

TECHNOLOGICAL INNOVATION

The US Third Offset Strategy and the Future Transatlantic Defense

BY

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*The views expressed here are solely those of the authors.
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Policy Paper

ABSTRACT

The United States' Third Offset Strategy (TOS) is a step-change in military innovation offering the likelihood of strategic change in capability, designed to enable the US to maintain global hegemony in an era of great power competition. It represents a key opportunity of technological investment for US defence capacity, which in turn can stimulate the US defence industrial base and the broader technological ecosystem. This policy paper looks into how the TOS may impact Western defence and security decision-making and its strategic implications for the European Union. The goal of this paper is to show that this phenomenon is set to significantly change the way we think about defence, security, technology and alliances. Indeed, whilst the US intends to nurture alliances with European countries who boast innovative potential in order to benefit from key technological advantages, the TOS represents a challenge for the EU. The initiative could widen the technological gap between the US and the EU, culminating in the pressure to purchase systems developed under TOS in an effort to remain relevant. The lack of interoperability may increase. Additionally, because of its focus on defence innovation taking increasingly place outside the defence world, the TOS puts further pressure on European defence companies to develop new strategies in order to keep up with the changes and stay competitive. For these reasons the response of the EU is still uncertain, yet the way Europe will react to TOS will deeply shape US-EU relations, perhaps impacting the transatlantic security and defence policy. The authors stress the importance of a common European response in order for it to be pertinent to the US. The arrival of a new US administration does not help to clarify these strategic uncertainties; statements of the new president-elect regarding security means TOS might change its face, putting the achievements and future courses of the US in question.

INTRODUCTION¹

It seems unquestionable that more assertive Russian and Chinese foreign policy stances are challenging Western polities and the democracies of Europe are faced with unprecedented migration challenges. Crises in the Middle East and the rise of identity politics associated with extremist Islam are posing questions we struggle to articulate let alone answer. In addition our economies, global, interdependent, multifaceted, seem fragile and vulnerable to social and economic shocks. Yet despite this profound contemporary churn in geopolitics, a truly strategic defence and security intervention is quietly going about its business: an unprecedented Innovation in defence related technologies and the US response to it: the United States' Third Offset Strategy (TOS). This paper explores its meanings for Western defence and security decision-making and the opportunities and threats posed to a joint transatlantic defence effort.

BORN IN THE USA

In November 2014 the then Secretary of Defense Chuck Hagel made a major speech to the Reagan National Defense Forum in California and issued a Memorandum to all the senior players in the US Government defence machine announcing the 'Defense Innovation Initiative', a 'broad, department wide initiative to pursue innovative ways to sustain and advance our military superiority for the 21st century and improve business operations throughout the department'.²

Noting the modernisation efforts of potential adversaries and 'the proliferation of disruptive capabilities across the spectrum of conflict', he observed that 'The US changed the security landscape in the 1970s and 1980s with networked precision strike, stealth and surveillance of conventional forces, We will identify a Third Offset Strategy that puts competitive advantage firmly in the hands of American power projection over the coming decades'. Although the Defense Innovation Initiative is the formal title of the policy, it is more often referred to as the Third Offset Strategy (TOS) and this is the term used henceforth in this paper.

There is a growing debate amongst Western polities as to whether future defence capabilities are driven by breakthrough innovations or continuous technological development. The success of breakthrough innovations is guided by an atmosphere of significant and enduring investment and a good deal of doctrinal flexibility, either alone or with partners. The notions of co-operation and partnering remain relevant considerations to the debate.

Within this context, the step-change in innovation envisaged by Secretary Hagel, rather than the process of continuous but steady force development pursued in many states, offered the prospect of a strategic change in capability, albeit one taking a decade or so to come to fruition. Nonetheless this strategic change would reinforce and enable the US

intent on maintaining global hegemony in the face of the ambitions and rivalries of other powers, whether conventional or non-state. This assumes, of course, that US decision makers are correct in their thinking that technological superiority delivers hegemony: a reasonable policy assumption but far from causally established.

This change was to be based on much more than anticipated technological developments. Indeed technology was just one of five areas seen as having the need and chance to change: in addition to research and development, Hagel referred to leadership development, war-gaming, operational concepts and business practices. The latter, however, are also an element in the Department's overall continuous efforts to become more efficient and effective.

This raised the question of how these five areas were to be pursued individually and brought together in a coherent fashion. The responses are clearer in some areas than others. Secretary Robert Work has outlined how TOS implementation could strengthen conventional deterrence in Europe with its doctrinal elements included: 'large units aren't going to survive on those battlefields. They're going to have to disaggregate... Smaller units are going to seek sanctuary where possible that try to operate outside the major guided weapon ranges of the enemy. But when they can't, they're going to have to disperse over wider areas'³. The DoD has committed to increased effort in the area of innovative war gaming so as to gain insight into future requirements, but 'how can we make innovative leaders'⁴ apparently remains a question for training and education programmes.

A doctrinal or strategic basis for the TOS was a significant part of the impressive study by Robert Martinage of the Centre for Strategic and Budgetary Assessments, an independent think tank, in which he discussed the place of (conventional) deterrence and denial approaches to US policies, most obviously towards adversary states.⁵ Broadly he sees US forces as too oriented towards operating in low-threat environments whereas the future need is to be able to operate within a context of medium, indeed high-threat. He recognised that asymmetric approaches should be an element in US strategy and advocated in very broad terms that current systems which were increasingly vulnerable to a capable adversary should either be significantly hardened in terms of defences or should have less reliance placed on them. His study is core reading for those interested in the TOS.

Martinage's thinking in some ways does not take him in a radical direction, because he essentially is taking further forward the reasoning developed as part of the Second Offset approach: his Global Surveillance and Strike Concept can be viewed as an extension of the network centric thinking dating back to the 1980s and 1990s. The emphasis is on surveillance capability linked with the capacity for precision strike. However, he does envisage a reduced role for fixed bases and indeed for land forces in general, and long-range/endurance as well as stealth are seen as key attributes for things that fly: 'most of the airborne nodes in the network would possess either extended range... or ultra-long mission endurance enabled by unmanned operations and air-to-air refuelling'.⁶ In the UK, Andrew Tyler has stressed the urgency and importance

of the UK improving its intelligence gathering capabilities, where 'persistent ISR is a key element' and where unmanned technologies are particularly appropriate'.⁷

The TOS is compatible with and even situated within the overall framework for improving defence acquisition in the US, the Better Buying Power programme which dates from 2010 and is in its third iteration (BBP 3.0) in 2015. Originally stressing the need to improve the professional knowledge and skills of acquisition professionals and the importance of affordability and cost control, BBP 3.0 added a commitment to strengthening innovation and technology. As the Under Secretary of Defense Frank Kendall stated in his Memorandum on BBP 3.0 of 9 April 2015:

The technological superiority of the US is now being challenged by potential adversaries in ways not seen since the end of Cold War... We will continue our work to improve productivity and efficiency, but we must also turn attention increasingly to our ability to innovate, achieve technical excellence, and field dominant military capabilities.⁸

Consequently, there are a number of distinct drivers of the TOS. These can be characterised as US policy ambition, clear-eyed responsiveness to threats and uncertainties, opportunities and political opportunism. This applies to both conventional peer-to-peer threats and challenges posed by non-state actors. In terms of ambition, the US Government has no wish to reduce its role as a guarantor of security in Asia and Europe, or to see the overall vulnerability of its forces increased in these potential theatres of operation. 'We believe that our ability to project power, coupled with strong alliances and partnerships overseas, has underwritten global stability for decades'.⁹ The 'pivot to Asia' was a policy line articulated before the Russian annexation of Crimea and adventurism in Eastern Europe and certainly the US retains strong interests in the European mainland and worries about Russia's military progress. Nonetheless, the key strategic threat which drives the ambition of TOS is the rise of China, as both a military and economic power.¹⁰

From threat and uncertainty perspectives, the technological advances and capabilities being generated by China and, to a lesser extent Russia (despite their state-based systems for weapons development and production), are presented as a real challenge to the US capacity for successful military action. Advocates of the TOS assert that the growing capacity of China and Russia to develop and produce fifth generation aircraft, disrupt US space assets, threaten US naval assets, generate weapons capable of precision-strike, even at long range, and damage Western information networks through cyber operations represents a profound challenge to the US role as the world's hegemonic power. Indeed, these capabilities threaten to deny the freedom of movement of US forces in important regions of the world and to render vulnerable US fixed bases. In brief, the US is seen as facing increasing Anti-Access/Area Denial (A2/AD) problems in both East Asia and Europe and consequently political credibility problems as a reliable and capable ally and guarantor of regional security.

'Our perceived inability to achieve power projection over-match, or an over-match in operations, clearly undermine, we think, our ability to deter potential adversaries. And we simply cannot allow that to happen'.¹¹

THE THIRD OFFSET STRATEGY AND THE US INDUSTRIAL BASE

So TOS can be seen as a response to global and regional threats and uncertainties, but there is also a strong sense of responsiveness to profound technological opportunities which, in turn can stimulate and feed the US defence industrial base and the broader technological supply-side ecosystem. There is currently a rapid rate of technological advancement, especially across the civil commercial sector, and this is seen as presenting significant technological and capability opportunities for US defence. The US has traditionally seen technology as a key element in military capability and has viewed military innovation as a core competence of the US government and economy. Arguably the TOS reflects a desire to restore this thinking to the pre-eminence it enjoyed during the Cold War and much of the period since. The American economy and society is assessed as having a comparative advantage in its capacity to innovate conceptually, organisationally and of course technologically. The TOS recognises that US government intervention in research, applied research and development could enable the exploitation of emerging technologies for defence purposes as well as broader economic benefits.

Arguably, there is also a level of political opportunism in play with the TOS. By emphasising both the threat to US hegemony and the opportunity technological investment provides for US defence capability and capacity, government officials in the US are teasing Congress into releasing the defence budget from the limits of sequestration funding and continuing resolutions.¹² The effects of this subtle governmental marketing can be seen in the FY 2017 US Federal and DoD budgets. When the data is analysed, it can be seen that there are significant budgetary growth in the following areas:

- Technology innovation programmes geared to rapid innovation and multiple end-users.
- Assured provision of navigation, timing and communications and command and control capabilities in denied environments.
- Cyber and advanced computing as offensive and defensive capabilities.
- Space situational awareness, control and protection of assets.
- Hypersonic and advanced air vehicles and systems.
- Early warning capabilities and spectrum dominance.
- Directed energy and advanced effects.
- Autonomy and human-machine integration.
- Advanced undersea warfare systems and vehicles.

The planned spending on these lines rises by 43 percent between FY 2015 and FY 2017; a serious strategic uplift.¹³ In contrast, the US defence budget presents as a constant year-to-year spend.

The Key Technologies

As can be elicited from this budgetary analysis, the range of cited technologies is extremely wide. The 2014 speech by Secretary Hagel referred to robotics, autonomous systems, miniaturisation, big data and advanced manufacturing including 3D printing.¹⁴ Deputy Secretary Work has referred to 'biotechnology, nanotechnology, robotics, atomics and man-machines'.¹⁵ The Air Force Chief of Staff, General Mark Walsh, has publicly endorsed the TOS and said that its direction had been incorporated into a strategic master plan: some of the standard ideas, he said, included hypersonic technology, directed energy and quantum computing and he noted the potential use of lasers for missile defence and communications.¹⁶ For Martinage, the envisaged growth in unmanned underwater systems requires improvements in power storage technologies. Also in his list of required advances is the capability for automated airborne refuelling of UAVs.

More generally, the domains of perceived technological opportunity may be seen to fall into two overlapping but conceptually distinct categories. On the one hand, are those technologies where the defence community can recognise specific areas of promise and where the US has probably already made significant progress through government-funded research. Martinage's emphasis at many points is on building on existing areas of US defence expertise and operational experience, including stealth, unmanned systems and underwater warfare. Within this context, specific areas of relevant technology would possibly include the following:

- a) Electromagnetic rail guns and directed energy and laser weapons, not least to improve the active defences of platforms and other assets currently subject to increasing vulnerability to missile attack, and to reduce the costs of defeating a missile;¹⁷
- b) Robotics for an underwater environment, reflecting the problems to be faced by surface assets;
- c) Reduced dependence on (jammable and vulnerable) satellites by the development of long-endurance and stealthy unmanned air systems capable of sustained area surveillance;
- d) The development of prototypes.¹⁸

Thus a key aspiration of the TOS is that defence should secure access to, and exploit to the full, much of the work being done across the world under the heading of civil/commercial research and development. In terms of follow-up to Secretary Hagel's speech, the DoD has sought to engage directly with the Silicon Valley community by establishing an office there (Defense Innovation Unit – Experimental) and by holding a three-day conference in St. Louis to highlight future technologies and bring together innovators and the DoD.¹⁹ Defense Department efforts to engage more closely with

Silicon Valley pre-date the TOS but are quite in line with TOS philosophy whereby capabilities leverage civilian-defence synergies.²⁰

POTENTIAL CONSEQUENCES FOR THE EUROPEAN UNION AND EUROPEAN PARTNERS OF THE US

The TOS is a unilateral initiative and US commentators vary in the amount of attention they pay to allies in discussing this question. However, allies are normally recognised as part of the equation in government discourse and Bob Work's major speech on the TOS on January 2015 was entitled 'The Third US Offset Strategy and its Implications for Partners and Allies': indeed he devoted some attention to those implications. Specifically he recognised the need for cooperation with allies and raised the possibility of specialisation:

each of our alliance members have certain key advantages or certain things that they are really, really good at. We don't need a lot of duplication.... So if we approach this as an alliance and figure where the technological advantages lie or who is the leader in certain areas, be it undersea technology or mine warfare or advanced missiles, we need to work together. We need to come up with operational concepts, just as we did with follow on forces attack, which address problems as an alliance.

While there is some recognition that a further boost in US defence technology could promote a wider US-Europe gap and the emergence of a 'two-tier' alliance, there is also acknowledgement of the innovative potential in Europe, 'especially through middle sized enterprise companies', provided resources were made available.²¹ In principle, the DoD wants European allies to join with the TOS, including by putting their technologies into the pool. However, it must be expected that allies will also be pressed to buy some or many of the systems that might be developed under the Third Offset approach.²² A simultaneous DoD initiative is after all to promote the export of US defence goods as a means of reducing costs to the Pentagon.²³ Robert Martinage's observation is that 'selected US allies (e.g. Japan, Australia and the United Kingdom) might be willing to share costs associated with the development, procurement and operation of GSS systems'.²⁴

Yet writing in *The Diplomat* Van Jackson asked in the spring of 2015: 'How do allies figure into the third offset strategy'? He responded simply 'this hasn't been worked out, at least not in public speech-making'.²⁵ But in private US officials are united in the view that allies of the US will be required to consume emerging technologies even at the expense of national programmes or extant commitments.²⁶

STRATEGIC IMPLICATIONS OF THE TOS FOR THE EU

The initiative has the potential to introduce changes for industry (models of innovation and production), governments (procurement and regulation) and armed forces (ways of operation and interoperability) alike and provides all three components with tough questions. This assumes that the technological areas of interest in the US are relevant to European actors and that affordability in Europe remains an issue. These challenges are more pertinent given the UK's decision in June 2016 to leave the European Union and the deep cleavages within the US polity as revealed by the 2016 Presidential election. How Europe responds to TOS will define whether US innovation leads to more cooperation or to an increase of the already existing gap in terms of interoperability and technological capability. In a broader perspective the European reaction to TOS can become a key lever when it comes to shaping a / the transatlantic security and defence policy.

The starting point of TOS was the fact that the defence innovation takes increasingly place outside the defence world. And this change is likely to also affect European defence industries and innovation processes. It puts even more pressure on European defence companies and governments to develop a strategy that deals with these changes and keep innovation hubs in Europe competitive in the civilian and defence domain. How this will impact on procurement and export policies, burden-sharing in defence technological funding, national defence innovation systems and thus the whole European Defence base, will depend on the course of action that is defined by two sets of variables:

- first, the response on the industrial, governmental and military levels and whether the relevant actors can develop models and identify potential areas of cooperation, competition and specialization for transatlantic relations.
- second, the relevance of a European response will depend on whether it is a joint European response, especially among the main actors, or if we see many parallel approaches by all European Nations, forces and industries. The type of approach will also determine the utility of EU-institutions like the European Commission, the EDA and national defence ministries and procurement agencies.

In the current debate about TOS, industries and governments are widely treated as the same actor or at least it is expected that industry would support the national defence policy. While there is a strong link between government and industry, especially the drivers of TOS may further steer the two actors apart because they have less and less common interests. Especially, industry will choose partners and interaction models on the basis of different rationales than governments.

Governments have to ask themselves how the strategic landscape as well as the relationship between government and industry will change, what they can shape and how will all this eventually affect the transatlantic defence posture?

There may be, as always, a good reason for a lined up European approach: the technological gap between the U.S. and its European partners is widening constantly, with implications for the transatlantic security partnership. Moreover, even if we take Europe as a whole, the ability to leverage own technology and buy into whatever kind of innovation is rather limited: the US investment into TOS technologies in 2017 is 3.6 billion USD. This represents only a 5% fraction of its overall DoD R&D budget²⁷, but it corresponds to more than 40% of the overall EU-European R&D budgets.²⁸

Even if Brexit is left out of the equations, the main problem will be to find sufficient levels of communality between the two sides of the Atlantic. For the time being European governments may respond differently, if at all, to TOS. These results to a certain extent from the traditionally different approaches to innovation. Moreover, governments are likely to see TOS as a question of importance of bilateral relations over EU-US relations in defence and many are likely to prefer a bilateral “special relationship”. Some actors, like the UK MoD have already launched an Innovation Initiative directly linked to the US initiative. Other, like Germany, are rather unaware of the developments. Moreover, the trend in EU-Europe as whole since the 2000s is a constant decrease in collaborative R&D spending.

Likewise, the Europeans have to decide whether there is a transatlantic way of war or a European one and what are the links and intersections. It is likely that the 3rd offset strategy will also induce changes in US-defence policy and operations. How the Europeans want to position themselves to these changes? This may also influence the question on whether governments aim for industrial or only operational cooperation with the US. Most likely may be a split between smaller and bigger European countries, the latter ones also harbouring the bulk of the defence industry. While those will aim to keep up in certain areas with the US, the smaller may continue to procure from and cooperate with the US in traditional ways.

Thus, from a US perspective, TOS can further split up or help integrating the EU-defence sector. The US DoD has to ask itself what kind of Europe in R&D but also in military capabilities it wants and can achieve by choosing one or the other type of cooperation.

While **European industries** will certainly have an interest to participate in this new wave of technology and products they face similar challenges like their US counterparts: how to transfer increasingly civilian innovation into military products in view of participating in innovation in a long-term perspective.

Moreover, European companies face an extra burden when it comes to cooperation; while Europe’s national markets are comparatively small, government restrict and disincentive more European approaches. Current defence industrial and procurement policies of European governments protect national suppliers but at the same time lead to more competition against suppliers from abroad. Hence the weakness of the

European level political landscape has led to two industrial trends: consolidation and globalisation of European industries. Both will play also into TOS, possibly in interesting ways: established defence industrial cooperation exists beyond government awareness. This may allow for joint R&D if companies perceive this an economically useful or for a joint campaign into the US market, or into US-driven innovation processes, respectively. Moreover, globally active companies may not only look towards the US but already towards Asia for markets, partners and innovation. These options shall only illustrate that there are European disruptions possible, i.e. seriously diverging industrial and governmental behaviour.

Participation in innovation and regulation characteristics may well cumulate in the medium term in the creation of more competitors for European industries and especially new competitors, as the innovation comes increasingly from non-military sources and is favouring primarily civilian industries. Thus, huge international, non-defence companies may drive the course also in the defence innovation and products because they can operate with fewer restrictions, around the globe, and offer the necessary size to bear the risks that come with new phases of innovation. At the same time, this is contrary at least to the rhetoric's of the official US-statements, namely that Washington seeks to include especially European SMEs into the TOS.

European Armed forces will have to react to potential changes in the US force structure and military operations. It means especially that interoperability becomes again an issue as well as the question whether the armed forces can best ensure to keep their current position vis-à-vis the US by simply buying more US-equipment or whether they can and want to afford a European 3rd offset strategy. The other alternative is that European armed forces take more risks in operations.

THE STRATEGIC UNCERTAINTY POSED BY A NEW US-ADMINISTRATION

While the fundamental driver of technological innovation will continue to impact on defence affairs, the new US-administration creates uncertainties about the future US response on two levels: the course

As TOS is very much tied to the personalities behind it, it was clear anyway that TOS was likely to change its face with a new head of the DoD. But statements of the president elect during his campaign related to the strategic positioning of the US in global security input a more fundamental questionmark behind the future of the TOS. What policy will the new administration pursue vis-a-vis China and Russia. Their aim to narrow the gap towards the US is currently one of the main frames for the TOS.

Lesser attention towards the European allies may not change the course of TOS but the willingness to reach out to European forces and industries to ensure interoperability and participation in order to deliver a coherent posture within NATO.

Even without the “peer- competitor” narrative, a greater support for the armed forces and US defence industry may be probable. But this does not immediately imply a focus

on technological leadership the TOS is propagating. Especially the attempt to tear down walls between the civilian sector and the DOD-bureaucracy may not be followed up. On the conceptual level if TOS is no longer a priority the definition of policies will slip down to lower echelons in the administration

- Finally TOS is directly link to the current technological innovation. It is not a political question but a neutral technological question and it won't change in the future

So the question could be at the end that it is not yes or no for the future of TOS but how and that it is anyway a question for EU member states. And it will be necessary to publish another paper in one year to make an assesment of TOS and the US military technological policy.

CONCLUSION

The argument made in this paper is that a truly strategic phenomenon could be emerging out of the US, with the TOS set to significantly change the way we think about defence, security, technology and alliances. US technology may become so far ahead of European partners that forces which desire to work alongside those of the US will have little choice but to buy US equipment on a large scale or risk becoming irrelevant. This could impact on notions of affordability within European defence budgets. Moreover, given the conventional reliance of defence forces on their supply base, this could leave European governments as virtual client states of the US. If Europeans want to be relevant and credible to their US partner (or future sponsor?), a response to the TOS will have most impact if it is a coordinated one. This situation does not improve with the current outlook towards the new US-Administration. Instead, uncertainties dominate and put the achievements and future course of the US in question, as well as the ability of the Europeans to react to it with a joint effort. While the phenomenon behind the TOS, the course of technological innovation, will surely continue to impact on defence affairs around the globe. Therefore, Neither the US nor the Europeans can take a holiday on the strategic question of transatlantic defence. As soon as the contours of the US defence technological and NATO policies become clearer, Europe has to reassess its options and take decisions. ■

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