

IN-DEPTH ANALYSIS

Enhancing support for European security and defence research: Challenges and prospects

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ABSTRACT

In the real world, the notions of security and defence are often used interchangeably. One of the flagship external policies of the European Union – the Common Security and Defence Policy (CSDP) – also consists of both concepts. However, in the EU Treaty, these two elements have distinct funding bases. External security funding remains firmly anchored in the EU's budget, while the defence/military component is controlled and funded almost exclusively inter-governmentally. This division is also reflected in the research domain, leading to a paradoxical situation: while the EU's research budget (channelled through its current multi-annual framework programme, Horizon 2020) is arguably the largest research budget in the world (reaching around EUR 70 billion), defence research in Europe remains underfunded, to the detriment of European defence capabilities and economic interests. While the European Defence Agency (EDA) has successfully initiated some small-scale defence research pooling initiatives (reaching around EUR 350 million since its creation), it remains a drop in the ocean of needs. This paper analyses the current state of play, and some actions proposed to foster synergies between security- and defence-related research, focusing on a preparatory action (PA) and a pilot project in support of CSDP-related research.

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1 Introduction

The CSDP is supported financially both by the EU budget and by the Member States.

In 'the real world', most technologies are of immediate or potential dual use, i.e. capable of serving civilian and military purposes at the same time.

The financial crisis has provoked severe defence budget cuts throughout Europe. Simultaneously, Horizon 2020 remains the largest research budget in the world.

In order to ensure EU's security and defence capabilities, and to secure its economic interests, the December 2013 Council requested the Commission to explore how CSDP-research can be enhanced.

The Common Security and Defence Policy (CSDP) comprises both civilian mission and military operations. Thus, 'security' and 'defence' are often mentioned in the same breath and discussed in conjunction. However, while the civilian 'arm' of the CSDP rests firmly under EU control, in terms of funding, command and control, the military 'arm' remains largely inter-governmental. This divide also prevails when it comes to security- and defence-related research, with the one (security) easily funded through the EU budget, while the other (defence) depends on Member State funding.

In the 'real world', however, things appear to be much less categorical: much of the existing research can be considered either directly or potentially 'dual use' (i.e. simultaneously suitable for both civilian and military purposes), a significant share of researchers (particularly in industry, but also to some degree in academia) has transversal skills and can work in both contexts, and there are very few industries which exclusively work on either civilian or military technologies (usually they do both).

Defence budget cuts in recent years have adversely affected the defence research sector, harming European industries and small and medium-size enterprises (SMEs) alike. At the same time, with its multiannual research funding framework Horizon 2020, the EU arguably disposes of the largest research budget in the world. A significant portion of this budget covers various aspects of security-related research, ranging from strategy studies to the development of civilian and dual-use capabilities.

It has therefore widely been recognised that security- and defence-related research should be better coordinated and synchronised, with one benefitting the other, and that any dual-use opportunities be fully explored. The European Council and the Commission have agreed to explore how the Horizon 2020 programme could benefit industrial capabilities of relevance to both security and defence – a suggestion that was subsequently reflected in the December 2013 Council Conclusions. In response, the Commission has developed a proposal for a preparatory action (PA) in the form of an instrument foreseen to allow EU funds to be channelled to defence research outside of the Horizon 2020 framework. At the same time, Parliament, which has been quite supportive of the Commission's initiative, has pushed for a pilot project on CSDP research to be funded already in the 2015 budget.

Following the thematic conclusions of the December 2013 Council, the Commission has further explored ways to support CSDP-related research, focussing in particular on facilitating dual-use research, aiming to identify key enabling technologies (KETs) that could be of benefit to both civilian and military sectors. In addition, the Commission has looked into mechanisms that could allow research funding made available under Horizon 2020 to be supplemented with funding from other sources.

This paper takes stock of the current state of play with regard to both security- and defence-related research funding (conducted under Horizon

2020 and the EDA, respectively), explores current initiatives to harmonise the two (i.e. the PA and the pilot project) and offers some thoughts on possible ways forward.

2 EU support for security research (civilian and dual-use)

The EU budget supports security research that touches on many different fields and that is of relevance to both internal and external policy.

The Treaty of Lisbon enhanced a supranational approach to CFSP/CSDP, while leaving military aspects under control of the Member States.

The Commission has actively supported the defence sector through its actions aimed at securing a single defence market.

The role of the EU as a security provider touches on many policy fields, both internal and external. It follows that security research support covers priorities related to both external and internal policy domains. In the external policy domain, support for the CSDP remains a core priority. With the Treaty of Lisbon, the EU's role in shaping security and defence policy has increased significantly, including in the field of market regulation, standardisation and support for the European Defence Technological and Industrial Base (EDTIB). In 2009, two directives on defence and sensitive security procurement, and on transfers of defence-related products, were adopted.

With the enhanced post-Lisbon role of the EU in CSDP, coupled with the enhanced profile of Parliament in the field of CFSP/CSDP, the institutional balance has been altered, arguably in favour of a more supranational approach. Nevertheless, military CSDP remains under the firm control of the Member States, with their expenses largely covered by them (collectively, through the so-called 'Athena mechanism,' or individually, following the 'costs lie where they fall' principle.) Nevertheless, the EU budget is also being used to cover some logistical and operational expenses of military operations. When it comes to security and defence, the institutional landscape remains extremely diverse, with all EU institutions – and a plethora of thematic agencies¹ – having a role, and with NATO involved as well.

At policy and strategy level, the Commission has defined its approach to, and support for, security-related research through a number of core documents, such as its 2009 communication on 'A European Security Research and Innovation Agenda – Commission's initial position on ESRIF's² key findings and recommendations'³, a core document that provides a common strategic roadmap for security research and innovation. In this preliminary action document, the Commission emphasised that the ethical dimension of EU-funded security research must be rooted in the Union's fundamental values and legal requirements, while highlighting the need for an ambitious industrial policy for the security sector. The Commission has

¹ *Inter alia* EEAS (EUMS, CPCC, CMPD), EDA, EUISS, SatCen, ESDC).

² The European Security Research and Innovation Forum (ESRIF) was a forum established by the EU and its Member States as a public-private platform for dialogue on a common strategic roadmap for security research and innovation. The Forum completed its activities in 2009 by providing a final report on the European research and innovation to enhance the security of European citizens, retrievable at

http://ec.europa.eu/enterprise/policies/security/files/esrif_final_report_en.pdf.

³ *A European Security Research and Innovation Agenda - Commission's initial position on ESRIF's key findings and recommendations*, COM(2009)0691, Brussels, 21.12.2009.

The Commission has also explored synergies between the civilian and military research programmes.

This goal was echoed by the Council, which in its December 2013 conclusions asked that alternative ways of creating synergies between the two research funding be explored.

since set up an action plan to enhance the efficiency and competitiveness of the EU's defence and security sector in its communication 'Towards a more competitive and efficient defence and security sector 2013'⁴, which explores further the potential for synergies among the various parts of the EU funding apparatus.

This plan was backed by the European Council in its conclusions of 19-20 December 2013⁵, which also pointed out the need to enhance synergies between civilian and military research, and proposed a preparatory action on CSDP-related research (discussed in more depth below). The Council conclusions also expressed the Member States' support for closer cooperation between their national defence research programmes and CSDP-related EU funding by means of increasing the level of investment in cooperative research programmes, and encouraged the Commission to evaluate potential benefits of Horizon 2020 for European security and defence industrial capabilities.

The subsequent 2014 'Implementation roadmap for communication towards a more competitive and efficient defence and security sector ('A New Deal for European Defence') was formulated by the Commission in order to strengthen the European defence and security sector, and the CSDP.⁶ The implementation roadmap includes measures to strengthen the single market for defence, promote a more competitive defence industry and foster synergies between civilian and military research (including details and timelines for specific actions).

2.1 The Horizon 2020 programme

Horizon 2020 is the EU's multi-annual framework programme for the years 2014-2020.

Horizon 2020 has a total budget of a little over EUR 70 billion and rests on three pillars: benefitting,

Managed by the Commission, Horizon 2020 is the flagship EU framework programme for research and innovation. Formalised in a communication of 30 November 2011, its general objective is 'to contribute to building a society and an economy based on knowledge and innovation across the Union by leveraging additional research, development and innovation funding and by contributing to attaining research and development R&D targets'.⁷

Horizon 2020 is a seven-year programme (2014-2020) with an overall financial envelope of EUR 70.2 billion.⁸ The programme rests on three main pillars:

1. societal challenges (which includes investments in research on health,

⁴ *Towards a more competitive and efficient defence and security sector*, COM(2013)0542, Brussels, 24.7.2013.

⁵ *European Council 19/20 December 2013 Conclusions*, Brussels, 20 December 2013.

⁶ *A New Deal for European Defence Implementation Roadmap for Communication COM (2013) 542; Towards a more competitive and efficient defence and security sector*, COM(2014)0387, Brussels, 24.6.2014.

⁷ *Horizon 2020 – The Framework Programme for Research and Innovation*, COM(2011)0808, Brussels, 30.11.2011.

⁸ *Factsheet: Horizon 2020 budget*, 25 November 2013.

society, advancing science and ensuring industrial leadership.

energy, transport, climate action, and freedom and security);

2. excellent science (which includes grants to top-level individual researchers and investments in future technologies and in training for researchers); and
3. industrial leadership (which includes investments in biotechnology and space technologies, access to risk finance and support for innovative and small firms).⁹

Horizon 2020 is implemented through both collaborative and individual projects.

Horizon 2020 project applications are divided into two clusters:¹⁰

- collaborative projects between at least three organisations from different Member States or associated countries; and
- opportunities for individual researchers and teams, funded mostly under the Horizon 2020 European Research Council (ERC) grants and the Maria Skłodowska-Curie actions (MSCA); individual SMEs can apply for funding under the Horizon 2020 SME instrument.

Applications can be submitted through the internet participant portal.¹¹ The Horizon 2020 programme is implemented either directly by the Commission, under the modality known as the 'shared management' with the Member States, or indirectly by 'funding bodies' (including third countries, international organisations and their agencies, the European Investment Bank and the European Investment Fund)¹².

2.2 Security research in Horizon 2020

Horizon 2020 supports both civilian and dual-use projects.

Horizon 2020 foresees support for both external and internal security research of civilian and dual-use nature. Article 19.2 of the Horizon 2020 Regulation ('Ethical principles') states that 'research and innovation activities carried out under Horizon 2020 shall have an exclusive focus on civil applications'¹³, effectively ruling out EU funding in support of research driven by military requirements. Interestingly, the Horizon 2020 Regulation uses stricter language than the regulation that lay the basis for the now concluded Seventh Framework Programme (FP7), according to which 'the non-defence activities set out will complement and integrate the technology- and systems-oriented research relevant to civil security which is carried out in other themes'.¹⁴ This allowed defence-related requirements

⁹ [Regulation \(EU\) No 1291/2013](#) of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC.

¹⁰ <http://ec.europa.eu/research/participants/portal/desktop/en/funding/index.html>.

¹¹ <http://ec.europa.eu/research/participants/portal/desktop/en/organisations/register.html>

¹² Article 58(1) of [Regulation \(EU, Euratom\) No 966/2012](#) of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union and repealing Council Regulation.

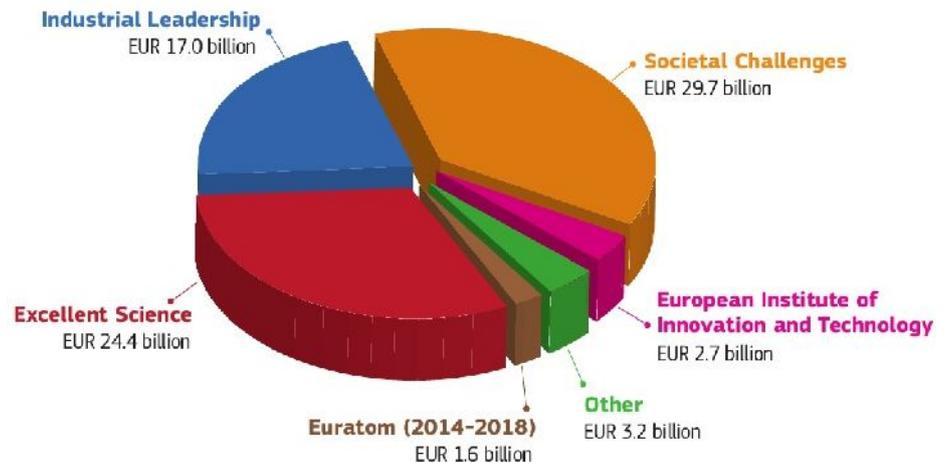
¹³ [Regulation \(EU\) No 1291/2013](#).

¹⁴ Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European

to be taken into account in security research, and synergies between civilian and military research to be generated.¹⁵

Figure 1:
Key sections of the Horizon 2020 framework, with financial allocations

HORIZON 2020 BUDGET (in current prices)



Source: European Commission, 2015

Within Horizon 2020, security research is supported mainly through its 'secure societies' and 'Europe in the world' components.

Security-related research in the Horizon 2020 framework is mainly supported through the two sections of the 'societal challenges' priority action, namely:

1. 'Secure societies – Protecting freedom and security of Europe and its citizens',¹⁶ and
2. 'Europe in a changing world – Inclusive, innovative and reflective societies'.¹⁷

While projects with security dimensions are spread across virtually all parts of the EUR 70 billion-worth Horizon 2020, by means of providing a concrete example of one of its security-focussed strands, it is worth to mention the 'secure societies' priority action (with the financial envelope of EUR 1 695 million), which supports research related to, i.a., cyber security, maritime security, counterterrorism, and crisis management and response. The core security research priorities in this context focus on responses to hybrid¹⁸ and trans-border threats, with the stated intention of ensuring research

Community for research, technological development and demonstration activities (2007-2013), <http://cordis.europa.eu/documents/documentlibrary/90798681EN6.pdf>.

¹⁵ A concrete example of such projects is the EDA-Commission cooperation on software-defined radio, <https://www.eda.europa.eu/info-hub/news/2009/04/02/Software-Defined-Radio-Projects-Presented-at-EDA>.

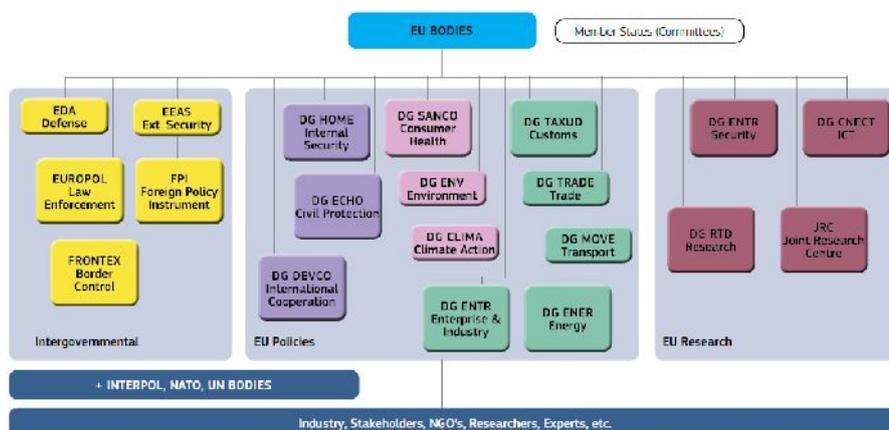
¹⁶ Horizon 2020 Work Programme 2014-2015, *Secure societies – Protecting freedom and security of Europe and its citizens*, Revised, European Commission Decision C (2014)4995 of 22 July 2014.

¹⁷ Horizon 2020 Work Programme 2014 – 2015, *Europe in a changing world – inclusive, innovative and reflective Societies*, Revised, Consolidated version following European Commission Decision C (2014)9294 of 10 December 2014.

¹⁸ While various definitions of 'hybrid threats' and 'hybrid warfare' exist, they all emphasise their blended nature, i.e. combining conventional and irregular elements.

funding that helps strike a balance ‘between protecting EU citizens and preserving a secure European society.’¹⁹

Figure 2:
Key EU structures implicated in security-related research



Source: European Commission, 2015.

Under the ‘secure societies’ heading, Horizon 2020 supports research related to, i.a., crisis management, cyber and maritime security, and hybrid and trans-border threats.

Security-related research under the 'secure societies' heading relates to security policies addressing concerns both within and beyond EU borders, focussing on the following actions:

1. combatting crime, illegal trafficking and terrorism, including understanding and tackling terrorist ideas and beliefs;
2. protecting and improving the resilience of critical infrastructure, supply chains and transport modes;
3. strengthening security through border management;
4. improving cyber security;
5. increasing Europe's resilience to crises and disasters;
6. ensuring privacy and freedom, including on the internet, and enhancing the societal legal and ethical understanding of all areas of security, risk and management;
7. enhancing standardisation and the interoperability of systems, including for emergency purposes;
8. supporting the Union's external security policies, including conflict prevention and peace building.

Another concrete example of a Horizon 2020 security-focused strand is 'Europe in a changing world – inclusive, innovative and reflective societies' (with the financial envelope of EUR 1 309 million) which focuses on security research as well, specifically in the section 'Rethinking the European Union crisis response mechanism in light of recent conflicts', which focuses on

¹⁹ Ibid., <http://ec.europa.eu/programmes/horizon2020/en/area/security>.

research on EU military and civilian capabilities and, more globally, on EU response effectiveness to external crises.²⁰

(Some examples of concrete security projects currently supported under Horizon 2020 can be found in Annex I to this paper.)

2.3 European Parliament's key inputs to Horizon 2020

Parliament co-decided on Horizon 2020 through the ordinary legislative procedure, shaping its current character.

The European Parliament co-decided on Horizon 2020 through the ordinary legislative procedure (OLP), which means it had a final say on its current shape and limitations. It gave its final approval of the programme on 21 November 2013, after intense negotiations with the Member States. For Parliament, the following MEPs took the lead in the negotiations:

- Teresa Riera Madurell (S&D, ES), who drafted the regulation on the establishment of Horizon 2020;
- Maria Da Graça Carvahlo (EPP, PT), who drafted the regulation on the specific programme implementing Horizon 2020;
- Christian Ehler (EPP, DE), who drafted the regulation on rules for participation;
- Philippe Lamberts (Greens/EFA, GE), who drafted the regulation on the European Institute for Innovation and Technology (EIT); and
- Marisa Matias (GUE/NGL, PT), who drafted the regulation on the strategic innovation agenda on the EIT.²¹

Parliament has been supportive of an enhanced support for dual-use research by the EU budget, while did not support research towards military requirements under the Horizon 2020 programme.

During the in-house debates on the final shape of the Horizon 2020 programme, the issue of EU support for security- and defence-related research was raised, with a political majority pronouncing its support for dual-use research as means to get the most out of the funding foreseen – in order that it may benefit the EU's strategic priorities as well as for economic reasons (boosting European security and defence industries and SMEs) – while ruling out that Horizon 2020 funds be channelled into research driven by military requirements.

3 European support for defence research (military)

The Treaty of Lisbon obliges the Member States progressively to improve their military capabilities.

The Treaty of Lisbon (i.e. the Treaty on European Union/TEU) requires the Member States to make available (Article 42(1)) and progressively improve (Article 42(3)) their military capabilities. A proper level of investment in defence research is a prerequisite for these goals to be fulfilled. Moreover, an adequate investment in defence research allows for both current and

²⁰ Horizon 2020 Work Programme 2014 – 2015, *Europe in a changing world – inclusive, innovative and reflective Societies*

²¹ European Commission, press release 'Horizon 2020 approval by Parliament a boost for European research and innovation,' 21 November 2013, http://europa.eu/rapid/press-release_IP-13-1133_en.htm.

future security and defence needs to be met, for capabilities to be ensured, and for the global competitiveness of European industries and SMEs to be sustained.

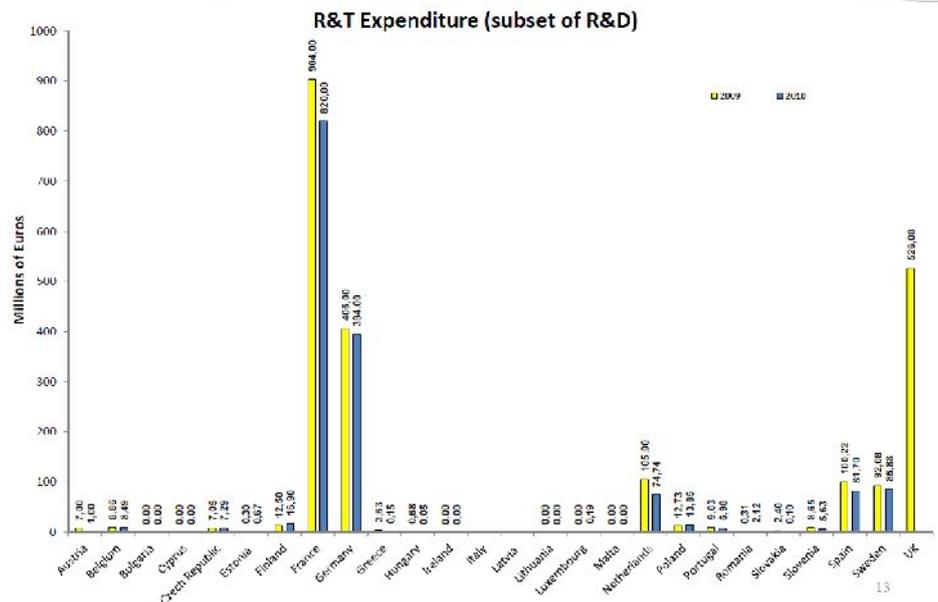
Recognising the importance of adequate investment in defence research, the Member States decided in November 2007 to allocate 2 % of overall national defence budgets to spending on defence research.

Recognising these facts, the defence ministers agreed in November 2007 to increase defence research spending to 2 % of overall defence expenditure in the short term (i.e. for a few years). This notwithstanding, national expenditures on defence research – along with the defence budgets – have continued to fall ever since. A comparison of thematic data from the Member States for 2007 and 2010-2011, collected by the EDA, shows a clear reduction in defence expenditures, both in terms of absolute values and percentages.

Figure 3: Member States defence research and technology expenditure, 2009-2010 (absolute figures)

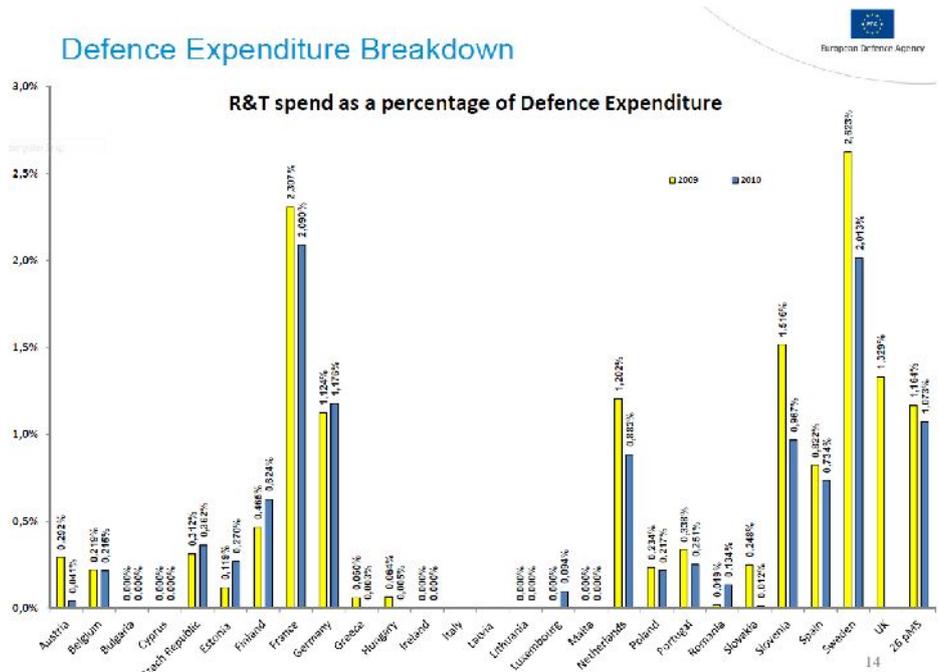
Despite this commitment, national defence budgets have continued to shrink, as illustrated by the defence data compiled annually by the EDA.

Defence Expenditure Breakdown



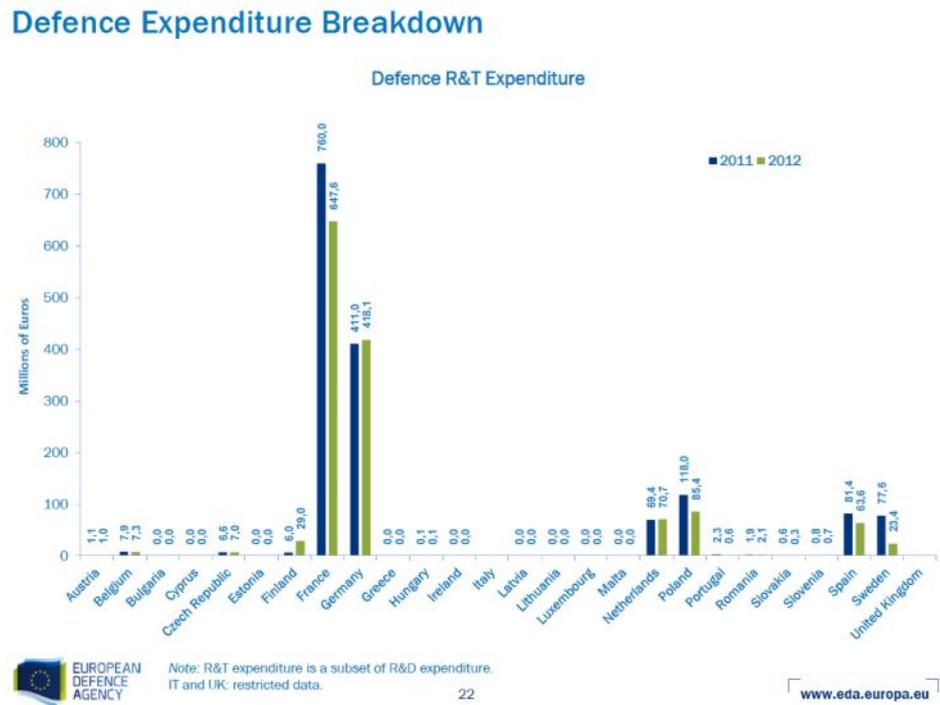
Source: EDA, 2010

Figure 4:
Member States defence research and technology expenditure, 2009-2010 (percentage figures)



Source: EDA, 2010

Figure 5:
Member States defence research and technology expenditure, 2011-2012 (absolute figures)

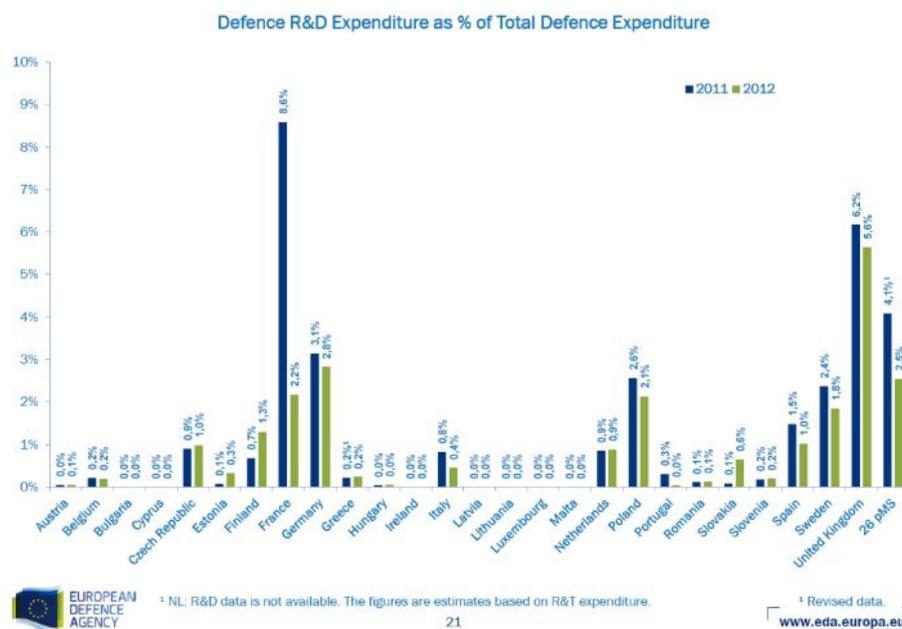


Source: EDA, 2012

Figure 6:
Member States defence research and technology expenditure, 2011-2012 (percentage figures)

Defence research expenditure has continued to fall in both absolute and percentage terms.

Defence Expenditure Breakdown



Source: EDA, 2012

3.1 Defence research in Europe – Brief overview

As defence budgets continue to shrink in response to the financial crisis, defence research has also been affected.

The level of defence research investment varies from one Member State to another and is determined by many different factors.

The Member States do not generally publically divulge data pertaining to concrete defence-research projects, considering it too sensitive.

While the need for, and advantages of, adequate investment in defence research in Europe is widely recognised, the financial reality that the EU finds itself in today has forced developments in the opposite direction, resulting in significant and uncoordinated defence budget cuts, which naturally affect the level of investment in defence research. According to estimates of EDA, Member States’ defence-related R&D funding has dropped by approximately 15 % in the past decade.

Defence research funding at Member State level remains as uneven as ever, with the British, French and German defence industries considered the most robust, while other Member States (such as the Netherlands) have a SME sector quite active on the defence research front. Among the countries that joined the EU in the 2004 enlargement wave, Poland and Romania have maintained – and lately significantly increased – their defence budgets, including the budget lines devoted to defence research.

EDA collects and periodically publishes global figures on Member States’ spending on defence-related research. However, the Member States do not divulge detailed data on the type of research projects supported nationally, which is considered to be highly sensitive. According to EDA estimates, the average volume of defence-related R&D in the EU declined from EUR 9.79 billion in 2006 to EUR 4.81 billion in 2012.²²

In recognition of the need to improve pan-European cooperation in the

²² EDA web portal, <http://www.eda.europa.eu/docs/default-source/eda-publications/defence-data-booklet-2012-web>.

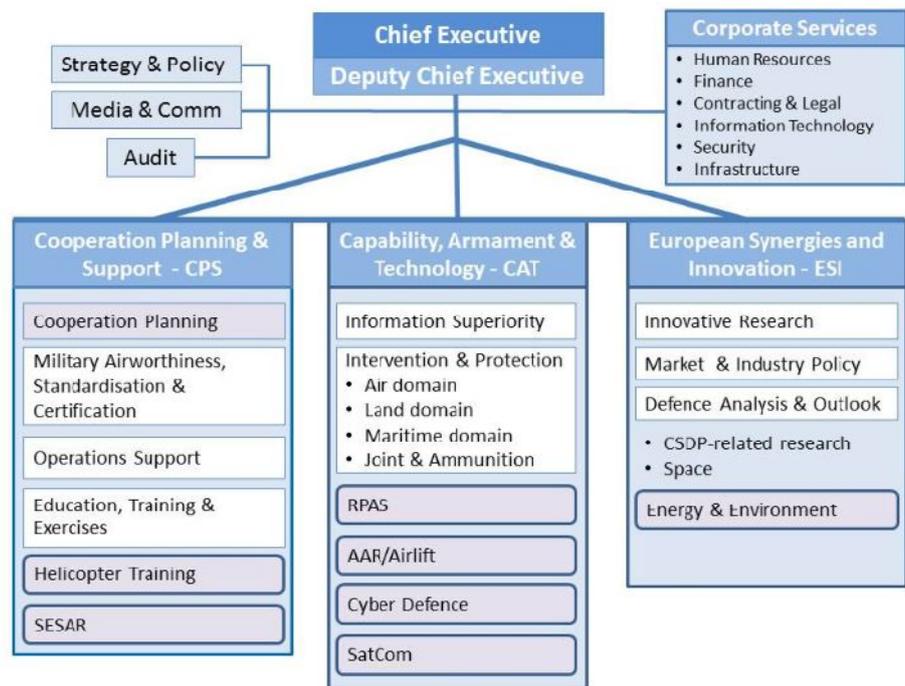
field of defence research, the Member States have charged the EDA with developing a number of joint research and development programmes (discussed further in section 3.3 below). To date, the EDA has coordinated pooled defence research projects worth approximately EUR 350 million.²³

3.2 The European Defence Agency

The EDA is an inter-governmental agency integrated into the EU's institutional framework.

The European Defence Agency (EDA) was created in 2004 as an inter-governmental agency, which at the same time constitutes an integral part of the EU's institutional framework. (EDA is headed by the Vice-President of the European Commission/High Representative of the Union for Foreign Affairs and Security Policy.) Located in Brussels, it has a budget of around EUR 30 million and a staff of about 130, and is headed by Jorge Domecq.

Figure 7:
EDA organisation chart



Source: EDA, 2015

EDA is in charge of developing the EU's defence capabilities, and promoting defence R&T and armament cooperation.

As stipulated in the legal document establishing the EDA (Joint Action of the Council of Ministers from 12 July 2004), its core mandate is 'to support the Member States and the Council in their efforts to improve European defence capabilities in the field of crisis management and to sustain the European Security Policy as it stands now and develops in the future'.²⁴ The Joint Action sets out the four core actions of the EDA, namely:

1. developing defence capabilities;
2. promoting defence research and technology (R&T);
3. promoting armaments cooperation;

²³ Ibid.

²⁴ EDA web portal, <http://www.eda.europa.eu/Aboutus/Whatwedo/Missionandfunctions>.

4. creating a competitive European defence equipment market and strengthening the European defence technological and industrial base (EDTIB).

Since its inception, the EDA can point to a number of significant accomplishments, not least several influential assessment and guidance documents, such as 'An Initial Long-Term Vision for European Defence Capability and Capacity Needs' (2006), 'The Code of Conduct on Defence Procurement' (2006), 'The Code of Best Practice in the Supply Chain (2006), 'Framework for a European Defence Research and Technology Strategy' (2007), the Capability Development Plan (2008) and 'Framework for the European Defence Research and Technology Strategy' (2007).²⁵

Moreover, following the September 2010 Ghent Summit (or, more precisely, the Ghent Ministerial Meeting hosted by the Belgian Presidency), the EDA was mandated to play a catalysing role in the implementation of the so-called 'pooling and sharing' initiative²⁶. This it has achieved by helping to develop a dual-track approach that involves focussing on short-term projects and initiatives in support of the joint development of missing 'strategic enablers' (missing capabilities that could facilitate European security and defence, including transport, communication, cyber defence etc.), while at the same time working towards a longer-term strategy, based on financial incentives to encourage participation in pooling and sharing initiatives.²⁷

EDA has helped to implement the 'pooling and sharing' initiative.

3.3 EDA activities in defence research

In response to the needs of the Member States, the EDA has assumed responsibility for catalysing some early collaborative defence research projects, while devising a longer-term strategy further to encourage such collaboration. There have been a few successful examples of such projects coordinated by the EDA, in areas such as, to mention a few: unmanned maritime systems; force protection; and chemical, biological, radiological and nuclear (CBNR) defence.²⁸ Such undertakings usually involve a group of Member States that decide to come together to develop such projects jointly.

The EDA has successfully managed a number of small-scale collaborative defence research projects.

At strategy level, the EDA has devised an R&T strategy that was endorsed by

²⁵ More on EDA's track record can be retrieved in a thematic briefing by Ulrich Karock, 'The European Defence Agency: Options for the Future,' (September 2011) http://www.eprs.sso.ep.parl.union.eu/lis/lisrep/04-ForeignAffairs/04-02-ForeignSecurityandDefencePolicy/CSFP_CSDP/the%20European%20defence%20agency%20Options%20for%20the%20future.pdf.

²⁶ The concept of 'pooling and sharing' refers to initiatives and projects to jointly develop and subsequently share military capabilities among EU Member States.

²⁷ EDA web portal, 'EDA's Pooling and Sharing Fact Sheet,' (January 2013), https://www.eda.europa.eu/docs/default-source/eda-factsheets/final-p-s_30012013_factsheet_cs5.

²⁸ EDA web portal, <https://eda.europa.eu/Aboutus/Whatwedo/strategies/ResearchandTechnology>.

It has also devised an R&T strategy to foresee a longer-term vision on this subject.

Through a consultative process, the EDA has identified a list of 22 common R&T priorities that answer to the need for critical capabilities that either do not yet exist or fall short of today's requirements.

its Steering Board in November 2008. The strategy covers the three core elements, namely:

1. ends: technologies that if fast-tracked for investment would improve Europe's future military capabilities;
2. means: mechanisms, structures and processes that would increase the effectiveness of investments;
3. ways: roadmaps and action plans through which the ends and means agreed upon would be implemented.

In terms of the first core element, the EDA has identified 22 common R&T priorities for Europe (following a multi-stakeholder consultation):

- telecommunications ('right wavelengths'/RF generic technologies, including components, processing, systems, integration) and multifunction RF technologies;
- electro-optical systems and integration;
- electronics hardware;
- structural modelling design and support;
- networked sensor control, management and cueing;
- command and control technologies (campaign, operational, mission planning and management, shared situational understanding, data fusion, data mining, data reduction, image exploitation, innovative sensors for urban warfare, including acoustics and seismic sensors);
- high frequency, very high frequency and ultra-high frequency (HF/VHF/UHF) communication technologies;
- waveform design, spectrum and bandwidth management;
- network management (fault, configuration, administration, performance and security management);
- technologies for secure and robust information management, information exchange and communications;
- human integration and interoperability;
- energetics and energetic materials;
- soldier systems;²⁹
- counter-mine (land), gap-crossing and counter-mobility systems;
- power source and supply technologies;

²⁹ 'Soldier systems' encompass a wide range of non-weapon products and services (including body armour equipment, gear, tools etc.) to facilitate military day-to-day needs and operations.

- ground platform technologies;
- uninhabited land systems;
- aerial platform technologies (including helicopters and drones);
- environmental definition (oceanographic and hydrographic techniques and analysis);
- uninhabited naval systems, especially underwater systems;
- physical protection;
- concepts, design, integration, simulation and modelling.³⁰

The 22 priority areas identified correspond to non-lethal capabilities, considered crucial in responding to hybrid threats (communications, information technology, nanotechnology, cyber systems etc.)

It is worth noting that the list of priorities for defence research funding does not contain any lethal capabilities, focusing instead on research into capabilities in the fields of communications and information technology, which are seen as necessary in the context of Europe's ability to defend itself against hybrid warfare, something that has widely been recognised as a strategic priority at the highest political levels.

In terms of delivery modalities for joint research projects corresponding to these priorities, the strategy foresees multi-faceted cooperation within clusters of interested stakeholders, guided by specific roadmaps elaborated by the EDA.

The EDA has promoted research projects on dual-use applications in order to enhance coordination between civilian and military research projects.

In order to boost collaborative defence research and create better coordination between civilian and military research projects, already under FP7 the EDA encouraged projects on dual-use applications, and continues to do so under Horizon 2020. To this end, it has established good inter-institutional cooperation (both at senior managerial and working levels) with relevant services in the Commission, with staff from both services attending each other's meetings, keeping each other informed of their respective activities, and, as far as possible, trying to ensure synergies between them.

However, as explained above, the Horizon 2020 regulation explicitly rules out funding of defence-related research driven by future military requirements. This effectively blocks support to many of the priority research areas singled out in the EDA research strategy.

EDA's efforts have been supported by other stakeholders, who encouraged the agency to further intensify its efforts.

In order to find the way out of this impasse, a number of recommendations have been put forward in recent years by different stakeholders, including think tanks and stakeholders in industry and academia. While some appear more realistic than others, a recurrent theme has been the need to find a way whereby the Commission and the EDA can jointly manage part of their funding. Politically, this has found some support, galvanising concrete policy responses. Two key scoping initiatives, i.e. a pilot project on CSDP research support and a PA on support for defence research, are discussed

³⁰ EDA web portal, <https://eda.europa.eu/Aboutus/Whatwedo/strategies/ResearchandTechnology>.

below.

3.4 Key roles and debates of the European Parliament

Parliament has been politically divided on the issue of support for defence research.

A political majority in the house remains in favour of maximising support for dual use research.

The pilot project is seen as owing its existence to Parliament, which has supported its inclusion in the 2015 budget.

The European Parliament has been politically divided over the possibility of EU funding for defence research, with some political groups and individuals objecting to this on ideological (pacifist) ground, while others strongly encourage such a possibility, often with reference to Europe's strategic and economic interests. While the topical debate has most frequently resurfaced on the occasion of Horizon 2020-related debates in the Industry, Research and Energy (ITRE) and Budget (BUDG) committees, the issue has also been addressed in the Sub-Committee on Security and Defence (SEDE).

Notwithstanding the limitations of the current legal basis and the institutional constraints, there appears to be growing political support for civil/military synergies, also in the field of research. One practical manifestation of this has been Parliament's active support for the creation of a pilot project on CSDP research support, which is discussed in further detail in the following section. Parliament, through its involvement in the budgetary procedure, has helped secure funding for the pilot project already in the 2015 budget.

At strategic level, the debate in Parliament on enhanced support for CSDP-related research is mainly conducted from within SEDE, which currently focuses on ways to support CSDP through exploring links and synergies with other EU policies and programmes. The potential for an enhanced role of EDA in stimulating and coordinating defence research has also been highlighted in Parliament's annual reports on CFSP and CSDP.³¹

4 Future prospects

Recognising the legal and institutional limitations, the Commission has provided insights into how it could contribute to supporting the security and defence sector.

Recognising the current legal basis and the applicable institutional setup, stakeholders – including industry representatives, think tanks and academia – have put forward various proposals on how to enhance support for defence research.

As the Horizon 2020 rules out support for such research, the Commission has explored ways of including a military component in future research and development programmes. In its 2013 communication 'Towards a more competitive and efficient defence and security sector', it explored the

³¹ In its most recent annual report on CFSP, Parliament welcomed the thematic conclusions of the December 2013 European Council, recommending that they be further developed in a White Book on European Defence, and calling for a road map with timelines for achieving the key objectives and using the White Book as a common template for concurrent national security and defence reviews. On the issue of research, the annual report stressed the need to develop closer cooperation in order to 'guarantee military security and achieve savings'. See *Report on the Annual Report from the Council to the European Parliament on the Common Foreign and Security Policy (2013/2081 (INI))*, <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A7-2013-0330+0+DOC+XML+V0//EN>.

By doing so, it has prepared the way for the future PA on CSDP research support.

Enhanced support for dual-use research has widely been seen as a helpful catalyser of synergies between security and defence research.

In addition to the PA, the European Framework Cooperation focusing on chemical, radiological and nuclear protection-related research, is also considered helpful in enhancing support to key enabling technologies.

'possibility to support' CSDP research, with the key underlying goal of investing in capabilities that could serve EU missions and operations to fulfil their strategic and political objectives.³² In the communication, the Commission proposes that a PA – a plan to fund collaborative research projects – be used as a tool to pave the way for a future military research component in EU funding programmes. The development of future EU support for security- and defence-related research is detailed in the core communication from the Commission cited above.³³ In it, the Commission declares its intent to conduct an assessment of the results of EU-funded security research with civil purposes under the Horizon 2020 framework, and to study the potential 'synergies in the development of dual use applications [...] or dual use technologies'.³⁴ In this regard, the Commission focuses on the preparation, together with the European External Action Service (EEAS), the Member States and the EDA, of a preparatory action for CSDP related-research to improve EU defence capabilities.

In addition to the preparatory action, the Commission intends to develop research links between the Horizon 2020 framework on security- and defence-related research under EDA auspices through the potential extension of the European Framework Cooperation³⁵, which has hitherto only focused on chemical, biological, radiological and nuclear (CRBN) protection. In line with this, the Commission has begun to delineate areas of civil research that could possibly be of interest to defence industries. Within the framework of Horizon 2020, the field of key enabling technologies (KETs)³⁶ could provide potential dual-use applications and innovations for the defence industry. A high-level group was formed in 2013 and tasked with delivering recommendations on the implementation of a strategy to boost KETs in Europe,³⁷ to be included in the preparatory action.

In addition, following the European Council conclusions of 20 December 2013 and a Communication from the Commission on 24 July 2013 encouraging SME involvement in defence and security markets, the Commission has promoted, in its implementation roadmap³⁸ and guidance documents³⁹, the use of EU funds for financing dual-use technologies developed by SMEs⁴⁰. Since 2013, the EDA is working along with the

³² *Towards a more competitive and efficient defence and security sector*, COM(2013)0542, Brussels, 24.7.2013, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0542&from=EN>.

³³ Ibid.

³⁴ Ibid.

³⁵ 'EDA and the Commission signed a European Framework Cooperation coordination letter yesterday', 16 September 2011.

³⁶ <http://ec.europa.eu/programmes/horizon2020/en/area/key-enabling-technologies#Article>.

³⁷ http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=7944.

³⁸ *A New Deal for European Defence Implementation Roadmap for Communication COM(2013) 542; Towards a more competitive and efficient defence and security sector*, COM(2014)0387, Brussels, 24.6.2014.

³⁹ http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=7817

⁴⁰ http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=7817.

Commission to help SMEs access European Structural Funds⁴¹ for raising awareness at national level and in support of projects.

4.1 Pilot project on CSDP research

Parliament has pushed for the pilot project on CSDP research as a means of devising practical ways of enhancing the current level of support.

The pilot project will last two years and will cost around EUR 2 million.

It foresees concrete research activities that are likely to have significant impact on future operations.

The EDA will carry out the research on behalf of the Union.

In exploring ways of enhancing support for CSDP-related research, the Parliament has, in the framework of its involvement in the budgetary procedure, pushed for the inclusion of a thematic pilot project in the EU budget for 2015. The pilot project is an instrument foreseen in Article 54 of the current EU multi-annual financial framework, having a maximum duration of two years and a funding ceiling of around EUR 2 million.⁴²

The actions and elements to be supported are stipulated in the description of the project, in keeping with the multi-annual financial framework. They are as follows:

- Development cooperation between the Commission and EDA in connection with the Agency implementing Union objectives and managing Union budget appropriations, as provided for by Council Decision 2011/411/CFSP.
- The funding of research and development activities, namely:
 1. One high-risk, high-payoff research activity, the outcome of which could potentially reshape future operations. The beneficiaries should be selected by means of a competition of ideas. The EDA will carry out the activity on behalf of the Union, while the Member States, the Commission and the EEAS will maintain a watching brief on the activity in an advisory capacity. Third states and organisations which have concluded administrative arrangements with the EDA may also be invited to monitor the activity.
 2. One research and development activity for certification against military and – if applicable – civilian requirements. Member States, and third states and organisations that have concluded an administrative arrangement with the EDA, will be invited to contribute to the activity. The EDA will manage the activity on behalf of the Union and other contributing members.
- Monitoring of the two activities in order to learn lessons for future EU action in support of building defence capabilities relevant for the CSDP and for Member States. The EU Military Staff should participate in the monitoring team.⁴³

In addition, the pilot project is specifically tasked with finding the right

⁴¹ *EDA Assists Dual-Use Projects to Access Funding*, 18 December 2013.

⁴² The precise figure is EUR 2,047702 million and can be retrieved in the adopted budget's table retrievable at <http://eur-lex.europa.eu/budget/data/LBL/2015/en/SEC03.pdf>.

⁴³ The full text of the CSDP pilot project can be retrieved in the draft of the current multi-annual financial framework, retrievable at <http://eur-lex.europa.eu/budget/data/DB2/2015/en/SEC03.pdf>.

The pilot project also aims to identify the right inter-institutional governance structure to be emulated in the context of a PA.

governance structure for the future management of such joint research projects, and with laying the thematic ground for the PA (discussed in further detail in the following section). The idea of the pilot project was included in the EPP list for AFET and ITRE priority projects/preparatory actions, and was submitted to the Commission for evaluation, in 2014. The pilot project was subsequently approved by Parliament and the European Council in December 2014. This approval meant that, for the first time, EU funds have been transferred to the EDA in support of research driven by military requirements.

4.2 Preparatory action on support for CSDP research

The PA on support for CSDP research was requested by the December 2013 Council.

Following the European Council conclusions of 20 December 2013 on dual-use research⁴⁴, the Commission communication of 24 June 2014 entitled 'A New Deal for European Defence'⁴⁵ specified the actions envisaged for building synergies between civilian and military research. The preparatory PA is considered a potential game-changer, and possibly an effective tool for promoting CSDP-related research. It is to be launched in 2016 or 2017⁴⁶, and is expected to promote EU-funded, defence-related research under the multi-annual financial framework.

It is an instrument foreseen to last a maximum of three years.

The PA is an instrument foreseen by Article 54 of the current EU multi-annual financial framework, which defines it as a tool having duration of no more than three years. The purpose of the PA on support for CSDP research is to prepare the ground for possible future defence research funding under the next multi-annual financial framework. While not intended to replace or eclipse national schemes, it would aim to create synergies with existing national funding and promote industrial cooperation.

Commissioner Bieńkowska is currently chairing a high-level group of eminent personalities that is expected to lay the foundations for the work to be done and to give political direction to the process.

In order to identify the priorities, and reflecting the practical arrangements, for the future PA, a high-level group of eminent personalities has been formed under the chairmanship of Elżbieta Bieńkowska, Commissioner for Internal Market, Industry, Entrepreneurship and SMEs. The group met for the first time on 30 March 2015.⁴⁷

Figure 8:
Composition of the high level group of eminent personalities

First Name	Last Name	Institution
Elżbieta	Bieńkowska	Commission, Internal Market and Industry Commissioner (Chair)
Federica	Mogherini	EEAS, High Representative, Vice-President

⁴⁴ [European Council 19/20 December 2013 Conclusions](#), Brussels, 20 December 2013.

⁴⁵ [A New Deal for European Defence Implementation Roadmap for Communication COM\(2013\) 542; Towards a more competitive and efficient defence and security sector](#), COM(2014)0387, Brussels, 24.6.2014.

⁴⁶ <https://www.eda.europa.eu/info-hub/news/2014/11/25/first-eda-commission-workshop-on-the-preparatory-action-for-csdp-related-research>.

⁴⁷ 'Commissioner Bieńkowska launches high-level group on defence research', 30 March 2015.

Michael	Gahler	Parliament, Security and Defence Subcommittee
Carl	Bildt	Former Prime Minister of Sweden
Elisabeth	Guigou	French National Assembly, Chair of the Foreign Affairs Committee
Bogdan	Klich	Polish Senate, former Polish Minister of Defence
Fernando	Abril Martorell	CEO Indra ⁴⁸
Antoine	Bouvier	CEO, MBDA ⁴⁹
Hakan	Buskhe	CEO Saab ⁵⁰ company
Tom	Enders	CEO Airbus ⁵¹ Group
Ian	King	CEO Bae Systems ⁵²
Mauro	Moretti,	CEO Finmeccanica ⁵³
Arndt	Schoenemann	Liebherr Aerospace Lindenberg GmbH ⁵⁴ , Director and President of ASD ⁵⁵ industry association
Paul	de Krom	TNO ⁵⁶ , President
Reimund	Neugebauer	German Fraunhofer Institute, President
Teija	Tiilikainen,	Finnish Foreign Affairs Institute, Director
Nick	Witney	European Council of Foreign Relations, former Chief Executive of the European Defence Agency

⁴⁸ Company providing technical solutions and services in the fields of transport, traffic, energy, industry, public administration and healthcare, financial services, telecommunications, media, security and defence.

⁴⁹ Multi-national group providing missiles and missile systems, whose three major shareholders are Airbus Group, BAE Systems, and Finmeccanica.

⁵⁰ Company providing products, services and solutions in the fields of military defence and civil security.

⁵¹ A division of the Airbus Groups providing technological solutions for airlines.

⁵² A global defence, aerospace and security company, covering air, land and naval forces, advanced electronics, security, information technology, and support services.

⁵³ Italy's main industrial group in the technology sector operating in the aerospace, security and defence sectors.

⁵⁴ Company that develops and manufactures and services landing gears, flight control and education systems, and gearboxes for the aerospace industry.

⁵⁵ The Aerospace and Defence Industries Association of Europe (ASD) represents the aeronautics, space, defence and security industries in Europe.

⁵⁶ Dutch body for applied scientific research.

5 Conclusions and policy options

Enhancing synergies between security- and defence-related research has so far been a slow and difficult process, but the PA is widely considered a potential game changer.

The pilot project can also contribute significantly by feeding concrete insights into the PA.

Parliament should maintain and further intensify its involvement.

Security- and defence-related research is closely intertwined, as most of the technologies under scrutiny have dual-use potential. Maintaining an adequate level of security- and defence-related research is crucial for ensuring Europe's capabilities, sustaining its economic competitiveness and generating employment. Security- and defence-related research needs to comply with the EU's stated strategic priorities, benefit its citizens and allow the EU to discharge its duties and obligations on the international stage.

In order to accomplish these goals, there is a need to synchronise security- and defence-related research funding, something that thus far has been difficult to accomplish owing to the legal, institutional, and political constraints discussed in this paper.

Nevertheless, the on-going pilot project, and the PA, on CSDP research provide an opportunity to think outside the box, and to explore synergies that could be made outside of the existing Horizon 2020 framework programme.

Parliament could feed into this process by offering its insights into how this goal could be accomplished, first and foremost by maintaining its parliamentary engagement with key relevant stakeholders, such as through its representative in the high-level group and its contacts with stakeholders and constituents.

Policy options

- The Commission and the EDA should continue to intensify their structured cooperation in order to better synchronise civilian and military research activities, and to focus increasingly on dual-use research as a means of facilitating the development of the priority capabilities identified by EDA in its research strategy.
- The PA on CSDP research should be implemented as a matter of priority, and the high-level group of eminent personalities should maintain the momentum, and the high level of ambition, needed to explore fully all possible synergies that could support CSDP research (including by looking into possibilities offered by regional and solidarity funds and external financial instruments).
- The pilot project on CSDP research should be fully implemented, providing concrete insight into how collaborative research projects could be managed and implemented.

6 Annex I: Selected examples of security projects funded by Horizon 2020

Galileo⁵⁷

The Horizon 2020 is funding satellite navigation research that supports the 'development of enabling technologies the EU's Galileo and EGNOS systems'. Galileo is a 'preventing system' to counter 'threats to the security of the Union that aims to establish and operate the first global satellite navigation and positioning infrastructure specifically designed for civilian purposes, which can be used by a variety of public and private actors in Europe and worldwide.' The system established under the Galileo programme functions independently of other existing or potential systems, thereby contributing amongst, other things, to the strategic autonomy of the Union.⁵⁸

PASS project (Preparation for the establishment of a European SST Service provision function)⁵⁹

The protection of European space infrastructures including the setting up of a Space Surveillance and Tracking (SST) capability at European level, represents a new priority of the EU space policy.⁶⁰ The PASS support action will aim at ensuring the transition of the EU SatCen SSA activities towards the Centre's contribution to the setup of a SST service provision function within the SST Support Framework initiative by identifying necessary functional elements and interfaces with relevant SST actors, with particular emphasis on security aspects, and providing a technical contribution to this objective.

MyOcean Follow On project⁶¹

The main objective of the MyOcean Follow On project is to operate a rigorous, robust and sustainable Ocean Monitoring and Forecasting component of the pre-operational Copernicus Marine Service, which delivers ocean physical state and ecosystem information to intermediate and downstream users in the areas of marine safety, marine resources, marine and coastal environment and weather, climate and seasonal forecasting. This is highly consistent with the objective of the Horizon 2020 Work Programme 2014-2015 establishing the need for interim continuity of the pre-operational services developed by MyOcean 2 before the fully operational services of Copernicus.

⁵⁷ http://ec.europa.eu/growth/sectors/space/galileo/index_en.htm.

⁵⁸ More information on aspects of the deployment, operation and use of the European Global Navigation Satellite System and how it affects the security of the European Union and repealing Joint Action 2004/552/CFSP can be retrieved on the [European Commission website](#) and in [Council Decision 2014/496/CFSP of 22 July 2014](#).

⁵⁹ Information retrieved from [PASS project details](#), on the Commission web portal.

⁶⁰ [Decision No 541/2014/EU](#) of the European Parliament and of the Council of 16 April 2014 establishing a Framework for Space Surveillance and Tracking Support

⁶¹ Information retrieved from [MyOcean FO project details](#) on the Commission web portal.