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# European and North American Trends in Defence Industry: Problems and Prospects of a Cross- Atlantic Defence Market

Alexander Moens in collaboration with Rafal Domisiewicz

Prepared for the  
International Security Research and Outreach Programme  
International Security Bureau  
and the European Union Division

April 2001



Department of Foreign Affairs  
and International Trade

Ministère des Affaires étrangères  
et du Commerce international

# European and North American Trends in Defence Industry: Problems and Prospects of a Cross- Atlantic Defence Market

Dept. of Foreign Affairs  
Min. des Affaires étrangères

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## PREFACE

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views or positions of the Department of Foreign Affairs and International Trade or of the Government of Canada.

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Department of Foreign Affairs and International Trade  
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## EXECUTIVE SUMMARY

Through extensive mergers and re-structuring, and through rapid progress in common procurement practices in OCCAR (Organisme conjoint de coopération en matière d'armement/ Joint Armaments Cooperation Structure), the supply side of European defence industry has radically changed in just five years. The demand side remains, however, behind. European governments have declared a new Common European Security and Defence Policy concomitant with a new Rapid Reaction Force but have as of yet made little new defence budget investment.

At the same time, the pace and scope of shared defence projects are increasing with the future large transport aircraft (A400M), missile development, and helicopter development as a few of the leading examples.

British firms led by BAe (British Aerospace) have positioned themselves in the best leverage position to benefit from advances in EADS (European Aeronautic Defence and Space) as well as from joint American ventures. BAe-Lockheed Martin is now the sixth largest defence supplier in the US market. A major development to watch is the "shake out" between BAe and EADS. Whether this relationship will be characterized by collaboration or competition remains to be seen.

The rapid pace of consolidation among American defence "giants" after 1991 and a slow raise in US defence budgets since the mid 1990s have put the American firms in a very strong position to either cooperate or compete with emerging European "giants".

The American defence market can be called a fortress due to various layers of protection from direct foreign investment, joint ventures, and exports to third parties. European participation in this market is difficult. Canada has a unique and valuable position in this market. Efforts are underway to create joint European-American defence export regimes. Again, Britain leads other European governments in this area.

Reeling from cutbacks, the Canadian defence industry is showing signs of recovery. Capital expenditures and investment in military equipment in the last few years will be a much-needed boost. Its subsidiarity status and niche position in the US industrial and technological base can be turned again into its greatest asset. The complete resolution of the ITARs (International Trade in Arms Regulations) controversy is a necessary step in this recovery. Canada will have to "level up" to some of the national security and export provisions demanded by the United States.

There is no fortress Europe in the defence industry, only remaining citadels and emerging transnational conglomerates. Intra-European trade in defence products is low. It remains to be seen how well the shared projects can satisfy national procurement objectives.

Akin to the consolidation of the Single European Market in 1992, North American companies are now investing in the European defence market in anticipation of a Single European Defence Market. Unlike the Single Market, however, the market in defence is not driven by EU-15 policy, but is driven by market forces and is without specified deadline. Whether shareholders and governments will agree remains to be seen. North American firms are therefore more cautious.

Cooperation across the Atlantic among defence industries and among governments is far from inevitable. The interests of interoperability, economies of scale, dual-use technology flows,

and cost-savings for defence budgets argue in favour of more cooperation. However, these benefits will only accrue roughly equally as long as European governments increase their defence budgets. If not, the question is raised in North America: for what price share a fixed pie?

Americans are looking for participation in a modernizing European defence market, realizing the interoperability cannot simply be ascertained by selling the Europeans finished American products. The Europeans are looking for savings in the R&D area and inroads in the American defence market.

The interests of Canadian defence industry is foremost in deepening and widening of the North American defence market. The resolution of ITARs and the National Missile Defence debate would help this problem. Mere European access to the North American market is not in its interest as Canadian access to the market of the new European giants is likely going to be more difficult. At the same time, Canada's strong position in dual-use technology makes cross-Atlantic partnerships a valuable option alongside North American ventures. Perhaps an American-British-Canadian strategy/regime is the best step ahead.

## SOMMAIRE

Grâce à une restructuration et à des fusions importantes, ainsi qu'aux progrès rapides réalisés dans les pratiques d'approvisionnement courantes de l'OCCAR (Organisme conjoint de coopération en matière d'armement), l'aspect offre de l'industrie européenne de la défense a radicalement changé en l'espace de cinq ans seulement. Il reste cependant des progrès à faire en ce qui concerne l'aspect demande. Les gouvernements européens ont annoncé une nouvelle Politique commune de sécurité et de défense ainsi qu'une nouvelle Force d'intervention rapide, mais n'ont fait jusqu'à présent que peu de nouveaux investissements dans le budget de la défense.

En même temps, le rythme et la portée des projets de défense à frais partagés augmentent en raison de la construction future d'avions commerciaux (A400M) et de la mise au point de missiles et d'hélicoptères, pour ne nommer que quelques exemples.

Les entreprises britanniques, BAe (British Aerospace) en tête, se sont placées dans la meilleure position d'influence possible pour tirer parti des progrès réalisés à la EADS (European Aeronautic Defence and Space) et des coentreprises américaines. BAe-Lockheed Martin est maintenant le sixième fournisseur sur le marché américain de la défense. Le «grand remaniement» entre la BAe et la EADS est une situation à surveiller. Reste à savoir si cette relation sera marquée par la collaboration ou la concurrence.

Le rythme rapide de la consolidation entre les «géants» américains de la défense après 1991 et la faible augmentation des budgets américains de défense depuis le milieu des années 1990 ont placé les entreprises américaines dans une position très avantageuses qui leur permet de collaborer avec les nouveaux «géants» européens ou de leur faire concurrence.

On peut qualifier le marché américain de la défense de forteresse en raison des différentes couches qui le protègent de l'investissement étranger direct, des coentreprises et des exportations vers des pays tiers. Il est difficile pour l'Europe de participer à ce marché. Le Canada y occupe quant à lui une place unique et intéressante. Des efforts sont déployés pour créer des régimes conjoints d'exportation en matière de défense entre l'Europe et l'Amérique du Nord. Encore une fois, la Grande-Bretagne est en avance sur les autres gouvernements européens dans ce domaine.

L'industrie canadienne, qui a été durement touchée par des compressions, montre des signes de redressement. Les dépenses en capital et l'investissement dans le matériel militaire au cours des dernières années lui donneront une impulsion fort nécessaire. L'état de subsidiarité de l'industrie canadienne et le créneau qu'elle occupe dans la base industrielle et technologique des États-Unis pourraient encore une fois constituer son plus grand atout. Le règlement complet de la controverse entourant l'ITAR (International Trade in Arms Regulations/Règlement américain sur le commerce international des armes) est une étape nécessaire dans ce redressement. Le Canada devra «se hisser» au niveau de certaines des dispositions imposées par les États-Unis en matière de sécurité nationale et d'exportations.

L'industrie européenne de la défense n'est pas une forteresse; il ne reste que quelques citadelles et on voit apparaître des conglomérats transnationaux. Il y a peu d'échanges intra-européens dans le domaine des produits de la défense. Reste à savoir jusqu'à quel point les projets à frais partagés répondront aux objectifs d'approvisionnement nationaux.

Sachant qu'une consolidation a mené au Marché européen unique en 1992, les entreprises nord-américaines investissent maintenant dans le marché européen de la défense en prévision d'un Marché européen unique dans ce domaine. Toutefois, contrairement au Marché unique, le marché de la défense est régi par les forces du marché plutôt que par les 15 principes directeurs de l'UE, et ne comporte aucune date limite précise. On ne sait pas encore si les intéressés et les gouvernements arriveront à se mettre d'accord sur ce projet. Les entreprises nord-américaines se montrent donc plus prudentes.

La coopération entre les industries de défense et les gouvernements de part et d'autre de l'Atlantique est loin d'être inévitable. L'interopérabilité, les économies d'échelle, la circulation de la technologie à double usage et les économies de coûts dans les budgets de défense constituent autant de raisons qui militent en faveur d'une plus grande coopération. Toutefois, ces avantages ne se concrétiseront plus ou moins que si les gouvernements européens continueront d'augmenter leurs budgets de défense. Si tel n'est pas le cas, une question se pose en Amérique du Nord : quel prix payer pour un marché dont les parts sont fixes?

Les Américains cherchent à participer à la modernisation du marché européen de la défense, car ils se sont rendu compte que la vente aux Européens de produits américains finis ne suffisait pas à assurer l'interopérabilité. Les Européens cherchent à faire des économies dans le domaine de la R.-D. et à pénétrer le marché américain de la défense.

L'intérêt de l'industrie canadienne de la défense se trouve avant tout dans une pénétration plus profonde du marché nord-américain de la défense et dans l'élargissement de ce dernier. La résolution de l'ITAR et le débat entourant le Système national de défense permettraient de régler le problème. Le simple accès de l'Europe au marché nord-américain n'est pas dans son intérêt, car il sera probablement plus difficile pour le Canada d'accéder au marché des nouveaux géants européens. En même temps, la solide position que le Canada occupe dans le secteur de la technologie à double usage font des partenariats transatlantiques une option intéressante, tout comme les nouvelles activités commerciales nord-américaines. Une stratégie ou un régime américano-britanno-canadien est la meilleure voie à suivre.

## I. THE EUROPEAN DEFENCE MARKET

"We absolutely need defence integration and to have common defence procurement in Europe. We are asking for one customer."

(Philippe Camus, Co-Chief Executive Officer, European Aeronautic Defence and Space Company (EADS)<sup>1</sup>

A few years ago, the European defence market was not only fragmented on the supply side — three times the number of contractors on less than half the defence budget of the United States — but also on the demand side, with the European companies facing many customers (governments) with different requirements.

Of the three European countries with the largest defence industrial base — Britain, France and Germany — Britain and Germany were the first to undertake a major rationalisation of national industries after the end of the Cold War. Britain's defence industry has become concentrated around two profitable major aerospace and defence producers, British Aerospace (BAe) and General Electric (GEC). In Germany, Daimler-Benz Aerospace (DASA) (Daimler Chrysler after a merger with the American company Chrysler in 1998) emerged as a dominant aerospace and defence maker.

In contrast, in 1997, France had eight defence companies — mostly state-owned and debt-ridden.<sup>2</sup>

On 4 December 1997, British Prime Minister Tony Blair, French Premier Lionel Jospin and German Chancellor Helmut Kohl requested the Airbus Industrie consortium, consisting of Aerospatiale (France), DASA (Germany), BA (UK) and CASA (Spain), to present a detailed plan by 31 March 1998 for the transformation of the Airbus consortium into a single integrated company, including the marrying of civilian and military ranges of activities.<sup>3</sup> The three governments agreed to adopt policy measures to help the industry in such areas as tax and labour laws and to coordinate payments for research and development.

According to 1996 estimates, an integrated civilian-military Airbus company would have generated profits of approximately \$35 billion, a level equal to that of Lockheed Martin, and just below the \$40 billion value of Boeing-McDonnell Douglas.<sup>4</sup> At the time of the political initiative, *The Economist* argued: "Whatever politicians might hope, merging Europe's defence companies will probably prove harder than the creation of a single currency."<sup>5</sup> The biggest obstacles to consolidation was the relative poverty of common weapons programmes, the differences in the attitudes of European states to the degree of openness of the European market to the American industry — with the French being most protectionist and the British most open to market forces and transatlantic cooperation, and (ironically) the continuing cultivation of national champions whilst voicing support for pan-European mergers.

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1. Daniel Michaels, "European Defense: More Bang for Buck," *Wall Street Journal*, March 9, 2001.

2. Ian Mather, "US arms giants pose threat to Europe," *The European* (16-22 Oct. 1997), p. 22.

3. Denis Fainsilber, "Paris, Bonn, and London want to marry civil and military aeronautics," *Les Echos*, 10 Dec. 1997, <http://www.adetocqueville.com/>.

4. Jacques Isnard and Anne-Marie Rocco, "Airbus will expand to military activities in order better to confront the American offensive," *Le Monde*, 10 Dec. 1997, <http://www.adetocqueville.com/>.

5. "A farewell to arms makers," *The Economist*, 22 Nov. 1997, pp. 69-70 and 75.

The pan-European merger of defence industry makes economic and political sense. First, the proliferation of national champions and protectionist measures on the European defence market prevents companies from reaping the benefits of the economies of scale. Second, transatlantic competition accelerated following a successful rationalisation in the American defence industry, threatening European companies with the prospect of becoming subsidiaries and widening the technological gap between America and Europe. The latter, the third reason for consolidation of the Defence Industrial and Technological Base (DITB) in Europe is a very serious risk for the development of modern European defence capabilities.

### **The Politics and Economics of EADS**

The tri-national political initiative received a response by the industrial partners in the Airbus consortium, as well as Alenia of Italy and Sweden's Saab. The BAe, DASA and Aerospatiale agreed in principle to form a single company, which would be run on a commercial basis by a single management structure, listed on the stock exchange, and not dominated by a single shareholder.

In a memorandum of March 27, 1998, the industrialists outlined obstacles to restructuring of the European aeronautical industry, and specifically asked the governments to address the issue of the type of future political control over the aeronautical industry, maintenance of subsidies, as well as the taxation and a legal status for a transnational company — problems which remain to be addressed within a European framework.<sup>6</sup>

Moreover, DASA appealed to the governments in a crucial matter: "The politicians need to support us by harmonizing... military-procurement policies across Europe."<sup>7</sup>

The governments responded by signing in July of the same year a "first document of intent" leading to the establishment of a single European aerospace defence giant.<sup>8</sup> BAe, Aerospatiale and DASA proposed a two-stage blueprint for the integration of European defence industries.<sup>9</sup>

The first-stage involved grouping producers of the same categories of weapons into stand-alone operations, based on the Airbus model, in which the consortium's partners pool their development and production under a single management.<sup>10</sup> The key sectors that could be merged into pan-European groups and considered as the sectoral components for a single entity-to-be were a missile-maker, a defence-electronics producer, and an aerospace company. The first would be formed by sections of BAe, DASA, Aerospatiale, the French Matra, Alenia of Italy, and several smaller European companies. The defence-electronics conglomerate would comprise

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6. Pierre Tran, "Aerospace firms eye Europe industry consolidation," *Reuters*, 4 June 1997, <http://www.cdi.org/ArmsTradeDatabase/>.

7. Alexander MacLeod, "Europe Seeks to Rival US Defense Giants," *The Christian Science Monitor*, 16 Dec. 1997, <http://www.cdi.org/ArmsTradeDatabase/>.

8. "Six european countries to move toward setting up big aviation group," *AFP*, 18 June 1998.

9. Christophe Jakubyszyn, "Scenario for European aeronautics and defense integration," *Le Monde* (3 March 1998), <http://www.adetocqueville.com/>.

10. Joseph Fitchett, "European Arms Companies: United They Could Stand," *International Herald Tribune* (15 Apr. 1998), <http://www.cdi.org/ArmsTradeDatabase/>.

the French Thomson, General Electric (GEC) of Britain, Matra, and DASA. Finally, an aerospace company — the most important element in the plan — would combine Europe's top defence contractors: BAe, DASA, as well as the privately-owned French maker of the Mirage and Rafale fighter, Dassault, with the possible participation of Saab and smaller manufacturers from Spain and other countries.<sup>11</sup>

The second stage would see the establishment of a giant European defence conglomerate, "European Aerospace and Defence Company" (EADC) that would be the sole shareholder of the specialized companies created during the first phase. The EADC would be in the business of manufacturing aircraft, helicopters, and missiles.

While the privately owned BAe and DASA were seen moving towards a partnership, there was a reluctance to merge with the state-owned French companies. This reluctance was motivated by "the perception that the French Government, by retaining a significant stake in French companies such as Aerospatiale and Thomson, would wish to influence future decisions on an ideological rather than commercial basis."<sup>12</sup>

The French government opted in late 1997 to partially privatise Thomson CSF and Aerospatiale in mid-1998 in order to facilitate cross-border mergers. Yet, by retaining the largest share in the "privatised" companies, the French government did not satisfy the demands of German and especially British politicians and industrialists that companies be privatised before they could be partners in pan-European consolidation.<sup>13</sup>

In January 1999, BAe announced its decision to merge with Marconi of GEC, creating the world's second-biggest defence-aerospace company, with a turnover of 18 billion euros, and with strong subsidiaries in the United States.<sup>14</sup> The commercial logic, involving cost-saving, led BAe to make such a decision, which bolsters the strength of the British defence industry by creating a national champion able to compete on the global scale. Another factor weighing in the BAe's decision was the purported interest in pursuing transatlantic deals.<sup>15</sup>

Barely a couple of weeks later, Franco-British leaders called for "a strong and competitive European defence industry and technology."<sup>16</sup> Prime Minister Blair had wanted BAe to merge with DASA, and for Marconi to link up with Thomson-CSF, thus creating a strong European industrial base for competition with the big American three.<sup>17</sup> The Germans reacted angrily to the deal. Referring to the envisioned single European aerospace-defence firm, Daimler Chrysler's co-chairman, Jürgen Schrempp, said: "The dream is dead."<sup>18</sup> Meanwhile, cognizant of the politico-

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11. *Ibid.*

12. David Isenberg, "European Governments call for an integrated aerospace industry," Center for Defense Information (10 Dec. 1997), <http://www.cdi.org/ArmsTradeDatabase/>.

13. Gabriel and Charles Voisin, "Breaking Taboos in European Defense Industry Consolidation," *TTU* (17 July 1997), <http://www.adetocqueville.com/>.

14. John van Oudenaren, *Uniting Europe: European Integration and the Post-Cold War Europe* (Lanham: Rowman & Littlefield Publishers, 2000.)

15. Bradley Parrett, "Pentagon to treat BAe as American-BAe," *Reuters* (11 Nov. 1999), <http://uk.news.yahoo.com/991111/>.

16. Kori Schake et al., "Building a European Defence Capability," *Survival*, 41:1 (Spring 1999) p. 24.

17. David Gow, "Loading the bug guns," *The Guardian* (6 Oct. 1999), <http://www.guardianunlimited.co.uk/>.

18. "Transatlantic aerobatics," *The Economist* (5 June 1999), p. 59.

economic imperative of supporting big national champions the French government fostered "Franco-French" mergers. In 1998, the French state transferred its 45.7% stake in Dassault Aviation to Aerospatiale, which was later merged with Matra Hautes Technologies.<sup>19</sup> The French industrialists concurred with the views of the French politicians. Advocating the Aerospatiale-Dassault merger, the chairman of Aerospatiale, told members of the French National Assembly defence committee that the "existence of a French leader is necessary for dialogue on the European and international level with the United States."<sup>20</sup>

After fears in 1998 that an impending BAe-DASA merger would effect a Franco-German schism came proclamations of a Franco-German rapprochement occasioned by the agreement to merge Aerospatiale-Matra and Daimler-Chrysler Aerospace, signed by German Chancellor Gerhard Schröder and French Prime Minister Lionel Jospin on 14 October 1999. The merger created the European Aeronautic Defence and Space Company (EADS) with defence revenues worth \$6 billion out of total revenues of \$21 billion, placing it sixth in the world league of defence companies. As a concession to the Germans, the French government reduced its holding in EADS to 15% of the shares, while DASA was to become the biggest shareholder with 30% of the company ownership.

EADS according to the then French Finance Minister Dominique Strauss-Kahn, "complemented the initiative to establish a common European currency." Further, it exemplified the importance of the Franco-German relationship to European integration. In the words of a French observer: "When the Germans and French fall out, Europe gets stuck. Any nation can block the European machine, but only France and Germany know how to get it moving again."<sup>21</sup>

The interplay of politics and industrial restructuring did not escape notice of cogent observers. For example, only 24 hours before the merger agreement was signed, French President Jacques Chirac and Chancellor Schröder authored a letter in which they supported granting strong powers to the EU's new High Representative for Foreign and Security Policy, Javier Solana.<sup>22</sup> Similarly, the French design for an EU military committee was then more likely to win German support.

Likewise, it is expected that the Aerospatiale-DASA merger would facilitate long-awaited German government's decisions regarding a number of common projects: a procurement decision on NH 90 military transport helicopters, produced by the Franco-German Eurocopter consortium; the reversal of Berlin's threat to review funding for the German-French-Italian Polyphen missile program, as well as the choice between Antonov An-70 or Airbus Industrie's A400M aircraft as Germany's future military transport aircraft.

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19. J.A.C. Lewis, "Dassault may buy back stake to escape EADS," *Jane's Defense Weekly* (27 Oct. 1999), p. 18.

20. "France needs Aerospatiale/Dassault merger — Michot," *Reuters* (3 July 1998), <http://www.cdi.org/ArmsTradeDatabase/>.

21. J.A.C. Lewis, "Industrial détente," *Jane's Defense Weekly* (27 Oct. 1999), p. 19.

22. *Ibid.*, p. 19.

## The New 'World' of European Defence Industry

In addition to EADS, European defence industry re-aligned to create a European space company, Astrium, (BAe-Marconi, DASA, Aerospatiale-Matra and Alenia Spazio of Italy's Finmeccanica).

In early 2001, the MBDA Missiles company was formed, bringing together the French, Italian and UK missile interests of EADS, BAE Systems, and Finmeccanica of Italy. It will merge the former Franco-British and Italian-British joint ventures Matra BAe Dynamics and Alenia Marconi Systems, and includes a E500m (\$448m) capital injection by Finmeccanica.<sup>23</sup> Final approval for the deal, which will make MBDA the world's second-largest maker of missiles behind Raytheon of the US, is expected to be given shortly by the French, Italian, and UK governments.

MBDA will have a turnover of 3 billion Euros and an initial workforce of 10,000 before planned jobs cuts of about 1,000. It will be owned 37.5 per cent by EADS, 37.5 per cent by BAE and 25 per cent by Finmeccanica.

The European defence and aerospace industry is now grouped around the British BAe-Marconi group and the continental EADS group, each marrying specialized areas. The former integrates aeronautics and defence electronics; while the latter focusing on aeronautics and space. Although both giants continue discussions about the eventual creation of a single aeronautics and defence company such a merger is unlikely in the near future.<sup>24</sup>

The UK is still reluctant about sharing high-tech projects with its European partners, preferring instead US-UK bilateral cooperation on some projects and UK-European cooperation on others. But as the defence industry integrates and amalgamates in Europe, it is more and more difficult for the UK to maintain both a role in European industry and an advanced US-UK role, especially since early Bush administration official comments made it clear that they are reluctant about sharing intelligence—and thus presumably high-tech information such as stealth technology with other European members.

On the other hand, the UK is in the best short-term position to gain from leverage in both the United States and on the European continent.

A case in point: Britain and the United States signed a memorandum of understanding in January 2001 to cooperate in the Joint Strike Fighter (JSF) aircraft. At stake for the British is a £7 billion production decision later in the decade, which would lead to the procurement of 150 JSFs for the UK Future Carrier Borne Aircraft program, a replacement for Royal Navy Sea Harrier FA2s and RAF Harrier GR7s starting in 2012.

But Britain is also collaborating with France, Germany, and Sweden on European Technology Acquisition Plan (ETAP), which calls for the development of a European stealth technology demonstrator aircraft. But if BAe has no permission from the British Ministry of Defence to share the stealth technology with European partners, such as EADS, Dassault Aviation and Saab, the other Europeans will react. Italy may replace the UK in ETAP as the Germans have suggested.<sup>25</sup>

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23. Kevin Done, "European defence sector set for MBDA merger," *Financial Times*, March 20, 2001.

24. "European aeronautics industry groups around big two," *AFP* (22 Oct. 1999).

25. Nick Cook, "UK's JSF MoU Deal with USA Infuriates Europe," *Jane's Defence Weekly, Aviation Editor*, January 21, 2001.

In addition to the emerging competition, there remain areas of armaments production, where rationalisation has not made much headway. Aircraft engine manufacture is fragmented between seven European companies. Consolidation has not affected the helicopter sector, where Britain's Westland and Italy's Agusta compete with the Franco-German Eurocopter venture.<sup>26</sup>

On the up side, the consolidation of European defence industry has had a positive effect on its global economic performance.<sup>27</sup> This is very important not only for the prospects of strengthening Europe's defence capabilities, but also for the strength of the European economy. With a 37% share of military production, the European aerospace industry ranks as the 13th largest in Europe in terms of employment, supporting directly 422,484 jobs and indirectly generating jobs for 1.2 million people employed in more than 700 firms.

The industry is of paramount importance to France, Germany, Italy and the United Kingdom, where the core of the industry is located and where 90% of the total industry profit is generated.<sup>28</sup> (See Annex I for European Defence: Case Studies)

## Conclusion

The radical transformation of Europe's defence industries from largely state-owned to largely privately-owned concerns have changed the supply side of the defence procurement equation in less than a decade. Europe's largest contractors are now run by managers that expect — and are expected — to turn a profit, to keep costs under control, and to support their share prices. Without specific political mandate from the EU-15, defence procurement is moving slowly but steadily towards an integrated base.<sup>29</sup>

Bonn-based OCCAR oversees seven procurement projects involving cooperation between two or more member states. These are:

- The Milan missile (Italy, Germany, France);
- The Roland missile (France, Germany);
- The Tiger helicopter (Germany, France);
- The Cobra radar (Britain, Germany, France);
- The Hot missile (France, Germany);
- A family of ground-to-air missiles, known as Famille de Missiles Sol-Air Futurs (France, Italy);
- The Multi-Role Armoured Vehicle (Germany, Britain, Netherlands).

According to the outgoing head of international cooperation at the Délégation Générale pour l'Armement (DGA), Jean Fournet, the biggest future challenge for the OCCAR is how to

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26. *Ibid.*

27. See J.A.C. Lewis, "European aerospace reports major rise in military turnover," *Jane's Defense Weekly* (22 July 1998), p. 18.

28. The above data is derived from Giorgio Zappa, "The European Aerospace Industry — Its Changing Face Across Europe," Speech at the 5th Round Table of European Aerospace Regions (11 March 1999), [http://www.aecma.org/rt\\_zappa.htm](http://www.aecma.org/rt_zappa.htm); and *The European Aerospace Industry: 1998 Statistical Survey*, AECMA (July 1999), <http://www.aecma.org>.

29. Unless otherwise indicated the following is a synthesis of Christina MacKenzie, "OCCAR Must Stipulate Benefits to Partners," *Defense News* (5 March 2001), p. 4.

ensure work-share benefits for its participating states as the agency is expanding and increasing the range of program responsibilities. Spain and Belgium are now seeking entry into the OCCAR. The Netherlands is the first expected new member in the OCCAR. However, Spain participates only in the OCCAR's latest project — the Airbus A400M military transport aircraft program — while the Netherlands is only involved in the Multi-Role Armoured Vehicle program. This raises questions about the application of the OCCAR's founding principle: the *juste retour*. Instead of applying a program-by-program proportional industrial benefits share, through the *global return* the OCCAR is set to allocate industrial work across a number of programs and years. According to an unnamed British industrialist cited in *Defense News*, the OCCAR's approach will prove unworkable and result in the domination of smaller partners, such as the Netherlands, Spain and possibly Italy, by the biggest three OCCAR partners — Britain, France and Germany.<sup>30</sup>

In a speech in Brussels on March 1 of this year, Javier Solana, the EU's High Representative for CFSP, said that agencies such as OCCAR were instrumental to the construction of the Common European Security and Defence Policy (CESDP). He said: "We need to work from both the top-down and from the ground level up via multilateral cooperation in military programs" to strengthen CESDP. Nevertheless, Jean-Yves Helmer, director of the DGA, said that it is unlikely OCCAR would manage the majority of its members' procurement programs in the foreseeable future. He said: "According to a study we undertook, OCCAR will only be handling some 20 percent of our procurement programs in 25 or even 50 years' time."<sup>31</sup>

It is clear that while the defence industry and procurement side of Europe have changed a great deal, the demand side of the equation has not changed anywhere as radically. In each country, there is still one customer for the defence industry, and its main — if not only — goal has been to reduce defence acquisition costs. Recently, German Chancellor Gerhard Schroeder's firmly rejected raising defence spending - even in the face of the Bundeswehr General Inspector Harald Kujat's testimony concerning the lack of preparedness of the Bundeswehr for interventions abroad.<sup>32</sup> (See Annex II for defence budgets for EU 15).

## II. THE NORTH AMERICAN DEFENCE MARKET

Following the collapse of the Soviet Union, the American defence companies quickly adjusted to the tightening of military spending, greater competition for export markets in the face of reduced demand, and the demands for application of advanced technology into weapons systems. Prompted by the then US Defence Secretary Les Aspin's 1993 call for the consolidation of American defence industry, the American defence industrial market underwent a major rationalisation, and by 1996 became dominated by the three defence giants — Boeing-Rockwell-McDonnell Douglas, Lockheed Martin-Northrop Grumman, and Raytheon-Hughes-Texas Instruments — which collectively accounted for 47% of global defence revenues.<sup>33</sup>

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30. *Ibid.*, p. 27.

31. As cited in *Ibid.*, p. 27.

32. "German Chancellor Schroeder says not increased defense spending," *AFP* (7 March 2001).

33. Alexander MacLeod, "Europe Seeks to Rival US Defense Giants," *The Christian Science Monitor*, 16 Dec. 1997, <http://www.cdi.org/ArmsTradeDatabase/>.

Between the end of the Cold War and fiscal year 2000, the US government reduced the Department of Defense research and development and procurement annual budgets by about \$60 billion. In response, the US defence companies, consolidated, merged with other companies, and established alliances with other companies in joint procurement bids in order to offset domestic sales losses with increased revenue from international sales. Today, in the United States there are 5 large defence companies as opposed to 33 separate businesses that existed in 1990.<sup>34</sup>

In addition to defence industry consolidation, American military spending has rebounded after the end of the Cold War cuts and especially its R&D spending has remained very high. For example, in 1997, the United States spent US \$32.2 billion on defence R&D whereas the combined spending of France, Germany, Italy, and the UK was \$7.1 billion.

The current military budget proposed by Secretary Donald Rumsfeld provides a total of \$310.5 billion for defence spending in 2002, which the new administration claims amounts to a 4.8% increase over the \$296.3 billion in the 2001 defence budget. The Bush administration would provide an additional \$2.6 billion for new research and development initiatives.<sup>35</sup>

The US defence market, however, has remained a fairly closed market. Though European companies, especially the British, have made some inroads in joint ventures and in buying or joining sub-contracting companies, overall the American defence market remains a type of fortress. European companies have tried to purchase smaller US companies with the hope of enhancing US market access. However, certain regulations have greatly slowed down this process.<sup>36</sup>

Many factors explain the strictly regulated US defence market, most importantly:

1. Suspicion of offshore production;
2. Suspicion of third-party transfer of technology;
3. Department of State's jealous guardianship of International Traffic in Arms Regulations (ITARs) despite the defence industry's attempts — supported by the Pentagon — to increase joint ventures<sup>37</sup>;
4. Congressional agreement with the Department of State's caution on export licenses and defence industry cooperation and;
5. Pentagon's unwillingness to share leading edge technology or be dependent on foreign one.

Department of Defense policy does not allow foreign-owned US defence companies to execute contracts that require access to information above the secret level unless the government contracting authority determines that the release of such information advances U.S. national security interests and the owners of the information approve its release.

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34. Defense Trade: Contractors Engage in Varied International Alliances. United States General Accounting Office, 7 September 2000. Report to the Chairman and Ranking Minority Member, Subcommittee on Readiness and Management Support, Committee on Armed Services, U.S. Senate. GAO/NSIAD-00-213 Defense Trade.

35. Robert Holzer, "Experts Struggle To See Pattern in Bush Budget," *Defense News* (March 5, 2001), p. 4.

36. Among these are: the Exon-Florio provision in the 1950 Defense Production Act, creating the Committee on Foreign Investment in the United States (CFIUS) — a federal interagency review panel chaired by the Treasury Department —, the Buy American Act, Arms Export Control Act, and the International Traffic in Arms Regulations or ITARs.

37. The International Traffic in Arms Regulations define the type of defence articles and services that require the Department of State's approval for export, the entities that may request such approval, the general policies and procedures related to exports, and the criminal penalties for failing to comply with the regulation.

The Committee on Foreign Investment in the United States (CFIUS) discourages foreign direct investment of European defence firms in the US. The Department of Defense now has five conditions that a preferred ally such as the United Kingdom must "level up to" in order to get an ITAR exemption:

- Congruent industrial security policies;
- Reciprocal Export control procedures;
- Excellent cooperation in law enforcement;
- Close cooperation in intelligence sharing and;
- Willingness to enter binding agreements on reciprocal access to defence markets.<sup>38</sup>

Though the Pentagon looks more favourably on defence cooperation with European firms, the administration of ITARs remains in the hands of the Office of Defense Trade Controls in the Department of State, which, with Congressional support, is far more restrictive of foreign participation in the defence industry. For the Department of State, the ITARs are a valuable tool to influence the otherwise vastly more resourceful Department of Defense.

There are also legal constraints to technology transfer. According to the ITARs, before a US company participating in an alliance can share with its foreign partners technologies owned by the US government or the company, it must obtain approval of a technical assistance agreement from the State Department. The agreement identifies the US technology that the US government is willing to allow the alliance participants to share. The State Department's approval procedure can be very lengthy, even more so if an alliance needs access to government-owned rather than the company-owned technology. The ITARs also require countries receiving US exports of all defence products and services to obtain the written approval of the US State Department before transferring those goods to third parties.

## Canada

The Canadian defence establishment has seen significant cutbacks since the end of the Cold War. Military spending was reduced by 23% (or C\$2.7 billion) since 1991 down to C\$9.8 billion in 1999. The number of active duty military personnel reduced to 59,000 from 84,000. The number of civilian DND employees cut from 32,500 to 20,000.

Canada spends 1.1% of GDP on defence, slightly more than half of NATO's average of 2.1%. The United States and NATO have criticized Canada for not doing its "fair share." When NATO Secretary-General Lord Robertson came to Ottawa on his inaugural trip in early November 1999 he said: "When called upon, Canada has always been there — strong in Bosnia, strong in Kosovo — but [it is] a country that still languishes in terms of spending per unit of national wealth just above Luxembourg."<sup>39</sup>

The 1994 White Paper on Defence sought to address the commitment-capability gap. However, it took six years to begin to fulfil the promises. In the 2000-1 fiscal year budget the first significant increase in nearly a decade was recorded. Beside badly needed salary assistance for

38. Gordon Adams et al., "Between Cooperation and Competition: The Transatlantic Defense Market," *Chaillot Paper 44*, January 2001, p. 40.

39. As cited by Sharon Hobson, "Stretching to the Limit," *Jane's Defence Weekly* (2 February 2000, p. 27).

soldiers, the most important item in the more than C\$1.7 billion (2000-2003) defence increase is capital expenditures, from the current 18.7% to 23% of its total budget by 2005. Given that Canada's share of Military Equipment Expenditure as a percentage of GDP is at .18, re-investment is badly needed to avoid de facto technological disarmament.<sup>40</sup>

The defence industry has been awaiting an injection of money. Since 1996, 168 Canadian defence contractors have either gone bankrupt or moved out of the country. The industry's annual sales have fallen 13.5% to C\$3.2 billion since 1996. According to Howard Mains, the vice-president of the Canadian Defence Industries Association, there is still a long way to go if the Canadian Forces are to acquire all of the equipment they need to keep up with their allies.<sup>41</sup> Capital expenditures should be raised to at least C\$2.25 billion or 25% of the overall budget in order to provide the Forces with enough money to purchase or upgrade military hardware.<sup>42</sup>

The modernization of the Canadian military is part of the Government's *Shaping the Future of the Canadian Forces: A Strategy for 2020* (June 1999), which focuses on areas for improvement matching those defined in NATO Defence Capabilities Initiative.

The increased capital expenditures provide welcome opportunities for Canadian defence industry, which has benefited from the practice undertaken by the DND in the second half of the 1990s of contracting-out many non-core capabilities that heretofore were delivered by the military personnel. These include such diverse array of services as primary pilot training, provision of base services, and maintenance support for the Sea King helicopters, etc. However, these opportunities still fail to generate sufficient revenue to an industry that has been hit by reduced defence spending, reductions in operations and maintenance procurement, as well as delays in approving planned capital projects (in spite of reforms aimed at reducing both procurement costs and cycle times). As a result of DND cuts on purchases, Canadian defence companies sold only C\$3.2 billion worth of goods and services, a drop of 14.6% from 1996.

Canada's industry is characterized by significant foreign ownership, with many companies being subsidiaries of large US aerospace and defence corporations. Canadian-owned companies such as CAE Electronics and COM DEV are small in comparison with the US aerospace and defence giants and do not enjoy a commensurate level of support from large domestic defence and space budgets.<sup>43</sup> As a result, the range of design and manufacturing expertise as well as system integration capability in the Canadian industry is more limited. Given the small Canadian market, Canadian companies' successes have emanated from the international marketplace as manufacturers of small systems and subsystems for specialized niche markets.

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40. Brian S. MacDonald, "Cooperation in Armaments Production Among the Europeans and the North Americans," Atlantic Council Paper 2/2001.

41. Jeff Sallot, "Bleeding Stops: Budget sutures fiscal wounds of military and Mounties," *The Globe & Mail* (29 February 2000, p. F2).

42. Mike Blanchfield, "Forces get \$1.6B relief after decade of cuts," *The Ottawa Citizen*, 29 February 2000, p. A4.

43. CAE is the world's premier provider of simulation and control technologies for training and optimisation solutions for the aerospace, defence and forestry sectors. Headquartered in Canada and operating globally, the company employs over 6,000 people and has revenue in excess of \$1 billion.

## Canadian-American Defence Industry Relationship

Canada and the United States signed a letter of agreement on joint production in 1956, known as the Defence Production Sharing Arrangement (DPSA). Under the DPSA, Canadian industry is allowed to compete with US firms for defence contracts on a normal, commercial basis. Provisions of the Buy American Act are waived and duty free entry of Canadian defence related goods is permitted.

A Memorandum of Understanding (MOU) known as the Defence Development Sharing Arrangement (DDSA) followed this arrangement in 1963. Under this MOU, projects specifically designed to meet Pentagon research and development requirements may be performed by Canadian contractors, and the costs may be shared by the Department of Defense and the Canadian government.

The two countries share more than 80 treaty-level defence agreements, some 150 bilateral fora, and 250 MOUs between the Canadian DND and the US DoD<sup>44</sup>. Both states consult on defence policy in the Permanent Joint Board on Defence along with a subsidiary body, the Military Cooperation Committee, dating back to 1940. Joint monitoring and defence of the North American airspace is integrated in the North American Aerospace Defence Command (NORAD) since 1958. Other joint programs include anti-submarine warfare capabilities (ASW) and other naval operations, space program, as well as intelligence sharing.

One important aspect of the Canadian-American defence relationship has been the integrated North American defence and industrial-technological base, dating back to the Second World War. This integrated base has been supported by the export-license-free exchange of most defence products and technology. However, on April 12, 1999, the US Department of State de facto and unilaterally rescinded many of the Canada-US defence economic agreements and arrangements that lay at the basis of the North American defence and industrial-technological base. The United States increased the number and types of equipment and technologies subject to the ITARs, while revoking substantial quantity of Canada's export licensing exemptions.

The State Department now required export permits for Canadian firms to access and utilize US defence-related goods and technologies. Since the State Department usually takes a long time for approval of export permits, often exceeding bid response times, Canadian defence contractors would be able to bid on fewer US defence contracts, thus jeopardizing 9,600 jobs in this sector of the Canadian defence industry.

Furthermore, since Canadian defence exports often have some US technology content much of it would henceforth be subject to DOS export controls, jeopardizing also Canada's defence exports to the rest of the world which support some 6,500 jobs. In total, unilateral action by the US government has affected up to 16,100 export-related Canadian defence industry jobs (out of a total 44,366 jobs supported by the defence industry in Canada).

Canadian firms have also been challenged by changing acquisition practices in the United States. Prime contractors rather than the military services support the equipment they provide to

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44. Dr. David A. Charters, "Canada-US Defence Cooperation," Report of Defence Forum, Fredericton, NB (12 April 2000). <http://www.dnd.ca>.

the US military. This has circumscribed the traditional role of Canadian firms as subcontractors for parts and sub-assemblies. The net effect is a more difficult entry into the US market, though greater opportunities for Canadian companies with established links with US prime contractors.

On the other hand, the 2000-3 defence budget augmentation has raised expectations of increased procurement. This is a positive development as procurement of domestically developed and produced defence goods is directly related to the generation of defence armaments exports.

Political initiatives launched by the Canadian government resulted in an affirmation by Prime Minister Chrétien and President Bill Clinton on 8 October 1999 of the continued importance of the integrated North American defence and industrial-technological base underpinned by the license-free transfers. Spurred on by an agreement in principle between Foreign Minister Axworthy and US Secretary of State Madeleine Albright on returning Canada's preferential status, Canadian and American officials have been working to harmonize the export controls regime and reinstate the previous license-free arrangements. The intention is to create a common secure North American export control perimeter.

The work is still in progress, leaving in the meantime Canadian companies at a competitive disadvantage. The consequence of these problems is a movement of some of the medium-sized defence companies and subsidiaries of multinationals south of the border in order to maintain market access. According to the Vice President of CDIA Dave Stapley this development means that "the smaller businesses will be the remnants of our defence industry. They are less capable of dealing in the international markets because of their size, so they'll be confined to services at the local market."<sup>45</sup>

In the prognosis of former assistant defence minister (materiel), Bob Fischer, with such a small defence industry (only about 30 of the 1,327 Canadian companies in the defence market are in fact true defence entities) "when you overlay on that [things such as] where the department is going, the fallout of ITARs, the transatlantic defence cooperation, you could form a thesis that at the end of the day, the defence industry in Canada is just going to fritter away, be a former shadow of itself."<sup>46</sup>

This rather pessimistic prediction appears pre-mature, as we will further discuss below. (See Annex IV Canadian Defence Industry)

### III. THE CROSS-ATLANTIC DEFENCE MARKET

The trade in "finished" military products across the Atlantic is quite low. In 1997, US exports in defence products to Europe amounted to \$4.3b, while European exports to the United States were a mere \$.7b (1997). Military equipment of American origin is low in Britain, France, and Germany (around the 10% bracket), medium for Holland Belgium (40%) and high for Norway, Greece, Turkey (over 60%).<sup>47</sup> The overall ratio of Western European production to their import

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45. As cited by Sharon Hobson, "DND looks to contract out non-core business," *Jane's Defense Weekly* (2 Feb. 2000), p. 35.

46. *Ibid.*, p. 35.

47. Adams et al., pp. 55-56.

of US products is 14:1. As a result, American defence industry has concentrated on partnerships in subcontracts to keep access to European market, establishing a \$12 billion subcontracting market cross-Atlantic.<sup>48</sup>

At the same time, European governments buy relatively little from other European defence industries. Western European states import few defence products from one another. Therefore, in most aspects of the industry, the "new" European giants would not really compete with US giants in the key European nations defence markets but with previous national citadels. There is no such thing as a European fortress in defence industry though it seems likely that the emerging conglomerates such as EADS could develop into such.

US companies prefer to engage in flexible alliances, since it permits companies to choose new partners in each market in which they wish to compete, increases company capabilities without forming permanent relationships, yield the greatest return on investment, and access requisite technology. However, European governments usually do not favour these types of arrangements as they often result in an American company leading the project with European partners consigned to a subcontractor status.

European governments prefer joint ventures in which companies share risk, decision-making, development, and technology transfer. Joint ventures often arise when US and European partner governments are jointly procuring a weapon system and want their countries' defence contractors to team up and develop and/or produce the system. This in turn is unsatisfactory to US companies, which complain that the US government often abandons multilateral programs before completion and joint ventures adversely affect operational efficiency, because participating governments often require work share to be equal their country's program investment.

The US defence contractors' lack of interest in merging with or acquiring major European defence companies stems from large costs and political opposition that would be incurred in the case of such a move. On the other hand, Europeans have shown great interest in acquiring small and medium US defence companies because they provide a foothold into the world's largest arms market. However, as will be illustrated below, the US legal framework is not conducive to ensuring full access to the US market, thus raising European concerns about the one-way transatlantic defence market.

When accessing European defence markets the Americans have found that European governments are likely to require offsets or the involvement of a particular country's defence companies in return for purchasing weapons systems produced outside of their home country. This is a condition employed by governments with the intention of garnering public support for the purchase, preserving defence jobs, and raising competitiveness of the industry, particularly through technology transfer.<sup>49</sup> For example, the UK requires that any company selling it defence products must offer an offset if the goods being sold include components valued at more than about \$15 million that are not produced there.

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48. *Ibid.*, p. 15.

49. It is worth noting that offsets are a condition set by the new NATO member states which are in the market for significant upgrades of defence equipment.

Despite all the obstacles and different orientations, transatlantic defence industrial collaboration is gaining ground on both sides of the Atlantic. The US Department of Defense is negotiating with European countries on defence industry collaboration, modelled on the Declaration of Principles signed by the US Department of Defense and the UK Ministry of Defense on February 5, 2000. The United States is interested in transatlantic defence cooperation, because:

- It wants to ensure that in future conflicts fought at the behest of NATO, each member state wields compatible equipment on the battlefield;
- It believes that interoperability and compatibility would be best served if US and European defence companies jointly develop weapons systems;
- US and European-funded development programs would reduce weapon system costs, because each government would be responsible for only a fraction of total development costs;
- Transatlantic defence market would be engendered thanks to cooperation between US and European defence firms.

On the European side, collaboration with US firms provides access to the latest technology, reduces R&D investment, spreads cost and risks of major platforms, and may lead to access to the largest single defence market in the world, the United States.

Multi-country projects can be wasteful and subject to governmental change and pullouts, wreaking havoc with economies of scale. Cross-Atlantic endeavours do well to take heed of some of the track record of military consortia in Europe.

For example, Eurofighter (see Annex I) was started in the mid-1970s, has lost several participants meanwhile, and is ready for only limited production in 2001. According to some US sources, the Eurofighter is the generation of aircraft the US is skipping.

At this time, the United Kingdom has a key leverage position in the changes going on in the Cross-Atlantic defence market. The United Kingdom decided to join the development of the Meteor air-to-air missile rather than buy the US made Amraam from Raytheon. London is also involved in Airbus' A400M military transport plane.

At the same time, Britain pursued a joint US-UK relationship, signing a joint Declaration of Principles for Defence Equipment and Industrial Cooperation in January 2001.<sup>50</sup> BAe systems is now a leading supplier of defence electronics to the Pentagon and the sixth largest defence contractor in the United States — thanks to its acquisition of Lockheed Martin's Control System and Lockheed Martin's AES. American companies have stakes in the UK defence industry, including Raytheon and General Dynamics.

In January of this year, the United Kingdom and the United States agreed to work towards a joint defence export controls regime. The two countries seek to ensure that there is a high level of commonality between the US Munitions List and the UK Military List as well as improve enforcement of cooperation on export control violations. The US made a commitment to revise its International Traffic in Arms Regulations (ITARs) to permit the export to qualified companies in the UK of most unclassified defence technology.<sup>51</sup>

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50. *U.S.-UK Joint Statement On Defense Export Controls*. U.S. Department of State Office of the Spokesman, January 17, 2001.

51. *Ibid.*

## Two Competing Atlantic Visions: Competition and Cooperation

According to one leading analyst:

So far, the post-Cold War trend has been consolidation within the U.S. and European defence industries rather than between them. But a continuation of this trend over the long run would be unhealthy. It would deny both sides the opportunity to exploit the most advanced technologies available, limit competition (as overseas firms are excluded from major procurement deals), and contribute to the development of a technology and compatibility gap. American concerns over the transfer of sensitive technology are legitimate but need to be balanced against the equally great danger of a bifurcated alliance.<sup>52</sup>

We are not optimistic that this trend can easily be reversed in the near future.

More cross-Atlantic defence-industry cooperation would promote three interests for both sides:

1. Cross-fertilization of technology flows;
2. Larger economies of scale and more optimal use of limited defence budget resources and;
3. An increase in interoperability as a result of joint development and production.

Of course this argument is based on the concept of absolute gains; that both Europe and North America would gain from cooperation and that both would expend considerable resources in defence budgets. It also implies a repeal of EU article 223, which allows an exemption to defence industry from the rules of the Common Market. It seems more likely — given the still very competitive relationship between BAe and EADS — that this repeal will not come from the policy makers but rather will emerge after de facto Europeanization of the defence market. It will be driven by defence industry changes rather than by European Council decisions.

Only modernizing European armed forces and increased European defence budgets would create a bigger pie and thus absolute gains across the Atlantic. Without this condition, North American governments and industry would have to evaluate how much they would gain in return for giving greater access to the American defence market to European companies.

As the European defence industry is consolidating in preparation for a Single European Defence Market (SEDM), it is in the interest of US and Canadian companies to be on the inside of this market. A parallel can be drawn to the onset of the Single European Market in 1992 (as created by the Single European Act of 1986). Prior to the completion of this market, North American companies invested heavily into this larger market.

However, unlike the Single European Market which was top-down, policy driven, and had a deadline, the SEDM is bottom-up, market driven, and without deadline. Regimes on national content and ownerships in defence industry vary a great deal. Foreign direct investment in defence industry is quite open in Britain, Germany and Italy, but is highly restricted in France, Spain, and Sweden. We can expect North American companies to go slow and to move ahead by means of partnerships. Many of the European firms have only recently removed themselves from state control. We cannot assume that shareholders and governments necessarily have the same interests in the new European companies.

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52. Philip H. Gordon, "Their Own Army? Making European Defense Work," *Foreign Affairs* (July/August 2000), p. 17.

The advantage of a more integrated cross-Atlantic defence market for European governments is that more intense cooperation with American companies might allow them to skip, at least in part, a costly investment in R&D for modern equipment.

One of the most difficult aspects of cross-atlantic defence cooperation is the notion of Europe demanding more reciprocity for its firms in North America in return for US participation in the SEDM. If European governments demand equality for their firms in the United States, we may not expect much progress.

At the same time, the United States is under a great deal of pressure to open up its defence market. Given industry consolidation in Europe and the increased flow of dual-use technology, the United States cannot expect to simply sell the Europeans their final products in order to maintain interoperability. They need to develop joint technology and platforms with European firms.

Yet, interoperability is only one American interest and it should not be overrated. Given the multiple layers of suspicion in technology transfers and defence industry cooperation, and the bureaucratic turf battles between the Pentagon and the Department of State, Washington is not likely to "compromise" any aspect of its leading edge just for the sake of interoperability.

Nor should we believe that interoperability could only come from cooperation. It might also derive from the competitive result of two "fortresses" competing in a globalizing technological world and ending up more or less in the same place.

## Conclusion

A combination of cooperation and competition serves long-term and short-term interests on both sides of the Atlantic. Given the European defence industry consolidation, the OCCAR momentum, and the plans to construct a Rapid Reaction Force in Europe, North American companies are pursuing partnerships and joint ventures.

EADS and Northrop Grumman are reviewing the prospects for a closer corporate relationship in intelligence, reconnaissance, and surveillance sectors. Ralph Crosby, President of Northrop Grumman's integrated systems and aerostructures sector, speculated that the future structure of the EADS-Northrop Grumman's relationship might be a joint venture. He said: "Intelligence and surveillance are the primary markets where we have identified commonalities. Does this mean that we'll grow closer together? Absolutely."<sup>53</sup>

While still dependent on the profitability of the Airbus component, EADS outlook for its defence and civil systems, and aeronautics divisions is good. It is establishing connections with other US giants, including Boeing, which is taking part in the Meteor Missile project.<sup>54</sup>

At the same time, we can expect a lot of competition. Boeing and Airbus — as they have done for some time in commercial aircraft — will soon face each other as main competitors in the large transport aircraft market. The Joint Strike Fighter and the Eurofighter will face some intense competitive marketing. Already, the United States is offering future participation in the

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53. Brooks Tigner, "EADS, Northrop Grumman Look for Right Relationship," *Defense News* (12 Feb. 2001), pp. 1 and 20.

54. EADS press conference, March 19, 2001, Amsterdam.

Joint Strike Fighter to such (US-industry reliant) countries as Norway to sweeten their purchase of current off-the-shelf fighter aircraft.

### **Implications for Canadian Defence Industry**

Canada's exemption from ITARs was suspended in 1998 due to a perceived laxity in Canadian export controls. After some intense negotiations, procedures were tightened and the ITARs exemption resumed in the summer of 2000.

The products and services provided by defence firms operating in Canada generate revenues in excess of 5 billion dollars annually. Between 1996 and 1998 total defence industry revenues declined by almost 8%. The principal reason for this decline was an almost 15% reduction in domestic business, partially offset by a 7% increase in exports. In 1998, Canadian exports to the US were \$1b.<sup>55</sup>

Canada has the on-shore manufacturing advantage and through US subsidiaries and specialized companies has achieved niche status. On the negative side, this means that Canadian defence firms usually do not get a proportionate share of the RDT&E (Defence Research, Development, Test and Evaluation) budget.

However, Canada's niche industry and subsidiary connections to the US defence industry partly explains why Canada's share of world investment in ICT (Information and Communications Technologies) R&D is as high as 2.7% or the equivalent of the UK.<sup>56</sup>

Some of Canada's industry is strongly independent and is situated to do very well in the long term. For example, the wholly owned GM division in London, Ontario, is set to sign a multi-billion dollar contract to sell 2000 of its Light Armoured Vehicles to the US Army.

The 1999 shocks in ITARs were a wake-up call for Canada to fine tune its industrial policies and export practices in closer connection with the United States. An integrated defence industry means that defence and national security policies must stay closely parallel and complementary.

The resolution of outstanding issues in Canadian-US defence relationship is essential to their future collaboration. For instance, DND has spent 10 million US dollars to sign on as an "informed partner" to America's stealth Joint Strike Fighter project. Canada's first dedicated military satellite communications capability will depend on a military communications payload being flown on satellites of the United States advanced extremely high-frequency (EHF) satellite system.<sup>57</sup> The system will be operational in 2006, with Canada's share estimated at \$480 million. Another future project is a joint US-Canadian space-based radar system.<sup>58</sup> The resolution of issues related to US defence market protectionism will ensure that Canada continues to benefit from defence economic offsets.

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55. Bernie Grover, *The NMD Program. An Assessment of Market Opportunities for Canadian Industry*, CDIA Paper, August 2000.

56. Brian S. MacDonald, "Cooperation in Armaments Production Among the Europeans and the North Americans," *Atlantic Council Paper* 2/2001.

57. Elinor Sloan, "The Revolution in Military Affairs: Implications for NATO," *Atlantic Council Papers*, No. 3, 2001, p. 9.

58. David Pugliese, "DND's \$50M secret," *The Ottawa Citizen*, 12 March 2000, p. A3.

It is in Canada's interest to pursue deeper integration with American defence industry while looking for niches in the emerging transatlantic defence market. Taking into account the substantial investments of the Bush administration in homeland defence (including the future decision on NMD) — and in this context recalling one of the missions of the Canadian forces which is the defence of North America in partnership with the US — Canadian involvement in the latter will provide more room for growth for Canadian defence industry in the near future. In one calculation, if Canada signed on to the National Missile Defence plans currently in play, and outstanding ITARs issues could be solved, RDT&E share of Canadian firms could go up to \$540 million of contracts.<sup>59</sup>

The bottom line is that if military budgets in Europe do not increase, more cross-Atlantic mergers would not necessarily be in Canadian defence industry's interest. It could mean sharing our preferred ITAR-exempt status with European giants.

Cross-Atlantic defence industry mergers may very well increase European competition in the US market without giving Canadian industry more inroads in the European market. At the same time, many Canadian firms are already a partner in European ventures and are dual-use technology firms, which could benefit from cross-Atlantic cooperation. In the near future, the best strategy for Canadian firms may be to position themselves as niche and subsidiary firms in the growing US-UK defence industry integration.

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59. Bernie Grover, "The National Missile Defence Program: An Assessment of Market Opportunities for Canadian Industry," The Canadian Defence Industries Association, August 2000.

## ANNEX I: European Defence Industry: Case Studies

### Eurofighter

Well over a decade in development, the Eurofighter project to build a multi-role fighter aircraft is now in the production stage. The divergences in national requirements for a European fighter led France to withdraw from the project in 1985, because its partners — UK (BAe), Germany (DASA), Spain (CASA) and Italy (Alenia) — wanted an aircraft which would be too large for a French carrier.<sup>60</sup> The French launched a rival aircraft, Rafale, constructed by Dassault Aviation.

Other problems that have dogged the programme include declining defence spending and allocation of work between the partners, which has increased costs. The political seal of approval, starting with the Memoranda of Understanding in December 1997 and the contracts in 1998, came in no small part as a result of a push by Britain's new Labour government. In the course of 1997, British Prime Minister Tony Blair lobbied successfully with German Chancellor Kohl to get the project moving.<sup>61</sup> This activeness of the British government was dictated by the perceived need to stave off a potentially fatal impairment of British Aerospace, whose fortune was interpreted to be linked to the success of the Eurofighter consortium. The withdrawal of Germany from the project would have caused substantial job losses in DASA's military plants in Bavaria, which happened to be the electoral base of the then German Finance Minister Theo Waigel, thereby forcing Waigel to reconcile the burden exacted by the participation of cash-strapped German government in what is described as "the most expensive arms programme in the history of the modern German army"<sup>62</sup> with his political career prospects. Germany decided to stay on board. As with other defence industrial projects, the support of the four governments involved in the Eurofighter programme was related to the economic benefits generated as well as broader political objectives.

In 1999, over 400 companies were involved in the \$65.3 billion programme at the level of first and second tier suppliers, employing over 150,000 people. With the expected entry of Greece and Norway, the Eurofighter Typhoon programme has become one of the largest manufacturing projects in Europe.<sup>63</sup>

The Eurofighter consortium has received orders from Germany for 180 aircraft, Italy for 121 fighters, Spain for 87, and from the UK for 232 fighter aircraft.<sup>64</sup> Early this year, Greece indicated interest in purchasing as many as 90 Eurofighters for the Hellenic Air Force. Overall,

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60. "Linking arms: A Survey of the Global Defence Industry," *The Economist* (14 June 1997), p.11.

61. "From Bottom to Top of Political Agenda, Eurofighter May Finally Fly," *International Herald Tribune* (17 June 1997), p. 13.

62. "Four defence ministers launch Eurofighter," *AFP* (22 Dec. 1997). The acquisition of the aircraft between 2002 and 2014 will cost Germany \$12.92 billion.

63. "Eurofighter Managing Director 'On the Record,'" *Defence Systems Daily* (27 May 1999).

64. Joseph Fitchett, "Eurofighter targets Norway and divides the world," *Jane's International Defense Review* (Oct. 1998), p. 9.

the Eurofighter consortium sees a market for 800 fighters between 2004 and 2025.<sup>65</sup> The first delivery of the Eurofighter Typhoon for the UK Royal Air Force will take place in mid-2001 and the fighters will enter service in the following year.

The acquisition of the Eurofighter will address the lack of a next generation multi-role fighter among NATO European allies, which — according to experts — “has been sorely demonstrated during the campaign against Yugoslav forces in the Balkans.”<sup>66</sup> Last year, there were signals emanating from London indicating that the British would like to see the Eurofighter project as a core of the future European defence industry in contrast to the French plans to organize Europe’s defence companies around Airbus, the civil aircraft consortium. However, neither plan came to fruition following the 1999 regrouping of Europe’s defence industries around the British Aerospace-Marconi merger and the European Aeronautic Defence and Space Company (EADS) founded by Aerospatiale-Matra and DASA.

### **Multi-Role Armoured Vehicle (MRAV)**

The problems associated with harmonisation of requirements dogged the project to build a common Multi-Role Armoured Vehicle capable of transporting infantry units. In December 1998, the talks between Britain, France and Germany reached an impasse, because France was interested in producing an armoured vehicle with a mounted cannon, while Britain and Germany needed armoured personnel carriers. In addition to the problem of generating pan-European weapons programmes, the MRAV case illustrated the difficulty of cooperating in an industry characterized by different national approaches to defence industry restructuring.

Not only did France differ with its partners in terms of operational requirements, but also the French government preferred that GIAT, a state-owned defence company, be given a main role in manufacturing the vehicles.<sup>67</sup> Therefore, France decided not to cooperate with the French and the British. In November 2000, Britain ordered the purchase of 4,000 vehicles at a cost of approximately 4.5 billion euros. They will be produced by German-led Artec consortium. In the words of Baroness Symons, the British defence procurement minister, “The MRAV programme strengthens the links between our nations and will provide a springboard for the development of a more cohesive and competitive European defence industry in this sector.”<sup>68</sup>

### **Future Large Aircraft/Future Transport Aircraft (FLA)**

Another cooperative armaments programme, the Future Large Aircraft, has also faced setbacks due to squabbles among eight states (UK, Germany, France, Italy, Spain, Turkey, Belgium,

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65. “Typhoon draws near,” *Jane’s Defence Weekly* (9 June 1999), p.72.

66. *Ibid.*, p. 70.

67. Jacques Isnard, “France will not take part in a project to construct an armed vehicle with Britain and Germany,” *Le Monde* (7 Nov. 1999), <http://www.adetocqueville.com>.

68. Richard Norton-Taylor, “Defence contract to secure up to 500 new jobs,” *The Guardian* (18 March 1999), <http://www.guardianunlimited.co.uk/>.

and Portugal) participating in the Airbus Military Company over design, cost overruns, and other issues.<sup>69</sup>

The French support the Airbus Industrie's A400M option as a means of addressing Europe's deficit in strategic airlift capability necessitating the replacement of Europe's aging fleets of American-built Lockheed Hercules and German-French Transall C-160 by 288 of the FLA's.

In November of last year, Belgium, Britain, France, Germany, Italy, Luxembourg, Spain and Turkey made a decision to place a collective order for 225 of the Airbus A400M military transport aircraft.<sup>70</sup> The A400M's procurement contract, worth an estimated \$20 billion, is expected to be signed by OCCAR in time for this year's Paris air show (June 16-22). It will be the first contract signed by the agency on its own authority since OCCAR gained bona fide legal footing on January 28 of this year. According to industry sources, "A decision by seven European nations to give an embryonic procurement agency, OCCAR, oversight of their purchase of a A400M military transport aircraft is the agency's long-sought stimulus for more efficient, coordinated military purchases in Europe."<sup>71</sup> Lucien Mille, former financial director of OCCAR and now head of the Paris-based Fondation pour la Recherche Stratégique described it as "a strong political gesture."<sup>72</sup>

### **Common New Generation Frigate (CNGF)**

Differences in procurement procedures have plagued a collaborative effort to build the Horizon air-defence frigate. Launched in 1994, the project envisioned the production of 22 6,000-tonne air-defence frigates, 12 of which were ordered by Britain, 4 by France and 6 were supposed to go to Italy. Despite a last-ditched attempt in March 1999 to maintain British participation by offering British companies the largest share of the construction work, the tri-national programme collapsed in April following Britain's withdrawal.<sup>73</sup>

According to a UK House of Commons Defence Committee Report published in November, the UK withdrew from the project "after losing patience with the programme's unfocussed management and the high price of the warship." Among other stated reasons were "the incompatibilities of the equipment selections and competition policies of Horizon's partners."<sup>74</sup> Basically, the British government, with its market-oriented procurement policy and its privatised defence industry regarded cooperation with Italian and French state-owned shipbuilders impracticable. The UK Chief of Defence Procurement Sir Robert Walmsley blamed fighting over workshare on Project Horizon as responsible for its demise.<sup>75</sup>

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69. Tomas Valasek, "European Defense: Slumbering No More?" *Weekly Defense Monitor* (14 May 1999), <http://www.cdi.org/weekly/1999/>.

70. Belgium will purchase 7 A400Ms, France 50, Germany 73, Italy 16, Luxembourg one, Spain 27, Turkey 26 and the United Kingdom 25.

71. Douglas Barrie and Brooks Tigner, "OCCAR Finally Moves Toward Oversight Role," *Defense News* (11 Dec. 2000), p. 1.

72. *Ibid.*, 1.

73. "EU-frigate," *AFP*, 23 March 1999.

74. "UK report targets Euro industrial collaboration," *Jane's Defence Weekly* (17 Nov. 1999), p. 8.

75. Damian Kemp, J.A.C. Lewis and Bryan Bender, "The Year Of Building Carefully," *Jane's Defence Weekly* (1 Dec. 1999), pp. 21-3.

Following its withdrawal, Britain decided to develop its own replacement for Type-42 destroyers (expected to enter service in 2007). The British Type-45 anti-air warfare destroyer (AAW) program will be more expensive than a multinational program. It is estimated that a multinational production of the 12 air-defence frigates would have cost 4.5 billion pounds as opposed to the cost of 5.5 billion pounds for a national program (currently appraised at 6 billion pounds.)<sup>76</sup> After several months of negotiations concerning workshare and funding arrangements, the Italian and French governments decided to continue the project on a bi-national basis and build two Horizon frigates each for the French and Italian navies with the expectation of orders for more vessels. The project is expected to cost \$3.2 billion and the first frigates are scheduled to enter service in 2005.<sup>77</sup> Tri-national cooperation will continue on the frigate's primary weapon system — the Principal Anti-Air Missile System (PAAMS). It will arm the Type-45 destroyer developed independently by the UK, saving the British defence budget about 500 million pounds.

The above-mentioned UK House of Commons Defence Committee report drew lessons from the CNGF fiasco. It pointed out a need for "harmonised procurement and project-management procedures... along with a genuinely transnational industrial base..., the agreement in detail of affordable, achievable operational requirements; and the establishment of an industrial organisation that meets the requirements of industry and governments."<sup>78</sup>

### **Eurocopter, Astrium, and Helios**

The Franco-German Eurocopter venture, composed of Aerospatiale and DASA, is faring well after a prolonged downturn caused by insufficient orders. In 1997, it received 303 new orders, up 14 percent from a year before. It now occupies a 53 percent share of the world market for civil helicopters and 47 percent of the military sector in profit terms.<sup>79</sup> It has expanded its range of systems by two new models — the NH90 tactical transport and naval helicopter and Tiger combat helicopter — in addition to its Dauphin, and Super Puma helicopters. However, it faces challenges from shrinking markets, especially in East Asia that is grappling with economic downturn, and serious competition from American counterparts, such as Bell Helicopter Textron producing AH-1 Cobra and Boeing-McDonnell Douglas making AH-64 Apache combat helicopters.

Europeans are cooperating in space exploration and the utilisation of space systems for military purposes. In the fall 1999, Marconi Electronic Systems (in the process of merging with BAe), DASA and Aerospatiale-Matra agreed to consolidate their space operations and establish Astrium. Following the expected entry of the Alenia Spazio component of Italy's Finmeccanica, the European tri-national space company will provide "military and civilian services in the field of earth observation, telecommunications, science, launcher and orbital infrastructure."<sup>80</sup> The

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76. Richard Scott, "Type 45 programme steams ahead," *Jane's Defence Weekly* (1 Dec. 1999), p. 2.

77. J. A. C. Lewis, "France and Italy agree to build Horizon frigate," *Jane's Defence Weekly* (22 Sept. 1999), p. 14.

78. "UK report," p. 8.

79. Pierre Tran, "Eurocopter Turns 1998 Profit, Eyes New Deals," *Reuters*, 22 Jan. 1998, <http://www.cdi.org/ArmsTradeDatabase/>.

80. "Space company formed," *Jane's Defense Weekly* (27 Oct. 1999), p. 18.

French and the German governments have launched initiatives aiming at buttressing Europe's capabilities in terms of satellite intelligence and reconnaissance.

In July 1995, DASA of Germany and the French Aerospatiale agreed to link up their satellite companies in a new venture worth \$1.3 billion. Despite these initial moves, the prompting by the French government for the German government to participate in the French-led programmes to develop a European arsenal of reconnaissance satellites, and the recognition by German politicians of the benefits of European satellites — not least to prevent the French from monopolising this area — German participation has been hampered due to budgetary constraints. France launched the Helios 1-A reconnaissance satellite project with input from Spain and Italy. However, as of the end of October 1999, German participation in the more advanced Helios 2 satellite project, launched by the French in December 1997, was uncertain particularly due to the German government's priority in allocating funding for the Eurofighter. As well, American companies were tempting the German government with a cheaper off-the-shelf satellite option. However, the political imperative of cementing Franco-German relations as well as the desire to equip the Common European Security and Defence Policy with military satellite capability was thought to determine Germany's support for the collaborative project. Spanish and Italian share in the project was dependent on the participation of DASA. Britain, which enjoys privileged access to American satellite intelligence, has not taken part in the collaborative effort. The projected cost for the sophisticated Helios 2 spy satellite is 11.6 billion francs.

## ANNEX II: WESTERN EUROPEAN AND DEFENCE INDUSTRIAL COLLABORATION

**Table 1**<sup>81</sup>

Western European Aerospace & Defence Industrial Collaboration (1999)

### (1) PAN-EUROPEAN COMPANIES

European Aeronautic Defence and Space Company (EADS) — Will bring together Daimler Chrysler and Aerospatiale-Matra in 2000

75% Astrium (France/Germany/UK) [space satellites/launch vehicles]<sup>82</sup>

30% DaimlerChrysler (Germany/USA)

30% Legardere SCA (France)

40% to be floated when company established in 2000

### (2) MULTI-NATIONAL COLLABORATIVE PROJECTS

#### AIRCRAFT

Eurofighter Combat Aircraft: Eurofighter Jagdzeugflug GmbH

33% British Aerospace plc (UK)

33% DASA (Germany)

21% Alenia SpA (Italy)

13% Construction Aeronauticas SA (Spain)

Greece and Norway to join soon

Eurofighter Engine: Eurojet Turbo GmbH

33% Rolls-Royce plc (UK)

33% Motoren Turbinen Union GmbH (Germany)

21% Fiat Avio SpA (Italy)

13% Industria de Turbo Propulsores SA (Spain)

A 400M/Future Large Aircraft: Airbus Military Company

British Aerospace plc (UK)

DASA (Germany)

Aerospatiale SA (France)

Alenia SpA (Italy)

Construction Aeronauticas SA (Spain)

Tusas Aerospace Industries (Turkey)

Flabel (Belgium)

Industria Aeronautica de Portugal SA (Portugal)

81. Source: Tim Ripley, "Western European Aerospace & Defence Industries — The Ownership Jigsaw —," *Defence Systems Daily*. <http://defence-data.com/current/pagerip1.htm>. The core companies ("management companies" in the case of collaborative projects) are in bold, below which are the subsidiaries (or parent companies in multi-national consortiums) with listed equity holdings, base of operation and main activities.

82. For more on the establishment of the *Astrium* consortium see "New European space consortium formed," *UPI*, 18 Oct. 1999. It will link DASA (Germany), Aerospatiale-Matra (France) and Marconi Electronic Systems (UK).

Alpha Jet Trainer — Dassault (France) and DASA (Germany)<sup>83</sup>

#### HELICOPTERS

Tiger Attack Helicopter: Eurocopter-Tiger GmbH — 50% DASA (Germany), 50% Aerospatiale (France)

NH-90 Maritime and Transport Helicopter: NH Industries

Eurocopter SA (31.2% France, 31.2% Germany)

5% Fokker Aerostructures NV (Netherlands)

32% Augusta SpA (Italy)

EH-101 Maritime and Transport Helicopter: European Helicopter Industries — 50% GKN Westland Helicopter Ltd (UK), 50% Augusta SpA (Italy)

#### ARMOURED VEHICLES

Future European Armoured Vehicle: MRAV/GTK/VBCI — Eurokonsortium

Alvis Vehicles (UK)

Krauss-Maffei & Wegmann GmbH (Germany)

MAK Systems (Germany)

GIAT Industries (France)

TRACER Future Scout Vehicle Project (UK/US) Two Competing Teams:

Team Lancer

GEC Marconi (UK)

Alvis Vehicles (UK)

Raytheon (US)

United Defense LP (US)

Team SIKI International — 50% BAe (UK), 50% Lockheed Martin (US)

Vehicle Armour and Armament Ltd (UK/US) — 50% Vickers Defence Systems (UK), 50% General Dynamics Land Systems (US)

ASCOD Armoured Vehicle — Santa Barbara (Spain), Styr-Daimler-Puch (Austria)

#### GUIDED WEAPONS

UK Beyond Visual Range Air-to-Air Missile (BVRAAM) Requirement Competing Teams

Meteor

Matra BAe Dynamics (UK/France)

Alenia Marconi Systems (Italy)

Construction Aeronauticas SA (Spain)

Marconi Electronic Systems (UK)

Saab Dynamics (Sweden)

FMRAAM

Raytheon Systems Limited (USA)

Shorts Missile Systems (UK)

Diehl (Germany)

Aerospatiale (France)

Thomson Thorn Missile Electronics (UK)

83. Source: "A Eurogun is a tricky thing," *The Economist*, 8 April 1995, p. 54.

TAURUS Systems (Air-to-Air Guided Missile) — DASA (Germany) and Bofors (Sweden)<sup>84</sup>

(3) OTHER GROUPINGS

UK Digital Communications Systems: Archer Communication Systems Ltd (UK)

40% ITT Defence (US)

30% Racal Electronics plc (UK)

30% Siemens Plessey Systems (UK) (part of BAe from 1998)

Drevel UAV: Eurodrome – STN Atlas (Germany), Matra BAe Dynamics (UK/France)

German-Russian-Ukrainian to build An-70 or An-7X

International Consortium for Medium Transport Aircraft Antonov (Ukraine)

Rosvoorouzhnie-led companies (Russia)

25% AirTruck Consortium (various German subcontractors including VDO-Luftwahrgerate Werk GmbH [engine controls/maintenance]

Bodenseewerk Geratetechnik [flight controls]

BMW-Rolls Royce GmbH [engines]

Viking Submarine Consortium

Danyard Aalborg AS (Denmark)

Kongsberg Defence and Aerospace AS (Norway)

Celsius Group (Sweden)

Stand Off Surveillance Target Acquisition Radar (SOSTAR)

Thomson-CSF (France)

DASA (Germany)

FIAR SpA (Italy)

Aleinia Defensa SpA (Italy)

TNO Applied Physics Research Laboratory (Netherlands)

Medium Extended Air Defence System (MEADS)

55% Lockheed Martin (US)

28% DASA (Germany)

17% Alenia Marconi Systems (Italy/UK)

GTAR (GEC-Thomson Airborne Radar) — (phased-array radar systems for Eurofighter and Rafale) — GEC-Marconi (UK) and Thomson-CSF (France)<sup>85</sup>

(4) GROUPEMENTS D'INTERET ECONOMIQUE (GIEs)

Corporate Partnerships:

Airbus Airliners: Airbus Industrie GIE — to be replaced by the Airbus Single Corporate Entity (not a GIE)

20% British Aerospace plc (UK)

38% DASA (Germany)

38% Aerospatiale SA (France)

4% Construction Aeronauticas SA (Spain)

84. "German parliament approves purchase of German-Swedish missile," *AFP*, 28 Dec. 1997.

85. See "Pie in the sky," *The Economist*, 20 May 1995, p. 2.

Hot, Roland and Milan Tactical Missiles: Euromissile GIE — 50% DASA (Germany), 50% Aerospatiale SA (France)

Trigat Anti-Tank Missile: Euromissile Dynamics: (EMDG) GIE

33.33% Matra BAe Dynamics (UK-France)

33.33% DASA (Germany)

33.33% Aerospatiale SA (France)

Future SAM (Surface-to-Air) Missiles and Principle Anti-Air Missile System (PAAMS): Eurosam GIE

33.33% Thomson-CSF (France)

33.33% Aerospatiale SA (France)

3.33% Alenia Marconi Systems SpA (Italy)

UK counterpart, UKAMS Ltd, has Matra BAe Dynamics as prime contractor with Marconi Electronic Systems and BAe Defence Systems as partners

**ANNEX III : EU DEFENCE BUDGET  
AND RAPID REACTION FORCES COMMITMENT<sup>86</sup>**

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EU Member States' Defence Spending in 1999

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<b>Country</b>	<b>Defense Budget (\$ billions)</b>	<b>Percentage of GDP</b>
Austria	15.9	0.9
Belgium	3.2	1.5
Britain	35.3	2.6
Denmark	2.5	1.6
Finland	15.5	1.4
France	35.4	2.8
Germany	29.1	1.5
Greece	5.3	4.9
Ireland	5.6	1.0
Italy	21.0	2.0
Luxembourg	0.13	0.9
Netherlands	6.0	1.8
Portugal	2.1	2.2
Spain	6.8	1.4
Sweden	4.5	2.1

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86. Reproduced from Luke Hill "EU To Boost Pressure for Defense Spending," *Defense News*, 10 April 2000, p. 3.

**ANNEX IV: CANADIAN DEFENCE INDUSTRY**

Market Segment	Direct Defence Jobs		Total Jobs (1)			Percent Change 96 to 98
	1996	1998	1996	1998	Change 96 to 98	
Domestic Defence	19,161	16,151	33,532	28,264	- 5,268	- 15.7
US Defence	5,915	5,482	10,351	9,594	- 763	- 7.3
Rest-of-World Defence	3,625	3,702	6,344	6,478	+ 134	+ 2.1
<b>Total Defence Jobs</b>	<b>28,701</b>	<b>25,355</b>	<b>50,227</b>	<b>44,366</b>	<b>- 5,861</b>	<b>- 11.7</b>

Market Segment	1996	1998
Number of firms with defence revenues of \$100K or more from the Canadian defence market	1372	1220
Number of firms with defence revenues of \$100K or more from the US defense market	210	178
Number of firms with defence revenues of \$100K or more from the Rest-of-World defence market	102	92

Defence Revenues			
Market Segment	1996	1998	Per Cent Change
Domestic Defence	\$ 3,758,251,545	\$3,210,524,001	- 14.6
US Defence	996,322,590	1,067,125,477	+ 7.1
Rest-of-World Defence	797,814,090	850,815,862	+6.6
<b>Total Defence Revenues</b>	<b>\$5,552,388,255</b>	<b>\$5,128,465,340</b>	<b>- 7.6</b>

Source: Bernie Grover. Canadian Defence Industry 1999: A Statistical Overview of the Canadian Defence Industry (Canadian Defence Industries Association, December 1999).

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