

The Globalisation of Defence Industries ¹

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Introduction

At the end of the Cold War, superficially at least, the world defence industry changed with remarkable rapidity. In the US, the process of rationalisation, partly inspired by the so called “Last Supper” speech by the Defence Secretary, occurred quickly, leaving a small group of ‘mega primes’ and ‘semi-primes’ dominating the US defence industrial base. European defence firms, albeit at a slower pace, followed suit. These essentially domestic changes then began to assume a more explicit international dimension, a process that can be described at least in part as the globalisation of defence industrial activity.

The process and direction generally of globalisation is the subject of considerable academic debate.² There are those who would question the concept fundamentally – seeing it as no more than the continued development of a process of internationalisation that began in the nineteenth century or even earlier. Others see contemporary globalisation as presaging a qualitative transformation in world society. This view asserts the arrival or the imminent arrival of a truly world economy in which distinct ‘national’ economies and, therefore, domestic strategies of national economic management are increasingly irrelevant. Nation states are seen to have ceased to be effective economic managers. In effect, they have been relegated to the status of ‘municipalities’ within the global economic system. Their job is to provide infrastructure and public goods that business needs at the lowest possible cost. In the most optimistic views, the economic interdependence resulting from globalisation will dramatically reduce the likelihood of armed conflict, with a commensurate effect on the need for conventional security systems and defence capabilities, thus making the current defence industrial system redundant.³

However, defined, for most of the last century, the defence sector remained largely immune from globalisation, with clearly delineated national defence companies supported by national governments. Defence production and weapons procurement was keyed directly into national political and bureaucratic processes. In some cases, the state owned the facilities and the design centres associated with defence development and production. It certainly funded most, if not all of the critical research that underpinned increasingly high technological weaponry. As national security was directly linked to industrial and technological capabilities, defence production was subject to political control affecting inward investment, relations with foreign companies and the export of goods and the transfer of technology.

European defence industrial collaboration - government-led internationalisation

Moving into the 21st century, the state as promoter and end customer of weapons development and manufacturing remains the predominant model in the defence sector. But the purity of the “national” model of the defence industrial base had already been affected by changes in the

¹ This chapter is based in part on Keith Hayward, “The Globalisation of Defence Industries”, *Survival*, Vol.42, No.2, 2000

² See, for example, P. Hirst & G. Thomson, *Globalisation in Question*, Cambridge, Polity Press, 1996; R. J. Barry Jones, *The World Turned Upside Down?*, Manchester, Manchester University Press, 2000.

³ See Allen Hammond, *Which World – Scenarios for the 21st Century*, Earthscan, London 1998 and US National Intelligence Board, *Global Trends 2015*, NIC 2000-2, December 2000. Two of Hammond’s scenarios imply a much reduced threat perspective, even if the world’s ecological problems grow more intense. However, his other two are much less optimistic. The NIC view, unsurprisingly perhaps, is very much less sanguine about the likely reduction in international tension over the next two decades.

structure of procurement, particularly in Europe where cost and market pressures had forced its leading powers into assuming closer and in some cases, interdependent relationships in defence equipment and production. This process had begun in the 1960s, largely in military aerospace. By the end of the 20th century, collaboration had extended to most other sectors, and as we will consider shortly, and had encouraged the emergence of transnational defence firms.

For the most part, the first 40 years or so of European collaboration were essentially based on government-to-government deals. Governments chose their “national champions” and the work was divided on a fair return (*juste retour*) basis; resources invested, order take up determined industrial outputs. The process was highly politicised and resulted in increased overheads and, in some cases additional delay and uncertainty. But once started, collaborative programmes were better protected against national budget cuts and participants were guaranteed equal access to the technology developed for the programme. By the 1990s, European defence equipment collaboration had produced a complicated network of alliances and programmes, but rarely developed under the same managerial umbrella.

Elsewhere, with very exceptions, the US could afford to stand aside from the collaborative impulse. In any event, Europeans especially felt that working with the US left them as junior partners, less able to access technology and dependent on the vagaries of US procurement politics. But even the US was not immune to the increasing role of global supply chains and other less obvious forms of internationalisation. Indeed, by the 21st century, as much or political as economic reasons, the US had also launched one of the most extensive and expensive international programmes, the JSF. Other parts of the defence world had also gone down the partnership route, licence-build having an even longer history than European style collaboration. Ostensibly national platforms would have systems and equipment bought-in. Sales of defence equipment would often be associated with offset deals, keeping the customer’s defence companies in business.

However, this form of internationalisation was still clearly based on distinctly nationally owned and operated companies. Links in the case of prime and large equipment systems were usually negotiated on an ad hoc basis. The role of genuinely multinational companies managing and integrating operations across several frontiers was limited. Foreign direct investment in national defence firms was equally confined to a few historic examples, often associated with ex-imperial connections (the UK), geographic proximity (US-Canada), or again the result of offset agreements.

Investment led defence industrial globalisation

This pattern has begun to change. The last ten years have seen signs of a more comprehensive form of globalisation in defence production associated with the emergence of transnational defence companies and the growth of foreign direct investment in national defence industrial bases. These developments do have the potential radically change the nature of defence supply; but the theme of this chapter is to show that for the moment at least its scope and location is much narrower than might be imagined. Moreover, its long-term impact is most likely to be negatively felt in Europe. In short, investment-led defence industrial globalisation is largely trans-Atlantic and dominated by Anglo-American companies and continued expansion could severely undermine European efforts to maintain a reasonably comprehensive regional defence industrial capability.

Much of defence industry globalisation resembles an iceberg, with much more significant activity below the surface. Further down the supply chain, the need to insert leading-edge commercial technology into defence systems has stimulated the globalisation process. So does an interest in capturing the assumed cost-savings of commercial ‘off the shelf’ procurement

and reducing the development time of major weapons systems.⁴ To take one widely cited example, the embedded software in many weapons systems could come from anywhere in a global industry. National defence customers are increasingly dependent on global suppliers who have little incentive to conform to the political or bureaucratic requirements of specialised defence contracting. Much of this process is largely hidden from view and is outside formal political regulation.

The rapid globalisation of supply chains and the use of commercially developed technology are obscuring the national origins of many defence components and subsystems. Cash-strapped governments have mixed reactions to these developments. They want to increase the efficiency of defence contracting, perhaps through encouraging international competition, but they are also apprehensive about the implications of losing control over key industrial assets and core technologies.⁵ But if much of the globalisation process is occurring below the ‘radar screen’ of government concern or even visibility, then governments will have only limited ability to regulate the process, to control the flow of defence technologies, or to maintain a role in defence-industrial policy.

This issue has become even more problematic with the emergence of investment-led globalisation at a prime or at least semi-prime/OEM level. It is in some respects again linked to the perceived need on the part of governments to maintain competition in national markets by soliciting bids for key contracts from international suppliers. This has been exacerbated by the process of national rationalisation and concentration, both in the US and in Europe, especially in the UK. The changing technological base of much of modern weapons has also encouraged this process, where there is a need to access technology often developed by existing multinational companies. But the former is much more important than the latter, primarily as at the highest level, the ability to invest in national defence markets remains subject to government control (either formally or residually). Matters are more fluid and porous lower down the supply chain, but governments, especially the US, are increasingly keen to identify and if necessary protect key niche suppliers from foreign ownership, or at least to vet mergers and acquisitions.

Because of the essentially politicised nature of the process, the extent of genuine globalisation at the prime-contractor level has so far been limited. The formation of EADS and BAE SYSTEMS in Europe created two transnational defence primes; but only BAe Systems can claim to be a global ‘mega prime’ with a significant presence in both the US and European defence markets and even its prime-contractor status is still largely based on its UK market position and its central place in government-negotiated European programmes. The US primes still have very few overseas assets or, by European standards, extensive networks of collaborative activity. There are, however, increasing flows of foreign direct investment in the defence-aerospace industries, especially among supplier companies. Much of this investment is directed at the US market, motivated by the need to get round US barriers to the purchase of foreign weapons and to access US technology.

However, continuing concerns for national security and economic advantage may encourage governments to focus even more clearly on what they can see, and in areas they can do something about. There will be continued regulation – certainly in the United States – of mergers and acquisitions at the prime and high-level subsystems-supplier level.⁶ But while the

⁴ COTS may not always be the cheaper option for the defence customer, if its procedures and time scales are not in synch with the commercial world. The commercial provider will not keep open obsolete lines or maintain old software protocols to meet a 10 year plus military lead time.

⁵ As the 1999 US Defense Science Board (DSB) report on Defence Industry Globalisation observed, ‘the concept of foreign direct investment in the US defence sector is antithetical to traditional defence industrial base concepts’. Defense Science Board, *Globalisation and Security*, DSB, 1999, p.11.

⁶ The US and European governments are committed to improving the conditions of trade for defence transnationals, most notably in the areas of technology transfer and export controls, personnel

process of defence-industry globalisation might be delayed, it cannot be stopped. The key question is how far the process can go without requiring a fundamental change in the relationship between governments and defence companies whereby firms are allowed to operate more freely in world markets, but can expect less direct support for R&D and fewer political advantages in national markets.

Under these conditions, globalised defence firms are likely to behave like other transnational companies. National-security considerations would continue to impose some constraints on their freedom to transfer technology, core manufacturing assets and, especially, systems-integration skills. In most other respects, however, globalised companies would make investment decisions on the basis of market access and industry efficiency. Consolidated defence-aerospace prime contractors would be even more motivated to source from an international supply base offering a cost-effective mix of world-class technology, best price and delivery times. In many instances, subcontractors would be linked to the primes in preferred-supplier agreements, trading long-term assured custom and participation in the design and development process for commitments to reduce cost progressively. At all points in the manufacturing system, companies would be searching globally for added value in both products and processes.

The domestic consolidation process has been driven by a belief that big is better and biggest is better still. Scale is important in building capacity to bear the financial and technical risks of being a prime contractor. It also increases the political critical mass – the better to manage customer relations and to influence the political process through mobilising the political and economic power of a large corporation. Horizontal integration provides the potential to capture a wider range of defence contracts, exploiting managerial skills transferable between different platforms. In some cases, the defence prime also has the potential to exploit vertical integration, winning profitable sub contracts and, with life cycle contracting increasingly popular, to take a large share of support and through-life business.

European defence industrial rationalisation has also been driven by the perceived need to build an alternative centre of production to the US. Motives have been a mixture of industrial and technological policy and genuine concern to maintain independent sources of supply. As in the US, much of this has been based on national rationalisation and mergers. This has led to even higher levels of national concentration, often creating monopoly “national champions”. Collaboration between national companies has emerged as the strategy of choice for most European countries (France being something of an exception). While *ad hoc* collaboration has helped to keep industrial capacity in being (particularly in aerospace), the process has often increased the cost of procurement. The European defence market, despite recent moves under the auspices of the European Commission to create a more open and coherent structure, remains largely a matter of national choice. A similar position obtains for investment in long term R&D.

From the late 1990s, European defence companies have begun to assume a more transnational character. In this respect, the UK has been a market leader both in terms of encouraging and allowing inward investment in the domestic defence industrial base and seeking overseas opportunities, especially in the US. This, as we will see, has helped to define defence industrial globalisation largely in terms of an Anglo-Saxon process. BAE SYSTEMS has emerged as a key individual player in this process. Outside of the UK, EADS has consolidated a large section of French, German and Spanish defence aerospace capacity. The French firm Thales has created a number of linked national centres and latterly the Italian Finmeccanica has been aggressive in acquiring foreign assets, particularly in the UK. All of

clearances and intellectual property rights. See the US-UK Declaration of Principles and the six-government European Letter of Intent framework agreement.

the European majors have sought, and some have succeeded, in following the UK into investment in the US.

However, the problem of national fragmentation and political intervention remains a limiting issue in Europe. The weaknesses of EADS' multinational management system and its continuing links with three national governments have been exposed by recent crises in its civil operation. National strategies for defence industrial and technological development still dominate, despite attempts by European level institutions to coordinate future planning. The dominant role of the UK, France, Germany and Italy in European defence also tends to create conflicts of interest between the "big 4" and the rest of Europe. But most importantly, the different direction taken by the UK, with a strong commitment industrially and militarily to the trans-Atlantic link poses the most profound challenge to the creation of a more integrated European defence industrial base. Combined with a continuing reluctance to spend money on defence, this implies continuing decline in the region's independent capabilities.

National Defence Industries Outside the North Atlantic Region

Defence industrial globalisation centres on the operations of largely American and West European companies. There are only two non-European and non-American defence companies in the world's top 20 and only nine in the top 50. But many countries have a basic defence industrial capability and several are linked to the global defence industrial core through collaboration, partnership agreements and other ad hoc networks. Some of course, primarily Russia and China are outside of this relationship.

Russia

Russia, despite years of neglect in the immediate years following the end of the Cold War, has still retained sufficient capability to remain a major if declining arms exporting country. The Russian government is backing its aerospace and defence industries in a bid to catch up with western manufacturers. Military strategic interests and commercial goals drive this modernisation programme. A revitalised Russia wants the means to project both regional and global power, as well as to prevent further western inroads into its civil market.

Since the end of the Soviet Union, Russian defence industries, especially aerospace has suffered from under investment in R&D and defence procurement, although in some areas export sales have remained buoyant, especially to countries who either cannot afford western equipment, are denied access to US or European products, or who simply want to avoid dependence on western suppliers.

The Russian government has announced ambitious plans to rebuild Russian aerospace and to modernise the armed forces. At \$32 billion a year, Russian defence spending is only just above UK levels and is dwarfed by US spending. The government has promised a \$200 billion revamp up to 2015. A considerable proportion will have to be spent on R&D to close the quality gap with the US as well as to improving conditions for personnel. But there are plans for a new generation of fighters comparable to the F-22 and the JSF, and UAS development. New bombers and strategic missiles may also be developed over the next decade.

On the supply side, the Russian government has rationalised the industry focusing development on larger groups of companies. Fixed-wing development will centre on OAK or United Aircraft Corporation. Based around Sukhoi, OAK has an asset value of around \$4 billion and shares are likely to be floated in 2009 or early 2010. The Russian helicopter sector is also being rationalised in a move designed to improve its ability to compete with European and US rivals. As a result, Helicopters of Russia (Vertolyety Rossii), also known as Helicopter Holding, now has control over a dozen design houses and production plants, with

strong vertical control ensured through majority government stakes in all of the absorbed companies. There are some prospects for cooperation with western companies, but concerns about Russia's future defence and foreign policy may limit this to civil programmes or relatively low threat dual technology sectors.

China

China has raised its defence budget by 17.6% to \$59 billion, citing the need to increase salaries, cope with the high cost of oil, and the need to modernise its military. Further details have not been revealed, but the move follows Beijing's typical defence spending growth of more than 15% annually over the past few years. The US DoD also contends that China's actual defence spending is routinely double that which is officially admitted. China has ambitions to be a regional super power and is committed to force modernisation centring on the RMA/military transformation process. However, its existing indigenous capabilities are modest and dependent on links with Russia and some western companies, including Israel. However, western companies are constrained by national and regional embargoes, or indirectly by the threat of US sanction, from cooperating with China. This has extended to some dual technologies especially in the space sector. China does have a growing competence in space, including overtly military programmes.

India

India has one of the highest levels of defence spending in the developing world. India's budget grew by 10% to 1.05 trillion rupees (\$26.5 billion) - just under 2% of its gross domestic product - although further funds are available for procurements if needed. Just under half of this total is for procurement with 25% allocated to the airforce. Like China, India is experiencing a period of explosive economic growth. For the most part, this is driven by private capital, although the Indian state sector remains a significant player in a number of strategic industries, especially aerospace. Indian companies are also active overseas investors, and Indian multinationals are emerging as important actors in the world economy. India is also noted as a major centre for IT and software development and a centre for global outsourcing, particularly in services. Indian IT capabilities, already employed by the global aerospace industry, are likely to be an important factor in India's future role in the sector.

Indian defence acquisition policy has been shaped by a determination to develop its indigenous defence industry base.⁷ This has required licence production and local assembly wherever possible. Until recently, India has bought its weapons from European states, Israel and most importantly from the Soviet Union/Russia. Russia is still India's main source of defence equipment – some 70% of current inventory. With limited success, India has also sought to develop indigenous designs. The LCA fighter has been in development since the 1980s and has still to enter service.

Indian procurement has been heavily affected by bureaucratic paralysis that has made it very difficult to conclude contracts. Procurement decision-making has also been affected by a series of corruption scandals. Reforms designed to improve and expedite the process were introduced in 2005. Earlier, in 2001 India moved to open up its defence industry to inward investment. Bureaucratic problems have frequently forced the MoD to return parts of the annual budget due to decision-making delay. India may well turn to western suppliers for some of its future advanced weaponry. This will again require substantial offset investment in the Indian defence industry. But its future as part of a globalised defence industry will remain limited. Despite continuing ambitions to create a modern aerospace and defence industrial base, state engagement and bureaucratic issues will hinder both indigenous development and prospects for effective partnership with overseas suppliers.

⁷ Richard A. Bitzinger, "India's Once and Future Defence Industry", RCIS Commentaries, 8th October 2007.

Japan

Japan is perhaps the most important non US-European player in the globalised defence industry. In terms of published data (which tends to under estimate the size of the Russian and Chinese defence industries) it is the worlds' fourth or fifth defence industrial base, and has one of the largest procurement budgets. While its defence budget is set at about 1% of GDP, the sheer size of the Japanese economy ensures that Japan is the world 2nd ranked military power in terms of expenditure. However, due to high personnel costs, procurement accounts for only around 19% of the total defence budget.⁸

Historically, Japan has been closely linked to the US and for political reasons as well as industrial benefit, has had a strong preference for buying American equipment. As part of a well-defined industry policy, much of this has been licence-built and produced onshore. From time to time, Japan has been tempted to launch indigenous programmes, most notably the FSX of the 1970s. At the time, this was much vaunted as a precursor not only to an expanded native defence industrial capability, but also as a potential springboard to an independent civil aerospace industry. As such, American cooperation with its design and systems development was much criticised in the US. In reality, the eventual product was an expensive modest update of the F-16. Indeed, in general the outcome of Japanese defence industrial activity has been disappointing and costly to the Japanese defence budget. Japanese industry, however, seem have derived more than useful technological returns from exploiting spin-off opportunities through vertical integration of enterprises.

Industrial and technology policy interests have played a major (often decisive) role in procurement policy. Japan's determination to support its relatively small defence industrial base has led to higher unit costs. There are still strict restrictions on the export of Japanese weapons systems, which also add to procurement costs. Finally, the absence of genuine collaborative relations with overseas companies has further limited Japanese ability to acquire technology and to defray development and procurement costs.

The Japanese military, though subject to tight civil control, are in favour of a more active security role. While constrained defence budgets have led to cuts in equipment numbers, the Japanese military have continued to focus on quality with an emphasis on high technology and firepower. Japan is committed to force modernisation through network-centric concepts and to further extend the range of its power projection capabilities, including more advanced airborne weapons. This is also driven by the need to remain interoperable with the US. Japan may be moving to develop a STOVL capable carrier force. There is growing pressure to end the restrictions on arms exporting and to seek more equitable and beneficial forms of industrial cooperation; primarily aimed at deepening relations with the US. However, Japan has still to make up its mind about its next generation fighter, and may have lost an opportunity to become a key player in the JSF programme. There are also signs that the Japanese military are becoming more influential in defence procurement and that pure defence industrial interests will play a diminishing role in the future.

Other national capabilities

Outside the big players, there are a number of significant defence industrial players. In particular, Israel has a very impressive defence industrial base, supported by highly innovative technologies, especially in unmanned platforms and electronics. As a result, Israeli companies have become key suppliers to a number of other national defence industries, and a small but significant investor in the US. South Korea and Taiwan, for obvious geo-political reasons, have sought to maintain a high level of national capability. Several Latin American countries have some capability, but are primarily concerned with licence production and

⁸ See, C.W. Hughes, *Japan's Re-emergence as a 'Normal' Military Power*, Adelphi Paper 368-9, IISS, 2004

offset led production. South Africa, thanks to its Apartheid isolation, has inherited a relatively large defence industrial base – by far the largest in Africa. It is linked to several western companies, especially BAE SYSTEMS. Similarly Australia has identified aerospace, both civil and military as a strategic investment, and is an important member of the JSF coalition. The size of the Australian industry as well as the likely level of government and private investment will limit the future scope for expansion. Australia will continue to hold attractions as an effective and competitive partner and sub contractor in foreign-led programmes. This is underlined by the pattern of inward investment in the industry. Along with the UK Australia is viewed positively by the US government as a safe and reliable recipient of American technology. This has been underlined by signature of an US-Australian treaty on defence trade currently before the US Senate for ratification.

National motives for developing indigenous defence-industrial complexes have ranged from security autarky to stimulating economic development. As a minimum, states have sought to offset the cost of defence-equipment procurement with some degree of domestic production. In some cases, states have deliberately targeted the defence sector as a source of technological innovation, often with mixed results and usually at much greater cost than off-the-shelf purchases. Several companies from beyond the Atlantic world are aggressive players in niche defence-export markets, especially in the case of less-developed states or where U.S. or European embargoes and political sensitivities have blocked sales. In recent years, the technical difficulties inherent in developing and producing more complex equipment and wider economic problems have led some states to curb their ambitions to develop autonomous defence industrial capabilities. The result has often been domestic rationalisation and an increased interest in attracting foreign investment in indigenous companies.¹

In most cases, however, the primary relationship between ‘core’ manufacturers and the rest of world has been through direct offset sales, that is, sales involving some domestic production or the sourcing of components from the purchasing country or other joint-venture activity. In some cases, this has involved investment in process and product capabilities to bring the partner company up to world standards, but there is also an increasing interest in using such partnerships to extend a company’s product range and to exploit specialised technological capabilities as well as lower labour and manufacturing costs.

The emerging “new defence industrial base” may afford more opportunities for new entrants, as Israel is already demonstrating. The growing role of commercially derived technology, especially in the IT area, may enable some states to assemble a much more advanced military capability.² However, the ability of countries to take advantage of these opportunities varies considerably. The more advanced technological and industrial systems of Japan, Korea, Singapore and Australia are clearly well placed to build on a broader dual civil-military technology base.³ The integration of commercially developed software into defence systems would, for example, afford opportunities for the Indian software industry indirectly to become part of the world defence industrial system.⁴ However, even the Japanese have found it hard to make the leap from advanced defence manufacturer to the level of systems integrator.

Israel is an especially interesting case. With a history of developing basic platforms through selective insertion of indigenous technology, Israeli defence companies have acquired an impressive range of advanced capabilities, including Unmanned Aerial Vehicles (UAVs) and in intelligence and surveillance systems. Israeli companies have strong and often-privileged links with US defence companies and are involved in a number of cooperative ventures with European firms. Israel has courted controversy and the opposition of the US government in proposing force modernisation programmes for China, including airborne early-warning technology. Israel is clearly a key candidate for closer incorporation into the global core of U.S. and European defence industries. However, much would depend upon the evolution of international relations in the Middle East. European firms would be reluctant to risk their

commercial relationship with Arab states through too close a relationship with Israeli industry.

Regulating the Defence Transnational

Other chapters have described the regulatory regimes (especially those of the U.S), but the emergence of a globalised defence industry should pose a significant challenge to such controls. As Anne Markusen suggested in the 1990s, 'a global defence industry will mean a few, large transnational contractors facing a wider array of buyers. Market power will shift from governments to the private sector.'⁹ As the US Defence Science Board noted in 1999 it is possible to envisage controls and concerns narrowing to a much more focused group of technologies and largely managerial skills centring on the integration of complex systems, or 'systems of systems'.¹⁰ This would still imply a radical shift in the relationship between the defence industries and the state. Markusen predicted that governments will have to work together to 'regulate their defence industries and co-ordinate arms export policies or face slowed innovation, inflated prices, and accelerated arms proliferation.'¹¹

However, so far national restraints are proving resilient and robust against the forces for change. Transnational defence firms, like their equivalents in other sectors, have found *ad hoc* ways of working around some of the national restrictions on the export of certain defence products and on collaboration with overseas-based firms. But there are still significant barriers to achieving optimal industrial and commercial arrangements for the internal transfer of technology personnel and the formulation and implementation of corporate strategy. Governments will still want to ensure that the globalisation of defence industrial production will not compromise national security and that the national economy will continue to benefit from defence equipment development and procurement. In particular, national governments will want to retain some control over vital defence technologies and their diffusion into the wider international system. National military establishments will retain an interest in the formulation of defence equipment specifications, defence R&D and the cost-effective procurement of military products. These concerns are to a degree evident in other sectors, but they are felt most acutely in the defence sector where public money and security are directly involved.

The experience to date has also shown that inter-governmental cooperation to control or to facilitate defence industrial globalisation has been slow to materialise. In the 1990s, the six leading European defence nations signed a Letter of Intent (LOI) with a view to negotiate a more effective defence trading relationship. In part this was explicitly design to help the emerging European defence transnationals by establishing an agreement framework governing, *inter alia*, export controls, security of supply and personnel clearances. In practice, although some aspects of the LOI process have been delivered, it produced few direct benefits for defence industries. At a different level, progress towards a more integrated EU defence market and procurement system has been equally slow, affected often as not by continued differences between EU governments about the direction and depth of the process. Either national strategies (for example the UK's succession of Defence Industry Policy, Defence Industry Strategy and Defence Technology Strategy papers) or bilateral initiatives (notably Anglo-French links) have continued to prevail.¹² And as we have noted earlier, domestic political interests have exacerbated EADS' problems.

As much of the globalisation of defence industrial activity is more implicit than explicit, either through the supply chain or as defence equipment and systems comp even more to rely

⁹ Anne Markusen, 'The rise of World Weapons', *Foreign Affairs*, Spring 1999, p.41.

¹⁰ See the recommendations of the DSB, *Globalisation and Security*, *op cit*,

¹¹ Markusen, *op cit*.

¹² Finmeccanica paper

on civil technology offered by established global companies, the ability of governments anywhere, even American, to control or to regulate the process will be limited. It may be sufficient to focus on those parts of the supply chain where governments are still ‘gatekeepers’ controlling access to key technologies and capabilities, and determining the general outline of national defence industrial structures. However, as commercial technology becomes ever more important to the functioning of complex weapons systems or ‘systems of systems’, and if more well-established globalised enterprises are drawn into defence production, governments may lose much of their bargaining power and leverage.

Defence Industrial Globalisation – the US-UK axis

For all the emergence of a global defence supply chain and the wider dissemination of key defence relevant technologies, the operation of a global defence market, supplied by defence transnationals is something of an illusion. In terms of absolute size, the available defence market is dominated by the U.S-European axis; and the former hugely outweighs the latter in terms of scale and scope. As we have noted above, Europe has seen the emergence of transnational defence companies, such as EADS, Finmeccanica, MBDA, Thales, Rolls-Royce and BAE SYSTEMS. In some cases – and EADS is the most notable example – these have grown out of an increasingly dense network of *ad hoc* collaboration. This has proven a mixed blessing, with EADS inheriting a complex and debilitating multinational national managerial system reflecting its Franco-German (and Spanish) origins. Equally, attempts to reformulate the mix involving Thales and other companies were heavily influenced by national (primarily French) concerns about the future of national defence industrial assets.

In practice, U.S. and especially British firms have been the most aggressive and successful innovators as transnational defence firms. In this respect, BAE SYSTEMS has emerged as the most significant player; but all of the leading UK defence companies have acquired a U.S. footprint. Several American companies have reciprocated, taking advantage of the UK’s remarkably liberal attitude towards inward investment and a relatively open approach to procurement. Significantly, a number of European companies – notably Finmeccanica and Thales – have also acquired UK assets not only to compete for British contracts, but also to take advantage of an acquired company’s U.S. located assets. These in turn have helped to provide a springboard of political acceptability for further US expansion.

The motivation for this activity is simple to identify – “follow the money”. The US defence market is the world’s largest and most valuable. Access is strictly controlled and subject to implicit but none the less strict 100% offset for major purchases of foreign equipment. A US partner is essential and must show clear employment and other advantages to succeed in competitions. More indirectly, and perhaps more crucially, investing in the US gives access to US R&D funding, even “black” budgets - as long as the investor is prepared to accept restrictions on managerial control and direction, especially over technological assets. Conversely, the European market, although having fewer restrictions on technology transfers, has been increasingly problematic, less promising in terms of new programmes and very much less attractive in terms of technology generation.

The British presence is partly a product of historical accident. The high level of government-to-government cooperation including intelligence and nuclear weapons has helped UK business to prove its acceptability and good faith as a protector of US technological interests. These links have been reinforced by the close military ties between the two armed forces, and the concern of the UK to maintain inter-operability with the American military. The UK has been more willing than most of the other leading European states to procure weapons from the US. In some important instances, particularly the JSF, this has led to substantive industrial collaboration. Finally, as we have noted already, the UK has been fully open to inward investment in its relatively buoyant defence market to US companies. It should also be noted that many UK companies have chosen to attack the US market because they have been

excluded from, or restricted from bidding in European programmes by the application of *juste retour* and other political barriers. By the same token, investing in many European countries to circumvent these restrictions is similarly obstructed. In short, for many UK firms the US is a relatively better, easier and freer place to defence business than in Europe.

Other European, and some other national firms – notably Israeli, have followed, or have aspired to follow the UK path. The Italian company Finmeccanica has been especially successful in forging links inside the US defence industrial base, with the French Thales also well-regarded as a US based supplier. In both cases, much of their initial US footprint has followed acquisitions of UK companies with existing US assets. Finmeccanica has begun to expand on this beachhead, supported by two important sales to the DoD. EADS has expressed similar interest in developing a comparable presence, and sees its success in selling the Airbus A330 as a solution to the USAF's tanker requirement has a possible breakthrough. However, with the exception of Finmeccanica, none have replicated the British presence. Equally, important, to date there are few examples of US investment in the French or Italian defence industries. While it is debatable as to whether US firms would find either attractive targets, the reality is that government controls would obstruct the kind of two-way interaction that has linked the US-US defence industries.

Towards a Trans-Atlantic (and trans-Pacific) Defence Market

As other chapters have described, attempts to improve the regulatory framework governing US-UK cooperation in defence trade have a long history. Despite much high-level good will and some attempts by the British to lever their stalwart support for coalition operations into a better regime for defence trade, little had been achieved by 2007. Clearly, failure to move very far in respect of ITAR reform did not prevent the continued development of closer ties between UK and US defence companies. Similarly, although dogged by several rows over technology transfer, the UK has maintained its strong position on the F-35 JSF programme.

In 2007, in an attempt to by-pass opposition to reform in the House of Representatives, the UK and US governments signed a Defence Trade Treaty. This was shortly followed by a similar agreement with Australia. Both required Senate approval, but the Senate in general has been more favourably inclined towards reform. The path to ratification has not been easy, and by the summer of 2008, it was still stuck in detailed examination by the Senate Foreign Relations Committee. The key issues were exactly which items would or would not be excluded from the Treaty and the exact composition of which UK defence companies would be allowed into a defined community. The status of foreign-owned, UK located companies was evidently of particular concern to the Senate. Ratification may yet be blocked by the start of the 2008 political season. If so, the Treaty will fall, and the UK and Australia will have to face a new Administration and a new Senate in 2009.

Critically for the companies designated by the UK and Australian governments, they would effectively inside the ITAR framework, or at least spared some of the restrictions that currently impede cooperation between companies on both sides of the Atlantic and Pacific. Reform would also enable transnational companies to operate and to organise internal transfers of information and personnel more effectively and efficiently. The implications for UK located defence companies could be profound. In the case of the UK Treaty, the Ministry of Defence will be expected to approve and to vouch for companies allowed to operate within the terms of the Treaty. Once within the approved community, the Treaty would allow companies a much freer exchange of technology, information and cleared personnel. Any transfer from the UK to a third party would continue to require US ITAR approval.

The Treaty would re-enforce the already strong trans-Atlantic axis in the UK defence industrial base. While the Treaty may not make it harder to cooperate with Europe, but given the relative size of the markets, the availability of R&D money and a more straight forward

political context, UK defence companies would inevitably be tempted to do more business with the Americans. It would create an assured defence industrial and technological community on both sides of the Atlantic where the prospects cooperation could be more easily explored that would increase the momentum favouring trans-Atlantic programmes.¹³

Assuming that the Treaty placed before the Senate does broadly satisfy all concerned ratification would significantly improve relations between the defence communities on both sides of the Atlantic and Pacific. At a governmental level, it would further deepen the already close relationship that links the US and UK defence science establishments. The Treaties would further improve the interoperability of US and UK and Australian armed forces by removing most of the restrictions on the transfer of information and technology for use in time sensitive contexts. Overall, it should fulfil most of the requirements demanded by the UK MoD to ensure operational sovereignty of US sourced equipment and technology. The Australia-US relationship would similarly move to a different level, and would no doubt have positive implications for three-way industrial cooperation.

More optimistically, the Treaty might set a precedent for other European nations, thus opening up the prospect of a genuine trans-Atlantic defence market. But as this is likely to require individual treaties, political sensitivities might prove too much, even though some of the wounds caused by the Second Gulf War have begun to heal.

Whatever happens to these Treaties, the need for national technology transfer regimes to reflect industrial realities will not go away. No country has a monopoly of security relevant science and technology. Global defence companies are now the norm. International cooperation to develop expensive weaponry is vital even for the US. The aim must be to prevent the proliferation of the most sensitive materials through more sophisticated, selectively applied measures; not outmoded crude procedures that only hurt allies and one's own industry and armed forces.

Conclusion

Globalisation is unquestionably changing the environment within which national defence industries operate. The number of transnational defence enterprises is increasing and globalised supply chains are becoming the norm, even for core national programmes. However, defence is still different from other industries. State involvement is still regarded as appropriate but when there is growing reluctance on the part the tax payer to pay the price of even limited independence in defence production, for example, in Europe, it is harder for nationally based defence firms to survive at least at the prime-contractor level. National subsystems manufacturers are still viable, if they achieve the financial and technical mass capable of matching the world (that is, U.S.) standards; however, with reduced or non-existent government support, they will need to expand their overseas operations in order to remain profitable and competitive.

Generally, the small and the weak do not inherit the defence world, and that is how, with a few exceptions, individual Western European defence companies appear when compared to U.S. companies and their potential to dominate the globalised defence industry. This is even truer for the rest of the world. However, if the underlying trend towards a more globalised and open technological environment continue, there will be more opportunities for companies outside the defence arena to take a leading role in defence equipment and systems supply.

¹³ There is an issue about the status of the Treaty in respect of EU law and draft proposals on the EU defence market. If EU firms in the UK are outside the approved list, they might have a case under EU competition law. Even non-UK located companies might have a case. A bilateral treaty is commonly subordinate to EU law. The crux will be whether the so-called Article 296 national security exemptions EU law would apply.

Unless there is a rapid movement towards a collective European research effort and an integrated defence market, European defence industrial capability will drift further behind the US. The gap between Europe and the rest of the world will narrow. The most successful European firms may 'migrate' or merge with US primes to become integral parts of a more globalised US industry serving world markets. In this respect, European hopes of maintaining and certainly expanding an "indigenous" defence industrial base look increasingly dubious. The decline will not be immediate; the momentum of existing programmes will ensure sufficient work to keep European factories busy for a generation. European governments will continue to support local industry for social as well as security reasons. But without rapid and more fundamental reform to both the supply and demand side of procurement, Europe's defence industry will lose its competitive edge and still further ability to match the technological competence of US, or US centred companies.

This will put the US in an even more dominant defence industrial position, although the US government and its military establishment will have to accept greater dependence on external supply. However, while it will be difficult, if not impossible, to 'control' defence technology, sufficient core capabilities and skills will remain in the US to ensure that the US government will have proportionately more control over the flow and direction of defence developments than any other political entity. In this respect, it is still difficult to see an end to US military technological hegemony. The extent to which this hegemony will be unassailable may, however, depend upon how quickly and how successfully its leading defence industrial players respond to the demands of new security requirements and can assume more flexible and adaptive corporate structures.
