
The Defence Industry and 'Transformation': A European Perspective

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Delivering the military transformation agenda will require broader and deeper armaments cooperation, both within Europe and across the Atlantic. Europe needs to concentrate on those capability areas that are critical to its North Atlantic Treaty Organisation (NATO) commitments and the implementation of the European Security and Defense Policy. A strengthened European technological and industrial base is also the most likely way of strengthening transatlantic armaments cooperation and gaining policy support in Washington. While European governments will need to selectively acquire US technologies, stronger European defence technological capabilities will give Europe more leverage at the negotiating table and is the best way to ensure that future transatlantic armaments cooperation is balanced and in European interests.¹

In the North Atlantic Treaty Organisation (NATO) and in the European Union, long standing concern about the shortfall between European capabilities and European political and military aspirations have paralleled worries as to whether NATO will in the future have the military capabilities required for the full range of its missions. Bitter experience in Iraq and Afghanistan may have tempered the scale of the 'transformation' now envisaged for the US military but it has emphasised once again the critical importance of those capabilities that contribute to mobility, situational awareness and effective interoperability. This paper argues that the pace of technological developments in the United States, combined with constraints on European defence research and development (R&D) and procurement budgets, mean that Europe will only meet its capabilities needs and NATO obligations through a combination of European developments complemented by transatlantic armaments cooperation. This will require the United States to recognise the technological capabilities of European partners as well as the political imperative for balanced cooperative arrangements. For military transformation to be effective, the United States must be willing to trust its European partners by sharing advanced technology, such as stealth and command-and-control systems. In analysing what are big challenges for policy makers and politicians on both sides of the Atlantic, this paper:

¹ This is a revised and updated version of a chapter published in Daniel S. Hamilton (ed.), *Transatlantic Transformations: Equipping NATO for the 21st Century* (Washington DC: Center for Transatlantic Relations, Johns Hopkins University, 2004).

- Traces the impact of US defence transformation policies on the US industrial base;
- Contrasts US activity with developments in Europe with a view to defining the challenges for European defence industry;
- Analyses the European response to these challenges in both policy and defence industrial terms;
- Explores the opportunities for trans-Atlantic cooperation.

Transformation and the US Defence Industry

The imbalance in European and US military capabilities has been an issue for NATO throughout its history. But the US focus on transformation has exacerbated rising concerns that this imbalance could grow to such an extent that US and European armed forces will find it increasingly difficult to operate effectively together.² As the Center for Strategic and International Studies (CSIS) Commission on Transatlantic Security and Industrial Cooperation in the Twenty-First Century stated in a 2003 report:

The Bush administration has made military transformation a central defense and national security objective and has embarked on a radical reorganization and transformation of its military resources and capabilities at a speed and of a scope that current European defense budgets are in no position to match any time soon.³

This painted a picture of a US military that leverages information superiority to dominate the full spectrum of military operations, from low intensity conflict to major theatre wars and a focus on dominant military capabilities that would be reinforced by a transformation in doctrine and technology and able to operate on a global basis. Accompanying such concepts was a huge hike in US defence R&D spending.⁴

The Bush Administration's focus on transformation gave added impetus to the US defence industry's shifting focus from platforms towards defence electronics and systems integration activities.⁵ The US defence industry has

² For two competing views on the transatlantic capabilities gap see: David C. Gompert, Richard L. Kugler and Martin C. Libicki, *Mind the Gap: Promoting a Transatlantic Revolution in Military Affairs* (Washington DC: National Defense University Press, 1999); Robert P. Grant, 'The RMA—Europe can keep in step', Western European Union Institute for Security Studies, Occasional Papers 15 (Paris: Western European Union Institute for Security Studies, June 2000).

³ *The Future of the Transatlantic Defense Community*, Final Report of the CSIS Commission on Transatlantic Security and Industrial Cooperation in the Twenty-First Century (Washington, DC: Center for Strategic and International Studies, 2003), p. 3.

⁴ Gopal Ratnam, 'Industry considers transformation needs', Defense News Top 100, <<http://www.defensenews.com/story.php?F=1335311&C=top100>>

⁵ For a discussion of how US defence industry consolidation since 'The Last Supper' has caused a gradual shift from platforms towards electronics, see Andrew D. James, 'Defence

seen a series of acquisitions of emerging defence information technology companies by large defence contractors—General Dynamics' acquisition of Veridian is a prominent example of such deals.⁶ Indeed, General Dynamics is a striking example of how companies have reshaped their activities towards the growing defence information technology sector. Northrop Grumman and Lockheed Martin have done much the same and Boeing has recast itself from an aircraft, missiles and satellite maker to a large-scale systems integrator, capable of orchestrating the design and development of any weapon system.

Developments in Europe

While the Pentagon has embraced transformation, European governments have been more cautious, preferring evolution to revolution. In large part, this reflects the reality of European defence procurement budgets. There are major European concerns about the enormous potential cost of pursuing the US vision of Network Centric Warfare (NCW). In addition, the introduction of new technologies in one area may have knock-on effects in other areas—legacy platforms, for example, may need to be upgraded to ensure interoperability. And Europe is poorly placed to incur such expenditure: While the United States spends over 3 percent of its GDP on defence, NATO Europe spends only about 2 percent. Furthermore, only Norway, Turkey and the United Kingdom are spending the same proportion of their defence budgets on research, development and procurement as does the United States.⁷ At the same time, a few large programs take a large share of existing modernisation spending. Thus, the Eurofighter program is expected to consume over half the modernisation budgets of Germany, Italy and Spain in coming years. Shifting substantial spending to meet transformational needs in the areas of advanced surveillance and precision targeting systems is likely to require difficult decisions related to force structures, the mix of platforms and enabling capabilities and the like.⁸ The UK government, for one, has made it clear that there is no realistic way that it can—or would wish to—follow the US vision of wholesale transformation of its forces. Instead, the United Kingdom is pursuing an incremental and selective development of transformational capabilities where it believes they are most likely to improve the effectiveness of British

industry consolidation and post-merger management: Lessons from the United States', *International Journal of Aerospace Management*, vol. 1, no. 3 (2001), pp. 252-67.

⁶ 'Challenges for the defence industry: implications of the Iraq War', *Strategic Comments*, vol.9, no. 7 (London: International Institute for Strategic Studies, 2003).

⁷ 'Defence Expenditures of NATO Countries (1980—2002)', NATO Press Release M-DPC-2 (2002) 139, 20 December 2002, <<http://www.nato.int/docu/pr/2002/p02-139e.htm>>

⁸ Assembly of Western European Union, *The Gap in Defence Research and Technology between Europe and the United States*, Report submitted on behalf of the Technological and Aerospace Committee, Forty-Sixth Session, 6 December 2000, Paris.

armed forces in a context of coalition warfare. The situation in France is similar.

European governments have responded to the US doctrinal shift towards transformation and associated investment in transformational mobility and network-centric assets. Within NATO Europe, the United Kingdom is furthest ahead in the shift towards Network Enabled Capability (NEC)-based expeditionary warfare. This shift is leading to painful cuts in existing UK heavy armour in favour of a family of new armoured vehicles, known as FRES (Future Rapid Effects System). The Royal Navy will get its two new aircraft carriers but some of the fleet's older ships will be scrapped. The number of Eurofighters to be bought by the United Kingdom will be scaled back.⁹

In France, the 2008 Livre Blanc announced a similar shift in strategy toward creating the capability to project military force globally with a focus on intelligence (including satellite-based communications and reconnaissance capabilities, theatre-level unmanned aerial vehicles); strike; and defence against nuclear, biological and chemical weapons.

In 1999, Sweden announced the launch of "Det nya forsvaret" ("The New Defense"). This radical restructuring of the nation's defence and security posture towards a network based defence will result in every Swedish weapons platform being plugged into an Internet-based command and control (C2) system by 2010 and a full operational capability is planned by 2020.¹⁰ Sweden is developing a new command and control system—the Ledsyst—and has begun the development of the requisite technology, methods, personnel and organisation.

In Germany, there has been a great deal of conceptual thinking about the implications of transformation for the Bundeswehr¹¹ but Germany's defence budget crisis has limited the scope for German adoption of transformational technologies and has held back the process of force modernisation. Germany was the last major country to begin restructuring its armed forces. It spends 1.5 percent of GDP on defence, one of the lowest levels in relation to GDP in Europe, and compared to an average of 2.0 percent for NATO Europe as a whole. There is a similar story in Italy. The government's concern to reduce its technology gap with its allies is reflected in its prioritisation of air defence and airborne surveillance. Airborne early warning aircraft, surface-to-air missile batteries, mobile and fixed surveillance radars,

⁹ *Delivering Security in a Changing World*, Defence White Paper, Presented to Parliament by the Secretary of State for Defence, CM 6040 (London: The Stationery Office, December 2003).

¹⁰ Nick Cook, 'Network-centric warfare—The new face of C4I', *Interavia*, vol. 56, no. 650 (February 2001), pp.37-40.

¹¹ See, for instance: 'The future of Bundeswehr transformation', presentation by Colonel Ralph Thiele, Commander Bundeswehr Center for Analyses and Studies (ZASBw) to a conference at SAIS, John Hopkins University, 15 May 2003.

and Command, Control, Communications, Computers and Intelligence (C4I) have all been identified as critical areas for funding but budget problems are likely to slow progress.

The Challenges for the European Defence Industry

In trying to keep pace with developments in the United States the European defence industry has been hampered by the reluctance of its principal customers—namely European governments—to adopt the new transformational technologies and allocate the budgets for procurement and R&D necessary for modernisation. A report by the Assembly of Western European Union in 2000 observed that the gap in military research spending between the United States and Europe meant not only that a technological gap existed but that it would probably widen still further.¹² General Klaus Naumann, the former Chairman of NATO's Military Committee, has argued that even if there are niches in which the Europeans have the lead, they are at least five years behind the United States in the crucial area of C4I.¹³

The scale of these challenges has prompted some US commentators to query the strategic utility of autonomous European development and acquisition efforts and to argue that the US drive towards transformation, along with its increasing defence spending, has given US industry an already unassailable technological lead. These commentators argue that European programs that duplicate development efforts are costly and wasteful in the context of European spending constraints. The A400M and Galileo programs have been singled out for particular US criticism. The United States can offer operational capabilities, whilst European projects are in many cases still on the drawing board. European collaborative efforts to catch-up with the United States—the naysayers continue—are likely to be more costly and quite possibly technologically inferior to buying off-the-shelf from the United States.

Undoubtedly, there are situations where European governments will seek to acquire US technologies off-the-shelf. In the 1980s, for example, the United Kingdom and France both decided to acquire the Boeing E3 AWACS (Airborne Warning and Control System) in recognition of the fact that it was neither technologically feasible nor cost effective to seek to develop a similar capability.¹⁴ More recently, the UK government has made clear its view that the technologies that underpin the RMA “will inevitably be led by the US”.¹⁵ Thus, the United Kingdom needs to be selective about the technologies it develops nationally or on a European basis, and should be prepared to use

¹² Assembly of Western European Union, *The Gap in Defence Research and Technology between Europe and the United States*.

¹³ *Ibid.*

¹⁴ The United Kingdom had attempted to do so with its Nimrod AEW program but that was eventually cancelled due to technological difficulties and massive cost overruns.

¹⁵ Strategic Defence Review, ‘Supporting Essay Three, The Impact of Technology’, para. 32.

US technologies in other areas in order to continue to make a leading contribution to multinational operations. Accordingly, the UK government has selected Raytheon-developed technology to meet its Astor airborne ground surveillance requirement; looked to the Canadian subsidiary of General Dynamics for its Bowman communications program; and, has evaluated the acquisition of the Cooperative Engagement Capability as the basis for its naval network-centric warfare capability.

However, there is a strong feeling in Europe that development of the multinational European Security and Defence Policy (ESDP) must be underpinned by a strong and competitive defence industrial and technological base and this is a key theme of the work of the European Defence Agency. In this view, autonomous European crisis-management operations are feasible only if Europeans succeed in narrowing the technological gap that exists between European countries and the United States and Europe must do so either through its own efforts or as an equal partner in transatlantic cooperative programs.¹⁶ European governments are wary of the operational constraints that can emerge from US technology controls, and even America's closest European allies are concerned about the need to retain an independent capability while ensuring coherence with US developments. Thus, the challenge for the United Kingdom is how to achieve interoperability without being obliged to buy US equipment with all the technology transfer and operational challenges that it entails.¹⁷ At the same time, the politics of defence procurement means that politicians will continue to demand local content in exchange for their agreement to spend large sums on defence equipment and—in the current climate of weak electoral support for defence spending in Europe—initiatives that oblige European governments to buy US technology are unlikely to gain much support.

Strengthening the European Defence Industry

European industry has already gone some way to establishing European solutions to European capability shortfalls. In the area of precision strike weapons, the European missile company MBDA has developed the Storm Shadow/Scalp EG cruise missile. In Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), France is deploying the Helios series of optical observation satellites. A European industry team offered the Stand Off Surveillance and Target Acquisition Radar (Sostar) as an alternative to the Northrop Grumman J-Stars for the

¹⁶ Assembly of Western European Union, *The Gap in Defence Research and Technology between Europe and the United States*.

¹⁷ Andrew D. James, *Delivering Network Enabled Capability: Industrial, Procurement & Policy Challenges for the UK*, FIND User Report (Stockholm: FOI, 2004).

NATO Air Ground Surveillance (AGS) requirement.¹⁸ Similarly, Europe has programs that span the entire spectrum of Unmanned Aerial Vehicles (UAVs) and Unmanned Combat Air Vehicles (UCAV).¹⁹ Europe can more than hold its own in conventional platforms and this is reflected in European technological capabilities related to strategic mobility assets. Thus, with respect to air-to-air refuelling, Airbus has a series of successes in major procurement competitions, including the USAF's air tanker requirement leading to protests in the United States from Boeing and from politicians and to the eventual rebidding of the programme. The Airbus Military Company A400M represents a European industrial response to NATO Europe's strategic airlift needs.

The development of strong capabilities in transformational technologies is seen by European industry as vital to sustain the European defence industrial base and retain Europe's established defence export markets while recognising the realities of European defence budgets. Thales is re-orientating its communications business group to focus on network-centric warfare and to capitalise on its strong position in the defence electronics business and its place as the largest European supplier of defence communication systems.²⁰ EADS is seeking to focus on growth areas of the global defence market such as UAVs, C4ISR and avionics. EADS has sought to use acquisitions to overcome the constraints of small defence electronics business and limited global presence outside its home markets of France, Germany and Spain.

Ultimately, however, the European defence industry is hamstrung by the nature of the European defence market. Defence procurement remains overwhelmingly a national activity and the current arrangements are expensive and inefficient, duplicating effort and raising costs. Fragmented national markets deny Europe the economies of scale necessary to reduce costs, fund R&D and ensure the effective application of technology. National procurement requirements differ, making it difficult for companies to plan for the long-term through industry restructuring, alliance building and R&D investment. And without significant increases in European defence spending for research, development and for the procurement of advanced weapons systems, Europe will have difficulty retaining even its existing defence technological position relative to the United States.²¹

¹⁸ SOSTAR is being developed by Thales, the Dornier unit of EADS, Alenia Difesa's FIAR and the Dutch government-owned Technisch Natuurwetenschappelyk: see Luke Hill, 'NATO considers merging ags', *Jane's Defence Weekly* (13 June 2001), p. 3.

¹⁹ John Brosky, 'French flying fast to win share in UCAV market', *Defense News* (29 April–5 May 2002), p. 8.

²⁰ Gopal Ratnam and Amy Svitak, 'How Europe can close the gap', *Defense News* (5-11 August 2002), pp. 1-4.

²¹ 'Hertrich: Europe's defense technology future at risk absent more funding', *Defense Daily International* (15 February 2002).

Enhancing European Armaments Cooperation

Responding to this challenge will require effective European armaments cooperation: identifying common requirements; promoting R&T cooperation; and, improving program management. Transformation will amplify the need for international co-operation at defence industry level, in order to make best use of scarce skilled resources and finite communications capacity, and to meet the need to network with coalition partners.²² Many European countries are currently pursuing network related/NCW developments, creating opportunity to share research, leverage experimentation and build coalition capability.²³ The UK government has indicated that it will consider international collaboration in the development of such capabilities. In the case of FIST (the United Kingdom's Future Soldier Technology Program), the United Kingdom noted that many NATO and Partnership for Peace nations are pursuing similar programs and the FIST Assessment Phase has looked carefully at collaborative opportunities. The French government has expressed similar sentiments and has advocated European solutions across a range of transformational technology areas from space to C4ISR.²⁴

But Europe's record here is not encouraging. All too often European collaborative programs have been based on strict *juste retour* work share agreements to satisfy national governments' needs to deliver local jobs in exchange for spending taxpayers' money on defence. These inefficiencies are frequently exacerbated by the tendency to establish collaborative programs after national equipment requirements have become relatively firm—leaving the collaborative program to try to deliver a common solution to often-conflicting national requirements. The consequence has been a high failure rate amongst such programs and cost over-runs for those that have survived.

The A400M debacle is a good example of much that shackles Europe in delivering conventional capabilities. The Airbus Military Company A-400M is a critical part of the European Union's plans to set up an autonomous Rapid Reaction Force because the aircraft is intended to provide Europe with an indigenous medium- to heavy-lift military transport aircraft. Eight countries—Belgium, France, Germany, Luxembourg, Portugal, Spain, Turkey and the United Kingdom—plan to procure the A400M. The eight nations plan to order a total of 196 aircraft and the program will be managed by the European program management organization OCCAR (Organization for Joint Armaments Cooperation). However, even though there is a consensus

²² *Defence Industrial Policy*, Paper No.5, Ministry of Defence Policy Papers (London: Ministry of Defence, October 2002).

²³ *Network Enabled Capability: The UK's programme to enhance military capability by better exploitation of information*, from <<http://www.mod.uk/issues/nec/>> [Accessed 24 April 2003].

²⁴ M. Guy Teissier, *Rapport fait au nom de la Commission de la Defense Nationale et des Forces Armees sur le projet de loi (no.187) relative a la programmation militaire por les annees 2003 a 2008* (Paris: Assemble Nationale, 25 November 2002).

among European governments to improve their collective airlift capability, getting the joint program under way was difficult. One of the main challenges has been to get all the participants to maintain their procurement commitments. Italy withdrew from the program, and internal political and funding problems have meant that German's commitment to the program was brought into question on several occasions before it finally confirmed its orders.²⁵ Almost inevitably the program has run late.

ETAP (European Technology Acquisition Program) is another example of the challenges of inter-governmental cooperation. ETAP was established in 2001 to develop future European combat aircraft and UCAV capabilities. It comprised France, Germany, Italy, Spain, Sweden and the United Kingdom together with the leading European defence companies. ETAP is designed to lay the foundations for European combat air systems of the future. Future combat air systems may include manned aircraft (which may well be developments of existing aircraft such as Eurofighter, Gripen and Rafale); air and ground launched UAVs and UCAVs; conventionally-armed long-range cruise missiles (CALCM); and C4I systems to link all these together.²⁶ However, progress has been slow not least because of political disputes over the focus of the program and a UK–French dispute over stealth technology.

Nonetheless, European governments are seeking to make progress and to observers of European armaments cooperation recent political developments have been nothing short of remarkable. In July 2004 the European Defence Agency (EDA) was established

to support the Member States and the Council in their effort to improve European defence capabilities in the field of crisis management and to sustain the European defence and Security Policy as it stands now and develops in the future.²⁷

The EDA has been given four functions, covering:

- developing defence capabilities;
- promoting Defence Research and Technology (R&T);
- promoting armaments co-operation;

²⁵ Katia Vlachos-Dengler, *From National Champions to European Heavyweights: The Development of European Defense Industrial Capabilities across Market Segments* (Santa Monica: RAND National Defense Research Institute, 2002).

²⁶ 'European governments and industry to cooperate on future capabilities and technologies for combat air systems', Press notice on behalf of the defense ministries of France, Germany, Italy, Spain, Sweden and the United Kingdom, Paris (19 November 2001).

²⁷ European Defence Agency, Background, at <<http://www.eda.europa.eu/genericitem.aspx?area=Background&id=122>> [Accessed 17 November 2008].

- creating a competitive European Defence Equipment Market and strengthening the European Defence, Technological and Industrial Base.

The political attention that led to the establishment of the EDA was encouraging but it has yet to yield concrete developments for European armaments cooperation. Indeed, the history of European armaments cooperation has been one of often tortuous negotiations over the minutiae of implementation that have had the effect of eroding the dynamic created by high-level political initiatives. Important issues still have to be addressed: the integration of existing armaments cooperation organisations; the responsibilities of the Agency and the willingness of national governments to provide it with the necessary executive powers; concerns about European preference; and the role of the European Commission.

The Agency is not, however, an end in itself. Success will be measured not by the establishment of the institution (we have had plenty of those in the last three decades) but by the difference that it makes to European capabilities in support of ESDP. In this regard, the Agency can be regarded as a necessary but not a sufficient condition for progress towards meeting Europe's aspirations. The political will to address the capabilities issue expressed in the ECAP process and now in thinking about the Agency is encouraging. Ultimately, however, the Agency will only deliver results if it is supported by the will to increase European defence procurement spending to a level that ensures that European military forces can meet the political aspirations of the ESDP and NATO transformation.

In parallel to these developments, the European Commission and the European Defence Agency are now engaged in efforts to reform the European defence market with the aim of opening-up national markets to intra-European competition and facilitating the intra-European transfer of defence goods and services. In their various ways these initiatives are seeking to take a step towards a European Defence Equipment Market (EDEM) that improves the efficiency of the European industry and European defence procurement.

Promoting Transatlantic Cooperation

However, the pace of technological developments in the United States, combined with constraints on European defence R&D and procurement budgets, mean that Europe will only meet its military capability needs through a combination of European developments complemented by transatlantic armaments cooperation. The CSIS Commission on Transatlantic Security and Industrial Cooperation in the Twenty-First Century argued convincingly:

Both NATO and the European Union should make an effort to coordinate on defining priority defense requirements and equipment needs that could be

met by consortia or partnerships among industrial suppliers and technology companies across the Atlantic.²⁸

Cooperation on missile defence and UAVs are two significant areas where coordination could avoid redundant spending and generate mutual benefits

Currently, however, there is minimal cooperative engagement in armaments development and production and virtually no meaningful cooperative engagement in key US transformation programs—from UAVs to military space to information dominance. Current transatlantic cooperative efforts are, by and large, not related to coalition force improvements in interoperability or capability, but undertaken for reasons of affordability (Joint Strike Fighter) and geopolitics (missile defence).²⁹

Of course, there have been some success stories. The long term multinational Sea Sparrow and Evolved Sea Sparrow Missile (ESSM) program illustrates how joint cooperative programs can be assembled to capture both operational and economic benefits.³⁰ The Joint Tactical Information & Distribution System (JTIDS) program has enhanced interoperability between NATO combat aircraft. But the NATO AGS system was beset by political and industrial difficulties.³¹ Joint Strike Fighter (JSF)—for many a model for the future of transatlantic armaments cooperation—has struggled to overcome the challenges of US arms export and technology transfer regulations.

Transformation-orientated cooperative armaments programs (or European participation in ongoing US programs) may provide a means of closing the capabilities gap. Equally, deep and balanced transatlantic links between defence research agencies in the United States and Europe could help so long as they go beyond the current exchange of information to incorporate joint projects.³² To facilitate such common programs requires agreement on operational requirements, and new and more efficient ways of managing projects collaboratively. NATO members also need to coordinate acquisition purchases to achieve economies of scale. Such cooperation needs to recognise the technological capabilities of European partners as well as the political imperative for balanced cooperative arrangements and can only be built on a willingness to draw on component technologies from participating nations in a fair manner. This means paying more attention to operational

²⁸ *The Future of the Transatlantic Defense Community*, p. ix.

²⁹ *Ibid.*, p. 11.

³⁰ *Trans-Atlantic Defence Industrial Cooperation*, A report by the NATO Industrial Advisory Group to the Conference of National Armaments Directors, Brussels (Spring 2002).

³¹ Douglas Barrie and Michael A. Taverna, 'Prague Summit Could Provide Springboard for NATO AGS', *Aviation Week & Space Technology*, vol. 157, no. 2 (8 July 2002), p. 31.

³² Assembly of Western European Union, *The Gap in Defence Research and Technology between Europe and the United States*.

requirements, willingness to invest, capabilities and efficiency than national origin and offset arrangements.³³

Creating a Transatlantic Defence Industry

US and European governments can also promote transatlantic cooperation through support for transatlantic defence industrial linkages and joint ventures.³⁴ European defence companies are already pursuing industrial relationships with US companies as a means of accessing US technology and filling their own capability gaps. Programs like NATO AGS have been seen as potentially critical in providing a focus for transatlantic teaming based on multiple partnerships among prime contractors.³⁵ To be viable, industrial linkages must, obviously, make commercial sense to defence contractors but governments on both sides of the Atlantic need to foster the climate for transatlantic teaming, joint ventures and mergers and acquisitions through periodic affirmation that such forms of transatlantic industrial cooperation are desired.

The strategic alliance between EADS and Northrop Grumman is an instructive example of transatlantic defence industrial development. The two companies signed a Memorandum of Understanding in 2001 under which they agreed to explore opportunities for collaboration in, for example, ground surveillance, aerial targets and decoys, airborne electronic attack and fire control radar. The collaboration resulted in the offer of a 'European version' of a weather and navigation radar, developed by Northrop Grumman, for the Airbus A400M military transport aircraft³⁶ and agreement between Northrop Grumman and EADS to develop a Eurohawk variant of Northrop Grumman's Global Hawk UAV for marketing in Europe. The most substantial part of the two companies' common activities is their collaboration on NATO AGS.

BAE Systems' acquisitions in the United States constitute another model of transatlantic defence industrial relationships. BAE Systems North America Inc. is now one of the leading suppliers to the US Department of Defense as a consequence of its acquisition of Lockheed Martin's Aerospace Systems and Electronic Systems businesses and its earlier acquisition of Sanders (as part of GEC Marconi). These acquisitions enable BAE Systems to gain access to US R&D programs and technology. A key element of BAE Systems' Command, Control, Communications, Computers, Intelligence, Surveillance, Target Acquisition and Reconnaissance sector strategy is to build on its North American capabilities in EW and information dominance

³³ *The Future of the Transatlantic Defense Community*, p. x.

³⁴ Robert Hunter, George Joulwan and C. Richard Nelson, *New Capabilities: Transforming NATO Forces* (Washington DC: The Atlantic Council of the United States, September 2002).

³⁵ Robbin Laird, 'Industry transformation: company efforts can help reshape military', *Defense News* (6-12 May 2002), p. 13.

³⁶ John D. Morrocco, 'EADS, Northrop Grumman broaden cooperative links', *Aviation Week & Space Technology* (12 June 2000), pp. 35-6.

and leverage them into United Kingdom and rest of the world programs. But US export and technology transfer regulations have constrained BAE Systems' ability to utilise US technology in European programs and, hence, the company's ability to create a true multinational business organisation.

A Renewed US Commitment to Transatlantic Armaments Cooperation

Both Europe and the United States must contribute if transatlantic armaments cooperation is to flourish: Europe needs to acknowledge the capabilities gap by reallocating scarce defence budgets to address NATO capabilities requirements. The US government needs to support the modernisation of NATO Europe's capabilities by offering technology and joint programs to support European transformation and adjusting US export and technology transfer regulations accordingly.

US arms export controls have long hampered transatlantic armaments cooperation and their reform is critical. The history of the Medium Extended Air Defense System (MEADS) program highlights the sensitivity of technology transfer issues in transatlantic industrial relationships as well as the often limited political commitment to these kinds of government-to-government collaborative programs on the part of the US Congress. The United States insisted on having the right to conduct on-site security inspections of German and Italian facilities, and at the same time proposed the use of 'black boxes' to protect US technology.

Such proposals were rejected by the German government, which saw MEADS as a test case for US willingness to share technology with its allies. A stalemate ensued which was only broken after eight months of sometimes tense negotiations.³⁷ Similar challenges have been faced by the JSF program. The UK government and industry has warned on several occasions that the JSF is in danger of foundering if technology is not approved for release. These problems have occurred despite the use of an innovative Global Project License designed to ease technology transfer between JSF program partners.³⁸

Progress can be difficult and slow. Years of wrangling between the United Kingdom and the United States led finally to the US-UK Defense Trade Cooperation Treaty signed in July 2007. But only for it to become stalled in the US Senate until after the 2008 Presidential and Congressional elections. Previous unhappy experience of US export control reform initiatives including those by the Clinton Administration—means that Europeans

³⁷ Andrew D. James, 'The prospects for the future', in Burkhard Schmitt (ed.), *Between Cooperation and Competition: the Transatlantic Relationship*, Chaillot Paper 44 (Paris, 2001).

³⁸ David Mulholland, 'UK and US export-control disarray worsening', *Jane's Defence Weekly* (26 November 2003), pp. 24-5.

remain skeptical and the climate is hardly helped by Congressional support for strengthened 'Buy American' provisions.

Effective NATO transformation and strengthening the NATO defence technological and industrial bases will require mutual trust between the United States and Europe. The former will only be willing to share advanced technology, such as stealth and command-and-control systems if the latter is willing and able to protect it to US satisfaction. Cooperative Engagement Capability (CEC) is a good illustration of the difficulties. The US has agreed to release CEC to the United Kingdom but the system's contribution to interoperability make its extension to the whole of NATO highly desirable. Since Norway and Spain have acquired Aegis-based naval air defence systems, they would be the obvious next recipients of CEC. What remains to be seen is how long they will have to wait for it. CEC gives the US a quantum leap in its ability to achieve 'full spectrum dominance' in any theatre of war and the Pentagon is reluctant to see it proliferate elsewhere. It is this aspect of CEC that makes it a curiously paradoxical program. On the one hand, it clearly represents the strongest emergent technology around for removing barriers to full transatlantic interoperability. Yet, on the other, it is too sensitive, too great a leap forward, to be given an unequivocal export release.³⁹ It is little wonder that Thales has called on the French government to fund a naval net-centric system demonstrator as the basis for a European alternative to CEC despite the associated inefficiencies and resource constraints.

Conclusion

Strengthening the European defence industrial base, while the key to transatlantic armaments cooperation, presents major challenges to European policy makers. While European industry has gone a considerable way towards cross-border consolidation, European governments have yet to engineer commensurate intergovernmental cooperation. The European Defence Agency is a step in the right direction but the final outcome of this initiative is far from certain. The Agency will only make a difference if it provides a platform for requirements harmonisation, closer cooperation on research and armaments programs and defining a true European capabilities and armaments policy. The political will to address the capabilities issue expressed first in the ECAP process and now in thinking about the Agency was initially encouraging. But the Agency is an intergovernmental institution and it has been hampered by limited political support from key European governments. Fundamentally, there is no appetite amongst those governments to cede national sovereignty over defence and little enthusiasm to increase European defence procurement spending to a level that ensures that European military forces can meet the political aspirations of the ESDP and NATO transformation. This remains a massive challenge.

³⁹ Cook, 'Network-centric warfare—The new face of C41'.

How should US policy makers respond to these efforts to strengthen European capabilities? To begin with they should recognise that there is little point in the United States continuing to push the idea that the only solution is for Europe to 'buy American'. Instead, US policy makers need to find ways of encouraging transatlantic solutions to transformational capability requirements. Joint programs in transformational technology areas need to be established. These must be supported by reform of US technology transfer and arms export regulations if Europeans are not to conclude that the United States is an unreliable partner.

More generally, Europeans remain uncertain about US commitment to transatlantic armaments cooperation. They perceive Congress to be hostile to transatlantic cooperation and that some Washington circles see the United States having little to gain from transatlantic armaments cooperation because the drive towards transformation, along with increasing US R&D and procurement spending, has given the United States an already unassailable technological lead. European countries' response to these sentiments varies. The UK government and industry will continue to exploit their preferential position in transatlantic armaments cooperation. Italy is likely to do the same. The situation in some other leading European countries is less positive and the momentum for European preference is growing.

If the US is serious about NATO and its transformation then it must take transatlantic armaments cooperation seriously. Abandoning transatlantic armaments cooperation, either by commission or omission, will leave both the United States and Europe worse off. Transatlantic armaments cooperation is a powerful tool to promote interoperability. Within NATO, a combination of strong European efforts complemented by transatlantic armaments cooperation can help tackle the worst of the capabilities gaps. But without new initiatives, Europe's capability shortfalls will undermine its political and military aspirations both within NATO and the ESDP. Within NATO, the capabilities gap is likely to lead to an ever greater divergence of doctrines between NATO Europe and the United States, making coalition warfare increasingly difficult if not impossible for all but a few European militaries. Within the European Union, the consequence could well be the emergence of an equally divisive capabilities gap between those European countries that have invested in transformational and network centric capabilities (in particular the United Kingdom and France) and the rest.

What of the prospects for transatlantic defence industrial cooperation? The size of the US market means that European companies will continue to follow the money. BAE Systems already has a strong US presence and EADS, Finmeccanica and Thales have made clear that their strategy is to increase their presence in the United States. With little prospect of a significant increases in European defence procurement spending we should

not be surprised to see a further shift of capital out of the European defence industry in favour of the United States and—increasingly—the Asian market.

Politically, the openness of the US market and the willingness of the United States to reform its International Traffic in Arms Regulations could have important consequences for the debate over the character of the European Defence Technological and Industrial Base (EDTIB) and the European Defence Equipment Market (EDEM).

Despite the growing European presence, the US-European arms trade imbalance remains and there are some (but by no means all) in Europe who have argued that if the US fails to demonstrate 'reciprocity' and open its market to European companies and European arms then European governments are entitled to pursue policies of European preference—excluding US companies from the European market. Spend time in Brussels and listen carefully and you will hear such an argument made in discussions about the future European Defence Technological and Industrial Base or European Defence Equipment Market.

The reality is though that the EDTIB and EDEM need a strong transatlantic dimension. There is also a need for recognition that the industrial reality is that companies are already operating in the United States and that they will follow the money to strengthen that position in the future. There is also need for a recognition of the political reality that most European governments want to retain the option to buy from the US if that provides better value for money. Thus, talk about 'reciprocity' is by-and-large rhetorical and does not reflect the on-the-ground reality of the actually existing European policy in this area.

A crucial question is what happens next to US procurement policy. One interpretation of the US Air Force's (USAF) decision to select the Airbus-Northrop Grumman tanker was that the USAF and the Pentagon felt that US defence industry consolidation has gone too far—and that they will look globally to ensure competition. We now have to wait for a new President and a new Congress to see what will happen to the USAF air tanker program and whether Airbus will be selected. The danger is that if—after opening the door to European companies—the US government decides to slam it shut again and exclude European companies from bidding on US programs then it may provoke a response in Europe. The outcome would be higher costs to taxpayers on both sides of the Atlantic and inferior equipment for our militaries.

A final point: those Europeans who argue vigorously about the need for transatlantic reciprocity are often the same Europeans who conveniently ignore that there is precious little reciprocity between some European defence markets. The situation may change of course and this is part of the driver behind EDA and European Commission initiatives to open up the

European defence market. Nevertheless, the European argument for the opening of US markets would be stronger if Europe were to first get its own house in order.

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