

European defence research in crisis? The way towards strategic autonomy

Bjørn Olav Knutsen¹

Norwegian Defence Research Establishment (FFI), Kjeller, Norway; Nord University, Bodø, Norway

Defence research, in form of both Research and Development (R&D) and Research and Technology (R&T), are important factors in achieving long-term European strategic autonomy. The present paper analyses this debate from a comparative perspective. The first part discusses the inputs provided by the Group of personalities report from February 2016 on defence related R&T research, and the corresponding report by the European Parliament (EP) from March 2016 on the future of EU defence research. In the second part, I compare the conclusions drawn in these two reports with defence research developments in China and Russia respectively. By comparing defence research activities in these two non-western states with the European efforts to establish a European Defence Technological and Industrial Base (EDTIB) we will be in a better position to answer questions such as: Is European defence research in a state of emergency, and which means should the EU develop so as to mitigate the downward trend in European defence research? An important input to this comparative analysis is the United States' Defense Innovation Initiative (DII). As this paper stresses, priority given to European defence research is necessary both to cover one's own defence needs, but also to preserve and further develop the transatlantic security community as well.

Keywords: European defence research, CSDP, China, Russia, the United States

Introduction

The discourse on European security and defence has changed significantly in recent years. The main reason behind this change is undoubtedly the worsening of the security situation in Europe's neighbourhood. This demands new divisions of labour in European security on issue areas like deterrence and defence, military crisis management and stabilisation operations. Consequently, the EU must provide more for its own security and the need for a European collective force is rising. This will become the new normal in European security as the US continues its tilt towards Asia (Biscop 2013; Nielsen 2014; Silove 2016). Nevertheless, a defence deficit exists in Europe (Menon 2014). This deficit has its origins in the fragmentation of European defence between 28 national defence policies, each increasingly ill-equipped for the needs of modern deterrence and defence tasks and expeditionary warfare. This defence deficit has grown even stronger in the wake of Russia's violations of the sovereignty of Ukraine and its intrusion on EU Member States' airspace and territorial waters (Barnier 2015: 1). Simultaneously, several analysts claims that the EU remains something of a spectator when it comes to the important defence decisions made in national capitals (see e.g. Toje 2011; Menon 2014: 121; Menon & Howorth 2015).

The question this paper aims at answering is whether this holds true anymore. The report by the Group of personalities on European defence research from February 2016 (EU-ISS 2016)

¹ E-mail: bjorn-olav.knutsen@ffi.no

and the corresponding report on European defence research issued by the Directorate-General for External Policies by the European Parliament in March 2016 (EP 2016), tell us that something is on the move in European security and defence. The aim of this paper is therefore to discuss to what extent the EU's political leaders now recognize that to continue with business as usual is not an option anymore. In fact the EU is the only entity capable of gathering the critical mass needed for defence research activities. Furthermore, the EU has also the potential to bring up efficient governance in the field of defence research including better value for money, also encompassing shared responsibilities in defence research programmes (Mauro & Thoma 2016). Hence, defence research does not occur in a political vacuum. It is to a large extent capability driven as a result of the capabilities that are needed to satisfy the level of ambition in European security. To investigate the defence research debate at the European level can therefore inform us on important questions like whether the state of defence in Europe is in a state of emergency or not (Biscop & Fiott 2013).

When looking into the facts and figures of European defence research today, we clearly see that a state of emergency does seem to exist. For example, in the years 2006–2013 European defence research and development (R&D) fell from 10.6 billion euro to 7.5 billion euro, or 29 %. Defence research and technology (R&T) fell from 2.9 billion euro to 2.1 billion euro, or nearly 28 %. In addition, 92 % of defence R&D and 86 % of defence R&T now takes place in three countries with France, the United Kingdom and Germany as the leading defence research countries in Europe (EP 2016: 8). Consequently, if this trend continues, the European defence industry will become a niche industry and out of touch with the main cutting edge technologies in issue areas like robotics and lasers. This will inevitably cause a loss of high value industries, jobs and skills. Furthermore, the EU's stated aim of achieving "strategic autonomy" will become an empty word with no freedom of action for the EU's Common Security and Defence Policy (CSDP). Looking into the CSDP missions and operations so far confirms this view. The majority of the operations have been civilian and European shortfalls in military operations have clearly been highlighted by recent experiences in Chad, Mali and the Central African Republic (Barnier 2015: 2).

To further look into these questions, the following part will investigate the main content of the two reports. The aim is to put them into a wider political context of European security and defence. The main questions asked is whether these reports are just stating the obvious or whether they might provide the way out of the status European defence research is in today. To analyse the status of European defence research also implies to analyse it in a wider, comparative perspective. Therefore, in part two a comparison between Chinese and Russian defence research efforts will be conducted. Such a comparative analysis must be conducted in perspective of the 2014 US Defense Innovation Initiative (DII) and the "third offset strategy". The aim of the last part is to ask whether the moment of truth as regards European defence research now has appeared in front of European politicians.

The two reports: Stating the obvious or providing the way out of the defence deficit?

It is quite obvious that the two reports must be assessed within a wider political context. The most important context is how defence research has been treated at the European level in

recent years. By taking such an overarching perspective one can answer questions like whether the reports will show the way out of the defence deficit or not. Answering such a question shows us one interesting thing, namely the long time-span between the first document by the European Commission on defence research from December 2007 (“A strategy for a stronger and more competitive European defence industry”), and the first follow up document calling for concrete action in 2013 (European Commission 2007; European Commission 2013). The 2013-document “Towards a more competitive and efficient defence and security sector” was originally built on a Commission Task Force that was established in 2011 with the objective to strengthen the defence sector by mobilising all relevant EU policies (European Commission 2013: 2). Clearly, the long time-span of nearly six years illustrates the low political will at the European level to handle the situation. This is a paradox when we assess the economic importance of the defence sector. The industry’s turnover was in 2014 97, 3 billion euro and it is an industry that generates innovation centred as it is on high-end engineering and technologies. Furthermore, this industry employs 500 000 persons and it generates another 1, 2 million indirect jobs (European Commission 2016).

Nevertheless, continuing to foster a European defence deficit will have grave consequences for defence research. If nothing is done, a full-spectrum of European defence research will hardly exist in ten years’ time (EP 2016: 45). Consequently, within that time only one or two countries will have the capacity to build some of the most needed weapon systems involving cyber technology, advanced computing and missiles. In this regard, it is important to note that even though there is a growing role for “dual use” technology, pure defence research and development remains important to maintain a technological edge and industrial competitiveness (EDA 2014). Therefore, after 2013, the European Commission has initiated several initiatives on European defence research. It is however also important to notice the 2013 communication which underlines the growing potential for synergies between civil and military research. Therefore, within the current civilian *Horizon 2020* research program, the areas of “Leadership in Enabling and Industrial Technologies” including the “Key Enabling Technologies” and “Secure Societies”, offer prospects of technological advances that can trigger innovation not only for civil applications, but also for a “dual-use” potential (European Commission 2013: 11). Hence, it was on the basis of this that the European Commission underlined that it would consider the possibility to support CSDP-related research, “... such as through a Preparatory Action” (ibid). It further stated that the focus would be on those areas where EU defence capabilities would be most needed, seeking synergies with national research programs where this was possible.

The European Parliament welcomed this initiative in November 2013 which supported the intention to launch a preparatory action for EU-funded research in support of CSDP missions. Following the initiatives taken by the European Commission and the European Parliament, the High Representative of the Common Foreign and Security Policy (CFSP) issued a “Final Report” in preparation for the European Council meeting in December 2013 (Ashton 2013). In this “Final report”, the High Representative stressed the need to encourage Member States to commit to necessary levels in R&T to support future defence capabilities. Furthermore, the report also stressed the need for the EU to support a “Preparatory Action from the

Commission on CSDP-related Research, seeking synergies with national research programs” (ibid).

In this perspective, the European Council meeting in December 2013 could not have come at a more important time for the defence-industrial sector in Europe. In its 19-20 December 2013 conclusions the European Council invited the Member States to increase investment in cooperative research programmes, in particular collaborative investments, and to maximise synergies between national and EU research (European Council 2013). The European Council also welcomed the European Commission intention to evaluate how the results under *Horizon 2020* also could benefit defence and security industrial capabilities. Therefore, the European Council stressed the importance of further developing the European Defence Technological and Industrial Base (EDTIB). As part of this, the European Council reiterated the call from the European Commission for a preparatory action on CSDP-related research. Hence, the European Council recognized the critical importance of technological expertise to the defence industry. Therefore, the European Council called on Member States to increase cooperation on R&D programmes and investments, also including inviting the European Commission and the European Defence Agency (EDA) to develop policies that would stimulate dual-use research (Fiott 2014).

The decisions by the European Council in December 2013 paved the way for a decision by the European Commission in June 2014 to initiate a “road map” on defence. It also initiated a pilot project on defence research. The aim of the pilot project was to assess certain governance aspects of the forthcoming preparatory action which will be set up in 2017. It was on this basis that Commissioner Elżbieta Bieńkowska set up a high-level group of politicians, think tankers and chief executive officers from research technology organisations and defence industry to advise on how the EU can support defence research programmes. The Group of personalities’ report was published on 23 February 2016. The report is furthermore part of an initiative by the European Commission to present an Action Plan on defence in 2016, including providing strategic advice on the longer-term aspirations for EU-funded defence-related R&T research. Defence related R&T research, the report underlines, is of importance so that European countries avoid being too reliant on the direct support of external allies and partners for their security and defence needs: “Consequently, there is a need to maintain a viable domestic European defence technological and industrial base (EDTIB) as well as a well-functioning system for intra-European transfers. Joint cooperation is the only effective way to achieve this, since no single European country can afford to maintain a full-spectrum defence industrial base and corresponding military capabilities on its own” (EU-ISS 2016: 19). Therefore, defence R&T forms the basis of effective and credible defence capability and that is where the EU can play a key role to improve the status quo.

The preparatory action will run for three years, starting in 2017, and will pave the way for an EU-funded Defence Research Programme (EDRP). This programme will be organised within the next Multi-Annual Financial Framework for the period 2021-2027. For the forthcoming preparatory action a total of 75–100 million euro should be earmarked, the report states. Nevertheless, both the preparatory action and the EDRP should be part of a broader European defence policy framework organised around the EU Global Strategy and the Commission’s

Defence Action plan. The aim of this is to facilitate and enable defence cooperation at all levels.

However, the report also stress the huge challenges Europe face as regards future European defence cooperation, among one of the most important challenges is intellectual property rights (IPR). Here the report underlines that an appropriate IPR regime should be tailored to the sensitivities of the defence domain “... whilst also sufficiently attractive to both national defence ministries and industry, in order to ensure that the programme can address defence capability needs and priorities” (ibid: 22). The EU-funded defence research programme should be both complementary and supplementary to national R&T defence priorities and spending, taking into account bottom-up innovation processes and acting as a force multiplier, “... so that collaborative spending can be seen to deliver more value than at present and help reverse the recent spiral of declining national budgets combined with declining multinational cooperation” (ibid: 57). In fact, the EU Ministers of Defence decided in 2007 to allocate 20% of the research funding should be spent on collaborative research. Today, the report state, the current figure is below 10%.

The forthcoming preparatory action is therefore an initial tool to promote synergies and collaboration as well as to boost the further development of its most promising results. Nevertheless, the picture the Group of personalities present of European defence research is pretty gloomy. Inefficiency in spending and a lack of interoperability leads to a defence deficit. The result is a fragmentation of the European defence market and a fragmentation of European defence research.

The picture the report from the European Parliament presents on the future of EU defence research is quite similar. However, it is also fair to say that the situation this report describes is even gloomier. One of the strongest statements in this report is that if nothing is done, European defence research will simply disappear (EP 2016: 8). On the other hand, this report also states that the EU absolutely has the possibility to bring added value to EU defence research collaboration: “Only a common approach will create the necessary momentum which the intergovernmental method has failed to trigger over the last fifteen years” (ibid). Consequently, defence research at the European level will matter even more: “Defence research matters because it is crucible in which defence capabilities are forged. It matters because it is a key that enable us to keep the doors open towards strategic autonomy” (ibid: 12). This report, which makes a more comprehensive assessment of defence R&D and R&T than the Group of personalities report, also states that defence science and technology often, gives a pivotal impulse to industry at large. Hence, defence research in the form of both R&D and R&T contributes to economic growth with a multiplier effect. The internet, the microwaves, liquid crystals, and some other important examples also, have its origins in defence research. Therefore, direct funding of research and technology organisations is certainly the wisest way for states to invest their money (ibid: 31). This view is also in conformity with Mariana Mazzucato (2013: 3) who underlines that “..., most of the radical, revolutionary innovations that have fuelled the dynamics of capitalism – from railroads to the Internet, to modern-day technology and pharmaceuticals – trace the most courageous, early capital-intensive ‘entrepreneurial’ investments back to the State”.

Both of these reports are therefore fully in line with European Commission President Jean-Claude Juncker's appeal for stronger European security- and defence integration. His call for a European army has also stimulated a healthy debate (Barnier 2015: 4). In this sense, both of the reports are stating the obvious about the current state of affairs in European defence research. Nevertheless, it might also be fair to argue that the impetus to change this current state of affairs is now stronger than it has been for years. The size of this defence deficit is of course difficult to measure since it is dependent upon so many different variables, ranging from the Brexit issue, economic developments, developments in China and Russia, and of course the state of the transatlantic relationship. The next part will therefore discuss the status of defence research in China and Russia, also including recent US defence reform efforts and this superpower's priority given to defence research.

European defence research in comparative perspective

A comparative perspective on defence research is of importance when we strive to develop realistic threat assessments. Therefore, both the proliferation of new technologies and the coming of a more multipolar world order will justify such a comparison. China's and Russia's defence research efforts is of special importance, but also the US' efforts is of interest. Hence, the US has underlined that the involvement of their European allies in their defence innovation initiative (DII) would be "vital" (EDA 2015).

Chinese defence research: Some structural challenges

The European Parliament report estimates that the Chinese defence research budget is more than twice as large as that of the EU, at around 20 billion euro (EP 2016: 8). This leads this report to recommend that a step-change in the scale of Europe's R&D budget is urgent since no single European country is capable to undertake it. According to SIPRI however, is the level of Chinese defence research difficult to estimate since some of it is covered by other budget posts as well as local authorities (SIPRI 2015). Nevertheless, also SIPRI estimates that the resources allocated to defence research is high and at the same level as in the US as part of the total defence budget. Furthermore, SIPRI estimates that the total Chinese defence budget was 188 billion dollars in 2013. The Chinese budget is therefore the world's second largest. Interestingly, the increase in the Chinese defence budget was also the second largest when it stood for 20, 8% of the total increase in the world's defence expenditures in 2014. The figure for Saudi-Arabia, which stood for the largest increase, was 27 % out of a total of 43, 3 billion dollar increase in world military spending that year.

China has consequently a full spectrum defence research activity, out of which space research is one of the most interesting ones. Since the US is far more dependent upon space systems than other main actors are, China is developing systems that aim at disrupting the US' use of space during conflict. Counter-space attacks therefore figure high in Chinese doctrinal writings (Martinage 2014: 32). High on the Chinese defence research agenda is therefore to develop systems that emphasise the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance ... and communications satellites, suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to blind and deafen the enemy" (ibid).

Even though these developments to a large degree explain the US' pivot towards Asia, one shall not underestimate some important structural challenges in Chinese economy either. These structural challenges are not discussed in the European Parliament report. The origin of these structural challenges is that Chinese economy in the coming years needs to transform from an export-dominated growth model (ibid: 18). As a consequence, there will be a good chance that the Chinese economy may slow significantly over the coming decade. If that occurs, China will face difficult choices among investment in its services sector and supporting infrastructure, domestic spending and military modernisation. Nevertheless, China is beyond doubt aiming at regional hegemony in and around the South-China Sea and therefore wants changes in the existing order in that area.

Russian defence research: Lack of continuity

Russia had in 2013, according to SIPRI, the world's third largest defence budget with 87, 8 billion dollars (SIPRI 2015). In 2014, the country stood for 10, 1% of the increase in world military spending. Obviously, the Russian military modernisation program – GPV 2020 – aims at challenging the US' military superiority. However, it is also a part of a larger transformation of the Russian economy where the state will be a main facilitator for the modernisation of the Russian society as such. Both of these factors are of importance when we assess the background for the last decade's increases in Russian defence spending. In fact, in the period 2005–2014 Russian defence spending increased with 97 %. Russian authorities underline that 80 % of the resources under GPV 2020 will be allocated to armaments, 10 % to defence research and the rest to upgrading the existing defence structure (Hakvåg, Hove & Sendstad 2012: 21). An important characteristic of the defence program is that a larger share of the defence order will go to acquisition of armaments, while the research and development part of it will be reduced. Consequently, in the period 2002–2012 a reduction from 38 to 18 per cent of resources allocated to defence research as part of the total defence order took place. In real terms, however, resources allocated to defence research is rising. According to plans, 2000 billion roubles will be allocated to defence research until 2020.

There are however some weaknesses in Russian defence research in the form of lacks of continuity in it. According to the Russian Ministry of Defence, most of the resources to defence research will be allocated in the first five years of the program. That implies that after 2015, the resources will be allocated to series production. One obvious advantage by dividing the defence program in two different parts is that it will liberate resources for series production. One major disadvantage, however, is lack of continuity in research. In fact, continuing defence research is a prerequisite if the aim is to be in front technologically which definitely is an overarching aim for the Russian defence industry. The priorities in Russian defence research is mainly on issue areas where the defence industry is competitive on the world market and in areas where Russia will face problems of acquiring defence material at the international market (ibid: 33-34). This is also in conformity with the aim of modernising the Russian economy.

The US Defense Innovation Initiative (DII): Transatlantic rift?

The US Defense Innovation Initiative (DII) started primarily from a wider assessment of the geopolitical context. Given the diffusion of technology across the globe, the US is of the opinion that its long-held advantage in early warning systems and precision strike is under threat. Hence, the purpose of DII is to sustain and advance US military and technological superiority for the 21st century (EDA 2015: 1). China's and Russia's military modernisation programs on areas like Anti-Access/Area Denial (A2/AD) capabilities led former US Secretary of Defense Chuck Hagel in November 2014 to announce DII which now is expected to develop into a third offset strategy. This new offset strategy is also due to the proliferation of sensitive technologies to other countries as well, like Iran and North Korea. Equally disturbing from a US standpoint is the access of disruptive technologies by non-state actors like Al Qaeda and the Islamic State.

This new offset strategy could therefore help the US to keep its power projection capabilities for the foreseeable future. Such an overarching aim is of course dependent upon a long-range R&D program so as to be able to identify and develop breakthrough technologies and systems. A corner-stone of the new initiative will therefore be a new Long-Range Research and Development Plan (LRRDP) to help identify, develop and field breakthroughs in most cutting-edge technologies and systems (ibid: 2). The plan is that LRRDP and the third offset strategy shall work in tandem: the LRRDP first identifies cutting-edge technologies and innovative concepts, then the third offset strategy incorporates them into military systems and strategy (Stanley-Lockman 2015: 1).

An interesting part of this is that the US Department of Defense (DoD) no longer have exclusive access to the most cutting-edge technologies, nor the ability to control their development. This has led US officials to seek proposals from the private sector, including from firms and academic institutions outside DoD's traditional orbit. There are in all five core areas within LRRDP: air; missile and precision-guided munitions defence; air superiority; space; undersea; and other emerging technologies (ibid).

From a transatlantic perspective it is obvious that this defence innovation initiative will have implications for European allies and partners. According to EDA, Europe's ability to pursue strategic autonomy will be affected by issues like a growing innovation gap (EDA 2015). In fact European defence industry could experience difficulties in remaining competitive on cutting-edge technologies. Hence, the offset strategy could plant the seeds for an even larger transatlantic military-technology gap (Fiott 2016: 29). But also the US has stated that allied participation in the third offset strategy would be vital. Hence, NATO's Allied Command Transformation (ACT) has become interested in the issue, "... providing an opportunity to engage reflection on the potential stakes for European defence in general" as an EDA paper on this issue underlines (EDA 2015: 1).

European defence research in crisis? The moment of truth is coming closer

As the comparative overview in the previous part illustrate, defence research developments in Europe runs counter to defence research developments in China and Russia. The Chinese and

Russian defence research efforts aim specifically at developing A2/AD capabilities and are designed to threaten US power projection capabilities. These developments will affect European security as well. Just as serious is the fact that the financial crisis led EU Member States to withdraw on their national bases instead of pursuing for more collaboration. To continue to do nothing will most definitely lead to a growing technological gap within NATO and cause transatlantic rift. The capabilities the EU needs to develop must also be seen in perspective of the Global strategy and the on-going work on a European “White book” on defence. As the Global strategy states: “While NATO exists to defend its members – most of which are European – from external attack, Europe must be better equipped, trained and organised to contribute decisively to such efforts, as well as to act autonomously if and when necessary” (EUGS 2016: 19). This is most definitely a call for more defence cooperation or indeed defence integration in Europe. European defence research efforts must therefore be regarded as part of a broader logic of the defence planning cycle and therefore part of the enhancements of a broader European strategic outlook on international affairs. In perspective, the US spends today seven times more on R&D than Europe. In addition, the four BRIC countries (Brazil, Russia, India and China) spend more than the double on defence research than France, Germany and the United Kingdom combined (EDA 2014: 1).

The reductions in European defence research must therefore be regarded in perspective of two overarching developments that to a high degree will determine the character of European security in coming years. The first is the EU’s aim of gaining strategic autonomy and the second is the US’ rebalancing towards Asia. These two developments are of course highly intertwined, but they must nevertheless be seen as two different aspects of the same developments.

First, defence research is vital for EU strategic autonomy and key to maintain technological edge and industrial competitiveness. Defence research as part of the development of EDTIB is therefore a good starting point from where Europeans could build an autonomous defence capability. If too little is done, the EU will only become an importer of defence equipment rather than an exporter which will raise the question of security of supply and strategic autonomy. As the Group of personalities report emphasise, the huge asymmetries between each individual European country and the US would make it extremely difficult for them to be truly equal development partners with the US (EU-ISS 2016: 76).

Second, defence research is vital for Europe in times when the US is rebalancing towards Asia. This step might probably accustom Europeans to managing their own security affairs. One element in this is for Europeans to respond to the US’ third offset strategy. Some European states, like the United Kingdom, have started thinking about the third offset strategy and its own technology and innovation policies (Fiott 2016: 30). As Fiott (ibid) also points out, “... technology may or may not directly assist in winning wars, but having the scientific and technical expertise needed to develop military technologies is a currency in its own right”. Besides, defence research is an important element in the EU’s Global strategy. This implies that the US expects the EU to take more responsibility for the security of the EU’s neighbourhood. Hence, through defence research the EU’s CSDP can work even better with NATO and the US to sharpen its focus on crisis management and hybrid threats.

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Notes on contributor

Bjørn Olav Knutsen is a principal researcher at the Norwegian Defence Research Establishment (FFI) and an associate professor at Nord University in Bodø (Norway).