

Chapter 16

Toward an Authentic European Defence Research Strategy: Legal Aspects

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Abstract In order to achieve the Union's intervention in defense research, important limitations had to be lifted. The most important of these was compliance with the European treaties. Indeed, for a long time, many jurists felt that such an action was not respectful of the treaties. It was therefore necessary to demonstrate that such an action was indeed respectful of the European legal order. It was then necessary to demonstrate that the intervention of the Union would bring 'added value' to that of the member states, which was far from self-evident in a field where many defense industries are very jealous of their prerogatives and even hostile to intervention by the Union. Finally, the question of the amount of the budget had to be settled. Other questions still remain open, and one would think that they will be answered during the preparatory action. In particular, this concerns the governance of the EDRP. This article provides an overview of all these issues.

16.1 Introduction

Aware that action on the defense equipment market will not be enough to build the much-hoped European 'defense and technology industrial base', European institutions have recently begun to intervene in the important domain of defense research. Their intervention has thus evolved from a supply-driven policy, characterized by a normative action, toward a demand-driven policy marked by the contribution of public funding. This is a fundamental change.

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The European Commission (2013) paved the way in 2013 in its Communication 'Towards a more competitive defence and security sector', in which it envisaged 'the possibility of supporting research related to the Common Security and Defence Policy (CSDP), for example, through a preparatory action. Emphasis will be placed on those areas in which the EU's defence capabilities are most needed, seeking synergies with national research programs as far as possible'. This initiative was supported by the European Council in December 2013 and further developed by the Commission in its June 2014 roadmap.

Such 'preparatory actions' (PA) are intended to test the financing and governance modes of a larger program. They are intended for a maximum period of 3 years. Proposed by the Commission, PA must be adopted by the European Parliament (EP) and the Council.

To define the terms of reference for the preparatory action on defense research (PADR), the European Commissioner responsible for the internal market, Elzbieta Bieńkowska, set up a Group of Personalities (GoP) in March 2015. It followed a similar approach that led to the adoption of a European security research program (2004–2005). The GoP first met on March 2015 and released its report on February 2016 (Group of Personalities 2016). The budget adopted for 2017 foresees an amount of €25 million for the first year. Over a period of 3 years, the funds devoted to this PA could reach approximately €90 million.

Without waiting for the launch of the PADR, the European Parliament (EP), on the initiative of MEP Michael Gahler (European People's Party), adopted in autumn 2014 a 'pilot project' for €1.5 million. Although symbolic, the importance of this pilot project should not be underestimated. This is the first time that the word 'military' appears in the budget of the Union at the end of a line of appropriations and this at the initiative of a German parliamentarian. The management of this pilot project was delegated to the European Defence Agency (EDA), and three projects were eventually selected.

In this context, and in order to develop its own expertise, at the end of November 2015 the EP asked Professor Klaus Thoma, former President of the Fraunhofer Institute in Freiburg, as well the author of this chapter, to report on a possible European defense research program (EDRP).

In particular, the EP sought to answer the following questions:

1. What has been done so far in terms of defense and security research at European level and for what results?
2. What are the specificities of defense research?
3. Would a financial intervention by the Union in the field of defense research be in conformity with the treaties?
4. Would the Union's action in this area bring added value and if so, which?
5. If it were to emerge, what should be the amount of this program and what should be its scope?
6. How to articulate a possible defense research agenda in a larger action plan?
7. Finally, what should be its governance?

The report was delivered on 22 February and presented to the Defence Subcommittee of the EP on 16 March 2016. It was made public on the 30th of the same month (European Parliament 2016). This article specifies, develops and updates the points of this report, taking into account the state of play since March 2016.

16.2 The Question of Compliance with the Treaties

Since European Union institutions are restricted to the jurisdiction allocated to them by the member states, it is therefore necessary that an explicit provision in the treaties authorizes them to act. This is a prerequisite on which the Union's authorities closely abide to, sometimes too much. It was therefore normal for the EP to raise the question of the legal basis for action in favor of defense research and to form its own opinion before proceeding to examine the appropriations.

16.2.1 The Question of the Legal Basis and Its Consequences

In the case of defense research, the question of the legal basis becomes particularly important as it is possible to envisage not one but two legal bases, each with different implications in terms of governance.

Should defense research be regarded as a subset of research? In this case, any action in this field will be governed by the provisions of Title XIX of the Treaty on the Functioning of the European Union (TFEU) on 'research and technological development and space'. Consequently, the Community method will apply, and the Commission will have a monopoly on the right of initiative.

The legislative procedure shall be implemented equally by the Council of the EU representing the member states and the EP, both of which have the right to amend. In the great majority of cases, the scope of the qualified majority is extended, something that is the case for research. Lastly, the Court of Justice of the European Union (CJEU) ensures uniformity in the interpretation of the Community law.

Or, on the contrary, should we consider that defense research is a subset of defense? More precisely, can it be considered part of the 'Common Security and Defence Policy' (CSDP) or even part of a possible 'common defense'?

In this case, any action by the Union will be based on Title V of the TEU concerning the external action of the Union and the CSDP. The Commission and EP will then have only a much more limited role, strictly defined by the treaties. The initiative will necessarily be based on joint action between the High Representative/Vice President (HR/VP) and the Commission, with the latter losing its own right of initiative. The decisions will be taken in the vast majority of cases by unanimity and not by majority, and, finally, the CJEU will not be competent to judge the application of the provisions of Title V of the TFEU.

This question of the legal basis is all the more decisive since Article 40 TEU draws a dividing line between the two treaties. The CJEU, the only body empowered to pronounce the law and able to divide the various legal opinions existing on the subject, has had the opportunity to establish, under the authority of the previous treaties, a solid, although subtle, dividing line.

It is clear from this case law that, first, an action can be legally based only on one of the two legal bases (TFEU or TEU), to the exclusion of the other. Secondly, an act producing legal effects adopted under Title V of the TEU infringed Article 40 and was therefore annulled if it could have been adopted on the basis of the TFEU.¹ To this, a third proposal resulting from the second paragraph of Article 40 introduced by the Treaty of Lisbon must be added. This lays down a symmetrical principle of the precedent that an act producing effects within the framework of the TFEU cannot affect the application of the provisions of Title V of the TEU.²

Let us therefore consider the two possible legal bases before considering what the position of the Court might be in the very probable case in which it is examined before it. There is no doubt as to the possibility of establishing defense research on grounds of Title XIX of the TFEU.

Indeed, it is easy to observe that nowhere in Title XIX of the TFEU is the adjective 'military' or the 'defensive' apposition attached to the word 'research'. Also, in law, as in grammar, it is the adjective that restricts meaning and its absence that expands it.

Moreover, the best evidence that defense research is authorized by the treaty lies in the fact that the regulation establishing the Union's research program 'Horizon 2020' explicitly excluded defense research from its scope.³ It can be deduced from *an appeal from the contrary* that if defense research had been prohibited by the treaty (in the first place), it would have been unnecessary to provide for such an explicit prohibition in Horizon 2020.

The only reservation is for those research projects with high technological readiness levels (TRL⁴ -8 and -9) which involve testing prototypes under operational con-

¹ See Court of Justice of the EU (2008). This judgment was based on the interpretation of Article 47 TEU which was the predecessor of Article 40 TEU in its version resulting from the Treaty of Lisbon. Article 47 read as follows: 'Subject to the provisions amending the Treaty establishing the European Economic Community with a view to establishing the European Community, the Treaty establishing the European Coal and Steel Community and the Treaty establishing the European Community Atomic Energy and these Final Provisions, none of the provisions of this Treaty (the EU Treaty) affects the Treaties establishing the European Communities or the subsequent Treaties and Acts which have amended or supplemented them'.

² Article 40 of the TEU contains a second subparagraph which did not exist in the previous Treaty and aims at protecting acts taken on the basis of the TEU from possible incursions by the Commission. See Piris (2010: 263). For an application of this article, see Court of Justice (2017).

³ European Parliament and Council of the European Union (2013), Art 19(2): 'The research and innovation activities carried out under Horizon 2020 focus exclusively on civil applications'.

⁴ For the definition of technological readiness levels (technological readiness level or TRL), as used by EDA, see European Parliament (2016: 13), and on the specificities of defense research, see European Parliament (2016: 31ff.).

since Article 40 TEU is the only body empowered to give legal opinions existing in the authority of the previous

ally based only on one of the other. Secondly, an infringement of Article 40 on the basis of the TFEU is not a symmetrical principle within the framework of the Title V of the TEU.²

Before considering what is examined in defense research on

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ist in the previous Treaty and possible incursions by the Court of Justice (2017).

19(2): 'The research and civil applications'.

ess level or TRL), as used of defense research, see

sitions, i.e. in an environment simulating actual combat environment. In such cases, the CJEU may consider that it is no longer a question of research but of defense.

On the other hand, it seems more complicated to undertake defense research on the grounds of the Title V on the Union's external action.

Can defense research be regarded as an activity of the Common Foreign and Security Policy (CFSP)? Article 25 TEU provides that 'The Union shall conduct the common foreign and security policy: (a) defining the general guidelines; (b) adopting decisions which define (i) actions to be taken by the Union, (ii) the positions to be taken by the Union and (iii) the detailed rules for the implementation of the decisions referred to in points (i) and (ii); and (c) strengthening the systematic cooperation between member states in the conduct of their policy'.

All these actions, especially the definition of general guidelines, belong to the realm of international politics and diplomacy. The 'actions to be taken by the Union' are undoubtedly the 'operational actions' of Article 28 which the Union intends to carry out 'where an international situation so requires'. Thus, the crisis management operations constitute the essence of the CFSP/CSDP. The same applies to 'positions to be taken by the Union'. This concept refers to Article 29 of the TEU, which provides that 'the Council shall adopt decisions which define the Union's position on a particular geographical or thematic issue. member states shall ensure the conformity of their national policies with the positions of the Union'.

On the other hand, it does not seem impossible to consider that a defense research policy pursued by the Union could be based on Article 25 of the TEU in so far as it seeks to 'strengthen systematic cooperation between the member states'.

Should such an interpretation be refuted, it would nevertheless be possible to consider that the action of the Union can be based on Section 2 of Chapter 2 of Title V specifically dedicated to the CSDP.

Let us first observe that, in the great majority of cases, the budget for defense research is part of the defense budget. For example, in France, defense research funding is provided through Program 144 'environment and defense policy prospects', which itself forms part of the 'defense mission'. The same is true in the UK where Defence Science & Technology is part of the Ministry of Defence and is voted on its credits. Obviously, this principal funding from the defense budget does not exclude other ministries, such as research or industry, from contributing to defense research, but this should be viewed as incidental or per case.

The question arises in different terms at the European level, as there is no European defense per se. Obviously, things would be different if, in accordance with Article 42 (2) TEU, the Council acting unanimously had decided to establish a 'common defense'. For now, though, this is not the case, especially since member states have not yet established the 'permanent structured cooperation' (PESCO) provided for in Article 46 TEU, which is supposed to accelerate the implementation of a common defense.

In the absence of a common defense, can defense research be considered part of the CSDP? We know that the treaty uses the term CSDP to define both a tool and a step (Mauro 2017). The CSDP, as a tool, is defined by Article 42 (1) TEU. It is the fact that the Union has an operational capability based on civilian and military

means. This capacity must enable the Union to carry out 'missions outside the Union in order to ensure the maintenance of peace, conflict prevention and the strengthening of international security (...)'.¹

However, the execution of these missions is based on 'the capacities provided by the member states'. The CSDP, as a step, is defined by Article 42 (2) TEU in a somewhat tautological sentence which becomes clearer by distinguishing between the tool and the step: 'CSDP (first step toward common defence) includes the progressive definition of a common defence policy of the Union (the tool). It will lead to a common defence (second step), as soon as the European Council, acting unanimously, has decided to do so'. In other words, the gradual establishment of an operational capacity to carry out missions outside the Union with the military and civilian means of the member states constitutes a first step, which the treaty calls CSDP, toward common defense.

In addition, Section 45 (1) (d) provides that 'The European Defence Agency referred to in Article 42 (3) and placed under the authority of the Council shall have the following tasks: (...) '(d) supporting defence technology research, coordinating and planning joint research activities and studies of technical solutions to meet future operational requirements'.

If the CSDP is considered to be an 'operational capability' composed of military means, it seems reasonable to assume that the Union has the competence to reinforce this 'capacity', in particular through a defense research policy in line with the specificities of civil research. The fact that the military means for the execution of missions outside the Union are provided by the member states is irrelevant, since by strengthening these means through support for defense research, the Union is strengthening its own operational capacity.

If we consider the CSDP as a step toward converging national defenses toward a common defense, again it is reasonable to assume that the Union can contribute to it in accordance with the treaties, just as it can contribute to the EDA budget.

Moreover, Article 179 (1) of the TFEU provides that: 'The objective of the Union shall be ... to promote the research activities deemed necessary under other chapters of the Treaties'. Unless the last wording of Article 179 (1) is deprived of all practical effect, it must be admitted that the Union may carry out other research activities under the other Treaty (the TEU) and that these activities (through the elimination of the other provisions of the TEU) can only consist of the search for defense referred to in Title V.

However, it can be objected to the contrary that Article 179 (3) provides that 'all Union actions under the Treaties, including demonstration actions, in the field of research and technological development shall be decided and implemented in accordance with the provisions of this Title'.

So it would appear that we are in conflict of laws. Let us try to imagine what the position of the CJEU could be if it was asked to provide an opinion. First of all, it should be noted that in the 2008 CEDAO decision in principle, the Court laid down the need to examine the 'purpose' and 'content' of the action in question. She distinguished two different situations from this:

- 'If the examination of a measure demonstrates that it pursues a dual purpose or that it has a dual component and whether one of them is identifiable as principal while the other is only incidental, then the act must be based on a single legal basis, namely that required by the purpose or principal component' (Court of Justice of the EU 2008: Par. 73).
- If, on the contrary, a measure pursues several objectives or has more than one component (TFEU) and the CFSP, respectively, 'without one of them being ancillary to the other', then the Council 'cannot have recourse to a legal basis under the CFSP to adopt provisions which also fall within a competence conferred by the (TFEU) on the Union' (Court of Justice of the EU 2008: Par. 76–77).

It seems to us that a European defense research program, considered in isolation, could very well be considered as pursuing several objectives (research and defense) at the same time, without one of them being incidental to the other.

It is well known that in the vast majority of cases, and up to TRL-3, there is no difference between civil and defense research. For example, equations of fluid mechanics or computer components can be used both for civilian and military purposes. This is also true of certain infrastructures, such as aerodynamic wind tunnels, which can also be used to evaluate prototypes of civil aircraft and military models.

In this case, the CJEU is likely to apply its 2008 jurisprudence (ECOWAS) and would consider that the search for defense must be based exclusively on the basis of TFEU, with all the consequences that this entails and have already been mentioned. On the other hand, a European defense research program, as envisaged by the Commission in its defense action plan of 30 November 2016,⁵ would be mainly oriented to serve the development of capabilities on the part of the member states. Such an objective and such content seem hardly compatible with the idea of research defense pursuing a 'double objective without one being incidental to the other'. There would indeed be a 'primary objective' of CSDP support. The Court should then logically apply its case law cited above but this time in reverse order to find that such defense research, linked to defense planning, falls under Title V.

⁵This fund would be composed of two separate funding structures (or 'windows'), complementary and progressively implemented: (I) a 'research window' to finance collaborative research projects in the field of defense at Union level and (II) a 'capability window' to finance the joint development of defense capabilities decided upon by the member states. It would be financed through the pooling of national contributions and, as far as possible, supported by the EU budget. The 'research window' and the 'capability window' will be complementary but separate in terms of their legal nature and sources of funding. The 'windows' will be supplemented by a coordination mechanism, which will take the form of a coordination council bringing together the Commission, the High Representative, the member states, EDA and industry as appropriate. The main task of this coordination council will be to ensure coherence between the 'research window' and the 'capability window' in order to better support capability development agreed by member states. These capabilities are defined by separate processes, in particular those of EDA and the annual coordinated defense review (CARD) conducted by the member states, to be proposed by the HR/VP in accordance with the Council conclusions (European Commission 2016: 6ff.).

Obviously, it is also possible to envisage establishing the research 'aspect' of this European Defence Fund on the basis of the TFEU, while the capabilities 'aspect' on the basis of the TEU. Despite a somewhat baroque solution, it could work quite well. In any case, it will be up to the Court to validate or invalidate this legal construction.

16.2.2 The Question of Financing

If it is accepted that European defense research is founded in the TFEU, then there is no doubt that the Union is competent to define and finance such a research policy even if such research has repercussions on defense.

The search for defense would then be funded within the general framework of the 'multiannual framework program' in which all the Union's actions are grouped together (Article 182 (1) TFEU), although defense research may be seen as a 'complementary program' to which only 'certain member states providing their financing subject to possible Union participation' would participate in (Article 184 (1) TFEU).

If, on the other hand, it were to fall under the legal shadow of the CFSP/CSDP, then Article 41 of the TEU would apply, thus doubting the Union's ability to finance such activities. This Article provides that:

1. Administrative expenditure to which the implementation of this Chapter (the chapter on the Common Foreign and Security Policy, of which the 'Common Security and Defence Policy' is an 'integral part') gives rise for the institutions shall be charged to the Union budget.
2. Operating expenditure to which the implementation of this Chapter gives rise shall also be charged to the Union budget, except for such expenditure arising from operations having military or defence implications and cases where the Council acting unanimously decides otherwise.

'In cases where expenditure is not charged to the Union budget, it shall be charged to the member states in accordance with the gross national product scale, unless the Council acting unanimously decides otherwise. As for expenditure arising from operations having military or defense implications, member states whose representatives in the Council have made a formal declaration under Article 31(1), second subparagraph, shall not be obliged to contribute to the financing thereof'.

This article has often been interpreted in an excessively extensive manner, laying down the principle of a general prohibition on the Union of financing from its budget any action in the field of defense. A different interpretation can be given, as nothing in this text seems to stand in the way of financing the Union's defense research. Article 41 lays down the principle that all expenditure 'to which the implementation of this Chapter gives rise for the institution', that is to say under the CFSP/CSDP

shall be borne by the budget of the Union. This is always the case for administrative expenditure, and no exception to this principle is provided for in the treaty.⁶

With regard to 'operational expenditure',⁷ there are two exceptions. The first exception occurs when 'the Council so decides unanimously'. The Council therefore decided the operational expenditure for:

- The budget of the European Union Satellite Centre (Council of the European Union 2014: Art. 10.3). However, it should be noted that the EU budget can make an exceptional contribution (Council of the European Union 2014: Art. 10.6).
- The budget of the European Defence Agency (Council of the European Union 2015b: Art. 13.9).
- The budget of the European Security and Defence College. Herein, again the EU budget can make an annual contribution (Council of the European Union 2016c: Art. 14, 16).

The second exception to the principle occurs when 'operating expenditure' is:

1. 'Arising from operations'
2. That these operations 'have implications' either
 - 'military'
 - or
 - 'in the field of defence'

These two conditions are cumulative.

The whole question here is to understand what 'operations' are about. Since the treaty provides no definition, an interpretation is necessary. This is fairly easy to do, because Article 38 of the TEU, one of the few articles to refer to the word 'operations', provides that 'Within the scope of this chapter, the Political and Security Committee shall exercise, under the responsibility of the Council and the High Representative, the political control and strategic direction of the crisis management operations referred to in Article 43'.

Article 43 itself refers to 'tasks referred to in Article 42 (1) (...) shall include joint disarmament operations, humanitarian and rescue tasks (...)'. Article 42 (1), in turn, defines the CSDP as the Union's ability to conduct 'missions outside the Union for peace-keeping, conflict prevention and strengthening international security (...)'.

⁶In this respect, it may be questioned whether the 'general budget' of the EDA, which is composed exclusively of administrative expenditure, is funded largely by contributions from member states, should be funded exclusively from the EU budget and that only operational expenditure, i.e. project expenditure, should be financed by the latter (Council of the European Union 2015b: Art. 13.9).

⁷To the best of our knowledge, the treaties do not define 'operating expenditure' nor do they define 'administrative expenditure'. Nor is it the case of the financial regulation of the Union budget. In the silence of the texts, it can be inferred intuitively that 'operating expenditure' is related to the realization of Union policies or programs, while 'administrative expenditure' is related to the functioning of the administrative and political structures deemed to implement these policies.

It can be inferred that in the context of Title V, the terms 'operations', tasks and 'missions' are synonymous and that 'operations having military or defence implications' are missions taken up outside the Union for crisis management purposes. These may be either military operations as such or operations 'with defence implications', such as those relating to the training and equipment of forces in the countries concerned.

The confusion arises from the fact that the word 'operations' is sometimes interpreted as synonymous with 'measures' or 'initiatives'.⁸ However, the exception to a principle must always be interpreted strictly, and the strict interpretation can only confine that word to CFSP/CSDP operations. Moreover, as an exception to this principle, the Council (2015a) decided that certain common costs of crisis management operations could be financed to a limited extent under the Athena mechanism.

Finally, it should be noted that this derogation from the principle of financing external operations was laid down by the member states themselves when negotiating the treaties. The latter wished to be able to retain control over these military operations outside the Union in accordance with the empirical principle that 'who pays decides'. This has nothing to do with defense research as such.

For all these reasons, it seems to us that if defense research were to be founded in law on Title V of the TEU, there would be no obstacle to its contribution to the development of military capabilities in support of the member states.

16.3 The European 'Added Value'

The question of the conformity to the treaties has been lifted; the question of the added value of an action taken by the Union is addressed. This notion, derived from the principle of subsidiarity, is easy to demonstrate in this case: without action by the Union, the defense research of the few member states which continue to have one will disappear within a period of 10 to 15 years. This will curtail the Union's 'autonomous capacity' to act in the field of defense.

Indeed, European research defense has been in steady decline for more than 10 years. Not only is it decreasing, but also it is decreasing at a faster rate than (overall) defense budgets. Between 2006 and 2014, while defense spending declined by 12% and defense capital spending declined by 19%, defense research and technology (R&T) spending decreased by 35%. Indeed, the total dedicated budget amounts to only €1.9 billion for all European countries. In general, it can be said that defense research was sacrificed in favor of capital and equipment expenditure.

This is due to obvious reasons. It is indeed easier politically, and even militarily, to reduce expenditure on research instead of cutting back on the procurement of new equipment (Table 16.1).

⁸In this regard, it is interesting noting the divergences between the translations of the treaty, especially the German version.

Table 16.1 European defense expenditure (in € billion constant prices 2015)

EUROPEAN DEFENCE EXPENDITURE in billion euros constant prices 2015	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Variation in value (2014/2006)	Variation in %	Bench- mark
DEFENCE EXPENDITURE EDA COUNTRIES	224	228	225	221	217	212	205	198	194	200	-27,4	-12,0 %	
Investment (equipment and R&D)		44,2	46,2	46,2	45,7	46,8	41,3	41,0	39,3	35,7	-8,5	-19,3 %	
as a % of defence expenditure		19,4	20,5	20,9	21,1	22,1	20,2	20,7	20,2	17,8			20,0 %
equipment		33,1	35,5	36,6	36,3	37,4	33,0	33,1	31,3	26,6	-6,5	-19,6 %	
R&D		11,1	10,7	9,6	9,4	9,3	8,4	7,9	7,9	9,0	-2,1	-18,5 %	
R&T (subset of R&D)		9,0	2,8	2,7	2,5	2,3	2,3	2,1	2,2	2,1	-1,0	-31,8 %	
as a % of defence expenditure		1,3	1,2	1,2	1,2	1,1	1,1	1,1	1,1	1,0			2,0 %

Authors' own production - FM 2016 - from EDA restated figures published in June 2016

The second feature is that European defense research is concentrated in three countries, France, the UK and Germany. Combined, these countries account for 93% of the overall European research and development (R&D) effort and 89% of the R&T effort. In 2014, France spent €764 million on R&T, Germany €483 million and the UK €439 million. Let us note by the way that in the last 2 years, German R&T spending overtook the British one, indicating future evolutions between the two countries toward opposite directions (see Table 16.2).

In reality, only 5 European countries out of 27 (excluding the UK) conduct defense R&T activities amounting to more than €50 million. These are (in descending order) France, Germany, Italy, Sweden and the Netherlands. Of these, only two countries reach the critical mass of €500 million or more: France and Germany.

Thirdly, collaborative research not only is derisory, but also further decreases. It was no more than €172 million in 2014, representing only the 8.6% of the total European R&T. This weak collaboration is further strained by a large part of programs being duplicated between the few states that do invest and conduct defense R&T (Table 16.3).

Finally, European defense research is being downgraded on a global perspective. As European countries' spending decreases, their strategic competitors' spending is increasing. On average, over the period 2006–2011, R&D spending of the EDA member states amounted to €8.8 billion per year, compared to €54.6 billion for the United States. Figures for R&T were €9 billion and €2.4 billion, respectively. This gap with the US is likely to increase as a result of the launch of the 'third offset initiative' – an initiative that will receive \$18 billion per year more from the Trump administration (Fiott and Bellais 2016). For the 2017 budget, the US R&D effort is expected to reach €67 billion.

Although difficult to calculate, the Chinese defense research effort indicates proportions of similar order to that of the American effort, amounting to about €20 billion a year. As for Russia's effort, the country has doubled its spending over the last 5 years, currently standing between €3 billion and €4 billion per year. In addition, the country is careful to avoid duplications of effort, which appear in European research, and is focused on a few priorities. The consequences of this situation are primarily industrial: without investment today, there will be no equipment tomorrow.

Table 16.2 Ranking of EDA member states by Defense R&T

Ranking of EDA Member States by Defense R & T

Bn € in 2014 current prices	R&D	Cumulate	Cumulate in % of the total	R&T	Cumulate	Cumulate in % of the total	Collaborative R&T
France	3 563	3 563	41	764	764	40	130
Germany	846	4 409	50	483	1 247	66	0
UK	3 753	8 162	93	439	1 686	89	1
Italy	103	8 265	94	restricted			0
Sweden	106	8 370	95	61	1 747	92	13
Netherlands	59	8 430	96	59	1 807	95	6
Spain	75	8 505	97	42	1 849	97	21
Finland	35	8 540	97	25	1 874	99	1
Poland	217	8 757	100	10	1 874	99	2
Czech Rep.	16	8 774	100	7	1 880	99	1
Belgium	8	8 782	100	3	1 883	99	2
Portugal	2	8 784	100	2	1 884	99	1
Austria	2	8 786	100	2	1 886	99	0
Estonia	2	8 787	100	2	1 887	99	0
Romania	1	8 788	100	1	1 888	99	0
Slovakia	2	8 790	100	0	1 889	99	0
Croatia	0	8 791	100	0	1 889	99	0
Bulgaria	0	8 791	100	0	1 889	99	0
Luxembourg	0	8 791	100	0	1 889	99	0
Hungary	0	8 791	100	0	1 889	99	0
Cyprus	0	8 791	100	0	1 889	99	0
Greece	0	8 791	100	0	1 889	99	0
Ireland	0	8 791	100	0	1 889	99	0
Latvia	0	8 791	100	0	1 889	99	0
Lithuania	0	8 791	100	0	1 889	99	0
Malta	0	8 791	100	0	1 889	99	0
Slovenia	0	8 791	100	0	1 889	99	0
In Million €	8 791			1 899			177

Authors' own production - FM 2016 - from EDA restated figures published 7 June 2016

Table 16.3

EUROPEAN COLLABORATION
in billion euros const

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as a % of

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Authors' own production

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Table 16.3 European collaboration (in € billion constant prices 2014)

EUROPEAN COLLABORATION in billion euros constant prices 2014	2006	2007	2008	2009	2010	2011	2012	2013	2014	Variation in value	Variation in %	Bench- mark
on defence equipment	6,9	6,7	7,8	8,0	8,0	7,9	6,0	4,7	5,3	- 2,2	- 31,8 %	
as a % of defence investment	20,8	19,0	21,3	22,0	21,2	24,0	18,2	15,0	19,8			35,0 %
on defence R&T	0,29	0,37	0,45	0,32	0,27	0,28	0,15	0,18	0,18	- 0,1	- 39,0 %	
as a % of defence R&T	9,5	13,1	16,6	12,8	11,7	12,4	6,9	8,0	8,6			20,0 %

Authors' own production - FM 2016 - from EDA restated figures published 7 June 2016

row. The number of industrial gaps will increase. European defense companies will not master the generic technologies that will be used in 15 years' time and which are today's cutting-edge technologies (e.g. power lasers, artificial intelligence, miniaturized and collaborative military robotics, etc.). In a fortnight of years, most European defense industries, unable to present state-of-the-art weapons, will lose their competitiveness and face export difficulties, except perhaps on the medium and lower end of the spectrum.

In military terms, then, without capacity, or with reduced capacities at a few niches, there will be no autonomous European defense. European states will have no choice but to acquire weapons systems from other (non-EU) producers with the ensuing consequences that this will have on their freedom of action.

Eventually, the Union will always be able to proclaim the importance of its industrial and technological defense base or its attachment to 'strategic autonomy', despite these words being devoid of content. It is easy enough to take stock of this downgrade by asking the following question: when was the last time that a European state did produce a military innovation capable of giving a decisive operational advantage to its own forces?

Given the budgets at stake, it seems clear that no single member state is able to meet the challenge of competitiveness on its own. The action of the Union is therefore not only desirable but indispensable. It alone can bring about the critical mass that is lacking and prevents small states from participating in such endeavors.

It is therefore necessary for the Union to intervene in 'areas where the EU's defense capacities are most needed', as already suggested by the 2013 Commission Communication, and restore or establish technological fields in which the member states are no longer able to finance.

The great inertia of the European budgetary framework, the multiannual financial framework, also ensures visibility and predictability in research programs, which will make them more immune to electoral vagaries in the member states. Moreover, the Union's mode of governance is such as to establish a salutary distance from national interests and to give priority to the quality of projects over their national character.

Last but not least, the contribution of the Union budget provides for collective funding of defense research, so that all member states can feel part of an effort whose fruits benefit the whole.

16.4 The Issue of the Amount of the EDRP

There is no technical answer to the question of how big the future defense research program should be. The answer can only be political and will provide a measure of the Union's interest in defense. However, it is possible to suggest a range between the minimum budget required for the program to have a good chance of succeeding and the maximum possible so that the action of the Union remains complementary to that of the member states, without replacing the latter.

The minimum budget required is easy to determine since it is commensurate with the financial barrier to entry that must be overcome if the critical size is to be attained. It is possible to have an idea of this barrier based on the smallest of the players in the group of the three member states that have a multipurpose defense research, namely, the UK. It can be estimated at around €500 million per year on defense R&T. Below this threshold, dispersion of appropriations between several research areas results in insufficient incentives for industrial players, large or small, in relation to the constraints imposed.

The maximum possible budget should be appreciated by the efforts of the member states, taken as a whole and not individually. We know that in 2014, EDA member states spent €1.9 billion in defense R&T (€2.0 billion in 2013) and €1.4 billion if the UK is not taken into account. To these, the commitments made at the NATO summit in Newport in 2014 should be included. These commitments stipulate that, over a 10-year period, NATO members will devote 2% of their GDP to defense spending, including 20% on capital expenditure (including major equipment and R&D activities). In relation to the 21 members of the Union that are NATO members, this would represent an overall additional effort of €72.5 billion per year compared to the expenses incurred in 2014, including €22.4 billion on equipment and R&D activities. Note that these amounts do not take the UK into consideration. Translated in terms of defense research, on the basis of current ratios (R&T represents on average 5.5% of capital expenditure), this would mean that EDA members will spend an additional €1.2 billion in R&T activities.

Unless we consider that the commitments made at the NATO summit have no value, the sum of the current effort (€1.4 billion) and the promised effort (€1.2 billion) would amount to €2.6 billion per year. This sum stands at par with the high range approximation of a Union intervention. It can be seen that, based on the figure of an annual contribution of €500 million per year, the Commission has therefore taken the low point of the possible range of its intervention.

16.5 The Question of EDRP's Articulation Within a Broader 'Defense Action Plan'

16.5.1 *Some Specificities of Defense Research to Bear in Mind*

To draw the optimal characteristics of the future European defense program, it seems preferable to start from the specificities that underlie defense research rather than the institutions likely to lead it. Among all the characteristics of defense research, five deserve to be taken into account.

The first is that defense research is part of the complex process of defense planning. Before being able to tell scientists what to look for, it is necessary to agree on the threat assessment, the strategy to deal with it, the level of military ambition and, ultimately, the desired capacities. Once this is done, defense research must lead to concrete capability programs. There is, therefore, a 'before' (defense planning) and an 'after' (industrial programs) phase in defense research.

The second important characteristic of basic research, as already mentioned, is that there is no difference between civil and military research, especially at the early stages of scientific technological development. Einstein's equations on general relativity can be used (and apply) for both military and civil applications.

The third characteristic, quite new in the landscape we are concerned with, is that civilian research takes precedence over military research. Until recently, military research was very often ahead of civilian research, which often declined its applications. This is probably due to the fact that, by way of its objectives, defense research generally seeks technological 'rupture' in order to provide the forces with a decisive operational advantage such as the radar during the Second World War or stealth abilities during the Cold War, while civilian research proceeds in a more incremental manner. Today, the relationship between civilian and military research appears to be partly reversed: the contribution of civilian technologies to military capabilities is becoming increasingly important. Of course, this is not true in all areas and, especially, in fields which have exclusively military outlets, such as military aviation or missiles. But in other sectors, it is now the technological innovation coming from the civilian realms that has taken the lead. This is particularly the case in the cyber field and, even more decisively, in artificial intelligence.

Moreover, the time cycles of discovery and implementation of civilian technologies are becoming increasingly shorter and in any case much shorter than military planning cycles. Indeed, the tested PPBE cycle (planning, programming, budgeting and executing phases) is the subject of important revisions on the other side of the Atlantic. The cause or consequence of this reversal of flows and defense manufacturers, at least those who have defense and civilian activities, are becoming less and less attracted by the defense markets given excessive constraints (e.g. intellectual property rights) and a scaling down of profitability. Industrial investments follow the market. In the absence of markets in the field of defense, industrialists withdrew. Who could blame them? Indeed, the research budgets of major industrial groups outnumber the budgets that entire countries devote to defense research. This is

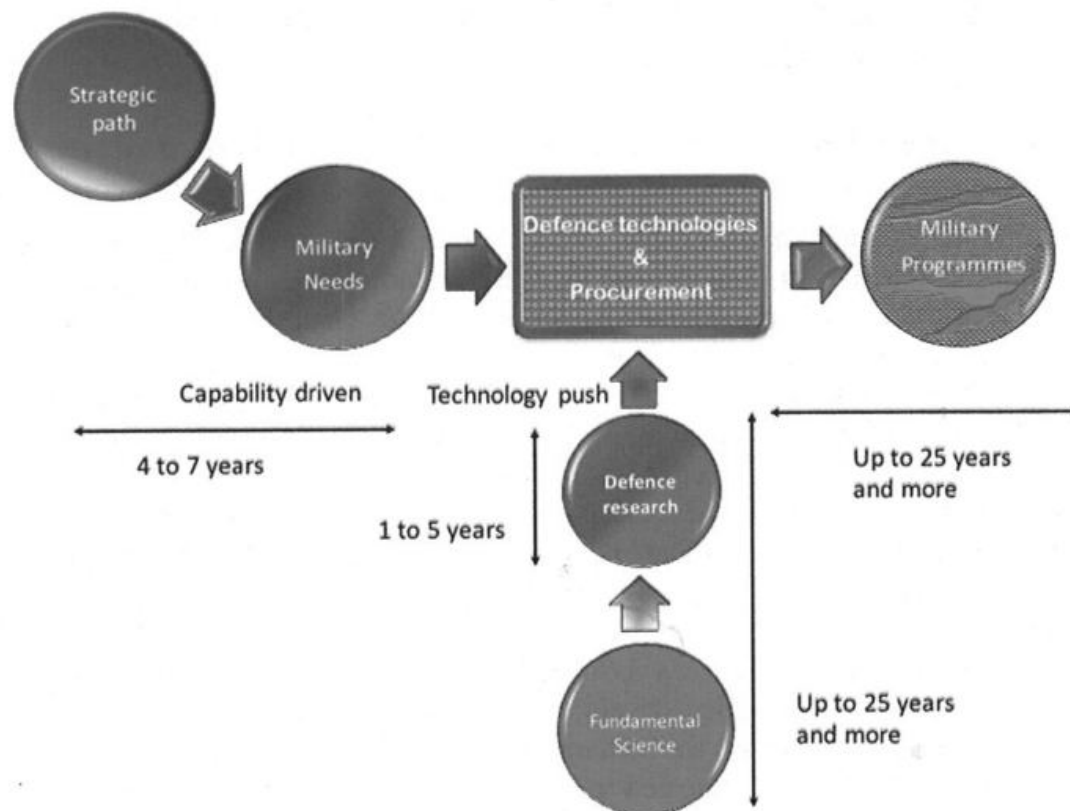


Fig. 16.1 The procurement conundrum

particularly the case for artificial intelligence where the giants of the net have gained considerable advance (Fig. 16.1).

Fourth, defense innovation appears to be increasingly driven by small start-up structures rather than by large industrial groups. Of course, these structures will always need large industrial groups to help them with industrialization and ensure compliance with the most demanding military standards. Nevertheless, the small size of these structures is a new phenomenon which must be taken into account if financing of dinosaurs is to be avoided in the hope that they will produce cutting-edge technologies, especially because of the growing importance of 'Industry 4.0' technologies, such as additive manufacturing. This is a phenomenon that must also be taken into account for the protection of strategic assets, in order to prevent important innovations from moving abroad due to the lack of control of defense investments.

The fifth and final characteristic of defense research is that it is a long and complex process where failures must not only be tolerated but considered as an integral part of the process. In the same vein, serendipity associated with discovering interesting yet undesired results plays an important role. However, tolerance for failures and exploitation of the phenomena of serendipity do not always fit well with the traditional military, scientific and industrial European culture.

Taking into account these specificities, it is possible to draw up a model of the future EDRP.

16.5.2 *Some Suggestions for the Next EDRP*

16.5.2.1 **Connect EDRP to a European Defense Planning to Be Established**

It seems essential to connect EDRP to a genuinely European defense planning, which is obviously the most difficult part of the exercise. From this point of view, it is remarkable how quickly the Union has put in place the main elements of such planning in a single year. It thus adopted a new global strategy made public on 28 June 2016 (European Union 2016) from which it drew a 'level of ambition' in the 'implementation plan on security and defence' published on 15 November 2016 (Council of the European Union 2016a).

The European Council of 28 June 2016 'welcomed' the presentation by the High Representative of the overall strategy for the European Union's foreign and security policy. Going further, the EU Foreign Affairs Council of 14 November 2016 'commended the implementation plan on security and defence in the form of a proposal by the HR/VP and the head of the European Agency'. Above all, it has adopted in the same conclusions the level of ambition of the EU and defined the concrete actions toward the implementation of the global strategy (Council of the European Union 2016b: Par. 3).

Among these concrete actions, the Council decided *inter alia* that:

- A new Capability Development Plan (CDP) would be considered in spring 2018.⁹ This CDP would be drawn up on the basis of the priorities defined by the member states, 'acting through the EDA and in close cooperation with the EU Military Committee (EUMC)'.¹⁰
- This CDP would be developed 'taking into account the review of military requirements arising from the overall strategy and the level of ambition'.¹¹ It should be 'more results oriented' and 'translate defence capabilities priorities into concrete collaborative programs' (Council of the European Union 2016b: Par. 13b).

⁹ 'The Council (...) (b) Invites member states, working through the EDA and in close coordination with the EU Military Committee (EUMC), to specify and complement the identified preliminary capability priorities on the basis of the level of ambition and in the framework of the forthcoming review of the Capability Development Plan (CDP) by spring 2018, taking also into account member states' priorities' (Council of the European Union 2016b: Par. 12b).

¹⁰ It should be noted that the day after the adoption of the Foreign Affairs Council conclusions, the Ministerial Steering Board of the EDA, under the chairmanship of HR/VP in her capacity as Head of the EDA, defense ministers tasked EDA to review the CDP (European Defence Agency 2016).

¹¹ 'The Council (...) (c) Tasks to review the military requirements stemming from the EUGS and the level of ambition and to develop the related illustrative scenarios, in line with the agreed procedures and as a contribution to the CDP review, while ensuring coherence of outcomes and timelines with the NATO defence planning process, where requirements overlap' (Council of the European Union 2016b: Par. 12c).

- EDA is invited to submit proposals by February 2017 in order to improve the process leading to the new CDP (Council of the European Union 2016b: Par. 13b).
- The Head of EDA is invited to present, in full consultation with the member states, proposals to the ministers in spring 2017 with a view to setting up a 'coordinated annual review in the field of defence, guided by the member states'.¹²

It should also be stressed that, without waiting for the CDP revisions, EDA launched the development of an overarching strategic research agenda (OSRA) at the end of 2015, in the interest of all actors likely to finance research projects responding to the capacities priorities identified at European level: member states, Union institutions (Commission, EDA, agencies providing funding for dual-use research) or even other international organizations. The initial version of OSRA should be discussed with member states and then with industry in spring 2017 before a refined version is submitted to the agency's steering committee for approval. An update, in line with the new CDP, is also planned for early 2018.

The road that has been traveled in just 1 year is impressive. However, for defense planning to be fully effective, all elements of its intellectual chain must be put in place. There are still some concerns.

Firstly, it is not foreseen at this stage to link the level of ambition and the capability plan with a document that can be classified as NATO's 'political guidance' or made public, such as the Helsinki 'Headline Goals' or the French 'White Paper'. Obviously, as has just been recalled, the Council planned to link the level of ambition and the new CDP. But without a concrete programmatic decline in terms of capability objectives, it is to be feared that the new CDP will, like the previous ones, detail only the list of equipment which the member states deem non-priority and which they cannot afford on their own, like the rotary-wing drone. However, it is feared that not all member states, especially the most important ones, will agree to link their own national planning to European planning.

Secondly, nothing has been contemplated at this stage as to the distribution of capabilities objectives among the member states, as is the case in NATO, where member countries agree to take on capability commitments ('approved target packages'), which are regularly assessed. However, the lack of repartition may make it difficult, if not impossible, to translate the overall capabilities objectives into acquisition objectives and, *a fortiori*, into research objectives.

¹²The Council (a) invites the High Representative/Head of the European Defence Agency, in full consultation with member states, to present proposals to ministers in spring 2017 for their decision on the detailed scope, methods and content of a member state-driven co-ordinated annual review on defense. In full respect of member states' prerogatives and commitments in defense, including, where it applies, in collective defense, and their defense planning processes, such a review would foster capability development addressing shortfalls, deepen defense cooperation and ensure more optimal use, including coherence, of defense spending plans. Building on the Policy Framework for Systematic and Long-Term Defence Cooperation, the objective of the review would be to develop, on a voluntary basis, a more structured way to deliver identified capabilities based on greater transparency, political visibility and commitment from member states (Council of the European Union 2016b: Par. 13a).

Specifically, it will be necessary for OSRA to coordinate the different sources of funding: those resulting from the future EDRP, those carried out within the framework of ad hoc EDA projects or even those emanating from European Structural Funds as mentioned by the Commission.

Finally, without a per-member state allocation of the overall capability objectives, it is to be feared that the defense review will only be a virtual exercise. For the time being, nothing has been decided, and it is always possible to include two distinct elements in this review: on the one hand, the setting of individual (per member state) objectives and on the other, the evaluation of these objectives.

The EU's learning curve in defense planning may be particularly steep, but NATO has gained a certain lead in this area since the changes in NATO's defense planning process (NDPP) in 2009 completed its second capability cycle in the summer of 2016. Under these conditions one could envisage backing the nascent European defense planning to that of NATO.

Unfortunately, this cannot be done for at least two reasons. On the one hand, the level of ambition between the EU and NATO is not the same. NATO core task has always been 'collective defense', which means defense of the European territory, whereas CSDP is merely 'crisis management' outside the Union. On the other hand, NATO relies mainly on US operational enablers, which is not supposed to be the case for CSDP, at least if the Union seriously seeks to attain 'strategic autonomy'. In addition, one might observe that NATO defense planning, conversely to the Union, is developing in a framework that gives priority to military objectives over capability considerations. This difference in approach complicates the compatibility of the two processes, hence the need for a genuinely European defense planning process (Fig. 16.2).

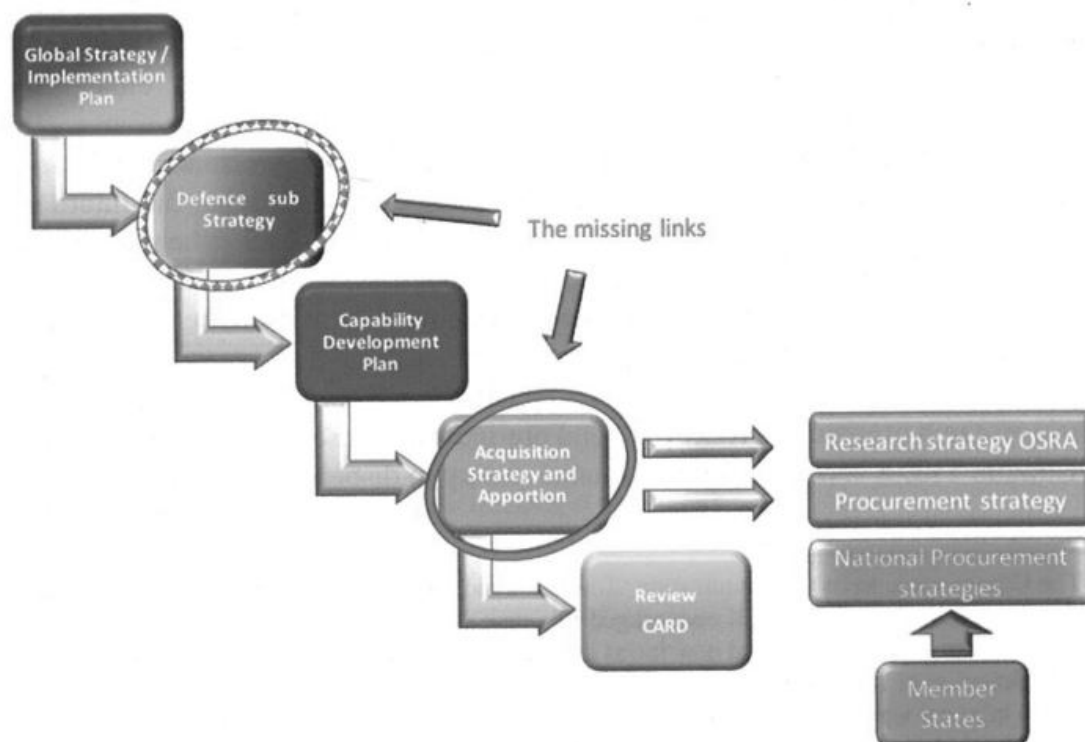


Fig. 16.2 The European defense planning process

16.5.2.2 Link EDRP with Sound Armament Programs

Indeed, the only real way to convince industrial players to play the game is to ensure that the time and investments they spend on European research projects will translate into programs with a major effect, hence the need for credible defense planning. However, this credibility can only be achieved if industrialists have visibility on the order books of the member states and their willingness to comply with them.

Hence, the importance of cofinancing between the EU and the member states. This seems to be the way in which the Union has embarked on its defense action plan, and we can only welcome it. This plan foresees regrouping the EDRP into a 'European Defence Fund', and, alongside the 'research' component, with €500 million per year coming from Community funds, a 'capacity' component has been foreseen with €5 billion a year in order to finance equipment developed in cooperation.

At this stage, this sum of €5 billion should be considered indicative, as it has not yet been decided whether it would come exclusively from the member states or whether a part would come from the Union and if so, in what proportion. At the time this chapter is being written, everything remains open. But it is clear that this fund will only play an incentive role if the Union agrees to provide it with significant sums. Moreover, the question arises as to what types of projects this capability fund should finance.

In the first instance, in order to intervene as quickly as possible, the Union would have no other choice but to finance existing or soon-to-be-completed projects. In this regard, it should continue to focus on four major projects: third-generation MALE drones, military communications satellites, cyber defense and in-flight refueling. Will the Union go so far as to consider the possibility of acquiring capacities itself? It has already done so in the field of satellites with the Galileo program. This should not pose major difficulties, at least with dual capabilities, such as surveillance drones that could be used for civilian purposes such as border surveillance.¹³

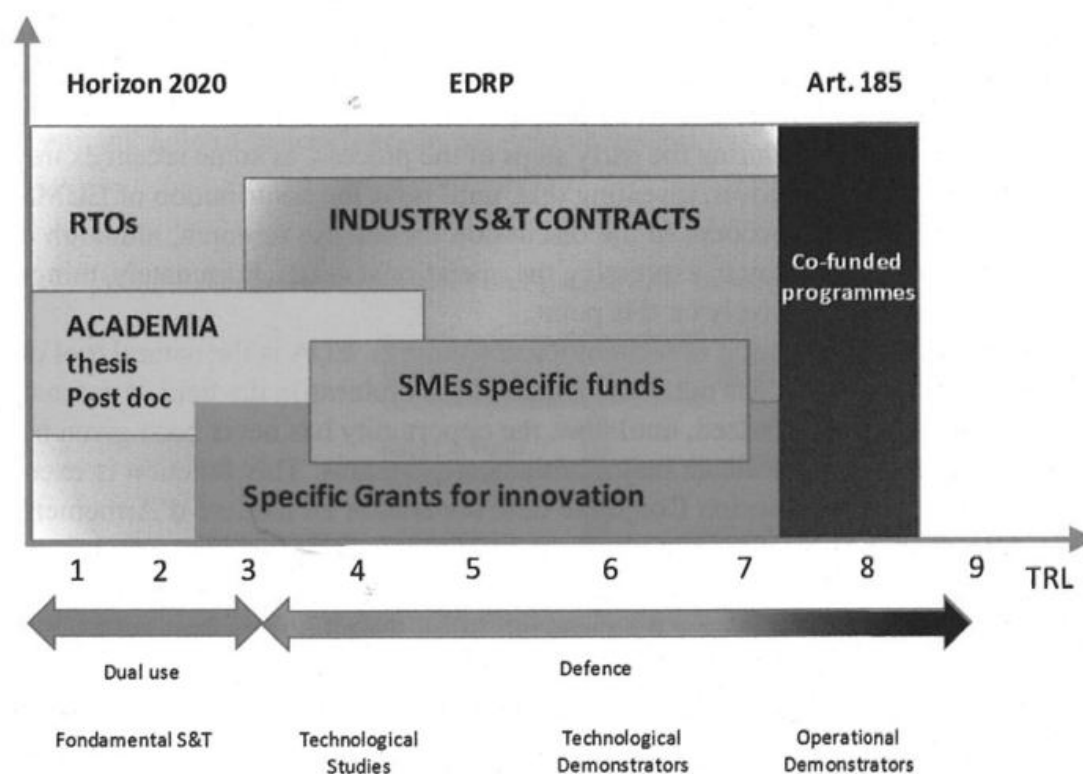
In the medium term, the Union must reserve its funding for collaborative and major programs. It seems important that it intervenes, for example, in the field of air combat systems. It is hard to see the UK and France alone carrying the future of European combat aircraft, especially after the Brexit. In addition to the reasons for the inadequate financing capacities of these two countries, it seems unlikely that the UK will not buy off-the-shelf US military equipment for reasons relevant to the established 'special relationship' between the two countries.

Third, it seems important to focus on applied research and to avoid funding both basic research programs (TRL-1 to 3) and pre-industrial research (operational demonstrators TRL-8 and 9). Indeed, it is unnecessary to disperse funds earmarked for

¹³ The Commission, in its Communication 'Towards a more competitive and efficient defence and security sector' of 24 July 2013, encouraged this type of collaboration in the following terms: 'These dual systems have allowed new forms of collaboration among member states to emerge for the exploitation of satellite imagery whereby the acquisition takes place either on the market or through bilateral agreements. This successful approach, combining civil and defence user requirements, should be pursued' (European Commission 2013: Art. 6.3 second indent).

defense on projects that can be included in the next civilian program that will succeed Horizon 2020 (FP9). This way, dual-use infrastructure, such as wind tunnels or high-performance computing infrastructures, or programs on electronic components can receive funding. Moreover, the advantage of using Horizon 2020 would be that it would not have to wait until 2021 for action in favor of defense research provided, however, that it takes the form of dual-use projects. Programs intended to finance industrial prototypes should be cofinanced on the basis of Article 185 of TFEU in order to indicate the beneficial implications of dual use for member states.

Between TRL-3 and 7, EDRP must cover all types of defense research, from research contracts to large defense companies and small-scale sector grants (SMEs, research laboratories, isolated researchers, post-doc, etc.), and provide funds to major defense research organizations. It is by covering all segments that it will be able to help the emergence of new technologies and to involve those member states that do not have a large domestic industrial and technological defense base (Fig. 16.3).



Authors' own production – FM 2016

Fig. 16.3 The full spectrum of defense research to be covered

16.6 The Issue of Governance

For the EDRP to be successful, it is necessary that it can harmoniously combine the expression of military needs with the possible or desired technical solutions. As is the case at the national level, it is essential to establish through this program a fruitful dialogue between the military body and the structure responsible in charge of forces' equipment.

As regards the expression of military requirements, the body which is naturally called upon to do so at European level is the European Union Military Staff (EUMS) under the responsibility of HR/VP. However, this body set up in 2001 at the Nice summit does not have the necessary staff to play this role. The 'policy and planning' division responsible for this function has only about 15 people available to draw up the 'requirement catalogue' derived from scenarios corresponding to the 'Headline Goals' that have not been updated since 2001. Generally speaking, the EUMS does not have the means to verify the accuracy of the data provided by the member states or their determination to use them for the benefit of the Union. It does not even have the right to report in the so-called force generation conferences the data communicated to it from the member states, thereby making the whole process largely theoretical. Finally, and more generally, co-articulation of defense needs with the EDA deserves to be improved during the early steps of the process, as some recent examples indicate.¹⁴ It is, moreover, revealing that, until now, the contribution of EUMS has not been taken into account in the discussion on defense research, although it has a prominent role to play in expressing the operational needs. Fortunately, things seem to be evolving positively on this point.

Concerning the expression of technological solutions, EDA is the natural tool of the Union, even though it has not demonstrated its usefulness in the field of defense capability development. Indeed, until now, the opportunity has never been given by the member states to coordinate major armament programs. This function is exercised through the Organisation Conjointe de Cooperation en matiere d'Armement (OCCAR), as in the European MALE drone project. It is clear that with a budget of €30 million per year (compared with the €50 Bn of programs ran by OCCAR since its creation), EDA does not have the means to fulfill the ambitions bestowed upon the Agency during the 2000s. It remains a light structure, sort of a forum between member states, and does not bring real added value to those member states which already possess developed expertise structures. The fact that the last two directors were career diplomats and not armaments professionals speaks volumes about the role in which member states want to confine the agency.

Above all, the EDA operates on an intergovernmental basis, applying the rule of unanimity contrary to its statutes.¹⁵ Yet, choosing between projects requires strong

¹⁴In the case of the Single European Sky ATM (Air Traffic Management) (SESAR) project, it seems to appear that the EDA had measured military constraints only in the course of the process.

¹⁵Article 9(2) of Council Decision (CFSP) 2015/1835 of 12 October 2015 defining the statute, seat and operating procedures of the European Defence Agency considers the qualified majority vote as the normal mode of vote (Council of the EU 2015b).

arbitration capacity on the basis of impartial technical criteria and not for the purpose of reaching consensus. A genuine armaments policy must not aim to please all member states. It implies making choices and thus accepting renunciations. Operating on consensus-based decisions, EDA seems awkwardly equipped to fulfill this role. If EDA defines the selected priorities of the proposed European Defence Fund, its methods and structures should be adapted and made more legible. Finally, it should be recalled that in the Lisbon Treaty, EDA was designed to assess compliance with the criteria and to help implement the commitments of PESCO under Articles 42 (6) and 46 of the TEU. Without the establishment of PESCO, i.e. without the real effort of the member states to converge their defense apparatus through joint defense planning on the basis of measurable and measured financial efforts, EDA will not be able to play its role in full (Fig. 16.4).

Will member states break down psychological barriers to coordinate their defense planning in a process organized in close cooperation between EUMS and a renewed EDA? Specifically, will they be able to make EDA evolve so that it can manage the EDRP properly, by renouncing the rule of unanimity, something that is possible without modifying EDA's regulation? If these conditions are not met, then it is unnecessary for the Union to waste common funds on structures whose experience has shown that they are not able to contribute to greater European cooperation neither in the field of research nor in the field of capabilities.

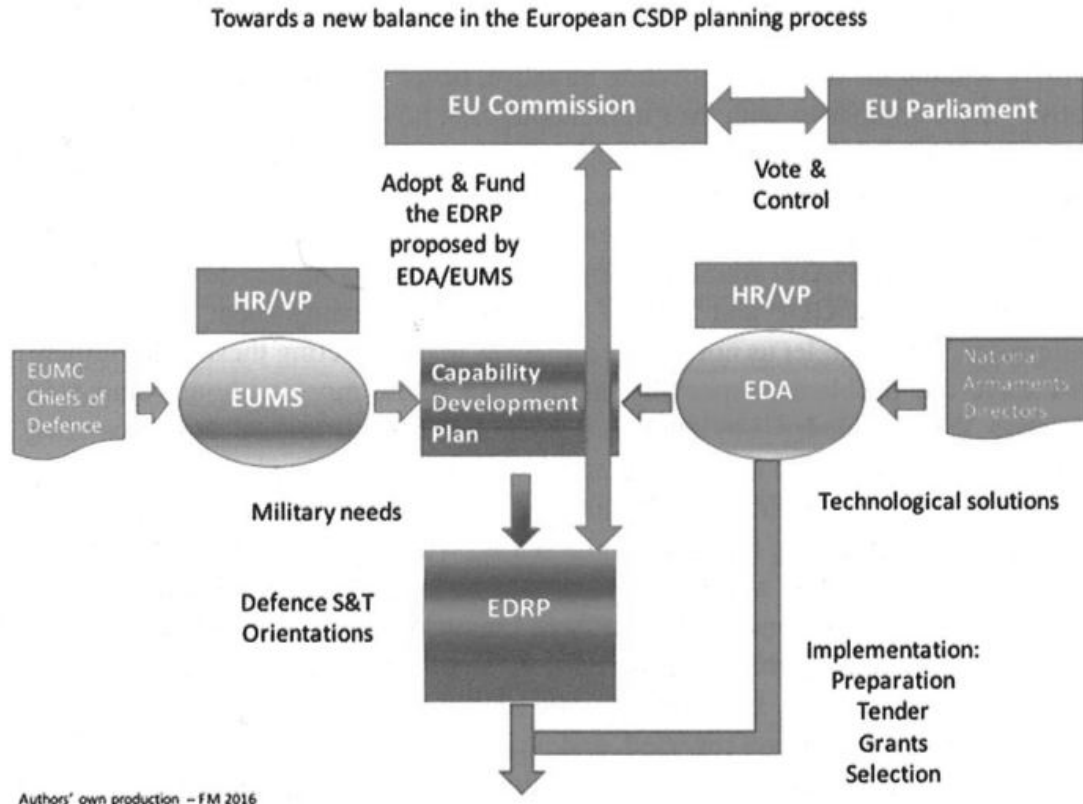


Fig. 16.4 The ideal governance scheme for the EDRP

For all that, the Union must act since, without joint action, European national defenses are poised to collapse. This is the reason why other solutions must be considered. It could be an ad hoc instrument, such as those provided for in article 187 of the TFEU, in the form of 'joint undertaking', managing research, technological development and demonstration programs (joint technological initiatives). This is the vehicle used for the SESAR European single sky program or the ECSEL electronic component program. In all, eight major research programs are already managed in this form. It is not difficult to imagine a 9th.

Eventually, the Union always has the possibility of setting within the Commission a Directorate-General for European Defence. Such an evolution would reflect its commitment to defense and allow the application of the Community method.

16.7 Conclusion

The new political situation in the US as well as the Brexit forces the Europeans to undertake a thorough examination of the situation with regard to defense matters. In this regard, the most important thing to bear in mind is not that much the new leaders on the world stage but rather the underlying developments at work. Artificial intelligence will transform our lives with a speed and intensity we can hardly imagine. It will revolutionize the way we understand war, especially in the areas of combat aviation, land combat, naval warfare, cyber warfare and even strategy. Some US companies have gained a considerable advance in this area, and the investments they make are massive. With or without the defense innovation initiative, better known as the 'third offset initiative', these companies with their tremendous cash flows are taking a decisive lead.

In the face of this situation, what does Europe do? Or more precisely, what are we doing, since we are Europe.

To be respected, Europe must be respectable, that is, to honor the commitments made in the 2014 NATO framework by gradually increasing the defense effort of countries to 2% of GDP and 20% of this expenditure being spent upon military equipment. However, let us not delude ourselves that respecting these commitments will solve our problems, especially, as one can spend more without being more effective. What is needed is to increase the efficiency of European defense spending. And how do we get there if not by integrating defense planning?

But to be respected, Europe must also be autonomous. We must cease to groan and wait for the affairs of the world to be settled without us. We must take our destiny into our hands. The worst solution would be to remain inert. Sacrificed in the benefit of equipment, concentrated in three countries, duplicated because not collaborative and lagged behind in relation to its main competitors due to the lack of investment over decades, European defense research is coming to a close.

If the current trend is not reversed, and it cannot be reversed at the national level, within the next 15 years European defense industries will become niche industries focused on a few weapons systems unable to cater for the needs of European armies and whose products will be under increasing competition coming from US, Chinese,

Russian or Israeli products. Europe's 'strategic autonomy' will remain a dream. The reality will be that of a dependent and subcontracted Europe.

The future European defense research program is one of the few possibilities to change the situation. Let's seize it!

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