



A comprehensive analysis of emerging competences and skill needs for optimal preparation and management of change in the EU defence industry

Annex

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Annex 1: Agenda of the December Forum

FORUM

Anticipation of change and restructuring in the defence industry

MCE – Management Centre Europe

Rue de l'Aqueduc 118 – 1050 Brussels

The defence industry is important to the EU economy in technological, economic and employment terms. Like other industries, it is facing the challenge of adaptation to a rapidly moving business environment. As a result of increasing budgetary constraints and the rising costs of military equipment, national markets in Europe have become too small for the production at affordable prices of high-quality equipment, and particularly complex material involving high R&D costs. Restructuring has thus become indispensable if Europe is to maintain a viable European defence industrial and technological base and equip its armed forces properly.

In response, the industry is taking major and often arduous steps to optimise its cost base and production processes. These changes are often perceived as a threat to the supplier companies and the maintenance of high level skills of the workforce. They raise fears related to restructuring and relocation. Yet while they represent a major challenge, they also offer new opportunities: the right policies, instruments and partnerships between all stakeholders can cancel out the negative impact of restructuring by opening up new prospects.

This is why the Commission is organising another session of the "Restructuring" Forum on 8 and 9 December 2008 in Brussels, devoted to the anticipation of restructuring and management of change in the defence industry.

The Forum will bring together the European institutions, governments, social partners, academic experts, regional and local authorities, as well as market development experts. Moreover, the Forum will be the opportunity for the launch of a "European Partnership for the Anticipation of Change in the Defence Industry" aimed at maintaining and strengthening the competitive position of EU defence industries, creating high levels of high quality jobs and reinforcing the employability of the workers of the sector, a pre-condition for sustainable growth and social cohesion.

PROGRAMME

1st Half-day (8 December 2008)

13.00 Registration

Opening session

14:00 Keynote speech by **Mr Vladimir Špidla**, European Commissioner for Employment, Social Affairs and Equal Opportunities

Chair: **Mr Paul Weissenberg**, European Commission, Director Aerospace, GMES, security and defence, Enterprise and Industry Directorate-General

14:25 **Mr Adam Sowa**, Deputy Chief Executive of the European Defence Agency (EDA)

14:40 **Mr Francois Gayet**, Secretary-General of Aerospace and Defence Industries Association in Europe (ASD)

14:55 **Mr Peter Scherrer**, Secretary-General of European Metalworkers' Federation (EMF)

15:05 Presentation of the results of the study 'Anticipation of change in the defence industry' by Dr. **Elisabeth Waelbroeck-Rocha**, Vice –President of BIPE

15:30 Questions and discussion

16:00 Coffee break

Parallel workshop sessions

16:30 i) Skill needs

Chairperson: **Ms Edwige Avice**, former Under Secretary of State for Defence in France
Rapporteur: **Ms Elisabeth Waelbroeck-Rocha**, Vice –President of BIPE

Presentation of the interim report of the study 'Comprehensive analysis of emerging competences and skills needs for optimal preparation and management of change in the defence industry'

ii) Anticipation of change at company level

Chairman: **Mr Peter Scherrer**, Secretary-General of the European Metalworkers' Federation (EMF)

Rapporteur: **Ms Andrea Husen-Bradley**, Policy Advisor, European Metalworkers' Federation (EMF)

Study Cases:

- Company case of ThyssenKrupp Marine Systems (TKMS) presented by **Mr Hans-Ullrich Stangen**, Works Council Member at HDW-TKMS and IG Metall
- Company case of Thales presented by **Mr Dominique Rolland**, CFE-CGC

iii) Anticipation of change at regional level and SME's

Chairman: **Mr Fernando Vasquez**, European Commission, Deputy Head of Unit, Directorate-General for Employment, Social Affairs and Equal Opportunities

Rapporteur: **Mr Jean-Pierre Aubert**, Ministry of Economy, Industry and Employment

Study Cases:

- Region of Brittany, presented by **Mr Marc Labbey**, Vice President in charge of Employment and Economic Development, and by **Mr Thierry Pellerin**, representative of regional Council

- Region of Gothenburg, presented by **Mr Ola Bergström**, Associate Professor, Department of Business Administration, School of Business, Economics and Law, Gothenburg University

Speakers: Dr. Burkhard Müller, managing director of MWB Fahrzeugtechnik, Langen

18:00 End of day 1

18:30 Cocktail

2nd Half-day (9 December 2008)

8.30 Welcome coffee

Chair: **Mr Nikolaus G. van der Pas DG**, European Commission, Director-General for Employment, Social Affairs and Equal Opportunities

9:00 Report back from the three group sessions
Rapporteurs: **Ms Elisabeth Waelbroeck-Rocha**, **Mr Heino Bade**, **Mr Jean-Pierre Aubert**

10:30 Questions from the audience

11:00 Coffee break

11:20 Final Round Table - European Partnership for the Anticipation of Change with different stakeholders explaining how they see their role:

Mr Norbert Reich, Head of Equipment and SMEs, Aerospace and Defence Industries Association in Europe (ASD)

Mr Pieter Taal, Assistant Director Defence Industry and Market, European Defence Agency (EDA)

Mr Bernie Hamilton, Chairman of European Metalworkers' Federation (EMF) Committee Aerospace – National Officer at Unite, UK

Mrs Anna Borrás, European Commission, Administrator, Defence, Aerospace and Maritime Industries Unit, Directorate-General for Enterprise and Industry

12:30 Questions and discussion

12:45 Closing remarks by **Mr Nikolaus G. van der Pas DG**, European Commission, Director-General for Employment, Social Affairs and Equal Opportunities

13:00 End of Forum

Annex 2: Final Report of the Restructuring Forum

Forum highlights

The restructuring forum organised in Brussels on 8 and 9 December 2008 was devoted to the anticipation of restructuring and management of change in the defence industry. The Forum brought together the European institutions, governments, social partners, academic experts, regional and local authorities, as well as market development experts. The forum was the opportunity for the launch of the **"European Partnership for the Anticipation of Change in the Defence Industry"**, aimed at maintaining and strengthening the competitive position of EU defence industries, creating high levels of high quality jobs and reinforcing the employability of the workers of the sector, a pre-condition for sustainable growth and social cohesion.

The restructuring forum also re-emphasized the importance of the defence industry to the EU economy, on account of the sector's contribution to technological progress and innovation, to its contributions to the EU economy in terms of employment, investment, and value added, as well as its spill-over effects on other industries and its essential contribution to regional development in certain areas of the EU. Yet, like other industries, the defence industry is presently facing a number of challenges, due to structural changes in the business environment, at EU and world levels. The recent degradation of the world economic situation, in the wake of the financial crisis, has created a sense of urgency which has led to open discussions amongst all stakeholders, both to explore the consequences of change and to share views on priority actions to put in place.

The first sessions of the Forum served to present the EU policy with respect to defence industries, and in particular the new regulatory package for Defence, and to recall the role of the European Defence Agency as well as the roles and actions of the Aerospace and Defence Industries Association in Europe (ASD), and of the European Metalworkers' Federation (EMF). All these stakeholders are actively involved in the definition of a regulatory framework for EU defence industry that will both protect its interests, whilst creating the conditions for companies operating in the sector to effectively anticipate and prepare the changes that are ahead without hampering their competitiveness.

There is, in fact, a consensus amongst stakeholders that increasing budgetary constraints and the rising costs of military equipment will limit the growth in national defence markets in Europe. There is also a shared awareness of the need to step up efforts on R&D in order to sustain – hopefully improve – the sector's competitiveness. Yet, the rising unit costs of equipment and the rapidly growing cost of innovation has made national markets too small for the production at affordable prices of high-quality equipment, and particularly complex material involving high R&D costs. Restructuring – and re-organisation of production at pan-European level - has thus become indispensable if Europe is to maintain a viable European defence industrial and technological base and equip its armed forces properly.

In this challenging context, the industry is taking major steps to optimise its cost base and production processes. These changes are often perceived as a threat to the supplier companies and to the regions in which the companies are located, and are also perceived as a threat to the maintenance of high level skills of the workforce. These organisational moves also raise fears related to restructuring and relocation. Yet, these changes also offer new opportunities: the right policies, instruments and partnerships between all stakeholders can cancel out the negative impact of restructuring by opening up new prospects. The following sessions of the Forum sought to deepen the understanding of the challenges ahead, and discuss the actions that stakeholders are putting in place – or ought to put in place – in order to anticipate and prepare change.

After a summary presentation of an earlier study on Restructuring in the Defence Industry, coordinated by BIPE and presented in Annex 5, three parallel workshop sessions provided

occasions to discuss the roles of different families of stakeholders: companies (including SMEs), regions and national governments, in anticipating skill needs and facilitating change (i.e., minimising the negative impacts of change).

Below, we present a summary of the discussions which took place during these three parallel workshops. The presentations that were made are presented in Annex 3.

Workshop 1 - Skill needs

Elisabeth Waelbroeck-Rocha presents the analysis which is summarised in this report, focusing on the anticipation of skill needs in the changing business environment. Three phases of discussion are scheduled during this workshop. Below, the key interventions during those question and answer sessions are summarised.

What are the emerging skill needs?

The first item for discussion is : **what are the new skills emerging in defence industries, where are the shortages, how do stakeholders view future changes?**

Attendance:

CFTC: has a point view on skill needs that differs from that of Eurostrategies. They consider that there is, at present, a lack of skills in France, due to weaknesses in the education system which does not focus sufficiently on mathematics and physics. As a result, available skills for recruiting companies are getting less specialized trough the time. The participant also considers that starting from market trends to build hypotheses of future employment trends is not a good way to make prediction: he believes that the analysis should rather be based on an analysis of the trend in the workforce training.

Brune CGT: management skills are needed. It is important to be able to predict the future of the industry, especially in an industry like aeronautics (who are the future clients? What are the future technologies that are needed?). But the problem is that today it is hard to have a precise idea about the future technologies that will be needed. Nevertheless, the aeronautics has greater predictability than other industries.

About the retirement issue: Do the concerned industries have the good inflow of people? This point underlines the importance of the attractiveness of the defence industry for the workforce.

Speakers:

Elisabeth Waelbroeck-Rocha: Skill shortages have been identified in many regions and companies, including by SMEs. In particular, there seems to be a problem finding skilled technicians. One interesting question is: are there main differences between skill requirements of civil and defence activities?

Attendance:

Concerning the last question, there are fundamental differences between carrying people and carrying weapons. There is a need to predict what the technology is going to be in order to send demand signal on the kind of skills needed.

Matucci/Finmeccanica group: The main change that has occurred these recent years is that the equipment has to be modular in order to be able to adapt to the rapidly changing demand, functions and capabilities needed. This requires the presence of system integrators (which is an important skill) and lifecycle costing equipment. This approach makes the industry more reliant on suppliers (highly specialized) SMEs. The problem for Europe is that **a prime contractor will contract globally**. Because other defence markets are two or three times the size of Europe's

defence market, this global sourcing is a major challenge. What is important for Europe are the production projects. If Europe wants to maintain independent operators, then Europe has to spend more than other countries. The emphasis must not be put on *technologies* (because we can share technologies with civilian market), but on *production projects*.

Poland (Air Force Institute of Technology): The main weakness of Europe's defence industry is weak expenditure on R&D. unless new defence programs are launched, there will be problems. In Poland, thousands of employees lost their job since the end of communism. Despite that, money is still spent in the defence industry's restructuring process. Special funds must be created to help students to study and discuss technologies at a European level.

Trends in, and factors impacting, mobility:

Elisabeth Waelbroeck-Rocha: The objective of the second part of the discussion is to see the trends in skill needs and validate – or not - the potential age pyramid problems (due to policy of early retirements and a few new skill hired). The question is: is there going to be an age trap in the future (due to essential skills' leaving for retirement)? At the general level, the acceleration in the rate of departures for retirement has already started in some countries (Germany, Italy, France...). For example, a GIFAS study shows that in order to maintain staff at identical number, the hiring rate needs to be maintained at 8% every year. More precisely, the analysis shows that, whereas there is no evidence of a retirement trap in large firms, this is not the case in the SMEs of the larger EU countries, giving that many companies are owned by people who themselves approach retirement age and will seek to sell their business. We need to keep in mind that SMEs count for 2/3 of the employment of the sector.

Given the above diagnostic, should one improve attractiveness of the industry for women? In which functions? Do participants see a trend-rise in inter-company mobility? Are there examples of practices that enable to retain skills in companies, and is it possible to move people from defence activities to civilian activities?

Attendance:

Barbara Gildea (Rolls-Royce): The demographic issues pointed out are pertinent. We have noticed growing cross-country mobility for graduates. It could, however, be more difficult in industries as nuclear (due to restrictions).

A BAE Systems representative: There was a time where we didn't want to manage skills. **Mobility can exist, particularly between military and civilian industry.** The problem is that highly skilled people educated by the best French schools go to financial jobs.

Finmeccanica: One has to keep in mind that the leading element is the market. Do we have opportunity to make civilian or defence markets grow? The demand for defence systems is rather low, national defence markets are small, so where are the big future markets?

Czech republic, M. Cerny : in the Czech Republic, mobility is an important issue. The country privatised its defence sector and most people went to work for the automotive industry. But now the situation has turned around and there are skills missing to reboost employment in defence. The question for the European Commission is: is there a need for Czech skills in the defence industry; is there a real need to recall skills in this industry?

DCNS, M. Dufoix answers the questions as to whether it is more difficult to have mobility in defence than other civilian industries, and whether skill retention is an issue. He believes the answer to both questions is no: DCNS has a weak turnover, and he believes that large firms are not losing skills. Yet, in terms of attractiveness, we begin to have problems because people are rushing to financial industry (financial crisis is good news for industry!). In terms of

geographic mobility, the problem is that, given the strong regional concentration of employment, orchestrating mobility is difficult given the wife's work, children at school etc....

Needs for policy action

The third part of the discussion focuses on actions needed at EU, national and regional level to minimise the impact of restructuring

Elisabeth Waelbroeck-Rocha: Do education systems respond to companies needs? What are the recommendations? It seems that basic education provides general skills and companies have to complete these skills. Education system favours academic occupation and fundamental research, and, according to some stakeholders, does not provide enough "operational" skills. Some companies have engaged in organising their own training skills.

Does it make sense to think of the emergence of competence poles (centres of excellence) in the restructuring process of European industry? Are these poles facilitators or consequences of the industrial restructuring process? Considering the growing specialisations of countries, does it make sense to develop excellence centres? These questions raise the ideas of creating education hubs, but conditions have to be met (located close to manufacturing activities, totally independent of national government to avoid a given country to try to keep control of some competences). Mobility of graduates is also required. The problems remaining are that companies themselves are key centres of know how. Location of excellence centres (not a complete reorganisation) is of course going to influence location of civilian activities using the same types of skills. What would be the impact on related civilian industries?

Attendance:

There is a problem of skills training by schools which is no longer adequate with the industry. The more people are trained and the easier is the mobility issue to resolve. Engineers and technicians are under-valued. Clusters can be interesting, but risk concentrating too much on a single competence, we need multi-competence in each geographic area.

Workshop 2 - Anticipation of change at company level

TKMS case (Mr. Ullrich Stangen):

The key points of the presentation are as follows: Today, 85% of merchant vessels are built in Asia. In Europe, there are some container vessels that are built, but they represent a small market share (the future of the industry is uncertain). TKMS has a shipyard in Hamburg, and two subsidiaries (in Sweden and Greece). Throughout the history of the firm, social plans have been put in place and conflicts have emerged as the Unions and the workers fought to defend their jobs. A lot of support has been brought by IG metal to the shipyards employees. Today, all trade unions work together in order to promote the shipyards' activity.

Now, shipbuilding activity is going down and anticipation is needed. Work is needed in order to develop and broaden the range of products. A European policy must be created in order to defend European production and create durability for our military industry. For people working in these production units, there is a need to convert and reconvert in military and security areas in Europe, but also to explore possibilities in the civilian sector. We have to think again of the skills we need and of the products we can put on the market.

Thales case (Mr Dominique Rolland):

Thales Airborn Systems. Thales is a global actor in defence systems (68 000 employees). Anticipation of jobs needed in the future has become very important in the Thales group. The management wants to develop new skills, whilst there is a growing concern (among the workers representatives) about the fact that a whole range of skills are being lost.

Dialogue about human resources between trade-unionists and employers is on-going. An agreement has been signed on human resources. The aim of the agreement is the **sharing of information**. Indeed, social partners want to know about the situation (group strategy and effects on jobs). A second objective is to gather relative information on the so-called "professional families", that is trades that include a certain number of skills. So this information is collected in order to have clues about qualitative and quantitative developments that are going to take place. The goal is to look forward to communicate the information to all workers and trade-union organisations.

The agreement is made up of three chapters:

1. Short time measures to facilitate transitions to retirement: the agreement specifies access conditions for retirement and deals with the question of the long careers.
2. Anticipatory management of employment job prospects. If you want to look forward you need to share information, so the agreement plans regular exchanges of information in a European Council (European directive).
3. Facilitating adaptation to active job management if and when necessary: is there a lack of technological knowledge? Lack of skills needed in the future? Etc.

Attendance:

M-A. Marcantoni/CFTC/Thales: The agreement is working very badly at the Thales group.

D. Le Bris (EADS/Metalworkers federations): There are differences between what can be done in Germany and in France. And on the fundamental questions, we are being informed but we have no ability to act on the company' strategy. The final results of this agreement might seem positive, but in reality, it is not only a communication tool but also a restructuring tool favourable to the management of companies. What we see is that the ojectivet of a group such as Thales is to reduce its scope of jobs to only jobs with high added value. The question is : how can trade-unions play a larger role in the companies' strategies? Another important issue is lifelong training: this, in reality, happens very little. Keep in mind that some of the tools are used to reduce employment. And finally, the idea of diversification from military to civilian sectors is an important issue for European industries.

M. X: Your company (TKMS) works internationally, but how can the management decide not to develop in other countries that have other competitive advantages. Isn't it a dangerous strategy to stay in Germany for the competitiveness of the company?

Speakers:

At the moment, no one can force us to develop a strategy which would be harmful to Greek colleagues for example. We have to try not to be too nationalistic. Our goal at the moment (national and European level), is to try to share the activity, and we are making a lot of progress.

There is a fear about the end of the production of submarines, so the decision was taken to develop alternative products. Lots of new ideas were put ahead, with the aim to produce them on the shipyards : for example, windmills and biofuels. At the time, there was so much political pressure on the shipyard that the decision was taken to nominate a diversification director. We

were not sure we had a market for these new products, but today, these new products generate business.

Workshop 3 - Anticipation of change at regional level and SME's

The workshop starts with a brief presentation by François Cauzic (BIPE) of the location of the main defence industry clusters and firms in Europe. These various clusters show that there is a great deal of employment in this industry. Concerning naval sites, there are also many production locations (F. Cauzic shows a map with the main clusters and industries concerned, naval, aeronautics, electronics...). The regions concerned often depend heavily on these industries.

The first two speakers present the case of the region of Brittany (M. Labbey and M. Pellerin):

The case of Brittany

M. Labbey: Brittany was severely impacted by the decrease of employment in the large defence firms (DCNS...). At Brest, diversification was initiated long before the start of the defence industry economic crisis (started in 1995), with support for R&D, high education, and various policies carried out in tourism for example (Oceanopolis). Nevertheless, the arsenal subject in Brest is very touchy because it is part of the city's history. Many local inhabitants have worked their whole life in the arsenals, so the question is what will the new generation do? The region played a role in the diversification, even though the national government also has an important role, as did the large firms. Important measures have been taken, including pre-retirement measures and retraining the workforce to redirect them to new jobs. All this has been done with the help of EU social funds (except for retirement issues handled at national level). Questions were: how could companies diversify their activities and improve their productivity in order to gain new markets? Some contracts have been gained by DCNS which gave the region the ability to manage the local economic transition. The region obtained funds from the FEDER also for the Brest region.

M. Pellerin: employment in both DCNS sites (Brest and Lorient) has come down from 6,500 employees to 4,800. There has been a slight increase over the last two months, but the fundamental trend remains a decline of employment because of a reduction of activity due to reduction of military activity since 1996. Since then, the region has redeployed its efforts towards new activities in order to create a new positioning (7000 new jobs created in activities either directly related to the submarine base or linked to service industries). SME's working with DCNS work in a volatile cyclical activity with transfer of jobs to other activities during low activity periods. There are complementary activities between Saint Nazaire sites and Lorient sites. Creation since 1995 of the Lorient Naval Pole (lobbying role vis-à-vis local authorities etc.). The association has been restructured at the regional level and is now called the Brittany naval pole. This association gathers all subcontractors of the naval industry who work in Brittany at both sites and also at Saint Nazaire. With this association, the transfer of military activity to civilian applications is encouraged. The region also helps companies to put in place collective actions in order to help them adapt to the economic situation. Help them position themselves in new markets (France or international). One of the difficulties in Brittany is to keep the skills up-to-date during the low activities periods.

The story of Gothenburg

M. Bergström: a study has been done on submicrowave systems for the defence industry (2003-2004). Question: What was reason for the good results of the restructuring process in Gothenburg? Globalisation has large important effects on regions, especially regions dependent on one large employer (automotive, defence...). The story of Gothenburg starts in the 1970's

(shipyards closed). 25% of the labour force was employed in the shipyard industry, and in total more than 10 000 jobs were lost in a few years. The state took over the shipyard activities in order to avoid disaster. From the oil crisis in 1975, there were massive job loss and regional policy tried to prevent additional restructuring and reinvested in old industries protecting them. This strategy was not successful and the region had to put into place a new strategy. The creation in the 1990's of the Business Region Gothenburg (BRG) together with industry and local industry had been an important instrument to develop the region's attractiveness and foster local job creation and business growth. Clusters have been identified on the base of existing knowledge, and there have been heavy activities to attract knowledge intensive activities. This strategy was also based on a diversification of the economic activity. Today Gothenburg is ranked as one of the most knowledge intensive regions in Europe. It has more than 1 700 foreign companies; in 1995 it had only 350. The long term strategy has thus worked. Still, the Gothenburg area is a small region, too dependent on distant markets and on the automotive industry (Volvo and Saab). There is a need to renew the industrial base. But still, Gothenburg is an example of the Swedish model of restructuring.

The experiences of SMEs in Germany

M. Müller: gives a subjective view of what an SME experiences every day in Germany. He recalls the importance of SMEs, which are by far the largest employers. They have achieved a lot of successes in technologies and markets, and, in Germany, they take big responsibilities in the training of the workforce: they are quite innovative and very flexible. SME's have little political influence (they probably have influence at a local level, but not at the national level). They are also underrepresented by the trade unions. There is a big difference between companies driven by managers and those driven by owners in the way they perceive the financial risks (the owner takes the risk with his money). The price question is at least as important as quality requirements for firms. Payment terms represent a big investment for SME's, technology, globalization (follow your customer), offset obligations, schedule of production. In order to meet these challenges, we need access to markets. Risk sharing partnerships mean securing access to capital, having access to human resources, all that with a management base that is often quite limited. There are difficulties to find the people to meet challenges. Human resources are the number one asset in the SMEs. Size is, however, an element of vulnerability: the number of opportunities decreases with size: either you are in a large program, either you do nothing.

Attendance:

Discussion: Can the regional level find means to anticipate change?

H. Baylac (CGT): There are regions lagging behind, in Brittany there are harbours for example, it might be easier to recreate activity, but in the Aquitaine area there is not the same resource to recreate employment. It is up to the region to have a bottom-up approach. What sort of industry and employment do we want to have? What sort of training do we need upstream?

Jean-René Jecko (Thales, Conseil Economique et Social): Reports on the economic situation in Aquitaine: we need to make SME's evolve to new markets, do more innovation in SMEs SMEs don't focus enough on innovation because they are too concentrated on sub-contracting orders. Another requirement is the regrouping of companies under the impulse of risk sharing in the aeronautics industry, and the diversification of skills into other sectors than aeronautics.

Steve Richards (South West Regional Development Agency): The South West region is one of the biggest military regions in the UK. Many contradictory subjects have been evoked: saving jobs, saving industries, building a common European defence industry. What is the goal, to retain jobs or technologies?

Speakers:

Dr Muller: There is a need within the unions to address both the big firms and the small ones in order to give answers to globalisation, and if we don't compare our European wages and working conditions with those of China, we will be missing part of the discussion. Secondly, to the complexity, are we right sizing the industry? The European Industry probably has to make its structure (what place for the SMEs, what competition policy at the EU level?) evolve in order to give more competitive solutions to the market.

M. Bergstrom: The topic is on the territorial level, the difficulty is not to be too conservative. Some politicians would like to make of the regional development their own success, that is one of the main dangers. We have to make politicians of all sides sit together and take long term coherent policy decisions. That is one of the key issues.

Marc Labbey: One of the difficulties is that one must at the same time be imaginative, find new activities, but by so doing, you do not solve the problem of those who lose their job. We need to retrain, develop skills, maintain the local know-how. We need to prepare the future jobs.

Summary of the workshops and key consensus points

The discussions that took place during the workshops led to the following conclusions:

- Although the anticipation of skill needs can only be done *by defence industry segment*, there are common trends in skills used; in particular, defence industries employ personnel with comparatively high skill levels; the challenges for companies are not only to attract workers with the necessary skills, but also to retain skills, in particular when new programme launches are delayed;
- In all segments, skill needs have changed over time:
 - The poor labour market situation has raised the average competency level at the recruitment stage;
 - In most sectors, there has been a **shift from manual workers to professionals and technicians of various types, engineers and computer programmers**;
 - Changes in the organisation of work, technological progress, the numerisation of functions and the need to cut costs have also raised demand for machine operators as opposed to traditional blue collar workers;
 - Within all occupations, there is a continuing increase in the importance of computer skills and know-how.
- There seems to be no « demographic trap » in the large EU defence companies: most have anticipated & re-balanced their age pyramid. Yet, in SMEs, risks of skill depletion are much greater;
- If job turnover/mobility per se does not seem to be a problem, attractiveness is an issue, there are emerging labour shortages in certain industry segments;
- Technological progress remains a major goal for EU defence industries. Yet, RTD mobilises specific skills and competencies: the quality of basic education and the availability of the most sophisticated equipment/technologies in the schools are, therefore, particularly important; some participants feel that improvements are needed in the education systems, in order to put more emphasis on scientific education;
- The lack of visibility of future trends in activity due to the frequent postponement of major new programmes and the « cyclical » procurement budgets make it difficult to retain highly specialised competencies;
- Mobility between defence and civilian activities can, however, help to mitigate the effects of cycles.

- Regions are a key actor in the management of transition; there are examples of regions which have played a key role in facilitating restructuring and minimising the impacts thereof; yet, differences in local situations make it difficult to define “good practices” applicable in all regions/circumstances;
- The regional concentration of activities in defence is a source of concern, as is the number of regions specialised in this sector;
- To assess the social consequences of restructuring, one needs to:
 - ▶ Look at the future skill needs in the various sectors (land, aerospace, naval, electronics);
 - ▶ Take into account the possible inter-changeability of workforce between the defence, security and civilian sectors.

In conclusion, the restructuring forum has contributed to raising awareness of the challenges which the European defence industry is facing, and of the need to prepare change, and in creating a climate of mutual trust amongst the stakeholders (national governments, regions, companies and the EU). Understanding of the need for change is an essential first step in the definition of appropriate strategies and policies to enhance the industry’s global competitiveness and sustain growth, whilst minimising the potential negative impacts of restructuring in the social sphere.

All the actors (companies, trade unions, national and regional, governments) which participated to the Forum agreed on the usefulness of such platforms for dialogue, and on the need to pursue the discussions and take a pro-active approach to implement the actions provided for in the “Partnership on the Anticipation of Change in the Defence Industry”.

Annex 3: The European Partnership on the Anticipation of Change in the Defence Industry

1. The Aerospace and Defence Industries Association of Europe (ASD) and the European Metalworkers Federation (EMF), together with the European Commission and relying on contributions on relevant content from the European Defence Agency (EDA) and other stakeholders (in particular, Member States) wish to launch and develop a **"European Partnership for the Anticipation of Change in the Defence Industry"** (The Partnership) aimed at maintaining and strengthening the competitive position of EU defence industries, creating high levels of high quality jobs and reinforcing the employability of the workers of the sector, a pre-condition for sustainable growth and social cohesion.
2. The European defence industries play a vital part in realising the aims and objectives of the Common Foreign and Security Policy, as enshrined in the EU Treaty, such as safeguarding the common values, interests and independence of the EU as well as preserving peace and international security. The defence industry, an important source of economic prosperity, employment, research and innovation in the EU, is facing the globalisation challenge and is subject to change. Europe's investment in its Defence Technological and Industrial Base (EDTIB) has substantially declined, along with overall levels of defence expenditure. At the same time, the costs and complexity of defence systems have continued to grow – and competition in overseas markets has become even more intense, from the US but also from the rising Asian economies. Europe needs to maintain and develop a capability driven, competent and competitive EDTIB to equip its armed forces at the best.
3. This transformation creates new opportunities for Europe's defence markets, but at the same time, major challenges for the industry, its employees and the regions in which the sector operates. Indeed, change can activate uncertainty and often is not welcomed. It raises fears related to restructuring and relocation; restructuring entails risks, the consequences are particularly threatening for people, regions and companies. The anticipation of change must give perspectives to people, regions and companies.
4. Anticipation of change is clearly necessary for the sustained competitiveness of the sector, anticipation and preparation are essential in order to maximise the positive impacts of change, particularly in the social sphere. All actors (companies, trade unions, national and regional, governments) should be made aware of the need to anticipate change and to take a proactive approach. This is all the more desirable as the planning cycles in the defence industry are particularly long.
5. We share the view that the defence industry is facing a number of important challenges and intend to pursue a permanent dialogue on the future of the industry with a view to building consensus amongst all the stakeholders. We make reference in this regard to the Commission Communication "A Strategy for a stronger and more competitive European defence industry"¹, as well as to the work done by the EDA in this respect, notably the Long Term Vision Report, the Intergovernmental Regime on Defence Procurement and the EDA Strategy for the EDTIB². We seek to achieve a capability driven, competent and competitive European Defence Technological and Industrial Base; we understand that an internationally competitive European defence equipment market is a key factor for strengthening the EDTIB and offering high social standards.
6. We believe that industrial change should not be synonymous with social decline and loss of economic substance. Rather, change underpins both economic and social progress when it is anticipated in a context of effective social dialogue and when both social partners and public

¹ COM(2007) 764, 5.12.2007 (see in particular sections I and II).

² See for all <http://www.eda.europa.eu/>.

authorities ensure that it takes place under sound, sustainable and socially responsible conditions.

The first priority for the social partners and industry organisations is to continue to work to enhance the competitiveness of European industry. We acknowledge this will be achieved through improvements in quality, productivity, workers' skills, innovation and social rights.

We understand that the following factors (developed in Chapter I below) are essential to achieve those objectives:

- Creating mutual trust and partnership between all the stakeholders;
- Investing in employees' skill enhancement;
- Effective change management underpinned by anticipation, preparation and follow-up through regular dialogue and the mobilisation of support instruments.

7. Where restructuring is needed, we will use and develop our rich experience already developed on industrial adaptation, as well as, anticipation and good management of change and restructuring.

8. In view of the above, we will work together over the next two years, within our respective mandate and competences, to develop a culture of anticipation and management of change in the defence sector.

We invite all relevant stakeholders (national and regional authorities, defence related companies, European Works Councils and other workers' representatives) to acknowledge this initiative and to co-operate in the planned policies and actions.

I. Key factors of success to overcome the challenges

Mutual trust and partnership

No process of change, be it industrial or social, can be properly anticipated and managed without mutual trust and partnership between all the actors. It is of particular importance to ensure:

- openness of public decision-making procedures and the full involvement of all the stakeholders in policies planning and execution;
- governance systems, public and private, that exhibit transparency, reliability, responsibility and principles of workers' representation;
- an effective and continuous social dialogue within companies (namely through European Works Councils and national equivalents);
- a trustful relationship between the industry actors in the supply chain (manufacturers and suppliers);
- an effective dialogue between industry and national/regional authorities.

The importance of investment in employees' skill enhancement

On different occasions, the European Council and the Council of Ministers underlined the importance of knowledge, innovation and the optimisation of human capital as well as of the need to develop mechanisms to identify of new types of jobs and skill needs at the European level.

Any successful business innovation policy depends upon the mobilisation and the skills of the people working in the industry. Reinforcing investment on skills is vital for guaranteeing the future competitiveness of the European defence industry. That will require a proper identification of skills needs and full cooperation between the public sector, industry and educational

establishments in order to ensure that the training being offered is in line with the needs of companies and the innovation processes.

On the other hand, increasing skills and competence levels, including general ones, will contribute to the creation of an adaptable and mobile workforce with enhanced career opportunities, to enhancing the employability of the workers of the sector and to facilitating employment transitions, as necessary pre-conditions of a successful and socially acceptable strategy of anticipation of change and of inevitable restructuring.

The need to facilitate anticipation, preparation and good management of change and restructuring

Changes are taking place all the time, in the structure and the location of the workforce and these are likely to continue. Several development scenarios are possible. In all cases, anticipation and constant monitoring are essential in order to optimize the positive impacts of change, which protect and offer opportunities for people, regions and companies.

Mutual trust, innovation, investment on human resources and policy co-ordination are vital but will only succeed to ensure the adaptation of the defence industry in a sound economic and social environment if they are supported by sector-specific, tailor-made mechanisms and practices of anticipation, preparation and management of change at all levels (EU, national, regional and company level).

Knowledge is a pre-condition of any efficient action. Effective anticipation, preparation and management of change therefore require anticipative and continuous analysis of trends in terms of technological and competitive conditions, as well as of human resources and training needs.

Anticipation is a global, multi-field and multi-actor process. In the current and future circumstances of the defence industry, it requires:

- investing in skills following a coherent approach;
- commitment of the regions to the sector and two-way dialogue between regions, companies and workers' representatives;
- maintaining and where appropriate creation of early-warning systems at sector, company national and regional level;
- clearly addressing the need to envisage economic re-conversion and/or diversification of regions when necessary;
- mobilisation of support instruments, including financial ones;
- pro-active involvement of workers, and a commitment from industry and governments for changes to take place in a socially acceptable manner;
- ensuring an effective information and consultation of workers' representatives;
- finding ways of avoiding or reducing to minimum restructuring social costs to.

II. The responsibilities and role of each stakeholder

Given the importance of the defence industry sector in Europe and the scale of possible changes ahead, all levels of governance (European, national, regional, company-level) and all economic and social actors (industry associations, individual companies, employees' organisations and workers' representatives) must fulfil their role in an articulated and mutually reinforcing way, according to the mandate and competences of each one.

At EU level:

As underlined in the Defence Package adopted by the Commission on 5 December 2007, a strong EDTIB is a fundamental underpinning of the European Security and Defence Policy. From an economic point of view, the European Commission's overall objective is to establish an

open and competitive European Defence Equipment Market (EDEM) in which a level playing field between all players is ensured. The current discussions on defence procurement and on intra-Community transfers reflect this ambition. To that effect, the Commission is invited to:

- continue to provide/support the creation of accurate and effective analysis and forecasting tools, in close co-operation with all stakeholders;
- continue to promote measures aimed at improving synergies between policies and partnerships between actors;
- continue to promote socially responsible practices by enterprises, as responsible behaviour leads to sustainable business success;
- look for ways to make full use of Structural Funds, notably the European Social Fund, to support anticipation of change and restructuring in regions likely to be impacted by ongoing or future changes. This implies using the European Social Fund to support investment in training and re-training of workers and the European Regional Development Fund to encourage economic and social re-conversion at regional level. In a complementary way to the anticipative and long-term intervention of the Structural Funds, support the use of the European Globalisation Adjustment Fund, if the required conditions are met, to help those workers being made redundant in the sector to re-enter the labour market quickly.

The European social partners and industry organisations underline the importance of mutual consultation on major issues which are relevant to the sector. They will:

- organise, where appropriate in co-operation with the Commission, actions aimed at disseminating amongst their members a culture of anticipation and good management of change and restructuring, as well as at assessing future skills needs in the sector;
- launch projects at the relevant level with a view to facilitating the anticipation of change, and avoiding or reducing to a minimum employment consequences of industrial changes.

The European Defence Agency offers to contribute to this initiative by providing appropriate information in particular in the field of its Long Term Vision, the Intergovernmental Regime on Defence Procurement and the EDA Strategy for the EDTIB including:

- ongoing efforts to identify key industrial capabilities to be developed or maintained in Europe;
- developing depth and diversity of the European defence-related supplier base, focusing on supporting the full involvement of SMEs and non-traditional suppliers in the EDTIB and fostering the integration of 'new' Member States.

The involvement of the European social partners and industry organisations in most of the actions in Chapter III is considered to be vital for their success.

At national level

Member State 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 the latter, their sources of funding for research projects and are sometimes also major shareholders. National governments are invited to:

- reinforce the co-ordination between all their relevant governmental bodies in order to better articulate national policies and to develop tools that may be used to achieve the objectives of the Partnership;
- take full advantage of the EU tools and programmes under conditions of transparency and accountability;
- make full use of Structural Funds, in particular the European Social Fund, to anticipate and manage change. They are encouraged to intensify efforts to invest in human capital, through own funding and by optimising the use of the European funds;

- continue to develop and to reinforce lifelong learning and employability policies – increase lifelong learning measures in order to facilitate transitions, in line with the Guidelines for the Employment Policies of the Member States.

The Partnership will seek to involve in its activities all the relevant national departments (defence, industry, employment, etc.).

At regional level

Regional and local authorities in areas where the defence industry is important are invited to engage themselves in a permanent follow-up of its evolution in close co-operation with the economic actors and their organisations. They are invited to participate, within their areas of responsibility, in the creation and reinforcement of mechanisms of adaptation of the industry and the workforce. Where needed, they are encouraged to develop efforts to diversify and reconvert the economic structure of regions, as well as, to contribute to the creation of alternative sources of employment.

At company level

The defence industry understands the need for a permanent adaptation to competitive pressures. Its members acknowledge that anticipative social dialogue is one of the pre-requisites to achieve this aim.

They are invited to:

- continue to develop, in line with the legislation and arrangements in force, internal practices of anticipative and effective involvement of workers' representatives by informing and consulting them on a permanent basis on new significant developments and well in advance of any foreseeable evolution likely to affect employment within the company; for that purpose, companies and workers' representatives are invited to further establish mechanisms and arrangements of forward-looking employment and skills planning, suitable to their particular situation;
- work together to enhance the competitiveness of their operations with a view to minimising the need for significant restructuring actions. In the event of restructuring, they will continue to support efforts to avoid or reduce to a minimum the social consequences for the workforce and the region concerned, comprising employability and redeployment measures adapted to the particular situation;
- recognise the need to contribute to the revitalisation of territories when economic activities decrease. They will keep regional and local authorities informed of foreseeable developments and co-operate with them, as well as with all the other relevant authorities, in the creation of anticipation and adaptation tools.

III. Action plan

1. Analysis tools

As a first step we will engage in a permanent dialogue amongst us and with all relevant stakeholders about the future of the sector. We will work together to monitor the evolution of the sector on an on-going basis. A comprehensive analysis of emerging competences and skills needs for optimal preparation and management of change in the defence industry will be presented to the Restructuring Forum of 8 and 9 December 2008 and will be up-dated on a regular basis. This analysis will be completed with a particular view on:

Employment and skills

ACTION 1: Employment trends, structure of employment, demographic issues and skills needs

ACTION 2: Good sectoral, regional and company practices of increasing the skills levels and the employability of the workforce

Anticipation processes

ACTION 3: Good practices of anticipation and good management of change and restructuring at company and regional level

ACTION 4: Analysis of 'defence' regions

2. Co-operation, exchanges and mobilisation of the actors

In order to carry on the analysis referred to under 1 and to disseminate, discuss and follow-their findings, we will jointly organise or encourage the realisation of:

ACTION 5: Dissemination and discussion workshops with the participation of representatives of Human Resources Management of the sector

ACTION 6: Dissemination and discussion workshops with the participation of workers' representatives, including representatives of European Works Councils of the sector

ACTION 7: Seminars and workshops in defence regions likely to experience significant change.

3. Anticipation and adaptation tools

ACTION 8: On the basis of the studies and exchanges above, we will constitute an informal observatory focussed on:

- the evolution of industry worldwide and in the EU;
- the evolution of employment and skills needs;
- the creation of a data base on best practices of anticipation and good management of change at company, sectoral and territorial level, with particular attention to those who succeeded in sustaining employment and promoting socially responsible practices, as well as those focussed on increasing skills levels and employability. This observatory will take stock of a regular basis of the whole range of actions carried on and report back to us.

Annex 4: glossary

ACCS	Air Command and Control System (NATO)
AECMA	European Association of Aerospace Industries
AFV	Armoured Fighting Vehicle
ABSV	Armoured Battlegroup Support Vehicle
BAe	British Aerospace
CASA	Construcciones Aeronauticas S.A.
DCI	Defense Capability Initiative (NATO)
DCN	Direction des Constructions Navales
DE&S	Defence Equipment and Support Agency (UK)
DGA	Délégation Générale de l'Armement
DIS	Defence Industrial Strategy
DLO	
DPA	Defence Procurement Agency
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
FRES	Future Rapid Effect System
GTK	Gepanzertes Transport-Kraftfahrzeug (MRAV)
IFV	Infantry fighting vehicle
IISS	International Institute for Strategic Studies
IRI	Istituto per la Ricostruzione Industriale
IT	Information technology
ITAR	International Traffic in Arms Regulations
JV	Joint venture
LoI	Letter of intent
MBD	Matra BAE Dynamics
MBT	Main battle tanks
MRL	Multiple Rocket launchers
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
SBAC	Society of British Aerospace Companies
TDP	Technology Demonstrator Programme
ToE	Towers of Excellence
UAV	Unmanned aerial vehicle
UCAV	Unmanned combat aerial vehicle
UOV	Urgent operational requirement
PESC	Politique étrangère et de sécurité commune
PESD	Politique européenne de sécurité et de défense (>1999)

Annex 5: Presentations made during the Restructuring Forum

The following pages present the ppt documents that were used as support for the different sessions of the Forum.

Presentation made in WORKSHOP 1




Anticipation of change in the EU defence industry

Élisabeth Waelbroeck-Rocha
Vice-President, BIPE

Restructuring Forum, Brussels, December 8, 2008




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Overview of the study
coordinated by BIPE, with contributions from :
Professor K. Hartley,
Professor Dr. H. Wulf, Dr. P. Wilke,
Mr. O. Bergstrom, Mr. D. Sellier,
Mr. F. Bruggeman and J. Ganczewski

This handout was prepared for the EU restructuring forum organised in Brussels on December 8-9, 2008.
It is incomplete without the accompanying comments.



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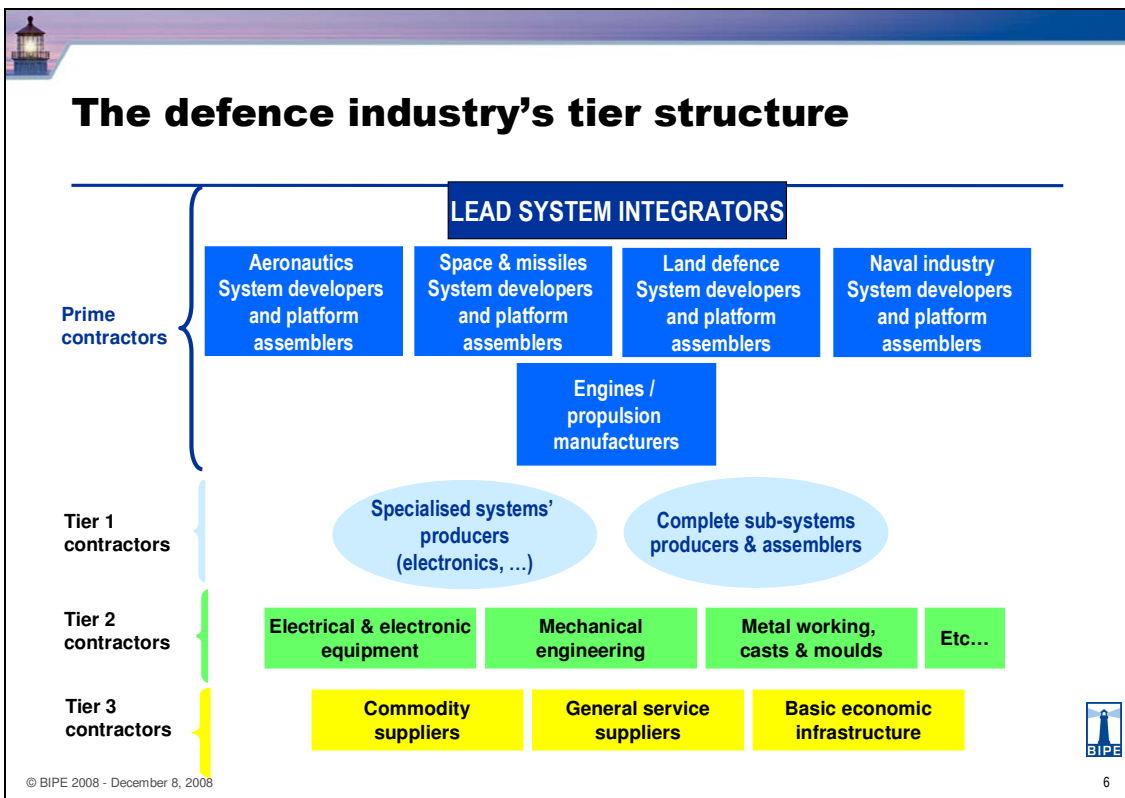
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Other distinct features of defence industries

- Security issues have led to the development of a specific regulatory framework :
 - ▶ International trade remains regulated, both within the EU and with non-EU countries
 - ▶ Delicate balance to be achieved between competition and systems interoperability
- The existence of high economies of scale, long development cycles, and the cyclical nature of demand have led to :
 - ▶ A « tiered » industry structure
 - ▶ The development of « risk sharing » (→ new links with upstream industries)

→ The industry's future depends on stakeholders' behaviour and strategies more than on the external environment


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The different types of contractors

- **Prime contractors** produce weapon systems:
 - ▶ These are mainly large companies specialised on defence production and services
 - ▶ Some are Lead System Integrators, i.e. assemble defence systems from several defence domains (ex: aircraft carrier), others are specialised in only one area (aerospace for example)
 - ▶ Examples in the EU are BAE Systems (UK), EADS (Netherlands), Thales (France) and Finmeccanica (Italy), the latter specialised in helicopters and armoured vehicles, and Saab (Sweden) for fighter aircraft, Nexter (France) and Krauss-Maffei-Wegmann (Germany) in major battle tanks, Thyssen Krupp (Germany), Fincantieri (Italy) and DCNS (France) in naval vessels.
- **Tier 1 contractors** produce complete sub-systems or major components. Often, these are also risk sharing partners:
 - ▶ These are often specialized firms (engines, electronics,...), subcontracted by the prime contractors.
 - ▶ Examples are Rolls Royce (UK), Groupe Safran (France), MTU (Germany) and Indra (Spain)
- **Tier 2 contractors** produce components and supply services
 - ▶ Usually small and medium enterprises (SME) or subsidiaries of the major defence producers (prime contractors and sub-contractors), these often produce dual-use goods or services
 - ▶ These companies are not always listed as defence producers since they operate at the margin of the defence sector
- **Tier 3 contractors** are commodity suppliers or supply generalist services. This level also includes all providers of « general economic infrastructure » services (transport network and services, communications, externalised training, etc.)




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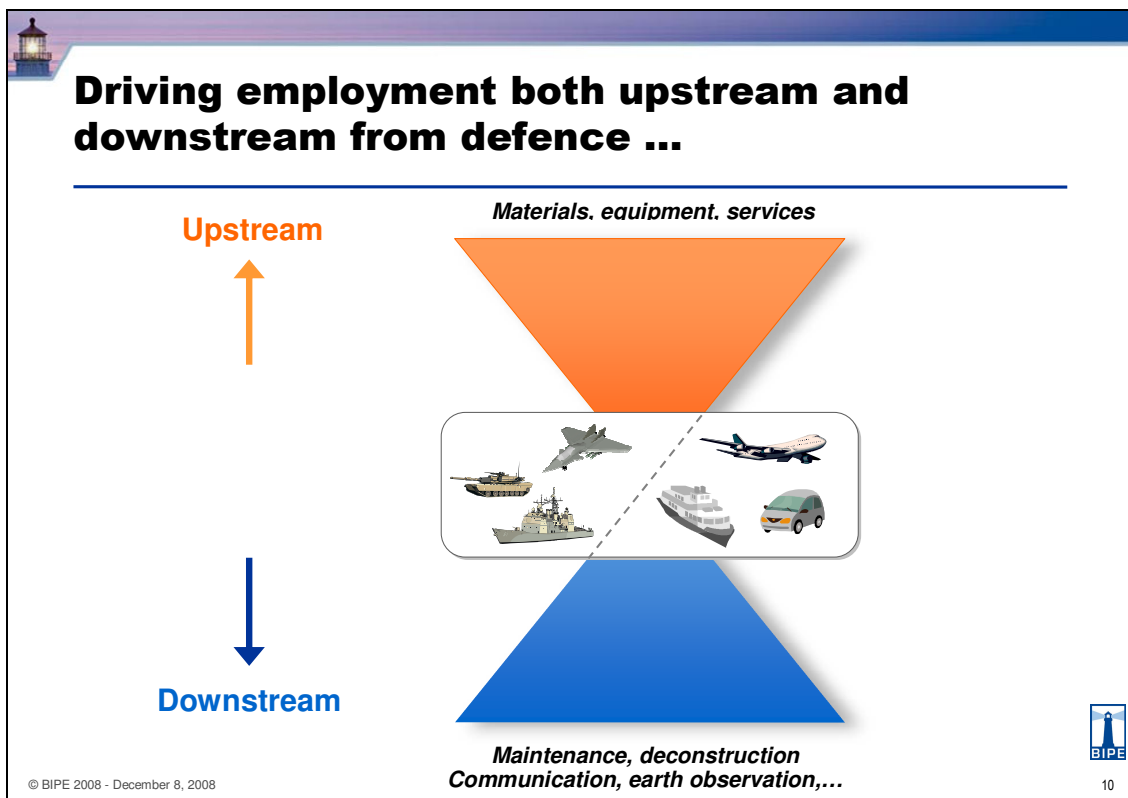
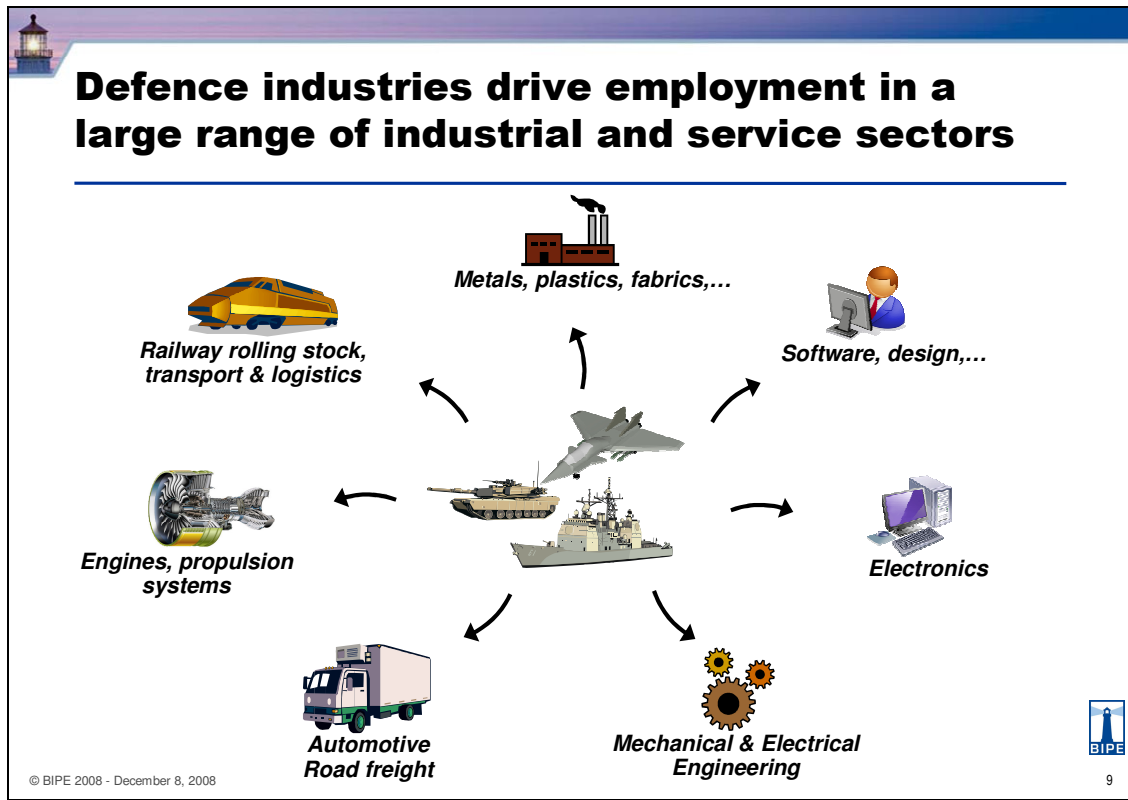


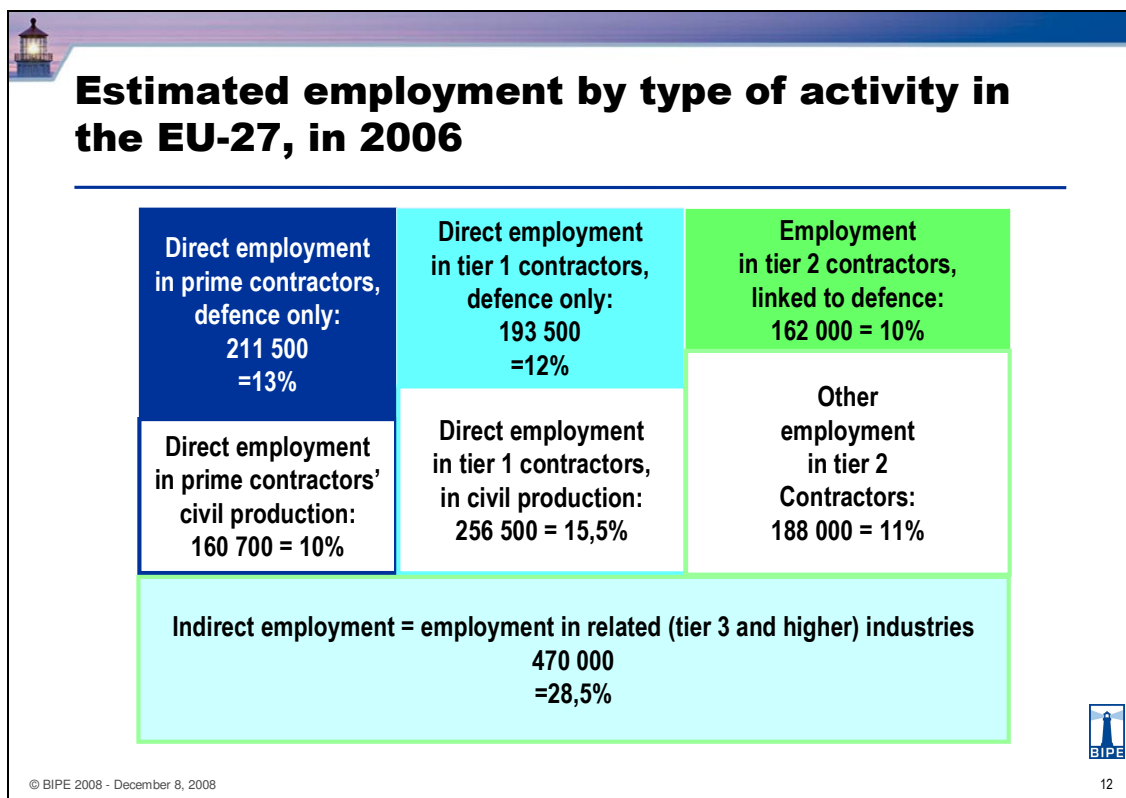
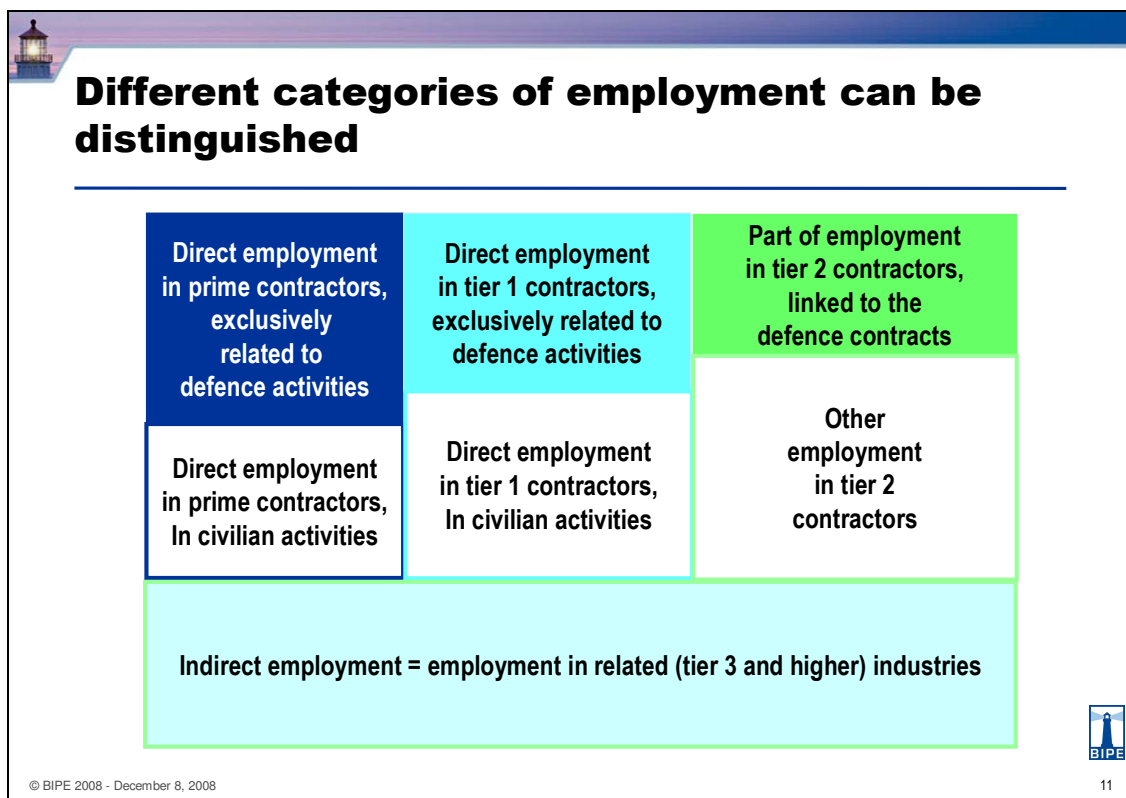
The defence industry produces a very diverse range of products

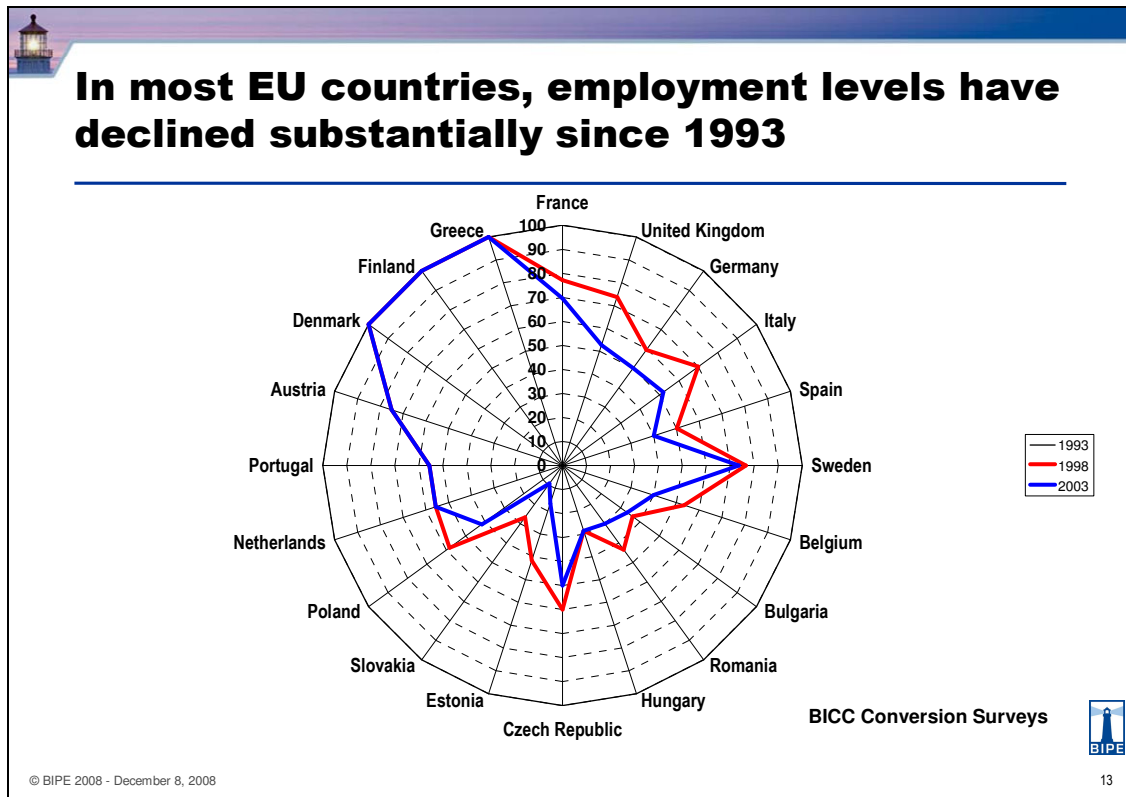
- Companies are engaged in the production of:
 - ▶ Small arms and ammunition
 - ▶ Artillery
 - ▶ Aircrafts, helicopters, UAVs
 - ▶ Space equipment and services
 - ▶ Electronics (reconnaissance, SIGINT, command&control,...)
 - ▶ Engines
 - ▶ Missiles
 - ▶ Military vehicles (MBT, ASV, IFV,...)
 - ▶ Vessels (frigates, carriers,...)
 - ▶ Various types of services (incl. maintenance, support, training, ...)
 - ▶ Etc.
- ... plus all the inputs (products and services) and equipments (machinery, buildings, infrastructure) that are used at some stage during the production process



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Several factors will impact future trends in activity

- Demand factors :
 - ▶ Demand trends, and needs for replacement & maintenance
 - ▶ Trend in Government defence budgets
 - ▶ Competitive positioning (\leq trend in R&D)
- Regulatory factors :
 - ▶ Changes in regulatory environment for trade
- Political factors :
 - ▶ Change in EU missions
 - ▶ Geo-political situation
- Supply-side factors :
 - ▶ Changes in shareholding structures, M&As,...
 - ▶ Company strategies, incl. **cooperation strategies** and **externalisation of maintenance and repair**, both of which have major consequences on employment trends

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On the demand side, the key factors of influence are both European and global

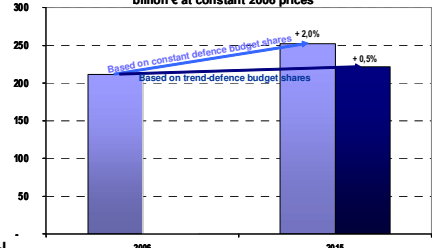
European:

- Changing role of force → new demand mix
- Stagnant or declining overall defence budgets within the EU
- Shrinking national defence procurement
- Comparatively low spending on R&D

Global:


- Lack of dynamism of world market demand
- Difficult entry conditions in the more dynamic markets


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



Year	Defence Budget (billion €)	Trend (Based on trend-defence budget shares)
2006	~210	-
2015	~225	+8.9%

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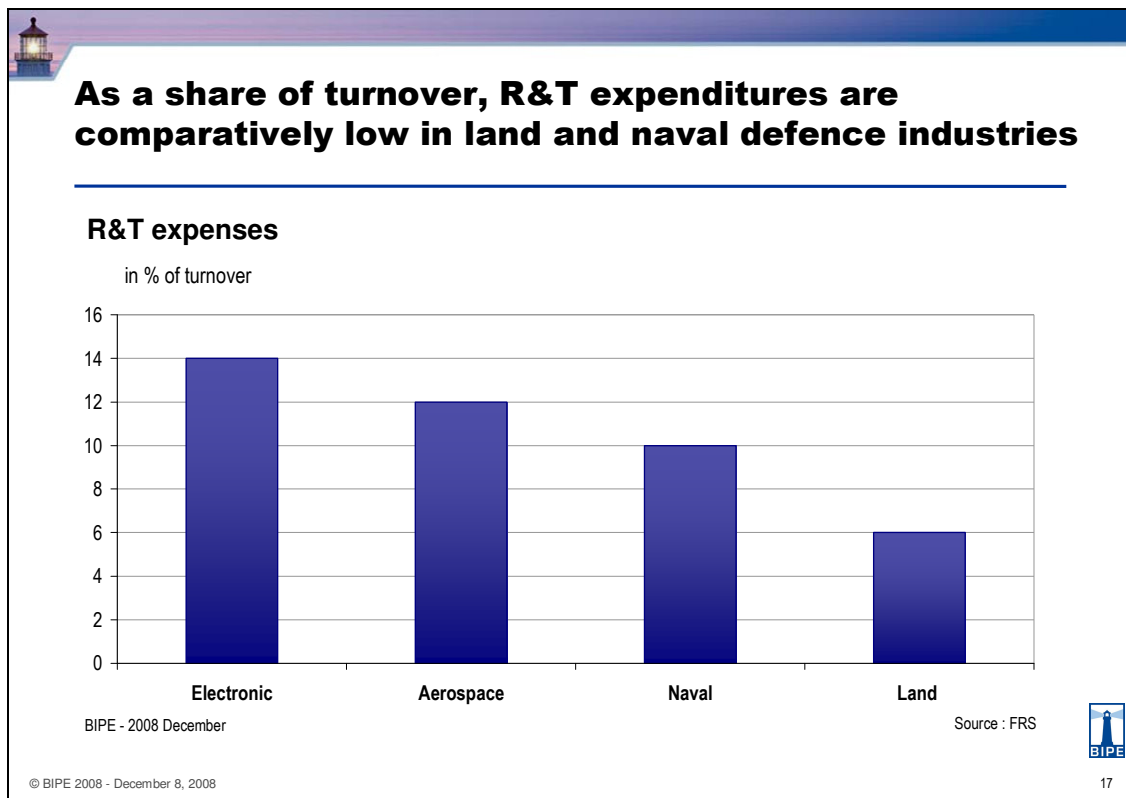


Europe's competitiveness is at stake, with RTD expenditures well below US levels

- RTD expenditures are an investment into the future
 - ▶ R&T expenditures are a subset of R&D spent which 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

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On the supply side, the key factors of influence are :

- The large variety, high technicity and **rapidly rising** production **costs** of defence equipment and systems ...
- which, combined with insufficient coordination at EU level, leads to :
 - ▶ Inefficient allocation of capital
 - ▶ Excess capacities
- The dominance of (often national) champions, highly dependent on trends in national procurement budgets
- The high dependence of certain regions on defence activities
- Transition in eastern Europe
- Past (and future) M & A patterns, and growing concentration of the industry
- The particular ownership structure (with governments as major shareholder in France and Italy)
- Mixed experiences with cooperation

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The regional distribution of production varies across the EU

- Different countries are specialised in different activities:
 - ▶ Although the large producers are located in the main producing countries, many **small and mediums sized companies** are also engaged in defence production in countries like Austria, Belgium, Czech Republic, Denmark, Finland, Greece, Portugal, as well as in Poland, Romania and Bulgaria
 - ▶ The smaller companies produce small arms and ammunition & low calibre artillery, but also parts of military vehicles, naval vessels and aircrafts, as well as military electronics and subsystems for weapons and components. Often they are **not classified as defence producers** since they operate on (dual-) markets
 - ▶ There is a regional concentration of activity and employment in the **different defence sectors** in Europe
- → Different trends in activity on different segments will impact countries and regions differently

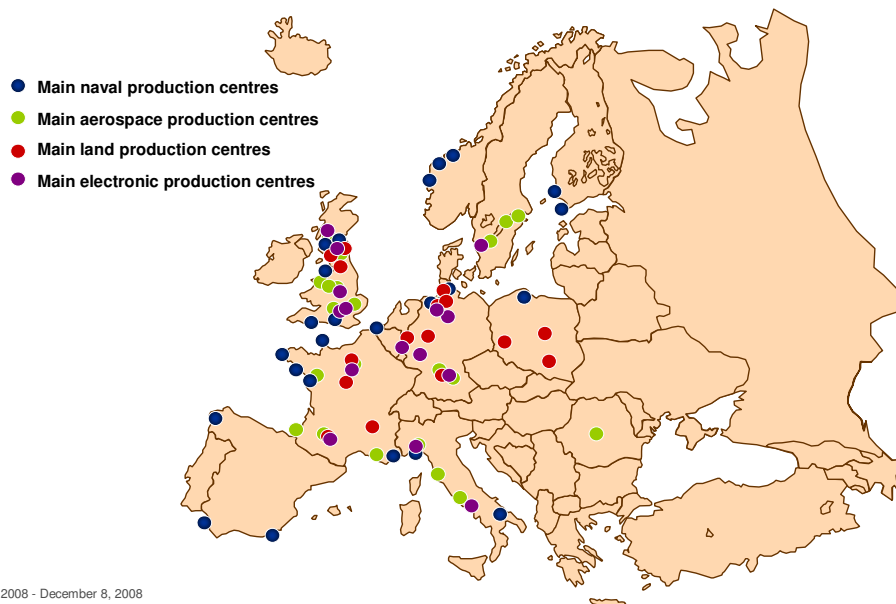


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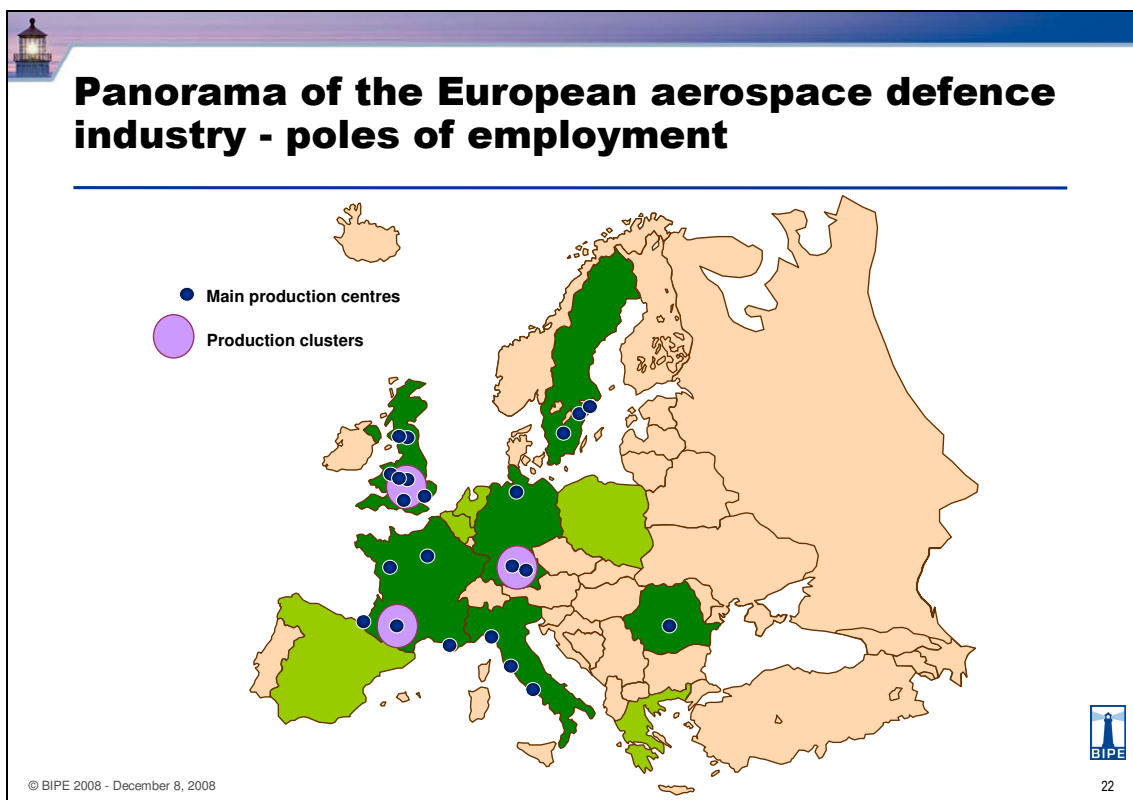
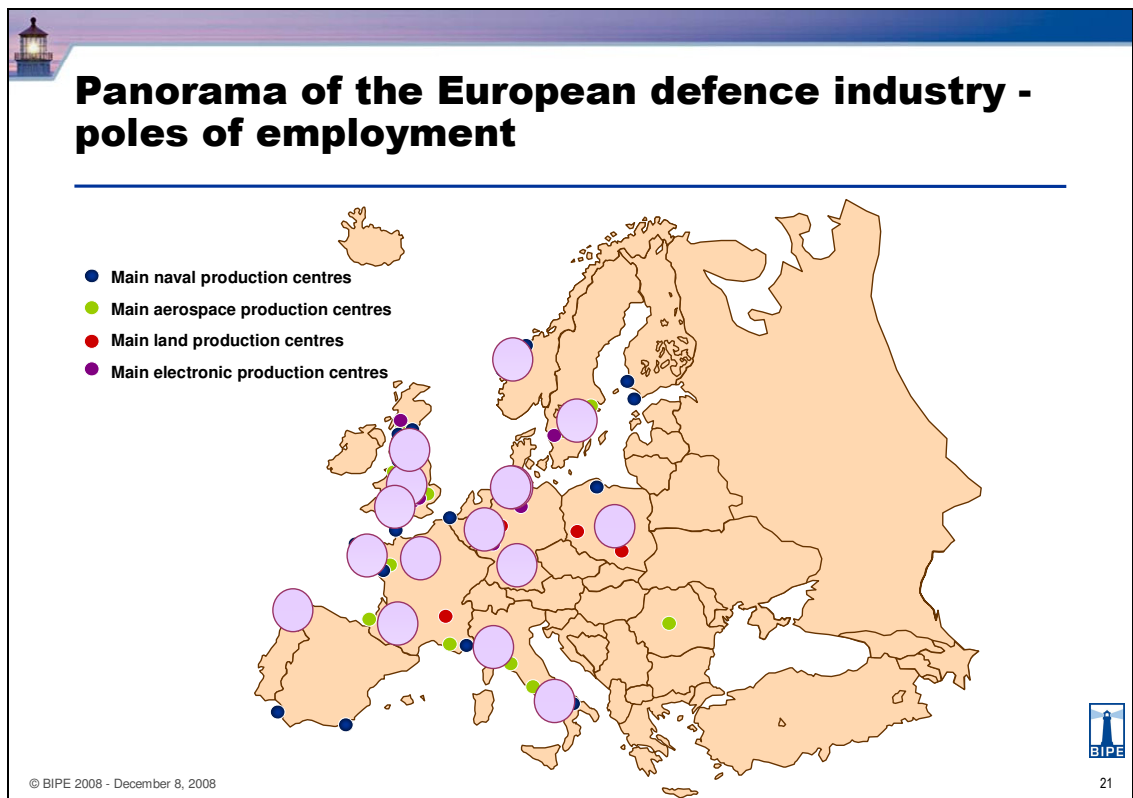


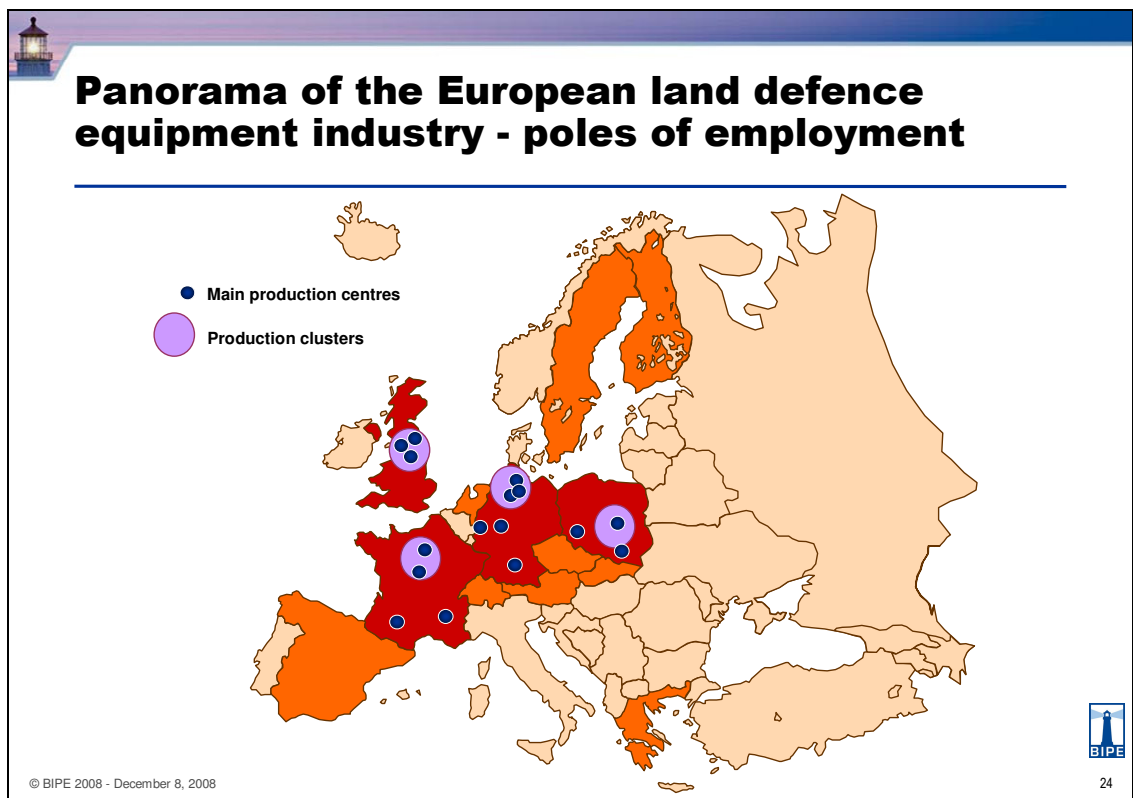
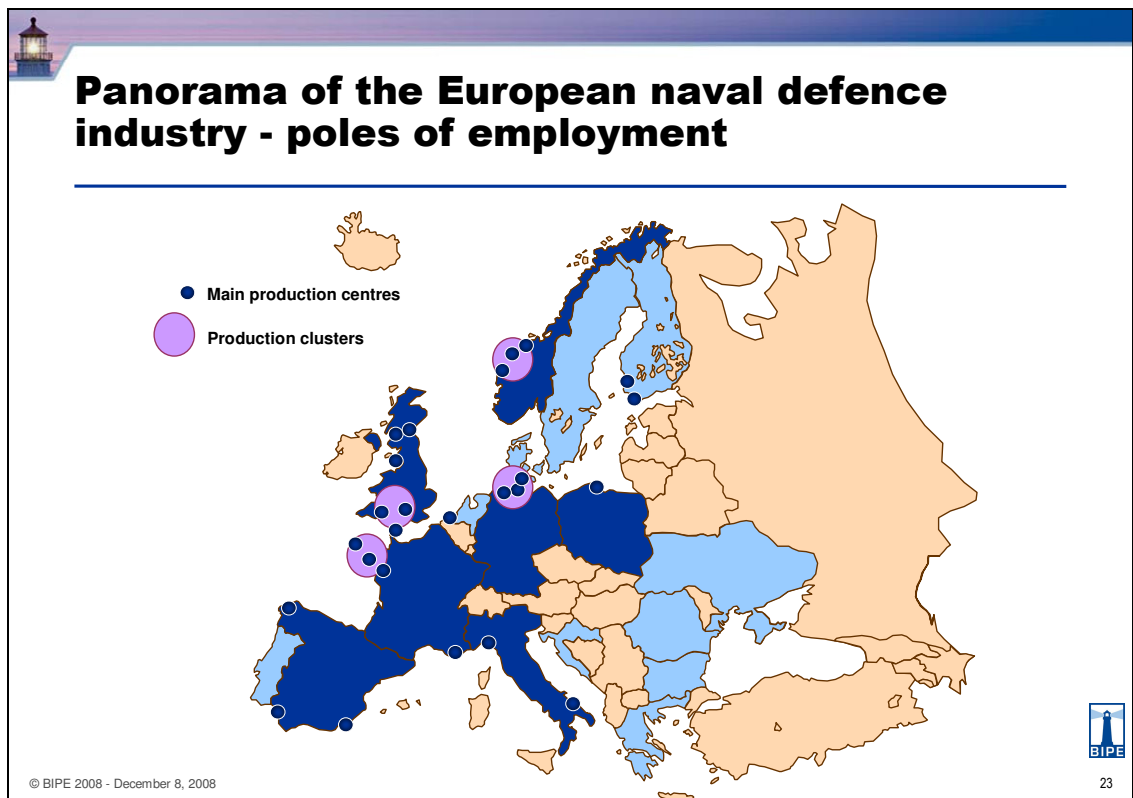
Panorama of the European defence industry - poles of employment




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12 challenges for the future (1)


1. **New required equipment mix**, due to the change in the security situation
2. **Continued downward pressure on defence budgets** (due to perceived trade-offs with social welfare expenditures)
 - ▶ With rising input cost of equipment, and rising cost of R&D for new weapon systems, member states lack the financial means to sustain the full spectrum of a defence technology industrial base
 - ▶ Rising input costs for military personnel for an AVF (all voluntary force), limit budgets available for new equipment purchases
3. **New technology** will be coming on stream over the coming 25 years
4. **Supply-side changes** are underway: mergers, privatisation, outsourcing, growth of services markets, etc. Yet, despite recent restructuring, the **concentration** and **consolidation** process is **incomplete**
5. **At the political level**, still no fully integrated or unified European defence market, despite intensive efforts: continued **duplication** of capacities and weapon programs creates inefficiencies; yet, the collaborative experience is mixed
6. **Competitive threats** are coming from the US, compounded by emerging competition from China, Japan, Russia, Korea, India (both primes and suppliers), and Israël
7. **At the industrial level**, the defence industry is – with a few outstanding exceptions, most notably EADS and BAE Systems – still geared towards national procurement


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12 challenges for the future (2)


8. **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 demand for RTD resources.
9. **At the social level**, the defence sector has experienced drastic reductions in employment. Although the process has slowed down in recent years, additional job losses are expected given the overall context
10. **At the legal level**, a range of political and legal guidelines have been designed and institutions founded to improve coordination, internationalise procurement and encourage competition. Further progress has to be achieved.
11. **In Eastern Europe**, specific challenges are linked to the breakdown of supply chains after the fall of the Berlin Wall, and the new national defence strategies which put priority on national autonomy and restoring supply chains
12. **EC/EDA Policy** on development of a EDEM and on EDTIB calls for major changes
 - ▶ There is a need to **mitigate adverse impact of offsets** on fair competition in the EDEM, and EDTIB

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Risks for the future

- Further consolidation increases the risk of domestic (national or EU) **monopolies, oligopolies or duopolies** with the consequences on the rate of dependence, inefficiencies and higher costs
- Government control will be reduced through **outsourcing** of traditional military functions
- The financial logic and shareholder value concept raise questions regarding the **reliability of the delivery** of defence products
- Governments remain torn between national and **EU preferences** on one side (with possibly higher cost but job security) and **competition** (with dependence on outside suppliers and job losses at home)




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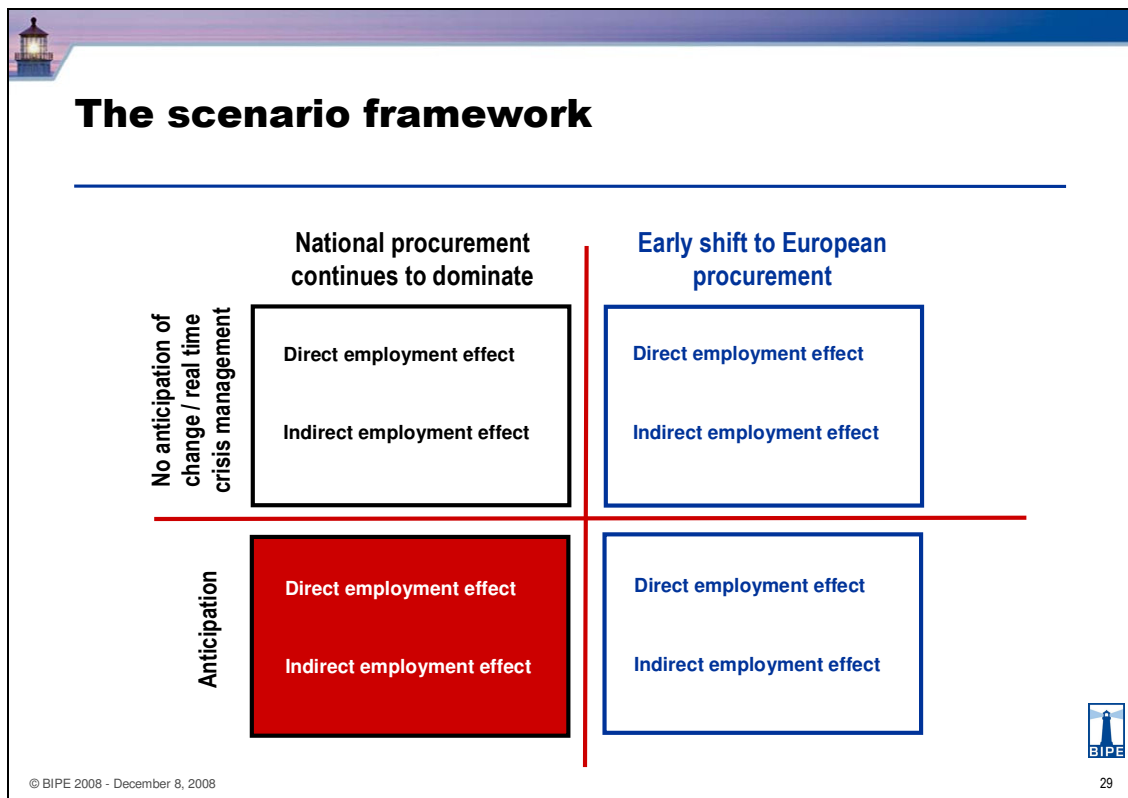


Four possible scenarios for defence industries

- Various entry levels are possible :
 - ▶ **Demand trends and procurement policies**
 - ▶ Changes in the organisation of supply, in terms of:
 - *Production location*
 - *Degree of externalisation*
 - *Degree of diversification, etc.*
 - ▶ Changes in shareholding structures:
 - *Role of foreign investors (non-EU)*
 - *Increased private equity ownership*
 - ▶ **Degree of « anticipation » and preparation of change, versus « real-time » crisis management**



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Scenario 1 assumptions:

Early move to harmonised European procurement combined with a voluntary industrial policy (1)

- A Single European Procurement Agency is created, which:
 - ▶ Coordinates European procurement, as an interim step to a longer term approach of centralised European defence procurement, for several types of expenditures...
 - ▶ Grants European preference:
 - To retain specialised know-how
 - To avoid too rapid internationalisation of capital (from US, China, ...)
 - For security of supply reasons
 - ▶ Simplifies controls on intra-EU equipment circulation
 - ▶ Defines a harmonised EU framework for, and regulates, offsets
 - ▶ Is complemented by a European Small Business Act which succeeds in achieving increased concentration at Tier 2 and higher levels
 - ▶ Indirectly (or directly?) fosters the extension of dual firms by opening access to contracts to companies primarily in civilian area
- In parallel, innovative financing of capital investments is put in place, which facilitates re-organisation of activities at lower tier levels (notably SMEs)
- The coordination of EU procurement is compatible with a re-organisation of armed forces at EU level, lowering the overall equipment needs of a coordinated EU defence force

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Scenario 1 assumptions:

Early move to harmonised European procurement and set-up of a voluntary industrial policy (2)

- The savings achieved allow to step up and better coordinate RTD efforts, meaning:
 - ▶ A reduction in overall financial spent (no duplication of efforts)
 - ▶ The development of new programs, and the allocation of part of the saving to other (non-R&D related) purposes (such as training, or financial assistance to industrial redeployment in affected regions, ...)
 - ▶ A rationalisation/re-organisation of test and expertise centres
- EU policy focuses on the promotion of a pool 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
- Regions play an increasing role in industrial development, through decentralisation and the subsidiary principle



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Scenario 1 results:

Early move to harmonised European procurement and set-up of a voluntary industrial policy

- Acceleration of restructuring along pan-European lines:
 - ▶ Mainly in the naval and land defence sectors, but also in electronics and aerospace (future of Finmeccanica, for example), including at lower tier levels
- Progressive Europeanisation of ownership leading to 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
- Re-deployed R&D efforts: less duplication of programmes, less waste of resources
- Improved transatlantic cooperation, 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 terms of the cyclicity of demand



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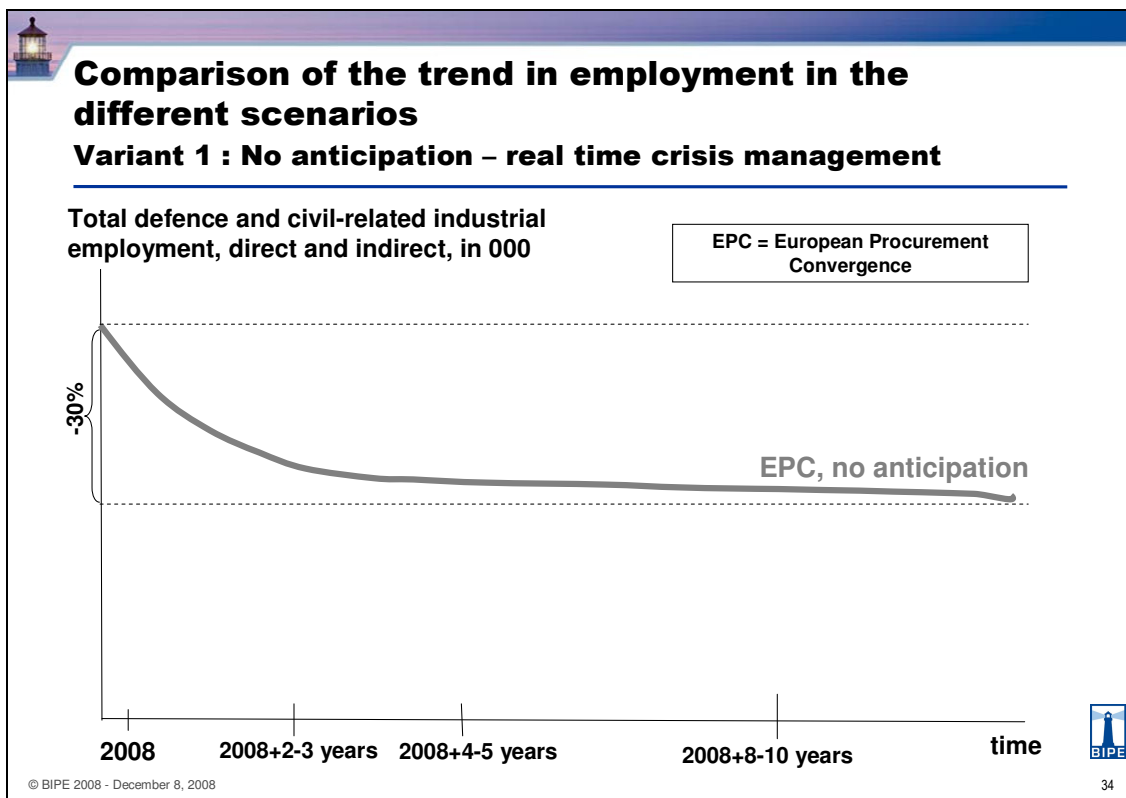
Scenario 1 results

Variant 1 : No anticipation – real time crisis management

- Employment in the EU defence industries falls
 - ▶ There is a risk of skill depletion, which goes against the objectives of the Single European Procurement Agency and overall policy objectives
- National governments' efforts are redeployed
- Alliances between the trade unions and regions are needed in order to minimise the negative consequences at local level

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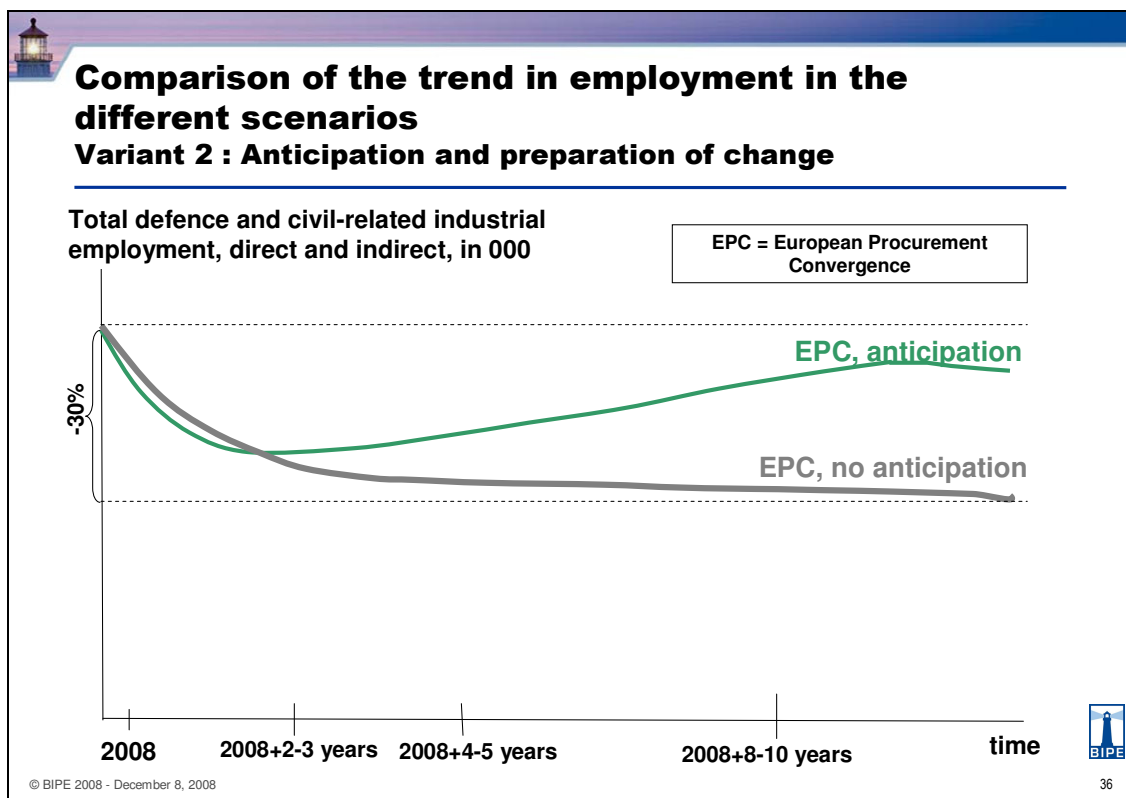
Scenario 1 results


Variant 2 : Anticipation and preparation of change

- Budgetary savings are oriented towards training, facilitating mobility, supporting new business creation, R&D etc.
- Employment declines, but anticipatory action increases the likelihood for workers that were made redundant to find another job or start a new business
- Risks of skill depletion are reduced compared to the first variant
- 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 defence producers have more autonomy and control of the value chain: they become relay agents (note: this is already the situation in the UK, but it develops elsewhere)

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Scenario 2 assumptions: National Procurement strategies continue

- Budgetary pressures and rising equipment costs lead to **heightened price competition**
- Competition between mainly exporting and mainly importing countries leads to **growing intra-EU competition** amongst defence producers, and **heightened competition with non-EU producers**
- Under pressure from their clients, the large (tier 1) **producers transfer some of the pressure onto their suppliers**:
 - ▶ Extension of risk-sharing
 - ▶ Increase in payments delay, fragilisation of the financial situation of tiers 2 and higher
 - ▶ New funding resources are sought for : the capital of firms is opened to private investors; the penetration of foreign capital increases
 - ▶ (Financial) markets drive the restructuring of the European defence industry base in the mainly importing countries
 - ▶ In the main producing countries, governments resist which leads to the persistence of overcapacities and increased spread between companies at different tier levels




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Scenario 2 results: National Procurement strategies continue

- With heightened competition, the EU market penetration of non-EU producers increases. **Offsets** are granted to the client countries, adding to existing overcapacities
- **Restructuring** continues to be organised primarily **along national lines**
- **Duplication of R&D efforts** and new programmes continues
- Eventually, **some capacities are closed** and markets become more Europeanised, but with higher penetration of non-EU capital
- Market failures in labour markets lead to **state intervention** to 'correct' such failures




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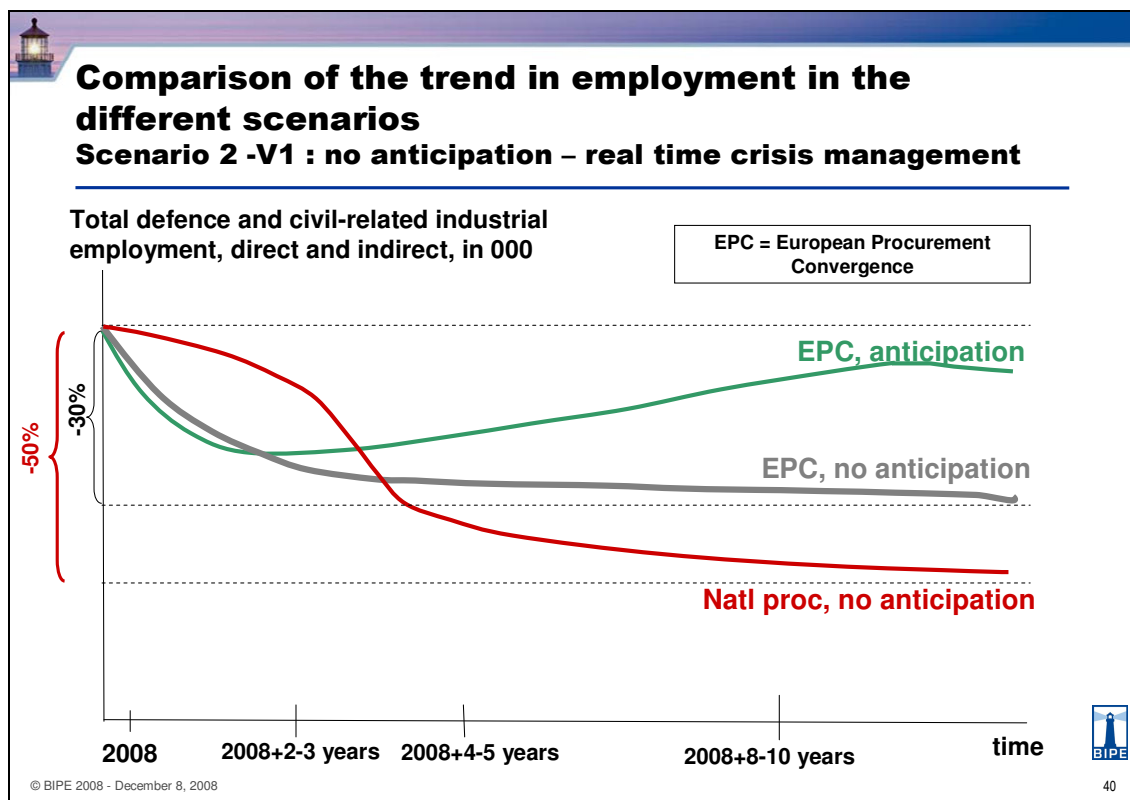
Scenario 2 results

Variant 1 : No anticipation – real time crisis management

- Employment falls
- Risk of skill depletion
- Limited room for manoeuvre for national governments to redeploy their efforts due to intense price-competition and high cost of sustaining national defence industry
- The role of financial investors rises, starting from the (mainly importing) countries, and from high tier levels, moving progressively up the value chain : this leads to a search for financial efficiency and increased cost effectiveness: activities are relocated in non-EU countries, leading to further falls in employment



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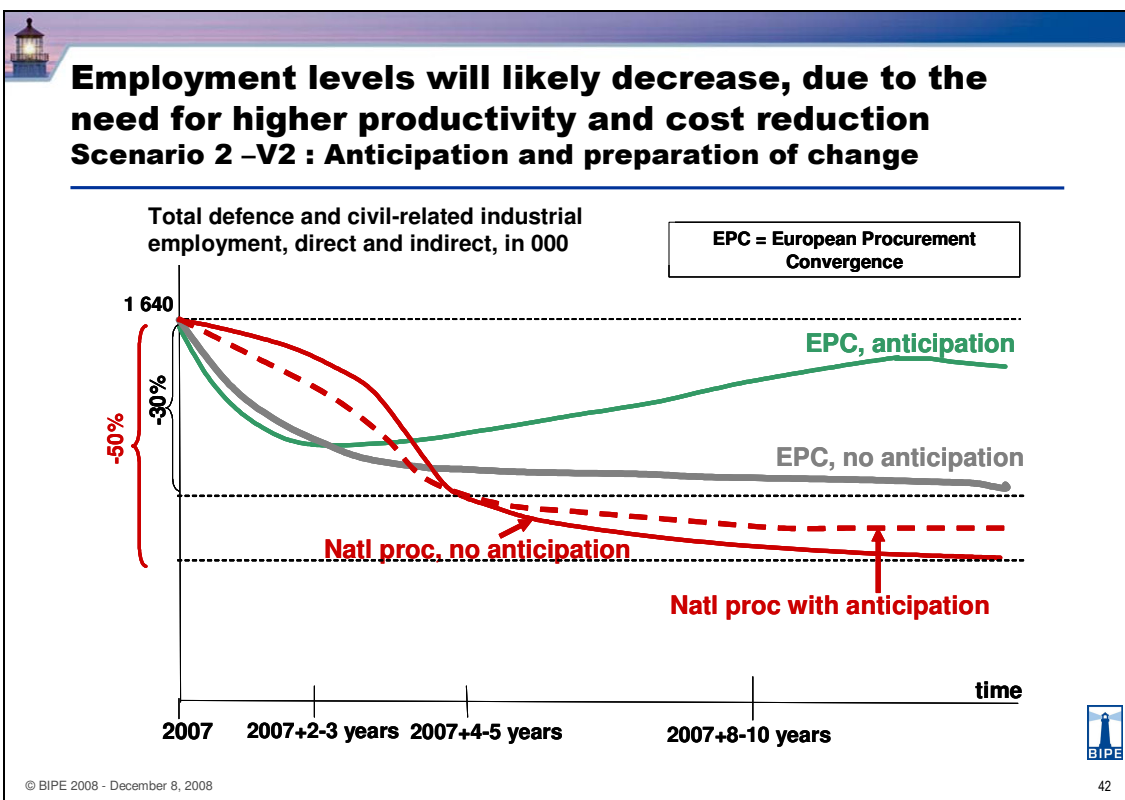
Scenario 2 results

Variant 2 - Anticipation and preparation of change

- Employment declines, but anticipatory action increases the likelihood for workers made redundant to find another job or start a new business
- The risk of skill depletion persists but is less than in previous scenario
- One sees trade unions and regional governments playing an important role in this scenario, in order to enhance the attractiveness of regions for «defence clusters» and to support transformation of regions in decline
- Financial players also see their role increased : this leads to a search for financial efficiency, cost effectiveness, and a globalisation of production sites : some (non sensitive) capacities are relocated in non-EU countries, but less than in the previous scenario


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Presentation made in WORKSHOP 1




**Analysis of emerging competences and skill needs
for optimal preparation and management of change
in the EU defence industry**

Élisabeth Waelbroeck-Rocha
Vice-President, BIPE

Brussels, December 8, 2008




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**Emerging competences and changes in skill
needs in the EU defence industry**

This handout was prepared for the restructuring forum
organised by the EC in Brussels on December 8-9, 2008.
It is incomplete without the accompanying comments.



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Outline

- The framework for analysing the social consequences of restructuring in defence industries
- Prospective changes in employment and skill needs in :
 - Military aerospace
 - Naval industries
 - Land equipment

Discussion 1: what are the new skills emerging in defence industries, where are the shortages, how do stakeholders view future changes?
- Labour mobility and impact on gross recruitment needs

Discussion 2: what are the trends in, and the factors impacting, mobility
- Consequences for lifelong learning and education systems

Discussion 3: actions needed at EU, national and regional level to minimise the impact of restructuring



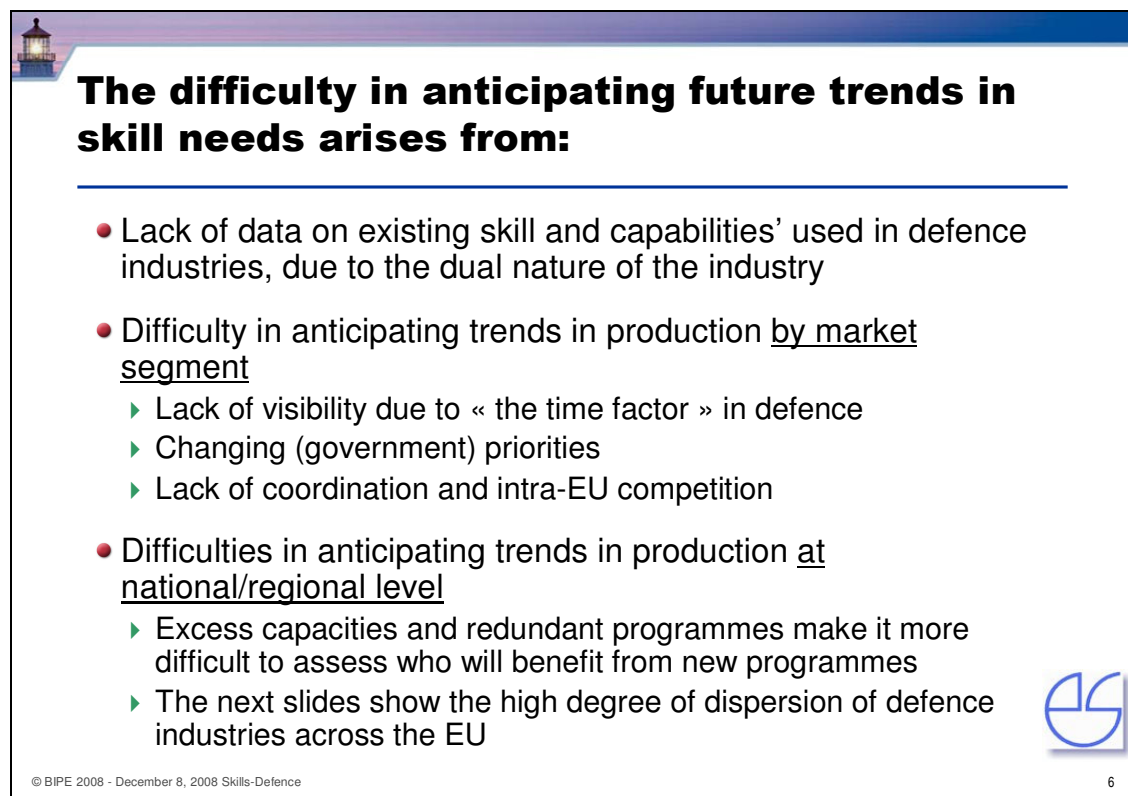
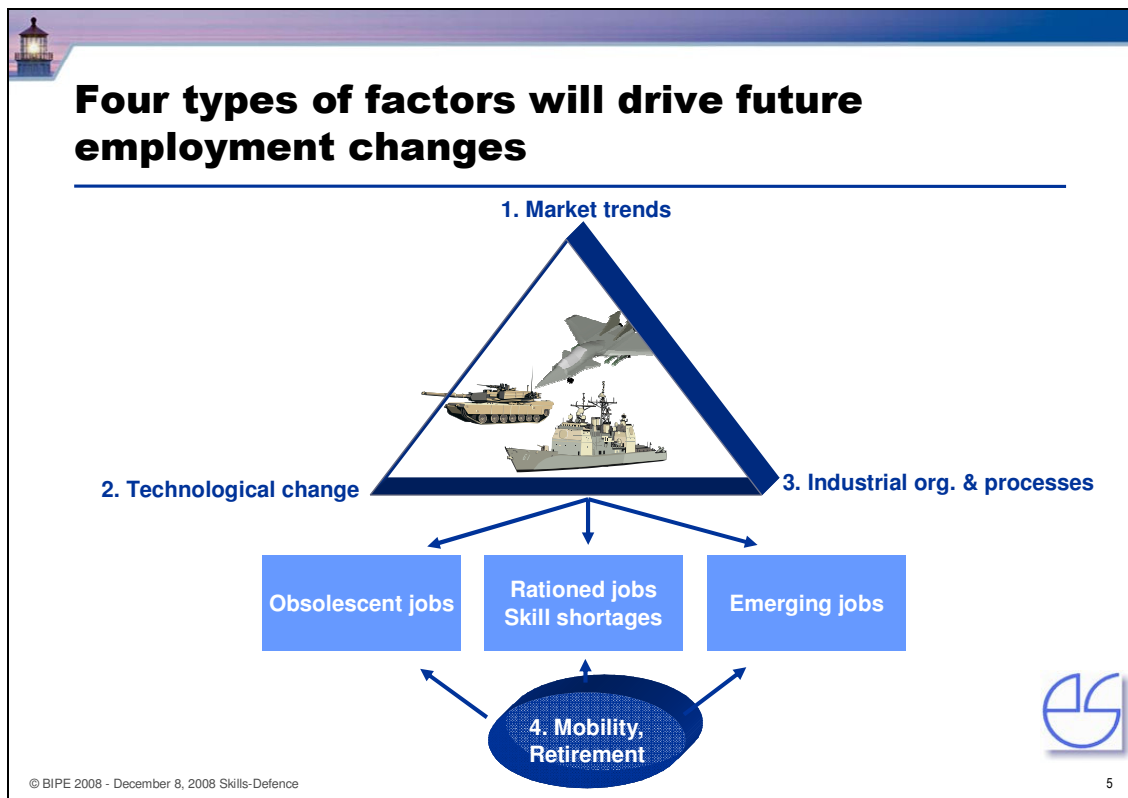
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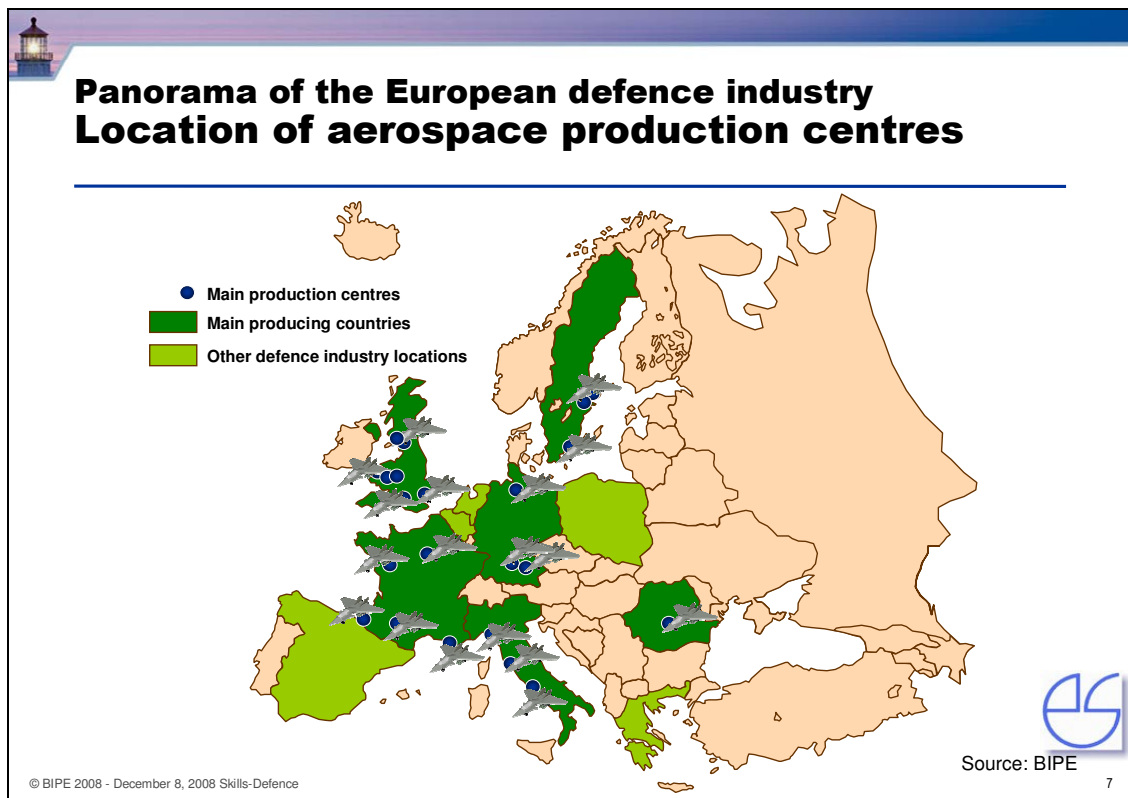


At the local level, the social consequences of the scenarios will vary depending on a variety of factors

- Local employment structures
- Market developments by sub-sector
- National and regional government' policies
 - *For example, UK policy is focused on maintaining and enhancing high-tech systems engineering competencies, and system integration capabilities*
 - *Poland puts emphasis on niche capabilities defined based on national security interests*
 - *Countries like Portugal have also developed niches of capabilities through the « juste-retour » principle, which it will likely seek to defend*
- National, EU and Nato priorities will impact allocation of funds for RTD and the speed of technical progress
- The age pyramid structure will impact job turnover
- The level and trend in cross-sectoral and regional mobility, and migration trends, will impact location choices
- The skill mix of the work force also impacts companies' location strategies
 - *There are niches of capabilities (Spain, Czech Republic, ...)*
- The degree of anticipation of change will impact local employment trends
- Last but not least, companies are not identical in the face of restructuring:
 - ▶ Differences in size, resources, sectors, independence or dependence on companies at other levels of the supply chain all influence the way the social consequences of a given event



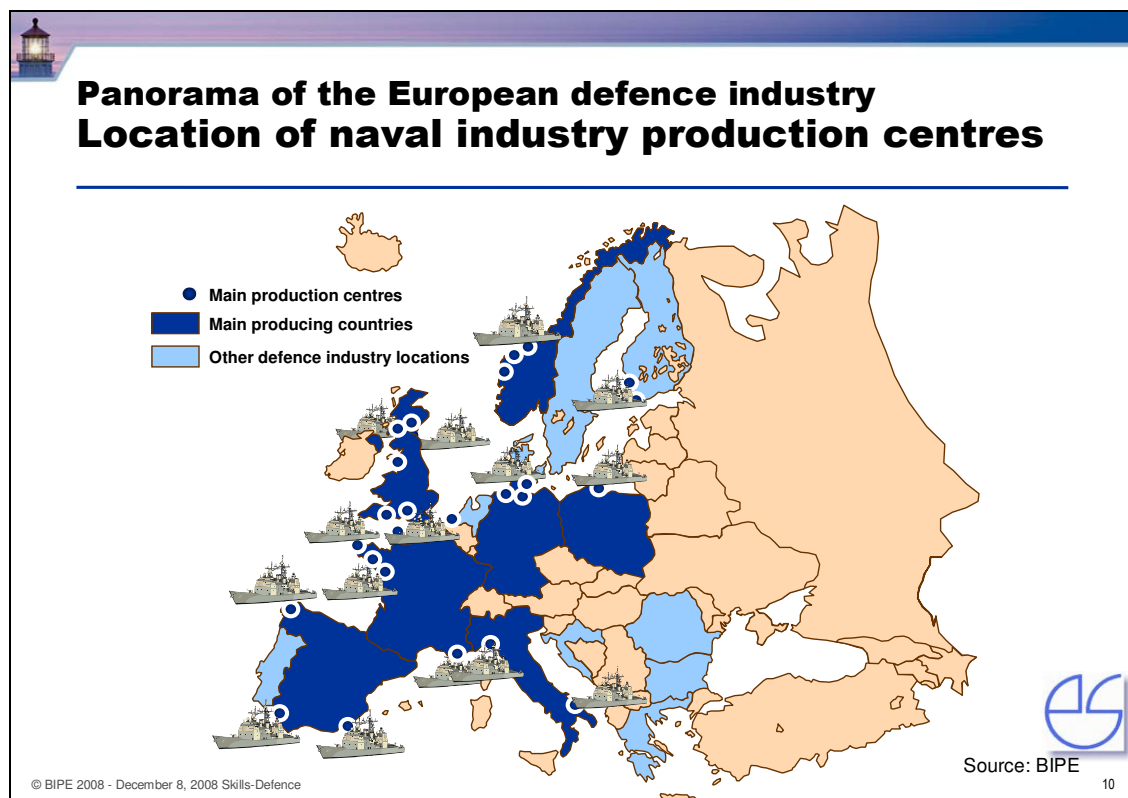
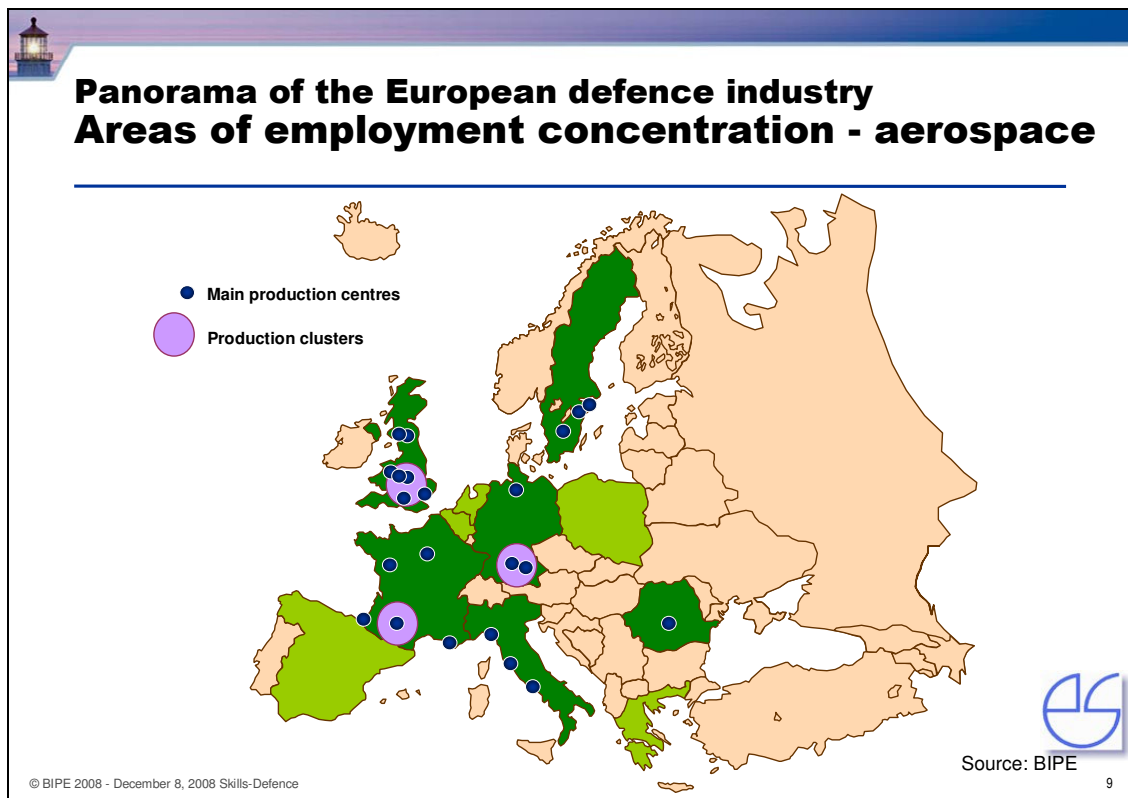


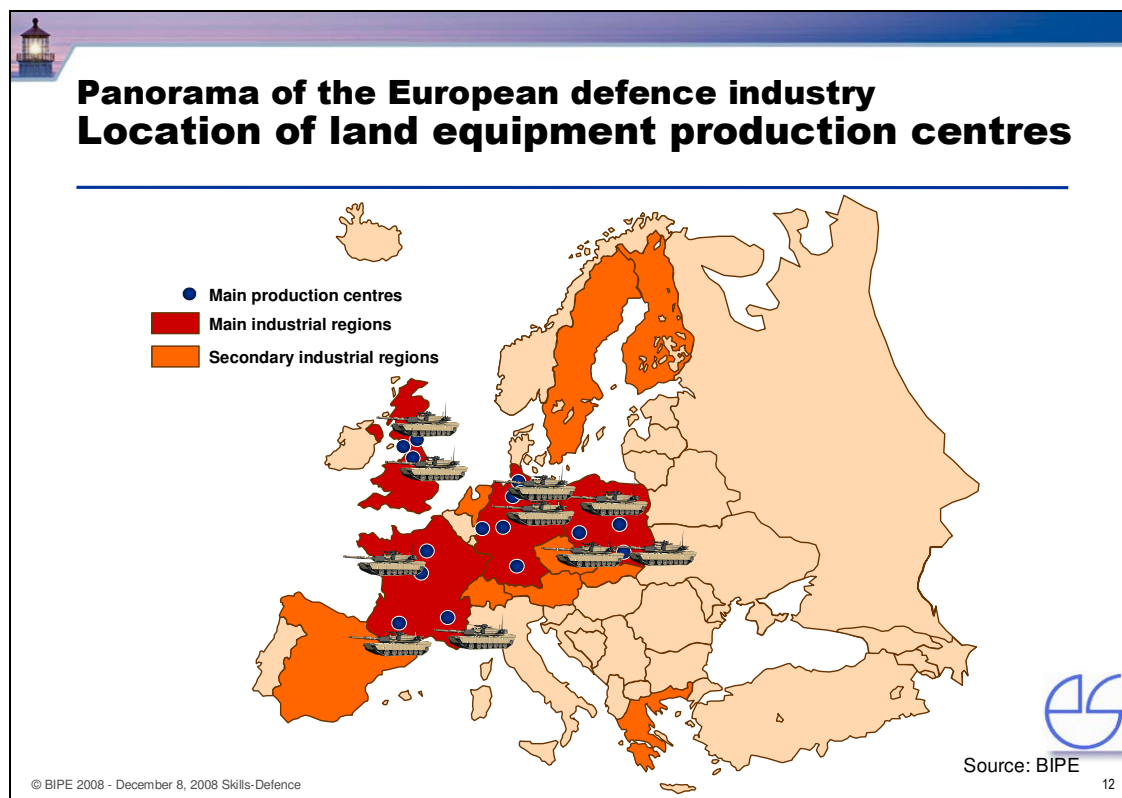
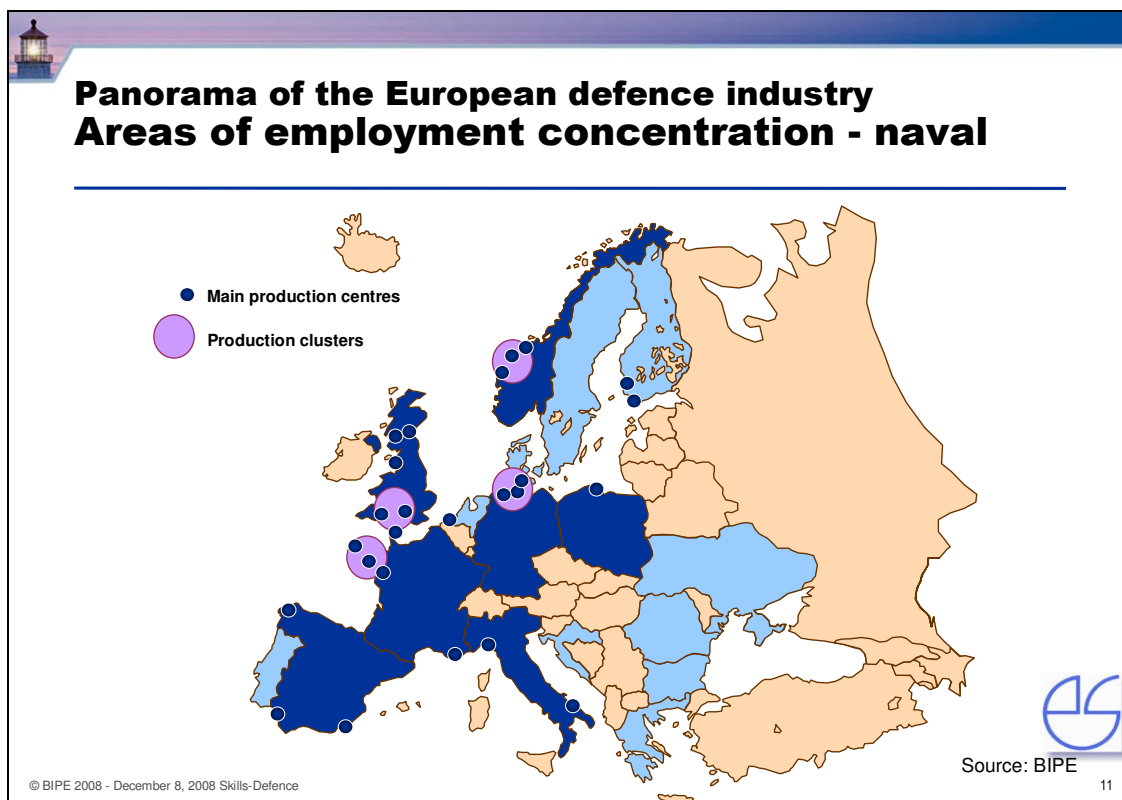


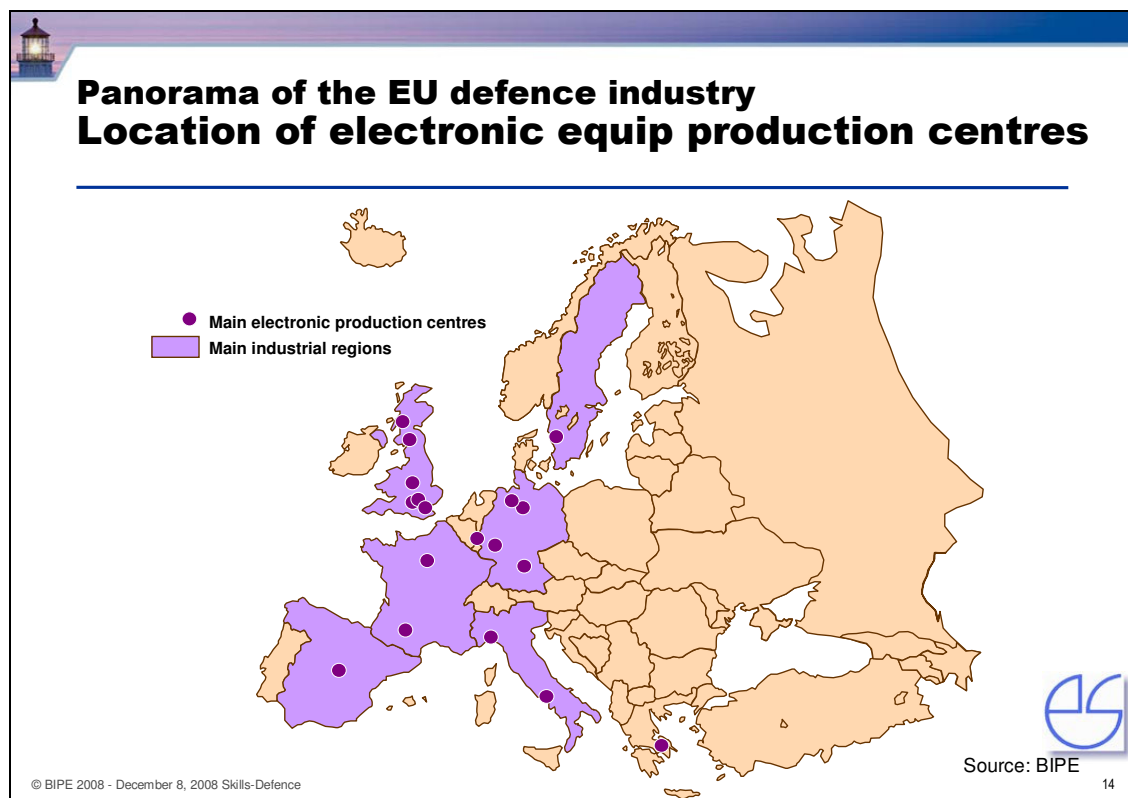
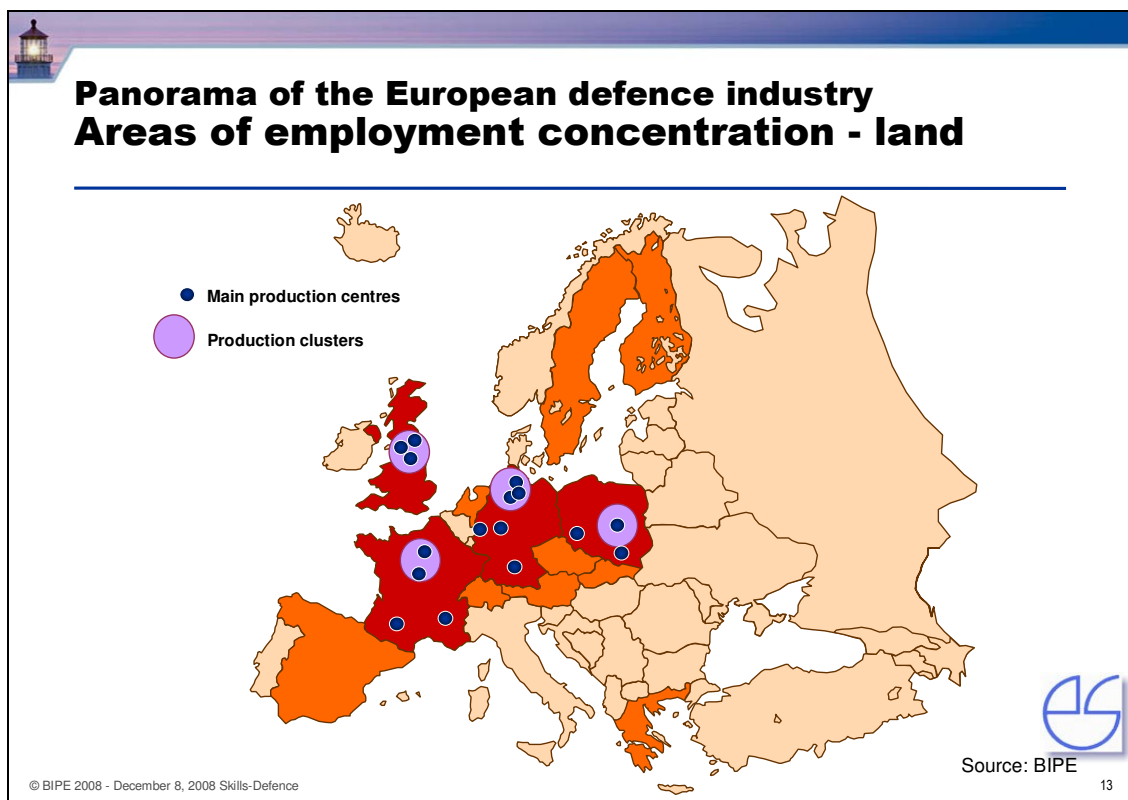
In certain regions, employment concentration goes well beyond defence activities ...

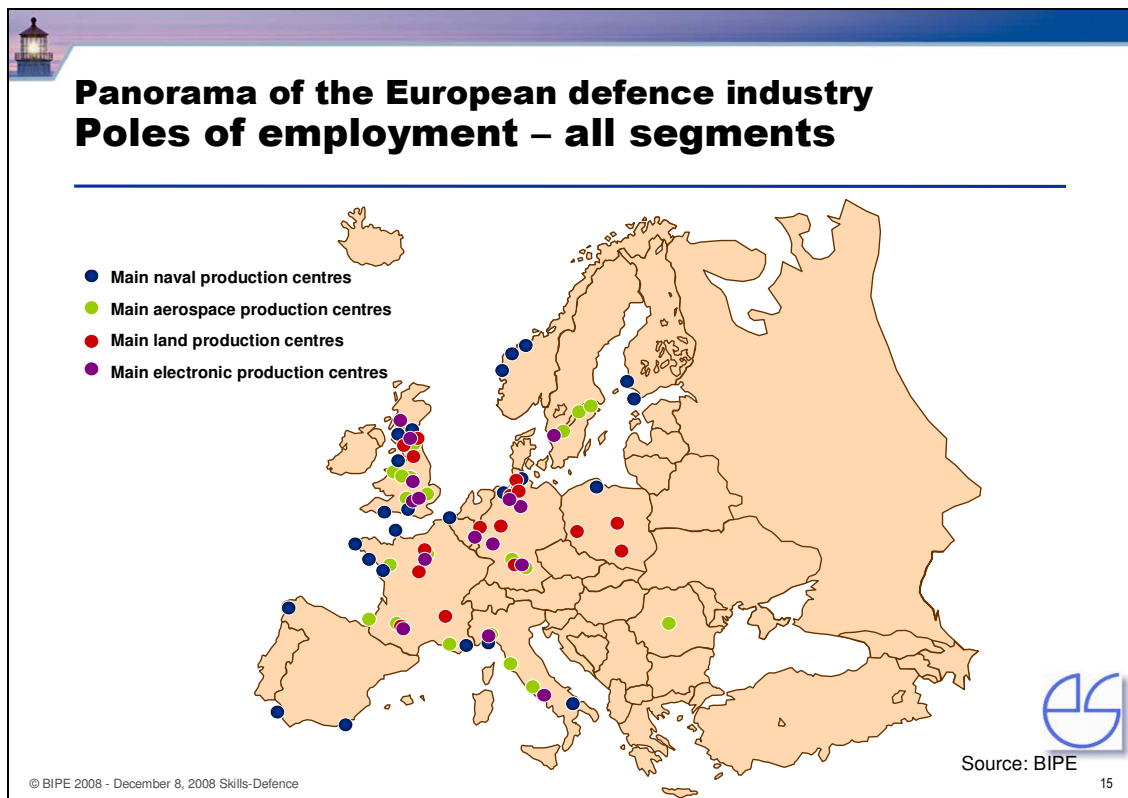
- The dual nature of many defence companies impacts the level of regional employment concentration
- Slow progress in industrial consolidation has led to **redundant capacities** and **excess employment** in certain sectors – hence to duplications of certain skills
- Both the restructuring prospects, and the effects thereof, will vary across regions :
 - ▶ Based on the local economic structure
 - Presence of civilian activities, nature of defence activity, degree of exposure of local firms to defence activities, existence of substitutes, etc.
 - ▶ Based on the labour market situation
 - Within the defence firms
 - In the region (location of training schools and facilities, degree of attractiveness of region, etc.)

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The outlook for employment and skill needs depends on future changes in activity by market segment

- « Demand » levels vary by segment
- Output levels depend on:
 - ▶ Underlying needs
 - ▶ Technological progress
 - ▶ Availability of financing
 - ▶ Scheduling of production
 - ▶ Time for production (can be several years...)
- Activity levels also depend on trends in **maintenance, retrofitting, upgrading, deconstruction**
 - ▶ Future activity could be boosted by externalisation as part of the shift to AVF and constrained public budgets
 - ▶ Delays in new order intake lead to increased demand for retrofitting
➔ different skills are required (less automation possible)


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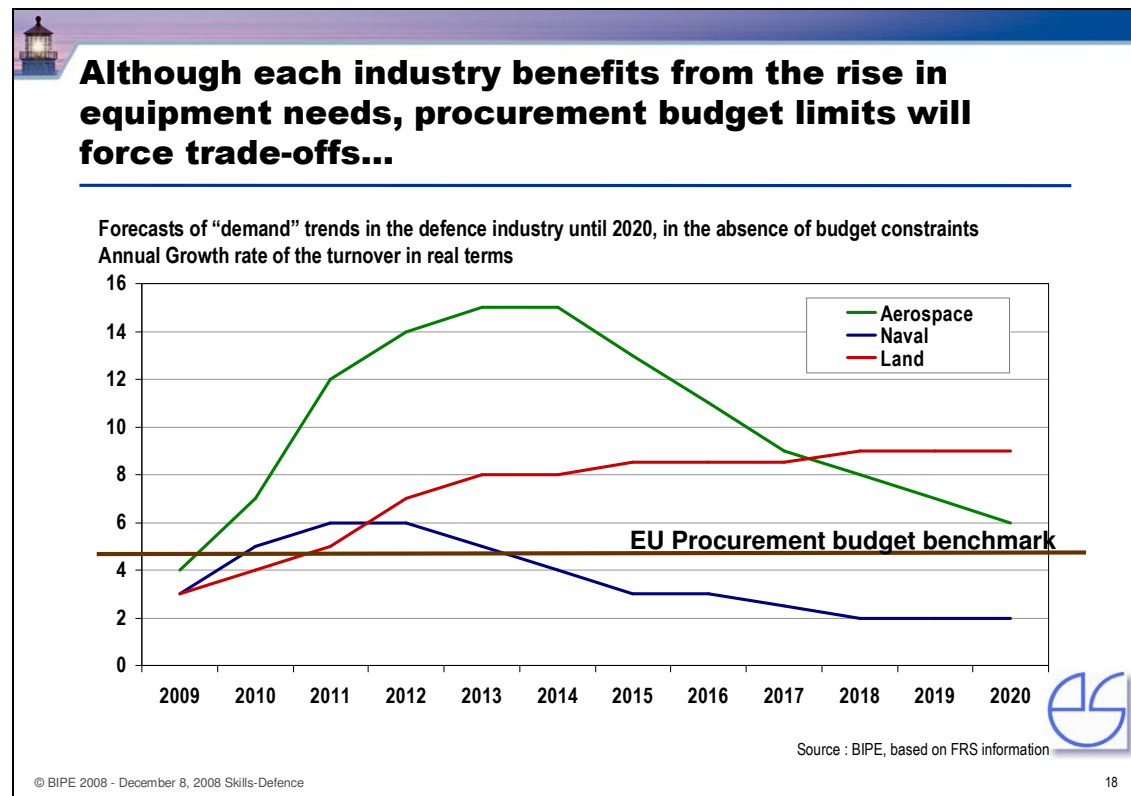


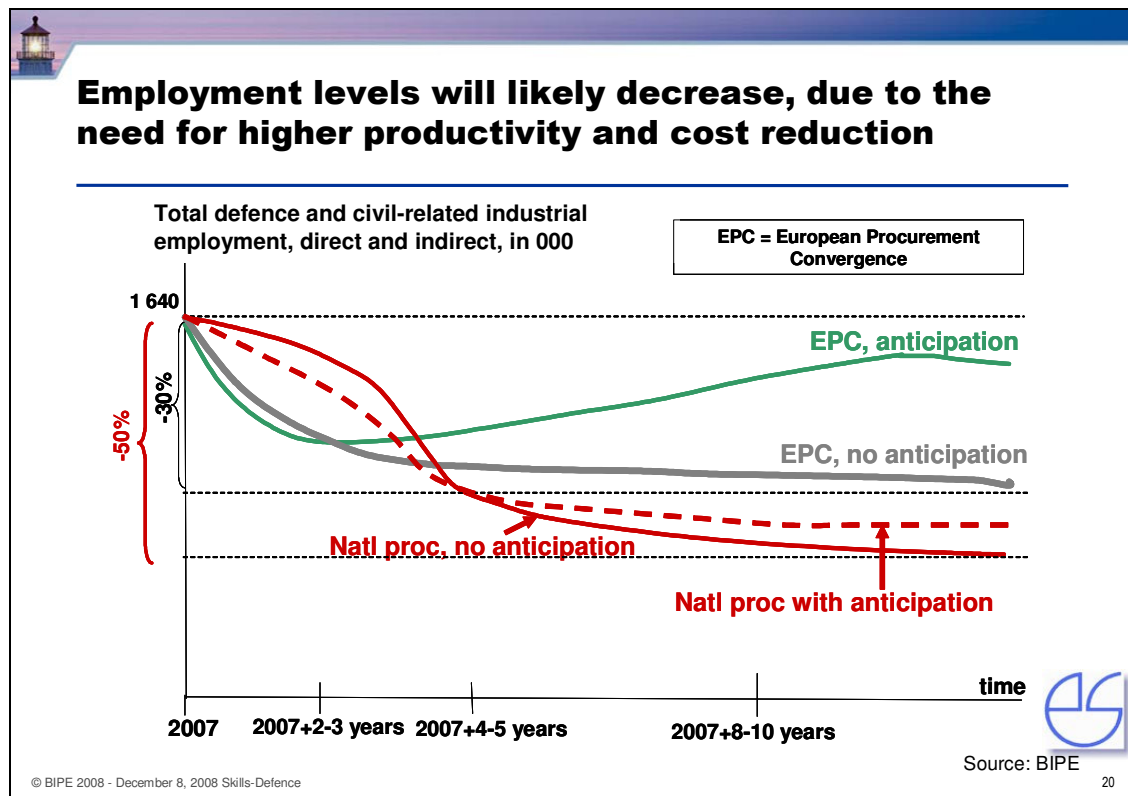
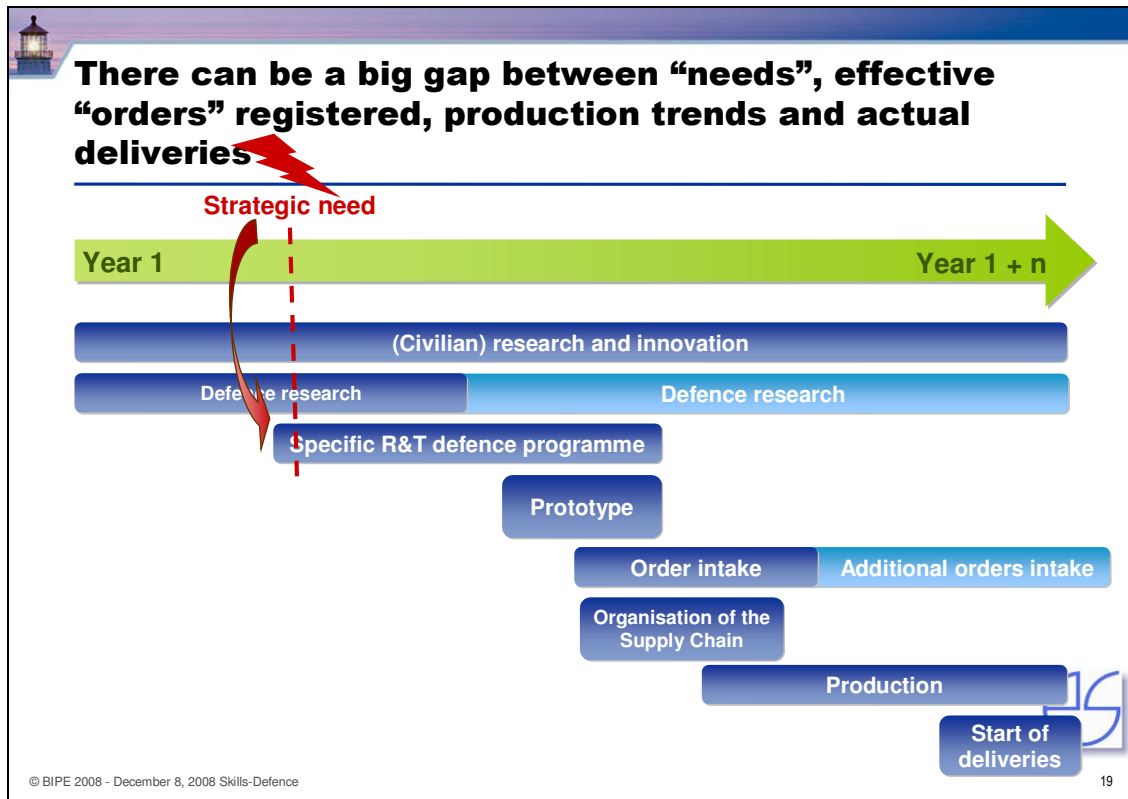
Equipment needs are generally known until 2015, but the timing of production is less certain : some orders may not materialise or can be postponed

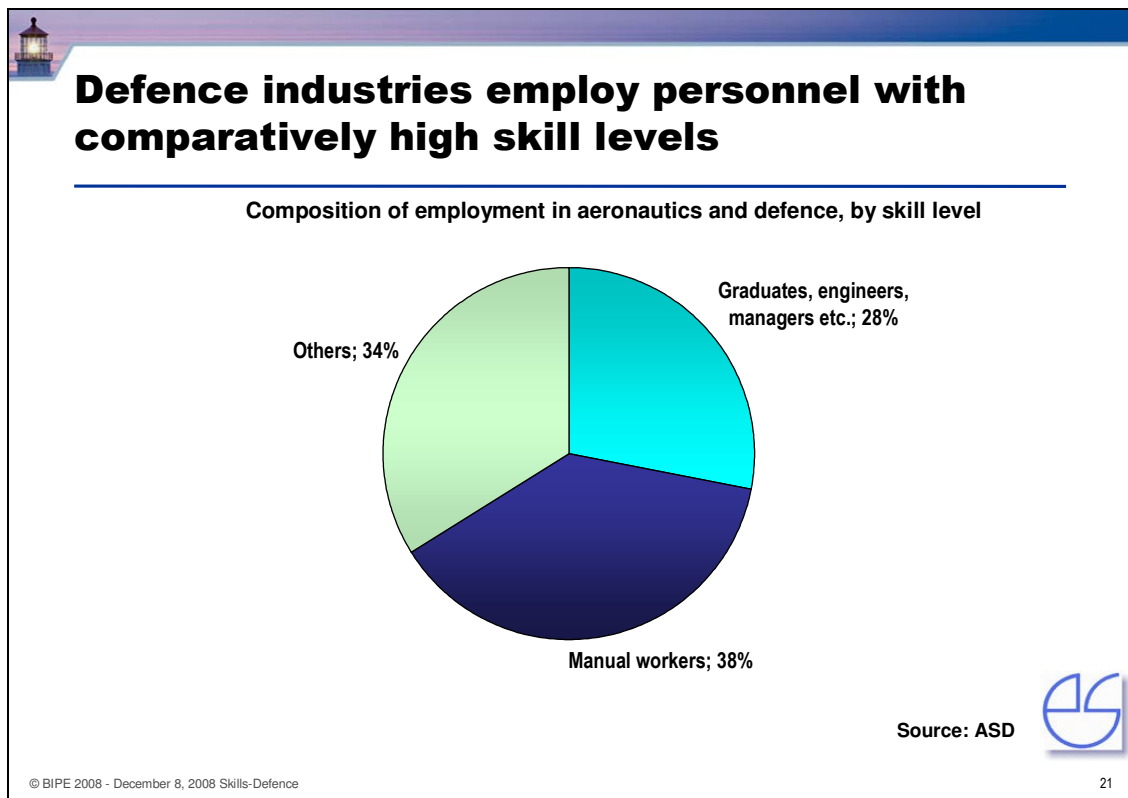
- In aerospace, replacement demand will drive the market:
 - ▶ An estimated 5000 out of 8000 aircrafts have to be replaced
 - ▶ Delays with the 5th generation of aircrafts are a cause for concern beyond 2015
 - ▶ Demand is high for helicopters, drones and military tactic aircrafts
 - ▶ **The main concern is the supply capacity**
- In the naval industry, both the replacement market and new demand are dynamic:
 - ▶ High level of order books for the last generation warships (aircraft carriers, frigates, destroyers, submarines)
 - ▶ Rapidly rising maintenance activity
- In the land defence industry, the outlook is bleaker:
 - ▶ Expected renewal of median vehicles (20-40 tons) until 2015
 - ▶ Renewal of heavy tanks in the longer term (2030?)




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- ## In all segments, skill needs vary at the different stages of production
- New programme launches entail:
 - ▶ RTD, design, prototyping, new materials' development, testing, etc...
 - Manufacturing entails:
 - ▶ Materials & components manufacturing, mechanical eng., traditional & modular construction, fibreglass/composite materials mould construction, metalworking, assembly, installation, cleaning, painting, outfitting, testing activities, logistics, cabling & wiring...
 - ▶ → Need for 'architects', designers, different types of engineers, people specialised in manufacturing and handling of materials (cutting, shaping, bending, welding, blasting, etc.), plumbers, machinists, electricians, logisticians, crane and tower operators, ...
 - Repair and maintenance entails:
 - ▶ Altering, converting, installing, cleaning, painting and maintaining existing equipment
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In all segments, skill needs change over time

- Poor labour market situation has raised the average competency level at the recruitment stage
- In most sectors, there is an ongoing **shift from manual workers to professionals and technicians of various types, engineers and computer programmers**
- Changes in the organisation of work, technological progress, the numerisation of functions and the need to cut costs leads to growing demand for machine operators as opposed to traditional blue collar workers
- **Skilled workers remain in high demand** in several segments (aerospace, naval)
- Within all occupations, there is a continuing increase in the importance of computer skills and know-how



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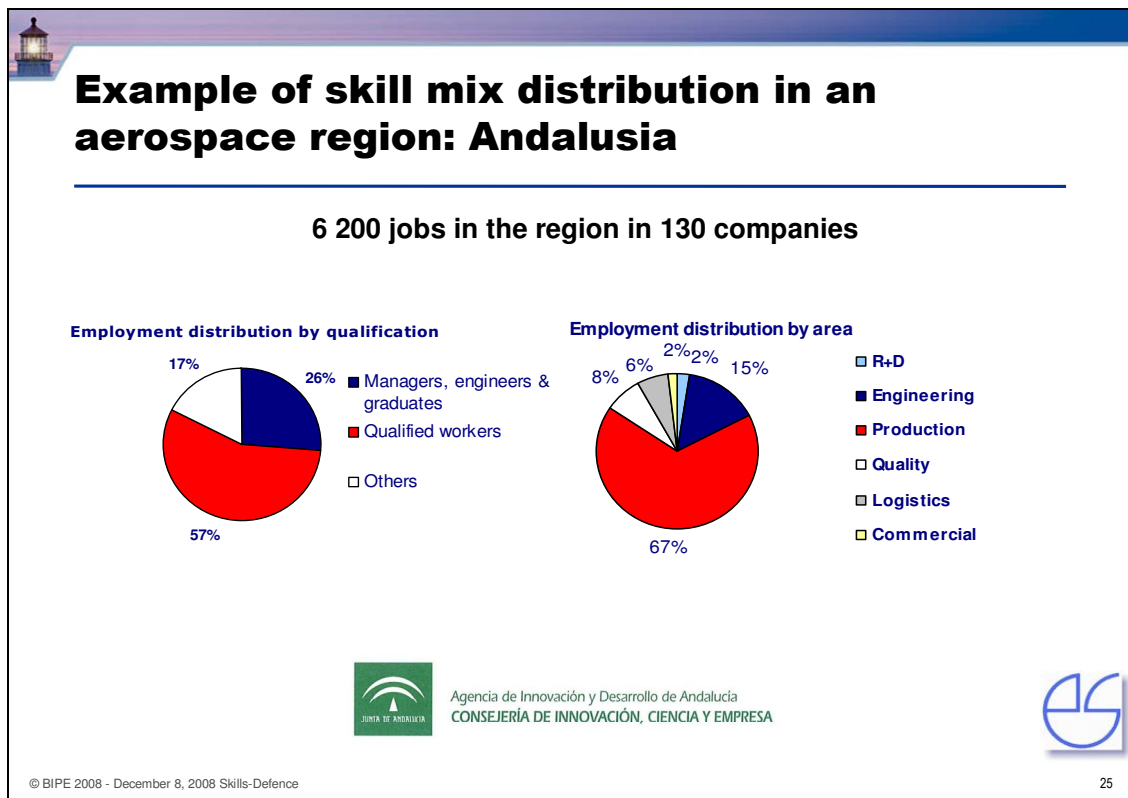


Military aerospace – changes in skill needs

- Buoyant activity in civilian industries put pressure on resources :
 - ▶ There are already labour shortages in Germany, Great Britain and Spain, and to a lesser extent in France
- No technological breakthrough is expected – rather continuous progress
 - ▶ Existing competences will be able to adapt to tomorrow's requirements
- No massive emergence of new professions, but a regular rise in the average qualification level
- Basic skills remain highly valued (welding, casting,): there are niches of tensions which limit companies' expansion programmes within Europe
- Reduced need for unskilled workers
- Rising need for competencies in support functions, but no major change in mix (qualified workers versus technicians versus engineers and management)
- For SMEs:
 - ▶ Emphasis on portability and transferability of skills across firms
 - ▶ Need for mutualisation of skills/training (through economies of scope)



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The land defence industry has to face up many challenges

- In comparison with aviation and space, the land defence industry produces more heterogeneous products (vehicles, munitions ...); most producers in this market are exclusively dependent on defence activity
- Because of the level of specialisation required, some needs are not fulfilled by general education programs
 - ▶ Additional (in-house) training is required, meaning extra costs
- The share of RTD expenditures in turnover is lower than in the other defence industries; duplication of programmes at EU level means competitiveness is at stake:
 - ▶ Blue collar workers run an important risk if markets are not Europeanised
 - ▶ Researchers and engineers involved in R&D are at risk if EU coordination improves



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Skill needs in the naval industry

- The main engines of growth in the naval defence industry are the fleet replacement needs, and the needs for maintenance of existing ships
- The rise in demand for maintenance will modify the traditional occupational mix:
 - ▶ Integrated weapon systems have become more complicated
 - ▶ Network systems in international and inter-army context are being developed
- Some specific defence programs require “ad hoc” skill training, not specialised education in the “general” school system
 - ▶ Needs to secure the renewal of strategic occupations (with background)




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Context changes linked to technological progress and changes in production organisation and processes are also impacting the required skill mix

- Focus on cost reduction will, in time, lead to:
 - ▶ More competition in procurement
 - ▶ Increased size of firms (search for EOS → mergers, concentration of SMEs, development of networks of firms)
 - ▶ Increased externalisation of tasks
 - ▶ Emergence of a more structured, tiered, value added chain
 - ▶ Productivity gains
 - ▶ Production re-organisation across sites, elimination of redundancies and excess capacities → reorganisation of production across the EU
 - « Pan-Europeanisation » and internationalisation of production
- « Competitiveness race » requires increased RTD spending




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Impact of context changes on skill needs in the defence industries

Context changes	Consequences for employment and skills needs
<ul style="list-style-type: none"> ● Re-organisation of production in a tiered structure ● Externalisation of activities ● Improvement in productivity and efficiency 	<ul style="list-style-type: none"> ● Impact on governance, operating practices and management ● Reduction in number of hierarchic levels & shift to matrix type organisations cause a need for more collaborative working environments, cutting across functions → team workstructures, polyvalence ● Increased need for certain support functions: <ul style="list-style-type: none"> ▶ Cost control, quality control, procurement, marketing and sales ● ... and a reduced need for administrative functions: <ul style="list-style-type: none"> ▶ HR and general management, ..
<ul style="list-style-type: none"> ● Increased internationalisation of operations linked to the Pan-Europeanisation of production ● Need for increased RTD and new programmes ● Increased (non-price) competitiveness 	<ul style="list-style-type: none"> ● Internationally oriented competencies (language, communication,...) ● Focus on marketing and commercial skills ● Management of procurement, of subcontracting, optimisation of logistics (incl. for maintenance) ● Expert skills for the production and handling of new materials & technologies (composites, robotics, etc.) ● Specialisations in the manufacturing, maintenance and recycling of technical materials (composites, energy efficiency, etc.) ; ● Competencies focused on protecting the environment and work ethics



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Summary of future trends in employment by occupation and main sector

Main needs in Defence industry

Occupation	Aerospace industry		Naval Industry		Land Defence Industry	
	Actual	Trend	Actual	Trend	Actual	Trend
Boilermaker	-		-		-	
Electricians		-		-		-
Welder						
Caster		+		+		+
Pipe fitter			-			
Cutter	-	--	-	--	-	--
Metal workers	+	++				
Software Engineers	+	++	+	++	+	++
Electrical Engineers		+		+		+
Mechanical Engineers	-	-	-	-	-	-

Source: BIPE

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Discussion

- What are the emerging skill needs ?
- Which skills are becoming redundant ?
- What is the impact of externalisation (of maintenance, for example) likely to be ?
- What are the new demands put to the labour market ?

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The outlook for recruitment takes into account mobility and retirement perspectives

- Age pyramids vary across companies, depending on past circumstances
- In some companies, there is an « age gap » in the 35-45 age range
- The impact of ageing on mobility varies :
 - ▶ Some companies have corrected their age structure in the past years and will see few departures for retirement
 - ▶ Others, mostly SMEs, have a high concentration of workers aged 50 or more
- In France, mobility has risen close to 8% in recent years
- ➔ Looking at the age pyramid structure is important, but data is often lacking !

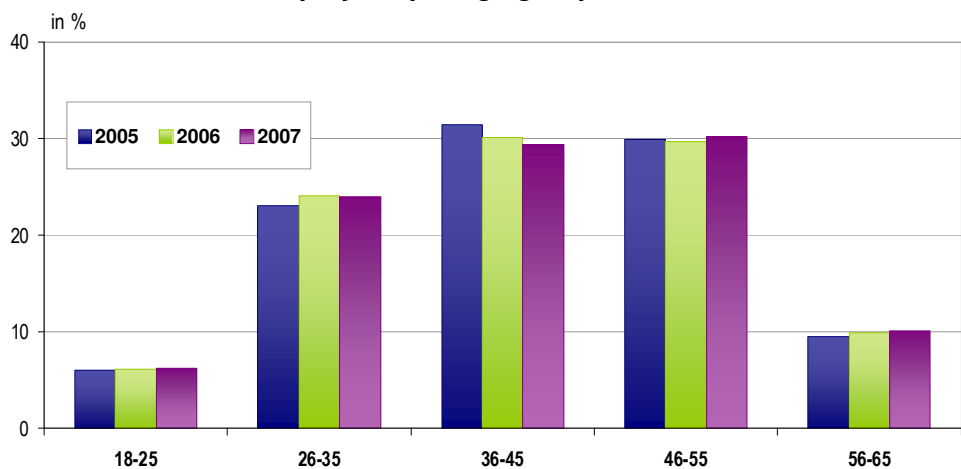


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Age pyramids in defence industries : the example of EADS

EADS : number of employees per age group



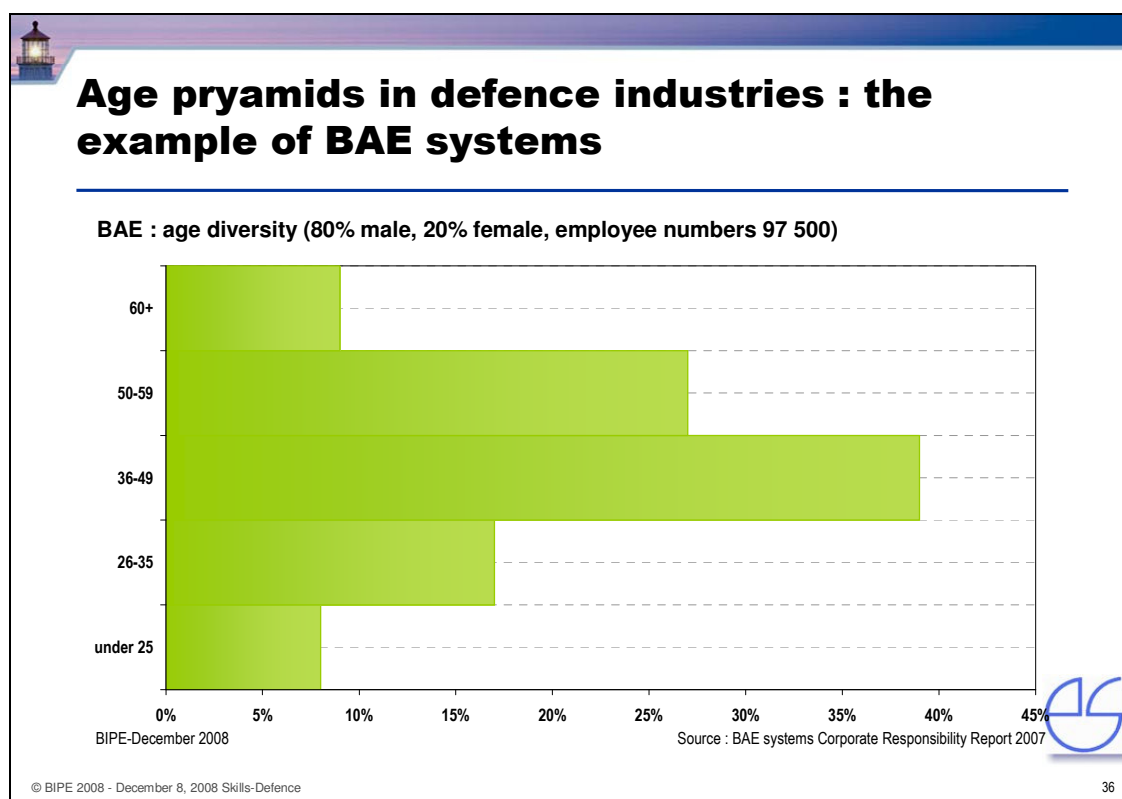
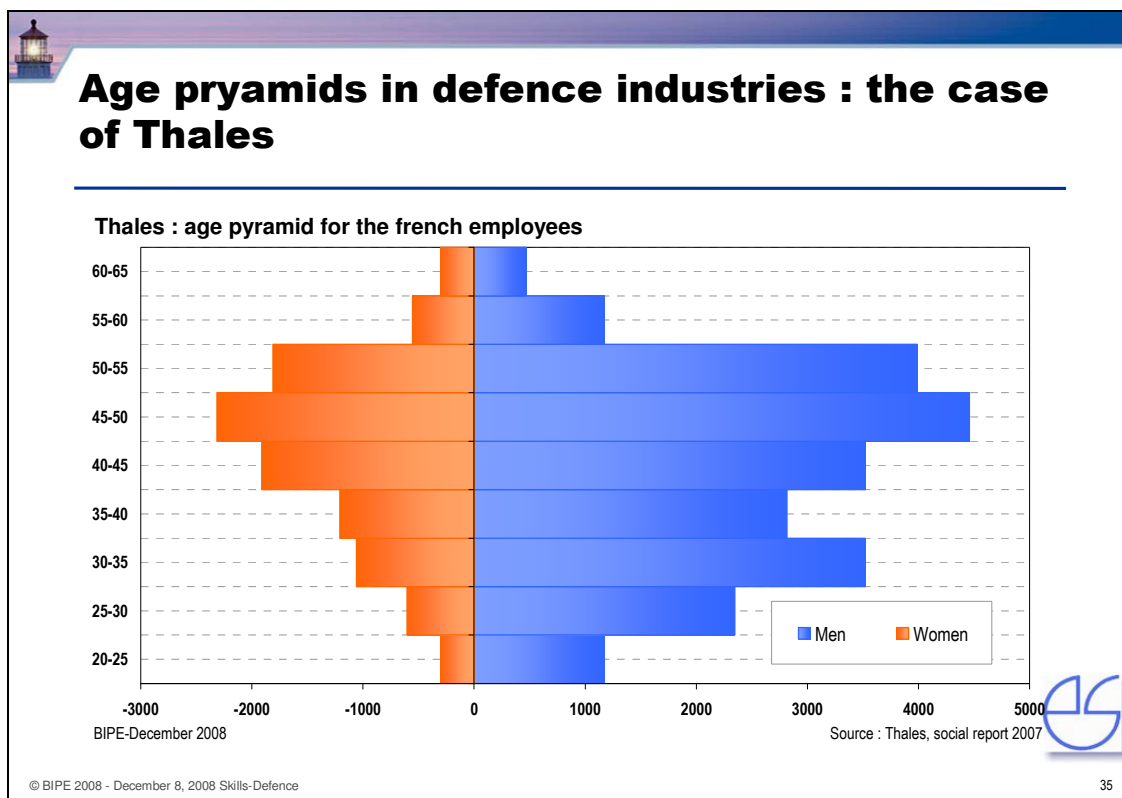
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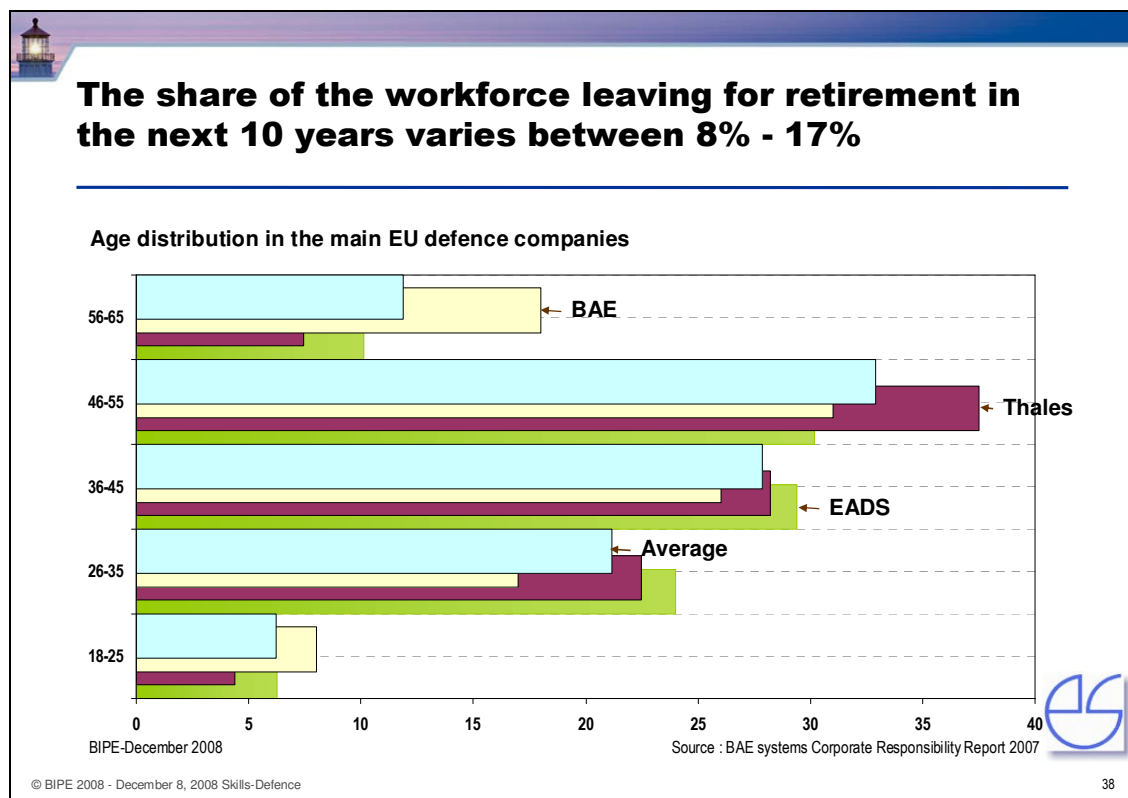
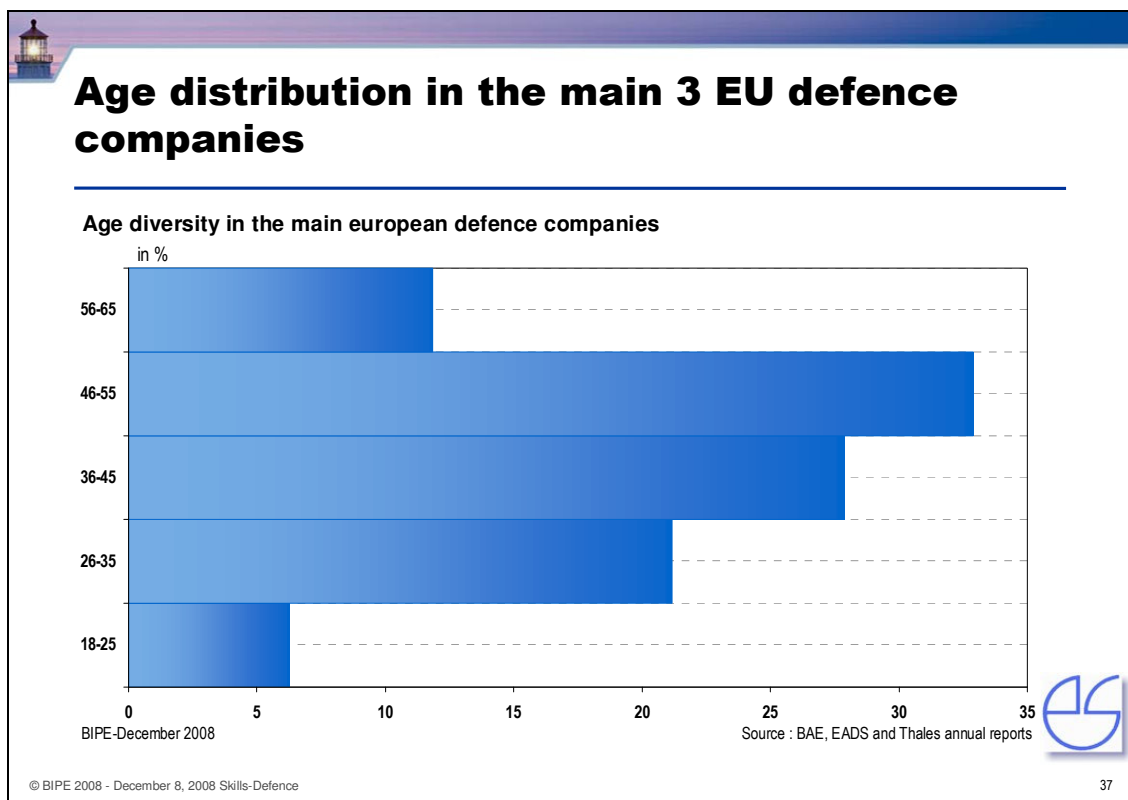
Source : annual report, 2007

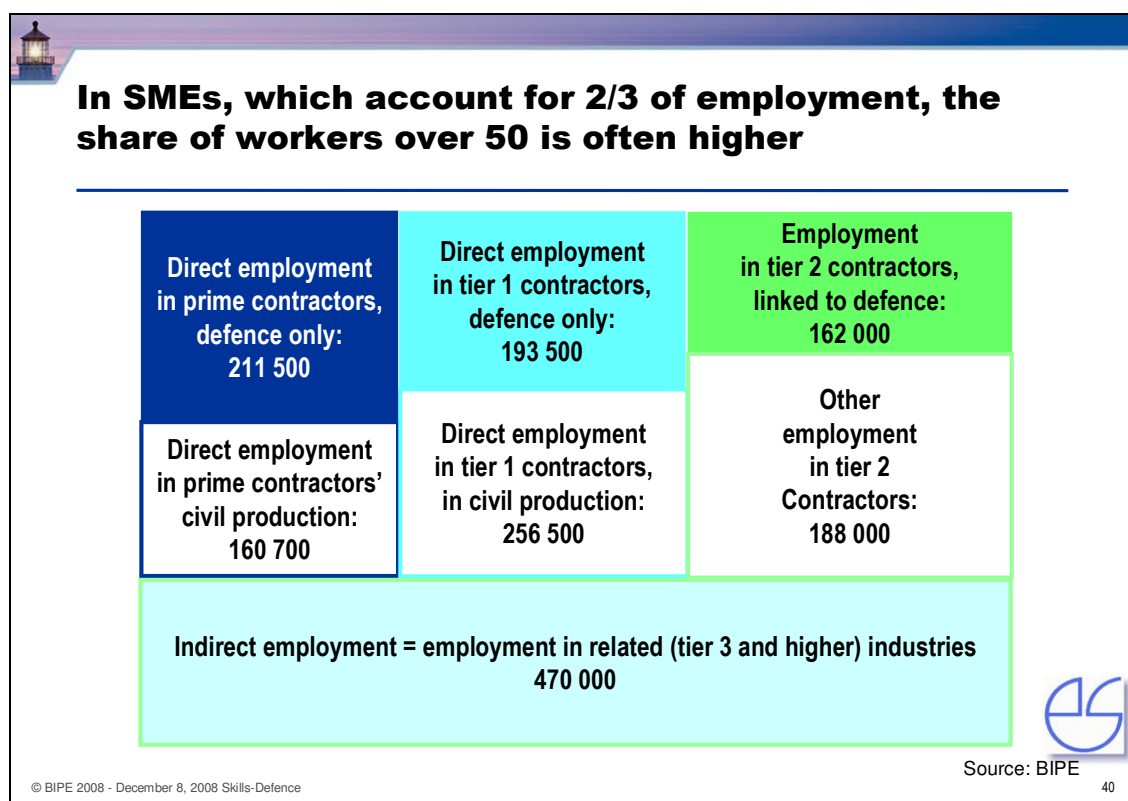
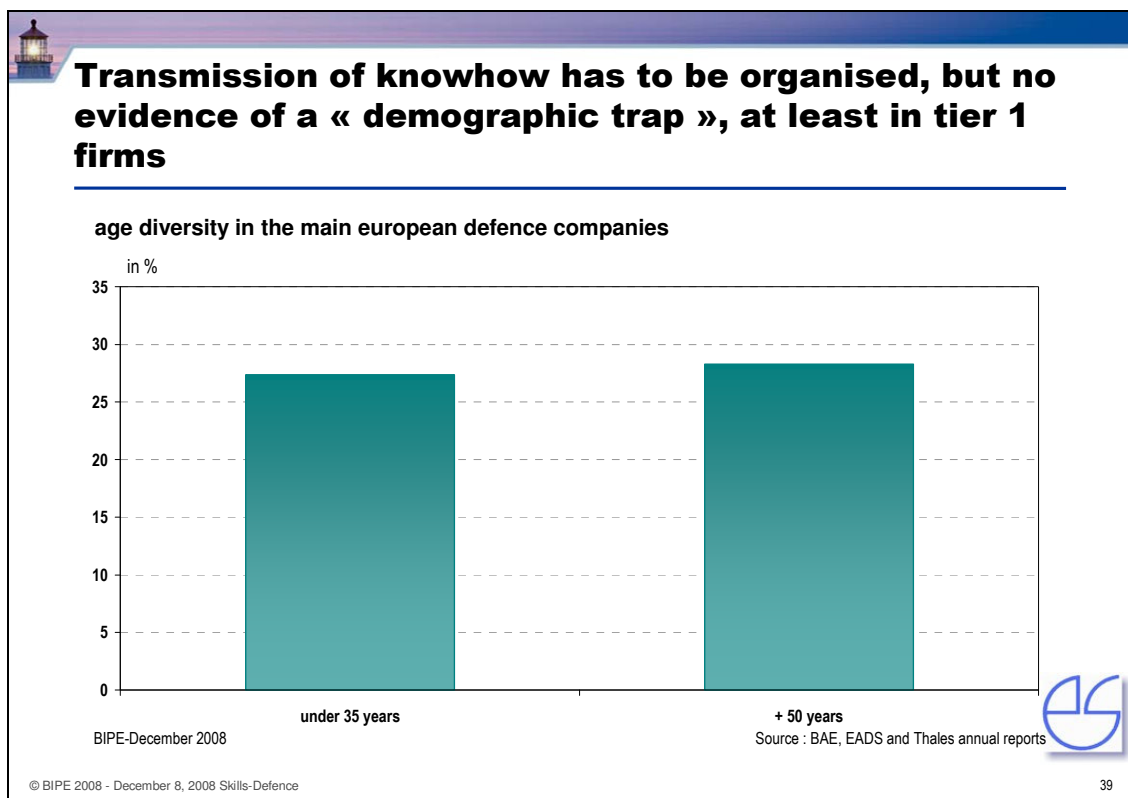


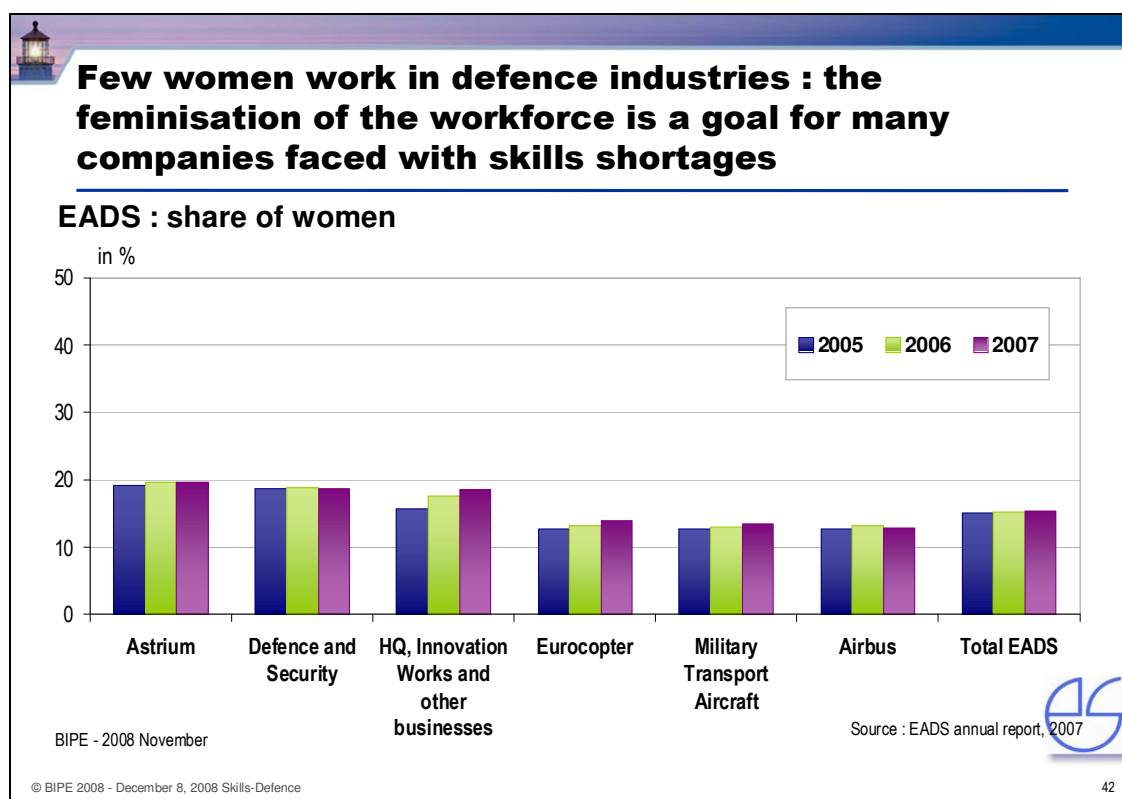
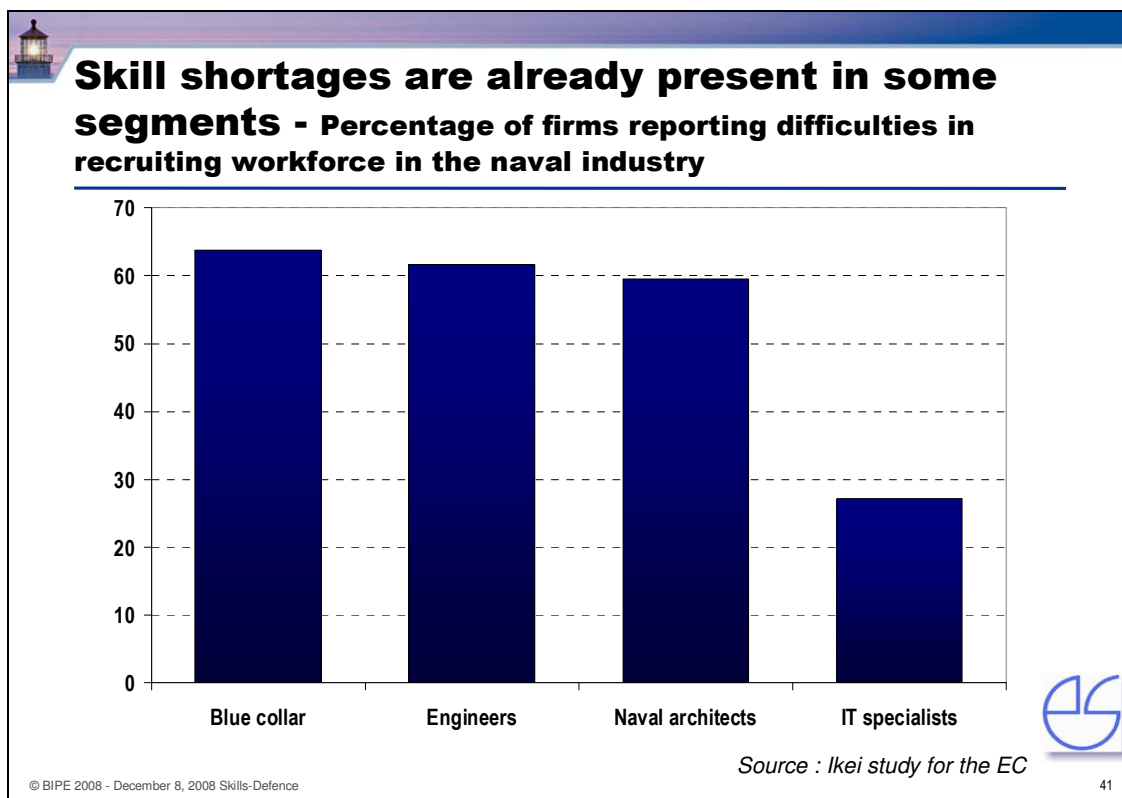
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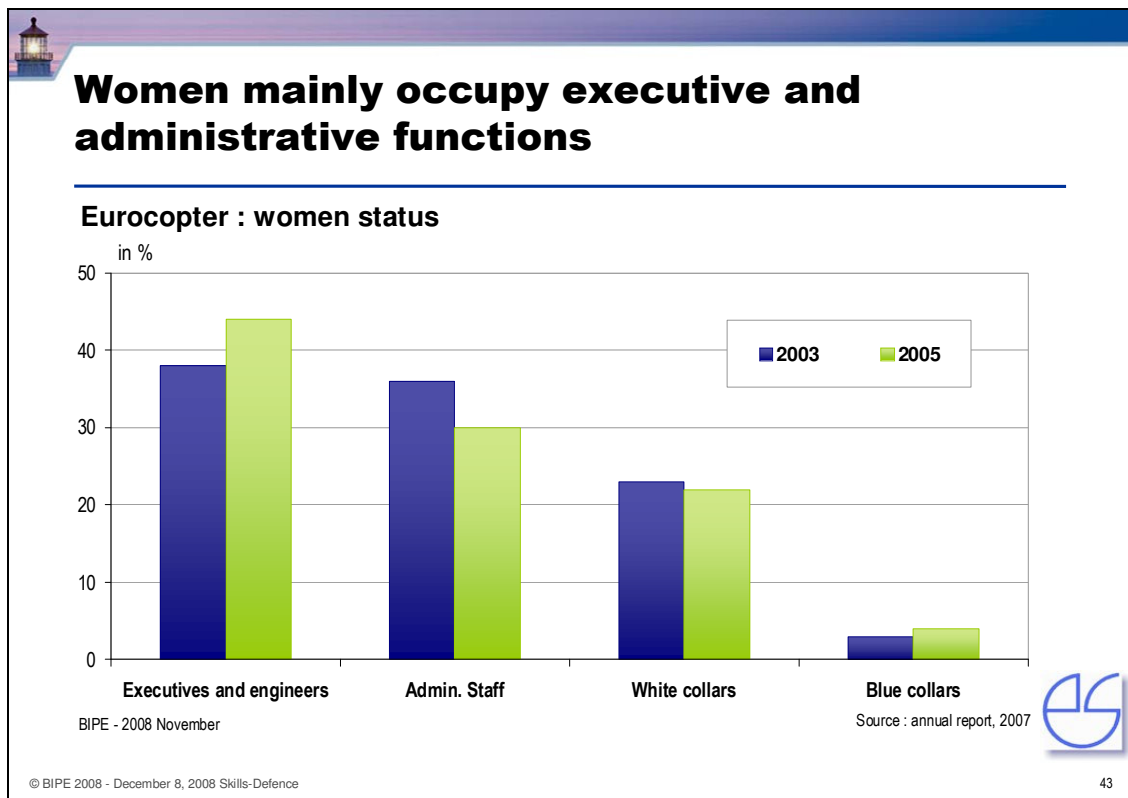
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Discussion

- What has been the past trend in mobility across countries ?
- Is mobility higher in defence industries than in civilian industries?
- Is skill retention an issue ?
- Can intra-sectoral mobility smoothe out the impact of cycles on employment ?
- What are the factors impacting mobility, and can they be acted upon ?
- Is attractiveness an issue, in which segments ?

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The organisation of education systems

- From a HR point of view, the key feature of defence industries is the need to protect IP and secure technical know-how
- Basic education provides generalist skills, but technology companies need more :
 - ▶ "When asked about how 'work-ready' Scottish school leavers are, Katie Hutton, Head of Operations, Skills Interventions Team, Skills Development Scotland said that they left school with the majority of the general skills required for work but there were still areas that employers had to provide training to cover"
- Nowadays there is a consistent bias in the educational system in favour of academic occupations as opposed to vocational training
 - ▶ "The system is often unhelpful in encouraging a parity of esteem for the different routes chosen by students"
- Several companies have developed their own schooling system, even for the civilian activities (example: Airbus, in Nantes; Thales)
- Others put the emphasis on linkages with higher education institutions in order to adapt the supply of skills to the levels needed to serve the industry



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The geographical distribution of future skill needs

- As restructuring occurs along a Pan-European base, **the demand for skills will vary across regions**
- The education systems will have to adjust
- Many in the industry are calling for the development of « **centres of excellence** » in Europe, whereby certain regions would specialise in certain types of production ...
- ... and host training institutions that would supply the required skills, to the region itself and to other regional markets ...
- ... Creating « education hubs »




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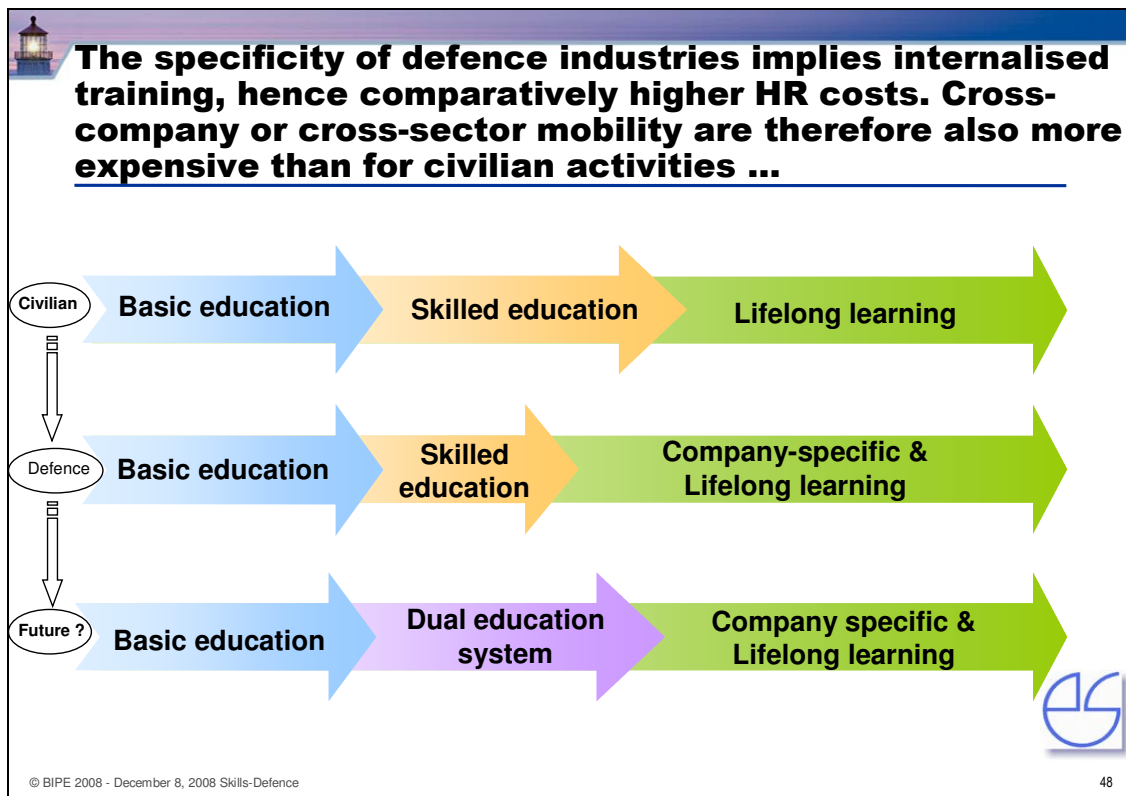



For the “centre of excellence” concept to be effective, certain conditions must be met

- The Excellence Centers will have to take on both research and manufacturing activities
- They have to be totally independent of national governments (to avoid a given country government’s exclusive control of a sensitive technology and/or process)
- Their objective has to be to supply graduates trained in the given area to any EU country needing that skill
 - ▶ Need for increased workforce mobility
- **Some problems remain:**
 - ▶ Companies are themselves a key source of know-how
 - ▶ There are specialised jobs whose conversion can be difficult
 - ▶ There can be issues with national security (due to sensitive technologies and processes)
 - ▶ Governments, which are the principal clients of defence companies, have conflicting objectives: they want to ensure a return on investment but also avoid over-reliance on other states, even if they are allies and partners




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Other problems and issues

- The location of the « excellence centres » will influence the location of the future civilian activities
- Cross-country mobility of the workforce will have to be enhanced




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Discussion

- What are the needs of SMEs
 - ▶ Need to mutualise training for specialised skill-needs ? Take-on HR management?
- Can « centres of excellence » contribute to maintaining / enhancing a competitive EU defence industry ?
 - ▶ Certification issues, « Validation des acquis de l'expérience »,...
- What are the needs for policy changes in the training / education field ?




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Conclusion

- To assess the social consequences of restructuring, one needs to:
 - ▶ Look at the future skill needs in the various sectors (land, aerospace, naval, electronics)
 - ▶ Take into account the possible inter-changeability of workforce between the defence, security and civilian sectors
- Once Pan-European restructuring gets under way, increased geographical mobility of the workforce will be a requirement
- Location decisions made for defence activities will have a key impact on civilian activities, especially in the case of:
 - ▶ Aerospace, notably propulsion systems and RTD
 - ▶ New materials
 - ▶ Electronics



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Presentations made in WORKSHOP 2

Thema Datum 1

Interessenvertretung beeinflusst Unternehmensstrategien.

Die Ausgangslage:

Konsolidierungsdruck der Werften in Europa sowie am Industriestandort Deutschland.

Beispiel: Herausbildung der TKMS

Ein Unternehmen von ThyssenKrupp Technologies **ThyssenKrupp Marine Systems**
Howaldtswerke-Deutsche Werft



ThyssenKrupp


Thema Datum 2

Unsere Betriebsrats-Handlungsmöglichkeiten durch die deutsche Gesetzgebung:

- die Industriepolitik auf europäischer, nationaler und regionaler Ebene.

die Mitbestimmung, das Zusammenwirken betrieblicher und außerbetrieblicher Interessenvertretungen durch Aufsichtsräte

Ein Unternehmen von ThyssenKrupp Technologies **ThyssenKrupp Marine Systems**
Howaldtswerke-Deutsche Werft



ThyssenKrupp

Thema Datum 3


Unsere Handlungsmöglichkeiten:

- **Tarifpolitik**
 - Standort-Betriebsräte
 - Flächentarifvertrag
 - Streik um Sozialplaninhalte

Mobilisierung der Beschäftigten und der Bevölkerung zum Erhalt von Arbeitsplätzen.

Ein Unternehmen von ThyssenKrupp Technologies

ThyssenKrupp Marine Systems
Howaldtswerke-Deutsche Werft



ThyssenKrupp


Thema Datum 4

Unsere Handlungsmöglichkeiten:

- **Betriebspolitik**
 - Personalpolitik
 - Entgeltpolitik (z.B. Leistungs- oder Zeitentgelt)
 - Arbeitsplatzgestaltung
 - Arbeitssicherheit- und Gesundheitspolitik

Ein Unternehmen von ThyssenKrupp Technologies

ThyssenKrupp Marine Systems
Howaldtswerke-Deutsche Werft



ThyssenKrupp

Thema Datum 5

Grundsätze einer zukunftsgerichteten gewerkschaftlichen Werftenpolitik.

- **AG Schiffbau der IG Metall Bezirk Küste**
 - **Verabredungen zur Gestaltung maritimer Politik**
 - **Werftenkoordinator**
 - **Nationale maritime Konferenzen**
 - **Mitgestaltung des maritimen Clusters**

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von ThyssenKrupp
Technologies

ThyssenKrupp Marine Systems
Howaldtswerke-Deutsche Werft



ThyssenKrupp

Thema Datum 6

Werftenpolitik im Rahmen der Arbeitnehmervertretung im Konzern.

- **Betriebsrätearbeitsgemeinschaft der TKMS**
 - **Mitbestimmung**
 - **Betriebsverfassung**

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Technologies

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ThyssenKrupp

Thema Datum 7

Gestaltung des Wandels bei der TKMS-Werftengruppe.

1 Multinationaler Konzern aus drei Stahlimperien

7 Werften in

3 europäischen Ländern

Begleitkommission und ein industrielles Konzept

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Technologies

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ThyssenKrupp

Thema Datum 8

Zivile und militärische Produkte auf Werften.

- **Zyklischer / konjunktureller Handelsschiffbau**
- **Antizyklisch gesteuerter, reduzierter Marinebedarf**

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von ThyssenKrupp
Technologies

ThyssenKrupp Marine Systems
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ThyssenKrupp


Thema Datum 9

Repositionierung und Restrukturierung:

- **Das Einwirken der IG Metall und Betriebsräte auf die TKMS-Führung.**

Gemeinsame Erklärung zur Gestaltung der gemeinsamen Zukunft der TKMS

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ThyssenKrupp Marine Systems
Howaldtswerke-Deutsche Werft



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Thema Datum 10

Ausblick:


- **Europäische Perspektiven, nötige Kooperationen und Zusammenschlüsse.**

Im Interesse einer demokratischen europäischen Politik:

- **friedensschaffende Verteidigungs- und Marinepolitik**
- **Integration der Marinen der Mitgliedsstaaten**
- **der Werften und Arsenale**

bei Beibehaltung des zivilen und militärischen Schiffbaus.

Ein Unternehmen von ThyssenKrupp Technologies
ThyssenKrupp Marine Systems
Howaldtswerke-Deutsche Werft



ThyssenKrupp

Ausblick:

Im Interesse der Beschäftigten auf den Werften und Arsenalen in enger Abstimmung mit ihren Interessenvertretungen auf nationaler und europäischer Ebene

- **gestaltete Konversion und Produktpaletten**
- **Qualifizierung / Personalentwicklungsplanung**
- **Absicherung der Entgelte**

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von ThyssenKrupp
Technologies

ThyssenKrupp Marine Systems
Howaldtswerke-Deutsche Werft



ThyssenKrupp

ACCORD ANTICIPATION GROUPE THALES

DRHDJ/3 mai 2007

Le Groupe Thales est un leader mondial dans les systèmes d'information critique

- Trois domaines d'activité
 - Défense (systèmes aériens, systèmes terrestres et navals) 50%
 - Aéronautique et espace 25%
 - Systèmes de sécurité et de service 25%
- 68 000 collaborateurs dont 50% en France
- Implantations de plus de 1000 personnes :
 - France, Belgique, Allemagne, Grande-Bretagne, Espagne, Italie, Pays Bas
 - Etats-Unis, Canada, Corée du Sud, Australie
 - Présence dans plus de 50 pays

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ACCORD ANTICIPATION GROUPE THALES

DRHDJ/3 mai 2007

Innovation et excellence technologique

- La R & D représente 18% de l'activité
- 15 000 brevets
- 25 000 chercheurs de haut niveau
- Les valeurs du groupe
 - Priorité au client
 - Développement des ressources humaines
 - Esprit d'entreprise et d'innovation
 - Travail en équipe
 - Partage des connaissances

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ACCORD ANTICIPATION GROUPE THALES


 **Accord groupe valable jusqu'au 31/12/2009**


- Accord signé le 23/11/2006 par 4 organisations syndicales (CFDT, CGT, CFE-CGC & CFTC) valable pour toutes les filiales françaises du groupe. Il prévoit de :
 -  Partager les informations sur la stratégie du groupe et de ses filiales et de ses effets sur l'emploi
 -  Rassembler les informations relatives aux familles professionnelles, aux métiers du groupe et aux évolutions qualitatives et quantitatives attendues
 -  Communiquer ces informations à tous les salariés pour tirer le meilleur parti de l'entretien de développement professionnel
 -  Partager ces informations avec les organisations syndicales dans le cadre d'une commission d'anticipation groupe et des commissions emploi-formation des filiales
 -  Bâtir des parcours professionnels par la formation et la mobilité
 -  Traiter les problèmes d'emploi par une gestion active de l'emploi fondée sur la transparence, le volontariat et le soutien personnalisé


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 **Chapitre 1**
Mesures à court terme pour faciliter la transition vers la retraite


 **Chapitre 2**
La gestion prospective de l'emploi

 **Chapitre 3**
Faciliter l'adaptation par le recours, si nécessaire, à une gestion active de l'emploi (GAE)


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CHAPITRE 1 : MESURES A COURT TERME

- ❑ **Faciliter l'accès à la retraite pour les filiales ne nécessitant ni PSE (Plan de sauvegarde de l'emploi) ni GAE**
- ❑ **Rachat d'années d'études pour la retraite**
- ❑ **Retraite dans le cas des carrières longues**
- ❑ **Mise à disposition sans obligation permanente d'activités : salariés volontaires appartenant à des familles provisionnelles fragilisées et en situation de liquider leur retraite sous 42 mois (avec 65% appointements)**

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CHAPITRE 2 : GESTION PROSPECTIVE DE L'EMPLOI

- ❑ **Partage de l'information avec les partenaires sociaux**
 - ❑ Information annuelle du Comité européen
 - ❑ Stratégie, revue de portefeuille, choix industriels, enjeux ...
 - ❑ Information & consultation annuelle des Comités Centraux d'Entreprises des filiales
 - ❑ Evolution emploi et métiers
 - ❑ Identification passerelles entre métiers avec moyens et formation
- ❑ **Création d'une commission anticipation formation & observatoire des métiers du groupe**
 - ❑ Examen de l'évolution de l'emploi
 - ❑ Identification de passerelles possibles entre les métiers avec moyens et formation
- ❑ **La commission centrale emploi formation de chaque filiale examine l'évolution des métiers et définit les plans d'actions et de formation**
- ❑ **Mesures pour préparer son avenir professionnel**
 - ❑ Généralisation de l'entretien de développement professionnel
 - ❑ Point carrière après 25 ans de vie professionnelle
 - ❑ Bilan de compétences possible tous les 10 ans

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CHAPITRE 2 : GESTION PROSPECTIVE DE L'EMPLOI

- ❑ **Renforcement de la politique territoriale**
- ❑ **Promotion de la mobilité**
 - ❑ Mobilité fondée sur le volontariat, encouragée et accompagnée
 - ❑ Si mobilité géographique période d'adaptation (3 à 6 mois) pendant laquelle le salarié peut revenir dans son établissement d'origine
 - ❑ Accompagnement : parcours formateur, tuteur et mise en situation de 6 mois
- ❑ **Accompagnement à la création d'entreprise**
 - ❑ Congé légal de création d'entreprise
 - ❑ Possibilité de réintégration dans le groupe
 - ❑ Aide financière de 20 000€ et bénéfice de la bourse de l'emploi Thales
- ❑ **Développer la formation au moyen**
 - ❑ D'actions de professionnalisation et de reconversion
 - ❑ De validation des acquis de l'expérience
 - ❑ D'actions de tutorat

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CHAPITRE 3 : GESTION ACTIVE DE L'EMPLOI (GAE)

- ❑ **Contexte dans lequel une entreprise peut mettre en œuvre la GAE**
 - ❑ Difficultés économiques prévisibles associées à de nouveaux besoins de compétences
 - ❑ Risque de rupture technologique ayant des effets sur certains métiers
- ❑ **Mise en œuvre de cette GAE pour une période déterminée**
 - ❑ Information & consultation du CCE sur les prévisions économiques, leurs effets sur l'emploi et sur l'opportunité de mettre en œuvre cette GAE
 - ❑ Possibilité d'expertise et de présentation de propositions alternatives
 - ❑ Mise en place de commissions de suivi de cette GAE
- ❑ **Double volonté de l'entreprise et du salarié**
 - ❑ Propositions de l'entreprise soumises au volontariat du salarié
 - ❑ Initiatives des salariés prises en compte
 - ❑ Création d'un Espace Parcours Professionnel Individualisé
- ❑ **Outils proposés au volontariat**
 - ❑ Formations de reconversion
 - ❑ Recours au temps choisi (prise en charge du surcoût des cotisations à taux plein)
 - ❑ Mobilité interne par mutation concertée dans les filiales du groupe


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CHAPITRE 3 : GESTION ACTIVE DE L'EMPLOI (GAE)

- ❑ **Mobilité externe selon deux modalités**
 - ❑ Congé de mobilité professionnelle
 - ❑ Mutation concertée tri-partite (maintien de l'activité au sein d'une nouvelle entreprise) + prime d'incitation à la mobilité externe
- ❑ **Rachat d'années d'études ou d'années incomplètes**
 - ❑ Salariés dont le métier est fragilisé
 - ❑ Majoration de l'indemnité de départ à la retraite
 - ❑ Limitation à 12 trimestres
- ❑ **Mise à disposition sans obligation permanente d'activité (MAD)**
 - ❑ Le nombre de salariés concernés est fixé par la direction (1/3 de l'effet négatif sur l'emploi)
 - ❑ Salariés dont le métier est fragilisé et qui peuvent liquider leur retraite sous 42 mois
 - ❑ Salaire brut en MAD = 65% du salaire brut de base en activité
 - ❑ Versement d'une indemnité forfaitaire complémentaire
 - ❑ A la sortie versement de l'indemnité de départ à la retraite avec possibilité d'acompte lors de l'entrée en MAD

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Presentations made in WORKSHOP 3

Anticipation of change at the regional level: The case of the Gothenburg Region, Sweden



Anticipation of change and restructuring in the defence industry
Management Centre Europe
8 December, 2008

Ola Bergström, Associate Professor
School of Business, Economics and Law
Göteborg University, Sweden



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Regional effects of global restructuring

- Negative spiral
- Closure of mature and declining industries
- Drastic economic consequences



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Question

- How do local actors collaborate to move into a virtuous circle of regional growth and development?



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The case of Göteborg

- Göteborg is the second largest city in Sweden
- More than 850.000 inhabitants in the greater metropolitan area



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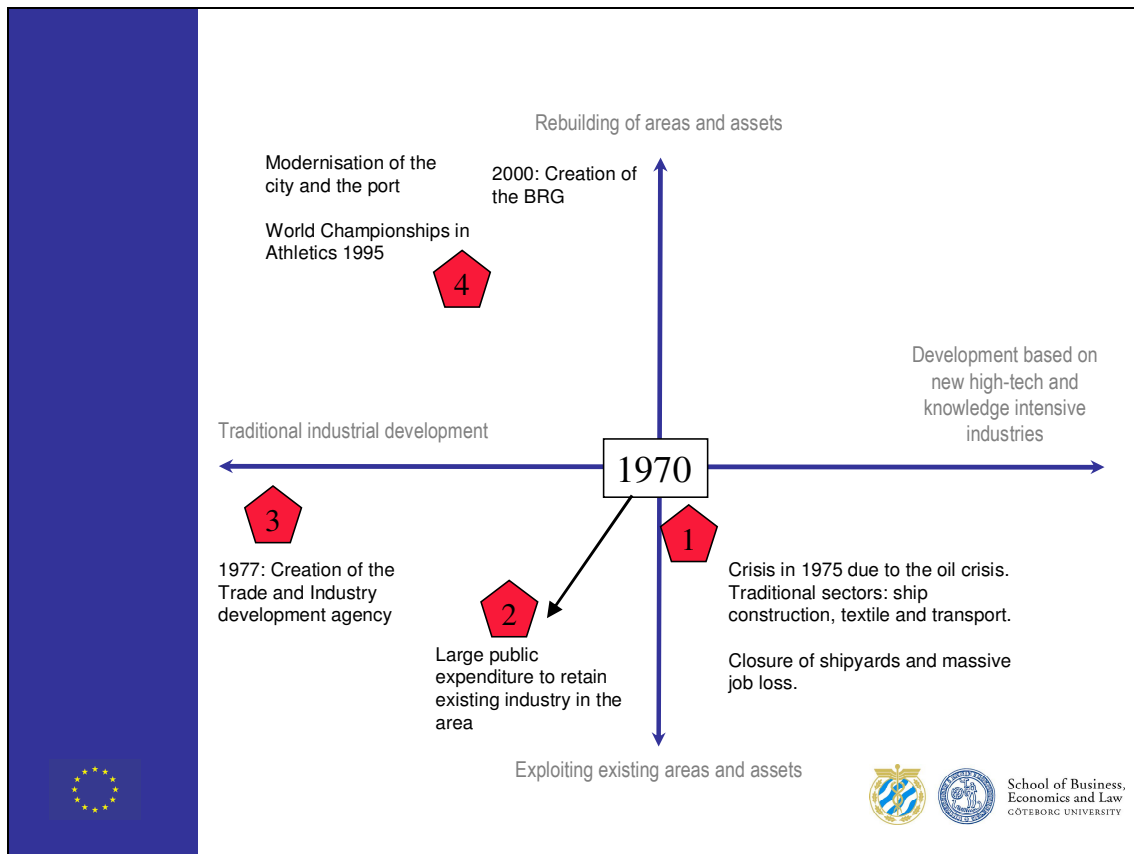
1970:s Shipyard crisis

- 3 large shipyards
- 25 % of labour force
- Oil crisis 1973-74
- Closure of textile and shipyard industry
- 10.000 jobs lost
- The state took over ownership to retain production and save jobs



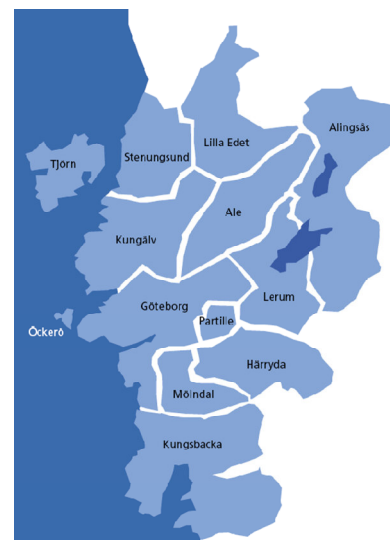
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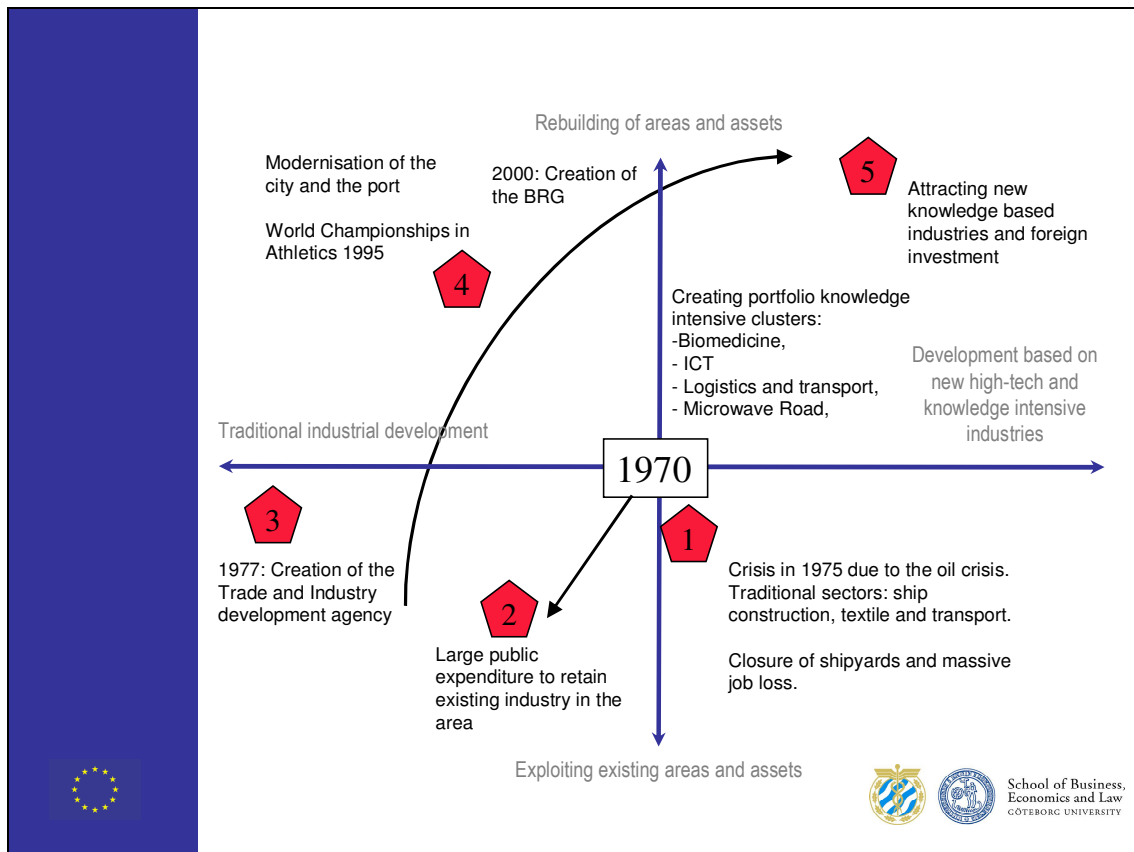




2000: Business Region Göteborg (BRG)

- Non-profit company
- Purpose: to support growth in the region by providing a good investment climate and by developing networks of growing companies
- Public-private collaborative platform
 - 76 employees
 - Works with municipal trade and industry leaders together with and on behalf of companies in the Göteborg region.
 - Represents the 13 municipalities that make up the Göteborg region.





Redirecting the industrial structure

- Focus on emerging high tech industries: biomedicine, software engineering, environmental technology
- Stimulation of industry networks and clusters
- Stimulating foreign investment
- Collaboration between universities, trade and industry and the local authorities:
 - Lindholmen Science Park established where the shipyard once was placed



The Lindholmen Science Park

- Key players in mobile communications, intelligent transports and modern media industries.
 - 150 companies; among the largest are Volvo Car Company, Volvo Technology, Ericsson, IBM, Semcon and WM-data Caran.
- Collaboration with universities and local authorities.
 - Göteborg University, Chalmers University of Technology and their joint IT University are also located in the area.
 - A total of 3000 students, researchers and teachers.
 - The Municipality of Göteborg is responsible for the physical expansion by its wholly owned company, Älvstranden Utveckling AB.



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Today

- The Göteborg Region is ranked as one of the most knowledge intensive regions in Europe.
- The Göteborg Region has more than 1.700 foreign owned companies (350 in 1995).



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Top five Regions in Europe

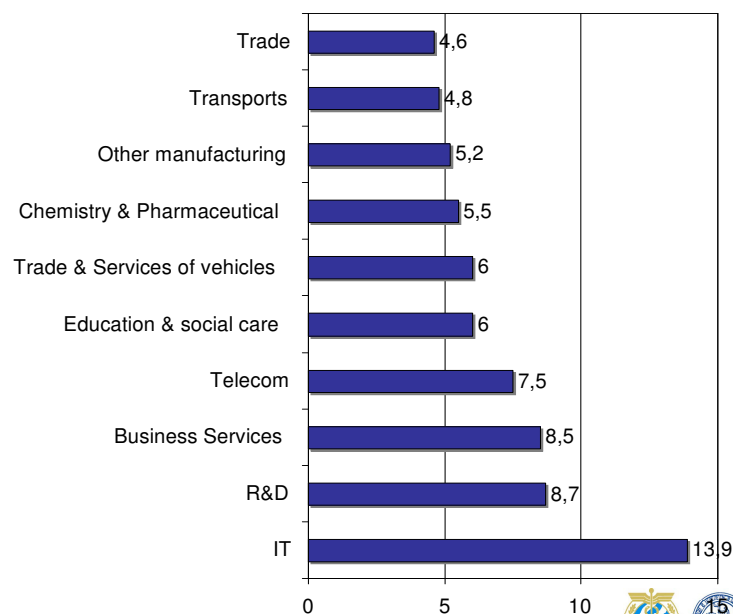
1	Stockholm, Sweden
2	Helsinki, Finland
3	Ile de France
4	Western Sweden (Göteborg)
5	Brussels, Belgium

Source: World Knowledge Competitiveness Index 2005



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Fastest Growing industries in the Göteborg Region in sum of wages 1995-2004



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Number of Employed

(yearly average)

	2000	2005	Change
The Göteborg Region	391 200	421 400	30 200
Sweden	4 158 000	4 251 300	93 300

Source: Statistics Sweden



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But...

- Gothenburg Region is still too small and too dependent on distant markets
- Decreasing employment in industry
- Slow geographical growth
- Regional unbalances and ethnic and economic segregation



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BRG

Objectives for the future

- Stimulate continuous population growth
- Strengthen the qualities that make people want to live and work in the Göteborg Region
- Develop a sustainable infrastructure
- Deepen collaboration among involved actors



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Conclusions

- State intervention slowed down the restructuring process
- Regional collaboration contributed to diversify and change the industrial structure



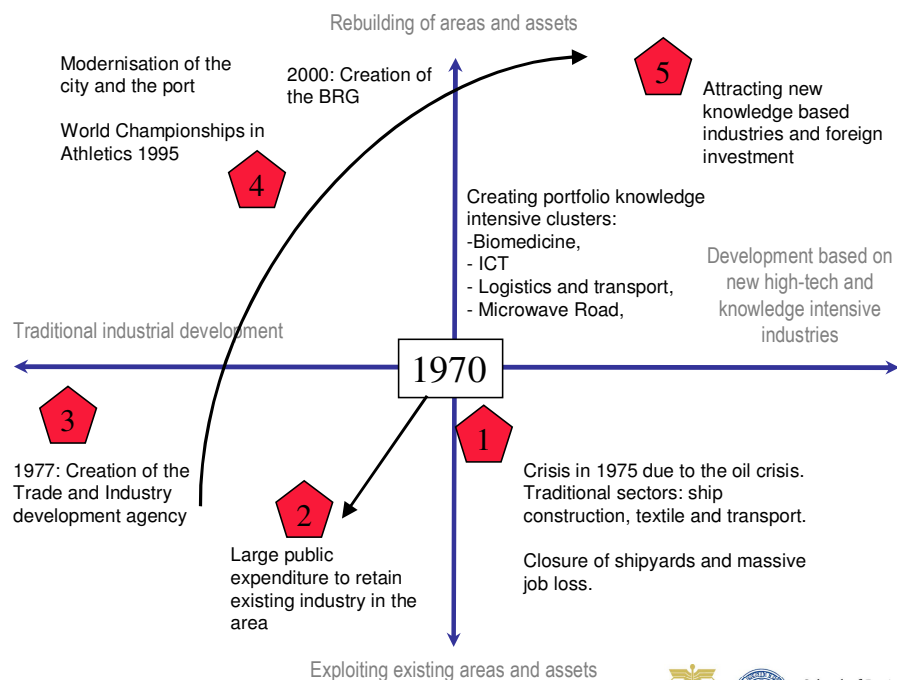
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Challenges

- Crisis in the automotive industry!
 - Volvo Cars and Volvo Trucks
 - Calls for state intervention!



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Challenges for SMEs - View from German Defence Suppliers

Dr. Burkhard Müller

Brussels, December 8, 2008

11/12/2008



Challenges for SMEs in Germany *Contents*



- SMEs and their Importance (in Germany)
- Challenges for SMEs in particular in Aerospace and Defence Sector
- Questions

11/12/2008



Challenges for SMEs in Germany

Part 1



- ❑ **SMEs and their Importance (in Germany)**
- ❑ Challenges for SMEs in particular in Aerospace and Defence Sector
- ❑ Questions

11/12/2008



SMEs and their Importance in Germany (1)

Importance



- ❑ **SMEs** in total are by far the **largest employer in Germany**, but fragmented in several thousand individual entities.
- ❑ Like in other industries, **SMEs have achieved many successes** within Aerospace, Defence and Security sector. They not only employ people, in particular they take care of the post-scholar **apprenticeship** and they are well reputed tax payers.
- ❑ Through **innovation** in research and development, in production and in services SMEs have gained their merits for decades.

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SMEs and their Importance in Germany (2)

Importance ?



- ❑ SMEs have **little political influence**.
- ❑ SMEs are **underrepresented** also in the negotiations between industry and workers' unions.
- ❑ Massive financial support will be offered to the international corporations (the "big boys") and political help is available if there is a threat of lay-offs. If **SMEs** in a certain branch get into trouble, the **problems seem fragmented** and will hardly be noticed.
- ❑ Because
- ❑ It is **much less prestigious** for a politician to help avoid 100 * 30 lay-offs than to "save" 1 * 3000 employees from lay-offs...
- ❑ And
- ❑ Due to the personal involvement of the managing owners they will act instead of complain.

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Challenges for SMEs in Germany

Part 2



- ❑ SMEs and their Importance (in Germany)
- ❑ **Challenges for SMEs in particular in Aerospace and Defence Sector**
- ❑ Questions

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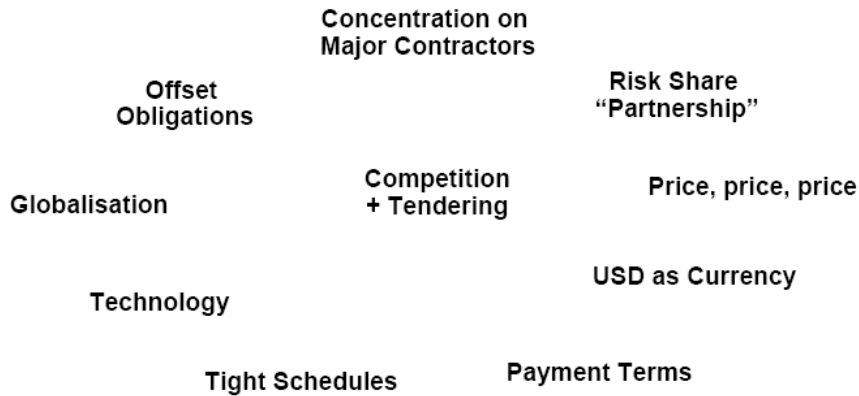


Challenges for SMEs in Aerospace and Defence Sector

Market Triggered



- There is no such thing as "THE" challenge, it's rather a cluster of challenges mainly triggered by the customers. This collection is not complete – just "my favourites":



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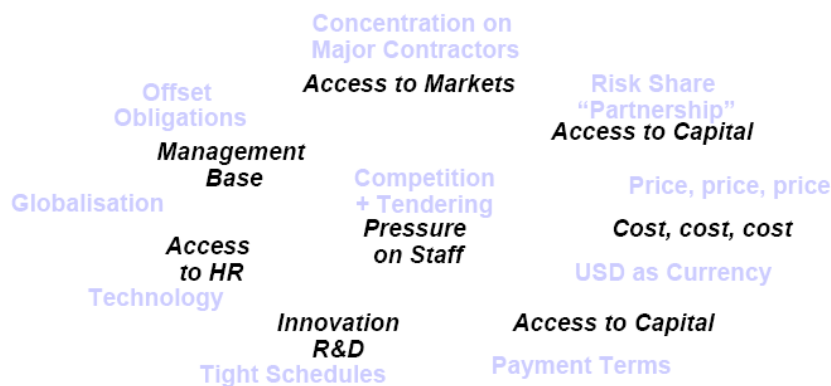
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Challenges for SMEs in Aerospace and Defence Sector

Supply Triggered



- In order to meet the challenges, the SMEs have to master their management objectives.



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8

There is a Strong Tendency towards Consolidation *International Corporations*



The "Big Boys" dominate the market, the working conditions and wages.

Their benefits have to be paid:

- ❑ The feeling of comfort decreases the lower the position is within the "food chain"!
- ❑ Discomfort on the lower levels mean:
 - ❑ Pressure on wages
-> Less money, less holiday, more hours
 - ❑ Pressure on working conditions
-> Higher productivity, less "spares"
 - ❑ Reduced security
-> Less period of notice,
-> tendency to hire & fire

The number business opportunities decreases:

- ❑ Be part of a program or out!
- ❑ Win the tender or lose!
- ❑ Feel the purchasing power!

More pressure on SMEs

Less chances for SMEs

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9

Not only Big Corporations also the Government **forces the Consolidation Process**



Heavy PPP projects in Germany change the rules considerably:

- ❑ HIL (Army Maintenance):
 - ❑ The "big 3" defence corporations own 17% ea. The German Army 49%.
 - ❑ This way they dominate not only the procurement of military vehicles and armour, they also dominate the after market (Maintenance, Repair, Overhaul)
 - ❑ Project volume: € 1,3 Billion!
- ❑ BWI (Armed Forces IT):
 - ❑ IBM and Siemens took over in all aspects of IT (Hardware, software and Services)
 - ❑ Project Volume: € 7,2 Billion! the largest order Siemens received ever!
- ❑ Consequence for SMEs
 - ❑ Significant loss of volume.
 - ❑ Swallows "fat" and leaves only lean diet for potential suppliers.

Less chances for SMEs

More pressure on SMEs

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Challenges for SMEs in Germany

Part 3



- ❑ SMEs and their Importance (in Germany)
- ❑ Challenges for SMEs in particular in Aerospace and Defence Sector
- ❑ **Questions**

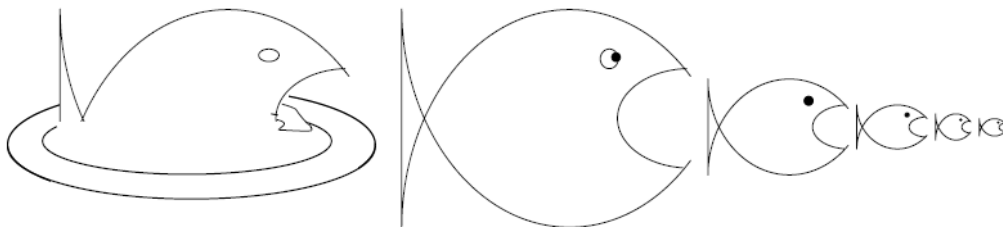
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Questions



- ❑ Is consolidation the best way to control complexity?
- ❑ Isn't it rather a question of right-sizing?



- ❑ Giants tend to collapse sooner or later or have to be disintegrated by anti-trust
- ❑ Is it necessary to endanger so many smaller species (SMEs)?

11/12/2008

12




Thank you for your attention

11/12/2008

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Summary of WORKSHOP 1



Workshop 1 :
Emerging competences and skill needs for optimal preparation and management of change in the EU defence industry

Élisabeth Waelbroeck-Rocha
Vice-President, BIPE

Brussels, December 9, 2008



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Emerging competences and changes in skill needs in the EU defence industry

This handout was prepared for the restructuring forum organised by the EC in Brussels on December 8-9, 2008.
It is incomplete without the accompanying comments.



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2

Three themes for discussion

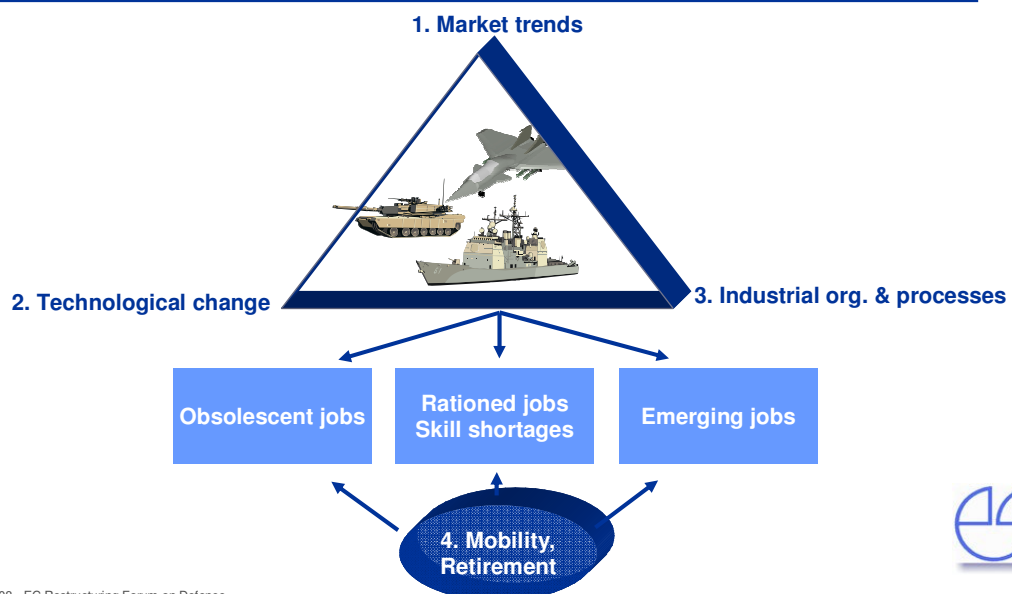
- What are the new skills emerging in defence industries, where are the shortages, how do stakeholders view future changes?
- What are the trends in, and the factors impacting, mobility
- Actions needed at EU, national and regional level



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3

The framework for analysis



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4

First family of findings

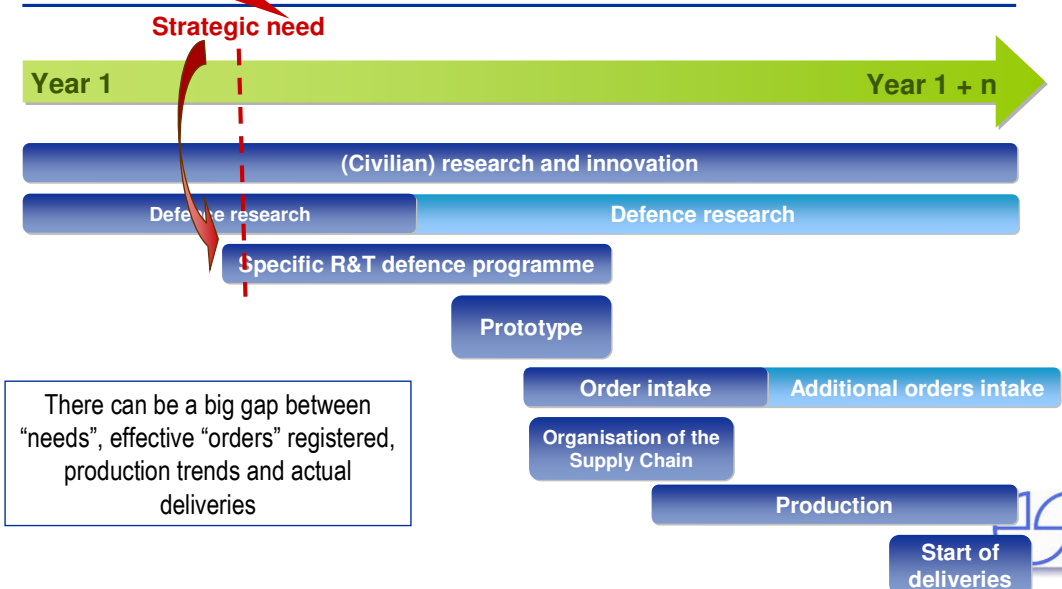
- Although anticipation of skill needs can only be done by defence industry segment, there are common trends in skills used
- If no « breakthrough » technology is identified that will radically change the mix of competencies that are needed in the next 5-10 years, technological progress is a major goal
 - ▶ → RTD mobilises specific skills and competencies
 - ▶ The quality of basic education and availability of the most sophisticated equipment/technologies in the schools are important
 - ▶ More efforts on RTD will have to be made → related skill needs



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Although LT equipment needs are generally known, the timing of production is less certain : some orders may not materialise or can be postponed

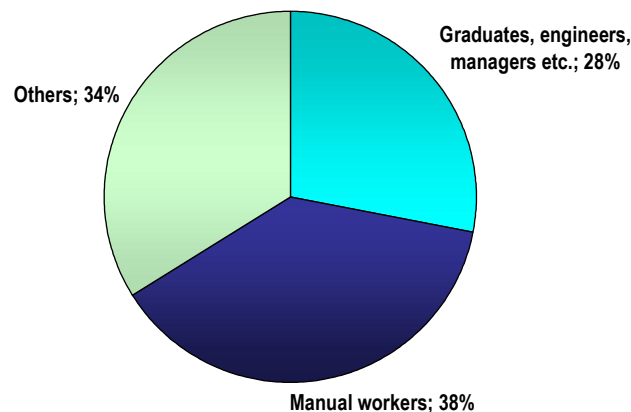


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Defence industries employ personnel with comparatively high skill levels

Composition of employment in aeronautics and defence, by skill level



Source: ASD



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In all segments, skill needs change over time

- Poor labour market situation has raised the average competency level at the recruitment stage
- In most sectors, there is an ongoing **shift from manual workers to professionals and technicians of various types, engineers and computer programmers**
- Changes in the organisation of work, technological progress, the numerisation of functions and the need to cut costs leads to growing demand for machine operators as opposed to traditional blue collar workers
- **Skilled workers remain in high demand**
- Within all occupations, there is a continuing increase in the importance of computer skills and know-how



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Impact of context changes on skill needs in the defence industries

Context changes	Consequences for employment and skills needs
<ul style="list-style-type: none"> • Re-organisation of production in a tiered structure • Externalisation of activities • Improvement in productivity and efficiency 	<ul style="list-style-type: none"> • Impact on governance, operating practices and management • Reduction in number of hierarchic levels & shift to matrix type organisations cause a need for more collaborative working environments, cutting across functions → team workstructures, polyvalence • Increased need for certain support functions: <ul style="list-style-type: none"> ▶ Cost control, quality control, procurement, marketing and sales • ... and a reduced need for administrative functions: <ul style="list-style-type: none"> ▶ HR and general management, ..
<ul style="list-style-type: none"> • Increased internationalisation of operations linked to the Pan-Europeanisation of production • Need for increased RTD and new programmes • Increased (non-price) competitiveness 	<ul style="list-style-type: none"> • Internationally oriented competencies (language, communication,...) • Focus on marketing and commercial skills • Management of procurement, of subcontracting, optimisation of logistics (incl. for maintenance) • Expert skills for the production and handling of new materials & technologies (composites, robotics, etc.) • Specialisations in the manufacturing, maintenance and recycling of technical materials (composites, energy efficiency, etc.) ; • Competencies focused on protecting the environment and work ethics

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Second family of findings

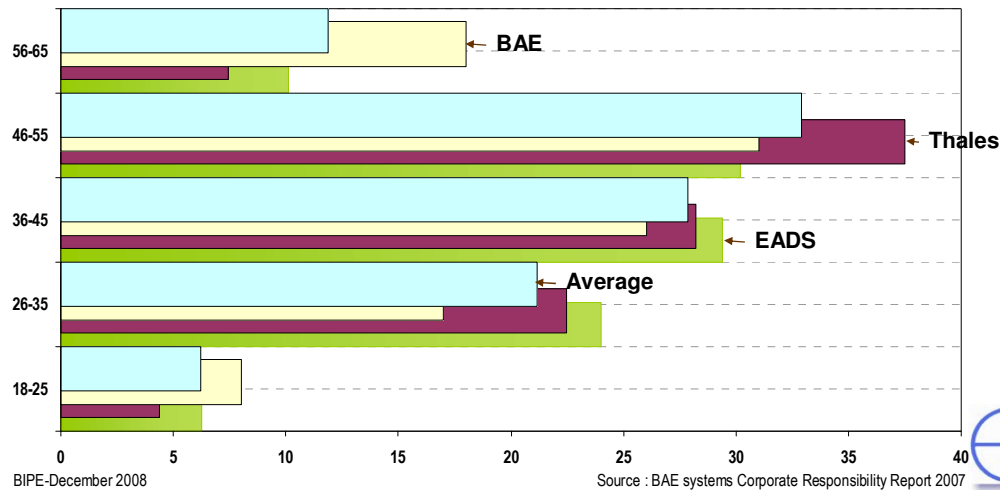
- There appears to be no « demographic trap » in the large EU defence companies
 - ▶ Most have anticipated & re-balanced their age pyramid
- In SMEs, risks of skill depletion are much greater
- Job turnover/mobility per se does not seem to be a problem, but attractiveness is
 - ▶ Labour shortages are present in certain areas, due to:
 - Competition with other industrial sectors at the recruitment stage
 - Lack of attractiveness of the sector, and of industry in general (competition with finance...)

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The share of the workforce leaving for retirement in the next 10 years varies between 8% - 17%

Age distribution in the main EU defence companies

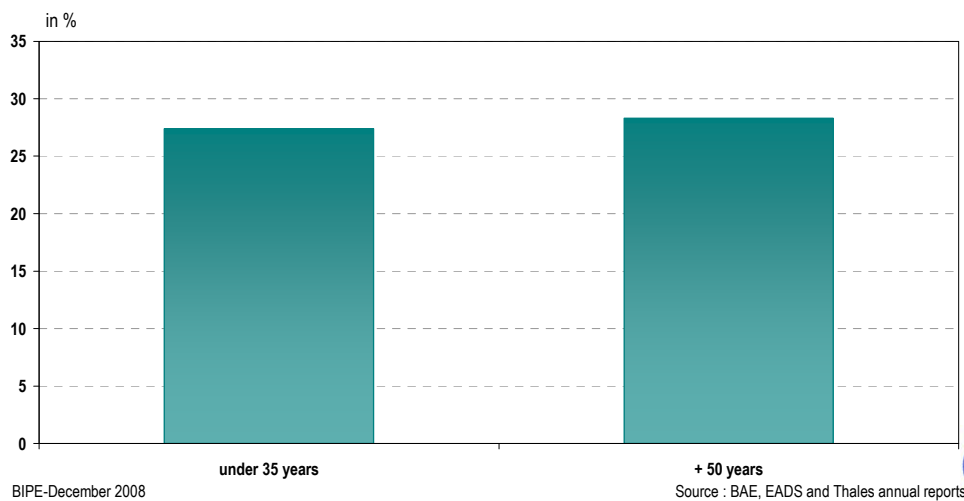


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Transmission of knowhow has to be organised, but no evidence of a « demographic trap », at least in tier 1 firms

age diversity in the main european defence companies



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Third family of findings

- Lack of visibility of future trends in activity due to changing agendas and « cyclical » procurement budgets make it difficult to retain competencies
 - ▶ « *How do you maintain the capability to build nuclear power plants if you do not build any ?* »
 - ▶ « *Focus on return and profits make it difficult to keep highly experienced resources in-house when the field they are specialised in sees ongoing postponements of programmes...* »
 - ▶ Capability losses are a real source of concern
 - → Need to identify the « critical technologies and capabilities » and « pay the cost of programme postponement »
- Mobility between defence and civilian activities can help mitigate the effects of cycles



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Fourth family of findings

- Whereas there is agreement that increased internationalisation of skills and openness to « other countries » will have to increase ...
- ... low international – and even cross-regional – mobility of technical personnel will be an issue
 - ▶ If young graduates are generally geographically mobile, skilled workers and technicians are recruited locally
- Regions are a key actor in the management of transition



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The geographical distribution of future skill needs

- As restructuring occurs along a Pan-European base, **the demand for skills will vary across regions**
- The education systems will have to adjust
- Many in the industry are calling for the development of « **centres of excellence** » in Europe:
 - ▶ certain regions would specialise in certain types of production ...
 - ▶ ... and host training institutions that would supply the required skills, to the region itself and to other regional markets ...
 - ▶ thereby creating « education hubs »



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For the “centre of excellence” concept to be effective, certain conditions must be met

- The Excellence Centers will have to take on both research and manufacturing activities
- They have to be totally independent of national governments (to avoid a given country government's exclusive control of a sensitive technology and/or process)
- Their objective has to be to supply graduates trained in the given area to any EU country needing that skill
 - ▶ Need for increased workforce mobility
- Problems and issues:
 - ▶ The location of the « excellence centres » will influence the location of the future civilian activities
 - ▶ Cross-country mobility of the workforce will have to be enhanced



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Conclusion

- To assess the social consequences of restructuring, one needs to:
 - ▶ Look at the future skill needs in the various sectors (land, aerospace, naval, electronics)
 - ▶ Take into account the possible inter-changeability of workforce between the defence, security and civilian sectors
- Once Pan-European restructuring gets under way, increased geographical mobility of the workforce will be a requirement
- Location decisions made for defence activities will have a key impact on civilian activities, especially in the case of:
 - ▶ Aerospace, notably propulsion systems and RTD
 - ▶ New materials
 - ▶ Electronics



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Recommendations

- For national governments as « clients », and the EU/EDA
 - ▶ Provide long term visibility on programmes
 - « *It is an area in which technically one can see at least 10 years ahead* »
 - ▶ Take into account what the industry needs to maintain competitiveness
 - « *retain* » specific skills even when un-used
 - « *Invest* » in RTD
- For all stakeholders
 - ▶ Improve the sector's attractiveness to young people
 - ▶ Improve the attractiveness of industry occupations in general
- For companies and **regions**
 - ▶ « Anticipate » resource needs and plan accordingly
- Need for specific SME policy:
 - ▶ Anticipation of transmissions, « financing for transition », client/market diversification
 - ▶ Mutualisation of skills and of training (generate economies of scope)
 - ▶ Emphasis on portability and transferability of skills across firms
- Move towards « Excellence centres » ?



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