

11. Arms production

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I. Introduction

In 2002 there was a modest rate of industrial restructuring in the main centres of arms production—the United States, Western Europe and Russia. At the political level, the year was characterized by studies of and debate about future acquisition practices and the adjustment of industry to the military and political developments that have occurred since the 11 September 2001 terrorist attacks on the USA. The technological and industrial implications of the US-led war in Afghanistan were of particular interest. These factors and developments focused attention on the transatlantic relationship. Strong military–industrial transatlantic links are perceived by many in industry and governments as important not only for the purpose of interoperability and technological progress, but also for the political cohesion of the North Atlantic Treaty Organization (NATO). At the same time, many European governments are unable to significantly expand their budgets for arms procurement and military research and development (R&D)—not least because of public opinion—and are also sceptical of the new US doctrines and strategies.¹ European governments have therefore generally not been inclined to make substantial increases in their arms procurement budgets,² while European companies have increasingly tried to gain access to the US market—primarily for military sub-contracts that have been generated by the increased US budget for arms procurement and military R&D.

This chapter summarizes the main developments in the arms industries of the USA and the main arms-producing countries in Western Europe—France, Germany and the United Kingdom—and Russia. It is not a global survey, which would have necessitated the inclusion of a number of other countries.³

The main development in industrial restructuring in the USA in 2002 was Northrop Grumman's acquisition of the aerospace and information technology company TRW, a deal which illustrates a new trend in concentration, driven not by lack of demand but by adjustment to the changes in US methods of warfighting and military technology. In Western Europe, the main event in

¹ See chapter 1, section I, in this volume.

² See also chapter 10 on military expenditure in this volume.

³ Other countries with a substantial arms industry include Australia, Canada, China, India, Israel, Italy, Japan, Kazakhstan, the Netherlands, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey and the Ukraine, and other countries, for which the size of arms production is unknown, such as Iran, Iraq and North Korea. For a discussion of the global structure of arms production (including the 35 largest arms-producing countries in the world), see Sköns, E. and Weidacher, R., 'Arms production', *SIPRI Yearbook 1999: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1999), pp. 407–11.

2002 was the merger of the two largest British military vehicle companies into one company, Alvis. The sectors which are the least consolidated in Europe are those for land armaments and shipbuilding. In the USA these sectors have experienced a strong concentration as a result of a drop in orders and US companies are now turning to Europe for acquisitions. In Russia a number of plans and policies that are intended to reorganize the arms industry are slowly being implemented but are still strongly dependent on external funding for cooperation or exports. In 2002 Russia decided to set up two integrated companies, one for air defence systems and one for small arms and ammunition.

Section II presents an overview of the trends in arms production in the post-cold war period. The concentration of industry in 2002 is discussed in section III, and section IV addresses defence industrial policy. Section V summarizes the main developments in arms production in 2002 and outlines concerns about the adverse implications of the concentration and privatization of arms production.

II. Overview of trends⁴

The downsizing of arms production that followed the end of the cold war ended in the mid-1990s. Thereafter, the level of arms production in the major Western arms-producing countries—France, Germany, the UK and the USA—increased slightly but fell again towards the end of the decade (appendix 11A, table 11A.1), while Russian arms production has been increasing since 1998 (appendix 11A, table 11A.3).

The reduction in arms production in the first half of the 1990s was primarily the result of reduced domestic demand. Arms exports also declined but to a lesser extent and with less impact on the arms industry. In the second half of the 1990s the USA and the main arms-producing countries in Western Europe increased their arms exports to compensate for the continuing decline or stagnation of domestic markets. For Russia this trend was even stronger. British, French and US arms exports peaked in 1997, while German arms exports have been fluctuating. The combined effect of internal and external demand was a slow down of the decline in arms production in the second half of the 1990s.

Trends in 2001 and 2002 are more difficult to discern. According to NATO data (appendix 11A, table 11A.2), US equipment expenditure increased by 26 per cent in real terms between 2000 and 2002, while US arms exports continued to decline. The net effect is most likely an increase in the level of US arms production since 2000. The combined equipment expenditure of the West European members of NATO declined by 3 per cent in real terms between 2000 and 2002, while at the same time their arms exports continued to decline slightly. National arms export statistics show that German exports

⁴ This section is based on data in appendix 11A. Additional official statistics on arms production are available at URL <<http://projects.sipri.se/milex/aprod/transparency.html>>. Official statistics on arms exports are available at URL <http://projects.sipri.se/armstrade/at_gov_ind_data.html>.

of new military equipment declined by 2 per cent in 2001,⁵ and British arms exports fell by 6 per cent in real terms.⁶

The difference in market size between the USA and Western Europe is illustrated by the spending gap on military equipment, a ratio of 3:1 in 2002, which reflects their differences in security policies and global commitments. In the 1990s the gap narrowed as a result of the consistent decline in US expenditure. West European expenditure has remained roughly flat since 1995 (including approximate figures for France) but increased in 2001–2002. In military R&D the spending gap is greater than in military equipment. Organisation for Economic Co-operation and Development (OECD) statistics for government expenditure on military R&D (appendix 11A, table 11A.2), show a ratio greater than 4:1 between the USA and the European Union (EU) in the 1990s. The ratio has increased since then, although no precise data are yet available. The trend in military R&D is similar to that of military equipment in that there was a significant reduction between 1991 and 1996, and the decline then levelled off.

Russian arms production, which fell sharply after the dissolution of the Soviet Union in 1991, has been increasing since 1998. The average annual rate of increase was 28 per cent in the period 1998–2000, slowing to 1 per cent in 2001 and then resuming the 28 per cent increase trend in 2002 (appendix 11A, table 11A.3). Owing to the low level of government orders, in particular during the 1990s, Russian arms production has been heavily dependent on exports, which during the first half of the 1990s constituted the main source of revenue for the Russian arms industry. The trend in Russian expenditure on military equipment and R&D is hard to trace because of the lack of transparency in the Russian defence budget before 2000. However, it seems clear that domestic arms procurement has increased since 1998, in line with overall military expenditure. The domestic state defence order—covering R&D, new military equipment, repairs and upgrades, and military-related services—increased from 15.2 billion roubles (\$0.8 billion) in 1998 to 79 billion roubles (\$2.5 billion) in 2002 (appendix 11A, table 11A.4), a fourfold increase in nominal terms but less than double in real terms. Russian arms exports have been increasing since 1999. There was a strong increase in 2002—by more than \$1 billion to \$4.8 billion in the value of arms export deliveries.⁷ Rosoboron-export, the government export agency, accounted for \$3.5 billion in deliveries. Revenues from arms exports were higher at \$4.3 billion.⁸

⁵ Bundesministerium für Wirtschaft und Arbeit, *Bericht der Bundesregierung über ihre Exportpolitik für konventionelle Rüstungsgüter im Jahre 2001 (Rüstungsexportbericht 2001)* [Report of the federal government of its exports policy of conventional armaments in 2001 (arms export report 2001)] (BMWA: Berlin, Dec. 2002), p. 30, available at URL <<http://www.bmwi.de/textonly/Homepage/Presseforum/Pressemitteilungen/2002/2C18prm6.jsp>>.

⁶ Defence Analytical Services Agency (DASA), *UK Defence Statistics 2002* (National Statistics: London, 2002), available at URL <<http://www.dasa.mod.uk/natstats/stats/ukds/2002/ukds.html>>.

⁷ 'Russia exports \$4.8 billion worth of arms in 2002', *Air Letter*, 20 Feb. 2002, p. 4.

⁸ Pronina, L., 'Arms exporter rakes in record \$4.3 bln', *Moscow Times.com*, 14 Jan. 2003, p. 5, URL <<http://www.themoscowtimes.com/stories/2003/01/14/046.html>>.

Future trends

Future trends in spending on arms procurement and military R&D are divergent. The war on terrorism has had a clear and direct impact on procurement plans in France, the UK and the USA but so far this example has not been followed to any great extent by other countries. The US national defence budget estimates for fiscal year (FY) 2003 show a planned increase in expenditure on arms procurement of 32 per cent in real terms over the period FY 2002–2007 to \$78 billion in FY 2003 (at constant FY 2003 prices).⁹ Military R&D expenditure is planned to increase by 25 per cent during the period FY 2002–2005, from \$45 billion to \$56 billion, and then decline slightly.

Although some West European countries plan to increase their defence budgets, they are not likely to match the planned US increases.¹⁰ Germany has even frozen its defence budget for the period 2003–2006,¹¹ while France, Italy and the UK plan moderate increases in their defence and procurement budgets for the next few years. The French procurement budget is set to rise from €13.65 billion (\$12.9 billion) in 2003 to €15.08 billion (\$14.2 billion) in 2008 (in nominal terms).¹² The Italian procurement budget is projected to increase from €3 billion (\$2.8 billion) in 2002 to €3.3 billion (\$3.1 billion) in 2003.¹³ The British *Spending Review 2002*, published in July 2002, shows the defence budget increasing at an annual average rate of 1.2 per cent in real terms between FY 2002/03 and FY 2005/06 (1.7 per cent on an historically comparable basis).¹⁴ The spending plan includes ‘over £1 billion (\$1.5 billion) of new capital and £0.5 billion (\$0.75 billion) of new resources for new network-centric capabilities and other equipment’.¹⁵

The arms industries in both the USA and Western Europe are targeting the potential growth markets resulting from the increases in the US defence budget, primarily aerospace and electronics, including programmes such as the Joint Strike Fighter (JSF), missile defence, unmanned air vehicles and advanced electronics for various applications in the network-centric warfare

⁹ Gold, D., ‘US military expenditure and the 2001 Quadrennial Defense Review’, *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), p. 310.

¹⁰ See chapter 10 on military expenditure in this volume.

¹¹ German Bundesministerium der Finanzen, *Finanzplan des Bundes 2002 bis 2006* [Finance plan of the federal government 2002 to 2006] (Bundesministerium der Finanzen: Berlin Aug. 2002), p. 23. See also chapter 9 in this volume.

¹² French Ministry of Defence, *Information Sheets: Bill of Law for the 2003–2008 Military Programme* (Ministry of Defence: Paris, 2002), p. 57.

¹³ Embassy of Italy in Sweden, Response to SIPRI military expenditure questionnaire, 21 Jan. 2003.

¹⁴ In 2001 the UK changed its accounting system for defence expenditure from ‘cash basis’ to ‘resources basis’, which resulted in a series break in the statistics. The Treasury provides an alternative series, calculated to be roughly consistent over time. HM Treasury, ‘Spending review 2002’, URL <http://www.hm-treasury.gov.uk/Spending_Review/spend_sr02/report/spend_sr02_repchap12.cfm>.

¹⁵ British Ministry of Defence, *The Government’s Expenditure Plans 2002–03 to 2003–04* (Her Majesty’s Stationery Office: London, July 2002), p. 21. The UK does not release more detailed forward-looking procurement data; although the Ministry of Defence publishes an expenditure plan, procurement expenditure is spread across the Defence Logistics Organization and the Defence Procurement Agency.

concept.¹⁶ The launch of the war on terrorism in October 2001 and the boost in US homeland security expenditure also raised expectations of a boom in arms production in the near future. Sales of stock in the US arms industry reportedly surged to a rate not recorded since the military build-up of the Reagan Administration in the early 1980s.¹⁷ Another indication of industry expectations is the interest in funding new military technology programmes. However, although the budget of the Department of Homeland Security is set to increase from \$17.5 billion in 2002 to \$28.2 billion in 2003, traditional DOD suppliers may not be the main beneficiaries.¹⁸ New funding will instead benefit companies that make equipment such as X-ray scanners, cargo inspection systems, surveillance equipment and information technology.¹⁹

The Russian arms industry continued to seek foreign financing, exploring export markets and international military–industrial cooperation opportunities, mainly with companies in Asia, but also in Europe. Russian domestic demand is growing as its defence budget increases. The proposed Russian state defence order for 2003 was submitted by the Economic Development and Trade Ministry on 31 December 2002. The planned level of the order for 2003, 109.8 billion roubles, is an increase of 33 per cent, part of which is due to expansion of the scope of the state defence order (appendix 11A, table 11A.4).²⁰

III. The concentration process in 2002

In 2002 the consolidation process in the US arms industry led to two major changes in the top prime contractors. Northrop Grumman's acquisition of TRW created another giant company, the third largest US arms producer after Lockheed Martin and Boeing. In addition, Raytheon, previously ranked number three, sold off an important part of its arms-producing activities, although it remains a major defence contractor.

Within Europe concentration often means cross-border deals. The internationalization of arms production takes place on both the industry and the government level. Since the end of the cold war the internationalization of arms production has been driven by industry but sanctioned by national governments. Companies often initiate mergers and acquisitions (M&A) and joint

¹⁶ Nicoll, A., 'Action stations: the US defence sector is attracting renewed interest from investors as contractors race to benefit from sharp increases in Pentagon spending', *Financial Times*, 27 Feb. 2002, p. 12.

¹⁷ 'Wall Street bombarded with defense IPOs: rise in government spending lures investors, but analysts urge caution', *International Herald Tribune*, 18–19 May 2002, p. 11. During the preceding 6 months, 4 companies went public—Anteon, Integrated Defense Technologies, Mantech International and United Defense Industries—and another 3 companies planned to do so—SI International, SRI International and Veridian.

¹⁸ US Office of Management and Budget, *Fiscal Year 2004 Historical Tables: Budget of the United States Government* (Government Printing Office: Washington, DC, 2003), p. 75, available at URL <<http://w3.access.gpo.gov/usbudget/fy2004/hist.html>>

¹⁹ Mulholland, D., 'US homeland security unlikely to provide industry bonanza', *Jane's Defence Weekly*, 4 Dec. 2002, p. 18.

²⁰ ITAR-TASS (Moscow), 'Russian ministry seeks to increase state defense order by 33.4 per cent in 2003', 30 Dec. 2002, in Foreign Broadcast Information Service, *Daily Report—Central Eurasia (FBIS-SOV)*, FBIS-SOV-2002-1230, 31 Dec. 2002 (in Russian). See also chapter 10 in this volume.

Table 11.1. The value of mergers and acquisitions in the US aerospace and defence industry, 1992–2001^a

Figures are for the total annual value of mergers and acquisitions transactions, in US\$ b., at current prices.^b

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 ^a
Value	2	6	3	9	21	32	7	17	19	9

^a Data for 2001 are for the first 10 months only.

^b Data are derived from a graph.

Source: 'TRW bides time following Northrop bid', *Aviation Week & Space Technology*, 4 Mar., 2002, p. 50, citing data from Credit Suisse First Boston.

ventures, while governments provide the demand and determine the regulatory framework, such as intergovernmental agreements and national legislation on export control of military-related technology. For example, while industry was instrumental in bringing about the creation of the European Aeronautic Defence and Space Company (EADS) in 1999, the six governments which signed the Letter of Intent (LOI) in 1998 had signalled their determination to liberalize the trade in military equipment—a prerequisite for multinational arms-producing companies to succeed. In 2002 there were no dramatic developments comparable to the creation of EADS or the signing of the LOI. The merger of the space activities of Germany, France and the UK was completed in 2002, but Britain's BAE Systems withdrew from the company a few months later.

The transatlantic debate focused on how to close the technology gap between Europe and the USA and on issues related to technology transfers. The takeover of the German shipbuilding company Howaldtswerke Deutsche Werft (HDW) by a US investment group started a debate about the 'sell-out' of the German arms industry and raised a number of issues concerned with technology transfers and export control, as discussed below.

Concentration in the US arms industry

The concentration of the US arms industry continued in 2002. While the trend in US M&A activity has slowed somewhat from its peak in the mid-1990s, available data do not appear to confirm the consistent downward trend forecast by many analysts in the late 1990s. Although there are no strictly reliable statistics on this trend, the databases maintained by various financial institutions give some impression of the general direction. One indicator shows that the value of M&As in the US aerospace and defence industry in 2000, at \$19 billion, was almost as high as in 1996 (table 11.1). During the first 10 months of 2001 the value sank to \$9 billion, but 2002 M&A transactions will again be higher—over \$13 billion in defence alone (appendix 11A, table 11A.5).

The largest M&A deal in 2002 was Northrop Grumman's acquisition of TRW. The acquisition was approved by the US Department of Defense (DOD) in November, conditional on a number of concessions from Northrop Grumman on measures to protect competition in the satellite industry,²¹ and concluded on 10 December 2002 after approval by EU and US anti-trust (competition) authorities. The merger created a company with projected annual sales of about \$26–27 billion, of which \$14–15 billion will be arms sales, making it the third largest arms-producing company in the USA (table 11.2). The acquisition is an attempt to adjust to the new warfighting environment, reinforced by the experience of the war in Afghanistan,²² and the increase in the US military budget for financing new military technology. It is driven by the logic of combining two areas of competence—space and information technology—to better contribute to the new 'network-centric warfare' approach of US military planners.²³ The new company will control a broad area of technology suitable for the 'new battlefield'. It will combine Northrop Grumman's capabilities in unmanned air vehicles (UAVs), such as the Global Hawk, naval platforms—having acquired two of the main US naval companies, Litton and Newport News—and systems integration capability with the space and systems expertise of TRW.²⁴ A second rationale for the acquisition is the attraction of TRW as a major contractor in ballistic missile defence (BMD), an area in which Northrop Grumman has had little business. The logic of this acquisition is thus to build a company in the forefront of new military technology and thinking, rather than consolidation. The company does not expect major employment cuts, and overlaps are expected to be small—around \$50–100 million, mostly in headquarters reductions and economies of scale.²⁵ In this way it can be perceived as signalling a new period in the restructuring of the US arms industry.

The Northrop–TRW deal is also of interest because of its impact on competition. First, the DOD was reported to have informally discouraged two other major companies—Boeing and Lockheed Martin—from making alternative offers for TRW.²⁶ The reason, according to a DOD representative, was that their acquisition of TRW's space and information technology (IT) activities could have an adverse impact on competition. It was explained that this interference by the DOD in an early phase of the process represented a shift in DOD behaviour; the DOD was sharpening its review of mergers in the

²¹ 'Defense Department allows Northrop-TRW merger', *Washington Post*, 22 Nov. 2002, p. E06.

²² A general discussion of the influence on future US defence planning of events such as the Afghanistan war *inter alia* are discussed in chapter 1, section I, in this volume.

²³ In particular, many of these mergers are geared towards obtaining core competencies in C4ISTAR (command, control, communications and computers, intelligence, surveillance, target acquisition and reconnaissance).

²⁴ Schneider, G., 'Contractors target new technologies—and each other', *Washington Post*, 23 Feb. 2002, pp. A1–A10; and Berrigan, F., 'Military merger madness: Northrop Grumman on the prowl', World Policy Institute, Arms Trade Resource Center, 26 Feb. 2002, URL <<http://www.worldpolicy.org/projects/arms/updates/022602.htm>>.

²⁵ Bowe, C., 'Northrop joins "top tier" after TRW deal', *Financial Times*, 2 July, 2002, p. 17.

²⁶ 'Pentagon against Boeing, Lockheed bid for TRW', *Air Letter*, 14 Mar. 2002, p. 4.

Table 11.2. The top five US arms-producing companies, as of end-2002

Companies are ranked according to arms sales in 2000, the latest year of SIPRI data. Figures are in US\$ m., at current prices.

Rank 2000	Company	Arms sales 2000	Acquisitions and divestitures of arms- producing units (arms sales in 2000, \$ m.) 2001–2002
1	Lockheed Martin	18 600	Acq. OAO Corp.(200) ^a
2	Boeing	16 900	–
3	Raytheon	10 100	Divested AIS (1220) ^a
4	Northrop Grumman	6 700	Acq. Aerojet (323) ^b , Litton (3 945), Newport News (2 030), and TRW (3 370)
5	General Dynamics	6 500	Acq. GM Defense, Canada (530), Motorola II SC (830) ^c , Primex Technologies (415), Santa Barbara, Spain (35) ^d

^a This figure is for total sales, i.e. not only arms sales.

^b This figure is for the sales of the Electronics and Information Systems unit of Aerojet.

^c This figure is for anticipated sales in 2002, the only sales figures available.

^d This figure is for 1999, the last year that arms sales were reported.

Source: The SIPRI Arms Industry Files.

arms industry in order to let parties know early on when it had internally validated concerns and thus avoid lengthy reviews.²⁷ Second, industry expressed significant concern about the impact of the merger on competition. Lockheed Martin filed a formal complaint, arguing that the merger would result in Northrop Grumman's total control of the market for key satellite technology developed by TRW.²⁸ The implications of the deal for the supply of sensors were noted since Lockheed Martin buys almost all its sensors from Northrop Grumman or TRW.²⁹ Third, the deal was also of concern in Europe, and it was subject to review by EU competition authorities since the annual turnover in Europe of the merged company will exceed €250 million (\$236 million), the threshold for triggering EU jurisdiction.³⁰ The European companies most affected include Alcatel, BAE Systems and EADS.

Another major acquisition process was carried out by L-3 Communications, a company that was spun off from Lockheed Martin in 1997 and which since has developed into a mid-sized supplier of IT and communications equipment and services to the DOD, intelligence agencies and other prime contractors. In 2002, L-3 made eight major acquisitions, the largest being its \$1 billion purchase of Raytheon's business segment for aircraft modification and integration—Aircraft Integration Systems (AIS) (table 11A.5). Raytheon continues

²⁷ Statement by Suzanne Patrick, Deputy Under Secretary of Defense for Industrial Policy, 12 Mar. 2002, quoted in 'Pentagon against Boeing, Lockheed Martin bid for TRW', *Air Letter*, 14 Mar. 2002, p. 4.

²⁸ Bowe, C., 'Northrop agrees concessions on TRW deal', *Financial Times*, 25 Nov. 2002, p. 17.

²⁹ Wolf, C., 'Northrop's purchase makes it a "formidable threat"', 2 July 2002, URL <<http://www.bloomberg.com>>.

³⁰ 'EU clears Northrop purchase of TRW', *Air Letter*, 18 Oct. 2002, p. 1.

its concentration on arms production, in particular missile defence, precision engagement, intelligence, surveillance and reconnaissance, as well as homeland security.³¹

General Motors' sale of its Canadian subsidiary GM Defense to General Dynamics for \$1.1 billion had significant impact on the structure of the US military vehicle industry.³² With this deal General Motors continued its withdrawal from arms production; it now retains only two arms-producing activities—military trucks and transmissions for military and civilian vehicles. General Dynamics and United Defense are now the only major US producers of military vehicles.

In its 2002 *Annual Industrial Capabilities Report to Congress*,³³ the DOD reported that the US arms industry is in a late stage of consolidation after having merged 51 'separate defence business units' in 1980 into four large 'defence-focused firms' by 2001. Nonetheless, further consolidation is expected as companies pursue strategies to emphasize growing market areas, such as network-centric solutions and unmanned systems. The mergers and acquisitions in 2001 and 2002 among the five largest US arms-producing companies by end-2002 are presented in table 11.2.

The belief in an expanding market for products related to the war on terrorism, homeland security and network-centric warfare was also the driver for some of the M&A activity in the US arms industry in 2002. An example is General Dynamics' acquisition of Advanced Technical Products—thought to give it a strong position on key Homeland Defense programmes and transformation initiatives such as biological and chemical detection systems and advanced composites.³⁴ The predicted emerging markets have also led new companies to enter the arms industry, including Cisco Systems, which has created a new segment, the Global Defence and Space Group, for such products. While in the past IT firms have been reluctant to enter into government contracts, it seems that acquisition reforms in the past five years are beginning to change this attitude.³⁵ The increased funding for homeland security affected mergers and acquisitions only peripherally. Only few traditional arms producers acquired smaller companies to diversify into the homeland defence market.

³¹ Raytheon, 'Raytheon to sell its aircraft modification and integration business to L-3 Communications for \$1.13 billion', News Release, 14 Jan. 2002, URL <http://www.prnewswire.com/cgi-bin/micro_stories.pl?ACCT=683194&TICK=RTN4&STORY=/www/story/01-14-2002/0001647164&EDATE=Jan+14,+2002>; and 'L-3's acquisition of AIS alters competitive field', *Aviation Week & Space Technology*, 21 Feb. 2002.

³² Bowe, C. and Mackintosh, J., 'GD buys General Motors' defence division', *Financial Times*, 20 Dec. 2002, p. 20.

³³ US Department of Defense, Office of the Deputy Under Secretary of Defense (Industrial Policy) *Annual Industrial Capabilities Report to Congress* (US Department of Defense: Washington, DC, Mar. 2002), available at URL <http://www.acq.osd.mil/ip/docs/ind-cap-annual-report-to-congress_2002.pdf>.

³⁴ General Dynamics, 'General Dynamics completes acquisition of Advanced Technical Products, for \$250 million', Press Release, 14 June 2002, URL <http://www.gd.com/news/press_releases/2002/News%20Release%20-%20Friday,%20June14,%202002.htm>.

³⁵ 'Cisco sees market on battlefield', *Defense News*, 7–13 Jan. 2002, p. 14.

An example of this is L-3 Communications' acquisition of Perkin Elmer's Detection Systems in June 2002.³⁶

Restructuring and internationalization in Western Europe

After a series of major acquisitions, mergers and joint ventures in Western Europe in 2000 and 2001, there was no similar transaction in 2002 (appendix 11A, table 11A.5 and table 11.3). However, the process of industrial restructuring continued with a number of smaller cross-border transactions in 2002, primarily in the aerospace sectors (aircraft, missiles and space). While less consolidation has taken place in the vehicle and shipbuilding sectors, in 2002 the two remaining vehicle companies in the UK merged, and there are also signs of emerging concentration on the international level. In 2002 little progress was made in the area of harmonized procurement in Europe, but the proposals made in the work on a European Constitutional Convention may indicate that more determined efforts will be made in 2003 (see section IV).

The European *space* industry took a major step towards consolidation with the formation of Astrium in 2001 and its completion in 2002. However, in 2002 BAE Systems decided to sell its 25 per cent share of Astrium to the tri-national EADS, making EADS the sole owner.³⁷ In January 2003 BAE also pulled out of Paradigm Secure Communications, another joint venture with EADS, which had been planned to service the UK's Skynet 5 military communications satellite programme.³⁸ This would have been the first time that a country had contracted out this type of service, and BAE Systems and EADS had been hoping to make a similar deal in France.³⁹ Alenia Spazio and Alcatel Space rejected a merger with Astrium in 2002, but the three companies want to increase technical cooperation⁴⁰.

In the *missile* sector, a new company was formed to manage the Spanish contribution to the Meteor missile programme.⁴¹ The new company, INMIZE, is a joint venture of Indra (Spain), MBDA (France, Germany, Italy and the UK),⁴² EADS-CASA (a Spanish company within EADS) and Izar (Spain). Further consolidation is imminent, as EADS plans to integrate its German subsidiary, Lenkflugkörpersysteme (LFK), into MBDA. The other German

³⁶ L-3 Communications, 'L-3 Communications completes acquisition of Perkin Elmer's Detection Systems; acquisition expands explosive detection product line and enhances manufacturing capability', Press Release, 17 June 2002, URL <<http://www.businesswire.com/webbox/bw.061702/221682269.htm>>.

³⁷ Done, K. and Odell, M., 'EADS to take BAE stake in Astrium', *Financial Times*, 26 July 2002, p. 20.

³⁸ Nicoll, A., 'A floating platform for European defence', *Financial Times*, 11 Feb. 2003, p. 15.

³⁹ Done, K., 'Space, where profit is the final frontier', *Financial Times*, 26 July 2002, p. 20.

⁴⁰ 'Alenia Spazio, Astrium, Alcatel talk alliance', *Air Letter*, 3 Oct. 2002, p. 6.

⁴¹ MBDA, 'INDRA, MBDA, Izar and EADS-CASA establish INMIZE, the Spanish missile technology company', Press Release, 6 Feb. 2002. The countries financing the Meteor missile programme are France, Germany, Italy, Spain, Sweden and the UK.

⁴² MBDA is controlled by BAE Systems (UK), EADS (France/Germany/Spain) and Finmeccanica (Italy).

missile company, Bodenseewerke Gerätetechnik (BGT), may seek a transatlantic link-up with Raytheon to maintain its independence from MBDA.⁴³

In the (*aero*)engine industry MTU and Snecma created a joint venture to produce ceramic coatings.⁴⁴ This is a small example of cooperation by engine manufacturers. A more significant development for the European engine industry is the joint venture to build the engine for the A400M transport plane—the Euro Propulsion International (EPI, renamed in June 2002, formerly known as APA). After a setback in February 2002, when prime contractor Airbus Military Company rejected their engine design as too heavy, FiatAvio of Italy and Techspace Aero of Belgium abandoned the joint venture, leaving it to the remaining four partners—Industria Turbo Propulsores, MTU, Rolls-Royce and Snecma.⁴⁵ In the field of propulsion systems—for tactical missiles and the Ariane rocket—a joint venture between MBDA and SNPE was cleared by the European Commission in October 2002.⁴⁶ The new company, Roxel,⁴⁷ is the first step in a plan to create a larger venture which will also include Snecma and Royal Ordnance Rocket Motors of BAE Systems.⁴⁸

In 2002 the acquisition in Europe that received the most attention took place in the *military vehicle* sector⁴⁹ and occurred at the national level: Alvis bought Vickers from Rolls-Royce, creating a single British military vehicles company.⁵⁰ This merger forces the government to seek a foreign supplier if it wants to maintain competition in this sector. At the international level the event revived speculation about cross-border mergers. The military vehicles market has shrunk and changed considerably since the end of the cold war. The trade in main battle tanks has virtually collapsed with the declining relevance of territorial defence. Lighter vehicles are in greater demand and the sector has not kept pace with the development of light, transportable equipment. There are few large contracts to win and the penalty for losing has increased considerably. After Krauss-Maffei Wegmann of Germany won the bidding competition in Greece for main battle tanks, in March 2002, pressure mounted on tank-producing companies—GIAT, Oto Melara and Vickers—to consolidate. While French defence minister Michelle Alliot-Marie reiterated

⁴³ Barrie, D., 'Anti-radiation missile offers European consolidation route', *Aviation Week & Space Technology*, 20 May 2002, p. 30.

⁴⁴ Taverna, M. A., 'MTU, Snecma form engine ventures', *Aviation Week & Space Technology*, 8 Apr. 2002, p. 74.

⁴⁵ Norbert Burgner, Rolls-Royce Deutschland, Private communication with H. Baumann, 10 Sep. 2002; and Brosky, J., 'Airbus drops engine group', *Defense News*, 11–17 Feb. 2002, pp. 1, 4.

⁴⁶ Previous attempts to merge the propulsion activities of Rheinmetall (Germany), RUAG (Switzerland) and SNPE (France) were abandoned in early 2002 because the plan involved closure of an SNPE factory in France. 'SNPE, Rheinmetall, Ruag merger off', *Air Letter*, 15 Jan. 2002, p. 7.

⁴⁷ 'EU clears EADS, SNPE, BAe Roxel venture', *Air Letter*, 5 Nov. 2002, p. 5.

⁴⁸ 'Europe to pursue propulsion alliance', *Air Letter*, 24 Oct. 2002, p. 1.

⁴⁹ For background, see Baumann, H., 'The consolidation of the military vehicle industry in Western Europe and the United States', URL <<http://projects.sipri.se/milex.html>>.

⁵⁰ Lake, D., 'Armoured consolidation in UK as Alvis buys Vickers', *Jane's Defence Weekly*, 7 Aug. 2002, p. 3.

Table 11.3. Major international joint ventures and mergers among arms-producing companies in Western Europe, 2002

Company name	Owner companies (country)	Sector
<i>West European</i>		
Euro Propulsion International, EPI ^a	28% MTU (Germany); 28% Rolls Royce (UK); 28% Snecma (France); 16% ITP (Spain)	Aircraft engine (A400M)
INMIZE	40% MBDA (France, Germany, Italy, UK); 40% Indra (Spain); 10% CASA (Spain); 10% Izar (Spain)	Missiles (Meteor)
Paradigm Secure Communications ^b	50% BAE Systems (UK); 50% EADS (France/Germany/Spain)	Space (Skynet 5)
(JV for submarines) ^c	HDW (Germany); Fincantieri (Italy)	Submarines
Roxel	50% MBDA (France, Germany, Italy, UK); 50% SNPE (France)	Missile propulsion

^a EPI is the new name of ex-APA since June 2002 when FiatAvio (Italy) and Techspace Aero (Belgium) left the joint venture.

^b BAE Systems left the Paradigm joint venture in January 2003.

^c HDW and Fincantieri agreed to form a joint venture to develop and sell submarines that are smaller than 700 tons and to cooperate on the construction of submarines larger than 1000 tons. Ownership shares had not been agreed by end-2002.

Source: The SIPRI Arms Industry Files on Joint Ventures.

the goal of European consolidation of vehicle production,⁵¹ French state ownership of GIAT is an obstacle to mergers with private companies, which fear excessive state interference. The ownership structure of the military vehicles industry in Germany also makes consolidation difficult. Two families hold controlling interests in Krauss-Maffei Wegmann and Rheinmetall—the Bode and the Röchling family, respectively.⁵² This shields the companies from hostile takeovers and reduces pressure to maximize short-term shareholder value.⁵³ In addition, the military vehicles market lacks the structures that preceded European aerospace mergers: close civil–military integration; a history of cooperative programmes; and, as a result, cross-border joint ventures, which could form the underlying structure for a merger.⁵⁴ A notable exception is the joint venture by Patria of Finland and Hägglund of Sweden to deliver

⁵¹ Speech by French Defence Minister Michelle Alliot-Marie at the Eurosatory 2002 exhibition on 17 June 2002. ‘New French defense minister confirms spending hike’, *Defense-Aerospace.com*, 18 June 2002, URL <<http://www.defense-aerospace.com/data/verbatim/data/ve285/index.htm>>.

⁵² Rheinmetall AG, *Geschäftsbericht 2001* [Annual Report 2001], Düsseldorf, 2002, p. 92, URL <http://www.rheinmetall.de/deutsch/pdf/gb_rheinmetall_2001.pdf>; and Mulholland, D., ‘General Dynamics set to buy 49% stake in KMW’, *JDW*, 24 July 2002, p. 32.

⁵³ Lock, P., ‘Rheinmetall, un paradigme de la restructuration de l’industrie d’armement en Allemagne’, ed. J.-P. Hébert, *Naissance de l’Europe de l’armement, Cahier d’Etudes Stratégiques*, no. 27 (autumn 2000). Also available in English as ‘Rheinmetall: a paradigm of restructuring of the defence sector in Germany’, URL <<http://www.Peter-Lock.de/txt/rheinmetall.html>>.

⁵⁴ Schmitt, B., *From Cooperation to Integration: Defence and Aerospace Industries in Europe*, Chaillot Paper no. 40 (Western European Union Institute for Security Studies: Paris, July 2000), pp. 16–20.

CV9030 combat vehicles to the Finnish armed forces.⁵⁵ Another exception is the Anglo-Dutch-German multi-role armoured vehicle (MRAV) programme.

In the *shipbuilding* sector, the German shipbuilding company HDW continued its internationalization strategy in 2002, completing its acquisition of Hellenic Shipyards of Greece.⁵⁶ HDW also created a joint venture with the Italian company Fincantieri for joint development and marketing of submarines below 700 tonnes. As part of the agreement, Fincantieri will take over work from HDW on submarines over 1000 tonnes if HDW's industrial capacity is exceeded (HDW's transatlantic strategy is described below). HDW was itself taken over by a US investment group in 2002 (see below).

Finally, in 2002 there were examples of setbacks to European cross-border consolidation, such as Norway's decision to withdraw from the Viking submarine programme that was initiated in 1994 together with Denmark and Sweden.

Transatlantic relations

Industry on both sides of the Atlantic is interested in transatlantic armaments collaboration and industrial integration but faces a number of regulatory obstacles, many of which are designed to protect against military technology transfers in line with basic security objectives, as well as policies to protect the national defence industrial base. The basic sources of interest from an industrial perspective are access to markets and technologies. However, there are also political arguments for closer transatlantic military-industrial cooperation: the fear that widening gaps between European and US capabilities could seriously affect transatlantic relations, and the need, since 11 September 2001, for rapid joint responses to counter and pre-empt future security problems.⁵⁷

The transatlantic acquisition that received the most attention in 2002 was the takeover of HDW by the US investment group One Equity Partners (OEP). The acquisition took place at a time when the US Government had pledged to supply eight conventional submarines to Taiwan, although US shipyards have not built a non-nuclear submarine since the 1950s, while HDW and its subsidiary Swedish Kockums have important capabilities in this field.⁵⁸ OEP had planned to sell HDW to one of the major US owners of shipbuilding companies—Northrop Grumman or General Dynamics—but was unable to do

⁵⁵ Patria Industries, *Annual Report 2001*, Oyj, Finland, 2002, p. 8.

⁵⁶ HDW already owns Swedish Kockums and has an industrial partnership with Izar of Spain. Blaveris, L., 'HDW gets European nod to buy Hellenic Shipyards', *Jane's Defence Weekly*, 8 May 2002, p. 18.

⁵⁷ Center for Strategic and International Studies (CSIS), *The Future of the Transatlantic Defence Community: Final Report of the CSIS Commission on Transatlantic Security and Industrial Cooperation in the Twenty-first Century* (CSIS Press: Washington, DC, Jan. 2003), available at URL <http://www.csis.org/pubs/2003_future.htm>.

⁵⁸ Dinkelacker, D., Frenzel, M. and Rohde, J., 'The US armaments industry goes Europe? Der Fall der Howaldtswerke Deutsche Werft AG' [The US armaments industry goes Europe? The case of the Howaldtswerke Deutsche Werft AG], *SWP Aktuell*, no. 31 (Aug. 2002), p. 3.

so,⁵⁹ because the EU Commission and the German Government signalled that they would oppose the sale.⁶⁰ However, Northrop Grumman and HDW did agree on cooperation short of a takeover. Northrop Grumman Ship Systems sought access to HDW technology—most importantly, to an air-independent propulsion unit for conventional submarines and the stealth corvette *Visby* developed by HDW's Swedish subsidiary Kockums. For the European shipyard, a US partner is a way of increasing sales to the USA and third countries. In October 2002 Northrop Grumman signed a cooperation agreement with Kockums for participation in the design of the *Visby* as one of the vessels in Northrop Grumman's bid for the US Navy's DD(X) programme.⁶¹ Northrop Grumman has also tendered an offer to supply eight conventional submarines to Taiwan and has expressed an interest in marketing an HDW design.⁶²

Another major investment by a US company in Europe was the Carlyle Group's acquisition of a 33.8 per cent share of the British company QinetiQ (appendix 11A, table 11A.5).⁶³ The British Government chose the US institutional investor Carlyle Group as a strategic partner in order to prepare for the complete privatization of the former Defence Evaluation and Research Agency (DERA) in three to five years.

In 2002 European arms-producing companies continued their efforts to gain access to US defence contracts through acquisitions, but they achieved limited success. BAE Systems acquired two companies but divested some units of its North American operations (appendix 11A, table 11A.5).⁶⁴ BAE Systems also bid for TRW but lost out to Northrop Grumman.⁶⁵ Had BAE Systems won the bidding, the US Government would have had to choose between two goals: keeping the highly classified satellite technology produced by TRW under domestic ownership and introducing more competition. Other European acquisitions in the USA were GKN's purchase of two welding companies,⁶⁶ and Ultra Electronics' acquisition of a unit of Canadian CMC Electronics. Interestingly, British companies accounted for the large majority of European acquisitions of US arms-producing companies in 2002 (table 11A.5).

Few *joint ventures* were formed in 2002. Instead, armaments cooperation took the form of *teaming arrangements and company agreements*. One of the most politically controversial of these was the string of cooperation agree-

⁵⁹ 'US-Einstieg bei HDW soll U-Boot-Export erleichtern' [US participation in HDW should ease exports to Taiwan], *Handelsblatt* (Internet edn), 3 June 2002, URL <<http://www.handelsblatt.com>>.

⁶⁰ 'One Equity Partner's HDW deal set to come back under EU scrutiny', *Handelsblatt* (Internet edn), 5 June 2002, URL <<http://www.handelsblatt.com>>; and Scheerer, M. and Rinke, A., 'Hardthöhe sieht HDW Übernahme skeptischer' [Hardthöhe takes more skeptical stance on HDW takeover], *Handelsblatt* (Internet edn), 13 June 2002, URL <<http://www.handelsblatt.com>>.

⁶¹ 'Kockums joins Northrop Grumman composite team', *Jane's Defence Industry*, Dec. 2002, p. 1.

⁶² Rinke, A. and Wiede, T., 'US-Konzern will deutsche U-Boote für Taiwan' [US company wants German submarines for Taiwan], *Handelsblatt* (Internet edn), 10 Oct. 2002, URL <<http://www.handelsblatt.com>>. See also chapter 13 on arms transfers in this volume.

⁶³ British Ministry of Defence, 'Sale of a stake in QinetiQ PLC to the Carlyle Group', Press Release, 5 Dec. 2002, URL <http://www.qinetiq.com/news_room/newsreleases/2002/mod_press.html>.

⁶⁴ BAE Systems, 'BAE Systems completes acquisition of Corbett Technologies', Press Release, 13 Nov. 2002; and 'BAE to buy Condor Pacific for \$58.5m', *Air Letter*, 24 Oct. 2002, p. 5.

⁶⁵ Mulholland, D., 'BAE jumps into TRW fray', *Jane's Defence Weekly*, 19 June 2002, p. 41.

⁶⁶ 'GKN gets facility, contracts from Boeing', *Air Letter*, 30 Jan. 2002, p. 7.

ments that Boeing concluded with Alenia Spazio, BAE Systems and EADS to share development work on a BMD system.⁶⁷ So far it appears that the deal will not result in any relevant industrial cooperation because the companies cannot collaborate without a transatlantic technology-sharing agreement.⁶⁸ The aim of the US Government appears to be to promise industrial advantages if European countries provide political support to the 'layered' BMD shield.⁶⁹

Beginning in 2001, two transatlantic industrial teams conducted a NATO feasibility study on European theatre missile defence (TMD) to protect deployed troops.⁷⁰ The report is due early in 2003, and a follow-up study will probably examine how European TMD can be integrated into a US-led global BMD system.⁷¹ As of January 2003 approval to conduct the second study had not been granted. Germany, Italy and the USA are collaborating in the Medium Extended Air-Defence System (MEADS), which can also be used for TMD. The programme started in 1996, and a consortium of Lockheed Martin, MBDA and Lenkflugkörpersysteme is conducting the project. In 2001 government procurement officials in Germany questioned the strategic value of the project. MEADS has to compete for funding with other large procurement projects, and the government is considering to procure a system domestically after 2004.⁷² In the USA other missile defence efforts are a higher priority, and in July 2002 the US Senate cut the Bush Administration's funding proposal for MEADS for FY 2003 by over one-third.⁷³

European helicopter producers have tried to acquire US military contracts by cooperating with US companies. AgustaWestland signed a 10-year agreement with Lockheed Martin in July 2002 to help market its EH-101 helicopter to the air force, coast guard and marine corps and produce part of it in the USA.⁷⁴ Eurocopter has entered into talks with Boeing and other companies to conclude a similar agreement.⁷⁵

The British Watchkeeper battlefield surveillance system and the US Joint Tactical Radio System (JTRS) are major examples of transatlantic teaming arrangements. The JTRS, which is scheduled for delivery to US forces by 2008, is expected to set the standard for such systems and will be indispensable for interoperability with US forces. The industry's export forecasts are therefore huge: \$6 billion according to Raytheon.⁷⁶ In order to boost export

⁶⁷ Wong, E., 'Europeans will work on missile defense', *International Herald Tribune*, 24 July 2002, p. 1.

⁶⁸ Mulholland, D., 'Transatlantic BMD cooperation hinges on new tech-transfer deal', *Jane's Defence Weekly*, 31 July 2002, p. 20.

⁶⁹ 'Hands across the sea', *The Economist*, 27 July 2002, p. 61.

⁷⁰ NATO, 'NATO's theatre missile defence programme reaches new milestone', Press Release, 5 June 2001, URL <<http://www.nato.int/docu/pr/2001/p01-085e.htm>>.

⁷¹ Hill, L., 'French turnaround on NATO missile defence', *Jane's Defence Weekly*, 13 Nov. 2002.

⁷² Krause, J., *Prospects and Limits of Transatlantic Arms Cooperation: The Case of the Medium Extended Air Defense (MEADS)*, AICGS Policy Report no. 2 (American Institute of Contemporary German Studies: Washington, DC, 2002), p. 14–17.

⁷³ Aguera, M. and Clark, C., 'Partner: US funding cut may speed MEADS', *Defense News*, 19–25 Aug. 2002, p. 4.

⁷⁴ 'New US helicopter planned', *Defense News*, 5–11 Aug. 2002, p. 14.

⁷⁵ 'Eurocopter–Boeing talks held', *International Herald Tribune*, 27 Aug. 2002, p. 12.

⁷⁶ Brosky, J., 'Setting new standards for radios', *Defense News*, 24–30 June 2002, p. 10.

potential, US bidders have teamed with European companies. Boeing joined with BAE Systems and Raytheon with Thales. In June 2002 Boeing and BAE Systems won the contract to provide the communication system for the new US military vehicle system—the Future Combat System (FCS).⁷⁷

IV. Defence industrial policies

Although arms-producing companies have become more independent from the state through privatization or cross-border mergers and acquisitions, governments still exert great influence over industry and support or prevent exports. Defence budgets determine domestic demand for military equipment and provide the bulk of R&D funding, while procurement policy determines the degree of competition faced by domestic companies. Governments formulate policies on foreign ownership, decide the level of state ownership in the arms industry and exert influence through intergovernmental cooperation. The governments of the principal arms-producing countries—France, Germany, Russia, the UK and the USA—are using these instruments to shape the restructuring of the arms industry.

The USA

The M&A activity in the US arms industry since the early 1990s has resulted in a significant decline in the number of producers for each type of weapon system. Table 11.4. shows the decline in the number of potential competitors between 1990 and 2000. Since then the number has continued to decline as the result of a continuing concentration process. However, in the US arms industry the concentration process is drawing to a close, and there is increasing concern in the DOD about the impact on competition and thus on prices and the rate of innovation in the US arms industry.

The rapid concentration of arms production in the mid-1990s was promoted by a policy of subsidizing cost savings, which were achieved through mergers and acquisitions in the industry. The rationale for this policy was the decline in procurement expenditure following the end of the cold war. The procurement budget was not sufficiently large to sustain the existing number of producers. Excess capacities were increasing, leading to rising overhead costs, which were passed on to the buyers of weapon systems, primarily the US Government. It has been argued that it is not clear why mergers and consolidations were necessary to solve this problem and that this method has proved ineffective.⁷⁸ If the problem was merely excess capacity, a policy of paying companies for plant closings without first merging would have been just as suited for that purpose. If the main problem was rising overhead costs, a policy of forcing some companies out of business by denying them contracts would have been

⁷⁷ Ratnam, G. and Tiboni, F., 'BAE raises profile with Pentagon', *Defense News*, 15–21 July 2002.

⁷⁸ Flamm, K., 'Failures of defence industrial policy reform and likely consequences for the Bush defense build-up', Unpublished paper, Mar. 2002.

cheaper. The probable reason for choosing the M&A route was therefore that it was politically unfeasible to let 'a nontrivial share of a geographically dispersed and politically astute network of defense contractors' go out of business.⁷⁹

The main reason for rising overhead costs is the soaring costs of military R&D for new high-technology weapon platforms. Because the DOD continued to subsidize a research and production reserve tailored to the cold war world⁸⁰ too many companies were left with very high fixed overhead costs for their military R&D infrastructure, which generated an increase in the prices of weapon systems. According to the logic of this argument, the concentration process has only postponed the acceleration in costs for advanced military systems.

Furthermore, the concentration process itself risks inflating weapon prices—the logical consequence of reduced competition in all markets, especially those with an oligopolist structure. Reduced competition also increases the risk of collusion between the few remaining companies with the required technological capabilities and strengthens their lobbying power in relation to governments (e.g., in terms of contract awards and negotiated profit margins). Thus, while the driving force behind concentration can be perceived as the need to reduce costs and promote the development of high-technology systems, these targets are now at risk due to the same concentration process. The Secretary of the US Air Force testified in 2002 about his concerns regarding concentration:

I am very worried about companies in this industry consolidating to the point where the Air Force will be stuck buying that which someone wants to produce, compared with being able to challenge the industry to come up with ideas that may lead to major breakthroughs in combat capability . . . I just don't think the government can manage a monopoly, or an asymmetrical duopoly, and get innovation out of it. We simply do not have the right set of incentives.⁸¹

In October 2002 the Bush Administration started an initiative that will facilitate the transatlantic trade in military equipment. The National Security Council began a review of US arms export controls.⁸² Among other things, panels from the Commerce, Defense and State departments were instructed to review industrial links with US allies to facilitate technology transfers and thus increase the military effectiveness of US coalitions.⁸³ The specific solution for the JSF has in many ways come to be seen as a model for the future. In

⁷⁹ Flamm (note 78).

⁸⁰ Oden, M., 'Cashing in, cashing out, and converting: restructuring of the defense industrial base in the 1990s', eds A. Markusen and S. S. Costigan, *Arming the Future: A Defense Industry for the 21st Century* (Council on Foreign Relations Press: New York, 1999).

⁸¹ 'Roche drops a bombshell: US industry is overconsolidating', *Aviation Week & Space Technology*, 10 June 2002, pp. 31–32.

⁸² US Department of State, 'Fact sheet: Review of defense trade export policy and national security', Press Release, 21 Nov. 2002, URL: <<http://usinfo.state.gov/topical/pol/nato/02112110.htm>>.

⁸³ Svitak, A., 'US allies, industry key in review of arms trade policy', *Defense News*, 11–17 Nov. 2002, p. 3.

Table 11.4. Number of prime contractors to the US Department of Defense, 1990 and 2000

Sector	1990	2000
Fixed-wing aircraft	8	3
Rotorcraft (helicopters)	4	3
Strategic missiles	3	2
Tactical missiles	13	3
Satellites	8	6
Satellite-launch vehicles	6	3
Tracked combat vehicles	3	2
Tactical wheeled vehicles	6	3
Surface ships	8	3
Submarines	2	2
Torpedoes	3	2

Source: US Department of Defense, Under Secretary for Acquisition and Technology, 'Annual Industrial Capabilities Report to Congress', 23 Jan. 2001, fig. 1, p. 11, URL<http://www.acq.osd.mil/ia/docs/report_to_congress_2001.pdf>.

October 2002 the US Government granted the first global project authorization (GPA) for the JSF.⁸⁴ GPAs reduce the amount of authorizations governments must seek to perform activities in furtherance of government-to-government international agreements or Memorandums of Understanding (MOUs) that have been concluded between governments, or between the DOD and a foreign ministry of defence to carry out cooperative armament programmes such as the JSF.⁸⁵

A study conducted in 2002 by the DOD Industrial Policy unit, designed to offer a road map for transforming the defence industrial base (DIB), provides some indication of potential future policy changes. The study is influenced by the lessons learned during Operation Enduring Freedom in Afghanistan about fielding systems quickly and combining them in new and different ways. One of its main objectives is 'to ensure that the warfighter of 2020 is supplied by an industrial base and processes that deliver transformational, network-centric weapon systems'.⁸⁶ Its basic recommendation is to view the DIB as being composed of 'operational effect-based' sectors that support 'transformational warfighting'—combat support, power projection, precision engagement, homeland and base protection, and integrated battle space—rather than as sectors of platforms or weapon systems, such as aircraft, missiles, vehicles and ships. Instead of categories such as sealift or strike aircraft, the DOD 'could more readily think of loitering unmanned aerial vehicles competing with space-based communications relays. Directed energy weapons could compete

⁸⁴ Clark, C., 'Global JSF license gets nod from Congress', *Defense News*, 28 Oct.–3 Nov. 2002, p. 4.

⁸⁵ A summary of DTSI reforms is available at URL <http://www.dsca.osd.mil/dtsi/DTSI_links.htm>.

⁸⁶ US Department of Defense, Office of the Deputy Under Secretary of Defense (Industrial Policy), *Transforming the Defense Industrial Base: A Roadmap* (US Department of Defense: Washington, DC, Feb. 2003), available at URL <<http://www.acq.osd.mil/ip>>.

with bombs. Hypersonic strike aircraft could compete with aircraft carriers'.⁸⁷ Acquisition would be steered by five 'transformation boards' that correspond to the 'operational effects' and are staffed with members of all three services.

The study concludes that the future supply base of 'transformational' war-fighting requirements will consist of three types of firms: (a) traditional 'legacy defense suppliers' that buy up smaller firms or themselves become 'innovative'; (b) smaller arms-producing companies that grow to become prime contractors; and (c) commercial companies that have not previously been defence suppliers. In particular, the report predicts that transformation will bring many new, type *c*, entrants to the defence industrial base and that this would require the DOD to lower entry barriers to military contracting. However, the report did not contain proposals for how to overcome the major barriers faced by new entrants, namely: marketing barriers (lack of personal contacts and networking), procedural barriers (mastering the detailed regulations in military contracting), and unattractive terms for commercial companies (e.g., control of intellectual property rights, the risk of technology proliferation to competitors or prohibitions on commercial marketing).⁸⁸

It is doubtful whether type *c* entrants could break into the top tier of arms-producing companies. A survey of the UAV industry, which the DOD report considers as particularly 'transformational', illustrates this point. The major example of market entrance in this sector is General Atomics, which produces the Predator UAV. Before 1993 General Atomics' main activities were in the civil nuclear and energy sectors. Its UAV business has since grown rapidly and now has a staff of 650.⁸⁹ Yet this company is the only non-traditional UAV producer that has grown to considerable size and remained independent. Many of the top-tier arms producers acquired smaller UAV manufacturers. For example, Northrop Grumman's acquisition of TRW includes a range of capabilities central to the development of unmanned combat air vehicles (UCAVs).⁹⁰ DRS Technologies made two acquisitions that will enhance its capabilities in the area—a unit of the Meggitt Defense Systems in Texas and Nytech Infrared Systems, which produces guidance systems for UAVs and sensors for unmanned ground vehicles (UGVs). AAI, a subsidiary of United Industrial Corporation (UIC) and one of the main UAV companies, was offered for sale in 2002. AAI produces Shadow 200 UAVs and, in cooperation with Israel, also produces the army's most advanced UAV, the Pioneer. The contenders for AAI include DRS Technologies, L-3 and Lockheed Martin. The example of the UAV sector suggests that the advent of 'transformational' technology is unlikely to catapult small- or medium-sized businesses to the status of major prime contractors, as the DOD report suggests.

⁸⁷ US Department of Defense (note 86), p. 15.

⁸⁸ Dunne, P., 'The defence industrial base', eds K. Hartley and T. Saunders, *Handbook of Defence Economics* (Elsevier: Amsterdam, 1995), p. 408.

⁸⁹ General Atomic's spokesman Doug Fouquet confirmed that the company has mainly civilian sales except in the advanced technologies and aeronautical systems businesses. Private conversation with H. Baumann, 27 Sep. 2002; and 'Afghan campaign boosts General Atomics', *Air Letter*, 22 Jan. 2002, p. 5.

⁹⁰ Else, D., US Congressional Research Service, cited in Berger, B. and Svitak, A., 'Merger could spawn new force in UCAV market', *Defense News*, 25 Feb.–3 Mar. 2002, p. 8.

Western Europe

The British, French and German governments share the goal of preserving domestic arms production capabilities. However, their policies regarding the internationalization of arms production differ. In each country the arms industry is influenced by the choice between national, European or transatlantic systems. The major procurement decisions of Germany, France and the UK are indicative of the general procurement policy of each country. All three states support a key European cooperative programme, the A400M transport aircraft, rather than the purchase of US aircraft—although the UK has also leased transport aircraft from Boeing.⁹¹ In addition, Germany and the UK are pursuing the development of the Meteor air-to-air missile that will arm the Eurofighter. In December 2002 MBDA was awarded a contract in excess of £1.2 billion (\$1.8 billion) to develop and produce the Meteor.⁹² Nonetheless, European governments differ in their approach to transatlantic industrial relations. While France does not cooperate with the USA on any major weapon system, the UK is open to transatlantic cooperation, such as its high-level participation in the Joint Strike Fighter project. Germany takes part in the MEADS air-defence programme together with Italy and the USA. MEADS has been cited as the most important programme in transatlantic armaments cooperation other than the JSF.⁹³

Competition remains the ‘bedrock’ of British procurement policy. Estimates suggest that foreign companies can compete for roughly 50 per cent of armaments contracts in the UK.⁹⁴ This policy was reaffirmed in a 14 October 2002 British Government policy paper, which defined a ‘domestic’ arms producer in terms of ‘where the technology is created, where the skills and intellectual property reside, where jobs are created and sustained, and where the investment is made’.⁹⁵ This includes not only domestic companies but also subsidiaries of foreign companies such as Thales or Lockheed Martin, which have large investments in the UK. The policy paper was prompted by criticism from the chief executive of BAE Systems, who had demanded that the government award his company most major arms programmes without competition in order to preserve the skill base of the British industry.⁹⁶

The German procurement policy is similar to the British system in that competition is generally open, although defence industrial policy considerations can sometimes also have a strong influence on procurement decisions. In September 2002 the government decided to buy the Igel armoured vehicle

⁹¹ Italy has taken another path, having ordered 22 C-130J transport aircraft from the USA in 1997–2000 with an option for 2 more. In 2001 it left the A400M programme.

⁹² MBDA, ‘MBDA signs Meteor missile contract’, Press Release, 2 Jan. 2003, URL <http://www.mbda.net/news_new.html>.

⁹³ Krause (note 72), p. 3.

⁹⁴ Keohane, D., *The EU and Armaments Cooperation*, CER Working Paper (Center for European Reform: London, Dec. 2002), p. 10.

⁹⁵ British Ministry of Defence, *Defence Industrial Policy*, Policy Paper no. 5 (Directorate General Corporate Communication: London, 2002), p. 4.

⁹⁶ Nicoll, A., ‘BAE wants fresh approach from MoD’, *Financial Times*, 3 July 2002, p. 21.

from a joint venture by Rheinmetall and Krauss-Maffei Wegmann rather than a modified version of the Swedish-built CV 9030.⁹⁷ Apart from technical considerations, the Igel was chosen for its beneficial effect on domestic arms production capabilities.⁹⁸ The decision followed weeks of intense lobbying by the two companies to prevent cancellation of the programme.⁹⁹

The French procurement policy differs from the British and German policies. Competition for major systems is limited to domestic companies. Some systems of less strategic or economic importance have been procured from abroad, but the rules are prejudiced in favour of French bidders.¹⁰⁰

The issue of allowing *foreign ownership* in the arms industry is a vital determinant in the restructuring of arms production. The British Government is generally open to foreign ownership in the arms industry, as is evident from the definition of a 'domestic' arms company quoted above. Furthermore, the British Government decided in March 2002 to remove the 49.5 per cent ceiling on foreign shareholding in BAE Systems and Rolls-Royce. Individual foreign investors now may hold a maximum of 15 per cent in either of the companies.¹⁰¹ Foreign ownership in BAE Systems was over 50 per cent in 2002, prompting British Secretary of State for Defence Geoff Hoon to remark that BAE Systems was 'no longer a British company'.¹⁰²

In Germany, the takeover of the shipbuilding company HDW by the US investor firm One Equity Partners prompted fears of a 'sell-out' of the German arms industry to US companies. Critics argued that German capabilities could be lost in the long run if US owners relocate production to the USA. They claimed that the German Government was caught off guard by the takeover and that it lacked the legal tools to protect German ownership of arms industry assets.¹⁰³ The German Government has the legal right to block foreign direct investment only for reasons of national security, public order, foreign policy or balance of payments concerns, but it has never exercised this right.¹⁰⁴

In an October 2000 policy statement the German Government declared its preference for national or European consolidation in the naval and land

⁹⁷ Aguera, M., 'German firms get another chance at Panther contract', *Defense News*, 5–11 Aug. 2002.

⁹⁸ German Defence Ministry, 'Angebotsaufforderung für den neuen Schützenpanzer' [Call for tenders for the new armoured vehicle], Press Release, 2 Aug. 2002, URL <<http://www.bmvg.de/presse/115.php>>; and German Defence Ministry, 'Beschaffungsvorhaben' [Procurement plan], Press Release, 12 Sep. 2002, URL <<http://www.bmvg.de/presse/133.php>>.

⁹⁹ Aguera, M., 'Panther faces cancellation', *Defense News*, 15–21 July 2002, p. 1.

¹⁰⁰ Carré, B.L.G., 'The recent opening of the French defence market and Anglo-French defence relationship', *RUSI Journal*, Aug. 2001, pp. 6–11.

¹⁰¹ British Ministry of Defence (note 95), p. 10.

¹⁰² 'BAE not a British company, says Hoon', *Daily Telegraph* (Internet edn), 16 Jan. 2003, URL <<http://www.telegraph.co.uk/money/main.jhtml?xml=%2Fmoney%2F2003%2F01%2F16%2Fenhoon16.xml>>.

¹⁰³ Dinkelacker, Frenzel and Rohde (note 58), p. 7.

¹⁰⁴ Kühle, H., *Zwischenbericht: Neustrukturierung des deutschen Rüstungsmarktes als industriepolitische Aufgabe* [Interim report: the restructuring of the German arms market as a challenge of industrial policy] (Bonn International Center for Conversion (BICC): Bonn, Jan. 2003), p. 42.

Table 11.5. Percentage of direct state share holdings in major French arms-producing companies, 2002

Numbers are percentages. Figures do not always add up due to rounding.

Company	State	
	ownership	Other shareholders and shares
CEA	100	
DCN	100	
Dassault	–	Groupe Industriel Marcel Dassault 49.9, EADS France 45.8, Public 4.3
EADS	15.5	DaimlerChrysler 33, Lagardère 11.2, Public 31, SEPI 5.5, French financial institutions 3.9
GIAT	100	
SAGEM	–	COFICEM 40.9, COGEMA 5.1, Caisse de Dépôts et Consignations 4, own shares 3.5, Trel Participations 2.5, Other 44.1
Snecma	98	
Thales	32.6	Public 46, Alcatel 9.7, Dassault 5.9, Thales 5.8

Source: Company annual reports and the SIPRI arms industry files.

armaments sectors.¹⁰⁵ According to an agreement with the major companies in these sectors—Babcock Borsig (then owner of HDW) and Thyssen Krupp in the shipbuilding sector, and Diehl, Krauss-Maffei Wegmann and Rheinmetall in the military vehicle sector—these companies were to form ‘strategic partnerships’, including cross ownership. Consolidation on the national and European level was perceived as a necessary prerequisite to a transatlantic link-up. The HDW deal thus runs counter to German Government policy and represents a conflict of interest between state and industry, since it is in the interest of HDW to improve its access to the US market (see section III). Parallel situations are occurring in the military vehicle sector, where US companies have displayed interest in German acquisitions. General Dynamics has expressed interest in buying the 49 per cent share in KMW that Siemens is selling, and United Defense is interested in acquiring Rheinmetall.¹⁰⁶ The majority shareholders of Krauss-Maffei Wegmann and Rheinmetall—the Bode and the Röchling families—have not explicitly welcomed US involvement. The perceived ‘threat’ of a US takeover has been interpreted as a political argument to persuade the German Government to increase procurement spending in order to preserve domestic arms production capabilities.¹⁰⁷

¹⁰⁵ ‘German Bundesministerium der Verteidigung Gemeinsame Erklärung des Bundeskanzlers und des Verteidigungsministers Deutschlands, Gerhard Schröder und Rudolf Scharping, sowie der deutschen Heerestechnik- und Marineschiffbauindustrie zur europäischen Kooperation’ [Joint declaration of the Federal Chancellor and the Defence Minister of Germany, Gerhard Schröder and Rudolf Scharping, as well as the German land armaments and naval shipbuilding industry concerning European cooperation], Berlin, 27 Oct. 2000, URL <<http://www.bundeswehr.de/berlin001213/Pdf/berlin001213-brosch.pdf>>.

¹⁰⁶ ‘Krauss-Maffei: Keine Beteiligung von US Rüstungskonzernen’ [Krauss-Maffei: no shareholding by US armaments companies], *Financial Times Deutschland*, 15 Oct. 2001, URL <<http://www.ftd.de>>.

¹⁰⁷ ‘Die Zukunft von Krauss-Maffei und Rheinmetall DeTec’ [The future of Krauss-Maffei and Rheinmetall DeTec], *Antimilitarismus Information*, May 2002, pp. 23–24.

While the British and German arms industries already have a high degree of private ownership, in France there is an on-going process of privatization. The French arms production system has been described as capitalism ‘à la française’: cross-capital participation, a key role for institutional investors and significant state ownership.¹⁰⁸ French arms-producing companies are therefore much more independent from the financial markets than British and US companies (table 11.5). In 2002 the French Government announced a privatization plan for companies in both military and commercial production. The plan included the two largest French arms-producing companies, EADS France and Thales. According to a shareholders’ agreement, the French state could divest its holdings in these two companies in June and July 2003, respectively.¹⁰⁹ The three other producers of conventional systems—DCN, GIAT and Snecma—were not included in the privatization plan, but DCN was transformed in 2002 from a state-managed enterprise into a state-owned company under independent management. GIAT was excluded because of its persistent dependence on state support. This dependence may increase if GIAT has to close the assembly line for its major product, the Leclerc main battle tank. Delivery of these tanks to the United Arab Emirates was completed in 2002, and the last Leclerc will be delivered to the French Army in 2005.¹¹⁰ Snecma appears to have been excluded because of the drop in its sales in the first half of 2002, which affected the value of the company.¹¹¹

The year 2003 could be important for the French arms industry. Two private owners, Alcatel and Lagardère, have the option of dissociating themselves from arms production. In June 2003 the shareholder agreement that binds Alcatel to its remaining 9.7 per cent share in Thales will run out.¹¹² A similar agreement that obliges Lagardère to retain its share in EADS runs out in July 2003.

In Germany and the UK, most manufacturing is already privatized and current privatization activities are taking place in the service sectors.¹¹³ By July 2002 the British policy of public–private partnerships and private finance initiatives (PPP/PFIs) had resulted in a total of 42 PFI projects.¹¹⁴ The private sector will finance projects worth £2.2 billion (\$3.3 billion), of which £316 million (\$474 million) worth of contracts were signed in the 12 months preceding April 2002.¹¹⁵ If the privatization of in-flight refuelling services goes ahead as planned, this PFI will add another £13 billion (\$19.5 billion)

¹⁰⁸ Serfati, C., ‘The adaptability of the French armaments industry in an era of globalisation’, *Industry and Innovation*, vol. 8, no. 2 (Aug. 2001), p. 233.

¹⁰⁹ Mallet, V., ‘France asks banks to tender for sell-off roles’, *Financial Times*, 18 July 2002, p. 18.

¹¹⁰ Lewis, J., ‘Leclerc assembly line under threat’, *Jane’s Defence Weekly*, 8 May 2002, p. 5.

¹¹¹ Lewis, J., ‘Privatisation for SNECMA put on hold’, *Jane’s Defence Weekly*, 31 July 2002, p. 21.

¹¹² Chuter, A. and Ratnam, G., ‘Loosening the grip on Thales’, *Defense News*, 30 Sep.–6 Oct. 2002, pp. 22.

¹¹³ The privatization of military services and functions is described in: Sköns and Weidacher, ‘Arms production’, SIPRI *SIPRI Yearbook 2002* (note 9), p. 342.

¹¹⁴ British Ministry of Defence, ‘The Public Private Partnership in the Ministry of Defence’, URL <<http://www.mod.uk/business/ppp/index.htm>>.

¹¹⁵ British Ministry of Defence, *The Government’s Expenditure Plans 2002–03 to 2003–04* (Her Majesty’s Stationery Office: London, July 2002), p. 29.

over 27 years.¹¹⁶ In March 2002 the government announced a support services contract for naval bases, according to which Devonport Management and Babcock Naval Services will undertake such services as routine ship repairs, quayside services, logistics, estate management and warehousing.¹¹⁷

In Germany the process began with a 1999 agreement between the government and industry for 'innovation, investment and economy in the Bundeswehr'.¹¹⁸ In June 2002 the Gesellschaft für Entwicklung, Beschaffung und Betrieb (GEBB), which is responsible for overseeing this process, established the BwFuhrparkService to manage the civilian vehicle fleet of the German armed forces. In August 2002 the GEBB set up the LH Bundeswehr Bekleidungsgesellschaft to conduct procurement of uniforms.¹¹⁹ The next areas to be privatized are estate management and IT functions. The German Army's IT and communication systems are to be upgraded at an estimated cost of €6.5 billion (\$6.1 billion).¹²⁰ However, some areas of privatization have been reviewed because keeping these functions in-house is expected to be more cost effective than outsourcing them. These include certain supply functions and the repair of equipment, such as tanks and submarines.¹²¹ The review reflects a more cautious approach towards privatizing military services, which has developed from the realization that outsourcing does not always yield the expected savings.¹²²

Intergovernmental policies

Intergovernmental armaments cooperation in Western Europe takes place primarily within the frameworks of NATO, the international armaments agency Organisation Conjointe de Coopération en Matière d'Armement (OCCAR) and the looser cooperation arrangement of the Letter of Intent/Framework Agreement process.¹²³

The European Union has some influence on the shape of the arms industry,¹²⁴ although it has not gained an official role in defence industrial policy and remains constrained by Article 296 of the 1997 Treaty of Amster-

¹¹⁶ Chuter, A., and Kaufman, G., 'US eye private sector for air refuelers', *Defense News*, 20–26 May 2002, p. 30.

¹¹⁷ Sen, P., 'UK announces warship support agreement', *Jane's Defense Weekly*, 17 Apr. 2002, p. 19.

¹¹⁸ Bundesministerium der Verteidigung 'Innovation, Investition und Wirtschaftlichkeit in der Bundeswehr: Rahmenvertrag vom 15. Dezember 1999' [Innovation, investment and economy in the Bundeswehr: framework agreement from 15 December 1999], Berlin, 15 Dec. 1999, URL <http://www.bundeswehr.de/reform/bund_wirtschaft/ref_bwirt_rahmenvertrag.php>.

¹¹⁹ Information about privatized companies is available at Gesellschaft für Entwicklung, Beschaffung und Betrieb (GEBB), URL <<http://www.gebb-mbh.de/>>.

¹²⁰ 'CSC-led consortium selected to enter due diligence phase for \$6.1 billion German Army information technology project', Computer Sciences Corporation, Press Release, 6 June 2002.

¹²¹ 'Stopp für Privatisierung' [Stop for privatization], *Der Spiegel*, 26 Aug. 2002, p. 17.

¹²² For a more detailed discussion of the outsourcing of military services and functions, see Sköns and Weidacher, 'Arms production', *SIPRI Yearbook 2002* (note 9), pp. 342–46.

¹²³ Information about OCCAR is available at URL <<http://www.occar-ea.org>>. See also *Measures to Facilitate the Restructuring of European Defence Industry*, Letter of Intent between the defence ministers of France, Germany, Italy, Spain, Sweden and the United Kingdom, London, 6 July 1998, available at URL <<http://projects.sipri.se/expcon/loi/lointent.htm>>.

¹²⁴ For a recent discussion of EU influence see Guay, T. and Callum, R., 'The transformation and future prospects of Europe's defence industry', *International Affairs*, vol. 78, no. 4 (2002), pp. 757–76.

dam,¹²⁵ which effectively excludes the arms market from EU competition policy. Currently, EU policy on civil industries is relevant for the armaments sector. The EU competition authority reviews mergers and the acquisition of companies which carry out some civil production, which is the case for most arms-producing companies, as exemplified by OEP's takeover of HDW.¹²⁶ Furthermore, the distinction between civil and military-industrial policies is often blurred—particularly in the aerospace sector. In July 2002 the EU Commission published the Star21 report in cooperation with the executives of the major aerospace companies. It emphasized the close civil-military integration of the aerospace industry and labelled the high US military expenditure as a form of 'hidden subsidy' to the civilian aerospace industry.¹²⁷ The report recommended that member states develop a common armaments policy and joint R&D programmes, promote armaments cooperation, create an integrated military equipment market and increase military spending. Similar issues are arising in the space sector. Most European expenditure on military space programmes, €600 million (\$566 million) in 2002,¹²⁸ is for national efforts that often duplicate each other and make interoperability more difficult. In a January 2003 Green Paper on European space policy,¹²⁹ the EU Commission proposed that the EU should develop a satellite-based defence and security policy on an entirely European basis to support the European security and defence policy (ESDP). One of the initial projects is the Galileo space programme. Although it is being presented as a civilian programme, it will duplicate the US Global Positioning System (GPS), which has significant military relevance in areas such as precision-guided weapons and military logistics.¹³⁰ Similarly, the Global Monitoring for Environment and Security (GMES) initiative has military relevance.

During the deliberations of the European Constitutional Convention, chairman for the working group on defence Commissioner Michel Barnier again proposed the creation of a 'European Armaments and Strategic Research Agency'.¹³¹ Its initial task would be to promote harmonized procurement and support research into military technology, including military space systems. The agency would incorporate forms of cooperation that currently exist within OCCAR, LOI and the Western European Armaments Group (WEAG).

¹²⁵ The 1997 Treaty of Amsterdam amending the Treaty on European Union, the Treaties Establishing the European Communities and Certain Related Acts, available at URL <<http://www.europarl.eu.int/topics/treaty/pdf/amst-en.pdf>>.

¹²⁶ 'One Equity Partner's HDW deal set to come back under EU scrutiny', *Handelsblatt* (Internet edn), 5 June 2002, URL <<http://www.handelsblatt.com>>.

¹²⁷ European Commission, *Star21: Strategic Aerospace Review for the 21st Century* (Enterprise Publications: Brussels, July 2002).

¹²⁸ Commission of the European Communities, *Green Paper: European Space Policy*, European Commission COM(2003) 17 final, Brussels, 21 Jan. 2003, p. 15, URL <http://europa.eu.int/comm/space/doc_pdf/greenpaper_en.pdf>.

¹²⁹ Commission of the European Communities (note 128).

¹³⁰ Vielhaber, J. and Sattler, D., 'Why Europe wants Galileo', *Internationale Politik* (Transatlantic edn), vol. 3, no. 4 (winter issue, 2002), p. 36.

¹³¹ The European Convention, Final report of Working Group VIII—Defence, CONV 461/02, 16 Dec. 2002, available at URL <<http://register.consilium.eu.int/pdf/en/02/cv00/00461en2.pdf>>. See also the section on the EU in chapter 1 and chapter 6 on ESDP in this volume.

OCCAR, which currently comprises only France, Germany, Italy and the UK, may serve as a model for a European armaments agency with a broader membership. Three additional countries—Belgium, the Netherlands and Spain—are expected to join OCCAR in 2003.¹³² France, Germany and the UK all support the idea of a European arms procurement agency but disagree on its design. France and Germany want the agency to be controlled by the EU, but the UK opposes this.¹³³ The UK wants the agency to procure competitively, including US products, while France prefers a ‘buy European’ policy.¹³⁴ However, at the Franco-British Summit in Le Touquet in February 2003, France and the UK agreed on a set of principles for an ‘intergovernmental defence capabilities development and acquisition agency’ within the EU.¹³⁵

Considerations of defence industrial policy strongly influence the debate on the transatlantic ‘capability gap’.¹³⁶ Two initiatives in 2002 illustrate the European and transatlantic efforts to reduce the capabilities gap. NATO’s Prague summit meeting in November 2002 agreed a follow-up to the 1999 NATO Defence Capabilities Initiative.¹³⁷ A step towards greater industrial cooperation was the statement of intent by France, Germany, Italy, the Netherlands, Spain and the USA to jointly build a radar within the framework of the Alliance Ground Surveillance (AGS) capability. Specific technology and information sharing agreements are still to be worked out. The goal is ‘to maximise the exchange of information among participants and their industry’.¹³⁸ EADS and Northrop Grumman have developed the Transatlantic Industrial Proposed Solution (TIPS) on AGS, which outlines a formula for the development and production of the radar.¹³⁹ The second initiative was the EU’s European Capability Action Plan (ECAP), an effort to coordinate European efforts to improve capabilities, adopted in December 2001.¹⁴⁰ ECAP stresses the importance of improving the harmonization of military requirements, arms

¹³² OCCAR Central Office responsible for operational agreements, Private communication with H. Baumann, Feb. 2002.

¹³³ ‘Defence policy in the crossfire’, *Financial Times*, 2 Dec. 2002, p. 14.

¹³⁴ Watt, N. and Norton-Taylor, R., ‘Fences to be mended at UK–French summit’, *The Guardian* (Internet edn), 4 Feb. 2003, URL <<http://www.guardian.co.uk>>.

¹³⁵ Declaration on Strengthening European Cooperation in Security and Defence, Franco-British Summit, 4 Feb. 2003. URL <<http://www.elysee.fr/actus/dep/2003/province/02-frgb-touquet/angdefsecu.htm>>.

¹³⁶ Hagman, H., *European Crisis Management and Defence: The Search for Capabilities*, International Institute for Strategic Studies, Adelphi Paper 353 (Oxford University Press: Oxford, 2002), p. 30.

¹³⁷ North Atlantic Council, Statement on Capabilities: Issued at the Meeting of the North Atlantic Council in Defence Ministers Session, 6 June 2002; and North Atlantic Council, Prague Summit Declaration: Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Prague, 21 Nov. 2002. See also the section on the EU in chapter 1.

¹³⁸ NATO, ‘NATO AGS radar cooperation statement of intent’, Press Release, 21 Nov. 2002, URL <<http://www.nato.int/docu/pr/2002/p02-136e.htm>>.

¹³⁹ Enders, T., ‘Europe and America: a new strategic partnership matching the defence industry to new military needs’, Paper presented at the conference Europe and America: a new strategic partnership, future defence and industrial relations, Royal United Services Institute (RUSI), London, 18–19 Feb. 2002.

¹⁴⁰ See chapter 6 on ESDP in this volume.

procurement planning and cooperation between member states' arms industries.¹⁴¹

Russia

Russian defence industrial policy has three main objectives: (a) to create more effective and competitive industrial structures through vertical integration, (b) to increase capital investment for renewal of the manufacturing base, and (c) to obtain new contracts in order to maintain the capacity for development and manufacturing of advanced weapon systems. The basic means to achieve these aims are, first, increased state involvement in arms production and, second, significantly increased arms exports. However, the restructuring process is proceeding much more slowly than planned, owing to a number of structural and financial difficulties.

Vertical integration

The foundation of the policy for restructuring the arms industry into a smaller number of large, vertically integrated companies was laid in October 2001 with the adoption of two policy programmes—the Program of Restructuring and Developing the Defense Industry Complex until 2010¹⁴² and a federal plan for the reform of the military–industrial complex for the period 2002–2006. In January 2002 an armaments programme was adopted for the development of military technology up to 2010.¹⁴³

The goal of the restructuring plan is to establish 35–40 major groups of arms-producing companies which will constitute the core of Russian arms industry. In each of these groups the state will control at least 51 per cent of the shares. In 2002 two decisions were made which began the implementation of this plan. In January 2002 the Russian Conventional Arms Agency announced that it had identified the companies which would form the core of the first three of the planned integrated companies, on the basis of their position both in the Russian arms industry and on the international arms market. The three new conglomerates will be formed around core companies: Izmash in the field of small arms and ammunition, the Priborostroyeniye Design Bureau for precision weapons and the Transmash Research Institute for

¹⁴¹ Council of the European Union, 'Statement on improving European military capabilities, European Capability Action Plan', Draft Presidency Report on European Security and Defence Policy, Annex I, Council Document 15193/01, 11 Dec. 2001.

¹⁴² 'The fundamentals of RF policy on the development of the Defence Industrial Complex in the period 2010 and beyond', was adopted on 30 Oct. 2001 in a joint session of the State Council presidium and the Security Council of the Russian Federation. See also Sköns and Weidacher, 'Arms production', *SIPRI Yearbook 2002* (note 9), pp. 351–52.

¹⁴³ The State Ordnance programme for the period to 2010 was adopted on 20 Jan. 2002, See Sköns *et al.*, 'Military expenditure', *SIPRI Yearbook 2002* (note 9), pp. 262–63. For a description of all 3 programmes and efforts to implement them, see, e.g., *Yadernyy Kontrol* (Moscow), 'Survey of military reform in the Russian Federation', 19 Apr. 2002, pp. 66–74, in FBIS-SOV-2002-0826, 6 Sep. 2002 (in Russian).

armoured vehicles.¹⁴⁴ On 23 April President Vladimir Putin signed a decree to establish an open joint stock company for air defence systems. The company, PVO Almaz-Antei, will have the Almaz Central Design Bureau as its core and 40 other enterprises will be included, among them the Altair Scientific Production Association; the Fakel Design Bureau, a machine manufacturer; and the Kupol electromechanical plant.¹⁴⁵

The Russian Government is continuing its privatization scheme. In April 2002 the government information department issued a list of 20 small arms-producing companies to be privatized in 2002. In many cases this was only a form of 'corporatization' (transformation into joint stock companies) in preparation for actual privatization. Enterprises on the list included the Morskoj ship-building plant, the Marx Plant in Astrakhan, the October Revolution Plant in the Amur region, the electromechanical plant Kupol in Izhevsk, the Avtomatika Plant in Omsk, Zvezda-Strela in Korolyov, the Navigator Plant and the Russian Radio Navigation Institute in St Petersburg, the Inter-navigatsia Scientific Technical Centre of Modern Navigation Technologies in Moscow, the Novosibirsk-based aircraft manufacturer Chkalov, KnAAPO in Komsomol'sk-on-Amur and the Radio Engineering Plant in Tomsk.¹⁴⁶

However, the process of restructuring is still open to differences of interpretation and opinion, in particular as regards state–industry relations. Some critics perceive restructuring as a trend of renationalization and a return to old-style centralized management; others argue that this is not the intention, and no longer possible, because of the extent to which the Russian economy is run by market principles and the role that private companies have assumed in Russian arms production.¹⁴⁷ The role of the state in the restructuring of the Russian arms industry has not yet been clearly defined and many issues still need to be resolved, such as enacting appropriate legislation for the holding companies, addressing opposition by regional leaders concerned about the centralization involved in restructuring and dealing with inter-firm rivalries.

Funding

The gap between the level of domestic orders of military equipment, on the one hand, and production capacity and goals on the other, has resulted in a strong dependence on arms exports. President Putin has declared that arms exports are the main source of income for the Russian arms industry.¹⁴⁸ However, there is no mechanism for redistributing export earnings to those companies that, although unable to export, are important for domestic procurement needs.¹⁴⁹ Customers must make advance payment in order to satisfy the

¹⁴⁴ ITAR-TASS (Moscow), 'Russian conventional arms sector to be reorganized', 29 Jan. 2002, in FBIS-SOV-2002-0129, 30 Jan. 2002.

¹⁴⁵ Pronina, L., 'Russian heavyweights form conglomerate', *Defense News*, 13–19 May 2002, p. 34.

¹⁴⁶ Interfax (Moscow), 'Russian government to issue stock in KnAAPO in 2002', 5 Apr. 2002, in 'Interfax daily financial report for 5 Apr 02', FBIS-SOV-2002-0405, 5 Apr. 2002.

¹⁴⁷ 'Russian defence industry', *Jane's Defence Weekly*, 8 May 2002, p. 24, URL <www.janes.com>.

¹⁴⁸ Interfax (Moscow), 'Putin eyes arms exports as main source of financing country's defense sector', 3 Oct. 2002, in FBIS-SOV-2002-1003, 4 Oct. 2002.

¹⁴⁹ Julian Cooper, Private communication with E. Sköns, 15 April 2002.

investment needs of companies. The licensing process is also being streamlined to facilitate the export of weapon components, and in 2002 an initiative was announced to grant 50 additional arms-producing enterprises the right to independently carry out maintenance and sales of parts on the international market.¹⁵⁰

The value of arms export deliveries almost doubled between 1999 and 2002. The main customers are China and India, which together accounted for about 60–80 per cent of total Russian arms exports in 2002, according to official statistics.¹⁵¹ However, a large part of the current orders to these two countries has been delivered; maintaining current arms export levels would therefore require major new orders. In addition, some of the deals with China constitute partial payment of Russia's debt to China.¹⁵²

There are also significant efforts to establish international cooperation including foreign financing of joint projects. The main examples of this are two cooperation projects with India: the BrahMos multi-purpose, anti-ship system, in which the Russian share including funding is close to 50 per cent;¹⁵³ and the Il-214/MTA multi-role transport aircraft project. If launched, the project will be carried out fully on a parity basis. India is becoming an increasingly important strategic partner to Russia. Military–industrial cooperation between the two countries dates back to the 1960s, and the value of their arms contracts since then amounts to about \$33 billion.¹⁵⁴ Additional agreements were signed during Putin's visit to India in October 2002.

Domestic procurement is also increasing; in the period 2000–2002 it amounted to roughly half as much as arms exports (appendix 11A, table 11A.4). The government has also succeeded in repaying most of its debts to the military–industrial complex.¹⁵⁵ The state programme for development of military technology for 2001–2010, which was approved in January 2002, focuses on military R&D.¹⁵⁶ Planned procurement is estimated to involve a total cost of up to 2.3 trillion roubles (\$67 billion), only part of which is to be funded from the federal budget. The rest is to be funded by export earnings. The approach of using the military budget primarily for defence industrial policy purposes has received criticism because it leads to neglect of the actual military requirements.¹⁵⁷ Large-scale arms purchases for the Russian armed

¹⁵⁰ Interfax (Moscow), 'Russia: 50 defense enterprises may be cleared for independent activities abroad', 25 July 2002, in FBIS-SOV-2002-0725, 26 July 2002.

¹⁵¹ Lantratov, K., 'Russia sells more and more arms', *Kommersant*, 13 Feb. 2003. SIPRI statistics on Russian exports of major conventional weapons and their main customers are presented in chapter 13 on international arms transfers in this volume.

¹⁵² See appendix 13C, 'Register of the transfers and licensed production of major conventional weapons, 2002', in this volume.

¹⁵³ Gyürösi, M., 'BrahMos missile to boost India's naval arsenal', *Jane's Defence Weekly*, 7 Nov. 2001.

¹⁵⁴ ITAR-TASS (Moscow), 'Russian lawmaker: Russia seeks new security system in partnership with India', 20 Nov. 2002, in FBIS-SOV-2002-1120, 21 Nov. 2002.

¹⁵⁵ ITAR-TASS (Moscow), 'Russian Government paid off debts to defense enterprises in 2002', 27 Jan. 2003, in FBIS-SOV-2003-0127, 28 Jan. 2003

¹⁵⁶ Litovkin, V., 'The defence order', *Obshchaya Gazeta*, 24 Jan. 2002, in 'Newly approved defense order seen as inadequate', FBIS-SOV2002-0124, 28 Jan. 2002.

¹⁵⁷ See e.g., 'Russian defence industry' (note 147).

forces are not planned until 2010. Before then procurement is scheduled to occur only on a limited scale, but there will be a significant increase in the funding of military R&D, making it the top priority of the military budget.

V. Conclusions

The restructuring of arms production that was initiated after the end of the cold war continued in 2002. While its original impetus was the falling demand for military equipment and the associated decline in arms production, this is no longer the case. Since the mid-1990s the output of the arms industry has ceased to decline. The current restructuring process is characterized primarily by continuing concentration and is linked chiefly to escalating military R&D efforts to maintain the rapid rate of development in military technology.

In the United States the concentration process has resulted in a reduction in the number of prime contractors for each type of major weapon system. In Western Europe, where the demand for military equipment is fragmented into national procurement requirements and the combined demand is much smaller than in the United States, the concentration process is propelled by additional factors, such as the need to compete with the giant US arms-producing companies as well as the desire to cooperate with them. The continuing process of European economic and political integration has also had a strong impact on the restructuring of the arms industry. In Russia the dramatic decline in government expenditure on arms procurement and military R&D has increased since 1999. The political determination to reconstruct the core of the Russian arms industry has been manifested in a number of policy initiatives since 1998, aiming to achieve a core of arms-producing companies with the required R&D and manufacturing base. However, progress is slow, hindered primarily by financial shortages. The main efforts of the Russian Government and industry are therefore directed towards arms exports and international armaments collaboration. This, in turn, involves making the industry more competitive on the international arms market, thus demonstrating the vicious circle of an industry still affected by crisis.

Implications

The rapid development of military technology and the process of concentration, internationalization and privatization of the production of military goods and services in the past decade has increasingly presented new challenges as regards the affordability and control of arms procurement. While it is true that governments still exercise the ultimate control over the development, manufacture and sales of weapon systems in their role as customers and thus funders, it is also becoming apparent that the emerging structure of arms production is likely to make it more difficult for governments to control factors such as cost, competition and technology, even if some of this can be influenced through procurement of civil components, managed competition and similar

techniques. The new structure also makes it harder, even for the biggest producer countries, to avoid at least some dependence on foreign suppliers for weapon acquisitions. This is true not only in countries with little or no defence industrial base but also in those that possess a major arms industry and even in the country with the largest arms industry, the United States.

While West European companies and governments have felt compelled to try to match the size of the US companies in order to remain competitive and achieve similar economies of scale, the US Government is beginning to encounter difficulties associated with the reduced competition which has resulted from consolidation of the US arms industry. A reduced number of companies strengthens the lobbying and negotiating power of the few remaining large prime contractors in each segment of industry in relation to the government. The impact on the state–industry relationship has been particularly pronounced in the UK, where BAE Systems has exerted a significant amount of pressure on the government to reserve major arms procurement contracts for domestic companies.

The rationale for privatization is to reduce the inefficiencies associated with state-owned or state-subsidized companies, which are insulated from competition and often also used to fulfil regional economic and labour market policies of the government. In Europe, privatization has also been a precondition for cross-border consolidation. The disadvantage of dependence on private companies, on the other hand, is that governments lose direct control over arms production and instead have to rely on various types of policy instruments. There are different views as regards the efficiency of political and regulatory control compared with direct state control. However, it is clear that in periods of rapid change it may be difficult for governments to keep pace with the strategies developed by companies for R&D, production, sales and marketing, which sometimes evolve much faster than governments are able to develop new policies. In particular, it is more difficult to monitor and control international technology transfers if they take place within large transnational corporations, and therefore there is a need for greater transparency in these companies, preferably laid down in international agreements. Furthermore, the government's own policies are influenced by the lobbying power of external actors in the arms industry, which in some cases may prove more powerful than the rational needs of the democratic political process.