



# ANTICIPATING RESTRUCTURING IN THE EUROPEAN DEFENSE INDUSTRY

**A study coordinated by  
BIPE**

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*The consultant takes full responsibility for the views and the opinion expressed in this report. The report does not necessarily reflect the views of the European Commission for whom it was prepared and by whom it was financed.*



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## **Executive Summary**

The European defence industry is a strategic sector within the European economy, both because of its contribution to value added (between 2 and 2.5%) and direct employment (about 750 000 persons worked in defence companies in 2006), and because of its role as a driver of innovation and producer of equipments and services incorporating highly advanced technologies.

Yet, this sector is facing important challenges. On the demand side, the challenges are both European and global. At the European level, these include the changing role of force, which leads to a new demand mix; stagnant, and in some cases declining, national defence budgets within the EU; shrinking national defence procurement; and, comparatively low spending on R&D. At the global level, the challenges are linked to the lack of dynamism of world market demand, and difficult market entry conditions for EU firms into the more dynamic world markets.

Over the past ten years, the value of procurement by the EU NATO members has, in fact, stagnated, whereas defence procurement markets in the US continued to grow at a rapid rate. Another source of concern is the fact that the EU countries' RTD spent is approximately one-sixth of the US RTD expenditure on defence. Furthermore, despite European efforts to improve coordination, internationalise procurement and encourage competition, the European Defence Market remains fragmented. Still less than one fifth of procurement is spent in collaboration projects in which at least two EU members participate, and Article 296 continues to be frequently invoked in order to justify derogations from Internal Market rules due to "essential security interests". This creates extra costs and inefficiencies, and has a negative impact on the competitiveness of Europe's Defence Industrial and Technological Base as well as on Member States' efforts to equip their armed forces adequately.

On the supply side, the key factors of influence are (1) the large variety, high technicity and rapidly rising production cost of defence equipment and systems; (2) the dominance of (often national) champions that are highly dependent on trends in national procurement budgets; (3) the high dependence of certain regions on defence activities; (4) on-going transition in the newer member states; (5) past and future M & A patterns; (6) the growing concentration of the industry; (7) its particular ownership structure (with governments as major shareholder in France and Italy); and (8) overall mixed experiences with cooperation. The *juste retour* principle in collaborative projects results in suboptimal procurement. Securing jobs at home is used to legitimize cost-inefficient procurement. Differences in arms exports complicate marketing. And, the management of cross-border collaboration projects is cumbersome, which leads to cost and time overruns.

As a result of past mergers and acquisitions mainly along national lines, the leading producers offer equipment that is not necessarily standardised, since each country or producer pursues its own technology lines. Poor European cooperation also implies duplication of expenditures, misallocation of (scarce) public resources and the maintenance of excess capacities at EU level, whilst the national orientation of many firms prevents them from benefiting from economies of scale. Today, the EU member states do not have the financial means to sustain the full spectrum of a defence technology industrial base. This means continued downward pressure on defence budgets (due to a preference for social welfare spending), and a continued downward trend in procurement budgets.



## European Defence Industry Anticipating Restructuring

As a result of these factors, there are presently too many, too small, companies to ensure the long term competitiveness of the European defence industry and the survival of all companies. Some European states are already turning to foreign countries to satisfy their munitions needs.

Although the creation of the Regime on Defence Procurement, the adoption of the EDTIB Strategy and the recently adopted EU defence package are important steps towards the creation of the European Defence Equipment Market (EDEM) and the strengthening of the European defence industry, a re-organisation of activities at European, national, and local levels is unavoidable. This is bound to have major consequences on employment, already severely impacted by past restructurings.

In 2006, some 750 000 people were estimated to work in the defence industry, either with prime contractors or tier 1 contractors. Considering both direct and indirect employment, the number of people concerned by developments in the defence industry is more than 1 640 000 in the EU-27. Direct employment levels have fallen significantly in the past 15 years, both in the western and in the eastern member states.

Defence employment is highly concentrated at regional level, since the location of plants has usually been determined historically by security concerns and kept away from urban centres. Thus, a number of local communities are heavily depend on developments in the activity of defence facilities and factories. Defence employment is also often highly skilled and very specialised, with a high proportion of engineers, scientists and higher levels of qualification.

Although past experience indicates that most persons find a new job relatively easily after having been made redundant, this is not the case for all. And, for those who do find another job, this may not be an equivalent job (lower pay for example), entailing costs in terms of purchasing power and/or quality of life.

To assess the social costs of forthcoming restructuring moves, it is therefore essential to take into account the possible inter-changeability of workforce between the defence, security and civilian sectors, and the potential for increased geographical mobility.

Several future development scenarios are possible. Anticipating the possible magnitude and the nature of change under different scenarios is, however, essential in order to take appropriate action to minimize the negative impacts of change, in particular in the social sphere.

Indeed, restructuring entails risks, the consequences of which are particularly threatening for people, regions and companies. This can create resistance to change. Forthcoming changes therefore have to be both **anticipated** and **monitored** so that the negative impacts can be avoided and the break-ups they suppose do not turn into crises.

Four scenarios were developed in order assess the consequences of different behaviours of the sectors' stakeholders, and different assumptions on the overall external environment, on employment and social trends.

Two of these assume that the stakeholders do not prepare change, but react as crises occur. In one variant, one assumes a rapid convergence in European procurement, whereas in the other variant one assumes that national procurement strategies continue to dominate.

The third and fourth scenarios assume that stakeholders take a more voluntary approach to preparing change. Restructuring moves are "anticipated" and prepared by companies and the other stakeholders (local governments, trade unions, national governments, etc.) in order to minimise their negative social effects. In the third scenario, there is European Procurement convergence, whereas in the fourth national procurement strategies continue to dominate.



## European Defence Industry Anticipating Restructuring

In the European Procurement Convergence scenarios, with or without anticipation and preparation of change, the shift to coordinated EU procurement is assumed to be complemented by a European Small Business Act or equivalent which contributes to organising the restructuring of companies at Tier 2 and higher levels. European preference is also granted in order to retain specialised know-how, avoid a too rapid internationalisation of capital (from US, China, ...), as well as for security of supply reasons. These two complements are, in fact, viewed as necessary conditions for the stakeholders to accept the early move to harmonised EU procurement.

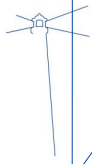
The European Procurement Convergence scenario also goes along with a re-organisation of armed forces at EU level, lowering the overall equipment needs of a coordinated EU defence force. There is less duplication of expenditure, hence more resources available to foster coordinated and cooperative R&D and regain some of the ground lost in the technology race. Coordinated R&D efforts in turn means a reduction in overall financial spent (no duplication of efforts), making it possible both to develop new programs and to allocate part of the saving to other (non-R&D related) purposes such as training, or financial assistance to industrial redeployment in affected regions, etc. Yet, the reduction in overall amount of R&D spent also implies a reorganisation of the test and expertise centres at EU level.

In this scenario, regions play an increasing role in industrial development, through decentralisation and the subsidiary principle. Under the anticipation variant, employment falls in the first years, but recovers partially as the redeployment of resources fosters employment growth in related (civilian) industries. Under the “crises management” variant, social consequences are minimised when they occur, but lack of emphasis on retraining and adaptability of the workforce means that fewer workers are able to find new employment after they leave the defence sector.

In the Continued National Procurement Scenario, national governments in Europe continue to privilege national procurement strategies. Budgetary constraints combined with rising equipment costs, however, lead to heightened price competition and increased penetration of the EU market by non-EU producers. In this (unfavourable) context for European producers, comparatively greater offsets have to be granted by European producers (which are competing against one another, in addition to competing with non-EU producers) to their client countries – which can be other EU Member States. This adds to already existing overcapacities in Europe. As national strategies continue to prevail, restructuring continues to be primarily organised along national lines. Hence, duplication of R&D efforts and new programmes also continues. Over time, this leads to the closure of some capacities and more important losses in employment than in the previous scenarios. Markets progressively become more Europeanised, but at a much slower rate than in the previous scenario, and with a higher penetration of non-EU capital.

In the “no anticipation of change” version of the “Continued National Procurement” scenario, market failures in labour markets lead to state interventions to ‘correct’ these failures. However, because resources are limited and competition is heightened, policy makers are not able to stabilise employment in the long run. “Natural” exits (through job mobility), early retirement and other schemes are encouraged, which end up depleting skills and weaken the EU’s ability to keep up the technology race. In the “anticipation of change” scenario, skill depletion is less, but restructuring means more important drops in employment in the first years than in the “no anticipation scenario”. Here too, however, the lack of resources due to budget constraints and the continued duplication of R&D and development programmes squeeze other expenditures, including those aimed at developing civilian R&D and fostering innovation to absorb those made redundant by defence producers. The long term result is more negative for the EU than in the European Procurement Convergence scenario.

The last chapter of the study looks at different sets of innovative practices of change management, and formulates recommendations on how to monitor and anticipate changes, while keeping in mind differences in local contexts and in the types of problems encountered.



## **European Defence Industry Anticipating Restructuring**

Two company examples are presented. The first is the Thales “Joint group agreement on anticipation of employment evolution, professional careers and training” signed in 2006 and dedicated to anticipating change. The agreement was signed at corporate level by the management and 4 (out of 5) unions, representing an overwhelming majority of the Thales employees. The second example is the Saab Microwave example of anticipating and managing change, through a vast process involving the company’s management at various levels and all the employees.

Examples are also provided of Anticipatory Actions aimed at improving readiness for, and acceptability of change, acting on employability and skill development, or dealing with business cycles; at Preventive Actions aimed at dealing with possible closures, and with managing change with subcontractors; at Curative Actions, such as those dealing with outplacement at sectoral level or at fostering redeployment; and, at Evaluative Actions – although in the later case few relevant examples have been found.

We hope that the study will constitute useful background information for the discussions that will take place in the coming months amongst industry stakeholders, and that the information provided will help stakeholders to both better anticipate the possible consequences of common actions on employment and on social trends, and assist in the definition of appropriate action plans.





## **I. Introduction**

The European defence industry is facing important challenges. A re-organisation of activities at European, national, and local is unavoidable. Yet, several routes can be followed for this re-organisation and several future development scenarios are possible. In all cases, anticipation is essential in order to minimize the negative impacts of change, in particular in the social sphere.

Indeed, restructuring entails risks, the consequences of which are particularly threatening for people, regions and companies. This can create resistance to change. Forthcoming changes therefore have to be **anticipated** and **monitored** so that the negative impacts can be avoided and the break-ups they suppose do not turn into crises.

To achieve the mobilisation of the industry stakeholders in order to monitor and facilitate change, the European Commission envisages to set up an expert group of economic, social and institutional actors. To prepare the constitution of this group, the European Commission needs a study looking at:

- The drivers of change in the European defence industry;
- Possible development scenarios for this industry;
- The degree to which future changes are presently anticipated and prepared (in the sense that actions are taken to prevent or reduce the loss of human resources and competencies, and ensure the re-employability of personnels made redundant as a result of restructuring);
- Estimates of the potential consequences on employment, and of the social consequences of restructuring on the employability of personnels made redundant, on outplacement and reemployment possibilities, etc. ;
- Good practices in terms of change management.

Through this study and the constitution of the expert working group, the overall Commission's objective is to:

- Provide opportunities to the industry stakeholders to discuss the factors of change which are driving the economic, political and social environment in which the industry operates;
- Provide them with opportunities to discuss the impact of forthcoming changes, and to assess the consequences of their own actions, on the economy, on employment and in social terms;
- Help them to implement the necessary changes by facilitating the social dialogue, and by creating the appropriate incentives to undertake, early on, the necessary actions to minimise the negative consequences of change.

The constitution of the expert group and the study objectives are consistent with the more general objectives of the Community Programme for employment and social solidarity – PROGRESS – to:

- Improve the knowledge and understanding of the situation prevailing in the Member States and in other participating countries through analysis, evaluation and close monitoring of policies;
- Support the development of statistical tools and methods and common indicators, where appropriate broken down by gender and age group;
- Support and monitor the implementation of Community law, where applicable, and policy objectives in the Member States and assess their effectiveness and impact;



- Promote networking, mutual learning, identification and dissemination of good practice and innovative approaches at EU level;
- Enhance the awareness of the stakeholders and the general public about EU policies and objectives pursued;
- Boost the capacity of key EU networks to promote, support and further develop EU policies and objectives where applicable.

In this context, the objectives of this study were to offer a basis upon which follow-up work can be built. The study includes:

- An analysis of the defence industry in Europe, an identification of the factors of change and an overview of the challenges ahead;
- An outline of strategic choices to be made;
- A description of the social consequences of different scenarios, corresponding to different 'choices' made by the key actors;
- An analysis of innovative practices of change management, and the formulation of concrete recommendations to monitor and anticipate changes, taking into account local contexts and the types of problems encountered.

The results of this analysis were presented at a seminar for experts of the defence sector organised by the European Commission in Brussels on December 13 and 14, 2007. A summary of the discussion and comments is presented in Annex.

To undertake this study, BIPE has worked with a team of experts from various countries, including Germany, the United Kingdom, Sweden, Poland and France.

The study team includes persons from academia who have an extensive experience in analysing the issues confronting the European defence industry, as well as consultants to international organisations such as the United Nations, the International Labour Organisation, the EC, the EDA, etc. All have experience in working for national government institutions, and in helping management and trade unions to anticipate change related to restructurings, acquisitions or divestment processes.

This mix of academic, industry specific and social expertise, combined with BIPE's experience in analysing sectors and markets and in defining future development scenarios using rigorous foresight methodologies, created a powerful pool of knowledge and experience, making it possible for the study team draw synthetic conclusions and pragmatic recommendations.

The results of the study hopefully constitute key input for the industry stakeholders, and provide them with essential information on the underlying forces of change, along with a set of "warning signals" to be monitored in the future, and examples of innovative practices presented as "food for thought".



## II. Development during the past decade and present industry structure

### 1. Defining the defence industry

The defence sector in the member states of the European Union is not a clearly defined industrial branch. Companies in that sector produce what is called in the literature “weapon systems”, “defence products”, “military equipment”, “arms” or “dual-use goods”, as well as components of these products. As the term “dual-use” indicates, the defence sector borders with other sectors (civil aviation, vehicles, ship building, electronics, IT and others).<sup>1</sup> Many defence producers are involved at several levels of the supply chain.

The types of companies operating in this sector can be classified as:

- **Prime contractors** (Lead systems integrators, platform producers and producers of weapon systems): in the EU these are mainly large companies (primarily national champions), specialized on defence production. Lead system integrators assemble defence systems from several defence domains (for example, an aircraft carrier). Others are specialised in only one area (transport aircraft for example). Typical examples of prime contractors in the EU are BAE Systems (UK), EADS (France and Germany, with the headquarter in the Netherlands), Thales (France), Saab (Sweden) in fighter aircraft, Finmeccanica (Italy) in helicopters and armoured vehicles, Nexter (former Giat, of France) and Krauss-Maffei Wegmann (Germany) in major battle tanks, Thyssen Krupp (Germany), Fincantieri (Italy) and DCNS (France) in naval vessels.
- **Tier 1 contractors:** (specialised systems producers, for example in electronics, and producers of complete sub-systems or major components): these are often specialized firms which are subcontracted by the prime contractors. Often, these are also risk sharing partners. Examples of such companies are Rolls Royce (UK), Groupe Safran (France), MTU (Germany) in engines, and Indra (Spain) in electronics.
- **Tier 2 contractors** produce components and supply services: electrical & electronic equipment, mechanical engineering, metal working, casts & moulds, etc., along with a variety of services. Usually small and medium enterprises (SME) or subsidiaries of the major defence producers (prime contractors and sub-contractors), these companies often produce dual-use goods or services. They are not always listed as defence producers since they operate at the margin of the defence sector.

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<sup>1</sup> We would like to acknowledge the generous offer by the SIPRI Arms Production Project Leader, Elisabeth Sköns, to make the SIPRI arms production data base available for this study. Many statistics in the first section of this study rely on SIPRI data.



- **Tier 3 contractors** are commodity suppliers and general service suppliers, as well as capacity contractors. This level also includes all providers of « general economic infrastructure » services (transport network and services, communications, externalised training, etc.). At this level of the supply chain one finds a large number of small and medium enterprises (SME) as well as subsidiaries of major defence producers (prime contractors and sub-contractors) which supply dual-use products to prime contractors or subcontractors. In the statistics of the EU defence industry or in company lists of the defence sector these companies are usually not listed since they operate mainly at the margin of the defence sector and often pursue, in addition, non-defence product lines.

SMEs involved in defence produce small arms and ammunitions, low calibre artillery, military vehicles, small ships, military electronics, subsystems for weapons and components.

Many defence producers – mainly the large ones, but also some smaller producers – are involved at several levels of the supply chain.

In recent years, one has seen a gradual change in relationships between contractors at the different levels of the value chain, which has led, among other changes, to the development of the “risk sharing partner” concept. “Risk- and revenue-sharing” is a system whereby the development costs of new systems or equipments is distributed across the prime contractor and its « partners ». Under this system, prime contractors delegate the responsibility for conceptualising, designing, developing and producing the new system, as well as the responsibility for financing the development costs. The associated expenditures are, by nature, investment costs. Yet, in accounting terms, these are considered to be operating costs (there are activation methods). The costs are paid back by the prime contractor to the risk-sharing partners as sales are realised: the partnership, therefore, also implies commercial risk sharing.

For the partner, the depreciation (and reimbursement) of expenses is uncertain, both in terms of the amount of pay-back and in terms of the duration of the financing. For major defence projects, development costs are typically financed by Governments. However, with the changing industry and shareholding structures, the part of risk now supported by private investors has significantly risen. Financial considerations and risk management are likely to shape the future developments of parts of this industry.

## **2. Structure of the EU Defence Industry: the demand side**

### **2.1. Budgets**

The structure of the defence industry and the restructuring process during the last decade and a half in the EU (as in other parts of the world) has been strongly influenced by the trend in military expenditures – more particularly of procurement budgets. As a result of the ‘peace dividend’ in the first half of the 1990s, the defence industry suffered from the reduction of procurement orders (both national procurement as well as arms exports). World military expenditure decreased from a total of over 1 trillion US \$ at the end of the Cold War to a level of less than 800 billion US \$ in the mid 1990s. The eastern European countries also suffered from the break-up of the Warsaw Treaty. Since then, world military budgets have constantly increased; they have reached a level of 1.2 trillion US \$ in 2006.



## European Defence Industry Anticipating Restructuring

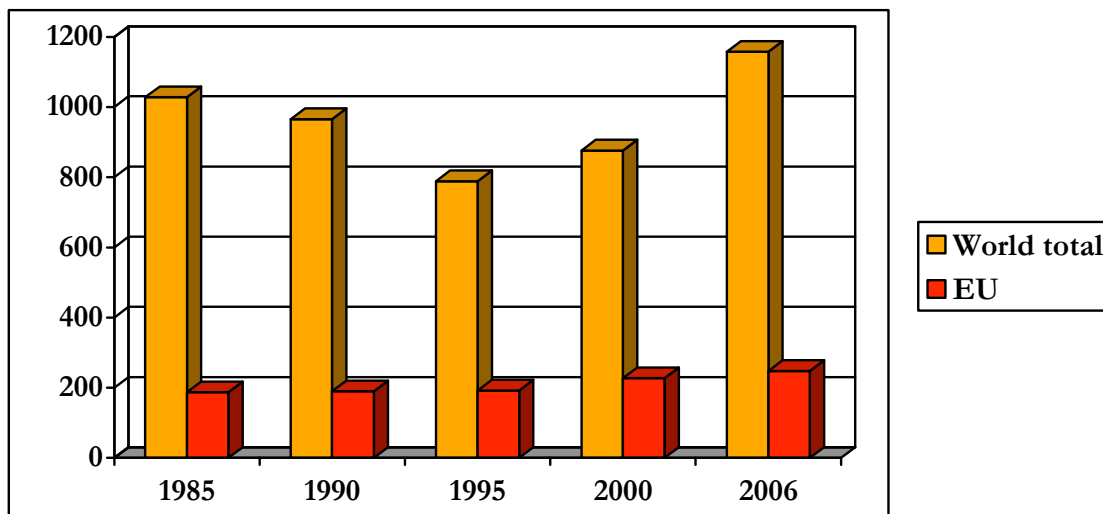
The EU defence policy is often analysed in comparison to the United States. The present US military budget amounts to US \$550 billion, more than double the combined defence budgets of the 27 EU countries. To underline the lack of ‘military muscle’ of the EU, it is argued that the US is capable of deploying 227,000 troops in wars (of a total of 1.4 million), while the EU’s deployment is only about one third, although the troop strength in the EU is 1.9 million.<sup>2</sup>

The US spends 4.1% of its GNP while the EU level is below 2%. The expenditure on defence per capita in the EU is US \$ 425 per year; the US spends three times as much.

Despite these striking comparisons, the EU spends a substantial share of global military expenditures. While there is a big gap, with the US spending almost half of global military expenditures, the combined defence budgets of the EU member countries amount to 22% of the global total. The rest of the roughly 165 countries in the world (including China, Russia, India and Japan) spend less than one third of the total. Thus, EU military expenditure is quite substantial in global terms.

**Chart 1 : World Military Expenditures**

In billion US \$, constant prices



Source: SIPRI Yearbook, several issues

**Table 1 : Procurement Expenditure in the United States and NATO-Europe**

In billion US \$ at 2005 prices and exchange rates

	2000	2001	2002	2003	2004	2005	2006
USA	76.0	88.5	106.2	108.0	118.3	123.5	128.9
NATO-Europe	44.2	42.8	44.4	45.1	44.9	42.6	46.1

Source: SIPRI Yearbook 2007, pp. 328-332.

<sup>2</sup> European Defence Agency, European - US Defence Expenditure 2005, <http://www.eda.europa.eu/genericitem.aspx?area=Facts&id=178>.



The combined military expenditures in the European Union member states amount to just below € 200 billion annually (roughly US \$ 270 billion at 2007 average exchange rates). These budgets include more than € 80 billion worth of procurement, R&D and maintenance expenditure.<sup>3</sup> In contrast to the United States, where the procurement budget increased constantly and was raised due to growth in spending on the Iraq War, the procurement expenditure in the EU has remained fairly stable in recent years. The increase of procurement budgets in Europe between 2000 and 2006 was minimal.

### 2.2. RTD Expenditure trends and international comparison

RTD expenditures are an investment into the future. R&T expenditures are a subset of R&D spent. They apply to expenditure for basic research, applied research and technology demonstration for defence purposes.

In 2005, the EU countries spent approximately € 2.2 billion on defence RTD. In 2006, the figure increased to € 2.5 billion. This amounts to one-sixth of the US RTD expenditure on defence.

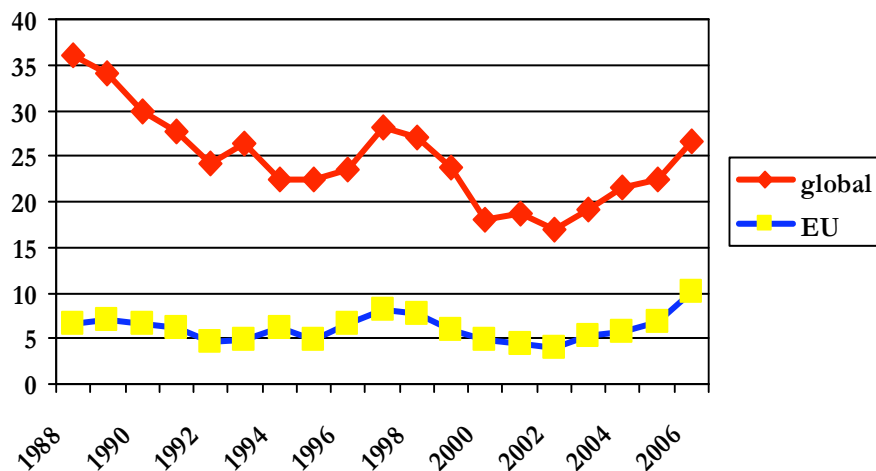
On average, the EU Member States allocate 1.14% of their military budget to RTD expenditures, compared with 3.31% in the United States.

### 2.3. Arms Transfers

The global arms business, in which European companies play a major role by combining for approximately 25 per cent of the total, has experienced a similar trend.

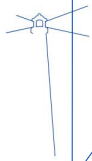
**Chart 2 : SIPRI Trend Indicator of Major Arms Exports**

In billion US \$



*Note:* for the EU, data applies to the major exporters: Germany, France, UK, Netherlands, Italy, Sweden and Spain only. The other EU countries are only marginally engaged in arms exports.

<sup>3</sup>Data according to the European Defence Agency for 2005. <http://www.eda.europa.eu/genericitem.aspx?area=Facts&id=170>



## European Defence Industry Anticipating Restructuring

**Table 2 : Value of Arms Exports by the Major EU Producing Countries (in million €)**

	2004	2005	2006
France	6952	3711	3978
UK*	2975	3016	2384
Germany	1129	1630	1164
Sweden	780	925	1129
Netherlands	406	682	808
Spain	624	419	845
Italy	480	831	970
<b>EU total</b>	<b>9938</b>	<b>8912</b>	<b>9555</b>

Source: Official Journal of the EU: 7th, 8th and 9th Annual Report on Arms Exports

For the UK = value of licenses; all others : value of exports

[http://www.consilium.europa.eu/cms3\\_fo/showPage.asp?id=408&lang=en&mode=g#exp4](http://www.consilium.europa.eu/cms3_fo/showPage.asp?id=408&lang=en&mode=g#exp4)

**Table 3 : Sources of Imported Military Equipment (2001-2006)**  
Number of pieces imported

	Naval Vessels		Combat Aircraft		Major Battle Tanks	
	EU	non-EU	EU	non-EU	EU	non-EU
Belgium					1	
Bulgaria	1					
Cyprus					9	
Czech Republic				5	93	2
Denmark					64	
Finland					124	
Germany			8			
Greece	4			66	278	
Ireland				8		
Hungary			7			
Latvia		1				
Lithuania		1				
Poland		7	24	15	128	
Portugal			5			
Romania	3			4		
Spain					73	
Slovakia			6	2	9	
Slovenia			2			
United Kingdom				2		
<b>Total</b>	<b>8</b>	<b>9</b>	<b>52</b>	<b>102</b>	<b>779</b>	<b>2</b>

Source: UN Register of Conventional Arms

Note: the list includes both new and second-hand equipment, but not national production



After the end of the Cold War global arms exports dropped considerably; though European companies were not affected to the same extent as other producers, especially from the former Soviet Union. The arms transfers fluctuated in the mid 1990s and early 2000s. Since 2002, there is a clear upward trend again.

The SIPRI trend indicator is an estimate of the military value of the transferred equipment and does not indicate the actual financial value of a deal. Furthermore, SIPRI statistics cover only major weapon systems. Thus, the actual arms exports from EU countries are higher. According to official information from the governments of EU countries for 2006 (the last year of reporting) the arms export value amounted to almost 10 billion €.

How competitive are EU-based defence producers? One indicator is the source of imports of major equipment. Often the complaint is raised that US companies dominate the world market. An analysis of the sources of three imported categories of major conventional weapons (naval vessels, combat aircraft and major battle tanks) sheds light on the situation. According to information supplied by governments of the EU to the UN Register of Conventional Arms during the years 2001 to 2006, more than half of the imported naval vessels (national production is not included) have been supplied by non-EU sources; two-thirds of all imported combat aircraft originated in non-EU countries. However, the source for imported major battle tanks was overwhelmingly other EU countries: all but two of a total of 781 major battle tanks were imported from other EU countries.

### 2.4. Market Access

US companies have a technological dominance in certain areas of the defence sector. As indicated above, the analysis of the origin of imports of three categories of major conventional weapons (naval vessels, combat aircraft and major battle tanks) shows that **US companies have a technological dominance in certain areas of the defence sector, but not in all.** The European Defence Technology Industrial Base (EDTIB) seeks to address some of those concerns.

It is therefore not only the technological dominance of the US industry which is responsible for the imbalance in transatlantic trade: the imbalance is also partly due to trade restrictions in the United States (US Buy America Act), which make entry into the largest defence market of the world difficult for foreign firms.

The US dominance is reflected in the transatlantic trade in defence production: according to information by the Bundesverband der Deutschen Industrie (Federal Association of the German Industry) European companies have captured only 0.3% of the US procurement market while US companies won about one quarter of the European market.<sup>4</sup> Although these figures, published in the interest of a lobbyist perspective, might exaggerate the US dominance, the general observation that the US market is often closed for EU based companies is correct.

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<sup>4</sup> Quoted in Kühle, Hartmut, The Cost of non-Europe in the Area of Security and Defence. Report for the European Parliament. Directorate-General for External Policies of the Union, June 2006, p. 22.





However, some of the difficulties are the result of European policies, or rather national industrial policies within the EU. This has had an effect on the transatlantic as well as the internal EU arms trade: in many countries, national champions have been successful in lobbying for sustaining the national defence industrial base instead of joining in cooperative projects or merging at an EU level. National procurement is preferred, ownership in defence companies is politically contested, differences in arms export regulation prevail, job security is used to legitimize national procurement, and collaboration has not always been successful. In short, there is (yet) no common EU defence market.

An additional intervening political variable is the fact that, despite intensive efforts for coordination, NATO and EU pursue partly overlapping and partly competing aims.

A whole range of political and legal guidelines have been designed, and institutions were founded in the EU, in order to improve coordination and to internationalise procurement within the EU:

- In 1991, the Maastricht Treaty laid the ground for an Intergovernmental Arms Agency,
- OCCAR was created,
- More recently, the EDA has been formed.

The joint efforts to coordinate procurement, increase competition and overcome protectionism have included, among others:

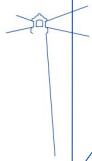
- ▶ the Letter of Intent (LoI),
- ▶ the Framework Agreement,
- ▶ the Harmonisation of Military Requirements (HMR),
- ▶ the European Headline Goals,
- ▶ the creation of a joint 55 million € Joint Investment Programme on Force Protection,
- ▶ The Code of Conduct to establish a voluntary, non-binding intergovernmental regime.

One of the underlying reasons for the lack of competitiveness and market strength of Europe's defence industry is often claimed to result from a (too) strict application by the member states of Article 296, which allows Member States to derogate from Internal Market rules when their essential security interests are at stake:

- ▶ Article 296(1)(b) allows for measures "connected with the production of or trade in arms, munitions and war material", specified in a list.
- ▶ Yet, according to a court ruling Article 296(1)(b) TEC "is not intended to apply to activities relating to products other than the military products identified on [that] list".

Too strict interpretation (and application) by the EU member countries of Article 296 has created extra costs and inefficiencies, and has had a negative impact on the competitiveness of Europe's Defence Industrial and Technological Base, as well as on Member States' efforts to equip their armed forces adequately. This has recently resulted in a clarification of this Article of the Treaty.

However, despite all efforts, one is far from a Single European Defence Market. Europe's defence sector remains fragmented at national level, with 27 different customers and 27 different regulatory frameworks. Still less than one fifth of procurement is spent in collaboration projects in which at least two EU members participate.



## 2.5. Employment

Given the trend in procurement budgets and the arms transfers, it is no surprise that this situation had enormous effects on job security in the defence industry. In addition to the budget reductions, several countries having recently joined the EU had to cope with drastic reductions of their defence industry in the aftermath of the breakdown of the Soviet Union, the Warsaw Treaty Organization and the COMECON.

In 2003, the employment in the 27 EU member countries was estimated at approximately 750,000 employees; this is less than half of the employment at the end of the Cold War. The major reductions took place in the second half of the 1990s. EU countries were affected by the restructuring requirements to different degrees, thus, different groups of countries can be distinguished:

- A group of countries with small but relative stable employment levels between 1993 and 2003: Greece, Finland and Denmark.
- A group of countries with major reduction in employment between 1993 and 1998, followed by further reductions between 1998 and 2003: France, UK, Germany, Italy, Netherlands and Belgium.
- The East European countries, with employment decreases in the range of 50 – 90 % during the 10 year period, with Poland, Slovakia and Estonia as the worst hit countries.

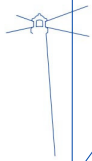
This process of job losses in the defence industry has, however, slowed down considerably in recent years. Further reductions are now due to efficiency gains in the production process.

**Table 4 : Estimated Employment in the Defence Industry in EU Countries (1993 – 2003)\***  
(in thousands)

		1993	1998	2003
1.	France	345	266	240
2.	United Kingdom	380	280	200
3.	Germany	160	95	80
4.	Poland	120	70	50
5.	Italy	50	35	26
6.	Sweden	34	26	25
7.	Bulgaria	75	27	25
8.	Spain	50	25	20
9.	Romania	60	26	18
10.	Czech Republic	30	18	15
11.	Greece	15	15	15
12.	Estonia	60	25	10
13.	Finland	10	10	10
14.	Netherlands	18	10	10
15.	Slovakia	75	20	7
16.	Belgium	15	8	6
17.	Portugal	9	5	5
18.	Denmark	5	5	5
19.	Austria	4	3	3
20.	Hungary	7	2	2
21.	Cyprus			0
22.	Ireland			0
23.	Malta			0
24.	Latvia			0
25.	Lithuania			0
26.	Luxemburg			0
27.	Slovenia			0
<b>Total</b>		<b>1522</b>	<b>971</b>	<b>772</b>

\* all countries listed are members of the EU in 2007

Source: BICC Conversions Survey 2005, pp. 167-168.



## European Defence Industry Anticipating Restructuring

Detailed analyses for the UK, however, suggest that the employment figures presented above might be underestimated. Indeed, indirect employment needs to be considered as well. According to the UK Ministry of Defence, the total number of persons employed in the defence industry and in activities immediately related to defence industries is 310 000 in the year 2004/2005. Of this, 150 000 jobs are related to equipment expenditures by the Ministry of Defence (MOD), 90 000 are related to equipment expenditures by other institutions and organisations than the MOD, and 65 000 are associated to the production of equipment that is exported.

**Table 5 : Employment in the UK Defence Industry**  
(in thousands)

	1997/98	2000/01	2001/02	2002/03	2003/04	2004/05
<b>Total employment:</b>	<b>340</b>	<b>300</b>	<b>295</b>	<b>305</b>	<b>315</b>	<b>310</b>
Direct	160	155	155	165	170	170
Indirect	180	145	140	140	145	140
<b>Employment from MoD equipment expenditure:</b>	<b>145</b>	<b>135</b>	<b>140</b>	<b>160</b>	<b>155</b>	<b>150</b>
Direct	70	70	75	85	85	80
Indirect	75	65	65	75	70	70
<b>Employment from MoD Non-equipment expenditure:</b>	<b>95</b>	<b>95</b>	<b>95</b>	<b>85</b>	<b>95</b>	<b>90</b>
Direct	50	55	55	50	55	55
Indirect	45	40	40	35	40	35
<b>Employment from defence exports:</b>	<b>110</b>	<b>70</b>	<b>60</b>	<b>60</b>	<b>65</b>	<b>65</b>
Direct	45	30	30	30	30	35
Indirect	65	35	30	30	30	35

Source: MoD/DASA (2006), Defence Statistics 2006, TSO, London

**Notes:** Numbers are rounded.

Direct employment is that generated in those companies providing products or services directly to MoD or that within the exporter.

Indirect is employment in the supply chain provided by sub-contractors or suppliers to the direct.

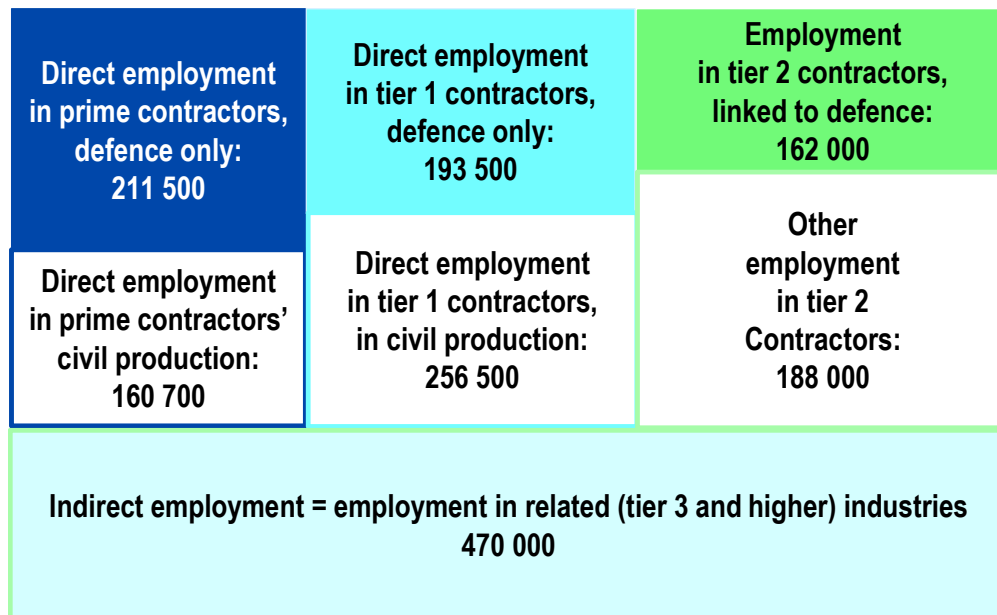


Indeed, one can distinguish several categories of employment related to defence industries:

- Direct employment in prime contractors, in defence activities (i.e. directly involved in the production of defence equipment and components);
- Direct employment in prime contractors, in civilian activities (i.e. salaried workers producing within the defence companies, but on civilian activities such as civilian aerospace);
- Direct employment in tier 1 contractors, exclusively related to defence activities;
- Direct employment in tier 1 contractors, working in the civilian activities' part of the companies;
- Part of employment in tier 2 contractors linked to the defence contracts;
- Other employment in tier 2 contractors;
- Indirect employment = employment in related (tier 3 and higher) industries.

Looking at the composition of employment across companies at different tier levels, and applying the ratio of defence turnover over total turnover to estimate the number of people per company working on defence activities, one finds the total estimates of employment per segment:

**Chart 3 : Employment per segment in defence related activities in Europe in 2006**  
(number of persons employed)



Source: BIPE



In summary, one estimates that there were, in 2006, approximately 405 000 jobs in prime and tier 1 defence companies that are directly involved in the production of defence industry products, and 418 000 jobs in the civilian part of the prime and tier 1 companies.

In addition, there is likely to be another 350 000 jobs in tier 2 companies, i.e. working on the production of goods and services used by Tier 1 and prime contractors, and close to 470 000 additional employments in related industries (essentially commodity goods and services producers). In total, approximately 1 644 000 persons are concerned, directly or indirectly, by trends in defence markets and European defence production in 2006.

In addition, the use of Input-Output tables for two major EU defence producers (France and the United Kingdom) indicates an average employment multiplier of 0.45 in equipment goods producing industries. This multiplier has been used to estimate the employment estimate in Tier 2 and higher companies.

Finally, Tier 2 employment directly related to defence production in the above table has been calculated assuming a multiplier of 0.4, and that in civilian activities of 0.45. The figures are consistent with bottom-up employment estimates for France and the UK.

For example:

- ▶ In the UK, official figures indicate 170 000 direct jobs in defence industries, plus 140 000 indirect jobs, totalling 310 000 jobs in 2005;
- ▶ In the Midi-Pyrénées region of France, there are more than 1,000 industrial SMEs working as subcontractors. Of the 94 000 persons employed in the region, 50 000 are considered to be working with subcontractor companies (tier 2 and higher);
- ▶ In the Navantia shipyard (Ferrol), in Spain, there are 2 500 jobs in companies subcontracted by Navantia, which itself counts 5,560 jobs in 2005, a ratio of 1 to 2.

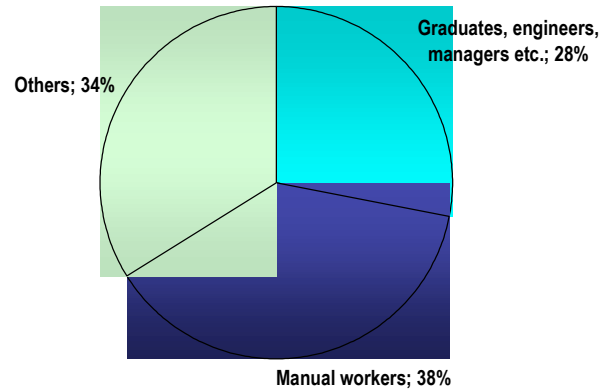
## **2.6. Skills and age pyramid structure**

In addition to the downward trend in employment levels, other issues related to employment are worth mentioning, as they are also likely to influence the future of European defence industries. Indeed, skill shortages are starting to develop, notably in the eastern European countries due to the ageing workforce and emigration patterns. In the western defence industries, skill shortages are also developing, due to the high number of workers approaching retirement age, and to the (comparatively) low attractiveness of the industry for young graduates. Other industrial sectors compete with defence industries for skilled blue and white collar workers, such as (civilian) aerospace and shipbuilding, but also automotive, transport equipment, electrical and electronic equipment, security, and even construction. Service sectors are also faced with a wave of retirement, notably in financial services and government services, and will hire many of the young people bound to enter the labour market in the coming years in order to either expand their offer, or replace those having left for retirement.

The age pyramid structure of employment in the defence industries is itself skewed to the right – meaning that the proportion of workers aged 45 and over is higher than that of younger workers – as is the pyramid structure of most industrial sectors in the EU. In this sector too, the proportion of workers likely to exit the industry for retirement is high – it is more than 3 in 10 in the next 6-7 years in France, for example. Being able to recruit staff with the needed skills may thus become more difficult in the coming years, especially given the fact that the defence sector employs a comparatively high share of technical and high-skill levels, which are themselves in short supply due to the overall socio-demographic changes and the lack of attractiveness of industry as compared with services.



**Chart 4 : Composition of employment in aeronautics and defence, by skill level**



Source: ASD

### **3. Supply side**

#### **3.1. Major Defence Producers**

As noted earlier, the defence industry is very diverse, as the companies operating in the sector are engaged in the production of goods and services as varied as:

- ▶ small arms and ammunition;
- ▶ artillery;
- ▶ aircrafts;
- ▶ electronics;
- ▶ engines;
- ▶ missiles;
- ▶ military vehicles;
- ▶ ships;
- ▶ space crafts;
- ▶ services (such as support, training, ...)

plus all the inputs (products, components, services) and specialised equipments (machinery, buildings, infrastructure) that are used at some stage during the production process.



Key factors that influence the trend in supply are therefore the high variety and high technicity of the equipment used and produced, and the rapidly rising costs of this technology; the need to invest in RTD in order to remain at the edge of technology, combined with the length of development cycles; the importance of co-location and cooperation to benefit from knowledge sharing and knowledge transfer, whilst maintaining a sufficient degree of competition, and the need to optimise economies of scale.

Discussions about the need for an integrated defence industry in Europe, a unified European defence industry, requirement for more collaboration or the need for restructuring to establish a Defence Technology Industrial Base (DTIB) or to secure jobs usually primarily concern the prime contractors, although subcontractors, components suppliers and general service providers (tier one to tier three contractors) are not explicitly excluded. One should note that the EU defence industry supply chains are highly complex, touch upon or involve a large stream of other activities, and that little is known about the precise organisation of these supply chains.

The global position of the EU defence industry can be gleaned from the company ranking in the top defence producers of the world. The top 100 arms producing companies in the world (excluding Chinese companies) have had an annual turnover (arms production and arms exports) in 2005 of about US \$ 290 billion. Among these major arms producing companies are 30 EU based companies, with a turnover of approximately US \$ 84 billion or 29% of the total of these top 100 companies.<sup>5</sup>

Among to top 10 arms producing companies there are four EU-based companies: BAE Systems (UK), Finmeccanica (Italy), EADS (a European Company, but headquartered in The Netherlands hence reported as such in world rankings) and Thales (France).

**Table 6 : Ranking of EU-Companies among the top 100 Defence producers**

Ranking in top 100	Number of EU-based companies
1 – 10	4
11 – 25	5
26 – 50	6
51 – 100	15

Source: SIPRI (2006)

In terms of turnover, the US dominance among the top 100 defence producers is even more visible than by just comparing the number of companies. Almost two thirds of the turnover in arms sales among the world's largest 100 defence producers is concentrated among the 40 US companies, compared to the 29% of the 30 EU based companies. The rest of the arms sales is shared between 9 Russian, 6 Japanese, 4 Israeli, 3 Indian, 2 South Korean companies and 1 company each from Brazil, Canada, Norway, Switzerland, Australia and Singapore.

Two principal conclusions can be drawn from these company statistics:

- ▶ EU based defence production is a sizable factor and of global importance;
- ▶ The high percentage of arms sales of the 40 US companies is an illustration of the US dominance in the defence sector.

<sup>5</sup> All information on the top 100 is based on the SIPRI Data base



## European Defence Industry Anticipating Restructuring

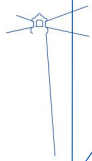
**Table 7 : EU Major Defence Producers, in million US \$ at current prices and exchange rates**

EU Major Defence Producers							
Top ranking	100	EU ranking	Company	Country	Arms sales 2005	in Arms sales of subsidiaries	Employment (total)
4.		1.	BAE SYSTEMS	UK	23230		100000
7.		2.	Finmeccanica	ITA	9800		56600
8.		3.	EADS	NET	9580		113210
10.		4.	Thales	FRA	8940		53370
			MBDA (BAE Systems, UK/EADS, W. Eur./Finmeccanica, Italy)	NET		4080	10600
13.		5.	DCN	FRA	3520		12200
14.		6.	Rolls Royce	UK	3470		36200
			AgustaWestland (Finmeccanica)	ITA		2850	8530
20.		7.	SAFRAN	FRA	2630		58000
21.		8.	Dassault Aviation Groupe	FRA	2210		12080
			Eurocopter Group (EADS)	FRA		2120	12790
23.		9.	Saab	SWE	2110		12830
			SNECMA Groupe (SAFRAN)	FRA		...	...
28.		10.	Rheinmetall	FRG	1740		18550
29.		11.	CEA	FRA	1720		15010
33.		12.	QinetiQ	UK	1550		11450
36.		13.	Smiths	UK	1450		30000
			Selex Sensors & Airborne Systems (Finmeccanica)	ITA		1380	7170
39.		14.	ThyssenKrupp, TK	FRG	1240		187220
43.		15.	VT Group	UK	1170		9920
			Alenia Aeronautica (Finmeccanica)	ITA		1120	7340
			SAGEM Groupe (SAFRAN)	FRA		...	...
51.		16.	Cobham	UK	1010		10720
53.		17.	Navantia (PH)	SPA	970		5560
			EADS Space (EADS, Netherlands)	FRA		960	10980
57.		18.	GIAT Industries	FRA	910		...
			Devonport Management (KBR)	UK		800	5100
60.		19.	Krauss-Maffei Wegmann	DE	750		2700
61.		20.	GKN	UK	740		36500
62.		21.	Diehl	DE	720		10300

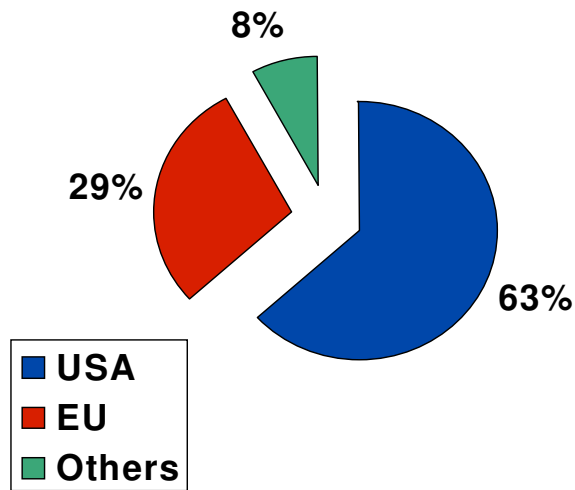
Note: S = subsidiary

Source: SIPRI Yearbook





**Chart 5 : The top 100 defence producing companies – share of turnover, in %**

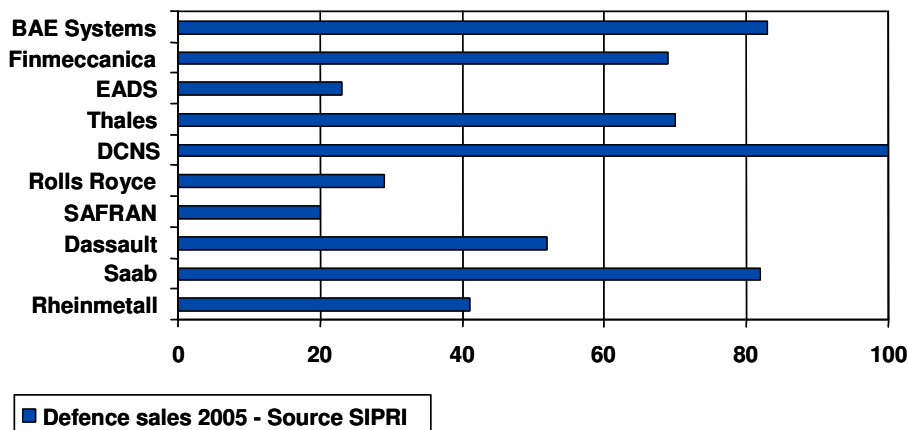


Source: SIPRI Yearbook

In addition to the major defence producers (those 30 EU based companies listed among the top 100), there are literally hundreds of companies in most EU countries who engage in defence production. Table 1 in the Appendix gives an impression of the diversity of the defence sector and the companies engaged in the following sectors: small arms/ammunition; artillery; aircraft; electronics; engines; missiles; military vehicles; ships; space; and other.

Among the top ten EU defence producers only DCNS has no civil production. In addition, five companies (BAE Systems, Finmeccanica, Thales, Dassault and Saab) have a share of defence production of over 50%.

**Chart 6 : Share of defence production in total turn-over of major EU defence producers (%)**



Source: SIPRI Yearbook

Portraits of these 10 companies are presented in Appendix 3.



### **3.2. Geographical distribution of EU defence production**

The size and diversification of the defence industry in the EU is clearly a reflection of the size of military budgets. The United Kingdom has the largest defence budget among the EU countries, closely followed by France. In Germany, the third largest spender on defence in the EU, the budget is considerably smaller. The fourth largest spender is Italy. These four countries account for two thirds of the EU's defence budgets.

**Table 8 : Military expenditure in EU countries**  
(in million US \$ at constant 2005 prices and exchange rates)

	1997	2002	2006	Share of GDP in 2006 (in %)
United Kingdom	48276	50949	59213	2.7
France	51926	51257	53091	2.5
Germany	40854	40604	36984	1.4
Italy	29781	34459	29891	1.9
Spain	10599	11483	12328	1.1
Netherlands	9147	9344	9751	1.5
Greece	7228	8350	9642	4.1
Sweden	5780	5833	5271	1.5
Belgium	4723	4434	4331	1.1
Portugal	3282	3719	3980	2.3
Poland	3282	3719	3980	1.9
Denmark	3655	3728	3770	1.8
Finland	2381	2171	2791	1.4
Austria	2743	2632	2676	0.9
Czech Republic	1715	2140	2264	1.8
Romania	2069	1684	2100	2.0
Hungary	1350	1621	1353	1.5
Ireland	1012	1133	1121	0.6
Slovakia	952	771	873	1.7
Bulgaria	412	624	665	2.4
Slovenia	393	457	610	1.5
Lithuania	98	264	335	1.2
Luxemburg	174	256	319	0.8
Latvia	53	188	308	1.7
Cyprus	494	235	239	1.4
Estonia	81	175	225	1.5
Malta	42	38	39	0.7

Source: SIPRI Yearbook 2007

Both the largest companies and most of the companies are located in those four countries. Of the 30 EU-based companies, listed among the top 100 of the world:

- 10 (plus 1 subsidiary of top 100 size) are located in the **United Kingdom**;
- 6 (plus 5 subsidiaries of top 100 size) are located in **France**;
- 3 (plus 7 subsidiaries of top 100 size) are located in **Italy**;
- 7 (plus 1 subsidiary of top 100 size) are located in **Germany**
- 2 are located in **Spain**
- 1 (plus 2 subsidiaries of top 100 size) are located in the **Netherlands**;
- 1 is located in **Sweden**.



## European Defence Industry Anticipating Restructuring

Many more small and mediums sized companies are engaged in defence production both in the countries listed above as well as in some other EU countries such as Austria, Belgium, Czech Republic, Denmark, Finland, Greece, Poland and Portugal. (For details see Appendix 2). These companies are not prime contractors of major weapon systems. They are producers of small arms and ammunition, low calibre artillery, military vehicles, small ships, military electronics, subsystems for weapons and components. Often they are not classified as defence producers since they are usually diversified companies with non-defence production.

**Table 9 : Major Arms Producing Companies in the EU and turnover value in 2005**  
(Note: EADS listed under the Netherlands as this is the headquarter location)

United Kingdom		Arms Sales 2005
1.	BAE SYSTEMS	23230
2.	Rolls Royce	3470
3.	QinetiQ	1550
4.	Smiths	1450
5.	VT Group	1170
6.	Cobham	1010
7.	Devonport Management (KBR)	800
8.	GKN	740
9.	Babcock International Group	610
10.	Ultra Electronics	490
11.	Meggitt	460

France		Arms Sales
1.	Thales	8940
2.	DCNS	3520
3.	SAFRAN	2630
4.	Dassault Aviation Groupe	2210
5.	Eurocopter Group (EADS)	2120
6.	SNECMA Groupe (SAFRAN)	1950
7.	CEA	1710
8.	SAGEM Groupe (SAFRAN)	1090
9.	GIAT Industries	910
10.	SMA (SAFRAN)	410
11.	Areva (CEA)	380

Italy		Arms Sales
1.	Finmeccanica	9800
2.	AgustaWestland (Finmeccanica)	2850
3.	Selex Sensors & Airborne Systems (Finmeccanica)	1380
4.	Alenia Aeronautica (Finmeccanica)	1120
5.	Selex Communications (Finmeccanica)	680
6.	Fincantieri	610
7.	Avio	530
8.	Selex Sistemi Integrati (Finmeccanica)	470
9.	MBDA Italia (MBDA Europe)	410
10.	Oto Melara (Finmeccanica)	390



## European Defence Industry Anticipating Restructuring

<b>Germany</b>		<b>Arms Sales</b>
1.	Rheinmetall	1740
2.	ThyssenKrupp	1240
3.	Krauss-Maffei Wegmann	750
4.	Diehl	720
5.	MTU Aero Engines	610
6.	DaimlerChrysler, DC	500
7.	MTU Friedrichshafen (DC)	500
8.	MAN	460

<b>Netherlands</b>		<b>Arms Sales</b>
1.	EADS	9580
2.	MBDA (BAE Systems, UK/EADS, W. Eur./Finmeccanica, Italy)	4080
3.	EADS Space (EADS, Netherlands)	960

<b>Sweden</b>		<b>Arms Sales</b>
1.	Saab	2110

<b>Spain</b>		<b>Arms Sales</b>
1.	Navantia	970
2.	Indra	670

Source: SIPRI Data base

Arms sales in million US \$, at 2005 prices and exchange rates

A similar pattern of concentration as with the largest defence producers appears in the regional distribution of the different defence sectors in Europe. The four top producing countries, UK, France, Italy and Germany, are the home base for companies from all sectors of defence: small arms/ammunition; artillery; aircraft; engines; electronics; military vehicles; missiles and ships. However, a large number of SME are engaged in all sectors of defence production; they operate from countries across the EU.

In the eastern European countries, defence industries have distinct features. Before 1990, defence industries in these countries were direct elements of the military strategy of the Warsaw Treaty. The location of production and tasks of the individual producers, factories and industries were defined in the frame of the Warsaw Treaty's military strategy.

This resulted in a high level of country specialisation in the production of elements of final products and systems, divided and distributed across factories and countries. Economic factors and market aspects did not play an important role.

Since then, the main problems of defence industries in the eastern European member states have included difficulties in adapting to the new political and economic context after the break-up of the Warsaw Treaty; lack of internal (eastern European countries') experience in conducting restructuring and privatisation changes on such large scale; and, the consequences of actions by international competitors which are perceived as attempting to eliminate potential internal and international competition.

The restructuring process in these countries, which has already led to very significant reductions in employment levels, is not yet completed. These countries' defence industries are still in "transformation shock". Yet, industrial policies in these countries are still geared at creating - or consolidating - their domestic defence capability.



### **3.3. Mergers and Acquisitions**

In recent years, the defence sector has experienced – as many other industrial branches – numerous mergers and acquisitions. Thus, new and larger companies have been formed. A general process of consolidation is characteristic for the EU defence industry. However, in contrast to other industrial branches, the mergers and acquisitions in the defence sector took place primarily at the national level during the period of the early 1990s. National champions were formed in several EU countries. In the United States, the process of consolidation of defence companies started earlier. On the advice of Wall Street, companies divested their non-military production lines and concentrated on defence production by buying up smaller companies or by merging big companies. The formation of Northrop Grumman and Lockheed Martin are illustrative for the process in the United States.

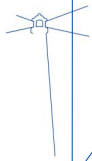
Typical for the process of consolidation **largely along national lines** in the EU is the concentration of the armoured vehicles' sector in several EU countries. As a result, five companies have emerged which now compete in the production of equipment for the ground forces in European countries. These offer equipment that is not necessarily standardised, since each of them pursues its own technology lines.

Although cross-border mergers and acquisitions were, until recently, the exception to the rule, there is now a trend towards more transatlantic and intra-EU mergers and acquisitions. The first European corporations were formed during the second half of the 1990s. Typical examples are:

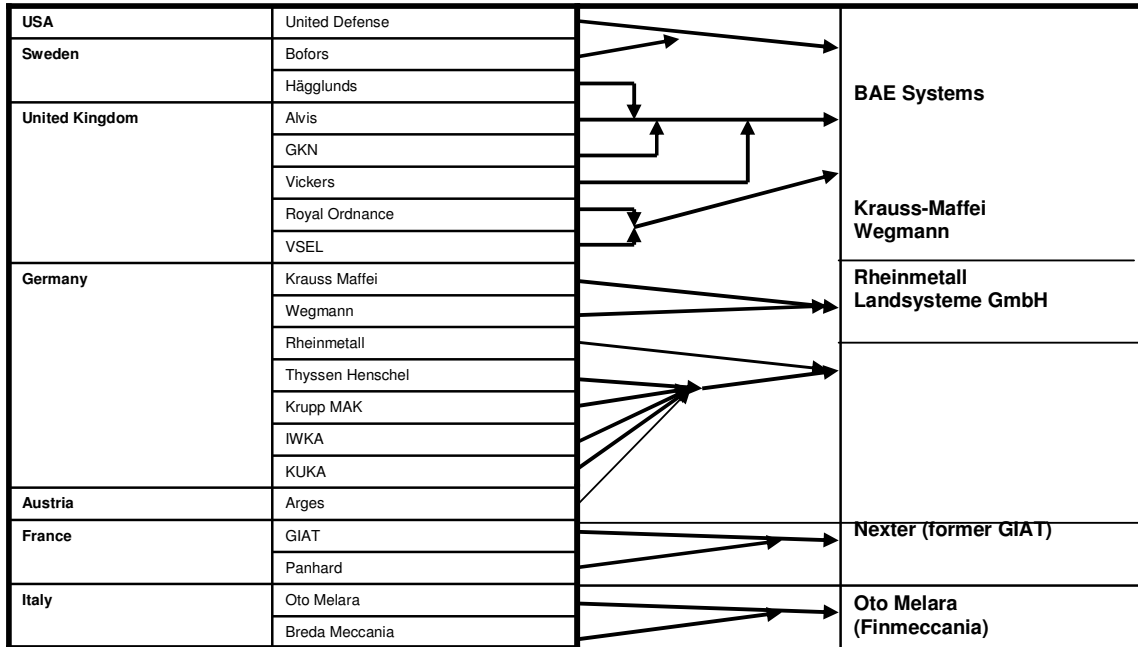
**EADS** = Aérospatiale-Matra, DASA, CASA and a number of smaller companies

**Thales** = Thomson CSF, Racal, Signaal in addition to a number of companies from the US, UK, Canada, South Korea, South Africa, Brazil and West European countries.

It is of interest that not only companies based in the EU were acquired, but from a wide range of countries.

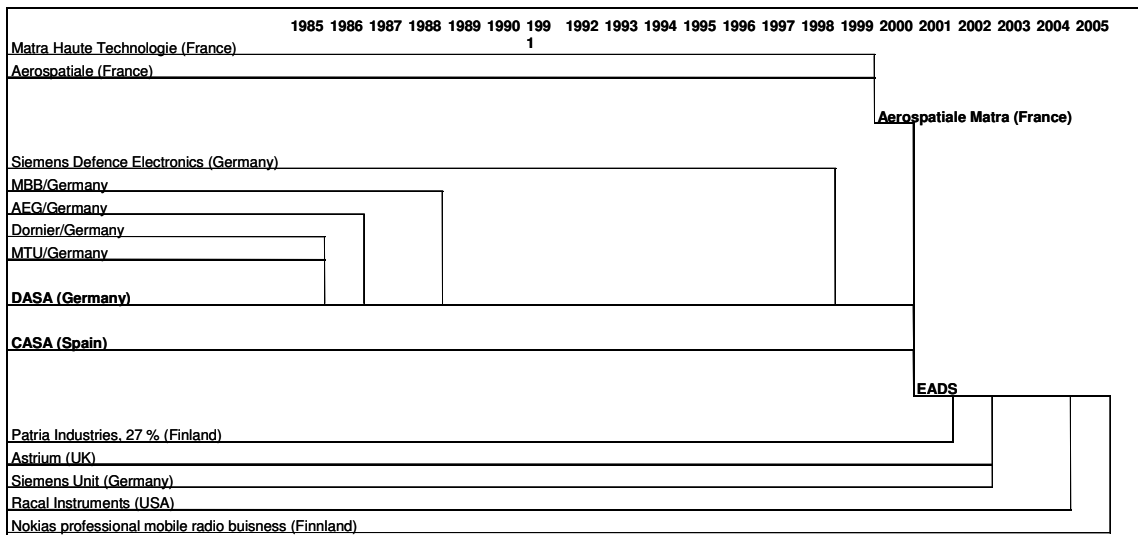


**Chart 7 : Mergers and Acquisitions of the Armoured Vehicles Sector in the EU**



Source: Hartmut Küchle, Die deutsche Heeresindustrie in Europa, in: Edition der Hans-Böckler-Stiftung, September 2007, p. 18. (updated).

**Chart 8 : The Formation of EADS 1977 – 2005**

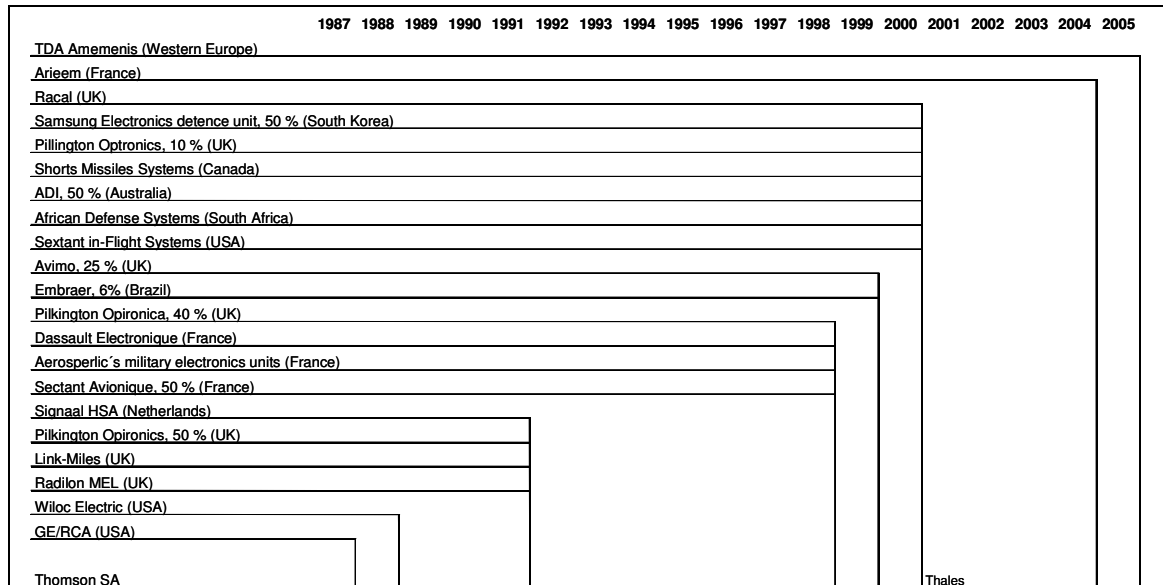


Source: SIPRI Yearbook 2006



## European Defence Industry Anticipating Restructuring

Chart 9 : The Formation of Thales 1987 – 2005



Source: SIPRI Yearbook 2006

BEA Systems (UK) chose a different approach. The company pursued a strategy of a forceful entry into the US defence market by acquiring US defence producing companies. BAE Systems now employs 35,000 people in the United States. By far the largest acquisition in the defence sector in 2005 was that of United Defence (USA) by BAE Systems, a deal worth US \$ 4 192 million. This was the largest acquisition of a US defence company by a non-US buyer. As a result, this British company is now the sixth-largest contractor of the US Department of Defence. Other British firms (QuintIQ, VT Group) – although at a much smaller scale – pursue a similar strategy.

One should, however, note that BAE is a defence specialist, whereas EADS and Boeing have a mix of military and civil business.

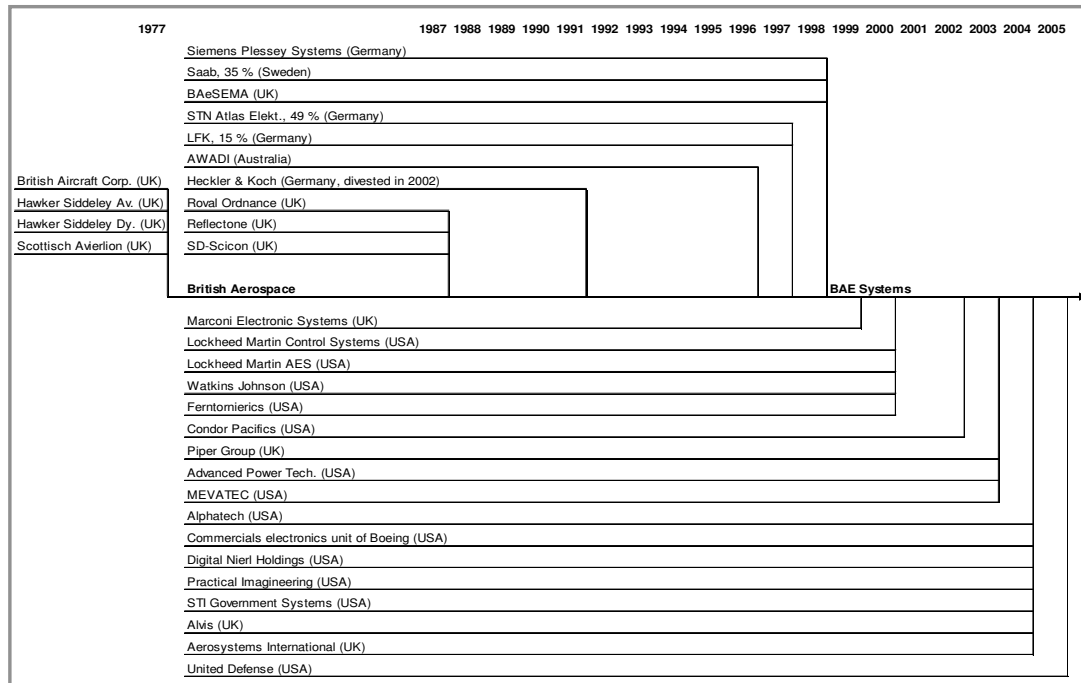
Acquisitions of or mergers with US-based companies by foreign companies are reviewed by the US Committee on Foreign Investment in the United States. The committee can suspend or block a foreign acquisition of US-based firms when it poses a credible threat to national security.<sup>6</sup>

<sup>6</sup> Detail in SIPRI Yearbook 2007, p. 364.



## European Defence Industry Anticipating Restructuring

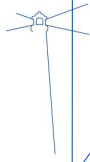
Chart 10 : The Formation of BAE Systems 1977 - 2005



Source: SIPRI Yearbook 2006

Acquisition activity has recently accelerated in the EU at a time when it has slowed down in the United States. The primary reason for the acquisition of defence companies during the early phase in the 1990s was their uncertain future as a result of the end of the Cold War and the reduced budgets. Market exit strategies led to the sale of companies. In contrast, today many companies now have a backlog in orders and some are currently 'awash in cash'. Companies are using this money for acquisitions.

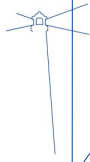




**Table 10 : Recent Mergers and Acquisitions in the EU (2005 and 2006)**

**1. Within Western Europe**

<b>Buyer Company (country/region)</b>	<b>Acquired company (country)</b>	<b>Seller company (country)</b>	<b>Deal value (\$ m.)</b>
Cinven (W. Europe)	Avio (Italy)	Carlyle Group (USA)	3 400
Kongsberg (Norway)	Navtek (Norway)	...	...
Norwegian Government and Patria (Finland)	Nammo (Norway)	Saab (Sweden)	...
Saab (Sweden)	Ericsson Microwave Systems (Sweden)	Ericsson (Sweden)	550
Thales (France)	Alcatel's satellite unit (France)	Alcatel (France)	825
VT Group (UK)	Hotel and Catering Training Company (UK)	ECI Partners (UK)	18
VT Group (UK)	Lex Vehicle Solutions (UK)	RAC (UK)	156
QinetiQ (UK)	Graphics Research (UK)	...	2
Avio Group (Italy)	Philips Aerospace Electronics (Netherlands)	Royal Philips (Netherlands)	...
EADS (W. Europe)	Professional Mobile Radio business	Nokia (Finland)	...
EQT (Sweden)	MTU Friedrichshafen (Germany) and the off-highway division of Detroit Diesel Corporation (USA)	DaimlerCrysler (Germany)	1 900
Finmeccanica (Italy)	Datamat SpA (Italy)	...	171
Krauss-Maffei Wegmann (Germany)	MAN-Mobile Bridges (Germany)	MAN-Technologies (Germany)	...
MBDA (W. Europe)	LFK (Germany)	EADS (W. Europe)	...
Rheinmetall (Germany)	Arges (Austria)	...	...
Smiths Group (UK)	Farran Technology (Ireland)	...	31
Snecma (France)	Sagem (France)	...	...
Thales (France)	TDA Armements (W. Europe)	EADS (W. Europe)	...
ThyssenKrupp Technologies (Germany) and EADS (W. Europe)	Atlas Elektronik (Germany)	BAE Systems	172



## European Defence Industry Anticipating Restructuring

### 2. Transatlantic: West European acquisitions of companies based in North America

Buyer Company (country/region)	Acquired company (country)	Seller company (country)	Deal value (\$ m.)
BAE Systems (UK)	United Defense (USA)	...	4 192
Chelton Microwave Corporation (UK)	Defense & Space unit	Remec. Inc.	260
EADS (W. Europe)	Talon Instruments	...	...
Kongsberg (Norway)	Gallium Software (Canada)	...	26
QinetiQ (UK)	Apogen Technologies (USA)	...	288
QinetiQ (UK)	Planning Systems Inc. (USA)	...	42
Ultra Electronics (UK)	Audiopack (USA)	Privately held	60
VT Group (UK)	Cube Corporation (USA)	...	26
BAE Systems (UK)	National Sensor Systems (USA)	...	9
GKN (UK)	Stellex Aerostructures (USA)	Carlyle Group (USA)	...
Meggitt (UK)	Firearms Training Systems (USA)	...	...
Rolls Royce (UK)	Data Systems & Solutions (USA)	SAIC (USA)	59
ThyssenKrupp Service (Germany)	Alcoa's Aerospace Service Business (USA)	...	...

### 3. Transatlantic: North American acquisitions of West European-based companies

Buyer Company (country/region)	Acquired company (country)	Seller company (country)	Deal value (\$ m.)
Carlyle Group (USA)	NP Aerospace (UK)	Reinhold Industries (UK)	54
Eaton Corporation (USA)	Aerospace fluid and air division	Cobham (UK)	270
L-3Communications (USA)	SAM Electronics (Germany)	...	150
Lockheed Martin (USA)	INSYS Group Limited (UK)	...	...
Rockwell Collins (USA)	Teldix (Germany)	Northrop Grumman (USA)	22
Stewart & Stevenson Services (USA)	Automotive Technik (UK)	...	47
Esterline Technologies (USA)	Wallop Defence Systems (UK)	Cobham (UK)	59
Lockheed Martin (USA)	HMT Vehicles (UK)	Privately held	...
L-3Communications (USA)	Advanced Systems Architectures (UK)	...	...
L-3 Communications (USA)	Magnet-Motor (Germany)	...	...
L-3 Communications (USA)	Nautronix Defence Group (UK)	Nautronix Holdings (UK)	65
L-3 Communications (USA)	TRL Electronics (UK)	...	169

Source: SIPRI Yearbooks 2006 and 2007



Four factors strongly influence the acquisition activity:

1. **Governments** in the EU have encouraged mergers in certain cases (EADS and its family of companies); in other cases governments try to prevent foreign (non-EU) investment.

2. There is a trend to invest in **expanding** sectors: This is particularly the case in those areas which are affected by the outsourcing and privatisation of traditional military functions, such as services, logistics, information technology and other products of the so called network-centric programmes. In order to increase market shares, companies seek to acquire smaller companies that are specialized in these areas. It is possible that the defence market will further expand in these areas while it is not certain that the traditional defence producers will profit from this expansion. Instead new service providers are emerging. This trend has far reaching consequences for governance, accountability and transparency of defence procurement.

3. There is a strong desire of non-US companies to access the **lucrative US market** by acquiring a US-producing company. This has proved more successful than the direct export of finished military goods to the United States. The reverse process also takes place. US-based companies have been actively acquiring EU-based companies (see table above).

4. **Private equity groups** (financial investors) have begun to purchase defence producing companies. There are several outstanding examples. In 2005 the private equity group EQT (Sweden) bought MTU Friedrichshafen (Germany) from DaimlerChrysler (Germany). This transaction has been a source of political tension in Germany. It included also the Off-Highway Division of Detroit Diesel (USA) and was valued at approximately US \$ 1.9 billion. Another controversy arose about the purchase of 51 per cent of voting rights of Carlyle in QuintiQ, at the time, in 2003, the main research laboratory of the British Ministry of Defence. In February 2006 Carlyle sold the stocks of QuintiQ, earning four times its initial investment. An earlier transaction by Daimler Chrysler was the sale of MTU Aero Engines to a US private equity firm (Kohlberg Kravis Roberts & Co) in 2003. Other examples are Thales Acoustics (UK) acquired by J.F. Lehman (USA) and NP Aerospace (UK) by Carlyle Group. The European investment group Cinven acquired Avio, the Italian engine producer, from the US Carlyle group for € 2.57 billion. Carlyle and Finmeccanica had bought Avio in 2003 for € 1.5 billion. This illustrates that investment companies have 'discovered' the defence sector as an interesting investment.<sup>7</sup>

The result of this concentration process can also be seen in the turnover of the major companies. In 1990 the top 5 defence producing companies of the world accounted for 22% of the total arms sales of the top 100 companies. This figure has doubled now to exactly 44%.<sup>8</sup>

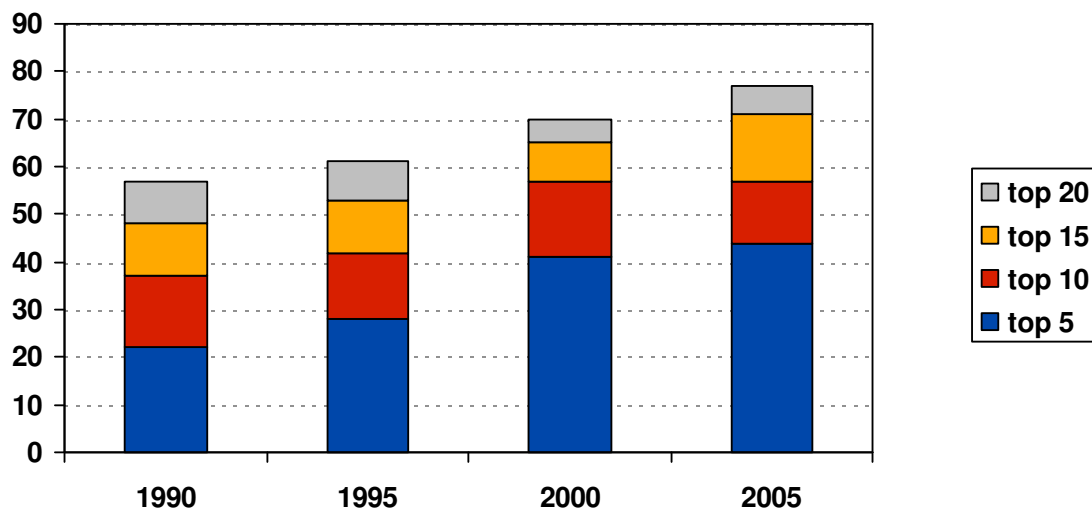
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<sup>7</sup> SIPRI Yearbook 2007, p. 366.

<sup>8</sup> SIPRI Yearbook 2006, p. 404 and 2007, p. 376.



Chart 11 : Share of arms' sales of the top 100 defence producers



Source: SIPRI Yearbooks

### 3.4. Public ownership

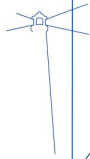
In several countries, public ownership still dominates. This is the case in particular in France, Italy and Spain. Elsewhere, governments are progressively reducing their stake in the defence companies. As a result, private funds have entered the sector, and US companies have also increased their presence in Europe through acquisitions.

The following tables show the share of public ownership in the key defence producers in France and Italy.

Table 11 : Ownership structure in France

NOM	SECTEUR	PARTICIPATIONS PUBLIQUES	AUTRES ACTIONNAIRES	%CA DÉFENSE 2005	EFFECTIF 2005	% CA Défense 200	Effectif 2006
DCNS	Naval militaire	►État : 100 % (*)	-	100.0 %	12556	100%	12 459
Nexter	Terrestre	►État : 99.9 %	►1 action détenue par le président	100.0 %	5512	100%	2 491
SNPE	Poudres, explosifs, chimie fine et de spécialité	►État : 99.9 %	-	31.5 %	4 719	46,5%	4 296
DCI	Formation, assistance technique, conseils <sup>209</sup>	►État : 49.9 %	►SOFEMA 30 % ►SOFRESA 10 % ►EUROTRADIA 10 %		764		
Thales	Electronique de défense Naval	►État : 1 golden share ►Secteur public (TSA, Sogepa <sup>310</sup> ) : 27,29 %	►Public 40.3 % ►Alcatel 20.95 % ►Dassault (GIMD) 9 % ►Salariés 4.99 % ►Autodétention 4.63 % 1.84 %	70.0 %	53367	50%	68 000
Safran	Moteur Electronique Telecom.	►État : 30.8 % ►Secteur public : 7.4 %	►Public 38.98 % ►Actionnaires issus du personnel 19.21 % ►AREVA 7.4 % ►CDC 1.85 % ►BNP Paribas 1.72 %	24.5 %	58060	20%	61 357
EADS	Aéronautique Espace	►État : 0.1 % ►Secteur public (Sogede/Sogepa) : 15 %	►Public 42.49 % ►Daimler Chrysler 22.3 % ►Lagardère 14.7 % (Sogede/Destrade) ►Sepi 5.5 % ►Autodétention 1.3 %	22.5 %	113210	25,4%	116 848
Dassault Aviation	Aéronautique	-	►GIMD <sup>311</sup> 50,21 % ►EADS France 46,30 % ►Public 3,49 %	52 %	12082	38%	12 086

Source : L'État actionnaire, rapport annuel 2006, APE



## European Defence Industry Anticipating Restructuring

**Table 12 : Ownership structure in Italy**

	<b>GROUPE</b>	<b>PARTICIPATIONS PUBLIQUES</b>	<b>PRINCIPAUX ACTIONNAIRES</b>	<b>% CA DÉFENSE 2005</b>
<b>Italie</b>	<b>Finmeccanica</b>	32.45 %		56.0 %
	<b>Fincantieri</b>	90 %		21.4 %
	<b>Avio</b>	-	85 % Cinven 15 % Finmeccanica	
<b>Espagne</b>	<b>Navantia</b>	100 %		80.1 %
	<b>EADS (via EADS Casa)</b>	5,5 %		22.5 %
	<b>Indra</b>	-	Thales, institutions financières espagnoles	50 %
	<b>Santa Barbara</b>	-	100 % General Dynamics	100 %
	<b>ITP</b>	53.125 % <i>Via Sener Aeronáutica</i>	46.9 % Rolls Royce	50 %

Source: Fondation pour la Recherche Stratégique



### III. Challenges, Risks and Opportunities

#### 1. The context of defence production and procurement

A number of security, political, economic, legal and technology developments pose challenges to the EU defence policy. This in turn leads to major challenges for the European defence industry. A re-organisation of activities at European, national, and local levels is unavoidable.

- The **security** situation has completely changed since 1990. Territorial defence (or threats to the territory of the EU) is no longer a primary concern. The breakdown of the Eastern system led to a reorientation of attention and 9/11 has given rise to new concerns with grave consequences both for the armed forces (new missions; UN) and the defence industry (other equipment). New types of conflicts emerged, which produced new concepts (overwhelming force deterrence, Network Centric Warfare, force interoperability, system systems, large governmental security systems, etc.). The EU schism regarding the Iraq War has intensified tensions about the security policy approach within the EU and between the EU and the US.
- At the **political** level, despite intensive and numerous efforts during the last few decades to restructure the defence industry in the EU aiming at an integrated and cost-effective supply of military goods, there is still no integrated or unified European defence market. Several mutually exclusive aims (European cooperation or Europeanization versus national interests) have been pursued in parallel, resulting in a defence industry which is strongly influenced by so called “national champions” – large defence producers which receive a substantial share of the national market in the country where they are based. At the same time these companies orient their merger and acquisition strategies beyond their nation sphere. The most prominent and largest of these national champions are located in France, Germany, Italy and the UK. Yet, it is still a contested issue to what extent state protectionism (groupings on a national scale) is required to guarantee a certain autonomy in defence procurement.
- At the **financial** level, although none of the EU member states is in a financial position to finance and sustain the full spectrum of a defence technology industrial base, procurement in the various EU member countries still continues to be exercised largely along national rather than European Security and Defence Policy (ESDP) lines. New methods of financing (PPP, PFI – e.g. air refuelling in the Royal Air force) are henceforth being pursued.
- At the **industrial** level, despite the acceleration of mergers and acquisitions, the defence industry is – with a few outstanding exceptions, most notably EADS and BAE Systems – still geared towards national procurements. The concentration process is incomplete and it is open if national, European or international (transatlantic) mergers and acquisitions will be predominant. The debate about the possible investment of foreign (mainly, but not only US) companies continues and the policies pursued in France, Germany and the UK vary. Recent reflexes of a national protectionist nature led to the passage of laws or regulations prohibiting non-European firms from becoming the majority shareholders in enterprises deemed strategic, both in France and Germany. The UK led the way to the degree that its government definition of the ‘national’ defence industrial base was concerned only with the location of producers and not with ownership of the firm. Other countries, like Belgium (and Norway outside the EU) followed the British policy.
- At the **technical** level, the defence technology and research base is inadequate in most defence sectors to allow for national solutions. The new security risks have accelerated the race for innovations, resulting in increased R&D resources.



- At the **social** level, the defence sector has experienced drastic reductions in employment. Although this process has slowed down somewhat in recent years, additional job losses can be expected in a continuing process of Europeanization and internationalization.
- At the **legal** level, a whole range of political and legal guidelines have been designed and institutions were founded in the EU to improve coordination, to internationalise procurement and encourage competition within the EU. Already in 1991 the Maastricht Treaty laid the ground for an Intergovernmental Arms Agency, OCCAR was created and more recently EDA has been formed. The joint efforts to coordinate procurement, to increase competition and to overcome protectionism has included, among others, the so called Letter of Intent (LoI), the Framework Agreement, the Harmonisation of Military Requirements (HMR), the European Headline Goals and the creation of a joint 50 million Euro research fund for European Defense. The members of the European Defence Agency have agreed on a Code of Conduct to establish a voluntary, non-binding intergovernmental regime aimed at introducing competition in military equipment procurement. Nevertheless, presently still less than one fifth of procurement is spent in collaboration projects in which at least two EU members participate. The new European defence package, which includes a Communication on competitiveness and two legislative proposals applying to Arms transfer and to Defence and sensitive security equipment, will go some way in harmonising the EU defence market, yet progress will take time as some market segments continue to be excluded from the Single European market through Article 296.

## 2. Challenges

Despite recent restructuring, the concentration and consolidation process in the EU remains incomplete, and the inevitable further restructuring will incur social costs (job losses). There are the following challenges:

- if concentration continues on the national (or the bi-lateral) level, protected industries will become uncompetitive;
- yet, further consolidation increases the risk for the creation of monopolies, oligopolies or duopolies with the risk of dependencies, inefficiencies and higher costs;
- the financial logic and shareholder value concept raise questions regarding the reliability of the delivery of defence products;
- governments remain torn between the choice of national and EU preferences on one side (with possibly higher cost but job security) and competition for cost-effectiveness purposes (with dependence on outside suppliers and job losses at home);
- continued existence of duplication of capacities and duplication of weapon programs, leading to a global misallocation of (scarce) public resources;
- reduced government control through outsourcing of traditional military functions.



## **2.1. National Solutions, Collaboration and Protectionism**

Although the need for greater European cooperation and/or a more open internal market for defence is a logical consequence of what proceeds, one has to acknowledge that the history of European equipment collaborations is mixed. Although a few projects have been highly successful, they have often been used to pursue national procurement or industrial aims.

The *juste retour* principle, often applied in collaborative projects, leads to inefficiencies and higher cost, since the placement of a procurement order is largely based on the percentage of finances in the project of the participating countries rather than selection of the most economic or technically most competent supplier. Often, the stage of collaboration is not reached and national programs continue to prevail: four main battle tanks are being built, there are almost two dozens national programmes for armoured fighting vehicles (AFV), and three combat aircraft programs are being pursued despite heavy competition from the USA. Duplications in development are particularly frequent in IT- and Command and Control Systems.

Positive collaboration, however, does happen:

- in helicopters, with the NH 90 and Tiger;
- in missiles, with the Meteor and, to a lesser extent, PAAMS;
- in transport aircraft, with the A400M;
- in satellites, with the Galileo.

### **2.1.1. European aerospace industry**

The most Europeanised structure in the defence sector is the aircraft/space industry. The process has taken place over many years and was accelerated by financial needs. However, looking at the non-military (Airbus, space) and the military sector (fighter aircraft, missiles, military electronics) it becomes clear that the civil part is further Europeanized than the defence part. Besides the financial needs (no EU country can afford to engage on a national basis in the civil aircraft program or in ambitious space programs) **the process has clearly been policy driven.**

Despite present problems in the structure of Airbus Industries and its production process, Airbus has established itself on the basis of reimbursable aid from the member states as a competitive producer of a family of civilian aircraft. The question is: can Airbus serve as a model?

There are some distinct differences between the military and civilian aerospace markets:

- The defence market is not really a *market*: products are essentially sold domestically by one supplier to one customer;
- Governments are both customers, and shareholders in the enterprises;
- Economic considerations are often overruled by political interests (although this is to some extent the case in Airbus Industry as well);





- State protectionism has often favoured national programs;
- Finally, a major difference lies in the fact that the civilian aircraft market has constantly grown, while the defence market experiences wider fluctuations in demand.

Yet, the recorded successes in joint military programs are partly based on the Airbus model, by linking European programs. One can mention the following examples:

- in missiles with **MBDA** and the Meteor, PAAMS programs;
- in helicopters with **Eurocopter** and NH 90;
- in military aviation with **Airbus Military** and the A400M;
- in space (institutional), with Europe's late effort following the failed ECA Ariane 5 launch and thanks to a common political will between the European Union and the ESA, and despite the fair industrial return rule that penalizes competitiveness of the industrial tool, EU cooperation has taken the form of:
  - Industrial project management for Ariane V transferred to integrator EADS ST;
  - Transnational restructuring of the EADS space activities (skills centers on the Airbus model);
  - European preference (ESA conference of December 2005) European institutional satellite launches, which will provide better cost effectiveness for launch;
  - Implementation of the first major European space program under the aegis of the EU, for satellite navigation (Galileo) and environmental monitoring (GMES).

Other sectors within the aerospace sector illustrate some failures in European cooperation. This is particularly the case in the most ambitious program for a fighter aircraft. The lack of joint political will and the dominance of national ambitions in developing a European fighter aircraft have led to multiple programs (Gripen, Eurofighter, Rafale) and diffused R&D spending. The results are increased program costs, slipping deadlines, export sales difficulties, the facilitation of the emergence of a U.S. combat aircraft program (the F35), and potential skill losses for those countries engaging in a program that does not meet commercial success.

### ***2.1.2. Shipyards/Naval sector***

National solutions and selective cooperation have prevailed in this sector. Although the naval sector is undergoing significant technological changes, the concentration process has largely proceeded along national lines. About two dozen shipyards are engaged in the design, development and production of military vessels. They are concentrated – as the graph below shows – around 'national champions' in the UK, France, Italy and Germany. In addition, a few yards also operate in Sweden, the Netherlands and Spain.

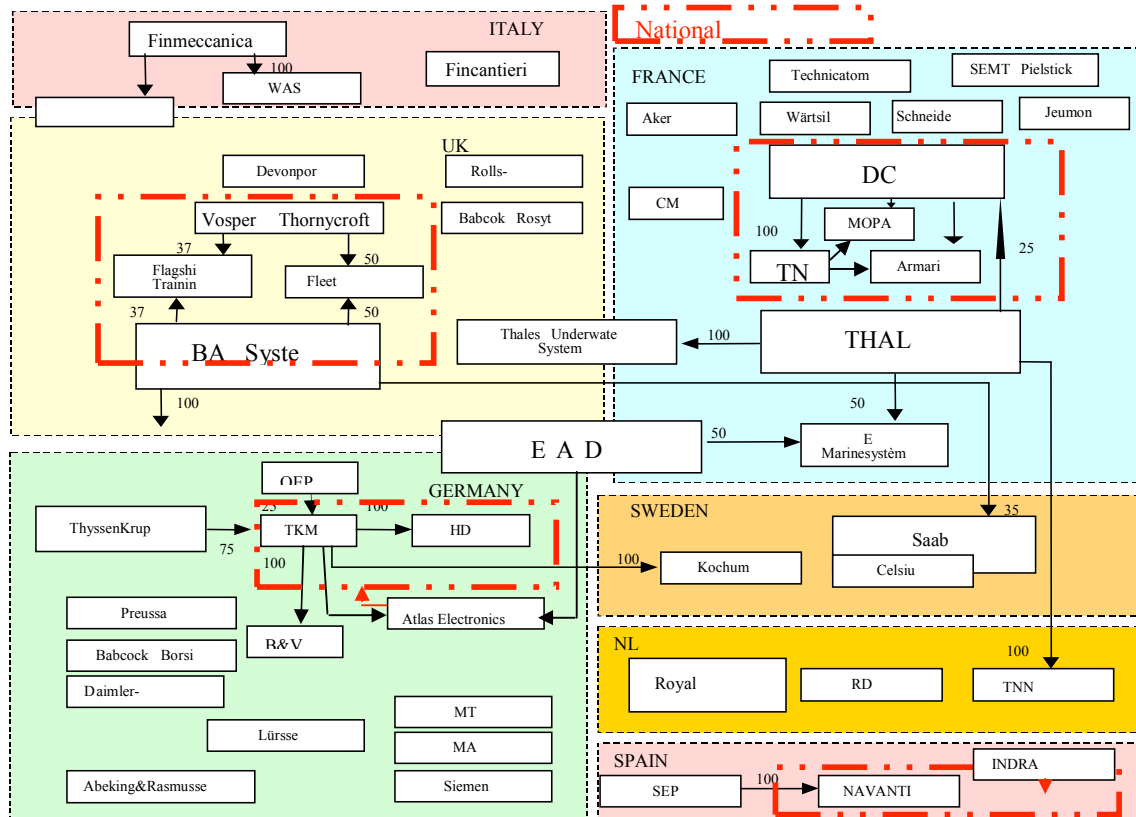


## European Defence Industry Anticipating Restructuring

In contrast to the United States, where vertical groups (integration of platform and systems producers) have been formed, the shipyards in Europe operate horizontally at the national level. Cooperative programs in the EU exist on bi- or tripartite levels (Fremm, CVF/PA2 and others). A typical example of a most recent national decision is the procurement of four frigates Typ 125 in 2007 for a value of 2.6 billion € in Germany. Despite often repeated and promised calls for Europeanization, the Ministry of Defense decided to opt for a national purchase, although similar frigates could have been purchased at a much lower price in other EU countries. This order was clearly motivated by protecting and subsidizing German shipyards. This is underlined by the fact that 81% of the purchase price for all four frigates will be paid at once when the first frigate is delivered.

The dangerous development of the formation of competing blocks, none of them competitive in an open market, continues. A European solution, possibly along the lines of Airbus or EADS in the aerospace sector, is not on the agenda, neither is there a development of transnational programs which involve more than two or three countries. However, it seems within the realm of possibility with some shipyards: it was not long ago that a joint British-French aircraft carrier – a symbol of the states' sovereignty – would have been inconceivable. Financial constraints might accelerate the need for consolidation.

Chart 12 : The EU Naval Sector in the EU



Source: Alpha Groupe



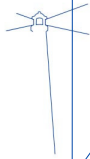
### ***2.1.3. Artillery, Armoured Vehicles and Ammunition***

The structure of the producers of equipment for the ground forces is similar to the naval industry. As indicated earlier, national solutions are usually preferred. There is a clear lack of Europeanization of industry, and a lack of cooperative projects. Procurement of armoured vehicles has slowed down and the industry is in economic difficulties. There are too many and too small companies to survive. GIAT (France), after the commercial failure of the Leclerc tank and drastic reduction in orders by the French government, cut its staff by 85% over 15 years (from 18,000 employees in 1990 to 2500 in 2006) and had become a financial disaster for the state. The problem has now been solved. The European states are turning to foreign countries to satisfy their munitions needs. Financial difficulties of firms have allowed U.S. industry and financial investors to acquire several outstanding companies of the ground weapons industry at low prices (Bofors, Mowag, Santa Barbara).

In these sectors, the fact that certain states have retained majority participation in defence enterprises and the lack of major European programs have not, as yet, made consolidation on the European scale possible. Restructuring efforts have been at the national level and an Airbus ground forces arm, for example, will only be possible under the auspices of joint programs and with strong common political will.

### ***2.1.4. The Electronics, the Missile and the Propulsion Industry***

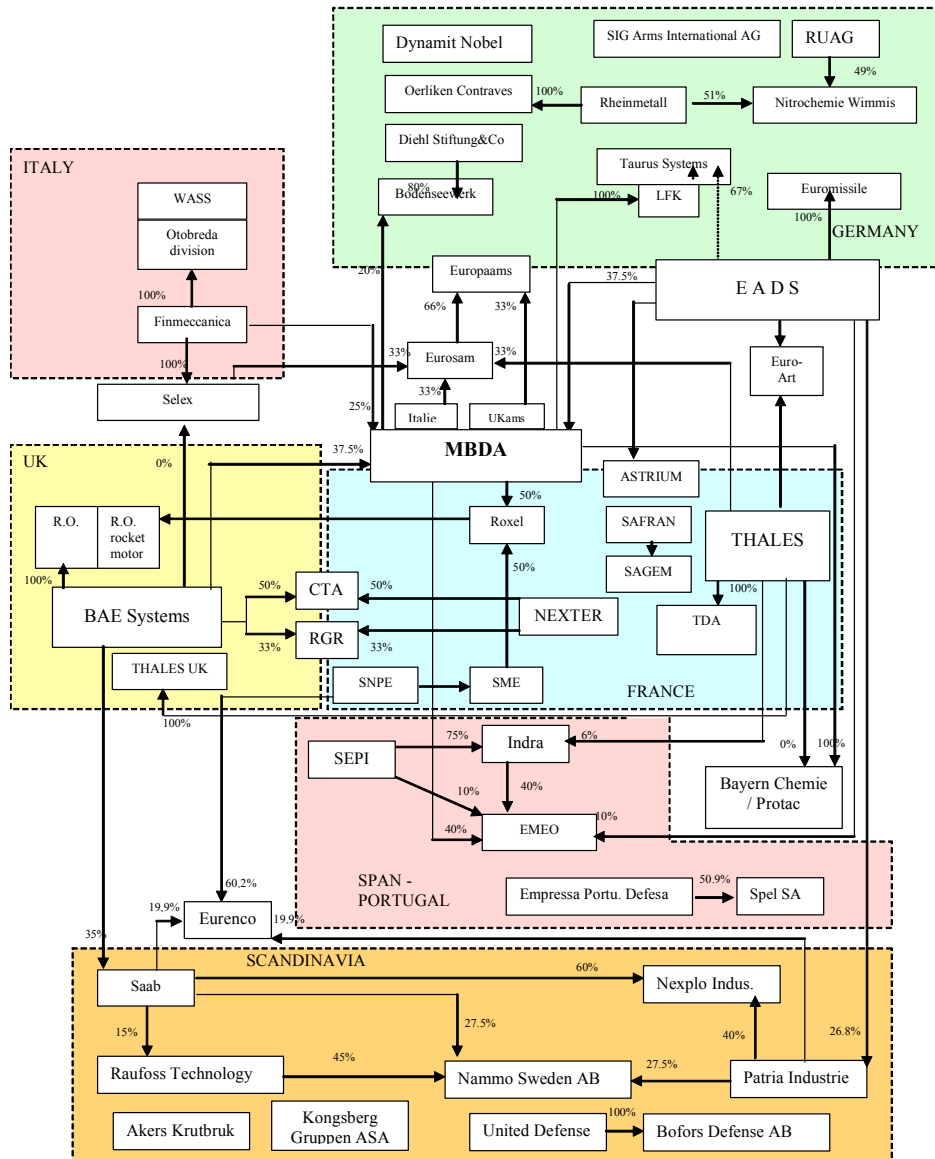
Similar to the area of aerospace, the defence electronics and the missile/propulsion industry is more Europeanised. Cross-border mergers and bi- and multilateral joint ventures have facilitated the Europeanization process. The structure of this branch of the defence industry and its cross-border connections is illustrated in the graphs below.

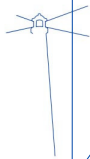


# European Defence Industry Anticipating Restructuring

## Chart 13 : The EU Missile and Propulsion Industry

Source: Alpha Groupe

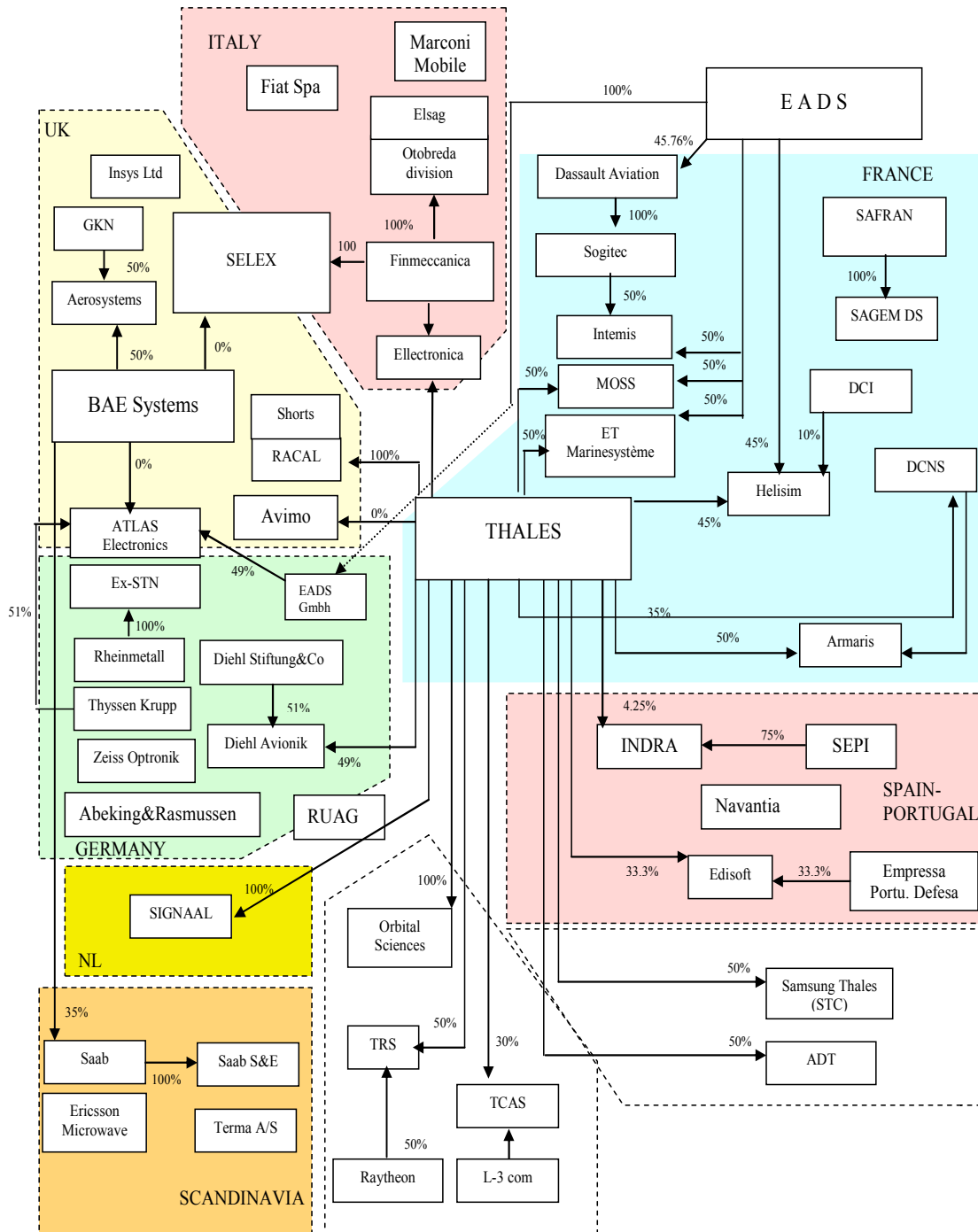




# European Defence Industry Anticipating Restructuring

## Chart 14 : The EU Defence Electronics Industry

Source: Alpha Groupe





## **2.2. Summary and Perspectives**

As illustrated in the previous sections, a general **process of consolidation** is under way. In contrast to other industrial branches, M&As took place primarily at national level during the early 1990s. **National champions** were formed in several EU countries. Typical of this process of consolidation largely along national lines in the EU, is the **land defence sector**, as well as **naval industry**.

Yet, acquisition activity has **recently accelerated in the EU**, at a time when it has slowed down in the United States. But more restructuring is on the horizon, as the maintenance of a competitive industrial base requires addressing the challenges ahead and the causes of the present deplorable state-of-affair, namely the fact that:

- in many countries national champions have been successful in lobbying for sustaining a national defence industrial base;
- national procurement authorities – although in principle pro joint procurement – favour national entrepreneurs in case of doubt;
- the *juste retour* principle in collaborative projects results in suboptimal procurement;
- securing jobs at home has been used to legitimize cost-inefficient procurement;
- strict national rules have hindered or even prohibited foreign ownership of defence companies;
- difference in regulations for arms exports have led to complications in marketing;
- several cross-border collaboration projects have proven to be cumbersome in management and have experienced cost and time overruns;
- Article 296 of the European Community Treaty has excluded several segments of the defence sector from the liberalised Single Market;
- the different aims of the EU and NATO Europe translate into differences in security policy;
- there are also differences in security policy within the EU: for example with respect to the Iraq War.

In conclusion, the disadvantages of the lacking common military equipment market and the fractured arms producing industry in the EU are:

- duplication of research and development efforts;
- existence of overcapacities in the defence industry;
- parallel production of weapon systems resulting in lack of standardization in military equipment, and resulting avoidable costs;
- inadequate utilization of the potential for rationalization;
- inefficiency and increased cost resulting from limited competition.



## European Defence Industry Anticipating Restructuring

Occasionally, it was possible to secure jobs by protecting companies and procuring defence equipment nationally instead of pursuing more cost-efficient joint programs. The long-term decline in jobs in the defence sector could, however, not be prevented as the employment statistics prove.

Given this overall context, changes are inevitable and a restructuring of the EU defence industry is unavoidable. Several routes can be followed and different scenarios are possible. They include:

- a complete **liberalisation** of the defence market and internationalization of the defence industry with a growing role of US companies, extra-European mergers and acquisitions and the further engagement of financial investors;
- a **Single European Market** in defence products and the Europeanization of the defence industry with an intensified mergers and acquisition process within the EU;
- intensified **joint programs**, including EU Joint Actions, joint procurement and R&D, with further industrial cooperation and mergers and an enhanced role of a European defence agency;
- the continuation of a “**muddling-through**” process or doing nothing with concentration of industry, nationally dominated procurements, job security at the national level in the short term.

Restructuring seems inevitable and indeed, restructuring entails risks. The consequences they entail for people, regions and companies make restructurings particularly threatening for those concerned, and can increase resistance to change. Forthcoming changes therefore have to be monitored so that the break-ups they suppose do not turn into crises and the negative impacts can be avoided. Yet, as will be seen in Chapter V, the consequences for employment – and in particular for employment at local levels – vary significantly depending on the future development of these scenarios.



## IV. The Defence Economics Problem

### 1. A problem of choices

The “defence economics problem” is a standard economic problem of choices. As indicated in the previous sections, defence policy-makers are faced with the following pressures:

- i) Constant or falling defence budgets in real terms (even small real increases are viewed as broadly constant levels);
- ii) Rising input costs of both equipment (capital) and personnel (labour). Typically, equipment costs have been rising at some 10% per annum in real terms so leading to the procurement of smaller numbers (which means smaller production orders for national defence industries). Purchasing military personnel for an all-volunteer force is also costly: the military employment contract has some distinctive features (e.g. discipline; probability of injuries and death). As a result, the Armed Forces are required to pay their personnel sufficiently to compensate for the ‘net disadvantages’ of the military employment contract (i.e. enough to persuade personnel to choose military rather than civilian jobs).

*These two pressures representing the so-called “defence economics problem” mean that defence policy-makers cannot avoid the need for difficult choices.*

The end of the Cold War has made no difference: unit cost escalation for equipment has continued. For example, the UK cannot afford a successor to the Typhoon; and by the time UAVs are as capable as manned combat aircraft, they will be equally as expensive, hence just as unaffordable.

Possible solutions include:

- a) Increase the defence budget (c.f. the USA); but this involves ‘sacrifices’ of civil goods and services (i.e. guns versus butter choices);
- b) Equal misery: accepting a gradual reduction in the effectiveness of a nation’s Armed Forces (e.g. via less training; fewer attrition buys; some project cancellations; and shifting the new equipment programme ‘to the right’, i.e. later into time);
- c) Increased efficiency through such policies as competitive purchasing of equipment (e.g. buying from overseas); military outsourcing; and improving internal efficiency;
- d) EU defence policy such as the EDEM (European Defence Equipment Market).





## **2. Inefficiency in existing EU defence markets**

EU defence markets are inefficient in providing both:

- i) Armed Forces (e.g. massive duplication of bases; training; infrastructure; defence ministries, etc); and
- ii) Defence equipment (the focus of this study).

Compared with the USA, the EU lacks a single EU Army, Navy and Air Force, and it lacks a large Single EU Market for defence equipment.

Within the EU, the inefficiencies in defence equipment markets are reflected in the duplication of costly R&D programmes (e.g. Gripen; Rafale; Typhoon); small-scale production for small national markets; protectionism; cost-based non-competitive contracts; and domestic monopolies some of which are state-owned.

## **3. How to achieve an efficient EU defence industrial policy?**

There are some economic principles which provide the basis for a more efficient EU defence industrial policy. These economic principles are:

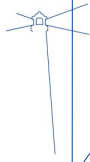
- i) **Principle 1.** In a context of rising equipment costs, **national independence and duplication of R&D are costly.**
- ii) **Principle 2.** There are **gains from free trade based on comparative advantage** (c.f. the principles of international free trade in civil goods and services).
- iii) **Principle 3.** There are **gains from economies of scale and learning** (where defence industries are decreasing cost industries).
- iv) **Principle 4.** There are **gains from competition** (i.e. from opening-up previously protected national defence markets).

Whilst these economic principles appear attractive, there are questions about the likely magnitudes of any gains.

## **4. The possible gains from a more efficient EU defence industrial policy**

Two major sources of economic gains are likely to offer cost savings:

- i) Gains from trade offer cost savings of some 10% to 25%;
- ii) Gains from scale and learning economies offer cost savings of some 15% to 25%.



## European Defence Industry Anticipating Restructuring

These gains have been used to estimate the likely equipment cost savings from various EU defence market scenarios. Three scenarios are considered each based on either a market restricted to EU firms only or open to the rest of the world. First, a competitive market with no entry barriers. For example, on the EU only basis, each nations' defence markets would be open to firms from other member states being allowed to bid for national defence contracts. Second, a single EU procurement agency would purchase common, standardised equipment on behalf of a single EU Army, Navy and Air Force.

Such a procurement agency would replace national defence ministries and would achieve major cost savings from reduced duplication of costly R&D and from large production orders leading to economies of scale and learning. Potentially, this scenario offers the largest cost savings but politically is the most difficult to achieve. Third, the twin track approach where there would be competition for small to medium scale projects (e.g. ammunition; artillery; small missiles) and collaboration for large-scale air, land and sea systems (with collaboration based on either *juste retour* or comparative advantage). The twin track scenario offers substantial cost savings and might be more politically acceptable to EU member states.

The cost savings from each scenario are shown in the table below. Overall, the estimated cost savings for the scenarios range from some 10% to almost 20%, suggesting that there are considerable efficiency gains from creating a Single EU defence market (especially for costly equipment such as combat aircraft with unit production costs of some Euros 90 million).<sup>9</sup>

**Table 13 : EU Single Market Scenarios for Defence Equipment**

Scenarios	Annual cost savings	
	EU Only	Open to Rest of World
1. Liberalised Competitive Market	9%	11%
2. Single EU Procurement Agency	15%	17%
3. Twin Track	11%	14%

**Notes:**

- (i) The cost savings are broad orders of magnitude.
- (ii) See K. Hartley, Defence industrial policy in a military alliance, **Journal of Peace Research**, 43, 4, 473-489, 2006, July

### ***The costs of a Single EU Market***

Change is not costless. Creating a Single EU defence market will involve both winners (benefits) and losers (costs). Inevitably, potential losers will oppose changes which inflict costs on the losing groups (comprising firms and their labour force, including local economies dependent on defence contractors). Losers will lobby for protection; for 'fair and managed' competition; and for *juste retour* in work-sharing. The concern is that such behaviour by interest groups will lead to cartels, collusive tendering and 'Fortress Europe' resulting in an inefficient EDTIB: hence, the complete opposite of the efficient EU Single Market 'ideal' for European defence procurement.

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<sup>9</sup> Other examples include aircraft carriers with acquisition costs of Euros 7.2 billion; air defence ships at an acquisition cost of Euros 832 million; nuclear-powered submarines at an acquisition cost of Euros 1.7 billion; main battle tanks at a unit production cost of Euros 5.2 million; and advanced trainer aircraft at unit production costs of Euros 22 million (2007 prices). See P. G. Pugh, **Defence Equipment Costs**, P.G. Pugh, Clapham, Bedfordshire, England, 2007



## **5. The future defence firm?**

Current EU policy towards both the EDEM and especially the EDTIB appear to be focused on the current EU defence industrial base. But questions need to be asked about the likely future defence firm. Will there be defence firms in, say, 2030/2050 and what will they look like?

Unless the world suddenly becomes a much safer place, there will continue to be a need for defence firms. The future defence firm will be determined by new threats, new technology and defence budget constraints (e.g. reflecting society's preferences between guns and butter).

The future defence firm will be different from today's defence firms just as today's defence firm differs from those of 1950 and 1900 (e.g. in 1900, Boeing, BAE and Thales did not exist). In the future, the defence firm is likely to be a global defence firm, perhaps with electronics firms as primes and with primes acting as systems integrators and not metal bashers (e.g. including service providers). Supplier networks are more likely to be international with suppliers being larger groups bearing greater risks and undertaking more R&D for primes. But perhaps this view of the future defence firm is influenced too much by current developments. All we know is that the future is uncertain and unknowable and will be radically different from the present.

## **6. Conclusion: the economics dimension**

EU defence industrial policy is topical and dominated by politics. But, economists can make sensible contributions to the policy debate by identifying the benefits and cost of different scenarios and by providing evidence on the magnitudes involved.

Existing EU defence markets are highly inefficient. Efficiency improvements mean benefits to the EU's Armed Forces and taxpayers but costs for the EU's inefficient defence industries and their associated regions.

The next chapter indicates what these costs are, in terms of number of jobs at stake, and how these can be anticipated and minimised, in order to reap the long term benefits of restructuring.



## **V. Outlook for Activity and Employment**

The previous chapters have illustrated the challenges to which the European defence producers will be faced, as well as the strong interrelationships between all the different stakeholders. These developments are of particular concern to the sector's workers and their representatives, the trade unions, as well as to the regions, many of which are very dependent on the sector due to the high geographic concentration of production within the EU. The consequences on employment are also of major interest to the companies themselves, both because they are directly concerned and need to participate to the restructuring process, and because one of the factors which will condition the future trend in activity, exports and overall competitiveness is the trend in, and availability of, competencies and skills.

Given the uncertainties that lie ahead, both in terms of external contextual developments and in terms of the strategies of the key players involved in this area (national governments of EU member states, non-EU governments, the defence companies and their suppliers and subcontractors, among other), it is important to develop a scenario approach in order to assess likely future changes.

In this study, one has considered **highly contrasted scenarios** in order to describe the social impacts of future developments in the industry. The scenarios presented are not "forecasts" of future developments, but illustrations of what could happen in extreme situations. They are designed to offer a framework to help understand the nature and potential magnitude of changes ahead, and trigger a discussion – and hopefully start a dialogue - on the measures to put in place in order to minimise the negative social effects of restructuring.

The scenario impacts are analysed on the whole value chain – i.e. not only on the prime contractors, but on all the companies involved at all levels of the supply chain (hence including small sub-contractors). The forecast horizon is 5-7 years.

### **1. Nine steps to scenario building**

Clearly, future trends in the European defence industry will depend both on the strategies of the main stakeholders and their consequences on the other players, and on changes in the external environment (macroeconomic developments, geopolitics, etc.).

To describe possible future scenarios for the European defence industry, a foresight methodology has been used in order to take into account in the most effective way possible of all the interrelationships between players, and of each of the player's intrinsic objective.

The box on the following page recalls the main principles of strategic foresight.

The process has been split into three phases – further broken down into nine steps as indicated below. The three main stages involve:

- (1) Identifying the underlying factors of change (some of which were listed in the previous chapters) and, among those, the ones on which the European stakeholders have little or no effect;
- (2) Defining the factors of change whose future trends can be influenced by the future European policy stance(s) and/or by the industry stakeholders, and outlining the stakeholders' strategies, given the underlying factors identified in phase 1;
- (3) Analysing the mutual coherence of the different players' strategies, and outlining possible development scenarios.



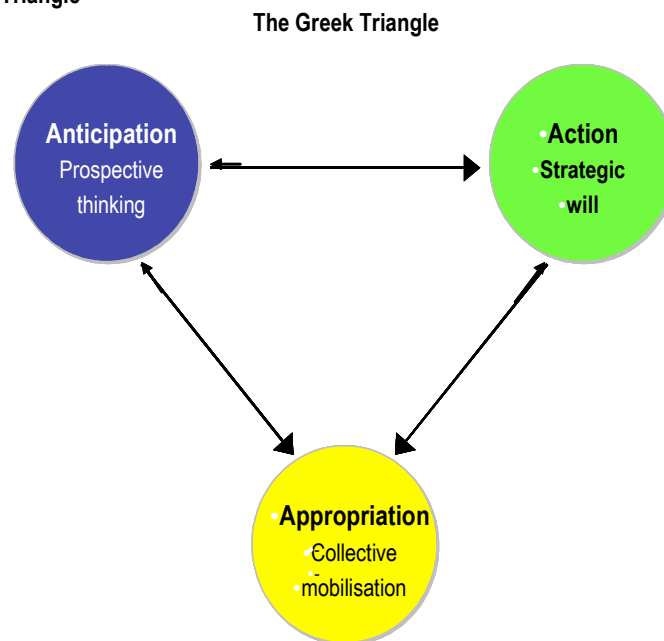
These three main stages have been undertaken in nine steps:

1. Definition of “underlying structural trends” that no (defence industry) stakeholder will have an influence on (economic growth, geopolitical assumptions, constraints on public finances ...);
2. Identification of the key stakeholders which will influence the future;
3. Identification of the key factors, decisions and strategies that will influence the future of the European defence industry;
4. Identification of the underlying objectives of each stakeholder;
5. Definition, for each stakeholder, of its priority objectives
6. Identification of the shared objectives, and of the areas of conflict;
7. Mapping of the influences / dependencies between players;
8. Analysis of the results;
9. Identification of the key remaining questions/uncertainties for the future, and definition of scenarios based on different answers for each question.

### The Strategic Foresight Approach to Scenario Building

**Strategic foresight**<sup>10</sup> essentially involves anticipation (pre-activity) to clarify present actions in light of possible and desirable futures (or futures that one wants to avoid). Nevertheless, preparing oneself for foreseeable changes doesn't preclude one from **provoking** desired change (pro-activity). In the logic of the Greek triangle, it is by mixing the blue of anticipation with the yellow of appropriation that one can arrive at the green of action.

Chart 15 : The Greek Triangle



Given the above definition of strategic foresight, it is clear that the final objective of strategic foresight exercises is to **anticipate before taking actions** which will themselves impact the future.

Yet, taking action means appropriation by the key stakeholders. This is why the development of scenarios has to take into account underlying trends on which stakeholders have no or little influence, **as well as** the strategic objectives and resulting behaviours or actions of the stakeholders. Indeed, it is these actions that will influence the future.

<sup>10</sup> In Strategic Foresight « La Prospective », LIPSOR Working Paper N° 20 by Michel Godet with Philippe Durance and Adam Gerber, November 2006.



In sectors like defence where there are many different stakeholders pursuing different objectives, anticipating possible future trends therefore implies taking into account the underlying objectives of each stakeholder and determining the relative degree of influence/dependence between players. This is best done through participatory processes to which all stakeholders take part.

Given time and scope constraints, the strategic foresight method that has been adopted here has relied on a combination of ad hoc research and confrontation of experts' views. The proposed scenarios were then presented for discussion at the seminar organised in Brussels on December 13&14, 2007. An overview of the discussions is presented in Annex 4.

## 2. Underlying trends

The following underlying trends have been assumed for all scenarios. These have been grouped in three main families: geopolitical trends, macro-economic developments, European policy stance related to defence, and underlying structural trends in defence industries, or applied to defence. The trend indicated below is considered to be the most likely outcome – it does not mean that another outcome is not possible. However, it was felt that, given the overall objective of the study: to anticipate future restructuring trends in the EU defence industry and convince the stakeholders of the benefits of anticipation – it was necessary to build the scenarios around the impact of the actors' strategies on the sector, and not around uncertainties that one has no control on.

The underlying trends common to all scenarios are as follows:

### ❖ **Geo-political trends:**

- ▶ Continued unrest in Middle and Far East regions, but no major global crisis, civil war or other. Regional crises continue to occur, in which Europe gets involved in a way that is consistent with its general foreign and defence policy stance, but these crises do not influence in a significant way lifestyles, employment and the economy within the EU-27.
- ▶ Europe continues to intervene in crisis prevention, but with a progressively growing share of civilian means due to the externalisation of a growing set of missions (in line with trends currently under way in the US).

### ❖ **The European CFSP/ESDP stance** is accepted by all nations but is not necessarily fully in place over the forecast horizon considered here (5-7 years).

### ❖ **General macro-economic assumptions:**

- ▶ The scenarios assume a single assumption on world growth, exchange rate, oil prices, and demographic trends in Europe: world GDP growth will average close to 3% per year in the coming 5-7 years, a modest slowdown from past trends. This will however continue to put upward pressure on oil and raw material prices, creating incentives for consumers and businesses to conserve energy and increased the efficiency of resources used. The dollar exchange rate will remain weak over the period, due to the high structural imbalances in the US which will take time to correct, and to the consequences of the subprime crisis on US short and medium term growth. Future demographic trends are expected to be in line with Eurostat estimates, with continued slow population growth and rapid ageing in Europe.
- ▶ Government budgets remain under constraint due to ageing and social agendas. A trade-off has to take place between tax increases, social protection, education and other types of expenses, such as security and defence.
- ▶ There are increased concerns over homeland security.



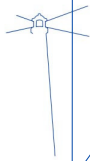
- ▶ Labour markets become tense, in part due to the population ageing effect, and in part due to the continued tight immigration policy stance. Workforce ageing in Eastern Europe is a particular source of concern.
- ▶ In the industrial sectors, the effective age of retirement remains below the legal retirement age, due to the inadaptation (over the forecast horizon) of work places and work conditions to an aged workforce. Older workers leave the industry to work in other areas, such as services, or choose early retirement. This means that recruitment needs remain positive, despite the fall in industrial employment levels: indeed, the number of industrial workers leaving the sector is too high in relation to the employment needs – despite continued high labour productivity growth in industry.
- ▶ Skill shortages develop in certain areas, in particular in industry, due to the tightening labour markets in Europe (a consequence of the retirement wave and smaller cohorts of new entrants into the labour market) and comparatively low attractiveness of jobs in industry compared to services; immigration does not address all the needs.

### ❖ Assumptions specific to Defence:

- ▶ Defence budgets (sum of procurement and expenditures on military personnel) fall as a share of GDP, in line with past trends;
- ▶ There is a relative stabilisation in the cost of military personnel, but the downward trend in the value of European defence procurement (measured in constant prices) continues as the cost of equipment and new weapon systems continues to grow rapidly;
- ▶ Budgetary pressures lead to increased outsourced services;
- ▶ The share of security (internal affairs) budgets in total public sector spending rises slowly;
- ▶ A new equipment mix is required, due to the changing nature of defence missions;
- ▶ There is no significant growth in defence export markets, due to growing competition on the world scene and the relocation of some activities;
- ▶ There are a number of regions of US influence which remain difficult to penetrate for European producers;
- ▶ Investment in new markets is mainly taking place through partnerships;
- ▶ One sees an end of the « revolving door » policy between the defence industry and defence (or other) ministries; workers displaced from defence companies will have to find employment in other industries or retire from the labour market.

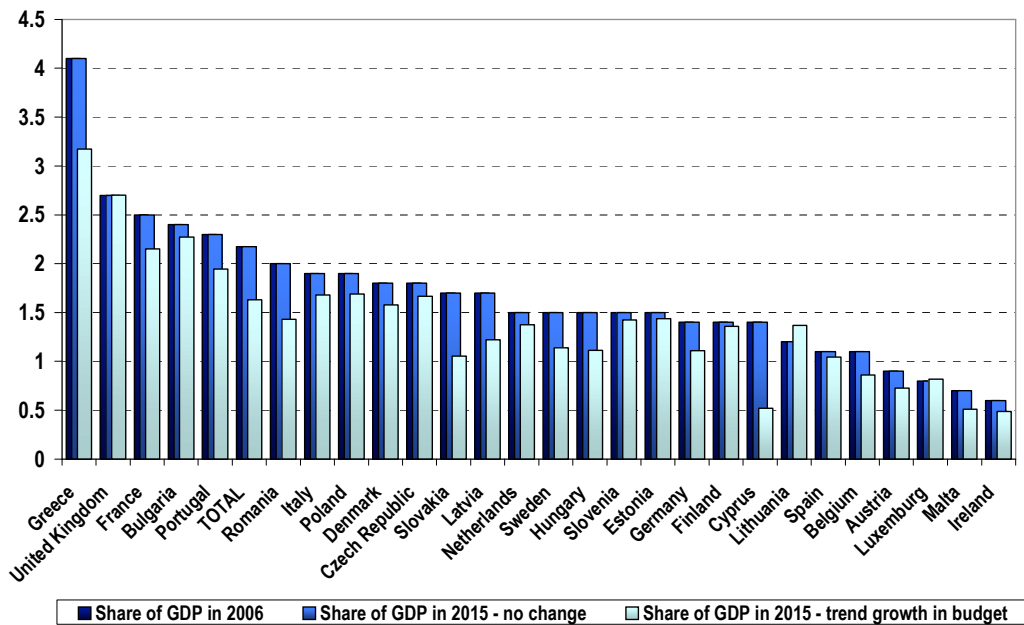
With respect to the future trends in defence budgets, a key assumption for the future, one sees in the figure below that the share of defence budgets in GDP varies substantially across the EU-27. Two assumptions can be made to forecast future trends: one consists in assuming no change in the GDP share of the defence budget – i.e. the budget share is the same as that observed in 2006 in all countries, as illustrated below.

The second hypothesis consists in assuming a future trend in defence expenditures that would be in line with past trends in the GDP budget share. The consequence of these two assumptions in the year 2015 is presented below.



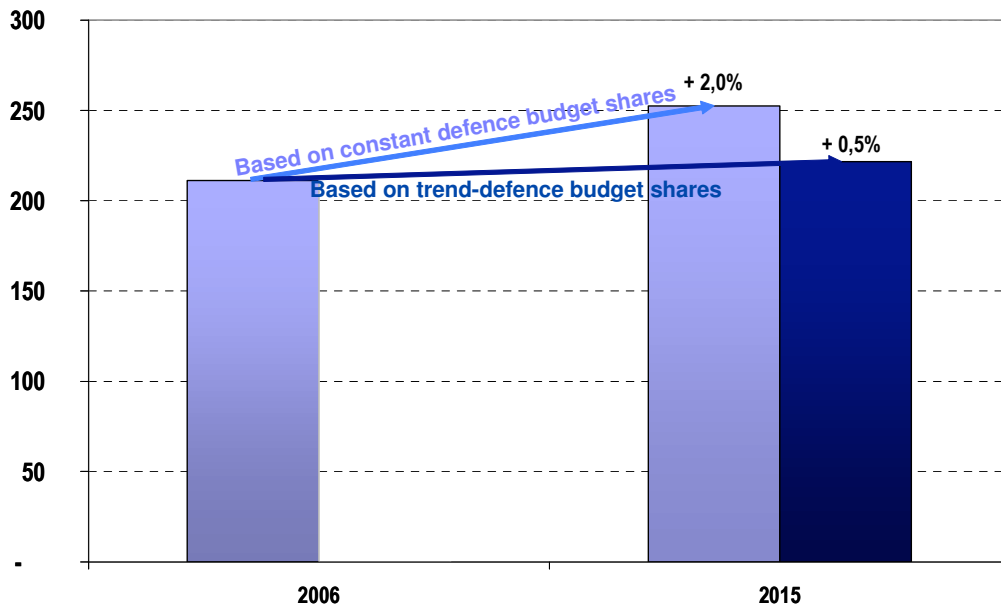
## European Defence Industry Anticipating Restructuring

Chart 16 : Defence budget as a % of GDP per country, in 2006 and two assumptions for 2015



Source: BIPE

Chart 17 : Possible trend in the EU-27 total defence budgets between 2006 and 2015, in billion € at constant 2006 prices



Source: BIPE





Given the assumptions made above, one finds that, in the future, the EU-27 defence budgets will grow between 0.5 and 2% per year in real terms (i.e. deflated by the overall price index). Once deflated by a specific price index that would more accurately reflect the faster rise in equipment costs than in overall inflation<sup>11</sup>, one sees that the overall trend in “real” defence budgets will likely remain negative.

At best, the defence budgets will therefore amount to 255 billion € in 2015, at 2006 prices:

- By 2015, depending on the trends in national budget spending, the share of expenditures on defence will be between 1.6% and 2.1% of total EU-27 GDP;
- This is equivalent to an annual growth of total defence budgets between 0.5% and 2% in real terms over the 7-year time frame (from 2008);
- The total value of 2015 budget at 2006 prices will at most be 250 billion €;
- A figure of 221 billion €, barely 5% above the 2006 level in real terms, is, however, also possible.

The consequence of these assumptions is that **budgetary pressures and rising equipment costs lead to heightened intra-EU and extra-EU competition.**

### **3. The key stakeholders**

The stakeholders whose strategic choices & actions will influence the future are:

- Governments of major EU producing (exporting) countries
- Governments of EU client (=mainly importing) countries
- Local governments
- US Government
- Governments of other (competing producing and client) countries (Russia, Japan, China, India)
- NATO
- European organisations and regulators: EC, EDA, OCCAR, LoI, etc.
- Private financial investors
- Foreign (non-EU) investors, subject to regulatory control
- System integrators
- Platform producers and assemblers
- Specialised subcontractors
- Commodity contractors
- Workers’ representatives, trade unions

All of these players presently influence, and will continue to influence, the future of European industry. Their influence comes from their status of stakeholder, of regulator, of client or of competitor.

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<sup>11</sup> This specific price index does not exist, however one knows that the inflation on defence equipment products is case higher than the overall GDP deflator.



Each of these stakeholders also pursues specific objectives. For example, clients will focus on the price/quality ratio, whereas national and local governments will be concerned by employment and activity trends in the region; companies seek to grow their size/market share; financial investors look for return on investment, etc.

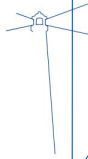
#### **4. The structuring variables that will influence the future**

Having identified the key stakeholders whose actions and strategies will shape the future of European defence producers and of their suppliers and subcontractors, the next step consists in listing the factors (other than the underlying structural factors listed above) whose outcome will effectively shape the future, and in defining how each of the stakeholder will influence the outcome.

The factors that have been identified are:

- The Common Foreign and Security Policy (CFSP) (a given in all scenarios)
- The (future) stance of European industrial policy for defence industries (also a given, consistent with the EU regulatory framework and the defence package)
- The (future) orientation of national industrial policies for defence industries
- The value and trend in (intra- and extra-EU) defence procurement (the underlying factors have determined the potential budget trends; from this one has to derive the trend in defence procurement...)
- Future changes in access conditions to non-EU markets
- Competitor strategies (risks related to new entrants)
- Ownership, control and conditions of access to key technologies
- Access to key competencies (HR)
- Structure of the industry portfolio (civil vs defence)
- Degree of aversion to risk of (private) financial investors (venture capital, restructuring funds, pension funds,...)
- Financial investors' time horizon and expected rate of return on investment
- Overcapacity problems / restructuring
- Efficiency (and amount) of R&D expenditure
- Labour market trends, risk of skill depletion/shortage, attractiveness problems, etc.

These various themes are all of major concern and interest to the stakeholders, hence each stakeholder will try to influence the outcome, i.e. how the situation unfolds. The list of corresponding objectives below illustrates how varied (and different) the stakeholders' objectives are: for all the objectives listed below one will find some stakeholders strongly in favour of the objective, and others opposed to it. The final outcome will depend on the players' willingness to compromise and on the relative degree of influence or dependence between players.



**Table 14 : Key factor or variable of influence for the future**

Key factor or variable of influence for the future	Corresponding objective
Foreign policy	1 Achieve European security of supply through acquisition of majority or golden share of strategic supplier companies
	2 Achieve National security of supply through acquisition of majority or golden share of strategic supplier companies
	3 Harmonise European defence procurement regulations
	4 Achieve security of supply through location of production facilities in "friendly" zones (preferably intra-UE or NATO)
	5 Fight for national autonomy with respect to choice of investments, programmes and procurement expenditure
	6 Defend the national champions' status of strategic companies (majority or full government ownership)
Objectives of the European Industrial policy for defence industries	7 Avoid duplication of expenditures
	8 Develop a joint industrial European defence base
	9 Achieve system interoperability
	10 Encourage pan-European acquisitions to optimise R&D efforts & increase likelihood of becoming a technology leader
	11 Increase efficiency of R&D
	12 Reduce over-capacities
Objectives of national industrial policies for defence industries	13 Reduce defence procurement expenditure
	14 Own (=buy) state of the art, top quality equipment integrating best available technology
Value and trend in intra-EU defence procurement	15 Externalise or privatise certain (presently state) functions (where private sector can organise these more cost-efficiently)
	16 Extend the list of material in the DITB that can be purchased within Europe
Value and trend in extra-EU defence procurement	17 Securitise companies in difficulty / ensure a steady flow of orders
	18 Increase exports and/or share of world markets
Access conditions to non-EU markets	19 Open external markets, including via offsets (ex: infrastructure and other equipment supplies/Africa)
	20 Locate production units in third country markets to access public procurement from those countries
	21 Increase list of material in DITB list that can be purchased outside Europe
	22 Gain access to third-country public procurement markets through greenfield investment or acquisitions
	23 Control costs, focus on productivity improvements, rationalisation & efficiency gains
Competitor strategies / risks related to new entrants	24 Increase sourcing of inputs from low-cost countries to reduce production costs
	25 Build Pan-European alliances to obtain preferential treatment of partner gvt vis-à-vis non-EU suppliers
	26 Increase amount of publicly financed R&D
	27 Use foreign ministry as a marketing office of the defence industry (through foreign relations in Africa etc.)
Ownership, control and access to key technologies	28 Control (and limit other's access to) key technologies
	29 Achieve/increase technology diffusion from the civilian to the defence sphere and vice versa
	30 Promote or develop partnerships or JV agreements to gain access to key technologies
Access to key competencies (HR)	31 Acquire best technologies through acquisitions
Rate of dependence on public contracts	32 Secure access to key competencies (through training, immigration policy, ...)
Degree of aversion to risk of (private) financial investors (venture capital, restructuring funds, pension funds...)	33 Smooth demand cycles through product/market diversification
	34 Shorten the development cycle of new weapon systems
	35 Increase the efficiency of the development of new weapon systems (through tighter management etc.)
	36 Share risks associated to new system development (through joint-investments, co-financing, PPP)
	37 Increase role of / open capital to private (financial) investors
Financial investors' time horizon	38 Achieve long term visibility for new orders (secure LT orders)
	39 Open companies' capital to private investors, including foreign investors but with policy control
Expected rate of return on investment	40 Achieve growth of activity and profits
	41 Stabilise or grow employment
Overcapacity problems / restructuring needs	42 Facilitate worker's professional mobility through training, outplacement etc.
	43 Externalise cyclical functions / jobs
	44 Facilitate geographical mobility of workers
	45 Increase competition
Efficiency (and amount) of R&D expenditure	46 Achieve critical size

Source : BIPE

## 5. Taking into account the objectives of, and relationships between, stakeholders

Although the stakeholders' positions are not necessarily of the yes/no type, being aware of the vested interests of the different stakeholders helps define a future scenario that is realistic or "likely", because it has taken into account the priorities of the different stakeholders and their relative degree of influence.

For example, assuming a complete opening of EU defence companies' capital to foreign investors without any form of control would be totally unrealistic because it would be opposite to the objective of achieving security of supply that most European governments and the EU as a whole consider to be a priority.

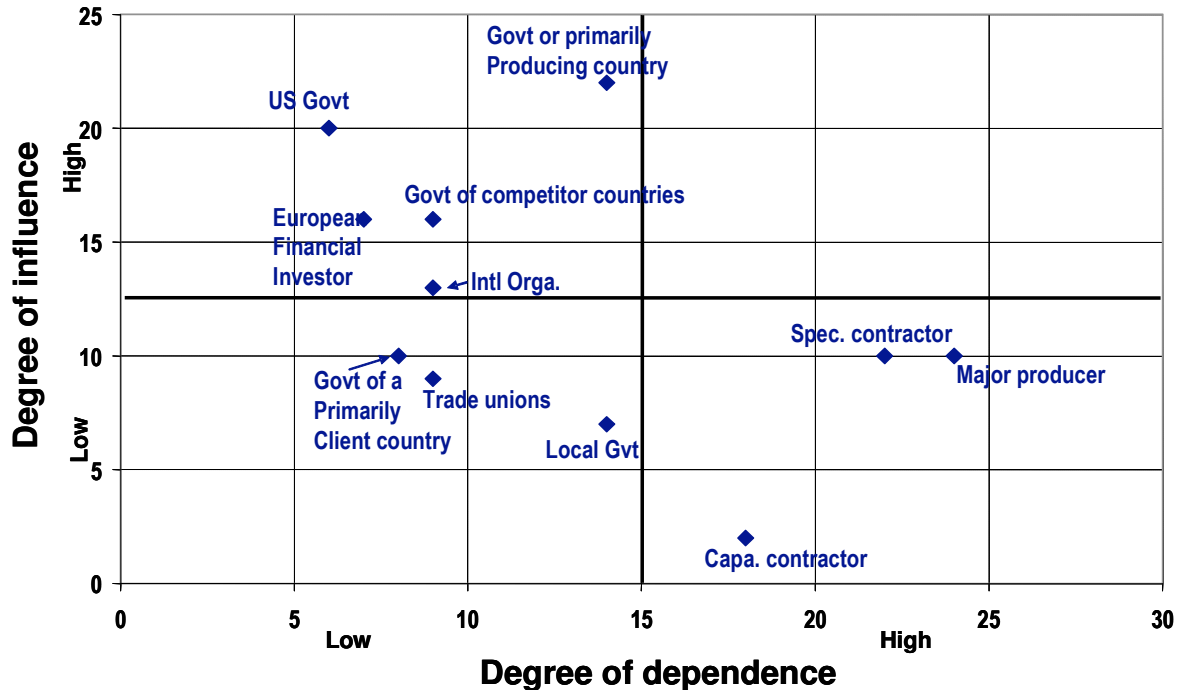
Understanding the relative degree of influence and dependence between stakeholders is also a key input into the scenario definition process. This assumes ranking the degree of influence/dependence between stakeholders on a matrix, and providing a value between 0 (no influence) and 3 (very influential) to each couple of stakeholder to reflect the relative degree of influence that one exerts on the other *in relation to their priority objectives*.



## European Defence Industry Anticipating Restructuring

Applying this matrix to the present situation of the EU defence industry yields the following mapping of influences/dependencies:

Chart 18 : Mapping of influences/dependencies between stakeholders



Clearly, in certain countries there are major producers that are more dominant than indicated in the figure above. Similarly, the influence of “governments of a primarily producing country” varies depending on the country concerned: the UK government for example has less influence on a primarily private defence industry than the French or Italian governments, whose governments are still the key shareholder of the larger defence firms. Yet, the representation above provides a good indication of the relative power of the national governments – as regulators, clients and sometimes shareholders – and the relatively small degree of influence – at present – of specialised contractors, local governments or even trade unions.

Clearly, changes underway in the industry will also impact the future positioning of the stakeholders, and their capacity to influence each other. For example, a rise in private investors’ stakes in selected key companies will impact the future strategies of firms – whether in terms of product specialisation, R&D development effort, market orientation or share of civilian/defence production. Similarly, the future trends in M&As will have an impact on technology transfers and the future specialisation trends of production in Europe versus in other areas of the world.

The consequence of the present positioning of the key players on the objectives is consistent with the finding of previous chapters, whereby:

- ❖ National strategies dominate in terms of industrial organisation;
- ❖ There is duplication of production capacity and inefficiency of overall R&D spent;
- ❖ Commodity contractors are not the key focus of (national or EU) public policies;
- ❖ Trade (workers) unions and local government only play a minor role in shaping the industry’s future;



- ❖ Problems of overcapacity and loss of the technology race lead to losses in competitiveness, and losses in market share vis-à-vis the US. To counter this, European producers are relocating selected activities in non-EU countries, or have to accept to pay high compensations to get contracts abroad. This also explains why one sees reductions in production in Europe, some plant closures, etc.;
- ❖ There is a need for some positions / priorities to change, and for new alliances to be built.

**In the next section, the scenarios that will be defined will be differentiated based on which alliances are built, and how the relative positioning of the key players changes.**

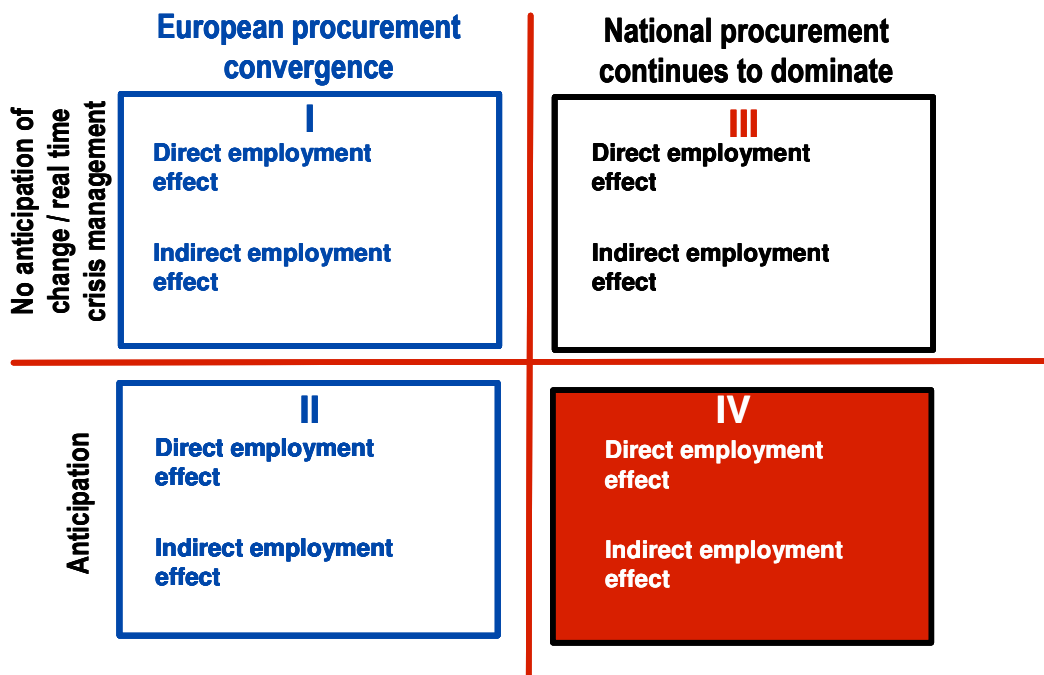
## 6. Four possible scenarios for the future of European defence industries

Various entry levels are possible for the scenarios:

- ❖ Different trends in demand, or in procurement policies;
- ❖ Different changes in the organisation of supply;
- ❖ Changes in shareholding structures;
- ❖ Differences in the degree of « anticipation » and preparation of change, versus «real-time» crisis management.

The chart below illustrates the chosen scenario framework. This reflects different strategies of the key stakeholders, with a particular focus on the internal consistency of the scenarios.

Chart 19 : The scenario framework



Source: BIPE



Four scenarios have been envisaged, and their impact on employment quantified.

The two scenarios on the top line, numbered I and III respectively, relate to different trends in public procurement strategies and in the companies' strategies. In both cases, however, firms are assumed to adjust their human resource policy as changes occur, instead of taking a more voluntary approach to prepare change.

In the other two scenarios (numbered II and IV), one assumes the same public procurement strategies and company strategies as in the first two scenarios, however one assumes that these have been "anticipated" and prepared by companies and the other stakeholders (local governments, trade unions, national governments, etc.) in order to minimise their negative social effects.

Below, we describe the assumptions which characterise the first two scenarios.

### ***6.1. European procurement convergence and set-up of a voluntary industrial policy, but no anticipation of change***

This scenario (scenario I in the graph above) assumes a voluntary trend towards greater European procurement convergence, whereby member states' procurement would be coordinated at EU level and eventually delegated to a centralised European defence procurement agency, at least for several types of expenditures. The Agency in charge of EU coordination would strongly simplify controls on intra-EU equipment circulation, and define a harmonised EU framework for, and regulate, offsets.

The move to coordinated procurement would be complemented by a European Small Business Act or an equivalent to this, which succeeds in achieving increased concentration at Tier 2 and higher levels.

In this harmonised EU framework, **European preference** is granted in order to retain specialised know-how, and avoid too rapid internationalisation of capital (from US, China, ...), and for security of supply reasons. This is, in fact, seen as a necessary condition for the key stakeholders to accept the early move to harmonised EU procurement.

Indirectly, this fosters the extension of dual firms by opening access to contracts to companies primarily in civilian area.

This scenario goes along with a re-organisation of armed forces at EU level, lowering the overall equipment needs of a coordinated EU defence force. There is less duplication of expenditure, hence more resources are available to foster (coordinated and cooperative) R&D and regain some of the ground lost in the technology race.

Coordinated R&D efforts in turn means a reduction in overall financial spent (no duplication of efforts). This makes it possible both to develop new programs, and to allocate part of the saving to other (non-R&D related) purposes (such as training, or financial assistance to industrial redeployment in affected regions, ...). Yet, the reduction in overall amount of R&D spent also implies a reorganisation of the test and expertise centres at EU level.

In this framework, regions play an increasing role in industrial development, through decentralisation and the subsidiary principle, while EU policy focuses on promoting a pooling of technological capabilities between the major producing countries, in order to:

- Ensure that synergies are developed between national defence R&T spending;
- Generate economies of scale in development and production through dual-use technologies and applications.



## European Defence Industry Anticipating Restructuring

In addition, innovative financing of capital investments are put in place which facilitate mergers at lower tier levels.

The results of this scenario are:

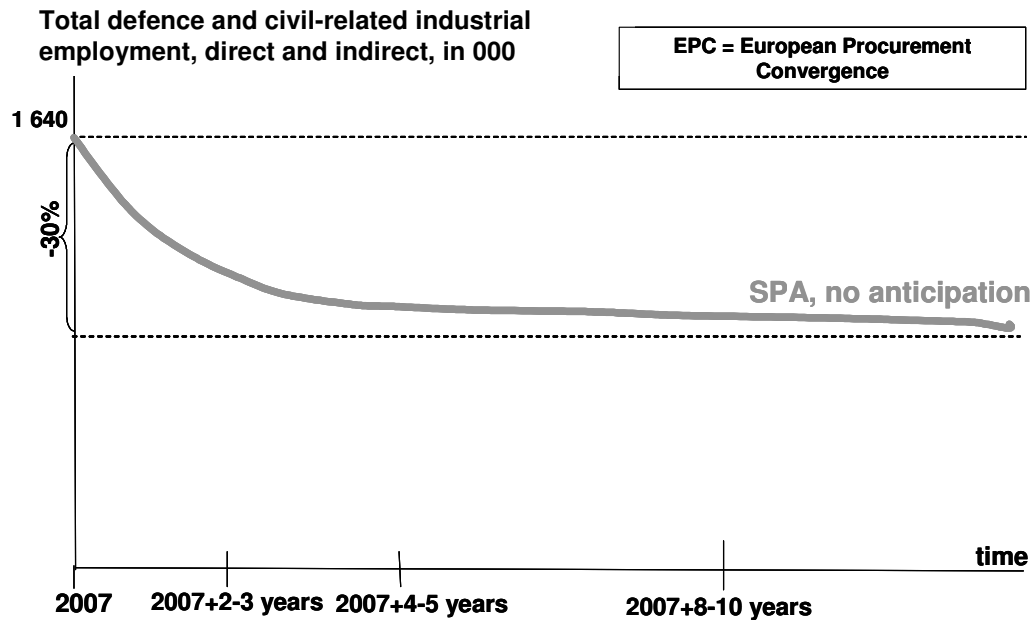
- An acceleration of restructuring along pan-European lines:
  - ▶ This is true mainly in the naval and land defence sectors, but also in electronics and aerospace (future of Finmeccanica, for example), and for lower tier levels.
- The progressive Europeanisation of company ownership, leading to a redeployment of activities along national lines, through market driven changes in regional and country specialisations:
  - ▶ Emergence or strengthening of regional defence « clusters », their strength depending on the degree of anticipation and support;
  - ▶ Weakening of others, requiring transformation.
- Improved ability to negotiate better transatlantic defence trade cooperation and technology transfer conditions, leading to a slower decline or an improvement in European producers' world market shares;
- R&D efforts are re-deployed: there is less duplication of programmes, less waste of resources.
- Transatlantic cooperation is improved, including through JV, partnerships or acquisitions:
  - ▶ This is especially true if improved conditions for transatlantic defence trade are put in place (history shows that because of the persistence of national strategies, US and other non-EU producers were able to increase their presence in Europe and increase competition for EU producers in other countries).
- The ability to reap economies of scale in development and production increases the price competitiveness of equipment, which improves Europe's world market share.
- Complementarity between civilian and defence markets (becomes) develops.
- Yet, there is no shortening of development cycles, and no major change in the cyclicity of demand.

The chart below illustrates the likely trend in employment in this early move to a Single European Procurement strategy. The employment whose trend is illustrated is **total employment in the defence and related industries, i.e. including employment in the civilian parts of the main defence contractors, as well as in related (subcontractors, partners, suppliers) industries.**

Starting from the present situation, and keeping in mind the fact that employment in defence industries has been halved between 1993 and 2003, and decreased further between 2003 and 2008, one expects employment in this scenario to fall by close to 30% over the next 5-6 years. The duplication of R&D efforts in particular in an environment of limited resources leads to Europe's falling behind in the technology race, and not being able to maintain employment in key areas beyond the next 5-7 years. The trend is aggravated by the fact that a large part of the workforce will reach retirement age in the coming years, hence the absence of anticipation does not allow the transfer of skills to be organised in an effective way.



Chart 20 : Trend in employment in the European Procurement Convergence (EPC) Scenario



Source: BIPE

In summary, in this scenario:

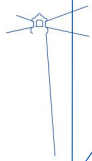
- Employment in the EU defence industries continues to fall;
- There is a risk of skill depletion, which goes against the objectives of the EU and the individual member states;
- National governments' efforts are redeployed as procurement decisions are coordinated at EU level and centralised: other priorities absorb the scarce public resources and do not allow to maintain the EU procurement policy to stabilise employment levels;
- Regions seek to take over, yet they also have limited resources and manage crises as they unfold; alliances between the trade unions and regions are needed in order to minimise the negative consequences at local level.

## 6.2. Early move to European procurement convergence and set-up of a voluntary industrial policy, with anticipation of change

In this scenario, we also assume an early shift to procurement convergence, however this is accompanied by a set of measures to prepare and anticipate change. Some of the savings made possible by the avoidance of duplicated R&T spent and the maintenance of excess capacities are **re-allocated in order to reduce the negative social effects thereof**:

- (Government) budgetary savings are oriented towards training, facilitating mobility, supporting new business creation, R&D etc.
- Although overall employment levels in the defence activities declines, anticipatory actions increase the likelihood for workers that were made redundant to find another job or start a new business: some of the jobs lost in defence are thus redeployed in other (civilian) activities;



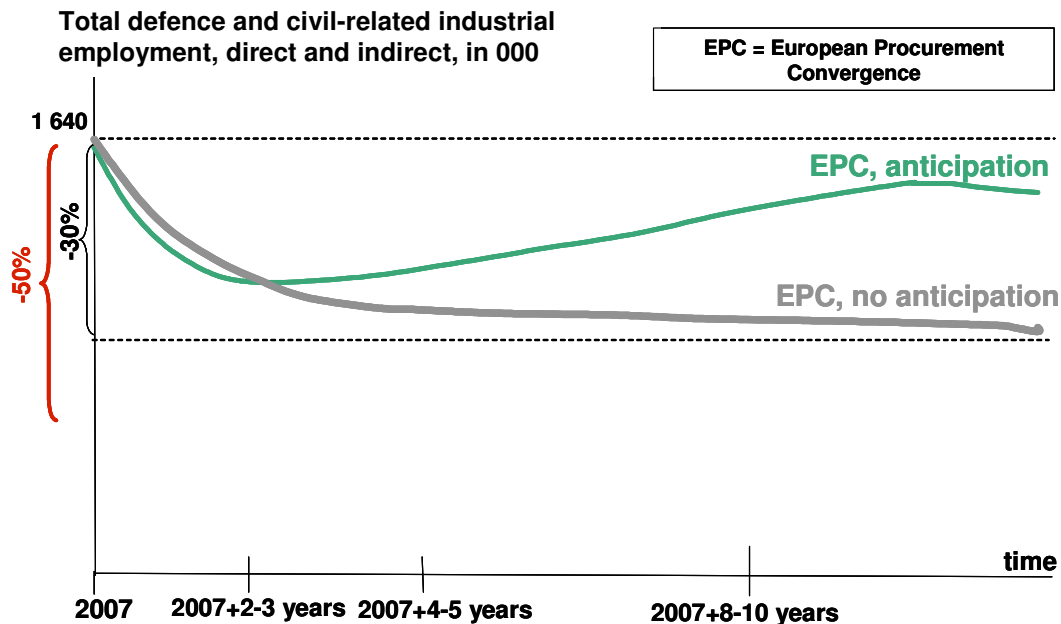


## European Defence Industry Anticipating Restructuring

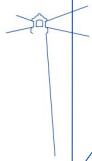
- Convergence of procurement at EU level reduces the national governments' involvement in the companies' strategies and leads to more autonomy of the defence contractors. These gain a greater control of their value chain (note: this is already the situation in the UK, but it develops elsewhere) and stimulates restructuring at lower tier levels (as is the case today with EADS' Power 8 plan in the civilian aeronautics market);
- Because competence needs are identified and investment in HR takes place, the risk of skill depletion is much less than in the first scenario;
- One foresees an important role of the trade unions and/or regional governments to enhance the attractiveness of regions for «industrial defence and/or high tech clusters», and support the transformation of regions in decline.

The chart below compares the likely employment outcome in this scenario with that in the previous scenario. Again, the employment trend illustrated is that of **total employment in defence and related activities**, and not that in the defence parts of the prime defence contractors.

Chart 21 : Trend in employment in the European Procurement Convergence (EPC) Scenario



Source: BIPE



### **6.3. National Procurement strategies continue, no anticipation of change**

In this scenario, we assume that national governments in Europe continue to privilege national procurement strategies. Yet, budgetary pressures and rising equipment costs lead to heightened price competition. As a result, competition between mainly exporting and mainly importing countries leads to intense intra-EU competition amongst defence producers, and heightened competition with non-EU producers.

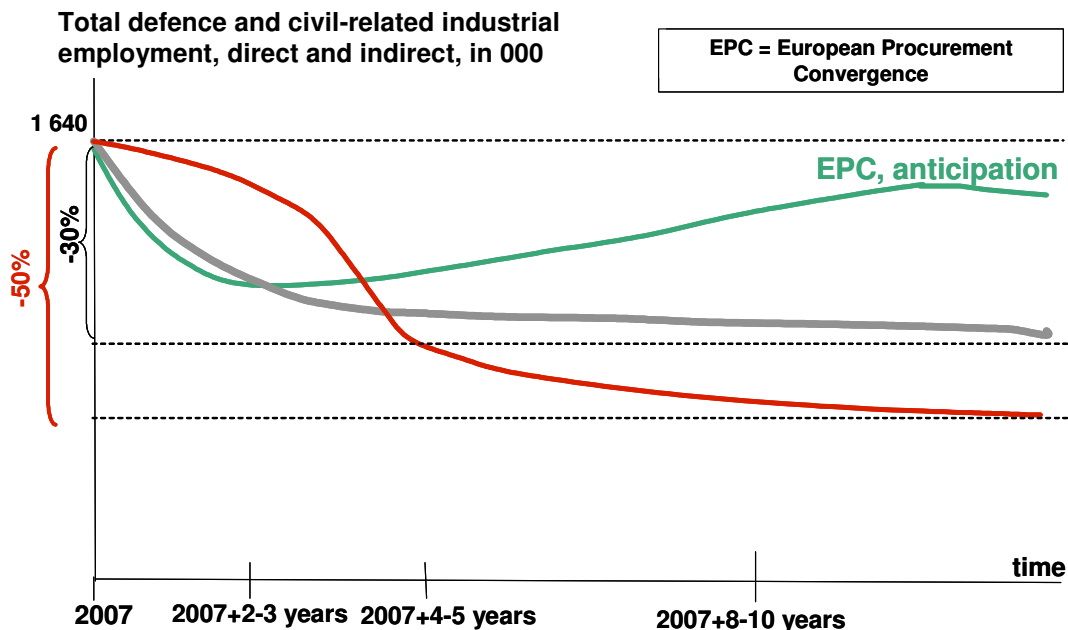
In this (unfavourable) context for European producers, the EU market penetration of non-EU producers continues to rise, as it has done in recent years. Offsets are granted to the client countries – including in the client EU Member States that are presently not primarily producing countries, such as Poland, or to other EU partners such as Turkey. This adds to already existing overcapacities.

Yet, as national strategies continue to prevail, restructuring remains organised primarily along national lines. Hence, duplication of R&D efforts and new programmes continues. This eventually leads to the closure of some capacities. Markets progressively become more Europeanised, but at a much slower rate than in the previous scenario, and with a higher penetration of non-EU capital.

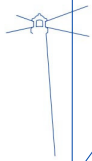
In the “no anticipation of change” version of the scenario, market failures in labour markets lead to state intervention to ‘correct’ such failures. Resources are, however, limited, and competition and market rules make it impossible for policy makers to stabilise employment in the long run: in particular, “natural” exits on early retirement or other schemes are encouraged, which end up depleting skills and capabilities to keep up the technology race.

The chart below shows the likely trend in employment in this scenario.

**Chart 22 : Trend in employment in the Continued National Procurement Scenario, without anticipation**



Source: BIPE

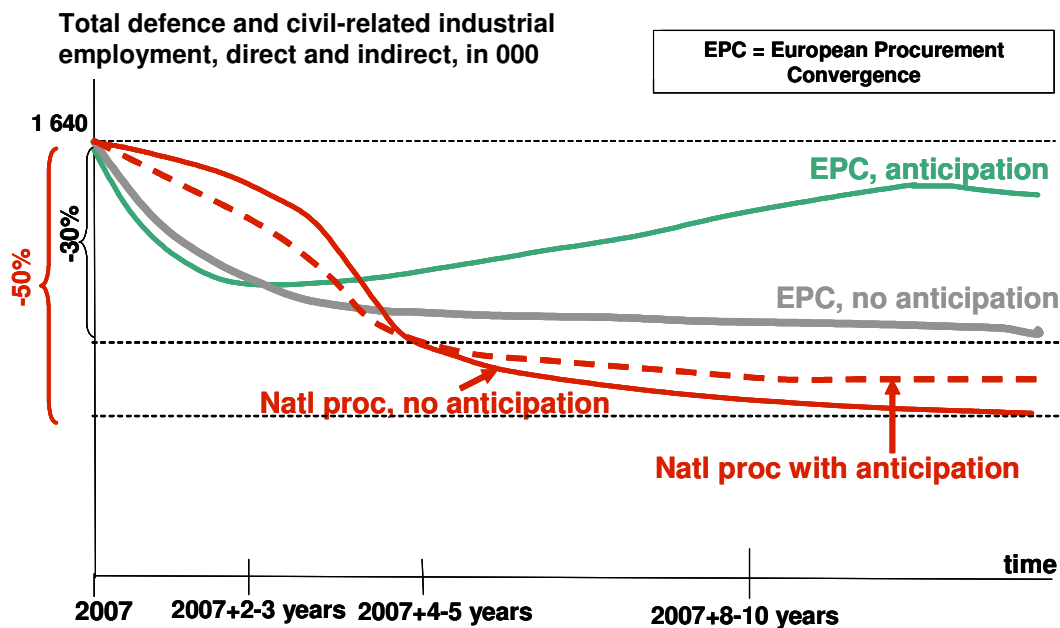


#### 6.4. National Procurement strategies continue, change is anticipated

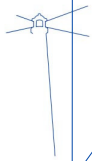
There is a real question as to whether this fourth scenario is realistic. Indeed, the preparation of change in this scenario would reduce the negative consequences of redundancies happening in the previous scenario, however the scenario does not allow for the constitution of financial resources to accompany change. The allocation of resources to minimise the social effects of restructuring would be at the expense of other budget lines – such as social protection, education or public transport infrastructure. This will eventually lead to reductions in the overall amount of funding available for new programmes or civilian R&D financing, at the risk of losing competitiveness versus other world competitors, including emerging Russia and China. Indeed, the duplication of expenditures at EU level that this scenario implies in the first years of the horizon, combined with pressures on other budgetary resources, severely limit the kinds of actions that can be put in place by the national and/or local governments for training, redeployment, etc.

It is therefore probable that, under this scenario, the future employment trend would be similar to that shown above until the 4-5<sup>th</sup> year, and then would accentuate the downward slope. However, the competitiveness of EU industry will have been severely hampered and the range of civilian applications that can develop would be less than in the first two scenarios, where R&D resources are redeployed much faster.

Chart 23 : Trend in employment in the Continued National Procurement Scenario, with anticipation



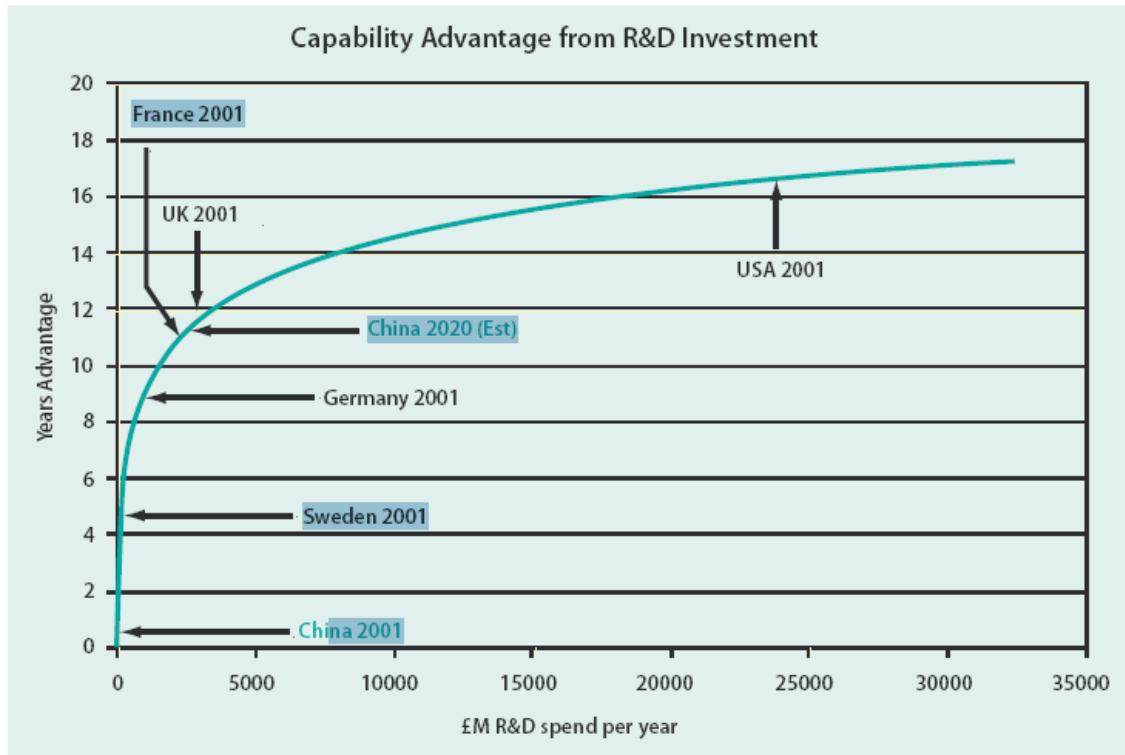
Source: BIPE



## European Defence Industry Anticipating Restructuring

The next figure illustrates the link between the level of R&D spent and the technological competitive advantage of countries, expressed in years. The chart shows that a reduction in the R&D financing capability of European governments due to the rise in other government expenditure categories (pensions, health, etc.), will “cost” Europe in terms of technological edge.

Chart 24 :



Source: UK Defence Industrial Strategy, December 2005



## VI. Is the monitoring of restructuring possible, and if so how?

On July 6, 1998, the ministers of defence in France, Italy, Spain, United Kingdom, Sweden and Germany signed a common letter of intent (LoI) regarding actions to facilitate the restructuring of the European defence industry. A common cooperation agreement was then signed on the 27th of July 2000 and, on the 1st of July 2006, the common European market for defence equipment for 22 EU member states was opened. The background to this development is that the conditions for the European defence industry have changed considerably. The security policy map has been redrawn and the emphasis of European defence policies is more and more directed towards international cooperation and crisis engagement.

This movement has had important implications on the European defence industries. Research and development costs for new defence systems have increased. The defence industry is developing towards a high technology sector. The boundary between military and civil production is more blurred than before and development and production within the industry is increasingly taking place across national borders. At the same time, European member states have considerably decreased their defence budgets. Budgets for procurement of equipment, research and development have shrunk. This has resulted in over capacity and rationalisation within the defence industry. In other words, there has been a strong pressure to restructure and rationalise the European defence industry and to increase international collaboration to rationalise the procurement of equipment.

One of the consequences of this development has been a strong consolidation of the European defence industry. Three major defence companies have been created: British Aerospace Systems (BAE), European Aeronautics, Defence and Space Company (EADS) and Thales. There were also considerable changes in the ownership structure. Cross-border ownership is more and more common. In summary, and as illustrated in the earlier chapters, the European Defence industry is going through major changes and faces further restructuring processes, which will have important effects on employment in affected companies, regions and member states.

Regarding restructuring, actions implemented generally greatly depend on the crisis period and aim at managing it. If there is an obvious need to manage crisis, the will to limit both their frequency and scope suggests a need to focus on actions further upstream in the process, often referred to as “anticipatory” actions, and on actions further downstream such as assessment and capitalisation. Anticipating change and monitoring restructurings henceforth requires the implementation of:

- **Anticipatory actions**, designed to prepare for the changes to come:
  - Anticipation is a form of action that aims to act on the two main transformation vectors of restructurings in periods of crisis: the lack of time and lack of resources of the actors concerned. Three types of actions favour the development of a permanent ability to change: those that aim to strengthen forecasting, those related to employability and those related to social dialogue;
- **Preventive actions**, designed to reduce risks and dangers when the forecast break-ups occur:
  - Prevention aims at limiting the extent and consequences of the break-ups generated by restructuring. Four types of actions are involved here: 1) early warning and transparency on decision taken; 2) measures involving the number and types of lay-offs to be made (either in the main firm or in subcontracting companies); 3) those concerning the methods of selection of laid off employees; and 4) those concerning the preventive management of the effects of lay-offs on persons and regions.



- **Curative actions**, aimed at helping actors manage the residual consequences of break-ups and the transitions that follow:
  - Repair aims to eliminate the dangers to which the persons and regions that are subjected to restructuring are exposed. Two types of actions are to be considered here: support actions for employees and subcontractors, and redeployment actions for the affected regions;
- **Evaluative actions**, aimed at measuring the results obtained and organising exchanges between pairs and multi-actors, to favour learnings:

Assessment and learning from experience appear to be key to a coherent mechanism for job management in restructuring situations. This assessment covers three complimentary aspects:

- Norm-referenced assessments as results measurements
- Quantitative and qualitative assessments as piloting tools
- Feedback as learning tools

However, this is also the dimension that generally presents the most manifest deficiencies.

Restructuring refers to a vast set of often very different situations which requires different responses. A merger, a closing down of a plant or research centre, a shift in a technology or product, all these events may trigger restructuring processes that unfold very differently in time and may require different and sometimes very specific settings, arrangements and tools to be dealt with. Nevertheless, there is a common feature to all restructuring processes: they generally trigger abrupt break with the previous stability and existing routines which entail significant risks for men and women, regions and companies. Regulation and monitoring are needed in front of such a phenomenon for both economical and social reasons. The best way to understand how it can be dealt with is to capitalise upon innovation produced by the actors themselves when facing restructuring.

Companies are not identical in the face of restructuring: differences in size, resources, sector, independence or dependence (order givers / subcontractors) are some of the factors defining diversity. All, however, are responsible for the restructuring decision, and all make choices concerning the anticipation of economic developments and sharing of this information; the announcement of the restructuring decision once it is confirmed; the restructuring strategy to be adopted; where the choice entails layoffs, the selection of the persons laid off, the level and methods of involvement in the preparation or management of the reclassification of employees; and regional re-development. The quality of restructurings depends largely on the quality of choices made in these different areas.

Hereafter, we present:

- Two brief case studies focusing on two specific innovations, one in Sweden (SAAB) and one in France (Thales) since they give an example on what can be done specifically to anticipate restructuring.
- A review of cases studies related to other industry and to companies belonging to other sectors to draw up lessons from experience. Methodologically speaking, this is not a problem insofar as the restructuring “tool box” is well known and common to most of the economic activities, but each time it has been possible, we have tried to choose examples in the sector itself or in comparable sectors. The main lessons of these case studies are summed up in boxes and presented according to the above grid.
- A set of recommendations to properly anticipate and manage restructuring in the defence industry sector.



## **1. A focus on two innovations in the defence industry**

Anticipating change depends not only on attention paid to weak (or less weak) signals on the market, but also on sharing information long in advance, permanent agreements with unions and attention paid to employees careers and paths. Below are two examples of this kind of anticipation in which agreements have played a major role.

### ***1 – Anticipation of change in the defence industry: the Thales Case<sup>12</sup>***

As many world companies, Thales, a world leader in electronic systems and equipment, has experienced dozens of restructurings from the early eighties, and has constantly tried to find new answers to deal with them. As most of the French based companies, Thales first relied on early retirement schemes (first used in this group in 1982 and still used today) before developing active solutions based on internal mobility, training, outplacement and redeployment. Based on this experience, at the end of 2006, an agreement dedicated to anticipating change has been signed at corporate level between the management and 4 (out of 5) unions representing an overwhelming majority of the Thales employees. After a brief presentation of the rules governing restructurings in France (1) we'll present the agreement (2) and discuss some of its main features (3).

### **1. Restructuring and legal rules in France**

As in all EU countries, French employers can reorganise the company structure in accordance with the principle of free enterprise. However, this reorganisation is subject to rather stringent rules aimed at protecting other stakeholders' interests. Regarding employees, the law states that the employer must explain why redundancies are considered and must seek "to avoid redundancies or limit their number and to facilitate the redeployment of workers whose dismissal cannot be avoided" (article L321-4-1 of the Labour Code). Regarding territories, when a company proceeds to collective dismissals which "affect - by their impact - the equilibrium of the territory or territories where it is implanted", the company and the state representative (the Prefect) must reach an agreement in order to "put into place a series of measures that would permit the development of new activities and attenuate the effects of the intended restructuring on other businesses of the territory or territories concerned" (article L321-17 of the Labour Code).

In other words, when restructuring occurs, French employers must:

- look for other solutions, if any, that would allow avoiding dismissals
- try to avoid them by fostering internal mobility
- help redundant employees to find a new job (outplacement)
- foster redeployment in the local labour market hit by the redundancy

Until very recently, only the Works Council – which is a purely consultative body - was involved in the official information and consultation procedure in France. So called "agreements on method" have been introduced into the labour code since 2003, to reintroduce trade unions directly into the process and foster negotiation (article L320-3). In 2005, a new kind of agreement (article L320-3 of the Labour code) has been introduced aiming at fostering negotiation on "anticipatory management of human resources" (gestion prévisionnelle des emplois). The Thales agreement is an example of this kind of agreement.

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<sup>12</sup> This based on an analysis of the Thales Agreement and interviews with Anne de Ravaran (Corporate human resources legal director) and Guy Henri (Corporate union representative – CFDT)



As usual when international comparisons are concerned, this brief reminder of the French rules describes a regulation which is both specific and common. If the use of law to regulate social dialog is very French, the main above described features are consistent with the prevalent European practices which have three main characteristics:

- ▶ They allow the decision to be **debatable**, because actors have meaningful access to the relevant information, which fosters shared diagnostics and the search for possible alternatives.
- ▶ Second, they try to provide **fair criteria** to select those who will be made redundant.
- ▶ Third, they foster the organisation of **transitions** based on company and union involvement: the firm is obliged to contribute to measures for helping redundant employees, and the unions are entitled to negotiate them.

## **2. The Thales joint “group agreement on anticipation of employment evolution, professional careers and training”**

The Thales agreement is divided in four parts. A brief introduction recalls why it has been setup; the first chapter deals with retirement for older workers; the second with anticipation of change and the third with what has to be done when change knocks at company’s door. We’ll focus here on the two last chapters.

The second chapter is dedicated to “*anticipation by a prospective management of employment*”. The underlying rationale is presented in the very first paragraph and it may be useful to quote it: “*Business climate and companies or markets change require qualitative and quantitative adjustments in terms of employment. Anticipation of these changes, development of social dialog, information sharing on these transformations with employees ought to work towards building tools at employees’ disposal to secure their job course. **The very notion of prevention is a major axis of this agreement.** Anticipating change is to commit oneself to identify possible dangers, to prevent their consequences and to seize opportunities when appearing. Therefore, betting on anticipation entails allowing everyone to prepare for his or her future career by a better information, mobility promotion and access to training enhancement*”.

What is done to anticipate change and build tools to deal with it is the following: each year, the group strategy is presented to the European works council as well as to the “group level commission for anticipation and formation” (hereafter “Glecaf”), the later being created by the agreement and paramount to anticipation. Made of 10 trade unions representatives and 10 management representatives the commission is the place where, three times a year, in-depth exchanges take place. From the information given (group strategy, forecast on skills required, evolution of professional families, training plans ...) the commission is in charge of discussing what has been planned and formulating its own propositions. The same kind of commission is also created in each group company and, in each unit, a correspondent is appointed.

The commission analyses a map of the group employment by trade and social category, a prospective (three years) analysis by professional family, the group strategy and industrial choices, a list of units, local labour markets and activities under threats for the next three years, a long term analysis of technological changes, ages pyramid by trade and a list of trades which need major adaptation plans.

Strategic trades and trades under threat are identified and arrangements are made to find bridges between threatened or wanted trades and the other existing trades. Afterwards, these analyses are communicated into the group to managers, social partners and employees.





To entitle everyone to prepare its own future, each employee willing to attend training is entitled to ask for it and if access is denied two years in a row the point is raised during the “professional development meeting” which takes place every year between a given employee and its manager and the report of this meeting is transmitted to the local commission. A career audit may be provided to employees after 5 years and every 10 years – and each time important change may be forecast for a given trade – skill audit will be offered to each employee. Every year a “professional development meeting” will take place for each employee.

Beyond this anticipation setting, tools exist to make sure solutions may be found. Provisions are made to help geographical mobility but the **main effort is on professional mobility** (moving from one job to another) using:

- skills audit,
- training,
- work derived experience validation,
- guardians to help employees during their move.

Provision is also made to help those who want to set up a new business to do so.

The agreement third chapter is dedicated to “ease adaptation by an active employment management when necessary”. It tells what has to be done when economic problems may be forecast or when technological changes will entail change in employment and skills. This is called “structured active employment management” (hereafter AEM) in the agreement and relies on two main devices: and information and consultation procedure on the one hand, and a full range of measures that may be chosen by employees on a voluntary basis. The agreement states that a social plan, i.e. compulsory redundancy, may be implemented if, and only if, it becomes obvious that those measures don’t allow dealing with the situation or if unplanned events suddenly arise.

The information consultation procedure is the following. In a given subsidiary, the “AEM phase” begins with a consultation on economic forecasts. Unions are entitled in this context to call an expert in to help them to understand the situation. After having checked that no other solution could be implemented, three measures are opened to volunteers: chosen part time, internal (i.e. inside the group) and internal (i.e. outside the group) mobility.

Part time is fostered by two means. On the one hand various social protections (retirement, health, unemployment...) given to those who chose it, are the same as for full time employees. On the other hand protection against any discrimination is provided by a joint commission in charge of monitoring the measure. Internal mobility is taken in charge by “forum opportunités (opportunities forum)” an internal unit dedicated to help employees willing to move from one group unit to another. This device has been set up long ago in the Thales group and is well known from employees which can access to it from their desk computer.

External mobility relies on two innovative tools, both used only when an AEM phase is opened:

- The “job mobility leave” allows an employee to work for another company during a predetermined span of time. At the end of this leave, the employee may chose to stay with the new employer or to come back to Thales.
- The “tripartite outplacement agreement” allows an employee to work for another employer while beneficiating of a 12 month right to decide to come back into the Thales group. In case he or she decides to opt for the new job a payment is due to the employee



Both of these tools acquire their full efficiency and meaning in a context where cooperation is looked for with other employers, local public employment service and local public services, in a given local labour market. In the agreement, they stand aside with redeployment measures which are usually referred to as “redemption under L320-2 labour code article” (see above §1).

### **3. Comments:**

A full blown analysis of the Thales agreement is well beyond the possibilities of this study but three striking facts must be mentioned.

- More than ten different kinds of tools or devices lie in this agreement (skill audit, training, work derived experience validation, job mobility leave, tripartite outplacement agreement, opportunities forum, group level commission for anticipation and formation, structured active employment management, redeployment schemes, geographical mobility schemes, internal mobility schemes ...), each of them requiring knowledge and experience to be properly implemented and managed. Here lies the first important comment that can be made on this agreement: it capitalises upon the experience acquired in dealing with restructuring by both Thales management and unions during the last 20 years or so. From experience, they have learnt **how** to use that a given tool or device and to **recognise** the kind of situation or problem it was adapted to. Regarding this accumulated experience, the whole agreement is an attempt to find a group level new approach of change based on anticipation using the tools previously built and giving them the right place in the process.
- It is very interesting to note that the very same tools used to help employees to develop their employability are also the tools that allow management to spot expertises and rare skills. In other words, in an industry where knowledge and technology are of prime importance, paying attention to employees' employability is not only socially responsible but also business efficient.
- The importance of permanent social dialogue at company level is well known but it may be learnt from this agreement two facts. First its scope has to cover the various aspects of company life, including strategy. Second, social dialog and information sharing are in themselves tools for anticipation. In other words, anticipation requires both technical skills and expertise, and the use of social dialogue as a tool to develop shared diagnoses and share responses and enhance their acceptability by the various interests represented.

## ***II – Anticipation of change in the defence industry: The competence shift program at SAAB Microwave Systems<sup>13</sup> in Sweden***

SAAB Microwave Systems (SMW) is a high tech company which is highly dependent on military investments. As the Swedish defence has gone through extensive changes, there have been expectations of significant changes in the demand for SMW products. In particular there was an expected shift towards more civil production. It was projected that this would incur changes in the composition and competence of employees. 55% of the employees in the company had a higher education. There was also a need for the development of new skills and a need to hire workers with new competencies, while workers with obsolete skills were to be phased out.

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<sup>13</sup> This example is based on interviews with Annica Fornäs, HR Director at SAAB Microwave Systems and a case study by Emma Gustavsson & Sara Johansson (2004).



In order to solve this equation, in 2003, a **competence shift program** was introduced. The objective was that 200 workers would leave the company voluntarily. However, during the course of the program the conditions were changed and in December 2004 around 500 workers had left the company and 100 people were newly recruited. In total the number of workers was reduced from 2000 to around 1600 people.

The company had the vision to be “a company with the right dimensions, with right people on the right place and on the right time”. In the competence shift program the reduction of workers was to be made voluntarily, without using notice of dismissal according to the law.

## **1. The Process**

In the beginning of 2004 all employees were informed of the changing situation of the company. They were also informed about the alternatives available for those who chose to leave the company, and that the decision to stay or to leave had to be made before the end of August 2004. During this period the idea was that the employees should reflect on their own situation and the situation of the company. To support this reflection employees were offered eight coaching conversations with their closest superior. The role of managers was put in focus, because the situation was regarded as putting new demands on managers asked to move to a leadership style involving coaching rather than being directive in relation to employees.

SMW decided that managers should coach employees to assist them in making up their mind about the future. As a preparation for the coming coaching, the company used the outplacement company Right Consultants to train managers in a coaching leadership style. Managers were trained during two days in three stages. The first stage was concerned with understanding change. The second was to learn how to provide feed-back and the third was an introduction into coaching leadership. During the process managers had the opportunity to go through coaching themselves. The purpose of coaching managers was to support them in their meetings with employees. Coaching was described as an approach to leadership which means that employees make their own choices. It also means that one should assume that employees are grown up, mature, capable and responsible for their own choices. Coaching meetings should not have predetermined outcome or agenda, but it is nevertheless a meeting with a goal: to support the individuals' decision making. **It was emphasized that managers should not point out any employee.** To support Managers, they were provided with a conversation guideline, a number of information brochures and the collective agreement.

According to the conversation guideline, managers should hold eight meetings with each employee in order to identify the individual's expectations of the future. Each meeting should take around an hour. The first two conversations covered the business situation of the company, employability, competence needs, the future and the employability of the employee. The following six conversations dealt with how the individual regards his/her future. The basis for these conversations was worklife balance, objectives and purpose and help to achieve “what you want to do”. All eight meetings were held between January and May 2004. After that each individual set up an action plan. The action plan was to be completed in August 2004. It consisted of the conclusions of the previous conversations and the individual's choice for the future. Thus, the third step implied that the employees made a decision to stay or to leave the company.

## **2. Results**

Around 400 employees chose to leave the company. 60 employees were offered early retirement and 42 accepted it. Among the employees leaving the company, 18 were regarded as “key contributors” (some of them were put in a 2 year quarantine, i.e. agreements were made so that they could not start up their own competing businesses or sell back their labour as consultants.)



Those who left the company were offered a 12 month program with full salary and preparation to take another job. Management estimated that the average cost of the program was 25% lower than if traditional dismissal procedures had been used.

### **3. Concluding reflections**

A possible effect of the program may be that the management training means that the company had a stronger position after the restructuring was made. Managers were more attentive to employees and those who stayed in the company had made so by an active choice. Another important aspect of the program was the reduction of lead time.

The coaching of employees towards an action plan, meant that employees' preparation for a new situation had to start a long time before they actually left the organisation. But in this way, employees already had a plan of what to do when they start their dismissal period.

It should also be noted that the trade union took an active role in this program. There were never negotiations between the employer and trade union representatives. Instead they had common meetings and co-operation to inform each other in each stage of the process. Trade union first believed that there was a hidden agenda, but in general the relationship turned out quite well. Trade unions were asked to listen carefully to employees and bring up any issues or concerns immediately, rather than wait until the end [taken from Gustavsson & Johansson (2004)].

## **2. Anticipation of change in the defence industry: Learning from experience**

In this section we analyse and sum up various case studies dedicated to the monitoring of change processes, highlighting actors' roles and useful settings or arrangements.

### ***1 – Anticipatory actions***

Anticipatory actions are related to uncertainties. Restructuring could (may) occur, but no decision has been taken in a given company. Different types of devices (arrangements? Settings?) have been identified as useful in this field. Their common quality is that they haven't been specifically set up to deal with restructurings, but that they are all useful in case of restructuring. In that sense, they constitute a set of "tools" that should be fostered and developed in a context of permanent change and restructurings, and their common arrangements is the first step for anticipating change.

Anticipation is basically **constant readiness for change**, even when there is no – or there appears to be no - particular danger of restructuring. Logically, anticipation should be **adapted** to restructuring needs. But in fact, it cannot be conceived as training, simply because no one can be trained to go through a restructuring process as one can be for dealing with a fire in the building. Vocational training two years in advance of a lay-off is nonsense: it is uselessly scaring for individuals to constantly imagine that they can be laid off every day. No company can be managed as if it had to be closed down the next morning, and the only outcome that regional policies of anticipating a closure or an off-shoring can produce is to turn these closures and off-shorings into a self-fulfilling prophecy. Instead, anticipation relies on **developing and/or maintaining what is needed when restructuring occurs**: trust, mutual knowledge, actors' networks, coordination between actors, regional and local development strategies, employability, aids to small businesses to have a larger temporal horizon, to understand market trends and local economic evolution. The following devices are useful in this field.



- **Foster employability** : the UK « Union learning representatives » experience

The idea of lifelong-learning as a means of promoting adaptability, employability and social inclusion has long been promoted in UK. A component of this has been the British Government's decision, ten years ago, to fund the Union Learning Fund (ULF). The fund was established in 1998 to provide grants to support and develop Union Learning Representatives (ULR) systems. A ULR would come from within the workforce, be appointed or elected by their trade union and undertake the duties detailed below on behalf of colleagues:

- analysing learning or training needs,
- providing information and advice about learning or training matters,
- arranging learning or training,
- promoting the value of learning or training, and
- consulting the employer about carrying out these activities.

The Union Learning Representatives experience has been successful in that there are today 12 000 union learning representatives who arranged learning for 67,000 individuals in 2004/5, although some of these ULRs were already recognised in some workplaces through voluntary agreements. The ULR system takes into account, and relies on, the confidence and trust that low skilled and far-from-being-used-to-training workers may have in Trade Union representative, to enhance employability. Without being directly connected to restructuring processes, the system has proved its usefulness in fostering mobility and increasing efficiency of training that can be provided when restructuring occur.

For an analysis of ULR in case of restructuring, see Geof Luton, (Working Lives Research Institute), "UK Employability in the context of Offshoring: A case study of Union Learning in the UK Banking sector"

- **Enhance skills: the Swedish Validation Centre Experience**

The establishment of a validation centre in the Göteborg Region was characterised from the very beginning by **cooperation** between the social partners, and a strong focus on qualification requirements **other** than those expressed in more traditional educational settings. The work was organised as a cooperation project including a number of different actors. The project was headed by a steering group consisting of representatives from the social partners as well as municipal and regional authorities and organisations. The steering group was given an important role in giving advice on issues concerning the development and sophistication of the project. Its members were also seen as important links between the project and all the other networks in the region with interests in the project. But, above all, the steering group representatives fulfilled an important role in giving legitimacy to the Validationcentre project with regards to industry. In 2006 the steering group includes representatives from the Public Employment Services, Business Region Göteborg (BRG), the Labour Board (Länsarbetsnämnden), trade unions (LO and TCO, the Confederation of Swedish Enterprise, (Företagarna), Teknikföretagen, Västra Götalandsregionen, the Göteborg Region Municipal Council and Göteborg University. The validation of knowledge and competencies was described as a method of evaluating and documenting informal knowledge and skills through grades or through different industry-specific documents.



According to the Validationcentre, the process was characterised by a focus on acknowledging knowledge, taking into account the industry's requirements on what kinds of knowledge and skills are needed to engage in certain work activities, a demonstration of these knowledge and skills in a real work environment, and the evaluation of knowledge gained either through formal education or at work.

One of the important issues was that the employer representatives in the committees had to ensure that there were companies within the industry in question willing to take in candidates for validation. In order to do so, employers were offered the opportunity of becoming "validation companies". The idea was to sign agreements with employers in the Göteborg Region in order to open their workplaces for validation. By signing agreements with the companies and training and certifying some of their employees as validation supervisors, the Validationcentre established long-term relationships with employers in the region and thereby contributed to the establishment of a strong network around validation in the Göteborg Region.

This approach towards implementing validation differs when compared to other countries in the EC. In France for example, laws were passed in 2002 on the "recognition of work derived experience" (VAE – Validation des Acquis de l'Expérience) placing the responsibility in the hands of the state. The state afforded every employee the right to have his or her work derived experience recognised by means of a national diploma. In contrast to the French system, in the United Kingdom, the responsibility for evaluating and documenting knowledge and competencies of workers and the organising of training activities rests mainly with the trade unions. Since 1997 the government in the UK has promoted the ideas surrounding the concept of lifelong learning as a means of ensuring employability and social inclusion. In the Swedish example, a bottom-up approach for the validation of an individual's skills and knowledge was developed. Although supported by the government, the responsibility for creating a system for the acknowledging of competencies, skills and knowledge rested with the social partners and the educational system but required the willingness and cooperation of local companies.

Even though it is not directly linked to restructuring as such, recognising skills acquired by workers proved useful to anticipate change, as may be seen with its use in the Thales agreement

For an indepth analysis see Andreas DIEDRICH, Lars WALTER, "Validating Knowledge and Competencies. The Validationcentre in Sweden".

- **Dealing with business cycles: the European shipbuilding industry experience**

Because shipbuilding is a strongly cyclical sector it has, as well as the ship repair industries, experienced a lot of measures to deal with cyclical fluctuations.

When focusing on the solutions which have been applied across Europe with the aim of adapting the volume and quality of labour – in order to achieve the dual objective of increasing the companies' internal flexibility while at the same time retaining access to a well-trained workforce - the various measures to deal with cyclical fluctuations in demand may be grouped into three broad categories: working time arrangements, changes in work organisation, and financial concession and support.



### **Working time arrangements**

The general objective of flexible working time arrangements in dealing with cyclical fluctuations in demand is to adapt the volume of labour to the variations in demand through a more flexible distribution of working hours on a daily, weekly or even yearly basis. The two tools most frequently used are overtime during peaks of demand, short-time work during troughs of demand, and the introduction of working time accounts.

### **Work organisation**

The tools most frequently used by companies in both the shipbuilding and the ship repair sector in order to deal with cyclical fluctuations in demand are those aiming at a change in the patterns of work. The various measures can be grouped into three categories. The first group of tools aims at improving the numerical flexibility of the workforce by ensuring access to external workers who are not directly employed by shipbuilding and ship repair companies. Typical measures in this respect are outsourcing, subcontracting, and the use of agency and temporary workers. The second group of tools comprising measures such as secondment schemes and staff pools also aims at improving numerical flexibility. The main characteristic of this set of tools is, however, that companies do so by drawing on workers directly employed within the two industries. The third group of tools aim at improving the functional flexibility of the existing core workforce through training schemes and is thus entirely different in nature from the first two groups of tools.

### **Financial concessions and support**

Another tool to deal with periods of weak demand is the provision of different forms of financial support to shipyards. The most obvious form applied between 2002 and 2005 was the provision of direct state subsidies in the context of the ‘Temporary Defence Mechanism’ – a scheme established by the EU in order to protect European shipbuilding from unfair competition from South Korean shipyards.

For an in depth analysis, see: Torsten Müller, “Managing cyclical change in the European shipbuilding and ship repair industries”

- **Retain skilled workforce by using working time accounts: the Airbus case in Germany**

Airbus factories in Germany have restructured repeatedly since the mid-1990s. This has resulted in large scale dismissals in a context of an long term growing market. To master crisis without mass dismissals and later recruitment, the company introduced a new instrument to secure employment and increase flexibility in production. It is made of three “working time accounts”: a normal overtime account, a security account and a third working-life account. The first one is used to deposit overtime hours. The second one was set up so as to increase job security and allows the company to take hours out of the employee accounts when there are not enough orders to employ the entire workforce (normally, such a situation would result in dismissals). The third one enables employees to invest into a fund that yields interest over time and enables them to leave working-life earlier for retirement.



The relationship between the works council and the management played an important role in the conceptualisation and introduction of the pilot project in Nordenham and the cooperation with an external expert (from the IAT) was very helpful for the evaluation and the subsequent revision of the account model. The development of the flexi-instruments was thus not just supported by the company, but also by the works council as a way to secure jobs. The works council particularly supports flexi-instruments because it led to the creation of an alternative model of work organization.

With the help of the various flexi-instruments (including the working time), production fluctuations of up to 30% and up to minus 20% can be managed for a certain period of time.

To meet high demands, casual workers are hired to spread the workload on more shoulders. The annual personnel plan requires the approval and agreement of all company actors. The works council usually pays particular attention to the amount of regular employees in every production unit, the workforce's qualification profile, and the extent to which flexibility can be increased.

The beneficiaries of the accounts model are: the company, the regular employees, but also the casual employees. They are integrated into the company just like their regular employees (particularly since they are considered part of the regular employee pool once they have worked for two continuous months at a specific location). The overtime account gives also more job security to casual workers in times of production lows, which means they no longer have to fear instant dismissal.

For an in-depth analysis see Debora JESKE et Thomas KIESELBACH "Flexibility and secured employment. Creative approaches at Airbus in Nordenham, Germany"





## **II - Preventive actions**

These actions are related to the announcement of a coming restructuring process. What is at stake is to prevent risks for companies, workers and areas. It relies on the fact that stakeholders are able, and given the opportunity, to formulate what is at stake for them and negotiate what should be done to solve problems.

- **Dealing with closure** by organising company and regional cooperation: The “Luton partnership committee” experience

G.M announced its intention to close the Vauxhall Luton car plant eighteen months before doing it. Shortly later the announcement the “Luton Vauxhall Partnership” gathered actors belonging to the public and private sector: the Vauxhall Company, trade unions, the Employment Service, regional supply networks, the local authorities and local University. Its purpose was to address job losses and the effects of the closure on the local economy. The partnership was chaired by EEDA (regional agency) who was responsible for meeting the project’s objectives and for finding funding. Luton Borough Council gave personal support to displaced workers. Jobcentre Plus (Public employment service) assisted with giving advice and guidance and tracking beneficiaries. Vauxhall Motors provided office space and equipment and also funded the Learning for Life team, which was based on site. Vauxhall Unions and the TUC at regional level (SERTUC) were also involved in the Partnership and were instrumental in identifying a need for accreditation of prior learning (APL) programme at the plant, and played an active role in delivering an NVQ (National Vocational Qualification) programme. The Learning and Skills Council helped to identify training providers and supported the APL programme. A local Further Education College was the main provider of the re-training and re-skilling programme along with other private providers.

The Vauxhall Luton Partnership was concerned with the following four areas:

**Employment, education and skills:** the aim was to retrain and re-skill affected staff to ensure that they had the skills and opportunities to secure alternative employment and prevent the anticipated significant increase in local unemployment.

**Infrastructure and development:** under this theme, the Partnership aimed to replace jobs lost to the local economy and attract high quality employment and private sector investment to the region.

**Local business development:** this focused on addressing the competitiveness of local companies and assisting with the modernisation and diversification of existing industrial stock. This was tackled through a supply chain support programme, business support programme, incubation space, and the Luton Venture loan fund.

**Social, personal and community.** This final strand focused on the health and wellbeing of workers affected by the closure. The aim was to minimise the additional burden on existing government services. This included the setting up of a Luton community health observatory and gateway to multiagency services. Three initiatives dealt specifically with health-related issues.

For an indepth analysis, see Hannah Wood, “The closure of Vauxhall, Luton. The role of regional development agencies in organisational restructuring in the UK”.



- Managing **change and subcontractors**: the “Cap compétence” experience.

In the end of 2003, the French shipyards les Chantiers de l’Atlantique anticipated a drastic reduction of its volume of work in the two years to come but the company also knew that once these difficulties would be over, the activity should go back to its former levels. The problem was not just the immediate future of the shipyard but also that of its numerous subcontractors. This is a strategic issue since subcontractors generate 75% of the added value of manufactured vessels. Responding to these challenges, the stakeholders of the Saint-Nazaire area set up and implemented an ambitious programme of assistance to the sector that addresses the issue in terms of “extended enterprise”, i.e. les Chantiers de l’Atlantique and its subcontractors.

The company had a wealth of experience in the use of training to strengthen employees’ skills and limit the social impact of economic change since in the 1990’s an Exceptional Training Plan (the PEF) aimed at reinforcing and developing employees’ skills had been introduced.

Then harassed by competition from Asia, “Chantiers de l’Atlantique”, decided to specialise in the production of high value added ships, for the most part cruise ships. This change involved a significant evolution in skills requirements within the company. Beyond these strategic considerations, the training of personnel also made it possible to avoid short-time work, or even potentially a “social plan”. Last but not least, from producing nearly 80% of their ships “internally” in the 1980s, the company ended up with almost as much “external” production in the late 1990s. There was a need to take sub-contractors into account.

The Cap Compétences agreement was signed on 22nd December 2003. The actors involved can be grouped into three categories:

- The programme’s *beneficiary enterprises*, in which we have to distinguish between the two main contractors, i.e. Chantiers de l’Atlantique and Airbus, and the 186 subcontractor SMEs who took part in the operation.
- The *institutional partners* who jointly manage the programme funding: the State (DRIRE, DRTEFP), the European Union (European Social Fund), the Pays de la Loire Region and the General Council of the Loire-Atlantique.

Among the programme financiers, we should also include the Organisme Paritaires Collecteurs Agréés (certified collective parity organisation - OPCA), which has the dual role of collecting and managing the mutualised funds contributed by the companies taking part in professional training.

- The *actors responsible for the implementation of the programme*. This implementation was notably undertaken by three Organismes Opérateurs des Programmes (programme operator organisations - OOP) for economic development and seven certified training organisations along with their network of qualified consultants and trainers. One of the OOPs responsible for Economic Development had also already been involved in the design and implementation of the previous Cap Performance operation.

For an in depth analysis, see: Pierre Garaudel, Maxime Petrovski, Géraldine Schmidt “Cap Compétences: collective management of the risk of redundancy within an “extended enterprise” .



### **III - Curative actions**

Cure is about managing the consequences of restructurings. It relies on a cooperative approach gathering many different institutions. It relies on sustainable settings (especially for « small » operations) and is one of the most common area in which settings and arrangements to deal with restructuring processes have been set up and experienced. With various names (« Transfer companies » in Germany, « Forem reconversion units» in Belgium, « Job security councils » in Sweden, “Transitional professional contract” and “outplacement units” in France ...) so called outplacement units are more or less spread in each and every country. These devices are generally well known and there is no need for further description. But it may be useful to insist on two innovative settings : the “job security councils” in Sweden and the so called “French redeployment contracts”.

- **Dealing with outplacement at sectoral level** : The Swedish Job Security Councils experience

The job security councils were established to administer the support that is given in accordance with the respective Job Security Agreements. Their activities are organised under a special legal entity referred to as a *Collective Agreement Foundation (Kollektivavtalstiftelse)*. This specific form of foundation was created to satisfy important practical needs of the social partners. Among others, one advantage with this type of foundation is that it is exempted from having to pay taxes, under the condition that at least 80% of the foundation’s returns on capital are redistributed to the clients (in the case of the job security councils the workers receiving some form of support). Each job Security Council is made up by a board of representatives from the different partners involved in the agreement, with the seats split equally between the employer representatives and employee representatives. The board has the task of deciding upon the scope and content of the support that is to be granted.

The councils’ activities are financed by the employers who continuously contribute with a percentage of their total payroll. The contribution’s level is determined as part of the collective agreement (e.g. TRR: 0,3% of payroll). The job security councils’ employees, both advisors and consultants, have a high degree of freedom to prepare, based on the decisions that are made by the board, the support for each and every employee individually. This possibility of providing support tailored to the needs of the individual is considered as one of the strengths of the Swedish job security councils. When questions are raised concerning the interpretation of certain aspects of the agreement or its implementation, these are generally taken up and resolved between the different partners of the agreement.

Today, in all about two million employees in Sweden are included under job security agreements.

For an in depth analysis, see: Andreas DIEDRICH and Ola BERGSTRÖM, “The Job Security Councils in Sweden”



- **Fostering redeployment: the “French redeployment contracts”**

Since 2002, when a company proceeds to collective dismissals which “affect - by their impact - the equilibrium of the territory or territories where it is implanted” (article L321 of the labour code), the state representative (the Prefect) may intervene in order to “put into place a series of measures that would permit the development of new activities and attenuate the effects of the intended restructuring on other businesses of the territory or territories concerned”.

In companies of less than 1 000 employees, the meeting on the subject is generally not held unless the Prefect takes such an initiative, which the law permits without, however, imposing such an obligation. The meeting is intended to feed the negotiation on the local level without necessarily obliging the company to fund any particular action.

In companies of more than 1 000 people, the Prefect initiates the meeting and the company is obliged to bring in a financial contribution. The nature of the action must be determined after the “consultation with the interested local authorities, consular organisms and the social partners who are members of the employment regional inter-professional commission”. Their execution should be “the object of control and evaluation under the authority of the state representative” according to the stipulations fixed by a decree, which came out at the end of 2005.

In the end of 2006 more than 170 agreements had been signed for a global amount of 160 millions euros dedicated to find new businesses for old premises, foster business creation at local level, finance local development units, help recruiting people laid off, help companies to hire local unemployed people ...

#### ***IV - Evaluative actions***

As said, this is the least developed field and no case studies have been found.



### **3. Recommendations for anticipating change in the defence industry**

It is often assumed that the management of restructuring processes fully depends upon national regulation and practices, but this assumption doesn't completely fit with reality, even though restructuring processes are highly dependent upon national regulation and institutional contexts. There are, however, also similar features of restructuring across national boundaries, which means that **there is value added in learning from each other**. When comparing companies – and this especially true for companies belonging to such a sector as defence - a one is struck by the similarity of company histories and corporate policies with regard to restructuring. Of course one finds different causes and motives for restructuring, producing different forms and outcomes like overall downsizing, partial closure, relocation, outsourcing, off-shoring, insolvency, privatisation of activities previously run by public authorities etc., but there is little about this that could be defined as nationally specific. Restructuring is a global process, economic constraints and managerial options are more or less universal, and even the managerial 'fashions of the day' that eventually turn out to be unsuccessful in the majority of cases are more or less diffused all over the world.

Very much the same can be said about the instruments and techniques that are employed to support and promote job transitions. There are certainly different 'schools', different names for similar services, and different preferences and priorities among the actors concerned, but again these controversies are found within rather than across countries. Basic concepts such as employability, acquired competencies, individual profiling, skills assessment, personal action plans, job clubs, training for job search, individual or group coaching during the search process etc. are universally known. Training for specialised certificates are popular in most countries. Where job transitions schemes are common, temporary work with potential new employers, subsidies for new employers during initial periods, and income supplements for workers taking up lower-paid jobs are widely used bridging mechanisms. Support for small business creation is a universally used tool but never suitable for more than small numbers.

While there are common features of restructuring practices across countries, it is difficult to identify objective criteria of success of these practices across countries. What is regarded as successful in one country may not be regarded as successful in another. Regulations - rules for selecting workers, information and consultation processes and employers' obligations - are not the same, roles and institutions vary greatly from one country to another. This makes it difficult to transfer a given practice, good or bad, from one country to another. This why an important measure for the future could be to set up a **European forum** to exchange restructuring practices among actors at European level.

Such a forum could be structured around themes (competence shift, partial restructuring, individual career change and planning, increase of flexibility ...) or around methodologies (comparing agreements and tools), maybe both. But it would serve to set up exchanges among and across actors in order to be able to capitalise upon the existing ways of dealing with restructuring. The following actions may be recommended:

1. Stimulate activities and procedures allowing actors to learn from experiences:
  - Carefully evaluate, qualitatively and quantitatively, the results of restructuring activities;
  - Create reference groups or monitoring boards that continuously monitor restructuring activities.
2. Create opportunities for sharing experiences:
  - between actors (multi-actor arenas);
  - among actors (company consortiums, trade union networks, etc);

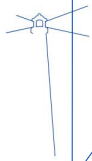


3. Create arenas for sharing experiences across borders:

- The restructuring forums launched by the European Commission participate to this initiative. These bring together representatives of multinational corporations who are concerned about restructuring both within and across national borders;
- Stimulate cross border experiments involving actors who are voluntarily willing to test ideas, concepts and models developed in another country in their own country.

Two other recommendations may be made:

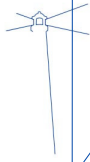
- create a European data base of agreements dealing with restructuring in the defence (and other industrial) sector(s);
- initiate a dialogue between all stakeholders concerned aimed at anticipating future changes and restructuring needs in the European defence industry, and defining appropriate anticipatory actions.



## Appendix

### 1. EU Defence Producers by main segment

Small Arms/Ammunition		
Dynamit Nobel Wien (Emmerich Assmann)	AST	SA/O
Maschinenfabrik Liezen	AST	SA/O
Steyr Mannlicher (Steyr-Daimler-Puch)	AST	SA/O
Steyr-Daimler-Puch	AST	MV SA/O
Südsteierische Metallindustrie	AST	MV SA/O Oth
Browning (HERSTAL)	BEL	SA/O
ETCA (Alcatel Bell-SDT)	BEL	EI Eng
FN HERSTAL (HERSTAL)	BEL	A SA/O
Forges de Zeebrugge (Thomson Brandt Armements, France)	BEL	SA/O
HERSTAL (GIAT Industries, France)	BEL	A SA/O
MECAR (Allied Research Corp., USA)	BEL	A SA/O
Eurengo Vihtavuori (Eurengo, France)	FIN	SA/O
Nammo Lapua (Nammo, Norway)	FIN	SA/O
Patria Industries	FIN	Ac MV SA/O
Sako (Nokia/Valmet)	FIN	SA/O
VAMMAS (Patria Industries)	FIN	A SA/O
EADS Sodern (EADS, Netherlands)	FRA	SA/O
EBF	FRA	Ac SA/O
Eurengo (SNPE Groupe/Patria, Finland/Saab, Sweden)	FRA	SA/O Oth
Eurengo France (Eurengo)	FRA	SA/O Oth
GIAT Industries	FRA	A MV SA/O
Manurhin Défense	FRA	SA/O Oth
SNPE Groupe (PH)	FRA	A SA/O
SNPE S.A. (SNPE Groupe)	FRA	A SA/O
TDA Armements (EADS, FRG/Thales)	FRA	SA/O
Thales	FRA	Ac EI Mi SA/O Oth
Comet (Diehl)	FRG	SA/O
Diehl	FRG	Mi SA/O
Dynamit Nobel (MG Technologies)	FRG	SA/O Oth
Heckler & Koch (Royal Ordnance, UK)	FRG	SA/O
MAN Technologie (MAN)	FRG	Mi SA/O
MG Technologies	FRG	SA/O Oth
Nammo Buck (Nammo, Norway)	FRG	SA/O
Rheinmetall	FRG	A EI MV SA/O
Rheinmetall AG (Rheinmetall)	FRG	A EI MV SA/O
EBO Hellenic Arms Industry	GRE	SA/O
PYRKAL	GRE	SA/O
Beretta	ITA	SA/O
FIAT Avio (FIAT)	ITA	Eng SA/O
Finmeccanica	ITA	A Ac EI MV Mi SA/O
Magneti Marelli (FIAT)	ITA	EI SA/O
De Kruithoorn (Rheinmetall, FRG)	NET	SA/O
Metaalwarenfabriek Tilburg (Diehl, FRG)	NET	SA/O
Browning VIANA	POR	SA/O
	POR	SA/O



## European Defence Industry Anticipating Restructuring

SPEL		
TUDOR		
Bofors Carl Gustav (Bofors)	POR	SA/O
Bofors Defence (BAE Systems)	SWE	SA/O
Bofors Explosives (Bofors)	SWE	SA/O
BAE SYSTEMS	SWE	SA/O
Chemring Group	UK	A Ac EI MV Mi SA/O Sh
Astra Holdings	UK	SA/O
Insys (Lockheed Martin)	UK	SA/O
Royal Ordnance (BAE SYSTEMS)	UK	EI SA/O Oth
Vickers (Alvis)	UK	A SA/O
	UK	Eng MV SA/O

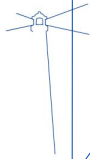
### Artillery

Hirtenberger	AST	A Ac
CMI	BEL	A MV
FN HERSTAL (HERSTAL)	BEL	A SA/O
HERSTAL (GIAT Industries, France)	BEL	A SA/O
MECAR (Allied Research Corp., USA)	BEL	A SA/O
PB CLERMONT (SNPE, France)	BEL	A
VAMMAS (Patria Industries)	FIN	A SA/O
GIAT Industries	FRA	A MV SA/O
SNPE Groupe (PH)	FRA	A SA/O
SNPE S.A. (SNPE Groupe)	FRA	A SA/O
KUKA Wehrtechnik (Rheinmetall)	FRG	A MV
Rheinmetall	FRG	A EI MV SA/O
Rheinmetall AG (Rheinmetall)	FRG	A EI MV SA/O
Breda Meccanica Bresciana (Finmeccanica division)	ITA	A Oth
Finmeccanica	ITA	A Ac EI MV Mi SA/O
Montedison	ITA	A
Oerlikon Contraves spa (Rheinmetall, Germany)	ITA	A EI
Oto Melara (Finmeccanica)	ITA	A MV Mi
RDM	NET	A MV Sh
EDB (UEE)	SPA	A
EXPAL (UEE)	SPA	A Oth
UEE 1999 data	SPA	A Oth
Bofors (Celsius)	SWE	A MV SA/O
BAE SYSTEMS	UK	A Ac EI MV Mi SA/O Sh
Royal Ordnance (BAE SYSTEMS)	UK	A SA/O

### Aircraft

Hirtenberger	AST	A Ac
ASCO Industries	BEL	Ac MV Oth
Barco	BEL	Ac EI
SABCA (Dassault, France)	BEL	Ac EI Oth
SONACA	BEL	Ac Oth
TEAMCO	BEL	Ac EI
Finavitec (Patria Industries)	FIN	Ac
Patria Industries	FIN	Ac MV SA/O
Airbus Industrie (EADS/BAE, UK)	FRA	Ac
Alkan (MBDA/EADS/BAE/Finmeccanica)	FRA	Ac
Dassault Aviation Groupe	FRA	Ac
EBF	FRA	Ac SA/O
Eurocopter France (Eurocopter S.A.)	FRA	Ac





## European Defence Industry Anticipating Restructuring

Eurocopter Group (EADS)	FRA	Ac
Intertechnique (Zodiac)	FRA	Ac
Ratier-Figeac (EBF)	FRA	Ac Mi Oth
SAFRAN	FRA	Ac EI Eng
SAGEM (SAGEM Groupe)	FRA	Ac EI Sh Oth
SAGEM Groupe (safran, delete numbers from yb) (SAFRAN)	FRA	Ac EI Sh Oth
SMA (safran, delete numbers in yb) (SAFRAN)	FRA	Ac
SNECMA Groupe (safran, delete numbers in yb) (SAFRAN)	FRA	Ac Eng
Thales	FRA	Ac EI Mi SA/O Oth
Thales Avionics (Thales)	FRA	Ac EI
Zodiac	FRA	Ac
Aeroflight (Aerodata/FR Aviation, UK)	FRG	Ac
DASA Airbus (DASA)	FRG	Ac
Dornier (EADS)	FRG	Ac EI
Eurocopter Deutschland (Eurocopter SA, France)	FRG	Ac
ZF	FRG	Ac MV Sh
EAB Hellenic Aerospace Industry (PH)	GRE	Ac EI
Aermacchi (Finmeccanica)	ITA	Ac
Agusta (AgustaWestland)	ITA	Ac
AgustaWestland (Finmeccanica)	ITA	Ac
Alenia Aeronautica (Finmeccanica)	ITA	Ac
Finmeccanica	ITA	A Ac EI MV Mi SA/O
Macchi	ITA	Ac
Rinaldo Piaggio	ITA	Ac
DAF SP (Van Halteren Metaal)	NET	Ac MV
EADS	NET	Ac EI Mi Sp
Fokker Aviation (Stork)	NET	Ac Oth
Stork	NET	Ac Oth
OGMA	POR	Ac
CASA (EADS)	SPA	Ac
Saab	SWE	Ac EI Mi
Saab Military Aircraft (Saab)	SWE	Ac
Saab Training Systems (Saab)	SWE	Ac
BTR	UK	Ac
Cobham	UK	Ac EI
FR Aviation (Cobham)	UK	Ac Oth
Fairey Group	UK	Ac Oth
Flight Refuelling (Cobham)	UK	Ac
GKN	UK	Ac
Hughes Flight Training (Hughes Electronics, USA)	UK	Ac
Hughes Network Systems (Hughes Electronics, USA)	UK	Ac
Lucas Varity	UK	Ac
Meggitt	UK	Ac EI Oth
Messier-Dowty International (SNECMA, France/TI Group)	UK	Ac
Pilatus Britten-Norman (Pilatus, Switzerland)	UK	Ac
Short Brothers (Bombardier, Canada)	UK	Ac Mi
Smiths	UK	Ac EI
Westland (GKN)	UK	Ac

### Electronics

Alcatel ETCA (Alcatel, France)	BEL	EI
BATS (ELTEM Holding, NET)	BEL	EI
Barco	BEL	Ac EI
ETCA (Alcatel Bell-SDT)	BEL	EI Eng
SABCA (Dassault, France)	BEL	Ac EI Oth



## European Defence Industry Anticipating Restructuring

TEAMCO	BEL	Ac EI
Thomson-CSF Electronics (Thales, France)	BEL	EI
Terma Elektronik	DEN	EI
Nokia	FIN	EI
Nokia Telecommunications (Nokia)	FIN	EI
Alcatel	FRA	EI
CR2A Holding (IBM France)	FRA	EI Oth
IBM France (IBM, USA)	FRA	EI
Lagardère SCA ((with EADS))	FRA	EI Mi Oth
Matra Cap Systèmes (Matra HT/Cap Gemini Sogeti)	FRA	EI Oth
Matra Défense (Lagardère)	FRA	EI Mi
Matra Haute Technologies (Lagardère SCA)	FRA	EI Mi Oth
Matra Systèmes & Information (Matra Haute Technologies)	FRA	EI
SAFRAN	FRA	Ac EI Eng
SAGEM (SAGEM Groupe)	FRA	Ac EI Sh Oth
SAGEM Groupe (safran, delete numbers from yb) (SAFRAN)	FRA	Ac EI Sh Oth
Thales	FRA	Ac EI Mi SA/O Oth
Thales Avionics (Thales)	FRA	Ac EI
Thales Systèmes Aéroportés (Thales)	FRA	EI
Thomson Sintra ASM (Thales)	FRA	EI
Thomson-CSF Airsys (Thomson-CSF)	FRA	EI
Thomson-CSF Communications (Thales)	FRA	EI
Thomson-TRT-Défense (Thales)	FRA	EI
ANT (Bosch)	FRG	EI
Alcatel SEL (Alcatel, France)	FRG	EI
Bosch	FRG	EI
CAE Elektronik (CAE, Canada)	FRG	EI
Dornier (EADS)	FRG	Ac EI
LITEF (Litton, USA)	FRG	EI
Oerlikon Contraves GmbH (Rheinmetall)	FRG	EI
Rheinmetall	FRG	A EI MV SA/O
Rheinmetall AG (Rheinmetall)	FRG	A EI MV SA/O
Rhode & Schwarz	FRG	EI
STN Atlas Elektronik (Rheinmetall DeTec)	FRG	EI
Siemens	FRG	EI
Teldix (Litton, USA)	FRG	EI
EAB Hellenic Aerospace Industry (PH)	GRE	Ac EI
ECON Industries	GRE	EI
Alcatel Italia (Alcatel, France)	ITA	EI
Alenia Elsag Sistemi Navali (Finmeccanica)	ITA	EI Sh
Datamat (Finmeccanica)	ITA	EI
Elettronica	ITA	EI
Elmer (Finmeccanica/Marconi)	ITA	EI
FIAR (Finmeccanica)	ITA	EI
FIAR Gruppo (Finmeccanica)	ITA	EI
Finmeccanica	ITA	A Ac EI MV Mi SA/O
Galileo Avionica (Finmeccanica)	ITA	EI
Italtel (IRI)	ITA	EI Oth
Magneti Marelli (FIAT)	ITA	EI SA/O
Marconi Mobile (Finmeccanica)	ITA	EI
Microtecnica (United Technologies, USA)	ITA	EI
Oerlikon Contraves spa (Rheinmetall, Germany)	ITA	A EI
Officine Galileo (FIAR)	ITA	EI
SMA (FIAR)	ITA	EI Oth
Selex Communications (Finmeccanica)	ITA	EI Oth

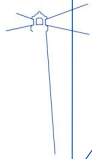


## European Defence Industry Anticipating Restructuring

Selex Sensors & Airborne Systems (Finmeccanica)	ITA	EI
Selex Sistemi Integrati (Finmeccanica)	ITA	EI
Alenia Marconi Systems ITA/UK (Finmeccanica, Italy/BAE SYSTEMS, UK)	NET	EI
Delft Instruments	NET	EI Oth
EADS	NET	Ac EI Mi Sp
EDISOFT	POR	EI
EID	POR	EI
Amper (Grupo Amper)	SPA	EI
Amper Grupo	SPA	EI
GAMESA	SPA	EI Oth
Grupo Alcatel (Alcatel-Alsthom, France)	SPA	EI
Indra	SPA	EI
Telettra España	SPA	EI
Celsius Information System (Celsius)	SWE	EI
CelsiusTech (Celsius)	SWE	EI
CelsiusTech Electronics (CelsiusTech)	SWE	EI
CelsiusTech Systems (CelsiusTech)	SWE	EI
Ericsson	SWE	EI
Ericsson Microwave (Ericsson)	SWE	EI
Ericsson Radio Systems (Ericsson)	SWE	EI
Ericsson Saab Avionics (Ericsson/Saab)	SWE	EI
FLIR Systems, Imaging Sweden (FLIR Systems)	SWE	EI
Saab	SWE	Ac EI Mi
BAE SYSTEMS	UK	A Ac EI MV Mi SA/O Sh
Celab	UK	EI
Cobham	UK	Ac EI
Cossor Electronics (Raytheon, USA)	UK	EI
EDS Defence (EDS, USA)	UK	EI
Graseby	UK	EI
Hawker Siddeley (BTR)	UK	EI
Insys (Lockheed Martin)	UK	EI SA/O Oth
Link Miles (Thomson-CSF, France)	UK	EI
Marconi	UK	EI
Meggitt	UK	Ac EI Oth
Pilkington	UK	EI Oth
Pilkington Thorn Optronics (Pilkington/Thomson-CSF)	UK	EI
Rediffusion Simulation (Thomson-CSF)	UK	EI
STC	UK	EI Oth
Siemens Plessey Electronic Systems (Siemens, FRG)	UK	EI
Smiths	UK	Ac EI
Systron Donner	UK	EI

### Engines

ETCA (Alcatel Bell-SDT)	BEL	EI Eng
Techspace Aero (SNECMA, France)	BEL	Eng
Areva (CEA)	FRA	Eng Oth
Hispano Suiza (SNECMA)	FRA	Eng
Jeumont (Areva)	FRA	Eng
Labinal acq. by Snecma 0107'00	FRA	Eng
Microturbo (Snecma)	FRA	Eng
Renault	FRA	Eng MV
Roxel (MBDA/SNPE)	FRA	Eng
SAFRAN	FRA	Ac EI Eng
SNECMA (SNECMA Groupe)	FRA	Eng
SNECMA Groupe (safran, delete numbers in yb) (SAFRAN)	FRA	Ac Eng



## European Defence Industry Anticipating Restructuring

Sochata (SNECMA)	FRA	Eng
DaimlerChrysler, DC	FRG	Eng
MTU Aero Engines	FRG	Eng
MTU Friedrichshafen (DC)	FRG	Eng
Rolls Royce Deutschland (Rolls Royce, UK)	FRG	Eng
Alfa Romeo Avio (Finmeccanica)	ITA	Eng
Avio	ITA	Eng
BPD Difesa e Spazio (FIAT Aviazione)	ITA	Eng Mi Oth
FIAT	ITA	Eng MV
FIAT Avio (FIAT)	ITA	Eng SA/O
FIAT Difesa e Spazio (FIAT)	ITA	Eng Mi Oth
IVECO AIFO (FIAT)	ITA	Eng
ITP (ITP Group)	SPA	Eng
ITP Group	SPA	Eng
Celsius Aerotech (Celsius)	SWE	Eng
Volvo	SWE	Eng
Volvo Aero (Volvo)	SWE	Eng
Rolls Royce	UK	Eng Sh
Rolls Royce Power Engineering (Rolls Royce)	UK	Eng
Vickers (Alvis)	UK	Eng MV SA/O

### Missiles

Lagardère SCA ((with EADS))	FRA	EI Mi Oth
Matra Défense (Lagardère)	FRA	EI Mi
Matra Haute Technologies (Lagardère SCA)	FRA	EI Mi Oth
Ratier-Figeac (EBF)	FRA	Ac Mi Oth
Thales	FRA	Ac EI Mi SA/O Oth
Thomson Shorts Systèmes (Bombardier, Canada/Thales)	FRA	Mi
Bodenseewerke Gerätetechnik (Diehl)	FRG	Mi
Diehl	FRG	Mi SA/O
LFK (EADS)	FRG	Mi
MAN Technologie (MAN)	FRG	Mi SA/O
BPD Difesa e Spazio (FIAT Aviazione)	ITA	Eng Mi Oth
Finmeccanica	ITA	A Ac EI MV Mi SA/O
MBDA Italia	ITA	Mi
Oto Melara (Finmeccanica)	ITA	A MV Mi
EADS	NET	Ac EI Mi Sp
MBDA (BAE Systems, UK/EADS, W. Eur./Finmeccanica, Italy)	NET	Mi
Saab	SWE	Ac EI Mi
Saab Dynamics (Saab)	SWE	Mi
BAE SYSTEMS	UK	A Ac EI MV Mi SA/O Sh
Hughes Microelectronics Europe (Hughes Electronics, USA)	UK	Mi
Hughes UK (Hughes Electronics, USA)	UK	Mi Oth
Short Brothers (Bombardier, Canada)	UK	Ac Mi
Thales Air Defence 11 months only! (Thales, France)	UK	Mi

### Military Vehicles

SDP Fahrzeugtechnik (Steyr-Daimler-Puch/Creditanstalt Bankverein)	AST	MV
SDP Spezialfahrzeuge (Steyr-Daimler-Puch)	AST	MV
Steyr-Daimler-Puch	AST	MV SA/O
Südsteierische Metallindustrie	AST	MV SA/O Oth
ASCO Industries	BEL	Ac MV Oth
CMI	BEL	A MV
SOREMI (ASCO)	BEL	MV Oth
WIDNEY Europe	BEL	MV

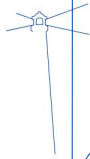


## European Defence Industry Anticipating Restructuring

Patria Industries	FIN	Ac MV SA/O
Patria Vehicles (Patria Industries)	FIN	MV
SISU Group	FIN	MV Oth
GIAT Industries	FRA	A MV SA/O
PSA	FRA	MV
Panhard et Levassor (PSA)	FRA	MV
RVI (Renault)	FRA	MV
Renault	FRA	Eng MV
Henschel Wehrtechnik (Rheinmetall)	FRG	MV
IVECO Magirus (FIAT, Italy)	FRG	MV
KUKA Wehrtechnik (Rheinmetall)	FRG	A MV
Krauss-Maffei Wegmann	FRG	MV
MAK System Gesellschaft (Rheinmetall)	FRG	MV
MAN	FRG	MV Sh
Mannesmann (merged with Vodafone 01)	FRG	MV
Rheinmetall	FRG	A EI MV SA/O
Rheinmetall AG (Rheinmetall)	FRG	A EI MV SA/O
ZF	FRG	Ac MV Sh
CHR. Economides	GRE	MV
ELBO	GRE	MV
ASTRA Veicoli Industriali (IVECO)	ITA	MV
FIAT	ITA	Eng MV
Finmeccanica	ITA	A Ac EI MV Mi SA/O
IVECO (PH) (FIAT)	ITA	MV
Oto Melara (Finmeccanica)	ITA	A MV Mi
DAF SP (Van Halteren Metaal)	NET	Ac MV
RDM	NET	A MV Sh
Bofors (Celsius)	SWE	A MV SA/O
Hägglunds Vehicle (BAE)	SWE	MV
Scania	SWE	MV
BAE SYSTEMS	UK	A Ac EI MV Mi SA/O Sh
Vickers (Alvis)	UK	Eng MV SA/O

### Ships

Mercantile Beliard	BEL	Sh
Scheepswerf Van Rupelmonde	BEL	Sh
Kvaerner Masa Yards (Kvaerner, Norway)	FIN	Sh
Alstom	FRA	Sh Oth
CMN (Soffia)	FRA	Sh
Chantiers de l'Atlantique (Alstom)	FRA	Sh
DCN (sales)	FRA	Sh
SAGEM (SAGEM Groupe)	FRA	Ac EI Sh Oth
SAGEM Groupe (safran, delete numbers from yb) (SAFRAN)	FRA	Ac EI Sh Oth
Soffia	FRA	Sh
HDW (PH) (ThyssenKrupp)	FRG	Sh
Lürssen	FRG	Sh
MAN	FRG	MV Sh
ThyssenKrupp, TK	FRG	Sh
ZF	FRG	Ac MV Sh
Elefsis Shipyards	GRE	Sh
Hellenic Shipyards	GRE	Sh
Alenia Elsag Sistemi Navali (Finmeccanica)	ITA	EI Sh
Fincantieri	ITA	Sh
Intermarine (Montedison)	ITA	Sh
WASS (Finmeccanica)	ITA	Sh



## European Defence Industry Anticipating Restructuring

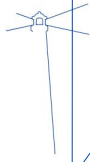
De Schelde	NET	Sh
Internatio-Müller	NET	Sh Oth
RDM	NET	A MV Sh
v.d. Giessen-de Noord	NET	Sh
Arsenal do Alfeite	POR	Sh
Navantia (PH)	SPA	Sh
Karlskronavarvet (Kockums)	SWE	Sh
Kockums (HDW, Germany)	SWE	Sh
BAE SYSTEMS	UK	A Ac EI MV Mi SA/O Sh
BAE SYSTEMS Marine*** (BAE SYSTEMS)	UK	Sh
BMT	UK	Sh
Babcock International Group	UK	Sh
Babcock Rosyth Defence (Babcock International)	UK	Sh Oth
Devonport Management (KBR)	UK	Sh
Rolls Royce	UK	Eng Sh
VSEL (BAE SYSTEMS Marine)	UK	Sh
VT Group	UK	Sh
Yarrow Shipbuilders (BAE SYSTEMS Marine)	UK	Sh

### Space

EADS Astrium (EADS, Netherlands)	FRA	Sp
EADS Space (EADS, Netherlands)	FRA	Sp
EADS Space Services (EADS, Netherlands)	FRA	Sp
EADS Space Transportation (EADS, Netherlands)	FRA	Sp
Alenia Spazio (Finmeccanica)	ITA	Sp
EADS	NET	Ac EI Mi Sp
Kockums Submarine Systems (Kockums)	SWE	Sp
Paradigm Secure Communications (EADS Space Services, Europe)	UK	Sp

### Other

Südsteierische Metallindustrie	AST	MV SA/O Oth
ASCO Industries	BEL	Ac MV Oth
PLEXYCCA	BEL	Oth
SABCA (Dassault, France)	BEL	Ac EI Oth
SONACA	BEL	Ac Oth
SOREMI (ASCO)	BEL	MV Oth
SISU Group	FIN	MV Oth
Alcatel Space (Alcatel)	FRA	Oth
Alstom	FRA	Sh Oth
Areva (CEA)	FRA	Eng Oth
Areva NP (Areva)	FRA	Oth
CEA	FRA	Oth
CNIM	FRA	Oth
CR2A Holding (IBM France)	FRA	EI Oth
Cogema (CEA Industrie)	FRA	Oth
Eureenco (SNPE Groupe/Patria, Finland/Saab, Sweden)	FRA	SA/O Oth
Eureenco France (Eureenco)	FRA	SA/O Oth
Lagardère SCA ((with EADS))	FRA	EI Mi Oth
Manurhin Défense	FRA	SA/O Oth
Matra Cap Systèmes (Matra HT/Cap Gemini Sogeti)	FRA	EI Oth
Matra Haute Technologies (Lagardère SCA)	FRA	EI Mi Oth
Matra Marconi Space (Matra HT/BAE SYSTEMS,UK)	FRA	Oth
Messier-Bugatti (SNECMA)	FRA	Oth
Ratier-Figeac (EBF)	FRA	Ac Mi Oth
SAGEM (SAGEM Groupe)	FRA	Ac EI Sh Oth



## European Defence Industry Anticipating Restructuring

SAGEM Groupe (safran, delete numbers from yb) (SAFRAN)	FRA	Ac EI Sh Oth
Thales	FRA	Ac EI Mi SA/O Oth
Carl Zeiss Foundation	FRG	Oth
Dräger	FRG	Oth
Dynamit Nobel (MG Technologies)	FRG	SA/O Oth
Ferrostaal (MAN)	FRG	Oth
Gildemeister	FRG	Oth
MG Technologies	FRG	SA/O Oth
Renk (MAN)	FRG	Oth
Renk AG (Renk)	FRG	Oth
BPD Difesa e Spazio (FIAT Aviazione)	ITA	Eng Mi Oth
Breda Meccanica Bresciana (Finmeccanica division)	ITA	A Oth
FIAT Difesa e Spazio (FIAT)	ITA	Eng Mi Oth
Italtel (IRI)	ITA	EI Oth
SMA (FIAR)	ITA	EI Oth
Selex Communications (Finmeccanica)	ITA	EI Oth
Delft Instruments	NET	EI Oth
Fokker Aviation (Stork)	NET	Ac Oth
Fokker Space	NET	Oth
Internatio-Müller	NET	Sh Oth
Stork	NET	Ac Oth
EXPAL (UEE)	SPA	A Oth
GAMESA	SPA	EI Oth
UEE 1999 data	SPA	A Oth
Barracuda Technologies (Hägglunds Vehicle)	SWE	Oth
Bofors LIAB (Bofors)	SWE	Oth
Telub (Celsius Information System)	SWE	Oth
Adwest	UK	Oth
Avon Industrial Polymers	UK	Oth
Babcock Rosyth Defence (Babcock International)	UK	Sh Oth
David Brown	UK	Oth
FR Aviation (Cobham)	UK	Ac Oth
Fairey Group	UK	Ac Oth
Hughes International (Hughes Electronics, USA)	UK	Oth
Hughes UK (Hughes Electronics, USA)	UK	Mi Oth
Hughes UK Systems (Hughes Electronics, USA)	UK	Oth
Insys (Lockheed Martin)	UK	EI SA/O Oth
Logica	UK	Oth
Meggitt	UK	Ac EI Oth
Pilkington	UK	EI Oth
QinetiQ	UK	Oth
STC	UK	EI Oth

Source: SIPRI data base

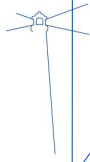


## 2. EU Defence Producers by country, ranked by 2005 turnover

Arms sales in million US \$, at 2005 prices and exchange rates

United Kingdom	Arms Sales, 2005
BAE SYSTEMS	23230
Rolls Royce	3470
QinetiQ	1550
Smiths	1450
VT Group	1170
Cobham	1010
Devonport Management (KBR)	800
GKN	740
Babcock International Group	610
Ultra Electronics	490
Meggitt	460
Insys (Lockheed Martin)	82
Admiral	
Adwest	
Astra Holdings	
Avon Industrial Polymers	
BAE SYSTEMS Marine*** (BAE SYSTEMS)	
BMT	
BTR	
Babcock Rosyth Defence (Babcock International)	
Celab	
Chemring Group	
Cossor Electronics (Raytheon, USA)	
Cray Electronics	
David Brown	
EDS Defence (EDS, USA)	
FR Aviation (Cobham)	
Fairey Group	
Flight Refuelling (Cobham)	
Graseby	
Harland & Wolff	
Hawker Siddeley (BTR)	
Hughes Flight Training (Hughes Electronics, USA)	
Hughes International (Hughes Electronics, USA)	
Hughes Microelectronics Europe (Hughes Electronics, USA)	
Hughes Network Systems (Hughes Electronics, USA)	
Hughes UK (Hughes Electronics, USA)	
Hughes UK Systems (Hughes Electronics, USA)	
ICL (Fujitsu, Japan)	
Link Miles (Thomson-CSF, France)	
Logica	
Lucas Varity	
Marconi	
Messier-Dowty International (SNECMA, France/TI Group)	
Paradigm Secure Communications (EADS Space Services, Europe)	
Pilatus Britten-Norman (Pilatus, Switzerland)	
Pilkington	
Pilkington Thorn Optronics (Pilkington/Thomson-CSF)	

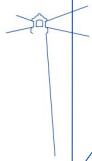




## European Defence Industry Anticipating Restructuring

Rediffusion Simulation (Thomson-CSF)  
Rolls Royce Power Engineering (Rolls Royce)  
Royal Ordnance (BAE SYSTEMS)  
STC  
Short Brothers (Bombardier, Canada)  
Siemens Plessey Electronic Systems (Siemens, FRG)  
Systron Donner  
Thales Air Defence 11 months only! (Thales, France)  
VSEL (BAE SYSTEMS Marine)  
Vickers (Alvis)  
Westland (GKN)  
Yarrow Shipbuilders (BAE SYSTEMS Marine)

France	Arms Sales, 2005
Thales	8940
DCN	3520
SAFRAN	2630
Dassault Aviation Groupe	2210
Eurocopter Group (EADS)	2120
SNECMA Groupe (SAFRAN)	1950
CEA	1710
SAGEM Groupe (SAFRAN)	1090
GIAT Industries	910
SMA (SAFRAN)	410
Areva (CEA)	380
CNIM	199
Airbus Industrie (EADS/BAE, UK)	
Alcatel	
Alcatel Space (Alcatel)	
Alkan (MBDA/EADS/BAE/Finmeccanica)	
Alstom	
Areva NP (Areva)	379
CMN (Soffia)	
CR2A Holding (IBM France)	
Chantiers de l'Atlantique (Alstom)	
Cogema (CEA Industrie)	
EADS Astrium (EADS, Netherlands)	
EADS Sodern (EADS, Netherlands)	
EADS Space Services (EADS, Netherlands)	
EADS Space Transportation (EADS, Netherlands)	
EBF	
Eurengo (SNPE Groupe/Patria, Finland/Saab, Sweden)	
Eurengo France (Eurengo)	
Eurocopter France (Eurocopter S.A.)	
Hispano Suiza (SNECMA)	
IBM France (IBM, USA)	
Intertechnique (Zodiac)	
Jeumont (Areva)	
Labinal acq. by Snecma 0107'00	
Lagardère SCA ((with EADS))	
Manurhin Défense	
Matra Cap Systèmes (Matra HT/Cap Gemini Sogeti)	
Matra Défense (Lagardère)	
Matra Haute Technologies (Lagardère SCA)	



## European Defence Industry Anticipating Restructuring

Matra Marconi Space (Matra HT/BAE SYSTEMS,UK)  
 Matra Systèmes & Information (Matra Haute Technologies)  
 Messier-Bugatti (SNECMA)  
 Microturbo (Sneema)  
 PSA  
 Panhard et Levassor (PSA)  
 RVI (Renault)  
 Ratier-Figeac (EBF)  
 Renault  
 Roxel (MBDA/SNPE)  
 SAGEM (SAGEM Groupe)  
 SNECMA (SNECMA Groupe)  
 SNPE Groupe (PH)  
 SNPE S.A. (SNPE Groupe)  
 Socata (Aérospatiale)  
 Sochata (SNECMA)  
 Soffia  
 Sogerma-Socea (EADS)  
 Sogerma-Socea S.A. (Aérospatiale)  
 TDA Armements (EADS, FRG/Thales)  
 Technicatome (CEA Industrie)  
 Technofan (Labinal)  
 Thales Avionics (Thales)  
 Thales Systèmes Aéroportés (Thales)  
 Thomson Shorts Systèmes (Bombardier, Canada/Thales)  
 Thomson Sintra ASM (Thales)  
 Thomson-CSF Airsys (Thomson-CSF)  
 Thomson-CSF Communications (Thales)  
 Thomson-TRT-Défense (Thales)  
 Unilaser (Aérospatiale SNI)  
 Zodiac

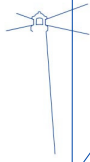
Germany	Arms Sales, 2005
Rheinmetall	1740
ThyssenKrupp, TK	1240
Krauss-Maffei Wegmann	750
Diehl	720
MTU Aero Engines	610
DaimlerChrysler, DC	500
MTU Friedrichshafen (DC)	500
MAN	460
HDW (PH) (ThyssenKrupp)	249
ANT (Bosch)	
Aeroflight (Aerodata/FR Aviation, UK)	
Alcatel SEL (Alcatel, France)	
Bodenseewerke Gerätetechnik (Diehl)	
Bosch	
CAE Elektronik (CAE, Canada)	
Carl Zeiss Foundation	
Celerg Deutschland (CELERG International, France)	
Comet (Diehl)	
DASA Airbus (DASA)	
Dornier (EADS)	



## European Defence Industry Anticipating Restructuring

### Dräger

Dynamit Nobel (MG Technologies)  
ESG Elektronik Systems (Alcaet SEL/Siemens AG/Rhode & Schwarz)  
Eurocopter Deutschland (Eurocopter SA, France)  
Ferrostaal (MAN)  
Gildemeister  
Heckler & Koch (Royal Ordnance, UK)  
Henschel Wehrtechnik (Rheinmetall)  
IVECO Magirus (FIAT, Italy)  
KUKA Wehrtechnik (Rheinmetall)  
LFK (EADS)  
LITEF (Litton, USA)  
Lürssen  
MAK System Gesellschaft (Rheinmetall)  
MAN Technologie (MAN)  
MG Technologies  
Mannesmann (merged with Vodafone 01)  
Nammo Buck (Nammo, Norway)  
Oerlikon Contraves GmbH (Rheinmetall)  
Renk (MAN)  
Renk AG (Renk)  
Rheinmetall AG (Rheinmetall)  
Rhode & Schwarz  
Rolls Royce Deutschland (Rolls Royce, UK)  
SCS (Cap Gemini Sogeti, France)  
STN Atlas Elektronik (Rheinmetall DeTec)  
Siemens  
Teldix (Litton, USA)  
ZF



## European Defence Industry Anticipating Restructuring

Italy	Arms Sales, 2005
Finmeccanica	9800
AgustaWestland (Finmeccanica)	2850
Selex Sensors & Airborne Systems (Finmeccanica)	1380
Alenia Aeronautica (Finmeccanica)	1120
Selex Communications (Finmeccanica)	680
Fincantieri	610
Avio	530
Selex Sistemi Integrati (Finmeccanica)	470
MBDA Italia	410
Oto Melara (Finmeccanica)	390
FIAT	323
IVECO (PH) (FIAT)	323
Elettronica	301
WASS (Finmeccanica)	146
Aermacchi (Finmeccanica)	109
Vitrociset	80
Datamat (Finmeccanica)	75
Alcatel Italia (Alcatel, France)	65
Simmel Difesa (Magneti Marelli)	56
ASTRA Veicoli Industriali (IVECO)	
Agusta (AgustaWestland)	
Alenia Elsag Sistemi Navali (Finmeccanica)	
Alenia Spazio (Finmeccanica)	
Alfa Romeo Avio (Finmeccanica)	
BPD Difesa e Spazio (FIAT Aviazione)	
Beretta	
Breda Meccanica Bresciana (Finmeccanica division)	
Elmer (Finmeccanica/Marconi)	
FIAR (Finmeccanica)	
FIAR Gruppo (Finmeccanica)	
FIAT Avio (FIAT)	
FIAT Difesa e Spazio (FIAT)	
Galileo Avionica (Finmeccanica)	
IVECO AIFO (FIAT)	
Intermarine (Montedison)	
Italtel (IRI)	
Litton Italia (Litton, USA)	
Macchi	
Magneti Marelli (FIAT)	
Marconi Mobile (Finmeccanica)	
Microtecnica (United Technologies, USA)	
Montedison	
Oerlikon Contraves spa (Rheinmetall, Germany)	
Officine Aeronavali Venezia (IRI)	
Officine Galileo (FIAR)	
Orizzonte (Fincantieri)	
Rinaldo Piaggio	
SMA (FIAR)	
Whitehead (FIAT CIEI)	



## European Defence Industry Anticipating Restructuring

Netherlands	Arms Sales, 2005
EADS	9580
MBDA (BAE Systems, UK/EADS, W. Eur./Finmeccanica, Italy)	4080
EADS Space (EADS, Netherlands)	960
DAF SP (Van Halteren Metaal)	
De Kruitthoorn (Rheinmetall, FRG)	
De Schelde	
Delft Instruments	
Fokker Aviation (Stork)	
Fokker Space	
Internatio-Müller	
Metaalwarenfabriek Tilburg (Diehl, FRG)	
RDM	
Stork	
v.d. Giessen-de Noord	
Alenia Marconi Systems (Finmeccanica, Italy/BAE SYSTEMS, UK)	

Sweden	Arms Sales, 2005
Saab	2110
Hägglunds Vehicle (BAE)	300
Ericsson	293
Ericsson Microwave (Ericsson)	293
Bofors Defence (BAE Systems)	150
Kockums (HDW, Germany)	142
Volvo	113
Volvo Aero (Volvo)	113
Nammo Sweden (Nammo, Norway)	41
WM-data AB, Defence	40
FLIR Systems, Imaging Sweden (FLIR Systems)	24
Barracuda Technologies (Hägglunds Vehicle)	
Bofors (Celsius)	
Bofors Carl Gustav (Bofors)	
Bofors Explosives (Bofors)	
Bofors LIAB (Bofors)	
Celsius Aerotech (Celsius)	
Celsius Information System (Celsius)	
CelsiusTech (Celsius)	
CelsiusTech Electronics (CelsiusTech)	
CelsiusTech Systems (CelsiusTech)	
Ericsson Radio Systems (Ericsson)	
Ericsson Saab Avionics (Ericsson/Saab)	
Eurengo Bofors (Eurengo, France)	
Karlskronavarvet (Kockums)	
Kockums Submarine Systems (Kockums)	
Saab Dynamics (Saab)	
Saab Military Aircraft (Saab)	
Saab Training Systems (Saab)	
Scania	
Telub (Celsius Information System)	



## European Defence Industry Anticipating Restructuring

Spain	Arms Sales, 2005
Navantia	970
Indra	670
ITP Group	234
Amper (Grupo Amper)	
Amper Grupo	
CASA (EADS)	
EDB (UEE)	
EXPAL (UEE)	
GAMESA	
Grupo Alcatel (Alcatel-Alsthom, France)	
ITP (ITP Group)	
Telettra España	
UEE 1999 data	
Finland	Arms Sales, 2005
Patria Industries	335
Eurencos Vihtavuori (Eurencos, France)	
Finavitec (Patria Industries)	
Kvaerner Masa Yards (Kvaerner, Norway)	
Nammo Lapua (Nammo, Norway)	
Nokia	
Nokia Telecommunications (Nokia)	
Patria Vehicles (Patria Industries)	
SISU Group	
Sako (Nokia/Valmet)	
VAMMAS (Patria Industries)	
Valmet	
Greece	Arms Sales, 2005
EAB Hellenic Aerospace Industry (PH)	279
CHR. Economides	
EBO Hellenic Arms Industry	
ECON Industries	
ELBO	
Elefsis Shipyards	
Hellenic Shipyards	
PYRKAL	



## European Defence Industry Anticipating Restructuring

### Belgium Arms Sales, 2005

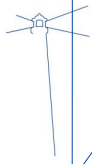
ASCO Industries  
Alcatel ETCA (Alcatel, France)  
BATS (ELTEM Holding, NET)  
Barco  
Browning (HERSTAL)  
CMI  
ETCA (Alcatel Bell-SDT)  
FN HERSTAL (HERSTAL)  
Forges de Zeebrugge (Thomson Brandt Armements, France)  
HERSTAL (GIAT Industries, France)  
MECAR (Allied Research Corp., USA)  
Mercantile Beliard  
OIP (Delft Instruments, NET)  
PB CLERMONT (SNPE, France)  
PLEXYCCA  
SABCA (Dassault, France)  
SONACA  
SOREMI (ASCO)  
Scheepswerf Van Rupelmonde  
  
TEAMCO  
Techspace Aero (SNECMA, France)  
Thomson-CSF Electronics (Thales, France)  
WIDNEY Europe

### Denmark Arms Sales, 2005

Terma Elektronik 114

### Austria Arms Sales, 2005

DASA Austria (DASA, FRG)  
Dynamit Nobel Wien (Emmerich Assmann)  
Hirtenberger  
Maschinenfabrik Liezen  
SDP Fahrzeugtechnik (Steyr-Daimler-Puch/Creditanstalt  
Bankverein)  
SDP Spezialfahrzeuge (Steyr-Daimler-Puch)  
Steyr Mannlicher (Steyr-Daimler-Puch)  
Steyr-Daimler-Puch  
Südsteierische Metallindustrie



## European Defence Industry Anticipating Restructuring

### Portugal

Arms Sales, 2005

Arsenal do Alfeite  
Browning VIANA  
EDISOFT  
EID  
INDEP  
OGFE  
OGMA  
OGME  
SPEL  
TUDOR

Source: SIPRI data base

Note: many arms sales figures are rough estimates; companies might have changed ownership since the data collection



### 3. Portraits of the 10 largest Defence Producers in the EU

	Company description	Shareholders	Branch / location of sites
<b>BAE SYSTEMS UK</b>	<p>BAE Systems (British Aerospace and Marconi Electronic Systems) is Europe's largest defence and aerospace company delivering a full range of products and services for air, land and naval forces and advanced electronics, information technology solutions. In the global ranking, BAE Systems is the third largest defence<sup>14</sup> contractor with major investments in the USA (e.g. United Defence).</p> <p>BAE Systems has various business divisions: electronics, land and armaments, programmes for major air and sea systems (e.g. Typhoon, F-35, Nimrod, Type 45 destroyers, aircraft carriers, nuclear power submarines)</p> <p>BAE Systems is one of the 3 shareholders (37.5 %) in the joint venture MBDA<sup>15</sup>, the international leader in missile systems.</p> <p>The company's annual sales total € 20.84 billion in 2006. Military equipment accounts for 75 % of BAE Systems sales.</p>	PUBLIC LIMITED COMPANY	Workforce : 96,000 (worldwide) 40,000 (UK)

<sup>14</sup> According to BAE Systems website

<sup>15</sup> MBDA is a joint venture by BAE SYSTEMS (37.5%), EADS (37.5%) and FINMECCANICA (25%).



## European Defence Industry Anticipating Restructuring

<b>FINMECCANICA Italy</b>	<p>Finmeccanica is the main Italian industrial group operating globally in the aerospace, defence and security sectors, and is one of the world's leading groups in the fields of helicopters and defence electronics. It is also the European leader for satellite and space services.</p> <p>The helicopter manufacturer Agusta-Westland and the defence systems companies Oto Melara and WASS are part of the Finmeccanica group. In addition, the group holds a stake in MBDA (stakeholder with 25 %).</p> <ul style="list-style-type: none"> <li>• Aeronautical business: tactical airlifters, combat aircraft, unmanned air vehicles for both civil and military applications</li> <li>• Helicopters: design and development of helicopters and tiltrotors for civil and military use</li> <li>• Space: (Finmeccanica and Alcatel) satellite construction and satellite service</li> <li>• Defence electronics: avionics, military and secure communications, air traffic control and management</li> <li>• Defence System: production of missile systems, torpedoes, naval artillery and armoured vehicles</li> <li>• Energy transportation</li> </ul> <p>Annual sales reached € 12.47 billion in 2006.</p>	<p><b>MAIN SHAREHOLDERS</b></p> <ol style="list-style-type: none"> <li>1. 33.7 % Italian State</li> <li>2. 66.3 % Public</li> </ol>	<p>Workforce: 60,000</p> <p>42,000 in Italy 12,000 in England 6,000 in France</p> <p>Main Industrial base in the UK</p>
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## European Defence Industry Anticipating Restructuring

<p><b>EADS Europe</b></p>	<p>The European Aeronautic Defence and Space Company (EADS) emerged in 2000 from the link-up of the German DaimlerChrysler Aerospace AG, the French Aerospatiale Matra and CASA of Spain. EADS is one of the global leaders in aerospace, defence and related services. The Group includes the aircraft manufacturer Airbus, the Eurocopter and EADS Astrium.</p> <ul style="list-style-type: none"> <li>• Airbus</li> <li>• Military Transport Aircraft Division (MTA): light and medium transport aircraft</li> <li>• Eurocopter: world's largest helicopter supplier</li> <li>• EADS Astrium: the European leader in space programmes from Ariane to Galileo</li> <li>• EADS Defence &amp; Security Division (DS): Eurofighter consortium (A400M military transport aircraft), stakeholder in the joint venture MBDA with 37.5 %, Defence electronics, Military Air Systems, Defence and Communication Systems</li> </ul> <p>Annual sales reached € 39.4 billion in 2006.</p>	<p><b>MAIN SHAREHOLDERS</b></p> <ol style="list-style-type: none"> <li>1. Public, including EADS employees: 44.44 %</li> <li>2. DAIMLER AG: 22.53 %</li> <li>3. SOGEADE (French state &amp; Lagardere): 27.54 %</li> <li>4. Spanish State: 5.49 %</li> </ol> <hr/>	<p>Workforce: 116.000 (worldwide)</p> <p>70 production sites</p> <p>Location of major sites in Germany: Augsburg, Hamburg, Donauförth, Dresden, Friedrichshafen, Kiel, Backnang, Manching, Lampoldshausen, Lemwerder...</p>
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## European Defence Industry Anticipating Restructuring

<p><b>THALES France</b></p>	<p>Thales is one of the market leading companies in Europe for critical information systems. Its businesses focus on critical information systems for defence, aerospace (aeronautics + space) and security applications.</p> <p>Thales' core businesses include:</p> <ul style="list-style-type: none"> <li>• The Aerospace division (24.1%): equipment for civil and military aircraft (European market leader), mission electronics for combat aircraft and airborne surveillance</li> <li>• The Land &amp; Joint Systems division (23.4%): networkcentric, systems and network-enabled equipment for land forces and joint and allied commands</li> <li>• The Air Systems division (15.5%): defence and missile systems for military customers (European market leader), civil air traffic management systems</li> <li>• The Naval division (13%)</li> <li>• The Service division (11.8%): IT services, simulation-based training to military and aerospace customers</li> <li>• The Security division (11.7%): technology for risk management solutions, security systems</li> <li>• Other sectors (0.5%)</li> </ul> <p>Annual sales reach € 12 billion.</p>	<p><u>MAIN SHAREHOLDERS :</u></p> <table border="1"> <tr> <td>1. French State</td> <td>27.29 %</td> </tr> <tr> <td>2. Alcatel</td> <td>20.94 %</td> </tr> <tr> <td>3. Group Industriel Marcel Dassault</td> <td>5.00 %</td> </tr> <tr> <td>4. Capital Group International</td> <td>4.89 %</td> </tr> <tr> <td>5. Other employee shareholding</td> <td>3.85 %</td> </tr> <tr> <td>6. Treasury Shares</td> <td>1.56 %</td> </tr> </table>	1. French State	27.29 %	2. Alcatel	20.94 %	3. Group Industriel Marcel Dassault	5.00 %	4. Capital Group International	4.89 %	5. Other employee shareholding	3.85 %	6. Treasury Shares	1.56 %	<p>Thales's presence: France (29.9%), UK (13.1%), other European countries (20.3%), Asia-Pacific (15.3%), USA (11.6%), Middle East (6%), Africa and Latin America (3.8%) .</p> <p>Workforce: 68,000 (worldwide)</p> <p>In France :</p> <ul style="list-style-type: none"> <li>• 13 sites for Air systems (Bagneux, Conflans, Limours...)</li> <li>• 17 sites for the Aerospace division (Pessac, Brest, Elancourt, Toulouse, Meudon)</li> <li>• sites for naval industry (Brest, Nice, Bagneux...)</li> <li>• 14 sites for land &amp; joint systems (Guyancourt, Colombes, la Ferté St Aubin...)</li> </ul>
1. French State	27.29 %														
2. Alcatel	20.94 %														
3. Group Industriel Marcel Dassault	5.00 %														
4. Capital Group International	4.89 %														
5. Other employee shareholding	3.85 %														
6. Treasury Shares	1.56 %														



## European Defence Industry Anticipating Restructuring

<b>ROLLS-ROYCE UK</b>	<p>Rolls-Royce is a power-systems company with a business focus on the development, production, repair and maintenance of civil and military aero-engines (jet combat, jet trainer, large military aircraft and helicopter).</p> <p>The company is the leading aero-engine manufacturer in Europe and number two in the world. In addition, Rolls-Royce holds the domestic monopoly of the UK military aero-engine market and serves as the monopoly supplier of nuclear power plants for the country's nuclear-powered submarines.</p> <p>Annual sales reach € 10.28 billion.</p>	<u>PUBLIC LIMITED COMPANY</u>	<p>Workforce: 38,000</p> <p>Location of sites (UK): Civil Aero-Engine Business in Derby</p> <p>Military Aero-Engine Business in Bristol</p>
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**European Defence Industry  
Anticipating Restructuring**

<p><b>SAFRAN France</b></p>	<p>The Safran Group resulted of the merger of the French propulsion and aerospace equipment group SNECMA and defence conglomerate SAGEM in May 2005. SAFRAN is an international industrial group specialised on four core businesses: Aerospace propulsion, Aircraft equipment, Defence Security, Communications.</p> <p>The company's sales in 2006 amount to 11,329 millions €. According to its four core businesses, the following numbers refer to the percentage of sales by branch:</p> <ul style="list-style-type: none"> <li>• Aerospace Propulsion = 45% in 2006, 43% in 2005</li> <li>• Aircraft Equipment = 23% in 2006, 24% in 2005</li> <li>• Defence Security = 13% in 2006, 11 % in 2005</li> <li>• Communications = 19% in 2006, 22 % in 2005</li> </ul> <p>The SAFRAN Group comprises a number of companies, e.g.:</p> <ul style="list-style-type: none"> <li>• <u>Aerospace propulsion</u>, Sneema: Aircraft equipment Turbomeca : Helicopter engines</li> <li>• <u>Aircraft equipment</u> Messier Dowty : Aircraft equipment (landing gear) Messier Bugatti : Aircraft Braking Aircelle : Nacelles for commercial aircraft engines Labinal : Aircraft wiring</li> <li>• <u>Defense Security</u> : Sagem Défense Sécurité : defense and security electronics company (Sagem Avionics and Sagem Optronics and Defense)</li> <li>• <u>Communication</u></li> </ul>	<p><u>MAIN SHAREHOLDERS :</u></p> <ol style="list-style-type: none"> <li>1. French State : 30.4 %</li> <li>2. Public : 40.6%</li> <li>3. Other employee shareholding : 12.6%</li> <li>4. Areva : 7.4%</li> <li>5. Club Sagem : 7.6%</li> <li>6. Treasury shares : 1.4%</li> </ol>	<p>Workforce by region:</p> <p>Europe : 45,800 Americas : 8,200 Asia : 4,000 Africa : 3,900 Others: 100</p> <p>Location of major sites in France : Paris, Colombes, Evry, Melun, Velizy, Tarnos, Bordes, Molsheim, Toulouse, Villemur</p>
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**European Defence Industry  
Anticipating Restructuring**

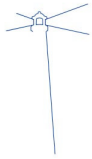
<p><b>SAAB Sweden</b></p>	<p>Since its creation in 1937, the Swedish SAAB group has manufactured aircrafts for military and civilian use. SAAB is organised in 3 main business units: Defence and Security solutions, Aeronautics, System and Products.</p> <ul style="list-style-type: none"> <li>• Aviation: fighter aircraft Gripen</li> <li>• Electronic Warfare: combat and transport aircraft, helicopters, combat vehicles, surface vehicles, submarines</li> <li>• Weapon Systems</li> <li>• Unmanned Systems, Sensor Systems</li> <li>• Space equipment</li> </ul> <p>Annual sales reached € 2.3 billion.</p>	<p>Public Limited Liability Company  <b>MAIN SHAREHOLDERS</b>          BAE System: 20.5 %</p>	<p>Workforce: 13,600</p>
<p><b>RHEINMETALL Germany</b></p>	<p>Rheinmetall AG was established in 1889 as Rheinische Metallwaren- und Maschinenfabrik Actiengesellschaft and is a company for automotive components and defence equipment. Its defence sector is a leading supplier of defence technology, security equipment and is specialised in land forces equipment.</p> <p>Products: Land Systems, Vehicle systems, Weapon and Munitions, Propellants, Air Defence          Annual sales of € 1.4 billion.</p>	<p><u>PUBLIC LIMITED COMPANY</u></p>	<p>Workforce: 6,800 (in defence sector)</p>



## European Defence Industry Anticipating Restructuring

<p><b>DASSAULT AVIATION France</b></p>	<p>In its almost 60 years of experience (creation 1936), Dassault Aviation has grown into one of the leading companies in the worldwide military aviation industry. Dassault Aviation is a private French group with a presence in more than 70 countries across 5 continents.</p> <p>Sales by branch:          - Civil products (62.2%) : Aircrafts (Falcon)          - Military products (37.8%) : Combat aircrafts Mirage, Rafale, Falcon, European unmanned combat air vehicle program (nEUROn)</p> <p>Annual sales reached € 3.3 billion in 2006.</p>	<p><b>MAIN SHAREHOLDERS :</b></p> <table border="1"> <tr> <td>1. Groupe Industriel Marcel Dassault</td> <td>50.55 %</td> </tr> <tr> <td>2. EADS France</td> <td>46.30 %</td> </tr> <tr> <td>3. Private Investors</td> <td>3.49 %</td> </tr> </table>	1. Groupe Industriel Marcel Dassault	50.55 %	2. EADS France	46.30 %	3. Private Investors	3.49 %	<p>Workforce: 12,000</p> <p>Location of facilities/sites:          Argenteuil, Saint Cloud, Seclin, Poitiers, Argonay, Martignas, Merignac, Cazaux, Biarritz, Istres</p> <p>Major subcontractors:          Thales          Safran snecma          Safran Sagem</p>
1. Groupe Industriel Marcel Dassault	50.55 %								
2. EADS France	46.30 %								
3. Private Investors	3.49 %								
<p><b>DCNS France</b></p>	<p>DCNS is a major player on the European and world market for naval defence systems. As a prime contractor, shipbuilder and systems integrator, DCNS businesses focus on submarines (Barracuda - nuclear-powered attack submarines, Scorpene) and surface combatants (aircraft carriers, corvettes, frigates). DCNS is Europe's second market leader for the construction of submarines.</p> <p>In 2007, DCN officially changed its name into DCNS, following the convergence of DCN, Thales Naval France, Armaris and their respective subsidiaries. DCN and Thales finalised an agreement with the French government and consolidated their naval activities in France. Thales acquired a 25% stake in DCN alongside with the French government, which retained a 75% stake.</p> <p>Annual sales reached € 2,7 billion in 2006.</p>	<p><b>MAIN SHAREHOLDERS :</b></p> <table border="1"> <tr> <td>1. French State</td> <td>75%</td> </tr> <tr> <td>2. Thales</td> <td>25 %</td> </tr> </table>	1. French State	75%	2. Thales	25 %	<p>Workforce : 13,300 at 14 sites located in France</p> <ul style="list-style-type: none"> <li>• Cherbourg : submarines</li> <li>• Lorient : surface combatants</li> <li>• Brest : service and maintenance</li> <li>• Toulon : ship management systems</li> <li>• St Tropez : torpedo</li> <li>• Ruelle : naval equipment</li> <li>• Indret : naval propulsion</li> <li>• Paris : headquarter</li> </ul> <p>Major subcontractors          Aker Yards, Technicatome, Thales</p>		
1. French State	75%								
2. Thales	25 %								





#### **4. Agenda of the December 13 & 14 Seminar**

*Seminar  
Anticipation of change and restructuring in the defence industry*

**Hotel Bedford  
(135 Rue du Midi 1000 Brussels)  
13 -14 December 2007**

#### **PROGRAMME**

##### **1<sup>st</sup> Half-day (13 December 2007)**

- 13.00 Registration
- Chair:** *Mr Gwenole Cozigou, European Commission, Head of Unit, DG Enterprise and Industry*
- 14:00 Opening of the Seminar by **Mr Armindo Silva**, European Commission, Acting Director for Social Dialogue, Social Rights, Working Conditions, Adapting to Change
- 14:10 The European Defence Industry: present situation and challenges by **Professor Herbert Wulf**, Research associate of the Bonn International Centre for Conversion and **Professor Keith Hartley**, Director of the Centre for Defence Economics, York University
- 14:50 Building a European Defence Technological and Industrial Base, the EDA's role, **Mr Ulf Hammarström**, Director Defence Industry and Market, European Defence Agency
- 15:05 Community's initiatives to enhance the competitiveness of the European defence industry and create a European Defence Equipment Market: the Commission's Defence Package, **Mrs Anna Borràs**, European Commission, Administrator, Defence, Aerospace and Maritime Industries Unit, DG Enterprise and Industry
- 15:20 Outline of two possible future development scenarios and their two variants  
**Dr. Elisabeth Waelbroeck-Rocha**, Vice-President of BIPE
- 15:40 Coffee Break
- 16:00 Group discussions on the likelihood of the scenarios and conditions for change
- 17:15 Report back from the group sessions and general debate  
**Rapporteurs: Prof. Dr. Herbert Wulf, Dr. Peter Wilke and Prof. Keith Hartley**
- 18:30 End of day 1
- 20:00 Dinner



## European Defence Industry Anticipating Restructuring

### 2<sup>nd</sup> Half-day (14 December 2007)

**Chair:** *Mr Fernando Vasquez, European Commission, Deputy Head of Unit, DG Employment, Social Affairs and Equal Opportunities*

- 9:00 Implications of the scenarios on employment and on social factors  
**Dr. Elisabeth Waelbroeck-Rocha**, Vice-President of BIPE
- 9:30 Questions and discussion
- 10:00 Good practices of anticipation and managing change, **Mr Ola Bergstrom**, Institute for Management of Innovation and Technology (IMIT) in Stockholm, and **Mr Frédéric Bruggeman**, Consultant
- 10:30 Questions and discussion
- 11:00 Coffee Break
- 11:20 Round table with different stakeholders explaining how they see their role:  
  
**Mr Stavros Kyrimis**, Assistant Director, Defence Industry and Market Directorate, European Defence Agency  
  
**Mr Gert Runde**, Director Security and Defence, AeroSpace and Defence Industries Association of Europe  
  
**Mr Peter Scherrer**, General Secretary of the European Metalworkers' Federation (EMF)
- 12:45 Closing remarks by BIPE and the **European Commission**
- 13:00 End of seminar

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## **5. Questions for the Group discussions**

### **Theme 1/ Conditions underlying the scenarios**

1. Are the scenarios realistic?
2. What is the time frame?
3. What is likely to be the position of the smaller EU defence producers, and the smaller countries in general: what kind of return are they likely to expect in order to contribute to the financing of pan-European R&D programmes or other joint efforts, and transfer some of their decision-making power to an EU agency?
4. Do regional authorities or other stakeholders have a role in facilitating transformation

### **Theme 2/ Risks related to changes in industrial organisation in Europe**

1. What are the potential problems and potential opportunities **for the large EU defence producers?**
2. How dependent are subcontractor SMEs on defence markets and defence companies? What could they gain from future changes?

### **Theme 3/ Skills and competencies**

1. What competencies/skills need to be secured to achieve a competitive European defence industry in tomorrow's world?
2. What competencies are at risk in defence industries, and are these at risk because:
  - a. Of ageing and retirement (skill transfer has not been organised in time, for whichever reason)
  - b. Of competition with other (civilian) activities, susceptible to be perceived as more attractive (→ tensions on that particular skill segment)
  - c. They are highly specific and can only be maintained if there is a program underway mobilising the competence (ex: combat aircraft) → not developing the programme means total loss of competence?
3. How can the competence loss be avoided?



## **6. Minutes of the December 13&14 Seminar**

**Mr. Gwen Cozigou**, Deputy Head of Unit, DG Employment, Social Affairs and Equal Opportunities, opens the seminar and welcomes participants. He indicates that this seminar constitutes a *first step* to mobilise actors concerned by change and restructuring in the European defence industry, and aims to initiate a dialogue. The objective of the seminar was therefore not to have an objective representation of *all* the actors concerned by the future of defence industries in Europe, but to start a dialogue that should continue in the coming months.

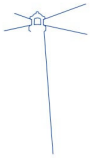
**Mr. Armindo Silva**, Acting Director for Social Dialogue, Social Rights, Working Conditions and Adapting to Change at the European Commission, summarises the context to which the European defence industry is now faced, and reminds participants of the importance of this sector both in terms of value added (between 2% and 2.5% of the EU-GDP), and in terms of employment (close to 800 000 people directly employed). The sector is strategic to the EU both as a driver of innovation and as a producer of products and services incorporating highly advanced technologies. It is thus a key to the development of a competitive European industrial and knowledge base and to the credibility of EU security and defence policy. Mr. Armindo Silva then summarises the challenges to which the sector is faced, which are further detailed in this report, and outlines the European Commission's role in this sector, in particular with the recently adopted defence package which includes a Communication on competitiveness, and two legislative proposals applying respectively to Arms transfers and to Defence and sensitive security equipment. He reminds participants of the importance of anticipation in order to prepare change in an industry which is bound to face further restructuring. To minimise the negative social consequences thereof, all stakeholders must understand and be convinced of the need to anticipate change. Anticipation is a pre-condition to apply pro-active policies.

The European Commission has various instruments and programmes to accompany change, and provides a legal framework to social dialogue at sectoral and inter-sector level: the European Social Fund and legislation on the consultation of workers. Member States governments have a particular role to play in this sector given their particular relationship with defence producers, in that they are both the main clients of these, and are often also major shareholders. All levels of government are concerned by change given the magnitude of change that is expected. All the stakeholders must play a role in anticipating and managing change, in their area of responsibility, and act in a coordinated fashion. Partnerships based on voluntary agreements are needed and are possible using existing instruments.

This seminar aims at contributing to this in the defence industry. The goal is to organise a dialogue between stakeholders in the coming months, in order to share views and define initiatives that will enable the sector to adapt to the forthcoming changes. The process will include a Forum to be organised in the Summer of 2008.

**Professor Dr. Herbert Wulf**, Research associate of the Bonn International Centre for Conversion, and **Professor Keith Hartley**, Director of the Centre for Defence Economics, York University, then present an overview of the present situation and challenges of the European Defence Industry, summarising the analysis presented in this report.

**Mr Ulf Hammarström**, Director of the Defence Industry and Market division, European Defence Agency, recalls the role and missions of the EDA, which was created 3 years ago. He stresses the present competitiveness and high performance of the European defence industry, yet also mentions a number of challenges ahead, due in part to the fact that the industry's competence and competitiveness is largely based on past investment in R&T and R&D.



## European Defence Industry Anticipating Restructuring

Budgetary issues constitute a challenge, and without common action the EU defence industry will lose some ground compared to US defence industry. Yet, the defence industry is not an ordinary commercial market. Governments play a major role in this market. The EDA's role is to bring some commercial market aspects into the EU defence industry. The Code of Conduct which was agreed to by the EU defence ministers bring more transparency to the market even when Article 296 is invoked, since the EDA is informed of contracts made without open tenders. This constitutes an important step. The creation of a fair and equal market however does not only rely on fair & open procurement rules. Offsets is one area that needs to be looked at more carefully, in how it affects equipment market. Another issue is public (state) aid to defence companies, which distorts competition. Hence, both supply-side and demand-side actions are called for. This is recognised by the EU Defence Ministers. Work is underway to strengthen the EDTIB, the final goal being for the European defence industry to be **capability driven, competent and competitive** (the 3C strategy).

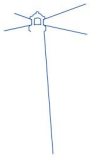
To achieve this requires government to accept more interdependence, to accept being more reliant on each others' industry, to have more centres of excellence. This has implications on the future geographical distribution of the industry.

Five actions are underway to achieve these goals, which underline the EDA's actions:

1. Joint definition of a list of key technologies for the future; the goal is to identify key industrial capabilities to be sustained or developed in Europe;
2. Consolidate demand better;
3. Increase investments (it is, in fact, unlikely to see more defence spending as such; the question, therefore, is how expenditure will be allocated, and how one can use resources more effectively; knowing that R&D is a priority);
4. Ensure security of supply: governments (i.e. the customers) need to be assured have the supplies they need when they need them, including when they buy across border and not within their own industry;
5. Increase depth of industry: this implies supporting SMEs, getting non traditional suppliers into the defence industry and better integrating the new member states which, for historical reasons, are not yet fully integrated into the EU defence supply chains.

In the coming years, cooperation will shape the EU defence industry and result in more interdependent structures, geographically spread, with more depth and also more interconnections with non EU supply industry (as outsourcing from outside EU develops where relevant).

**Mrs. Ana Borrás**, Administrator, Defence, Aerospace and Maritime Industries Unit, DG Enterprise and Industry, then presents the European Commission's initiatives to enhance the competitiveness of the European defence industry and create a European Defence Equipment Market. She recalls the European Commission's role in the defence area, making reference to Article 296 of the Treaty referred to earlier in the report. Defence products are, however, not outside the Community framework and the European Court of Justice has been very clear that the use of Art 296 has to be justified on a case by case basis. Mrs. Borrás then present the Defence package, covering the umbrella communication and the two latest Directives on Arms Transfers and licencing procedures for sensitive equipment. The Communication presents a set of recommendations, initiatives, legislation and measures in the pipeline in order to tackle the challenges identified in this area. The Communication can be consulted on the European Commission website.



## **European Defence Industry Anticipating Restructuring**

Dr. Elisabeth Waelbroeck-Rocha then outlines the future scenarios that are presented in Chapter V of this report.

This presentation is followed by discussions between the participants, grouped in three working groups. The conclusions of each working group are presented by Dr. Wilke, Professor Dr. Wulf and Professor Hartley, who each chaired one of the working group.

### **Summary of the discussions of Group 1**

Dr. Wilke indicates that the discussion in this group was both interesting and lively. Many participants in the group came from France and the UK, though other countries were also represented. There were several contributions from industry, but also from trade unions and other interest groups.

People started discussing the scenarios. Although most participants did not believe that the European Convergence Scenario (presented as a Single Procurement Agency scenario at the seminar) would not come true, there was nevertheless a belief that it was a valuable scenario in that it helps opening the minds and gives some vision of the future. Yet, participants felt that the scenarios have to be worked on more in detail, in particular in terms of which type of change will take place (which company, region or country would be most affected?).

Discussions also dealt with the risks involved. On that point there was a valuable contribution from the CGT very valuable, which stressed that if there are changes to come, these will also apply to employment, work places and skills required. These have to be analysed carefully. Mr. Scherrer, from the European metal workers' federation, indicates that there has to be a serious social dialogue on this question. Yet, one needs to define what questions/issues are to be discussed in this dialogue.

There were also many interventions on issue of security, which is considered not only to be an industrial question.

Finally, the group was impatient to hear about the perceived consequences of the scenarios on employment.

### **Summary of the discussions of Group 2**

Professor Dr. Herbert Wulf indicates that his group was fairly small - about 12 people – but in this group too the debate was lively. There was some overlap with the discussions in the first group as reported by Dr. Wilke, but there were also additional aspects covered.

On the two scenarios, although the group recognises that there is a move towards the Europeanisation scenario, the participants strongly emphasized that we should not underestimate the still prevailing strong national procurement policies. Indeed, the member states' national foreign policy stances mean there is a need for national defence policies.

The group also felt that, if national champions have been formed in the past years, these are now in a transformation process. Although there is still a strong national bias there is a move to European production. If one looks at what these companies use in terms of supplies and technologies, one sees that there is a third scenario possible, which is the internationalisation of procurement. Companies indeed look in the global sphere and purchase and use inputs from any partner that they find reliable and technically up to speed, wherever they are located.



## **European Defence Industry Anticipating Restructuring**

On outsourcing, participants indicated that the defence ministries are not only looking at procuring weapon systems but also capabilities, services. This also has an impact on the industry and is of great importance for the governments which externalise these because the capabilities that are being purchased might disappear. This implies a risk of loss of know-how. This observation ought to be taken into account in future analysis.

As in the first group, trade unions reminded that workers rights need to be taken into account. There was some controversy over whether the removal of inefficiencies mentioned today actually meant more redundancies or, for example at company level, if better preparation made it possible to increase production and employment after the removal of inefficiencies.

Participants also indicated that one should not underestimate the still very differentiated, varied, procurement across EU. The different member states' armed forces have different equipment requirements because of their different roles (for example, peace keeping or a wider defence role). Hence, beyond the Europeanisation trend, one has to recognise the need for different procurement policies at national level.

The situation of the US is, in comparison, very different. The US plays a completely different role on the world scene, because of its role as a global player. Such a role is not foreseen for the EU, which is viewed as being more involved in peace keeping operations.

### **Summary of the discussions of Group 3**

Professor Hartley's group included representatives of 10 member states from west to eastern Europe. The group focused on 3 questions: the validity of the scenarios, the time factor (over how long will the changes take place), and what type of public policies are needed to manage change.

The starting point of the discussion, however, was that the group did not find the scenarios useful. People felt that the future will be different, and one should not try to foresee it by looking at past developments and trends. The group felt that the only useful scenario was that indicating small, marginal, changes. The reason therefore being that "nothing moves quickly in defence, companies don't change much". Yet, it also appeared in the discussion that some companies presently fail to see the diagnosis of the situation, as it has been presented today.

The group then focused on the demand side. It was recognised that armed forces need to integrate their demand. A point was made on defence RTD and the fact that this is paid by government. Contrary to civil aerospace, for example, defence industry was not considered likely to restructure unless pushed by demand. A statement which, in fact, brings back to the scenarios and their usefulness to anticipate future changes.

With respect to procurement policy, a participant indicated that governments are facing the same problems when procuring as commercial companies: they have to balance competition and think of the survival of their key suppliers.

The group then went back to discussing the two scenarios: the comment was made that the national scenario is associated with losers, and that one should move to common shared programmes and joint ventures. This confirmed the progressive move towards the usefulness of the scenarios.

Participants in the group noted that the US share of the EU market is larger than the EU share of the US market: this discrepancy in the balance of trade is a good indication of the difficulty for EU firms to access the US market.



## **European Defence Industry Anticipating Restructuring**

On dual technologies, the group felt that the militaries are leaders. The internet is a classic example of a major civilian spinoff of a military technology. Other examples were listed in racing cars and civilian aircraft technology.

Finally, the group felt that the scenarios need to recognise asymmetric threats such as from Iraq (British difficulties in protecting their armed vehicles). Yet there were some doubts about the ability of politicians to manage that.

On the policies needed, the consensus was that if one thinks of small changes there is no need for policy. Policy is only needed if big changes are aimed for or foreseen.

Last but not least, a suggestion was made that one needs to look at sub markets differently: there are distinct differences between submarines, naval, aircraft etc. There is no civilian application for submarines, for example....

A conclusion for this group is that there is a need for harmonisation of EU military equipment, and an agreement that defence budgets are likely to remain relatively stable.

### **Open discussion with the floor**

Participants were then invited to comment on the summary presentations by MM Wulf, Wilke and Hartley.

One participant indicates that Europe cannot remain globally competitive in a sustained way, either at individual country level or even at global level. The time-reaction gap between the US and Europe is such that Europe does not have enough power to weight on the international scene. Defence budgets must be increased if one wants to be credible as a world player.

Other participants, in particular from trade unions, also indicate that the scenario assumption of constant or falling defence procurement expenditures ought to be challenged, and that government spending should rather increase.

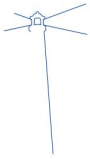
Mr. Hartley however reminds the assembly that budget allocations are a question of defining priorities: how highly do we value defence compared to other uses of resources: hospitals, schools. And, by how much are we ready to raise taxes?

Bill Giles, from BAE Systems, indicates that insufficient spending on R&D leads to the loss of technology edge and overall competitiveness. Yet, breakthrough technology can come about. It is important to get the dynamics right in shaping future expenditure, otherwise one will face a major problem. The defence directive could change the face of the European defence industry in the next 10 years. Yet it is critical that those countries that do spend a lot on RTD continue to do so, and that the imposition of standardised EU mechanisms would not discourage them from investing in RTD technology.

Mr. Cozigou indicates that this debate will take place in the relevant commission. It is certainly not the Commission's objective to bring about any reduction in RTD investments at EU level. The objective, as often mentioned by Mr. Solana, is to "spend more, spend better and spend together".

Mr. Marcoing, of Dassault industries, considers that the European defence industry is presently highly competitive in many market segments, including with respect to US products. Yet the question is whether this will still be the case in the future. Whereas in the present situation, the Euro/\$ level is a major factor of concern, the European industry presently has good technologies and good products that allows it to compete effectively in world markets. But it will be very





## European Defence Industry Anticipating Restructuring

difficult to retain this technological edge in the future unless the European context becomes more integrated than it is today.

**Mr Fernando Vasquez**, Deputy Head of Unit, DG Employment, Social Affairs and Equal Opportunities, opens the following session. This session is focused on the social and employment impacts of expected restructuring in the defence sector. These social consequences are of particular concern to the sector's workers and their representatives, the trade unions, as well as to the regions, many of which are very dependent on the sector. The consequences on employment are also of major interest to the companies themselves, both because they are directly concerned and need to participate to the restructuring process, and because one of the factors which conditions the future trends is the trend in competence, needs and skills required – which directly impacts employment.

This is why the EC has launched an anticipatory approach. The Commission prefers to deal with anticipation and restructuring as early as possible, i.e. before problems arise. Even without the prospect of immediate restructuring, one can/should participate to the anticipation of change.

**Dr. Elisabeth Waelbroeck-Rocha**, Vice President of BIPE, then presents the consequences of the scenarios on employment that are described in more detail in Chapter V.

During the discussion that follows, many trade union representatives take the floor and stress their concern at the stated consequences of the scenarios. Some worry that the outlook as painted will discourage young people from seeking qualifications needed by the defence companies, or will privilege employment in civilian industries.

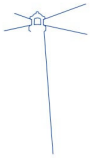
A view shared by several participants is that the defence industry should not be driven by economic considerations, given its high reliance on technology and RTD expenditure. It is also felt that competition in RTD is healthy, and that the duplication of efforts are therefore not as damaging or negative as has been indicated by the study team: duplication of effort allows knowledge sharing and stimulates the teams involved.

Technological breakthroughs may also emerge, which would completely change the picture which has been described, in particular if these allow prices to fall significantly, hence allowing more resources in real terms for defence expenditure.

Mrs. Rocha reminds that the purpose of the scenario exercise was not to present a forecast of future developments, but outline what could happen under certain circumstances, to stimulate discussion and encourage stakeholders to start a dialogue on necessary future changes and actions. The magnitude of future member states' defence budgets is a decision that each member state will take – our purpose was to try being realistic given the limited room for manoeuvre.

Another trade union participant indicates that the regional impacts of the scenarios presented are likely to be dramatic, given the high geographic concentration of EU defence production. The consequences on skill depletion are also likely to be dramatic.

Another participant stresses that urgent measures need to be taken in order to avoid a desertion of scientific careers and improve the sector's attractiveness to young professionals.



## European Defence Industry Anticipating Restructuring

Representatives from industry confirm that skill shortages have already started to develop. It has become a challenge to recruit people with the required skills in this industry. One should rapidly review how one can make the industry more attractive to those coming out of school. Some companies are looking for location possibilities or acquisitions in the newer member states in order to address the labour market constraint in the western member states.

**Professor Ola Bergstrom**, Institute for Management of Innovation and Technology (IMIT) in Stockholm, and **Mr Frédéric Bruggeman**, Consultant, present examples of good practices in the area of anticipation of change. The examples are presented in detail in Chapter 6 of the main report.

Participants remark that the trust factor is important in all these examples, and that they are not easily applicable to SMEs.

One participant indicates that an important stakeholder is missing in this discussion: this is the representative of civil society. How important is defence for the civilian society, and what compromises are people willing to accept, for example by paying for the of technology that has no commercial outlet and is not likely to be paid back in traditional terms, but contributes to security?

**Mr. Stavros Kyrimis**, Assistant Director, Defence Industry and Market Directorate, European Defence Agency; **Mr. Gert Runde**, Director Security and Defence, AeroSpace and Defence Industries Association of Europe; and, **Mr. Peter Scherrer**, General Secretary of the European Metalworkers' Federation (EMF) then present their organisation's missions and how they view its role in the forthcoming dialogue on the restructuring of European defence industry.

The ASD in particular is an association of associations. Its Members are national associations, some of which are non-EU members such as Turkey, Norway and Switzerland. Although employment issues are mainly regional and national issues, the ASD has recently started to pay more attention employment effects of change, because employment trends influence procurement and general industrial policies. ASD has therefore welcomed the EC initiative to undertake the study, and hopes to be able to contribute to establishing a framework within which collective bargaining can take place, to create benchmark or share best practices.

In contrast to ASD's fundamental purpose, the overall objective of EMF is to safeguard employment. The support of EMF to the Commission's initiative is therefore perfectly logical. The EMF has taken note of the discussion which took place in this seminar as to the realism of the scenarios, but believes scenario analysis is important in this type of exercise. In the coming months, the EMF hopes to contribute to the discussion of the means to put in place in order to anticipate and manage change, helping to identify the most appropriate instruments for different problems, in different situations. The EMF has experience in developing tools that allow social restructuring through social dialogue. Schneider and PSA are two examples of multinational companies where this has occurred. EMF can bring its experience of social dialogue in other sectors to the defence companies because some issues are similar – for example those in shipbuilding.

Following these two presentations, a trade union representative highlights the apparent contradiction between the stated, important, social ambition, and the lack of industrial ambitions of companies and governments alike, given the projected trend in government budgets. He also notes that little was said of the globalisation of defence companies, as well as of R&D programmes. If defence R&D budgets are curtailed, there is a risk that companies will draw resources from civilian R&D budgets, which will further blur the border between civilian and defence industries, and possibly even push companies to find these budgets outside Europe.



## **European Defence Industry Anticipating Restructuring**

A key question is how much effort European society is willing to make in order to both protect military R&D, and foster the diffusion of military technology into civilian applications, as the US has done.

**Mr. Fernando Vasquez** thanks all those who have contributed to the organisation of this seminar, and makes two concluding remarks:

- It is more difficult to mobilise stakeholders when change is not imminent. If there was an immediate risk, all those participating to this seminar would have been mobilised to find solutions.
- One should not wait for crises to take action, but prepare change.

With this in mind, the EC has launched similar studies in 16 other industrial and service sectors. This is part of a concerted and systematic effort to identify areas where change will happen, and identify the needs.

There are existing community instruments to help to anticipate and manage change: the Structural Funds, the European Social Fund, the Restructuring Forum, etc.

In the coming months, the European Commission will seek to foster a dialogue aimed at arriving at a European partnership for defence, involving all the key stakeholders of this industry. Mr. Vasquez thanks the EDA, ASD and EMF for their interest and collaboration in this process, and for their contribution to the organisation of this seminar.



## **7. Glossary**

ACCS	Air Command and Control System (NATO)
AECMA	European Association of Aerospace Industries
BAe	British Aerospace
CASA	Construcciones Aeronauticas S.A.
DCI	Defense Capability Initiative (NATO)
DCN	Direction des Constructions Navales
DGA	Délégation Générale de l'Armement
DTIB	Defence Technology Industrial Base
EADS	European Aeronautic Defence and Space Company
EDA	European Defence Agency
EDEM	European Defence Equipment Market
EDTIB	European Defence Technology Industrial Base
ENSB	Empresa Santa Barbara de Industrias Militares
ESDP	European Security and Defense Policy
EU	European Union
GTK	Gepanzertes Transport-Kraftfahrzeug (MRAV)
IISS	International Institute for Strategic Studies
IRI	Istituto per la Ricostruzione Industriale
IT	Information technology
JV	Joint venture
LoI	Letter of intent
MBD	Matra BAE Dynamics
MoD	Ministry of Defence (U.K.)
MoU	Memorandum of understanding
OCCAR	Organisation Conjointe de Coopération en Matière d'Armement (Organisation for Joint Armaments Cooperation – created in 1996)
R&D	Research and Development
RTD	Research and technological development
UAV	Unmanned aerial vehicle
UCAV	Unmanned combat aerial vehicle
PESC	Politique étrangère et de sécurité commune
PESD	Politique européenne de sécurité et de défense (>1999)