts. "Ends" will require the generation of R&T collaborative projects/programmes under an appropriate framework (e.g. EDA) and using appropriate tools (Cat.A, Cat.B, Joint Investment Programmes, EDA Operational Budget, etc.).

STRATEGIC AIM: the "MEANS"

Developing the right tools to achieve the ends

12. The "Means" are objectives that must be pursued in terms of frameworks, mechanisms, processes and structures to help improve performance in delivering the "Ends" through various forms of collaboration – whilst also fulfilling the complementary needs for autonomy and national operational sovereignty – including co-operation with international institutions. Achieving these objectives will ensure the effective and sustainable identification and delivery of the "Ends".

13. A number of "Means" are necessary in order to improve collaboration in R&T and achieve the "Ends" quickly and efficiently. Such "Means" have been identified through an appropriate analysis and grouped into the following clusters:

- Improve integration of the defence technology and industrial base into the wider supply base: "Means" within this cluster include, establishing a strategic dialogue with industry and research providers, including civil research, ensuring appropriate coordination with other R&T networks and bodies, broadening the supplier base; and promoting R&T Networks of

Excellence. These "Means" are aimed at maintaining the European security of supply by strengthening the competitiveness and increasing the efficiency of the EU defence industry through improvements in the R&T base.

- Promote technology push: "Means" within this cluster include improving the shared R&T watch mechanism, promoting awareness of civil technologies for defence purposes and developing technology roadmaps. Such "Means" are aimed at ensuring that the EU has appropriate tools in place to identify emerging and disruptive technologies that may lead to future "Ends", thus ensuring that the EU remains one step-ahead of possible adversaries and on-par with industrial competitors.
- Improve the effectiveness of R&T collaboration: "Means" within this cluster include encouraging a stronger pMS commitment to R&T collaboration and budget alignments, providing better management of R&T, creating an enabling environment for R&T collaboration; and accelerating new technology insertion into programmes in priority areas. These "Means" are aimed at improving the speed and efficiency of delivering the "Ends" whilst ensuring that the delivered "Ends" will have a direct benefit for EU defence capabilities.

STRATEGIC AIM: the "WAYS"

Implementing "Ends" and "Means" through roadmaps and actions plans

14. When used correctly, roadmaps can be an important tool in the transition from the technology strategy level, to the "make it happen" level, organising more detailed objectives, implementing the strategic ones – both from the "Ends" and the "Means" areas, allowing for better application of R&T resources, as well as a closer and sustained coordination with adjacent roadmaps in the Capability, Armament and DTIB areas. Such roadmaps should clearly indicate how the R&T activities are connected to operational and industrial capabilities.

15. The implementation of the Strategy using roadmaps is best seen as a concurrent process reducing the possible investment risks. In helping to identify the possible paths to meeting strategic goals, road mapping can inform strategic choices. A good roadmap highlights the advantages and disadvantages of various possible "paths", assisting the strategic level to choose between different options. It will also provide a reference for later "a posteriori" evaluation of implementation phases by tracking R&T projects against the different objectives.

16. Road mapping can however be a very complex and time-consuming task and needs to be carried out by experienced personnel working within a coherent and mature organisational framework. This requirement can limit its application at a multilateral level. Moreover road-mapping requires consensus among participants as to not only the general objectives, but also on the ways to keep future options open. Roadmaps will therefore need to be applied, on a case-by-case basis, very often in variable geometries of pMS rather than at a European level.

CONCLUSION

17. The EDRT Strategy, as described above, should encourage the commitment of all stakeholders (EDA, pMS, industry, academia, research centres, etc) towards the realisation of the Vision of this EDRT Strategy. A first step towards this goal would be the realisation of collective benchmarks and the establishment of voluntary R&T expenditure targets. Such voluntary benchmarks (in the sense that turning them into national targets is optional) were approved by the Ministerial Steering Board on the 19 November 2007:

    - Defence R&T spending: 2% of total defence expenditure,
    - European collaborative Defence R&T spending: 20% of Defence R&T expenditure,

18. The EDRT Strategy should enable the development of effective collaborations taking into consideration priorities from Capability (e.g. the EDA's Capability Development Plan), Armaments Co-operation and EDTIB Strategies whilst also influencing them. Taking into account the substantial effort required in terms of definition, agreement and implementation there is a necessity to prioritise among the strategic objectives, in both "Ends" and "Means" areas, in order to implement them effectively. However a fair balance between addressing short term and longer term objectives is also needed. The EDRT Strategy will therefore give rise to an incremental living process, benefiting progressively from iterative and successive developments, aimed at providing the appropriate level of scrutiny and substantiation to achieve pMS buy-in.

For more information about the EDRT Strategy
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