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# Naval shipbuilding in Europe

## Current Developments and Perspectives 2020

Essen, Hamburg, Paris

for



with the support of the European Union



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We would like to thank all interview partners and participants of the workshops for supporting our research.

## Foreword

Dear colleagues,

With the support of the European Union, the European Metalworkers' Federation (EMF) has launched the project "*New Prospects for the European Naval Industry: Challenges and Opportunities for Employment and Innovation*" in order to anticipate industrial change and strengthen the understanding and trust between the stakeholders. The military sector remains a highly nationalized and protected sector with specific products. With the financial crisis and resulting budget austerity putting further pressure on national defence budgets, shipbuilders are looking for new investors and new products. This is welcomed as long as it protects know-how and employment in Europe. The EMF is aware that the project has been launched at a time when European shipyards are facing an existential crisis. The EMF wants to remind political and business stakeholders that the sustainability of European naval shipbuilding is dependent on sound industrial policies, high-skilled employment as well as research and development. We want to sustain the dialogue in the context of the European Defence Partnership with a view to finding solutions to these questions.

Establishing and maintaining dialogue in the area of naval and defence industries has long been a very important element of EMF work and will continue to be so. The first European trade union conference on the naval and defence industries, held in April 2001 in Brussels, allowed stakeholders to exchange their views and express their needs. Through this new project, with its two workshops held in Hamburg and Lorient in spring 2010, trade unions have demonstrated that they are able to work together in a climate of reflection and mutual acknowledgment. Though these meetings have not led to differences being fully eliminated, they did represent an opportunity to exchange balanced arguments and help in the search for common positions and objectives based on the knowledge gained from the discussions and research. It remains essential for trade unions and works councils to have expertise available. The work of the research team has greatly contributed to the success of the project.

We would like at this juncture to extend our warm thanks to the project manager, Andrea Husen (EFM Secretariat) and to the research team consisting of Dr. Peter Wilke, Dr. Herbert Wulf, Birte Homann (Wilke, Maack & Partner), Dr. Jörg Weingarten, Karoline Mis, Nicolas Rode, Tim Pixa (PCG-Project Consult GmbH) and Dominique Sellier, Eric Morales and Odile Chagny (Groupe-Alpha-Secafi) for their valuable research. We would also thank all stakeholders, especially the works councils and management boards of DCNS and ThyssenKrupp Marine Systems for their presence and support during the workshops. I also extend my thanks to the works councils and staff of EMF member organizations for their valuable support.

Best regards,



Peter Scherrer, EMF General Secretary

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# 1 Introduction and executive summary

In 2007 European defence ministers formulated the need to develop a strategy for a common European Defence Technological and Industrial Base (DTIB). As part of the European Defence Agency's range of activities they defined the steps necessary to work towards a more integrated, less duplicative, and more interdependent DTIB. These included the definition of required capabilities, the identification of technologies and key industrial capacities needed to meet the far-reaching challenges faced by the European defence industry as a consequence of political and economic changes in European security policy.<sup>1</sup> As an important part of military forces, the naval sector is directly involved in and affected by that process. The need for restructuring companies and production capacities in the naval sector at European, national, and local levels is being debated among politicians and industry leaders, with the following points being the main driving forces for change:

- The European perception of security has changed since 1990.<sup>2</sup> Territorial defence (or threats to the territory of the EU) is no longer a primary concern. New types of threats have emerged (terrorism, failing states, piracy), requiring new concepts. Areas of international interest such as border security and humanitarian intervention have fundamentally changed in the last decade. In the perception of most politicians the role of naval forces has increased in this new security environment.
- There is still no integrated or unified European defence market.<sup>3</sup> Though efforts to restructure the defence industry in the EU to offer a more integrated and cost-effective supply of military goods have made headway in some areas, they have not led to a unified structure. In the naval industry in particular, continuing protectionism and a largely nationally oriented procurement policy have resulted in the continuing existence of overcapacities in the EU. Protagonists argue that state protectionism is required to guarantee certain autonomy in naval procurement and maintain an independent military industrial base.
- From a financial perspective, no EU Member State is in a position to continue a policy of financing and sustaining a full-range defence technology industrial base. Even if procurement continues to be exercised largely along national rather than European Security and Defence Policy (ESDP) lines in various EU Member States, there is a common understanding that this cannot continue in the future. The financial crisis has exacerbated already existing financial bottlenecks in all EU Member States.

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<sup>1</sup> Elisabeth. Waelbroeck Rocha (Coordinator at BIPE) (2007): Anticipating restructuring in the European Defence Industry.

<sup>2</sup> Seth G. Jones (2007): The Rise of European Security Cooperation. Cambridge.

<sup>3</sup> Klaus von Wogau (ed) (2004): The Path To European Defence.

- The general cost increase of defence technology at a time of tight defence budgets has led to a decrease in the number of ships deployed by European navies, with most navies planning further reductions over the next decade. As a result, domestic markets for naval technology are shrinking.
- The present situation is leading to increasing competition between European shipbuilders in export markets. Such competition, coupled with the low degree of concentration in Europe, results in greater instability, which could ultimately play into the hands of large US companies.
- The crisis in commercial shipbuilding compounds the difficulties experienced by shipyards engaged in both naval and commercial shipbuilding (i.e. Fincantieri and Thyssen Krupp Marine Systems (TKMS)).

As our analysis will show in the following chapters, the naval sector in EU Member States is an example of an industrial base still clearly structured along national lines and strongly influenced by so-called “national champions” – large defence companies receiving a substantial share of national defence expenditure in the country where they are based. However, as shown by the case study summaries, such largely nationally oriented strategies are by no means the rule in the different countries. While all governments in the five countries analysed (France, the United Kingdom, Germany, Spain and Italy) are in favour of maintaining and sustaining core industrial capacities, primarily to enable industry to meet domestic demand, the policies adopted to pursue this industrial-political objective vary greatly.

In our study we have analysed the naval sector and related national procurement decisions in these five countries from a European perspective, answering the following questions:

- What are the main features and capacities of the industrial base for the development and production of naval equipment in Europe?
- What are the drivers for change in the European naval industry?
- Which are possible development scenarios for this industry sector?
- What consequences will different scenarios have over time for national and regional industrial capacities and employment?
- How can the social costs of restructuring be minimised?
- Which instruments exist to support economic change, growth of new industrial employment and re-employment strategies?<sup>4</sup>
- Do good practices exist with regard to the management of change in European naval industries?

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<sup>4</sup> For employment trends see: European Commission, DG Fisheries and Maritime Affairs: An exhaustive analysis of employment trends in all sectors related to the sea or using sea resources. July 2006.

Based on the analysis of the naval industry in Europe (e.g. existing capacities in various sub-sectors of the naval industry) and the identification of several factors of change, different scenarios and strategic options are described. This includes a description of the social consequences of different scenarios, corresponding to different 'choices' made by the key actors. The main focus of the scenarios developed is their effect on employment.

While preparing this study we conducted two workshops with participants from the industry to discuss the situation of the naval industry in each country analysed and our scenarios and their main assumptions. The first workshop, in Hamburg, Germany, was hosted by the EMF and supported by TKMS. The second EMF-workshop took place in Lorient, France, and was supported by DCNS. In addition, we interviewed both a number of management representatives from the industry and union representatives in all five countries (for a list of interviewees see the appendix).

The report is divided into two parts. First we briefly present the main trends and the different national framework conditions for the development of the national naval sector. In the second part of our study we consolidate this information and discuss possible impacts on employment by examining the plausibility of three different scenarios for the medium-term development of the European naval sector:

- A mainly national orientated industrial strategy with national procurement as its strategic backbone;
- A European scenario with greater inter-European cooperation and possible cross-ownership.
- A more international orientated industry strategy mainly based on cooperation with foreign partners and military exports, and including technology transfer and the establishment of production facilities in states currently importing European defence products (multi-domestic strategy);

## *Executive Summary*

The study at hand shows that there is widespread agreement among experts on future trends regarding the use of existing capacities, the need for cost sharing in technological development and the necessity for greater European cooperation in the naval sector. This agreement is based on the observations that (1) domestic markets in all EU member countries are too small to maintain existing capacities; (2) the export market for naval products and technology is attractive but highly competitive, meaning that any export strategy involves a certain amount of risk; and (3) the commercial market is currently in no position to compensate for possible shortfalls in naval orders. On the contrary, the current crisis in the commercial shipbuilding market is exacerbating the industry's problems.

One solution could be a more coordinated procurement policy in conjunction with a common European definition of military requirements for the various weapon platforms. Such a strategy would enable a better value-for-money ratio to be achieved in naval procurement. The political will to create a common European Defence and Technology Industrial Base (EDITB) is a first step. Several attempts (both policy-driven and industry-triggered) to initiate a coordinated EU procurement policy or at least an intensification of cooperation projects have been made in the past. The analysis shows that the chances of such an EDITB materialising in the naval sector in the medium term are low. There are a number of reasons why such a process of Europeanisation of naval production and procurement has not yet taken place – despite numerous calls for such a policy at the highest political levels:

- Existing military requirements and capability requests regarding naval forces (surface ships and submarines) vary greatly between European navies. There is no common understanding on future military requirements and the resulting consequences for the procurement of naval equipment.
- Naval procurement programmes remain within the financial reach of the major European countries - in contrast to the financing of aeronautical programmes. Should however pressure on national procurement budgets and programmes continue to rise, greater cooperation might be possible.
- In most European countries procurement decisions in the naval sector have already been taken, with major weapon platforms contracted for the next five to ten years. Possible joint projects are largely confined in the medium term to projection and support ships, logistics and support programmes.
- In the major European nations the remaining industrial actors have already come to medium-term agreements with their respective Ministries of Defence to safeguard minimum industrial and technological capacities.
- The business plans of the major industrial actors (the “national champions”) continue to favour a combined business strategy of maintaining a dominant

share of respective domestic markets and gaining competitive advantages in exports, rather than giving priority to increased European cooperation.

- The different ownership structures, with (partly) state-owned shipyards in France, Italy and Spain and privately owned companies in Germany and the UK, seem to be an additional constraint. Many companies are clearly oriented towards the international market (mainly the U.S.) with strong backing through domestic demand.

As a consequence of both the crisis in civilian ship markets and limited military demand, the industry will require further restructuring. This is bound to have a negative impact on employment if no business alternatives for employees and their skills are developed.

Restructuring processes will be accompanied by industrial strategies oriented towards export markets and diversification into other newly emerging markets such as wind or sea energy systems. However, as shown in our analysis, the export market is limited and very competitive. Yet even increases in export sales will have no long-lasting effects on company-level employment due to offset deals requiring the transfer of production to countries where vessels are commissioned.

European-level cooperation in the naval sector between the main industrial actors, based on common development projects, industrial cross-ownership and joint export efforts, would seem to be the rational option. At present, bilateral or even multilateral cooperation remains the exception. Nevertheless, the realities of the market, budgetary constraints in Europe (and political pressure) could become an incentive for companies to engage in cooperation projects.

If the political goal is a more coordinated EDITB, the EU needs to compile a long-term perspective taking four key elements into account: (1) its medium- and long-term defence and security needs, (2) procurement policy, (3) the industrial capacities needed in the naval sector, (4) the preservation of European employment and skills in this strategic sector (involving a discussion on the effects on employment and required skills). In the light of the lifecycles of existing naval capacities and the budget constraints, this involves a 10 – 15-year perspective. Possible steps towards the development of a true EDITB in the naval sector could be:

- Defining and prioritising required naval capabilities
- Harmonising national naval requirements (excluding nuclear forces) on a European level
- Defining European naval needs and requirements (ESDP)
- Joint development initiatives coordinated by the EDA, together with the identification of key technologies
- A joint discussion on what constitutes key industrial capacities
- Consolidating demand by agreeing on joint procurement programmes

- A joint discussion on how to reduce inter-EU competition on the export market
- Initiating discussions on and anticipating future skill needs
- Continuing social dialogue to facilitate possible changes at company and regional level
- Continuing a dialogue between the key stakeholders (defence ministries, industry and EU security bodies, economic institutions and workers' representatives) on naval sector requirements.

Any strategy in the defence sector, especially in naval defence, involves a long journey. However, even the longest journey starts with the first step. It will be necessary to provide alternatives to those employees hit by the necessary restructuring within the sector. The legitimate expectations and demands of employees with regard to secure jobs and decent working conditions have to be taken into account in all future considerations. It is essential that works councils, trade unions, employers and their associations jointly anticipate future challenges and work together to achieve socially responsible solutions.

## 2 Country reports: Current issues and prospects

Five country reports are presented and discussed using a comparative scheme.

### 2.1 France: The naval shipyard industry

#### 2.1.1 National security and defence policy

The overall framework of the 2009-2014 Military Planning Act (MPA)<sup>5</sup> and the 2009 Defence budget are to be understood in the context of:

- The Defence White Paper, outlining the new 15-year strategic framework for Defence and National Security with its scaling down of procurement plans.
- The General Review of Public Policies (GRPP)<sup>6</sup> for Defence underpinning restructuring measures and staffing cuts. Implementation began in 2009.
- The serious deterioration of the budgetary situation, constituting a major medium-term risk factor for the implementation of the MPA.

The June 2008 White Paper introduced a number of major policy shifts<sup>7</sup>, which have now been translated into a new set of functional priorities for the armed forces and the corresponding weapons programmes. While reaffirming France's nuclear deterrent, the White Paper revises its resources downwards. Certain procurement programmes are cut and others phased out. The objective is to achieve the new armed forces' model by 2025, instead of 2015 as originally planned.

There are many risks associated with the deteriorating budgetary situation<sup>8</sup>:

- The MPA covers the six-year period 2009-2014, but a revision clause is scheduled for 2012, taking into account the budgetary situation in that year. The revision clause will also involve the White Paper.
- The funding of procurement programmes is dependent on the reallocation of expenditure within the defence budget (reallocation of savings in staff spending achieved through the GRPP). The GRPP plans to save EUR 3 billion p.a. over the 2009-2014 period (approximately 10% of the defence budget over the same period), essentially by shedding staff (non-replacement of 50% of retiring workers). Taking into account both the White

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<sup>5</sup> *Loi de programmation militaire 2009-2014 (LPM)*

<sup>6</sup> *Révision générale des politiques publiques (RGPP)*

<sup>7</sup> Cour des comptes (2009), « Les industries d'armement de l'état », Rapport au Président de la République.

<sup>8</sup> For the record, the 2010 government deficit is estimated at 8.5% of GDP in the French 2010 Initial Budget Act (Loi des Finances Initiale 2010), with a 5% deficit still estimated for 2013.

Paper and the GRPP, the result will be a significant drop in employment levels (54,000 FTEs over the 2009-2014 period, i.e. approximately 12% of defence personnel (based on 2007 figures)). The reduction in employment levels will be less pronounced in the Navy than in the other armed services (FTE cuts over the period 2008-2015: -24% in the Army, -24% in the Air Force, -12% in the Navy).

- The funding of part of the 2009-2011 procurement programmes is dependent on the State withdrawing from certain strategic areas. Current plans involve the space sector, with the potential sale of the Syracuse satellites. Also planned is the sale of frequencies and real estate. This sale of 'family silver' raises questions about the possibility of even more radical withdrawals in the future, which will not leave shipbuilding unscathed.

#### 2.1.1.1 The Military Planning Act (MPA) and the Defence White Paper

The combined results of the Defence White Paper and the MPA (together with France's economic recovery plan) have been relatively favourable for defence, in particular with regard to procurement. In NATO terms, the White Paper and the MPA lead to a drop in the share of total defence spending (excluding retirement pensions) of 0.2 points of GDP between 2008 and 2020 (1.6% in 2008, 1.4% in 2020), with procurement plans stabilised at about 0.9% of GDP.

These developments are consistent with the relatively pro-active defence policy adopted by public authorities since 2003, which has helped to bring about a virtual stabilisation of defence spending's share of GDP after a continuous slide since the early 1980s, and to maintain equipment levels at a comparatively high level compared to other countries. In the medium term (up to 2014), the MPA and the economic recovery plan are producing a 'spending bulge' in 2009-2011, financed by non-recurring resources.

Procurement plans have nevertheless been severely scaled down compared to the 2015 armed forces model defined in the 2003 Military Planning Act covering the 2003-2008 period, in particular for the navy. The investment 'deficit' for the total 2009-2014 planning period compared to the 2015 armed forces model amounts to EUR 35 billion, basically as a result of cuts in navy procurement programmes (no second aircraft carrier, cuts in the planned multi-mission frigates purchases).

#### 2.1.1.2 Major risks affecting the implementation of the MPA.

In the past, all military planning acts have been revised downwards, albeit to a lesser extent than in the case of the 2003-2008 Act. There is great uncertainty surrounding the revision of the current MPA, as the revision scheduled for 2012

will be dependent on the results of the next presidential elections, undoubtedly within the context of a deteriorating budgetary situation.

The main uncertainties likely to affect the implementation of the 2009-2014 MPA have a EUR 10 billion price tag, and include such factors as the evolution of oil prices, the cost of MOC (maintenance in operational condition) in the case of procurement, and the risk of higher costs in the Rafale and the A400M projects.

Moreover, the fact that the decision to start building a second aircraft carrier has been postponed to 2011-2012 is in itself a risk. The choice of propulsion system (nuclear or conventional) has also been postponed. The 2010 Budget Act (LFI) does not foresee any credits for this programme in 2010.

### 2.1.1.3 Procurement perspectives in the naval sector

#### **Frigates**

The scaling down of the French-Italian multi-mission frigate (FREMM) programme is among the most significant modifications made in the Defence White Paper. The FREMM programme, launched in 2005, started out with a total outlook of 27 frigates (17 for France, 10 for Italy). The White Paper and the 2009-2014 MPA have trimmed France's number to 11. The last three FREMMs were ordered in 2009.

#### **Submarines**

The 'Barracuda' nuclear attack submarine programme (NAS) was launched in 2006. The White Paper has not resulted in any revision of the final target of 6 submarines specified in the initial contract. The first submarine is expected to be delivered after 2010, entering active service in 2017. To date, there are concrete orders for the first two submarines, with the third expected to be ordered in 2011.

#### **France's capabilities in terms of amphibious operations**

The target of 4 BPC<sup>9</sup> amphibious assault ships specified in the 2015 armed forces model has been maintained. Two BPCs have already been delivered, and France's economic recovery plan has brought forward delivery of the third BPC to 2012 (compared with the original 2020 date). It also placed the order for four high-speed landing craft (EDA-R) designed to operate in conjunction with the new BPCs as well as the older TCD<sup>10</sup> amphibious assault ships. Four other landing craft are expected to be ordered at a later date. No modifications have been made to the target of acquiring 4 supply tankers or to their delivery schedule (after 2015).

#### **Aircraft carriers**

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<sup>9</sup> *Bâtiments de projection et de commandement*

<sup>10</sup> *Transport de chalands de débarquement*

The 2003-2008 MPA provided for a second aircraft carrier to be ordered, for delivery before 2015, possibly as a joint Franco-British cooperation project. The discussions following the publishing of the Defence White Paper resulted in this project being postponed. The 2009-2014 MPA has now deferred the decision to build a second aircraft carrier until 2011-2012, and all ideas of a cooperation project have been abandoned.

### **Naval cruise missiles**

The naval cruise missile programme (SCALP Naval) seeks to adapt the existing SCALP air-launched cruise missile for naval use, providing the armed forces with the added flexibility of a deep strike capability from a mix of air and naval platforms. The procurement target has however been cut from 250 to 200 missiles.

### **Torpedoes**

The Franco-Italian FTL<sup>11</sup> heavyweight torpedo (the F21 torpedo) programme was launched in 2008. Deliveries are due to start in 2015, with a target of 93 torpedoes. There are concrete orders for 6 torpedoes, though there is a risk of order slippage).

The Franco-Italian MU90 light torpedo programme was launched in 1991. The total target here is 300 torpedoes. By late 2009, 175 torpedoes had already been delivered. The programme is expected to finish in 2011.

Thales, DCNS and Wass (a Finmeccanica subsidiary) studied a project for 3 joint ventures (JV) in 2008 and 2009. The number was reduced to 2 (one on sonars, the other on the production and marketing of torpedoes) on the arrival of the new DCNS management. At present, the project is on ice following difficulties in securing an agreement between Wass and DCNS on their respective shareholdings in the second JV.

## **2.1.2 Export markets**

### **2.1.2.1 France: a major European export player**

In 2008, the global arms export market (market open to international calls for tenders) was worth EUR 67 billion, with the shipbuilding sector accounting for an average of 16% over the 2000-2008 period (according to the SIPRI data). The sector has derived only minor benefit from the rise in exports since 2003, fuelled by rising military spending especially in Russia, the United States, Asia (China) and the Near/Middle East. The naval export market is estimated at over EUR 3 billion per year<sup>12</sup> for the next ten years.

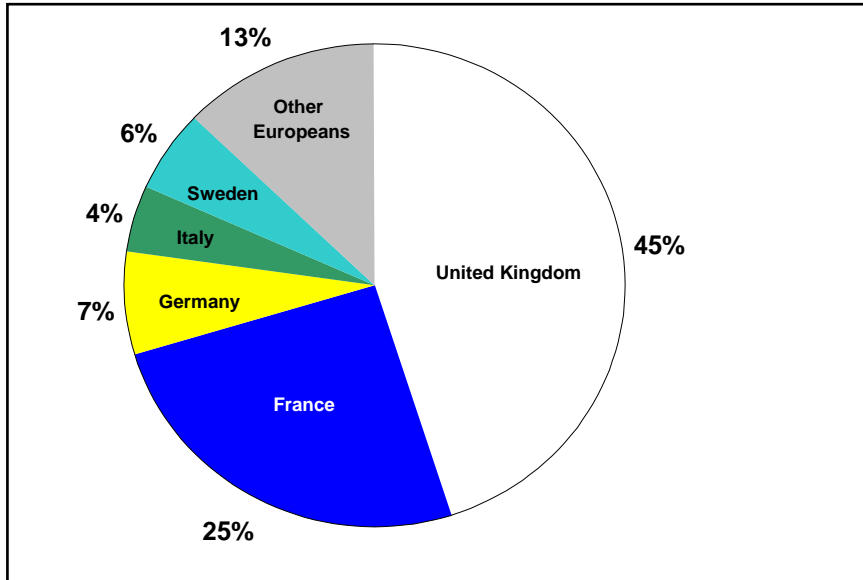
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<sup>11</sup> *Future torpille lourde*

<sup>12</sup> Interview by Patrick Boissier, Mer et Marine 09/12/2009.

France's market share of the European defence market (2nd place behind the UK, but well ahead of the other European countries) is sizeable: 7.7% of global deliveries, 25% of European deliveries (Fig. 1)<sup>13</sup>.

**Fig. 1: France's market share among European arms deliveries in 2008**



Source: Ministère de la Défense, 2009 : « Les exportations d'armement de la France en 2008 », Rapport au Parlement.

France's zones of influence are the Near/Middle East, the European Union, South Asia, and most recently Latin America (Chile, Brazil, etc)

In 2000-2007, global arms orders stood at a constant EUR 5 billion (Tab. 1), with the navy accounting for a quarter of these orders.

**Tab. 1: Arms and shipbuilding exports and orders**

<i>In M€ of 2007</i>	2000-2007	2007	2008	2009
Arms orders				
Total	5.046	5.660	6.422	7.800
Navy	1.245	730	N/A	N/A
Ships and submarines	655	451	950	N/A
Arms exports (total)	<b>31.550</b>	<b>34.000</b>	N/A	N/A
Shipbuilding orders (civil and military)	<b>2.747</b>	<b>2.200</b>	N/A	N/A

Sources: Arms orders and exports: DGA, "Annuaire statistique de la défense 2008-2009" of the Economic Defence Observatory; INSEE, National Accounts.

<sup>13</sup> Ministry of Defence, 2009: 'French arms exports in 2008', Report to Parliament.

DCNS is a major European player in the naval export sector, with exports accounting for one quarter of its total turnover (2008 data). Over the 1998-2008 period, its share of the export market was estimated at 17%.

#### 2.1.2.2 The erosion of France's market share

France's position in the arms market deteriorated significantly between the mid-80s and 2004-2005, with the overall volume of arms orders dropping from some EUR 8 billion (constant) in 1992 to less than 4 billion by 2004.

This gradual erosion is less evident in the naval arms sector, though this sector represented on average less than one quarter of all arms orders over the 2000-2007 period. Export orders have recently begun to pick up, with orders for a FREMM frigate for Morocco in 2008 and for four Scorpène submarines for Brazil in 2009, and with good prospects in Greece (FREMM), Poland and Russia (BPCs).

#### 2.1.2.3 Tighter export markets

Against a background of major budgetary constraints in Europe, coupled with the increasing complexity and spiralling costs of arms systems, the export market (most particularly large-scale exports) is a major issue with regard to any project's profitability. Yet the military export market is becoming increasingly tight.

Low growth in public contracts, strict demands from clients in terms of cost reduction, together with competition from Asia, will ultimately hamper the development of new ships for export.

Moreover, export deals are increasingly being made conditional upon demands for technology transfer (offset agreements). The 6 Scorpène submarines sold to India in 2005 are to be manufactured in India under a technology transfer agreement, and the 2009 sale of 4 Scorpène submarines to Brazil foresees for the first time a transfer of nuclear propulsion submarine technology. Even here, the boiler will remain the responsibility of the Brazilians.

The obligation for European shipbuilders to find export growth markets forces them into head-on competition with each other in the same geographical areas (India, Near and Middle East, Brazil, etc). These commercial clashes are having an impact on international cooperation programmes, as witnessed for example in the trade conflict that has broken out between France and Spain vis-à-vis the Pakistani authorities on a cooperation contract on attack submarines (the French Scorpène versus the Spanish S 80) (see the annex for a description of the major international cooperation programmes), or recently vis-à-vis the Australian navy (BPCs, etc).

Finally, in the case of France there is the additional factor of the ambiguity of the DCNS - Thales relationship on an international level, in the light of the latter's "multi-domestic strategy", which involves establishing operations in a country on a long-term basis in order to be a permanent and reliable local player able to meet the specific requirements of its national defence customer.

There are five major international cooperation programmes for naval systems<sup>14</sup>:

- **FREMM** (multi-mission frigates): This is a cooperation programme with Italy, conducted under the auspices of OCCAR<sup>15</sup>. In accordance with the Defence White Paper, the target for the France programme has been cut from 17 to 11. Italy is planning for 10 frigates.
- **Horizon** ("Common New Generation Frigates"): Originally a tripartite programme (France, UK and Italy), it has been bilateral since the withdrawal of the UK in 1999. Both Italy and France will be putting 2 frigates into service.
- **Scorpène** (submarines): Initially a cooperation project between DCNS and Navantia, relations between the French and Spanish industrial partners became strained when Navantia developed a Scorpène derivative (S 80) and offered it to the Pakistani authorities.
- **MU 90** (light torpedoes): Programme conducted in cooperation between France and Italy. To date, 75 torpedoes have been delivered and the French 2010 Budget Act contains plans for 75 more.
- **PAAMS**: The PAAMS (Principal Anti-Air Missile System) programme is an anti-air missile system based on French/Italian/British cooperation (MBDA, Thales, Selex and BAE, grouped together in the Europaams joint venture).

### 2.1.3 The shipbuilding industry in France

#### 2.1.3.1 Shipbuilding organisation

France's shipbuilding industry is characterised by its vertical industrial structure (with a full ordering chain). Unlike Italy, Spain or Germany, this vertical structure allows for self-sufficiency. The industry also benefits from a high level of subcontracting. Over and above the platform supply yards (new builds, hull parts or repairs) run by DCNS, STX France or CMN, the French shipbuilding industry has access to specific main system manufacturers/integrators:

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<sup>14</sup> [www.ixarm.com](http://www.ixarm.com)

<sup>15</sup> The Organisation Conjointe de Coopération en matière d'Armement was established by an Administrative Arrangement on 12th November 1996 by the Defence Ministers of France, Germany, Italy and the UK (with Belgium and Spain joining in 2003 and 2005 respectively). Its aim is to provide more effective and efficient arrangements for the management of certain existing and future collaborative armament programmes.

- Ship management system: Converteam, ECA, Schneider and DCNS, ...
- Weapons systems (missiles): Eurosam, Sagem Defence & Sécurité, MBDA...
- Communication systems: EADS D&S, Thales
- Combat system / Combat management systems: Thales, DCNS

It also has access to specialized suppliers:

- radar equipment (Thales),
- propulsion systems (converteam, Man, etc),
- periscopes (Sagem), sonar (Thales),
- electronic warfare (Lacroix, Cilas),
- etc.

DCNS is present in most elements in the value chain (equipment, naval weapons, yards, integration, SMS, EMS). Moreover, there is an increased presence of project- or technology-specialised sub-system OEMs.

The closer ties between DCNS and Thales are steering DCNS away from shared industrial project management with Thales towards integrated, global project management, putting it in the role of Lead System Integrator<sup>16</sup> (LSI). Europe has two other major groups active in this area, BAE and EADS.

### 2.1.3.2 The main players in the shipbuilding industry

France's shipbuilding industry contrasts sharply with that of other European States, with:

- A military shipbuilding industry restructured around a national champion and European leader (DCNS + Thales),
- An internationally important civilian shipbuilder hard hit by the crisis (STX).<sup>17</sup>

The military shipbuilding industry, as in the other three EU states with a strong shipbuilding and seafaring tradition (the United Kingdom, Germany and Spain), is characterised by a domestic market structured around major big project manager

<sup>16</sup> Les industries mondiales de la défense (Eurostaf study – 2009).

<sup>17</sup> Alongside these two main players, it is important to bear in mind the Compagnie Mécanique de Normandie (sales of EUR 69.2 million in 2008, compared to EUR 2.5 billion for DCNS and EUR 1.2 billion for STX). CMN was purchased in 1992 by Iskandar Safa (CEO of the Abu Dhabi Mar group) and is suffering from a major market squeeze, despite the boost from the Baynunah corvette contract (effect of technology transfer to Abu Dhabi).

with defence prominent in its portfolio, and still heavily dependent on domestic orders.<sup>18</sup>

**Tab. 2: The main players in the French shipbuilding industries**

Company	Segmentation		Defence sales	Total sales	Defence%	Shareholder structure
<b>THALES</b>	LSI/Main system manufacturer	Europe	7599	12665	60%	26% Dassault Aviation + State 27.1%
<b>EADS DS</b>	Main system manufacturer/OEM	Europe	5668	5668	100%	EADS subsidiary (22.5% State + Lagardère Group)
<b>DCNS</b>	Platform supplier/Integrator	France	2500	2500	100%	25% Thales + State 75%
<b>MBDA</b>	Main system manufacturer/Integrator	France	1455	1455	100%	Held by EADS 37.5%, BAE 37.5% and Finmeccanica 25%
<b>SAGEM DS</b>	Main system manufacturer/OEM	France	850	850	100%	Safran (30.4% State)
<b>SCHNEIDER ELECTRIC</b>	Main system manufacturer	France	NC	2347	NC	4.3% CDC
<b>STX FRANCE</b>	Platform supplier	France	NC	1205	NC	33.3% State + 50% STX Shipbuilding
<b>TUS</b>	OEM	France	315,2	315	100%	100% Thales
<b>EUROSAM GIE</b>	Main system manufacturer	Europe	250	250	100%	66.6% MBDA France and Italy, 33.3% Thales
<b>AREVA TA</b>	OEM	France	162	360	45%	Areva subsidiary (CEA 79%, CDC 3.6%, State 5.2%)

Source: SECAFI. All figures In million €/2008

### 2.1.3.3 DCNS: a national champion and European leader

As major shareholder (75%), the French government ensures that the DCNS group has a well-filled order-book (11 FREMM, 6 NAS), even though uncertainties are arising with regard to the realisation of the Military Programming Act in the light of the budget deficit.

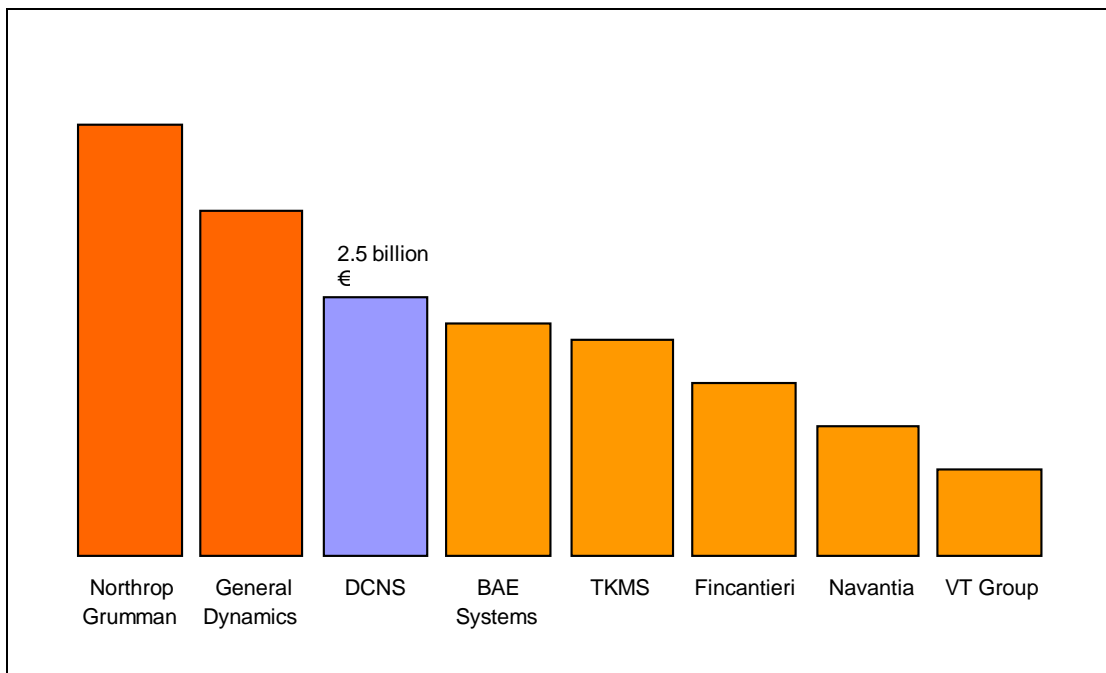
The French shipbuilding sector underwent major change at the beginning of 2007, after two years of vacillation. The 29 March 2007 acquisition by Thales of a 25% interest in DCN and the concurrent acquisition by DCN of Thales's French shipbuilding activities, cementing the long-standing industrial ties between the two leading industry players, led to the establishment of DCNS as a leading European group (Fig. 2) capable of operating on the global market and bolstering the

<sup>18</sup> Perspectives d'évolution de l'industrie de défense en Europe (Hélène Masson - 2007).

company's role as a full-range project manager (horizontal integration). This process fits within the political framework of French determination to establish a national champion with wide, integrated skills in a position to handle European consolidation. From an economic perspective, it represents the size needed to carry out such projects as building an aircraft carrier.

France is exceptional in that the State holds stakes in all major defence industry players (Thales, MBDA, Nexter, EADS, Safran, etc).

**Fig. 2: Turnover in 2008, in EUR billions**



Source: DGA

The next development in DCNS' capital structure (within the 49% potentially open to private capital) could occur by 2012, should Thales decide to exercise its option to increase its stake to 35%. At the moment though, it would seem that neither Thales management (including that of its new key shareholder Dassault Aviation) nor the new DCNS management want this to happen.

In addition, Thales is acting as an integrator/project manager for the combat systems on the British T-45 destroyers, the Dutch LCF frigates, the German F122, F123 and F124 frigates, the South African corvettes (in cooperation with Blohm & Voss / TKMS), etc.

From the more specific point of view of radar and sonar equipment, DCNS can draw on the know-how of European leader Thales. The rest of the competition is fragmented between Finmeccanica Selex, BAe Systems Insyte, Kongsberg Maritime, Atlas Elecktronic and QinetiQ. The two Thales units, Thales Naval Nederland and Thales Underwater Systems (TUS is present in France and the UK)

are notably cornering the bulk of European radar and sonar contracts, and establishing an ever greater foothold on the American market.

#### 2.1.3.4 A shipyard of international standing: STX

The former Chantiers de l'Atlantique (now STX France), with its major Korean shareholder since late 2008, found itself in a vulnerable state in early 2010, with two liners at advanced stages of completion<sup>19</sup>, and just one order (from ship owner MSC in late February 2010) for a liner. This raised some major questions regarding the company's survival prospects.

Under government pressure, a rapprochement scenario between DCNS and STX, regarded as a last-ditch scenario by the industrial players, could unfold if the situation at STX further deteriorates. An interim solution involving the State, which holds a 33.3% stake, would give STX at least a minimum workload.

Accordingly, the building of the 3rd BPC<sup>20</sup> was awarded in April 2009 to STX France under a joint contract, with co-partner DCNS responsible for the ship's combat system. This takes STX into the naval shipbuilding sector. In addition, STX participation has been confirmed for the construction of the hull of the second French aircraft carrier, should the project be launched. This choice is driven in part by the shipbuilding facilities available at Chantiers de l'Atlantique, the only ones able to accommodate a vessel of the size and tonnage of the future aircraft carrier<sup>21</sup>. The Russians have also voiced an interest in ordering French Mistral helicopter carriers. How the work associated with such a contract would be divided up between DCNS (Brest) and STX (Saint-Nazaire) has yet to be decided.

The position of the French government regarding STX may prove paradoxical, as it is behaving more like a majority shareholder despite being only a minority stakeholder (a 33% stake following a capital increase in mid-2009). This is illustrated by its:

- Allocation of the 3<sup>rd</sup> BPC contract under very favourable financing conditions,
- Loan guarantees,
- Support of social measures in times of low workload.

The intentions of the Korean STX group as majority shareholder remain to be clarified, especially in the context of the planned transfer by ALSTOM of its holding in the Korean group in March 2010. The State, with its 75% stake in DCNS and 33% in STX, is thus faced with backing two industry players in the context of a recession.

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<sup>19</sup> According to Jacques Hardelay, CEO of STX France.

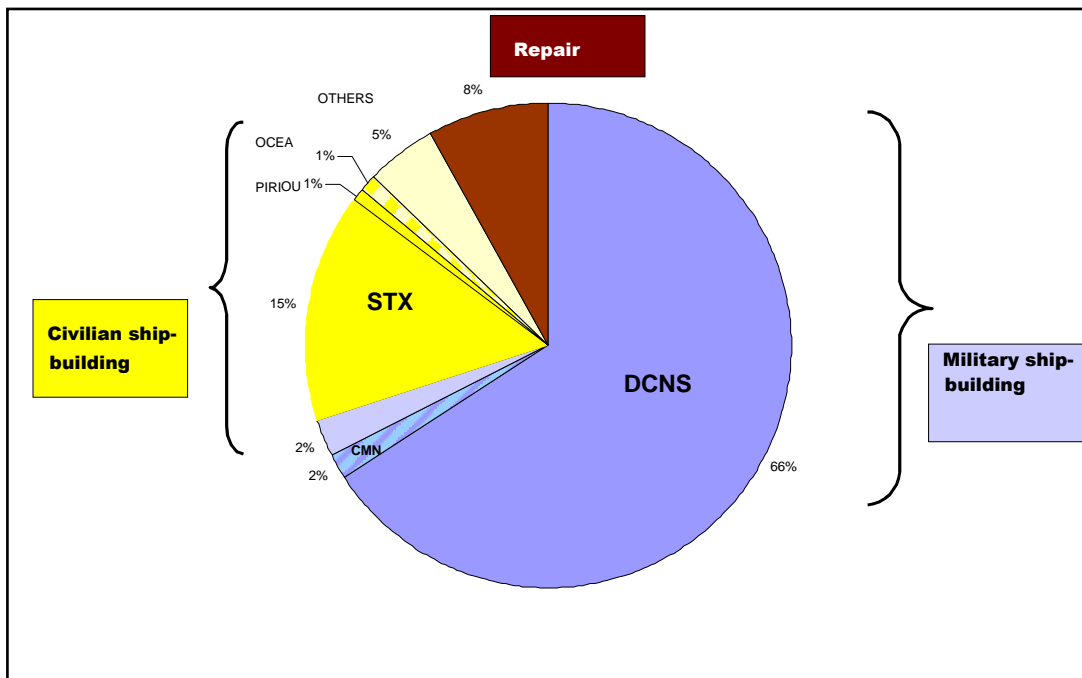
<sup>20</sup> Avis n°102 du Sénat (19/11/2009).

<sup>21</sup> Patrick Boissier in Euronavale (Dec. 09).

### 2.1.3.5 Trends in employment

Leaving aside leisure craft, there were some 18,800 people employed in shipbuilding and repairs in 2007. This figure represented 0.7% of total manufacturing employment (direct employment only). Given the predominance of two major industrial players, the workforce is highly concentrated, with DCNS alone representing two thirds of all jobs in the sector (Fig. 3).

**Fig. 3: Distribution of jobs in shipbuilding and repair in 2007**



Sources: INSEE: National accounts, *Enquête Annuelle d'Entreprise*.

The number of jobs in military shipbuilding has plummeted over the last thirty years. Whereas the former “state arsenals” (DCN) employed some 30,000 people in the seventies, the DCNS workforce numbered little over 12,000 in 2008. Jobs were shed in two major waves: the first ended with a reduction of almost 40% of jobs in the 1990s (early retirements, asbestos-related retirements). The second wave of job cuts occurred with DCN’s change of status in 2003, when it became a private company. Between the mid-2000s and 2008, jobs in military shipbuilding remained relatively stable. However, the effects of the crisis have not yet been felt, with the Championship plan (see below) at DCNS foreseeing a 30% cut in support functions, and the voluntary redundancy scheme announced for 2010 at STX expected to affect 350 jobs, or 14% of total staff.

## 2.1.4 DCNS: Scenarios for future development

### 2.1.4.1 Workload risks

DCNS' domestic market (75% of its business) is in decline. As Europe's No. 1 shipbuilding company, DCNS can rely on certain major contracts scheduled to end between 2022 and 2027 (FREMM + Barracuda). However, the MPA points to a flat market for new construction, with no guarantee against a (downward) revision of the number of ships ordered, and with the risk of programmes being staggered. Moreover, the market for repair and maintenance is inevitably going to dwindle in line with smaller size of the French navy and the commissioning of modern vessels with reduced maintenance requirements. Finally, on the domestic market, MOC<sup>22</sup> contracts have been opened up to competition.

These risks are forcing DCNS to find other growth engines: exports, diversification, and international MOC contracts.

### 2.1.4.2 The 'Championship' strategic plan

Driven by the prime aim of improving its international competitiveness, shipbuilder DCNS is banking on a huge restructuring project launched in 2010 and dubbed 'Championship'. Its aims are to double turnover by 2020, reduce costs by 30% within 3 years<sup>23</sup>; and to improve operating margins by more than 10% within 3 years.

The new organisational structure, which is supposed to make the organisation simpler, leaner and more effective in its support functions, relies on the introduction of a unit-based structure. This has led to submarine and surface vessel activities being split into two divisions (each with responsibility for its own profit and loss accounts), with a third division focusing on services.

In the medium term, the use of Championship to attain the objective of a 30% increase in competitiveness will rely on<sup>24</sup>:

- changes in shipbuilding processes via the optimisation of logistic functions (flows, inventories, space management, etc),
- the reintegration of part of currently sub-contracted work, with the sheer number of suppliers (8,000 in all) needing to be halved to 4,000. The remaining contractors would then be entrusted with bigger work batches based on long-term partnerships and agreements on timeframes and volumes allowing them to invest and gradually drive down their costs.

On an employment level, the risks contained in the strategic plan are significant, particularly in support functions (a 30% drop in staffing levels over three years). The very survival of some sites is under threat.

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<sup>22</sup> "Maintenance in Operational Condition"

<sup>23</sup> L'Usine Nouvelle, December 09.

<sup>24</sup> Interview by Patrick Boissier, Mer et Marine 09/12/2009.

#### 2.1.4.3 “Maintenance in operational condition” (MOC) contracts

The new multi-year contracts for the maintenance<sup>25</sup> of the French fleet were awarded in 2009. DCNS, as the French Navy’s traditional supplier, won the bulk of them (worth EUR 310 million), though it needs to be stated that certain contracts, such as ones relating to heavily armed ships, were not open to competition. Apart from MOC contracts for the most sensitive equipment, or cases where only DCNS could apply, a large number of contracts were put out to tender, allowing other industrial players to come forward. For example, STX France picked up the MOC contract for the French supply vessels (over EUR 40 million until 2013), a contract hitherto awarded to DCNS.

70% of the maintenance contracts open to competition and 70% of the calls for tender on the ‘open market’ were won by DCN/TNF<sup>26</sup>. The DCNS monopoly has been sustained for the maintenance of France’s nuclear vessels, submarines, aircraft carrier, frigates and avisos. Ultimately, 95% of the French MOC market (in value terms) remains with DCNS. Despite the opening of non-protected contracts to international competition, DCNS has succeeded in maintaining its market shares.

In export terms, the development of MOC contracts represents a genuine opportunity for DCNS, with the export MOC market offering potential annual sales of some EUR 25 billion, equivalent to the value of new ship construction<sup>27</sup>.

#### 2.1.4.4 Export success stories

Exports are seen as the main growth engine behind the plans to double sales by 2020, with recent export successes backing up this position.<sup>28</sup> The international military shipbuilding market (new ship construction and services) is estimated at over EUR 3 billion per year<sup>29</sup> over the next ten years, focused on Asia, the Middle East and Latin America. Over the past decade (1998 to 2008), DCNS’ share of this market has risen to 17%.<sup>30</sup> The objective of the Championship programme is to double this. To do so, DCNS is relying on new products such as the Andrasta submarine, the FREMM frigate, the Gowind corvette or the BPC amphibious assault ships.

Also on the subject of exports, DCNS is anxious to develop maintenance or infrastructure services to foreign navies. The development of shipbuilding goes hand in hand with modernisation programmes in other countries seeking to

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<sup>25</sup> Mer et Marine.

<sup>26</sup> Thales Naval France

<sup>27</sup> Secafi 2004, ‘Shipbuilding sector and European groupings’.

<sup>28</sup> Among other things, DCNS has sold 6 Scorpène submarines to India, two to Malaysia, four to Brazil, two to Chile, plus the sale of Gowind corvettes to Bulgaria and a FREMM frigate to Morocco.

<sup>29</sup> Euronavale doc France Dec 09.

<sup>30</sup> Euronavale doc France Dec 09.

improve their capabilities at a lower cost. Ecuador, for example, has asked Thales to modernise its U 209 submarines, which are German in origin.

In addition, while closer cooperation with Thales has made DCNS today a global operator intent on becoming an LSI (Lead System Integrator) in Europe, internationally there is more debate about the two players and their place in the market. With Thales holding on to its multi-domestic strategy, the division of export markets between the two is difficult to define.

Finally, the technology transfer requirements imposed on DCNS by its international clients in return for orders may ultimately pose a real problem in terms of workload transfer, with a major risk of creating new competitors.

#### 2.1.4.5 Other options for diversification<sup>31</sup>

Still within this growth dynamic, the DCNS group has let it be known that it wishes to diversify into new services (nuclear engineering, naval base maintenance or renewable marine energy sources). However, these options for diversification also come under the Championship cost-cutting objective, as they are labour-intensive.

Generally speaking, DCNS would like to position itself as a sub-assembly project manager, OEM and service provider.

#### The civilian nuclear sector

In the civilian nuclear sector, DCNS would like to become involved in projects for new power plants with such partners as EDF or Areva, taking on responsibility for sub-assemblies. DCNS is also positioning itself as a supplier of heavy equipment (plate exchanger for steam generator) and as a service provider (design, implementation, maintenance).

#### Renewable energy sources

In parallel, DCNS would like to beef up its profile in the services sector via 'Défense Environnement Services' (DES), a joint company created with Véolia Environnement. DES is positioning itself primarily in the market for outsourcing services at French naval bases, but also in the creation and maintenance of naval bases abroad.

Apart from DES, the group would like to maintain its hold on such niche markets as building basin gates.

In a more experimental perspective, DCNS would like to cash in on the trend towards renewable marine energy (RME), a market estimated to be worth several billion euros a year.

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<sup>31</sup> Euronavale Doc France, Press: Les Echos, Dec. 2009.

#### 2.1.4.6 Issues and Conclusions

<b><u>Opportunities</u></b>	<b><u>Threats</u></b>
<ul style="list-style-type: none"> <li>- Increase in missions linked to 'State action at sea'</li> <li>- European projects for new generation frigates and attack submarines</li> <li>- Numerous transactions on the second-hand market, generating requirements for modernisation programmes</li> <li>- Complexity of certain highly sophisticated systems (aircraft carriers, submarines) limiting new entrants</li> <li>- Active second-hand market (old equipment) accompanied by system modernisation</li> <li>- Exports: India, Malaysia, Taiwan, Australia, UAE, Saudi Arabia, Kuwait, Israel, Brazil, Chile, Venezuela, etc</li> <li>- Buoyant MOC market: operational availability on the increase = extension of lifetime = reductions in fleet size (increase of 50% - 75% in availability leads to a 25% reduction in fleet size)</li> </ul>	<ul style="list-style-type: none"> <li>- Potential competition from the LCS (Littoral Combat Ship), the first compact ship developed in the United States</li> <li>- US discussions on the benefits of launching a conventionally powered submarine programme</li> <li>- Consolidation incomplete in Europe</li> <li>- Competitive global market with major overcapacities and very long lifetimes of products for renewal</li> <li>- 'Mini-run' industry with high unit costs</li> <li>- Competition from Asia</li> <li>- Decision to start building France's second French aircraft carrier held over until 2011-2012</li> </ul>

## **2.2 Germany: The naval shipyard industry – perspectives till 2020**

### *2.2.1 Government security policy and new requirements*

German defence and security policy has long been characterized by its high degree of integration into and alignment with NATO as the Western alliance. Following German reunification and the end of the Cold War there has been a strong change both in Germany and within NATO in the perception of possible threat scenarios, with repercussions on the requirements for the armed forces and their weaponry. It is widely accepted that the 20th century threats and conflict scenarios, which equated to strong armoured land forces securing national borders, are no longer relevant for Europe. The new 21st century security environment is more influenced by the concept of (rapid) response forces capable of operating flexibly in different locations around the world and with capabilities for both peacekeeping and combat missions. Furthermore the new asymmetric warfare threats require structures and equipment capable of countering enemy tactics in the specific geographical and social contexts of the operational area, meaning that military platforms have to meet wide-ranging (inter-) operability requirements.

In practice, within the (rapid) response force concept all three branches of the German armed forces (the Bundeswehr) – the Air Force, Army, and Navy - have assumed new operational tasks in conjunction with the NATO alliance, the EU's Common Foreign and Security Policy (CFSP) and UN peacekeeping missions. Today's operations as part of EU, UN or NATO missions are centred on failing states, international terrorism, piracy and threats to commercial sea routes. A relatively new indirect security challenge for Germany is the growing threat to the free movement of goods by sea piracy and terrorism, especially around the Horn of Africa and in the Gulf of Aden. With about ninety percent of EU external trade shipped by sea, the EU has reacted to this challenge with "Operation Atalanta" and the deployment of naval forces.<sup>32</sup>

In an internal paper "Zielvorstellung Marine 2025+" (ZVM 2025+) defining its objectives for 2025 and beyond, the German Navy has outlined new requirements and objectives concerning the core competences of a future German navy. With the procurement and deployment of major weapon system platforms such as frigates, submarines and supply vessels associated with high costs and long-term (15-25 year cycles) planning, such strategy change is only possible with long lead times. At the same time, changes in the economic and technological environment need to be constantly monitored.

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<sup>32</sup> Germany is participating in this operation with a frigate and mobile protection teams, Flottenkommando: Jahresbericht 2009. Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland.

### 2.2.2 Defence expenditure and procurement perspectives

The German defence budget has risen slightly in recent years, reaching EUR 31.1 billion in 2010. The Bundeswehr requirements defined in the most recent 5-year plan foresaw a budget of EUR 31.9 billion for 2010 and further minor budget increases of around EUR 400 million a year for the following years. This also included moderate growth in procurement spending.

**Tab. 3: Planned Development of the Defence Budget**

	2009	2010	2011	2012	2013	2014
<b>Overall defence budget (2009 planning)</b>	30,1	30,5	30,9	31,4	31,9	
<b>Overall defence budget (2010 planning)</b>		31,9	31,9	32,3	32,7	33,1
<b>R&amp;D, testing (2010)</b>		1,21	1,11	1,08	1,01	1,08
<b>Procurement budget (2010)</b>		5,49	5,66	5,99	6,28	6,51

Source: *Bundeswehrplan 2009, Bundeswehrplan 2010*

The procurement budget is already earmarked to a great extent for existing programmes and maintenance costs, with account taken of an acceleration of certain procurement projects and cost increases in other projects, such as the new military transport aircraft A400M. This means there is no budget available for any major new projects. Most naval procurement projects were commissioned about 20 years ago, meaning that the equipment does not necessarily reflect current needs. At the same time, research and development (R&D) budgets remain on a comparatively low level.

**Fig. 4: Development of the Procurement Budget (in bn. €)**

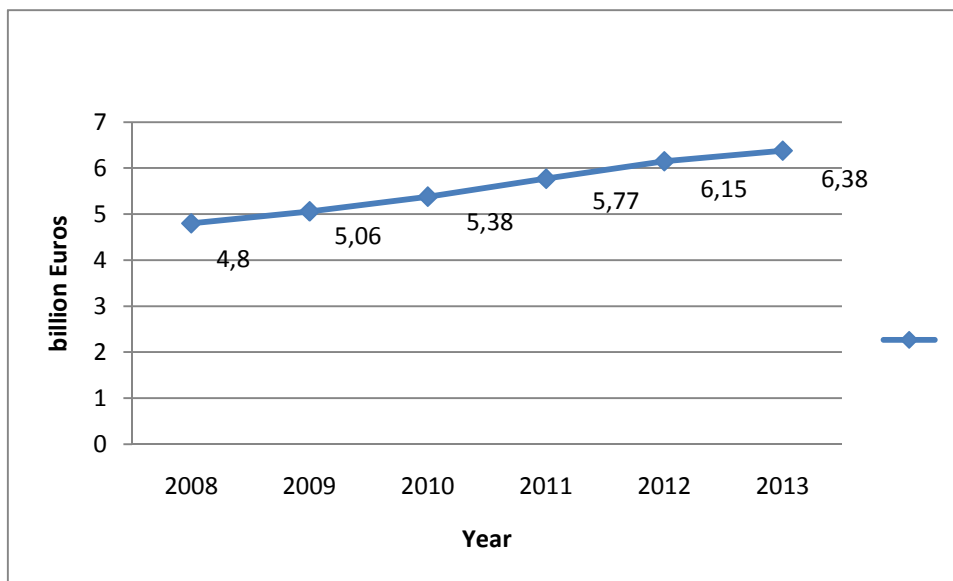


Fig.: *Wilke, Maack & Partner; Source: Bundeswehrplan2009, the 2008 figure is based on the approved 2008 budget*

**Tab. 4: Development of Naval Procurement Budgets**

<b>Military procurement</b>	<b>2008</b>	<b>2009</b>
Total military procurement expenditure, bn €	4,61	5,22
Procurement of naval ships, boats and other vessels, m €	360	580
Maintenance of naval ships, boats and other vessels, m €	277	292
Share of naval expenditure in procurement (in %)	13,8	12,1

*Table: Wilke, Maack & Partner; Source: BFM: Bundeshaushalt Verteidigung 2009, Kap. 14.*

In the coming years, some EUR 270-300 million will be allocated each year to the maintenance and repair of ships and other equipment, with EUR 500-600 million per year being earmarked for naval procurement. This is sufficient to ensure that shipyards and other major suppliers achieve a minimum utilisation of existing production capacity. But it is by no means sufficient to achieve full utilisation of existing development and production capacities, meaning that, as in the past, long-term survival is dependent on exports to the global market.

With regard to the objective of safeguarding minimum national industrial core capabilities, the 2009 Ministry of Defence's planning document stated the following:

“In the medium term, the German Navy's demand alone will no longer be sufficient to achieve this objective. The German shipbuilding industry is therefore increasingly dependent on export markets. The shipbuilding industry needs to improve its sales levels, as the export market for surface vessels is vital to the German industry. [...] The F-125 project contributes little to the strengthening of the response force system capabilities needed in the long run. Existing capability requirements do not meet export demands. The K-131 corvette is therefore necessary to strengthen the required system capabilities of response forces.”<sup>33</sup>

An analysis of existing major procurement programmes shows that naval budgets are nevertheless very much focused on the procurement of the new F-125 frigate until 2015. Current financial plans provide only very little scope for additional naval projects.

In general, it can be said – and this situation is aggravated by the crisis - that the German defence budget will at best remain stable in the coming decade.<sup>34</sup> There is an ongoing discussion with the industry that this level of spending will not be sufficient to sustain a competitive industrial base in the long term and that German shipyards need more follow-up orders.

<sup>33</sup> Bundeswehrplan 2009, pp. 36-37.

<sup>34</sup> Bundeshaushaltsplan 2009, Bundeswehrplan 2009.

Current Bundeswehr procurement planning includes the following major naval projects:

- The procurement and commissioning of 4 new 145-meter F-125 frigates. These ships will replace the Bremen class frigates and will enter service between 2014 and 2017. They are being built by a consortium consisting of TKMS and the Fr. Lürssen Werft. (Contract volume EUR 2.96 billion)
- 2 additional 212A class submarines, already under contract with TKMS.
- One supply vessel (1 Combat Support Class 702 / Berlin class), being built by a consortium under the leadership of Fr. Lürssen Werft together with Flensburg Schiffbau.
- A major part of the procurement budget is earmarked for the Navy MH-90 helicopter, developed jointly by Germany, France, Italy and the Netherlands for transport and naval operations.

Plans for a K131 corvette are still under discussion. Originally, 6 units were planned. However, it is now unclear when and how many of these ships will be ordered. There is no realistic chance of procurement before 2018.

**Tab. 5: Major German naval procurement projects**

	<b>Procurement budget</b>	<b>Units</b>	<b>Companies involved</b>
<b>F 125</b>	€2,600 Mio.	4	TKMS, Lürssen
<b>212A class submarines</b>	€900 Mio.	2	TKMS (HDW)
<b>MH-90 helicopter</b>	€1,200 Mio.	38	Eurocopter and others

*Source: Wilke, Maack und Partner based on newspaper articles and "Marine 2025+"*

These procurement projects will already be difficult to implement given the present financial planning framework. This fact is also recognized by the Navy, with the national coordinator for shipbuilding stating:

"It is necessary to analyse the capacity utilisation in naval shipbuilding in the core areas of submarine construction and surface combat ships separately. Further production orders are urgently required, especially for surface combat ships, to preserve know-how and capacities due to long lead times. The F-124 frigate programme (three units), in which the TKMS shipyards Blohm + Voss (B+V), Howaldtswerke-Deutsche Werft AG (HDW) and Nordseewerke (NSWE), and Friedrich Lürssen-Werft (FLW) were involved, was completed in 2007. The construction of five K-130 corvettes was completed at B + V, NSWE and FLW, with delivery of the last unit in 2009. With the electronics and combat systems upgrade project for the F-123 frigates on schedule to end in 2011 and deliveries of four F-

125 frigates planned from 2014 to 2017, underutilisation of the German naval shipbuilding capacity is looming on the horizon.”<sup>35</sup>

In the submarine sector, the situation is somewhat better. Following delivery of the first four type 212A submarines with their air-independent propulsion (AIP) system to the Navy, two more boats are in planning or under construction. Their delivery is planned for 2012 / 2013.

On a bilateral level TKMS has also completed a number of export cooperation projects, including the supply of equipment and the assembly of submarines. These projects include:

- Two type 212A submarines, which are being constructed by Fincantieri in Italy,
- Six Dolphin class submarines for Israel,
- Six submarines for Turkey (including large equipment packages)
- Six type 214 submarines for South Korea (delivery of large equipment packages)

As a result employment and core competencies at TKMS (HDW) in Kiel are ensured for the medium term.

### *2.2.3 Relevance of export markets*

The heavy dependence on successes in export markets is not new to the German naval defence industry. In the last two decades, the German Navy's requirements represented at most around 30% of existing development and manufacturing capacities. The consolidation of the German shipbuilding industry over the last 20 years with a stable direct employment level of about 20,000 people was in part due to successes in arms exports. In this sector of specialty shipbuilding the German industry maintains technological leadership to this day, and is thereby in a position to avoid cost competition.

Although officially pursuing a restrictive arms export policy, Germany saw its share of the global trade in weapons and military equipment reach 10% in 2004-2008 according to statistics published by SIPRI. At 46%, ships and submarines had by far the largest share.

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<sup>35</sup> Bericht zur maritimen Koordinierung Sechste Nationale Maritime Konferenz 29./30. März 2009, Rostock, p. 21.

**Tab. 6: Shares in German arms exports**

<b>Shares in German arms exports 2004 – 2008 by sectors</b>	
Ships, submarines	46%
Armed vehicles, tanks	27%
Aircrafts	9%
Rockets and UMV	7%
Turbines, motors	4%

*Source: SIPRI 2010*

Having national capacities fully utilised by national contracts has always been a fairy-tale. In 2002 the Blohm und Voss CEO wrote that: "In Germany the demand emanating from the German Navy is not sufficient to guarantee the continuous utilisation of the strategic minimum capacity of the defence industry. There is only about one new frigate programme every 10 - 15 years and about one submarine programme every 25 years. This is no new fact. Therefore, the German shipbuilding industry is working intensely and very successfully to develop exports, aiming at a longer-term export share of 70 - 75%."<sup>36</sup>

Export figures in the submarine sector illustrate this very clearly. 117 conventional submarines have been built at German shipyards since the 1960s. Of these, only 35 have been built for the German Navy, with the remaining 81 built for export. This continuing success in export markets is recognized and supported by politicians. According to the report of the national coordinator for shipbuilding, "The German naval shipbuilding industry possesses real national defence technology capabilities and core competencies in the area of conventional submarines, surface combat ships up to frigate size and mine countermeasures vessels. Joint effort by public authorities and industry is needed to preserve these capabilities. Up to now, orders from the German Navy constituted the basis for the German naval industry, ensuring the preservation of core skills and the minimum utilisation of naval shipbuilding capacities. Due to changes in demand and capacity requirements, the German Navy's contribution to the utilisation of the design, engineering and manufacturing capacities of the industry is becoming increasingly smaller. This means that the importance of exporting naval ships is increasing. Nevertheless, national reference projects are essential for gaining export orders in the naval sector."<sup>37</sup>

Export markets are however becoming increasingly subject to competition by other competitors - including all the major European shipyards, such as DCNS (France), Fincantieri (Italy), and Navantia (Spain), even though these may also be partners in joint European programmes. Since neither industry nor the national navies of these countries could agree on the joint development of platforms in the past, the success of one company today could lead to the failure of another company. It is a zero-sum game. This is evident for example in the competition for new orders for

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<sup>36</sup> Nizsch 2002

<sup>37</sup> Ibid, p. 21

frigates. Here the jointly developed French-Italian FREMM frigate platform could beat the TKMS model in the competition for the Greek procurement decision for six frigates in 2008. And even with the upcoming decision by Algeria for four frigates, there have been reports that Algeria is favouring the FREMM frigate. As orders of this size (€ 4-6 billion) are awarded only rarely, they are crucial for the medium-term structural development of capacities in each country.

Summarising the above, domestic demand alone is not sufficient to utilise German capacities, maintain employment, and maintain or advance technological know-how. National procurement decisions are only utilising the core capacities – success in export markets will be decisive for higher capacity utilisation. German naval capacities are 70% dependent on success in export markets.

#### *2.2.4 The German shipbuilding industry: background and concepts*

In Germany, a number of factors have contributed to the continuing importance of the maritime sector, going far beyond the pure shipyard and shipbuilding capacities. In 2007/2008 the shipbuilding and equipment sector achieved sales of some EUR 17 billion and employed about 100,000 employees.

Direct employment at shipyards accounted for 20,500 people. More than 70,000 people worked in upstream and downstream areas of the ship supply industry, with its sales of almost EUR 12 billion in 2007.<sup>38</sup> In 2009, employment dropped by 15 percent in just one year, going down to 17,446 direct employees in 40 shipyards<sup>39</sup> and attributable to insolvencies and job cuts. From a regional perspective, the decline was focused on the region of Mecklenburg-Vorpommern with almost 50% of the job losses. The present downsizing and restructuring of the shipbuilding industry has to be seen against the background of unprecedented demand for container ships at German shipyards in the period from 2003 to 2008. The rapid growth in world trade in these years triggered a great willingness to invest in new ships, with German shipyards receiving almost 300 new or preliminary orders in those five years. This situation changed dramatically, however, with the onset of the global financial crisis. Many contracts were cancelled, and between September 2008 and September 2009 not a single new ship was ordered. The crisis hit the sector hard - especially those Mecklenburg-Vorpommern shipyards with a high proportion of work on container ships<sup>40</sup> – and there were a number of insolvencies (Nessewerft GmbH, Cassens Werft GmbH, Lindenau Schiffs- und Maschinenfabrik

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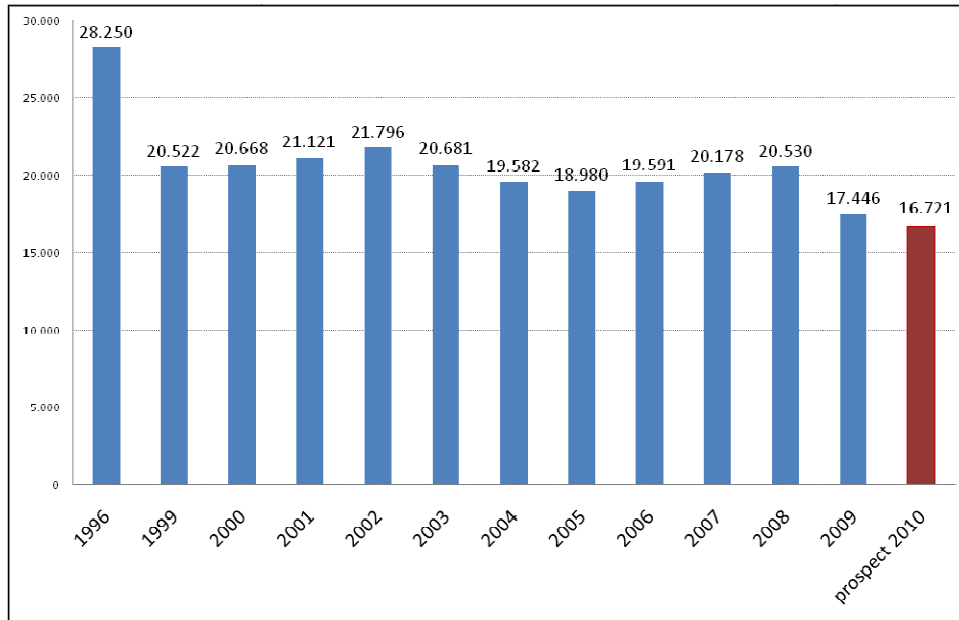
<sup>38</sup> The importance of the supply industry is related to the fact that German ship-owners still have an important position in worldwide maritime logistics. In 2009 a total 3.372 vessels were owned by German ship-owners. Germany has the third-largest merchant fleet in the world and its 1.547 container ships make it world leader in container freight. Deutsche Marine: Deutschlands maritime Abhängigkeit, 05.01.2010.

<sup>39</sup> IG Metall Küste/IAW: Positionspapier. Beschäftigung, Auftragslage und Perspektiven im Deutschen Schiffbau. Ergebnisse der Betriebsrätebefragung im September 2009.

<sup>40</sup> IG Metall Küste/IAW: Positionspapier. Beschäftigung, Auftragslage und Perspektiven im Deutschen Schiffbau. Ergebnisse der Betriebsrätebefragung im September 2009.

GmbH, SMG Rostock, Wadan Yards in Wismar and Warnow, SSW Shipyard GmbH).

**Fig. 5: Development of employment in German shipyards 1996-2010**



*Graph: Wilke, Maack & Partner; Source: Universität Bremen – IAW/IG Metall Küste 2009*

The German shipbuilding industry is characterised by shipyards' parallel activities in both the civilian and military sectors. Shipyards are privately-owned, not state-owned.

The military sector accounts for some 25% (approximately EUR 1.3 - 1.4 billion per year) of total shipbuilding turnover, with some EUR 0.6 billion attributable to the German navy. The employment effect is estimated at around 4,000 employees, or 20% of total employment. The ship supply industry (consisting of some 400 SMEs with around 72.000 employees<sup>41</sup>) has another 8,000 people working on military orders. For the five German groups TKMS, Hegemann, Lürssen, Flensburger Schiffbau Gesellschaft, and Fassmer, military orders are of major economic importance.<sup>42</sup> All other shipyards focus on civilian markets (Meyer Werft for cruise liners, Sietas for container ships). In the current situation, existing military contracts clearly have a stabilising function on the economic situation of the larger yards.

<sup>41</sup> Source: VDMA 2009 (in: IGM/IAW: Schiffbaumfrage).

<sup>42</sup> The importance of the military orders for the shipyard and shipbuilding capacity is based on estimates. It is considered that in today's military shipbuilding projects only about 50-60% of the total costs occur within the shipbuilding. Weapons systems and integration services are responsible for 40-50% of project costs, i.e. included in these statistics are the producers of military electronics and weapons systems.

### 2.2.5 Current situation: Actors and strategies, structural changes

The October 2009 Coalition Agreement of the CDU-CSU-FDP government states that the competitiveness of the maritime sector in Germany is to be further strengthened, with a focus on the two innovative sectors, shipbuilding and offshore technology. The government is also placing a strategic focus on the sustainable development of offshore energy and raw material supplies.<sup>43</sup>

**Tab. 7: Companies in Germany with relevant shares in naval procurement**

Company	Workforce	Turnover (€)	Share of military production / turnover	Procurement projects
Atlas Elektronik GmbH	1,900	366 Mio.	90%	
Blohm & Voss Shipyards	600	n.a.	50%	K-130 corvette, F-125 frigate
Detlef Hegemann Roland Werft GmbH & Co. KG	150	n.a.	n.a.	
Diehl BGT Defence GmbH & Co. KG	1,630	430 Mio.	100%	armament, ammunition
Flensburger Schiffbau-Gesellschaft mbH & Co. KG	770	240 Mio.	5 - 10 %	
Fr. Fassmer GmbH & Co. KG	357	85,1 Mio.	10%	
Fr. Lürssen Werft GmbH & Co. KG	850	n.a.	50%	K130, supply ship, patrol boats
HDW - TKMS Kiel	2,300	800 Mio.	95%	Submarines 212 A for German Navy: Portugal, Israel, Italy, South Korea
L3 Communications ELAC Nautic GmbH	157	26 mio.	70%	F125, Submarine 216, survey vessel
Lloyd Werft Bremerhaven GmbH	600	n.a.	5%	
MAN Diesel SE	3,500	n.a.	n.a.	
Peene Werft GmbH	850	748 Mio.	20%	raising / lowering ponton, supply ship, F125
Raytheon Anschutz GmbH	512	n.a.	n.a.	
Rheinmetall AG Defence	9,200	1,8 bn	100%	
Rohde & Schwarz GmbH & Co. KG	7,000 globally	1,1 bn	25%	SVFuA (software defined radio)
SAM Electronics	650	320 Mio.	10%	F125
Schottel Schiffsmaschinen GmbH	800	266 Mio.	n.a.	propulsion systems
Siemens AG - Überwasser, HH	1,000 total, shipbuilding 120, Navy surface 30	14,3 Mio. Navy surface	85%	F125, Retrofit old MEKO class Australia, NZ, Portugal
Siemens AG - Unterwasser, Erlangen	10,000 total, shipbuilding submarine 110	55,6 Mio. Navy submarine	100%	new submarines, retrofit, 212/214, export

*Table: Wilke, Maack and Partner; Source: company websites and interviews*

<sup>43</sup> Koalitionsvertrag zwischen CDU, CSU und FDP. Wachstum. Bildung. Zusammenhalt. October 2009.

### 2.2.5.1 TKMS: Internationalisation, diversification, focus

Germany's declining procurement budgets, European integration and the experience of EADS in the military and civilian aircraft sector had already in the late 90s led to a review of different strategic options available to all military industrial sectors in Germany. At that time any rapid European solution appeared unenforceable. Instead, all actors favoured national consolidation in the naval sector. This led to a number of major shipyards gradually being integrated into the TKMS network.

In 2005 Thyssen purchased HDW. In the years prior to this, former Babcock executive Klaus Lederer had already tried to focus HDW more on military business and to create a European network, buying the Swedish Kockums shipyard and the Greek Hellenic Shipyards.

However, with its limited financial resources, HDW was not in a position to continue such expansion, and Lederer sought the cooperation of a financially strong partner for the expansion of HDW's European military business. It found such a partner in early 2002 in the U.S. investment fund One Equity Partners (OEP) which took a 75% stake in HDW for about EUR 1 billion. Despite this cash injection, HDW remained in troubled waters, sustaining heavy losses in civilian orders for Greek ferries and having problems with its business partner Ferrostaal in financing a submarine project for Greece with a new financial requirement of several hundred million Euros in 2002/2003. Although OEP granted a further EUR 400 million credit at the end of 2003, the investor began negotiations over a sale of HDW.

For a short while it looked as if there might be a chance for a European solution between Germany and France, as in France the restructuring of the defence industry was also on the political agenda. There were plans to privatise the DCN shipyard group and at the same time it entered into cooperation with the arms company Thales. However, the German side apparently feared it would only be the junior partner of Thales / DCN in such a transnational solution, and therefore backed out. The alternative solution saw the acquisition of HDW by ThyssenKrupp, in which OEP remained a partner with a 25% stake in HDW. The newly created ThyssenKrupp Marine Systems (TKMS) saw itself as one of Europe's leading shipyard companies with a network of submarine and surface vessel building capacities in three countries: in Germany, the three sites at Kiel (HDW), Emden (North Sea Works) and Hamburg (Blohm and Voss), with their total of 5,700 employees; in Sweden, the two Kockums locations with a total of 1,100 employees; and in Greece Hellenic Shipyards with its 1,750 employees.

The TKMS group ended up being comprised of six shipyards:

- Blohm + Voss GmbH und Blohm + Voss Repair GmbH, both in Hamburg
- Hellenic Shipyards S.A., Skaramangas/Greece
- Howaldtswerke-Deutsche Werft GmbH, Kiel

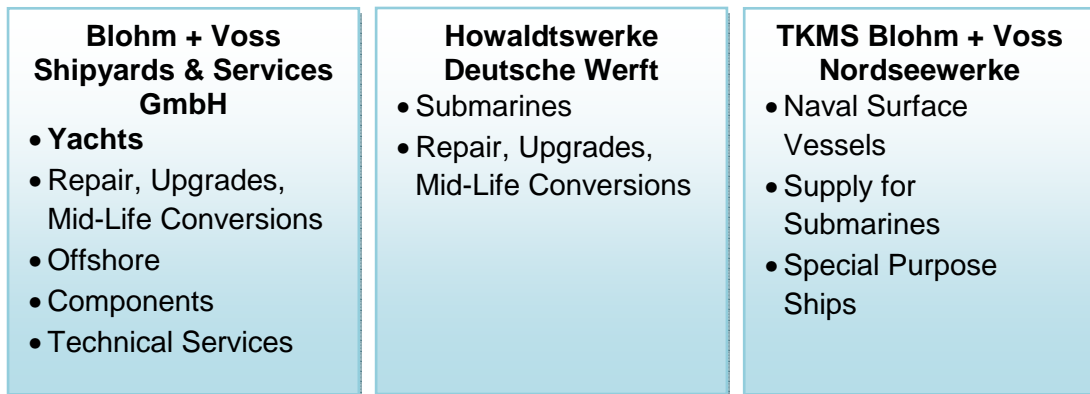
- Kockums AB, Malmö und Karlskrona/Sweden
- Nobiskrug GmbH, Rendsburg
- Nordseewerke GmbH, Emden

TKMS had three divisions corresponding to the different product groups: surface vessels, submarines, and ship repairs. TKMS Blohm + Voss Nordseewerke GmbH, Hamburg and Emden, focused on naval surface vessels, Howaldtswerke-German Werft GmbH, Kiel, on submarines; and Blohm + Voss Shipyards & Services GmbH, Hamburg and Kiel, on yacht building, ship repairs and offshore business. Between 2005 and 2006, the positive market trend contributed to the TKMS group's economic growth. With a turnover of EUR 2 billion, an EUR 8 billion order backlog and a total of 8300 employees, TKMS had in 2005/2006 become one of Europe's leading shipyard networks.

This growth was fuelled by the 2006 acquisition of Atlas Elektronik GmbH in Bremen, with Thyssen Krupp AG taking over 51% of the military electronics and weapons manufacturer (EADS held the remaining 49%). This meant that, in addition to a significant consolidation of the German naval production capacity, vertical consolidation into the area of military electronics had started. In the meantime, ATLAS Elektronik GmbH has taken over the underwater systems division of the British QinetiQ subsidiary and also integrated ATLAS UK. In addition to an increased presence in the UK market, with this acquisition the company was able to expand its technological capabilities and strengthen its leading position in marine electronics.

In the following years TKMS started restructuring and refurbishing sites (for example in Greece with the disposal of Hellenic Shipyards' railroad car production business) and an expansion of production capacities both in civilian and military shipbuilding. In Hamburg for example, Blohm + Voss strengthened the area of large yacht building, and in Kiel container ships were now being built in addition to submarines. Expected export successes in the submarine and frigate markets played an important role in this strategy. TKMS believed there was an opportunity to realize significant synergies, positioning itself well for any further European consolidation.

**Fig. 6: The 3 pillars of Thyssen Krupp Marine Systems AG**



*Graph: Wilke, Maack & Partner; Source: TKMS*

A first step towards consolidation was already taken in April 2008 when TKMS sold Nobiskrug, the Rendsburg shipyard with 400 employees and some EUR 80 million annual turnover. The prospective purchaser was originally the Russian-dominated investor Eagle River Capital Ltd., but final negotiations threatened to fail because the investor would not give any guarantee to maintain the employment level. In this confused situation Abu Dhabi MAR stepped in, acquiring Nobiskrug in July 2009. After the French shipyard CMN in Cherbourg, this was Abu Dhabi MAR's second acquisition of a shipyard in Europe.

After a three-year (2005 - 2008) attempt to form a large European shipbuilding group in the military and civilian sector, the economic and financial crisis hit the TKMS group in 2009 with full force. Several customers cancelled orders. Orders for six mega-yachts and two container ships for HDW were withdrawn. At Nordseewerke, another four container ship orders were cancelled. The container ship market has now collapsed to such an extent that even experts do not even expect a recovery in the medium term. In addition, TKMS was unsuccessful in winning a new order on the export market for frigates, with Greece choosing the Franco-Italian FREMM frigate. At the same time the dispute escalated with the Greek government on the payment of the submarines already supplied by HDW. And, finally, the frigate contract with Algeria was still not signed at the end of 2009.

As a consequence, TKMS predicted production overcapacity of more than 1 million production hours. The situation reached dimensions that would have had negative effects on the Thyssen Group as a whole. In this situation, the Thyssen management decided on a radical change of strategy in 2009 involving a complete restructuring of TKMS. This included four measures:

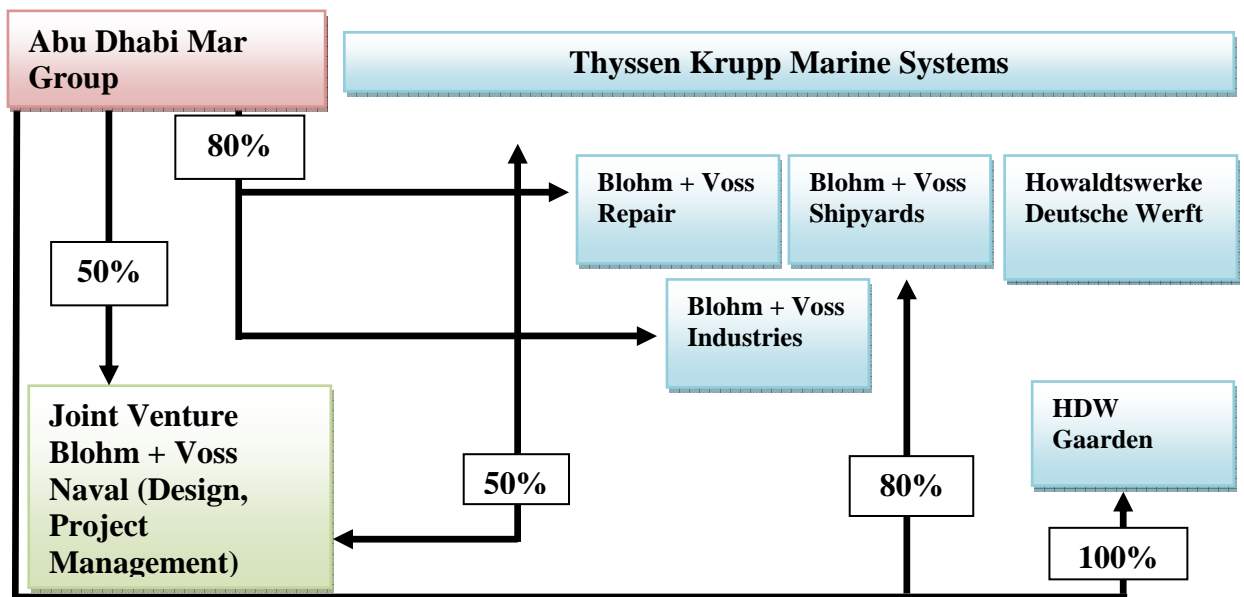
- Exiting the container ship market;
- Divesting whole production sites and converting others;
- Bringing in a new strategic partner that has both its own market access as well as financial capacities;

- Concentrating remaining activities in the areas of military production, yachts and ship repair.

The implementation of these strategic decisions led to the following decisions at the end of December 2009:

- The sale of One Equity Partners' 20% stake in HDW;
- The sale of the production site at Nordseewerke Emden with its 721 employees to the wind turbine manufacturer SIAG Schaaf Industrie AG;
- The transfer of 115 employees from the Nordseewerke in Emden to HDW (approximately 200 construction jobs with TKMS now remain in Emden in naval shipbuilding and repair and Navy equipment).
- At the same time TKMS announced it would be building yachts and large surface vessels in a strategic partnership with Abu Dhabi MAR, with the latter buying an 80% stake in Blohm + Voss Repair and Blohm + Voss Industries.
- The naval shipbuilding business will become part of a 50:50 joint venture with Abu Dhabi MAR with the establishment of Naval Blohm + Voss, in which TKMS retains the industrial leadership.
- The steel processing capacity in Kiel HDW-Gaarden (about 200 employees) is to be sold to Abu Dhabi MAR.
- Blohm + Voss shipyards will be sold to Abu Dhabi MAR.
- Hellenic Shipyards will also be taken over by Abu Dhabi MAR.
- As for Kockums in Sweden, TKMS would like to shut down at least one of its two production sites in the near future.

**Fig. 7: Planned participation of Abu Dhabi MAR and new structure of the German sites**



*Graph: Wilke, Maack & Partner, Source: TKMS, newspaper articles April 2010*

Although the measures announced will not lead to any major job losses in the individual companies, it will change the remaining development prospects for TKMS. The group is selling over 2 / 3 of its activities to other investors and TKMS is abandoning the idea of achieving success in the civilian and military markets at the same time. It is now focusing on building submarines and continuing its operations – together with its new partner Abu Dhabi MAR – in the areas of military shipbuilding and yacht construction.

Blohm + Voss Repair and Engineering remain with the new majority shareholder Abu Dhabi MAR in Hamburg. In addition, the Abu Dhabi MAR Group will focus on the market for mega-yachts, repair and marine equipment. HDW, with its submarine construction and specialised fuel cell propulsion technology, remains part of the Thyssen Group.

Thyssen Krupp Marine Systems believes that it can maintain its industrial leadership and retain its know-how under these changed conditions. Blohm + Voss Naval will be playing a leading role in all projects with the German Navy. Politically, there was no protest in Germany against these plans. The Abu Dhabi MAR Group will be responsible for marketing in the MENA region (Middle East / North Africa). Despite formally restrictive German export regulations, the TKMS/Abu Dhabi MAR consortium hopes to export warships to this region, with marketing opportunities for Blohm + Voss products (frigates and corvettes) significantly improved (seen as a chance to preserve jobs).<sup>44</sup>

<sup>44</sup> The initiative of the French President Sarkozy who told the press in December 2009 that DCNS was interested in cooperation with HDW found no real interest at TKMS.

Nevertheless, the TKMS workforce is set to decrease from over 7.700 in 2009 to 3.500 in 2011. The rest will be employed either by Abu Dhabi MAR or by Schaaf industries which will be using the Emden production side for building wind energy systems.

It remains unclear whether Abu Dhabi MAR will also be buying the 24.9% stake in HDW. There are political and industrial policy concerns here. The German federal government could prevent a sale of more than 25% of shares for reasons of national security. Of critical importance in any such deal are both the potential sale of German technology and its influence on future export deals. The Arab investor could secure major contracts, while on the other hand endangering deals with Israel.

#### 2.2.5.2 Lürssen

The Lürssen Group is specialised on the one hand in the construction and repair of fast attack craft, corvettes and supply ships for the Navy, and on the other hand in the construction of civilian mega-yachts. It owns four shipyards, the Friedrich Lürssen Werft in Bremen, a smaller site in Bardenfleeth, the New Jadewerft in Wilhelmshaven and the Krögerwerft in Schleswig-Holstein, and has built more than 120 ships there since 1950. Lürssen has been involved in almost every shipbuilding programme of the German Navy and has also been very successful in exports.

Over the last 20 years, Lürssen has, through its acquisition of smaller yards and its consistent business strategy, successfully built up a position as Germany's No. 2 military shipbuilder. In the mega-yacht sector Lürssen claims to be one of the world's leading producers.

In 1997 Lürssen acquired the naval shipbuilding operations of the bankrupt Bremer Vulkan shipyard in Bremen-Vegesack. At its Bardenfleeth shipyard (formerly Schweers Shipyard) SAR vessels (special and research vessels) and mega-yachts are the main type of ships built. Its New Jadewerft, purchased in 2004, specialises in repairs and maintenance. The Schleswig-Holstein shipyard company is focused on naval vessels, special and research ships, and mega yachts and has approximately 1,400 employees. Military production turnover is estimated at around 50% of total turnover. Bremer family businesses such as Lürssen do not publish sales and earnings figures.

### 2.2.5.3 The Hegemann Group

The Hegemann Group has over 2,600 employees in more than 25 different companies – not all of them active in maritime operations. Business operations are divided into the areas of shipbuilding and construction, general building and services. Hegemann shipyards include the Rolandwerft in Berne, and since 1992, the Peene Werft in Wolgast, the Volkswerft in Stralsund and the German Industrie-Werke GmbH in Berlin. 2009 the group achieved a turnover of EUR 580 million.

The Peene-Werft in particular is highly dependent on Navy contracts. More than 130 Navy contracts have been executed since 1992, including the repair of submarines. The Peene-Werft in Wolgast was founded in 1948 and used to have a workforce of 3,700 employees. Before German reunification, the yard was one of the GDR's most important naval shipyards. Nowadays it is one of the most modern compact shipyards in Europe, building container ships and specialised in the modernisation and repair of naval vessels for the German Navy.

In August 2007, the Hegemann Group also took over the Stralsund Shipyard GmbH with its 1,300 employees and facilities to build large container ships. However, the acquisition took place in difficult times and, in February 2009, the shipyards in Stralsund and Wolgast were faced with the cancellation of contracts for two new container ships. This followed the loss of two orders for five container ships in December 2008. Nevertheless, the group estimates that employment is secure in the two yards in 2010, with the Volkswerft having received a major contract for six new river cruise ships in 2009. This will help the yard to utilise its capacities until 2012.

However, the Hegemann Group's financial problems escalated in October 2009, and the consulting company KPMG was brought in to analyse the situation and come up with a new strategic concept. The conclusion was that the Hegemann shipyards needed new federal loan guarantees amounting to EUR 280 million as interim financing for shipbuilding contracts. According to media reports, 600 of the 2,000 jobs in Stralsund and Wolgast will be cut. Shareholders, banks, the state of Mecklenburg-Vorpommern and the federal government agreed in late December 2009 on a trustee to manage the shipyards in the interim.

### 2.2.6 *Conclusions and scenarios for the naval industry and employment*

#### **Future development prospects: Is Europeanisation still a valid option?**

The crisis in the container ship market and at least the temporary downturn in the mega-yacht business are confronting Germany's three major shipbuilding groups with serious problems. Nevertheless, the current economic situations and responses are very different in all three groups. At Lürssen the high proportion of long-term military projects (according to current estimates, approximately 50% of sales) is contributing to relatively high economic stability.

As a result of its expansion strategy and the takeover of the Volkswerft, the Hegemann Group is running into significant problems due to declining demand for container ships. The military orders for the Peene shipyard have the potential to offset the free capacities at the Volkswerft.

From a European perspective the strategic changes at TKMS are the most significant ones. A large, financially strong group is dissociating itself from its strategy of growing into a European company both in civilian and military shipbuilding markets. TKMS' international production capacities in Greece and Sweden will be abandoned or significantly reduced in the near future. Remaining capacities for military shipbuilding are being concentrated in Hamburg with a 50% stake held by a foreign investor (the Abu Dhabi MAR Group). The industrial strategy of this new investor remains unclear. And what are the medium-term prospects for submarine construction at HDW in Kiel where TKMS remains one of the world's leading companies? This change in strategy means that TKMS has mutated from a European Champion with a wide range of shipbuilding know-how to a company mainly active in the military market.

For German shipyards there are two sides to the military market coin. On the one side, there is the German Navy as a stable consumer, but with a limited demand for new ships and submarines. On the other side there is the highly competitive export market with several countries in the world wanting to build up their naval military capabilities.

The financial framework for German naval planning is clear, with no increase in procurement spending for the navy expected for the next decade. At best, the procurement budget will remain stable. At the same time major procurement projects involving submarines and the new frigate, to be implemented over the next 5-10 years, are already designed and ordered. The conclusion drawn is that there can be no feasible rapid modernisation of the German Navy under the given budgetary conditions. The overall size of the Navy is expected to decrease from today's 80 ships in service to 60 by 2025.

Regarding export markets the picture is much more blurred. The global naval market was recently estimated at being worth some EUR 30 billion over a 10-year period, a figure that should still be valid. Of this, one-third was linked to Europe, one third to the U.S. and the remaining third to other countries, with a certain emphasis on the Middle East and Asia. The core question is whether the partnership between Abu Dhabi MAR and TKMS will be helpful in this global market when competing against such European suppliers as Navantia, Fincantieri or DCNS.

In Germany there will be undoubtedly be a reduction of jobs in the shipbuilding industry. So far TKMS' experiment to sell whole sites to investors from other industries has been successful (Nordseewerke to the SIAG group and Kiel Gaarden to Abu Dhabi MAR) and this may not even lead to direct job losses in the region. Nevertheless, a 15% cut in direct employment in shipbuilding must be

expected, with overall employment in shipyards having already fallen from over 20,000 to below 18,000 in 2009.

With regard to a possible Europeanisation, the involvement of Abu Dhabi MAR has the potential to put the brakes on any such scenario. In the field of combat ships no common European procurement project is expected and decisions on support ships are more likely to have a long lead time. Since domestic procurement decisions in all nations only secure minimum capacities in core areas, the industry's response for the next few years will involve a greater focus on export markets. In this respect the TKMS partnership with Abu Dhabi MAR is also a signal to the international market.

TKMS will remain active in military shipbuilding. But even this decision might depend on future export successes. A possible option for Europeanisation still exists in the area of submarine construction. Closer cooperation between DCNS and HDW would at least be possible, as long as the industrial and regional economic conditions - i.e. the issue of industrial leadership and the preservation of regional production capacities and jobs - are negotiable.

From the perspective of Germany's second largest group Lürssen it remains to be seen how successful Abu Dhabi MAR and TKMS will be in Lürssen's two relevant markets, yacht building and military vessels, at the expense of Lürssen, and how relations develop in a future consortium with other German shipyards for German Ministry of Defence contracts.

## 2.3 Italy: Naval industry perspectives

### 2.3.1 The defence and security policy

#### 2.3.1.1 Italian naval strategy

The Italian Navy is undergoing a gradual transformation involving bilateral cooperation and major weapons programmes. The Italian Navy belongs to the leading group of European navies, especially as regards its surface fleet. Its missions are now part of a broader strategic and geographic scope, stretching from sub-Saharan Africa to Iran and the Black Sea. This broad scope of operations affects required military capabilities and the availability of vessels. The four strategic duties assigned to the Italian Navy are<sup>45</sup>: defence of national interests, security of the Euro-Atlantic area, international crisis management, and safeguarding institutions.

The Italian Navy has a good reputation in terms of flexibility, mobility and operational support. This was one reason why the Italian Navy has been transformed less abruptly following the end of the Cold War, with the main developments being a reduction of fleet size, and slow and chaotic investment plans to modernise capacities.

#### 2.3.1.2 The main Italian Navy programmes

**Tab. 8: Italian naval force**

Italian Fleet	2009	Started/Planned	2015
Aircraft carriers	2	Aircraft carrier CAVOUR handed over in 2008	1
Missile launch destroyers	4	2 Orizzonte class destroyers delivered by end 2009 – 2 other hypothetical deliveries in 2015	4
Frigates FF	14	10 FREMM planned, 6 ordered – Deliveries between 2009 and 2018	10
MHC Mine Hunters	13	1 MHC launched	13
Helicopter Carrier		New Programme	1
PCE Corvettes	8		8
Patrol boat	14		14
Amphibious LPD ships	3	3 LPD launched – 3 LPD to be replaced	3
Submarines	6	2 U212A planned (in cooperation with HDW)	6
<b>TOTAL</b>	<b>64</b>		<b>60</b>

*Source: own research*

The Italian Navy has a core force consisting of 2 aircraft carriers, 4 destroyers and 14 large frigates, 6 submarines, a unit of three Landing Platform Docks (LPD) with 26 landing crafts and a group of 13 anti-mine ships (including a command ship).

<sup>45</sup> FRS: Evolution souhaitable du paysage industriel naval européen (2007)

This fleet is rounded off by command ships and a group of 8 corvettes, small warships, a number of auxiliary vessels and patrol boats. The last group is less well armed and operates as a coastal fleet in conjunction with the Coast Guard. The forecast for the Italian fleet foresees the number of ships dropping from 64 in 2009 to 60 in 2015.

### 2.3.1.3 Timeframes for the main naval procurement programmes

The aircraft carrier Cavour, delivered to the Marina Militare (Italian Navy) in early 2008, is the largest warship built in Italy since the Second World War. It is armed with two Sylver (DCNS) eight-cell vertical launch systems, 32 Aster missiles, two 76mm super rapid guns and three 25mm anti-aircraft guns. Its aircraft hangar can accommodate 100 light vehicles or 24 battle tanks for amphibious missions.

**Tab. 9: Timeframes for the main naval procurement programmes**

Constructions neuves prévues pour la Marine italienne	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1 Porte-avions Cavour <sup>58</sup>	57							1										
2 Frégates de type Horizon <sup>58</sup> et 2 autres optionnelles		59					1		1						1?	1?		
10 Frégates FREMM – Bergamini <sup>61</sup>								1		1		1		1		1		1
MCM Command Ship <sup>62</sup>						Plusieurs solutions à l'étude, dont la conversion d'un LPD de type San Giorgio												
Navires de transport de combustible <sup>63</sup>															?			
Navires de sauvetage pour sous-marins <sup>64</sup>						Besoin pour un nouveau navire multi-missions (conversion de l'Elettra ?)												
MCM Vessel															6			
Programme de LPD <sup>65</sup>																		
Design préliminaire effectué en coopération MoD / Civil Protection Department <sup>66</sup>																		

Source : Fondation pour la Recherche Stratégique

Source: *Fondation pour la Recherche Stratégique*

In 2009, two Franco-Italian Horizon-class anti-air warfare frigates entered service.<sup>46</sup> Practically identical with the French frigates Forbin and Chevalier Paul, the Andrea Doria and Caio Duilio frigates have an overall length of 152,9m with a standard 7050-ton displacement at full load.

They are armed with the PAAMS<sup>47</sup> missile system, developed in cooperation with France and the United Kingdom, and comprising of 32 Aster and 16 Aster-15 missiles fired from Sylver launchers. Other weapons include 8 anti-ship Otomat missiles (MBDA), three turrets of 76mm and two 25mm guns (OTO-Melara), and two MU 90 torpedo tubes, developed by the French companies DCN and Thales and the Italian company WASS (Finmeccanica). The main radar systems are the EMPAR 3D detection (Finmeccanica) and the S 1850 M long range surveillance

<sup>46</sup> Mer et Marine 2010

<sup>47</sup> Principal Anti-Air Missile System

radar (Thales). The "Orizzonte" are equipped with a hull sonar SFF-4110 (Thales), and are powered by two LM 2500 gas turbines (Fiat-General Electric) and two diesel engines (MAN Pielstick), giving them a maximum speed of 29 knots.

In February 2008, the Riva Trigoso shipyards started the construction of the Carlo Bergamini, the first of a series of 10 FREMM multi-mission frigates, 6 of which have already been ordered. They have a standard length of 140m with a 5950 ton displacement at full load. Four frigates are designed for anti-submarine warfare, with tower sonar Captas 4249 (Thales) and Milas missiles (MBDA) and two 76mm guns. The six other frigates are so-called "multipurpose" frigates, with military capabilities for land-orientated missions. The 10 frigates will replace the Maestrale and Lupo frigates and are scheduled to enter service between 2012 and 2020.

In 2006 and 2008, Fincantieri delivered two new U212 submarines (built under German licence), the Salvatore Todaro and the Scire, with the company receiving an order for two additional units in July 2008. Built at Muggiano, these submarines, originally designed by TKMS, will be delivered in 2014 and 2016, replacing the Salvatore Pelosi and the Guiliano Prini, which were originally commissioned in 1988 and 1989. The 212-A type has a PERMASYN - Siemens air-independent propulsion system with fuel-cell modules, greatly improving underwater operational capabilities compared with conventional diesel-electric propulsion systems.

### 2.3.2 Exports

Italy's presence in the international naval market is mainly dependent on Fincantieri export sales. Until now export successes have not been up to expectations. However, the new Indian aircraft carrier has been designed with Fincantieri assistance, and a further contract has been signed with India for the construction of a 27,500 ton fleet tanker. Fincantieri has also been commissioned by Iraq to construct four patrol vessels (53.4 meters and 430 tons)<sup>48</sup>. Twenty years after the success of the Lupo frigates, export sales are also possible for the Franco-Italian FREMM programme in cooperation with Finmeccanica, Fincantieri's partner in Orizzonte Sistemi Navali. Recently, both Greece and Algeria have shown great interest in buying the FREMM. Unlike the version for the Italian Navy, the export model can be equipped with American combat systems and weapons. A light frigate is also offered by Orizzonte for export markets.

Other contracts may also be awarded to Fincantieri in the coming years in the projection and command segment for amphibious operations. The building of a new unit has been agreed with the Italian Navy, and a design is already available for export markets.

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<sup>48</sup> Mer et Marine 2010

Export opportunities can also be expected in the segment of logistics vessels. Fincantieri sold an Etna class tanker to Greece (constructed at the Elefsis shipyard near Athens), and has recently reached an agreement with the Indian Navy on the construction of one fleet tanker. Fincantieri has also established an alliance with the British Northwestern Ship Repair & Shipbuilding Ltd. to participate in the MARS programme (Military Afloat Reach and Sustainability) for the building of six supply vessels for the Royal Navy.

Significant efforts have been made to develop export markets in India, the UAE (corvettes), Brazil, Iraq, etc., where Fincantieri faces fierce competition from German, French, Spanish and US companies. The recent successes (patrol boats in Iraq, a fleet tanker in India, technical assistance for the Indian aircraft carrier) demonstrate Fincantieri's know-how outside its domestic market. Other new products offered by Fincantieri include smaller vessels and special vessels for security needs, with Malta and the Turkish Coast Guard having bought such patrol boats.

Fincantieri's "multi-domestic" strategy is based on taking over shipyards within the framework of solid partnerships. In 2008 Fincantieri signed an agreement for the acquisition of the US company Manitowoc Marine Group (MMG) from its parent Manitowoc Company Inc. (MTW). Lockheed Martin participated in this deal with a 20% share. With the takeover of the MMG shipyards in the state of Wisconsin (USA), Fincantieri is now in a good position to win a substantial share of the mega 5.5 billion USD contract for littoral combat ships (LCS). Two LCS prototypes have already been delivered to the Department of Defence (DOD) and a third ship has just been started.

### *2.3.3 The shipbuilding industry - Focus on Fincantieri*

#### *2.3.3.1 The dual shipbuilding industry*

With approximately 10,000 people employed in shipbuilding, Italy is the 4th largest country in the European shipbuilding industry. Italian shipyards produce both commercial and naval ships, with commercial activities predominating (around 70% out of the total production). The industry is dominated by 2 major players: Fincantieri (90% state-owned) as a shipbuilder and Finmeccanica, with its subsidiaries Wass and Selex, for defence electronics and naval weapons systems (for large vessels excluding aircraft carriers). Fincantieri has developed a multi-domestic strategy in individual countries with shipyards and defence electronics suppliers. This strategy is also the result of the historical links between Fincantieri (as a main contractor) and Finmeccanica (as equipment supplier). Finmeccanica, specialised in electronics and defence systems, is a supplier of combat systems. Finmeccanica is not a real cooperation partner (in the sense of DCNS/Thales) and Fincantieri has developed similar relationships with other combat systems companies. Fincantieri and Finmeccanica have set up a joint venture, OSN

(Orizzonte Sistemi Navale, 51% Fincantieri, 49% Finmeccanica), which is responsible for managing the construction of the four Horizon frigates and the FREMM project. OSN operates mainly in design and sales.

The formerly state-owned Finmeccanica is the second major player. It operates in the naval industry as a supplier of weapons systems (through its subsidiary, OTO Melara), information and communication systems, and as Fincantieri's partner. Finmeccanica develops and produces radar systems: EMPAR (on the Horizon class frigates) and RAN-40L (on several Italian Navy vessels). It is also active in the development of combat systems. Through its WASS subsidiary, Finmeccanica is a 25% shareholder of the European missile manufacturer MBDA, with EADS and BAE Systems as the other two shareholders. The Eurotorp company (50-50 joint venture between its WASS subsidiary and DCNS/Thales), is responsible for marketing the MU 90 lightweight torpedo. An agreement has been reached with the French partners to create two other joint ventures, responsible for the development, production, marketing and maintenance of (heavy and light) torpedoes and of anti-torpedo counter measure systems (like the SLAT system).

**Tab. 10: Industrial actors in the Navy**

Industrial actors	Lead Systems Integrator (LSI)	System Integrators	Platforms – Shipyards	Equipment Suppliers Weapon Systems	Other	Emplo-yees	Navy's share	Comments
<b>Alenia Elsag Sistemi Navali</b>		Naval missiles						
<b>Avio SpA</b>		Missiles propulsion		Torpedo propulsion				
<b>Baglietto</b>			Low tonnage			60		
<b>Calzoni</b>		SMS		Periscopes, weapon handling		1200 (40% navy)	100%	
<b>Cantieri Navale NOE</b>			Low tonnage			120		
<b>GEM Elettronica</b>		SMS (consoles)						
<b>ELLETRONICA SpA</b>				Radars – Electronic war				31% Finmeccanica subsidiary
<b>FIAT</b>				Gas turbines				
<b>Fincantieri</b>	SShips		High and medium tonnage			9000	30%	
<b>Finmeccanica</b>		CS, CMS,						

		SMS, Comm syst., WS						
<b>Galileo Avionica</b>				Radars	Naval engine ering			Radars – 100% Finmeccanica subsidiary
<b>Ifen SpA</b>								
<b>Intermarine</b>			Low tonnage					Rodriguez shipyard subsidiary
<b>Mariotti</b>			Repair					Shipyard specialized in mega-yacht and navy vessels repair conversion
<b>MBDA</b>		Missile Systems						Missiles, Finmeccanica subsidiary(25 %)
<b>Microtecnica</b>				Missile and torpedo actuators				
<b>Navalimpianti</b>			Repair					
<b>Orrizonte</b>	Horizon Programme							JV Fincantieri / DCNS
<b>Oto Melara</b>				12,7 to 127mm artillery				
<b>Rodriguez Cantieri Navali</b>			Medium and low tonnage			600		
<b>Selex Sistemi Inegrati</b>		CS, CMS, Comm. Systems , WS		Radars		4200 (world)		100% Finmeccanica subsidiary
<b>Sepa</b>								
<b>Vittoria Shipyards</b>			Low tonnage and repair					
<b>WASS</b>				Torpedos				Torpedos – 100% Finmeccanica subsidiary
<p>Explanations: SShips: surface ships , SM: submarine, CS: combat systems, CMS: Combat management systems, WS: Weapon systems, SMS ship management systems, LSI: Large Scale Integrator</p>								

Source: own research

Other smaller sized companies coexist with the giant Fincantieri in the construction and navy repair sectors, such as the Rodriguez subsidiary Intermarine, or the Mariotti shipyard.

Fincantieri has 5 business units (BUs), tailored to market needs. Business units sometimes include several shipyards, and one shipyard can be related to several business units:

- Merchant Ships,
- Ship Repair and Conversions,
- Naval Vessels,
- Marine Systems and Components,
- Mega-yachts.

**Fig. 8: Fincantieri sites**



Source: FRS

The Naval Vessels BU in Italy (Muggiano, Riva Trigoso) employs most of the white-collar employees working in marketing, purchasing, sales and after-sales (including support and assistance), management contracts, technology (research and new projects). This BU also includes the four US shipyards situated in Marinette (WI), Sturgeon Bay (WI), Cleveland (Ohio) and Green Bay (WI).

The Merchant Ships BU (Cruise vessels in Trieste and Marghera and cruise ferries in Ancona) includes 6 shipyards: Monfalcone, Marghera, Sestri-Ponente, Ancona, Castellammare and Palermo. It is the Group's most important business unit in terms of both turnover (more than 50% of Group turnover) and world market share (55% of world orders before the crisis). This BU is clearly Fincantieri's core business .

Though primarily a Mega-yacht BU shipyard, Muggiano also carries out certain activities for the Naval BU.

Finally, there are the Ship Repairs and Conversion BU located at Palermo, Trieste and La Spezia, and the Marine Systems and Components BU based in Riva Trigoso and Bari.

The synergies developed by Fincantieri between its commercial and military activities (with the support of the Italian government) and the counter-cyclical nature of the military activities allow for a balanced capacity utilization. This cross-fertilization also allows innovative technology to be transferred from military to civilian uses, and military activities to take advantage of the low-cost technologies developed for civilian uses.

Six shipyards are involved mainly in commercial production, two in military production.

Muggiano and Riva Trigoso are the main naval shipyards:

- Muggiano (La Spezia): Fincantieri's largest shipyard with a vast submarine military dock, located in La Spezia. The shipyard is strongly involved in military ship repair.
- Riva Trigoso (Genoa): construction of naval vessels, including the heaviest modules, which are then transferred to Muggiano for final assembly.

There are six other shipbuilding/civil repair shipyards:

- Monfalcone (Gorizia): for luxury ships;
- Marghera (Venice): passenger ships and ferries;
- Sestri Ponente (Genoa): merchant ships, oil tankers, gas tankers, oil platforms;
- Castellammare (Naples): tankers and refrigerated cargo ships;
- Palermo: ship components, ferries and tankers, ship repair and conversion.
- Ancona: oceangoing vessels, cargo vessels and tankers, and chemicals ships.

With the acquisition of the US sites of the Manitowocs Marine Group, Fincantieri also owns 4 other shipyards outside Italy.

Altogether, Fincantieri has 10 shipyards and 2 maintenance sites worldwide.

With regard to its commercial shipbuilding activities, Fincantieri is an important player on the market for luxury cruise liners. Since 1990, the Italian group has built 52 cruise ships<sup>49</sup>, including 48 for Carnival Cruise Lines, Costa Crociere, Cunard, P & O Cruises, Princess Cruises and the Holland America Line. Fincantieri has an order backlog of 11 units (including 7 ships for Carnival), providing work until 2014.

### 2.3.3.2 Employment and production capacity

Although Fincantieri was the only shipbuilder to gain an order for a new cruise ship in 2009, the backlog is not sufficient to allow full utilization of production capacities. The workload has already been reduced in 2009 and is also expected to further decrease in 2010 and 2011 if Fincantieri does not win any new contracts. Up to 20% of the workforce could be affected (1,600 out of a total workforce of 8,000). Fincantieri has no restructuring plans at present and is using a number of instruments (early retirements, temporary staff layoffs (*Cassa Integrazione Guadagni*) to overcome the crisis. The state and the regions have set up certain social buffers in the form of occupational transition programmes ensuring that workers affected by the crisis will be re-employed with the benefit of specific training programmes (+ 80% of salary<sup>50</sup>).

Specific problems differ from one site to another. Out of a total (Group) staff of 9,400, almost 8,000 employees (85% of the workforce) work in the Italian shipyards. Riva Trigoso (Genoa) and Muggiano (La Spezia), both of which are specialised in the production of military vessels, have a relative good order backlog, with a dozen new units to be delivered in the coming years.

In the civilian sector the shipyards at Monfalcone (Gorizia), Marghera (Venice) and Sestri Ponente (Genoa) currently have enough work for a full year. However, by the end of 2010 the order backlog will decrease, even if Fincantieri can count on the U.S. group Carnival, the main customer of Italian shipyards. Regarding other commercial shipbuilding activities, the sites of Ancona, Castellammare di Stabia (Naples) and Palermo are focused on luxury boats and ferries, but also the offshore market, conversions and ship repair. This segment has been seriously hit by the crisis, with fewer orders to be expected for mega-yachts and new ferries. However, compared to Fincantieri, its French and Finnish competitors (the STX Europe Group) are in an even more difficult situation. The German Meyer Werft is the only shipyard with a full order book until 2012.

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<sup>49</sup> Mer et Marine 2010

<sup>50</sup> Source: talks with CGIL and CSIL (March 2010)

The search for synergies between the different shipyards is seen as a fundamental characteristic of Fincantieri (and a source of profitability). The Ancona shipyard is for example also involved in the defence sector (parts of the aircraft carrier), while Riva Trigoso and Muggiano can produce components for cruise ships, especially in the case of an excess workload in civil construction shipyards. All shipyards are fully integrated in the production chain.

### 2.3.3.3 Fincantieri: New market opportunities

Fincantieri currently employs 9.400 people, including 1.400 in its various subsidiaries:

- Isotta Fraschini Motori SpA, a manufacturer of high-power marine engines,
- FMSNA Inc., Maintenance and Sales in North America,
- Fincantieri Holding BV, management of foreign holdings: American Fincantieri Marine Systems (100%) and German Lloyd Werft (21.5%),
- ELNAV SpA, shipping company and ship rental,
- CATENA SpA, naval research centre, R&D,
- SEAF SpA, finance company
- In August 2008, Fincantieri took over (for 120 million USD) the U.S. company Manitowoc Marine Group (MMG) with its 1.000 employees.

**Tab. 11: Total number of employees in the naval shipyards**

Naval shipyards <sup>51</sup>	Employees
Genoa	520
Riva Trigoso	900
Muggiano	700
<b>Total</b>	<b>2 120</b>

*Source: Navantia*

The production forecast for naval orders foresees a total of approximately 220.000 hours. With 2.120 people working on military contracts, this order backlog guarantees one year's work for the 3 shipyards.

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<sup>51</sup> Source : Fincantieri

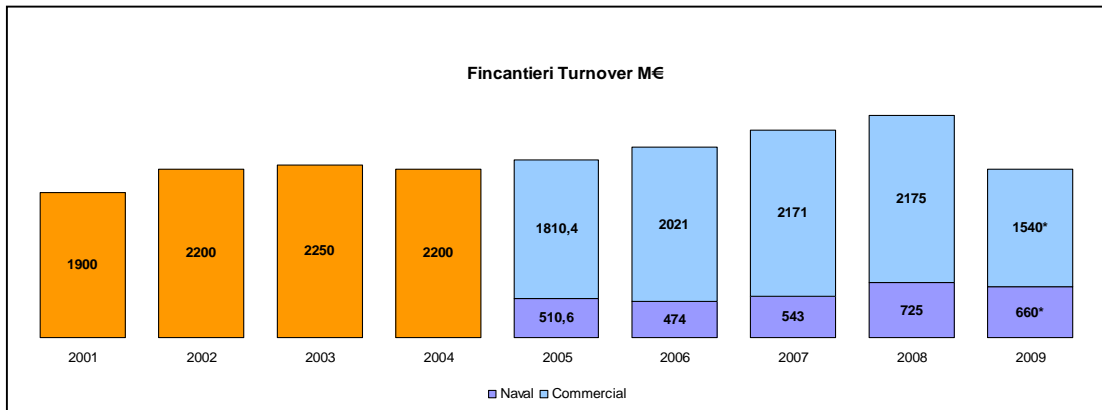
**Tab. 12: Backlog forecast of Fincantieri's three naval shipyards**

Ships	Shipyard	Quantities	Workload (hours)
Patrol (Turkey)	Genoa	x1	4 500 h
FREMM (Algeria)	2+2 ?	Prospect	?
Mega yacht	Muggiano	x2	
Tanker (India)	Muggiano (x1) Sestri Ponente (x1)	x1 x1	11 000 h
Porta Scorie (Russia)	Muggiano	x1	16 000 h
Corvette (UAE)	Riva Trigoso Muggiano	1	110 000 h
Submarine U 212	Muggiano	1 under construction (2 planned)	17 000 h
Tugs	Muggiano		
FREMM Italy	Muggiano	6 launched, 1 under construction	60 000 h
Patrol (Italian Customs Services)	Riva Trigoso Muggiano		

Source: Fincantieri

After record sales in 2008, Fincantieri turnover (50% for export market) decreased by almost 25% in 2009.

**Fig. 9: Turnover Fincantieri**



Source: Fincantieri

Although the national military procurement planning still includes a series of good contracts (6 FREMM out of a total target of 10), procurement budgets are nevertheless declining and will not ensure full utilization of capacities in the medium term. In addition, the market situation for luxury ships and ferries has radically changed due to the current economic crisis.

Fincantieri needs therefore to broaden its strategy, currently based on:

- Continuation of its core business: cruise ships, ferries, merchant vessels and surface combat ships.
- Naval shipbuilding as a profitable market.
- Naval/commercial synergies.

Growth opportunities are expected (1) in the commercial sector (ferries), in the light of the age of the Mediterranean Sea ferry fleet (250 ships involved) and Fincantieri's ability to provide "greener" ships, (2) from the multi-domestic strategy in the military export market.

Regarding 'green' ships, EU support may help in stimulating (through eco-bonuses) the replacement of the ageing tonnage operating in European waters (mainly ferries). According to ASSONAV<sup>52</sup>, 140 of these ferries, part of which are operated in the Mediterranean, are more than 30 years of age. The renewal of the fleet would not create excess capacity, in accordance with the European transport policy. This renewal policy needs to be flanked by a financial assistance programme, managed by the European Investment Bank. In Italy, industrial companies encourage the government to place quick public orders to fill workload gaps, similar to attempts in France and Germany. The industry is also calling for new financial tools to improve its international competitiveness.

In the naval sector, Fincantieri's diversification is partly based on a multi-domestic strategy with some recent successes. Fincantieri will be building the third U.S. Navy Littoral Combat Ship, LCS 3 ("USS Fort Worth"), at its Marinette Marine shipyards in the United States. The vessel is designed by a consortium led by U.S. Lockheed Martin Group. Lockheed Martin has a minority stake in Fincantieri Marine Group (FMG), which is the parent of Marinette Marine, Bay Shipbuilding, Cleveland Ship Repair and Ace Marine. FMG employs 1,400 people and realized sales of 320 million USD in 2007.

The main competitor for the LCS contract is a consortium consisting of General Dynamics and Austal. This is offering an aluminium trimaran with similar performance data. After testing the two concepts, the Navy will decide which consortium will receive the total order of 55 units (LCS).

In December 2009, Fincantieri signed a strategic alliance with Boeing to make an offer for replacing the US Navy's landing craft. The tender for this 10-year, \$4-billion Ship-to-Shore Connector (SSC) programme will be launched in 2010, with 80 new generation hovercrafts replacing the existing Air Cushion Landing Craft (ACLC).

Should the Italian-American consortium's bid be successful, Boeing will be responsible for the propulsion of the Littoral Combat Ship prototype while Fincantieri Marine Group (FMG) will construct the hovercrafts at its Marinette Marine shipyards (Wisconsin). The contract will not provide any workload for the

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<sup>52</sup> The Italian Ship Repair & Shipbuilding association. Source: Mer et Marine 2009.

Italian yards (except R & D), but will contribute to Fincantieri's overall business performance.

The success of the strategic decision to be present in the U.S. market by investing in local construction and production capacities has recently been underlined by the winning of a contract to build a research vessel for Alaska.

Finally, the issue of privatising Fincantieri is still open, with radical changes in the Italian industry possible. The trade unions have until now successfully opposed the Group's privatisation. The current economic crisis and Fincantieri's special position make it not very likely that any new discussion on privatisation will take place in the short run.

## 2.4 Spain: Situation of the shipbuilding industry

### 2.4.1 National security and defence policy

In contrast to all other EU countries reviewed, Spain is the one country with a growing fleet. This fleet is currently being transformed from an oceangoing fleet into one of coastal power projection, necessitating a change in weapons systems (for example sea-land missiles).

The target is for the Navy to be able to lead a naval component, including projection, within an international force. This naval component consists of an aircraft carrier with its escorts and support ships, an amphibious force capable of projecting a marine infantry brigade, the simultaneous operations of two submarines, and two minesweepers permanently attached to a multinational force.

These current and future mission scenarios are leading to a material transformation of naval forces, with the fleet growing in size from its 2009 level of 55 vessels to a planned 68 in 2015. This programme is however faced with increasing financial difficulties.

**Tab. 13: Current Spanish fleet and 2015 forecast**

Spanish fleet	2009	In process or planned	2015
Aircraft carrier	1	modernisation of the carrier Principe de Asturias in process (->2009)	1
Destroyers / frigates F100 Bazan-Aegis	4	4 F100 delivered - One F100 to be commissioned in 2012 - sixth planned but not yet ordered	6
FFG Frigates	6	Modernisation planned	4
Patrol ships PBF and PB	35	15 years age limit reached - replacement?	31
Minesweeper MHC	6	2 new vessels planned	8
BPE <sup>53</sup> - Projection vessel and helicopter carrier		Expected to be commissioned in 2010	1
BAM <sup>54</sup> - Multi-mission patrol ships		Started in 2004 - delivery from 2008 until 2015	14
BAC <sup>55</sup> - tanker and support ship		One BAC delivered in 2009 (Started end of 2004)	1
Transport ships	2	no replacement planned	2
Intelligence ship	1	no replacement planned	
Submarines	4	4 in service (25 years old) <sup>56</sup>	8?
<b>TOTAL</b>	<b>55</b>		<b>68</b>

Source: own research

<sup>53</sup> Buque de Proyección Estratégica - Strategic Projection Ship

<sup>54</sup> Buque de Accion Maritima

<sup>55</sup> Buque de Aprovisionamiento de Combate

<sup>56</sup> 4 S80A where launched in 2004 (batch 1) for replacing the 4 decommissioned Delfin-class SM. – 4 additional S80A (batch 2) may be launched in 2010/2011 for replacing the 4 Galerna-class SM.

Besides the F-100 Alvaro de Bazan / Aegis frigates capable of fulfilling projection missions, the flagship of the Spanish Navy remains the BPE, the projection vessel and helicopter carrier delivered in 2008 and expected to be commissioned in 2010. With a crew of 243 military personnel and 28,000 ton displacement, it is a platform for attack helicopters, compensating any downtime of the aircraft carrier Principe de Asturias. With the BPE and its two Galicia-class transport landing craft, the Spanish Navy is achieving its force projection capability objective.

The *Alvaro de Bazan*-class F-100 missile destroyers (or F-100 Aegis frigates, named after the weapons system supplied by Lockheed Martin), four in number, will be supported by a fifth destroyer in 2011. The Navy's objective is to have six vessels; the sixth has just been authorized but building work has not yet started (compensating the abandonment of the proposed *Lepanto*-class F-110 frigates and replacing the *Balearic*-class frigates, of which the last two were decommissioned in 2006).

The delivery of twelve BAM ships (4+8), small warships or multi-mission ships with a 14,500 ton displacement, will run until 2015. In addition, a BAC support tanker (the *Cantabria*) was delivered in 2009.

Finally the Spanish Navy may acquire 8 S80 submarines (4 already launched + 4 depending on the results of the first batch), with delivery scheduled between 2011 and 2018.

In terms of downgrading, 6 Decubierto-class corvettes have been partially disarmed, reclassified as patrol ships and then reconverted and sold to Venezuela.<sup>57</sup>

Like other European navies, Spain has already issued the major orders to renew its fleet, giving the industry good middle-term visibility (until 2012?), but the shipyards involved need to find new growth quickly, as there are no future major programmes planned before 2015-2020.

Spain has a very large public sector deficit and pressure is being put on Spain within the EURO zone to reduce it. It cannot be ruled out that the large-scale naval procurement programme may have to be reduced or possibly postponed.

#### 2.4.2 Exports

With all programmes now launched, Spain's leading military shipbuilder Navantia is being forced to find new sources of growth in export markets in order to ensure its long-term survival. The agreement signed with the Spanish state in 2005 (SEPI) in the aftermath of the Izar fiasco however prevents turnover from civilian contracts exceeding 20%.

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<sup>57</sup> FRS : Evolution souhaitable du paysage industriel français et européen pour l'entretien des navires de guerre – H  l  ne Masson, Novembre 2007

The contracts won in Australia since 2007 (2 BPE LHD amphibious helicopter carriers and 4 frigates based on the Spanish F100) have boosted Navantia's backlog. Deliveries are planned until 2014 for the BPEs and 2017 for the F100 frigates. In addition, Navantia is part of the AFCON consortium, working together with the US companies Bath Iron Works and Lockheed Martin on the F-100 AEGIS frigates (Australia).

**Tab. 14: Navantia export contracts**

Navantia products	Numbers	Delivery	Comment
F100 Australia	3+1	2014-2017	Combat systems and missiles from USA
BPE Australia	2	2013-2014	
F132 Norway	5	2007-2010	
Corvettes Venezuela	4	2011-...	
Patrol ships Venezuela	4		
Scorpene Chile	2	2006	
Scorpene Malaysia	2	2008	

*Source: Navantia*

In terms of European cooperation, the Navantia strategy is to look for horizontal alliances with naval shipyards. The Spanish company has been engaged in discussions with the French DCNS on submarines (Scorpène) since May 2006, but these are proving difficult because of the leadership issue between DCNS and Navantia. As part of cooperation agreement between France and Spain, Navantia built four Scorpène-class submarines ordered by Chile (delivered in 2006) and Malaysia (delivered in 2008) together with DCNS. Leveraging the work done on the Scorpène, the Group went on to develop the S80 submarine. Bigger than the Scorpène, the 71-meter ship (2,425 tons submerged), is equipped with six 533 mm tubes. For the Spanish navy, the S80 will be armed with heavy German DM 2-A 4 torpedoes, Harpoon anti-ship missiles and Tomahawk cruise missiles. The combat system (SUBICS) comes from Lockheed Martin. Navantia will also equip the S80 with an air-independent propulsion system using UTC fuel cells based on oxygen and bio-ethanol.

Besides the Spanish Navy contract, the S80 is now available for export. But the arrival on the market of this new export version (Pakistan, Turkey and recently in Australia ) has led to a hardening of relations with DCNS, which considers this business practice as unfair competition to the Scorpène, with the French group claiming to have contributed the major part of its development.

The partnership with Lockheed Martin has allowed Navantia to win major export contracts (as in the case of the BPEs for Australia/ F-100 destroyers with Lockheed Martin combat systems) and to get ahead of its Thales / DCN rival. Navantia is now profiting from its existing commercial success to offer BPEs, the largest vessels that Spain has ever built) to Turkey, India, Malaysia and South Africa.

Finally, for export only<sup>58</sup>, four 102-meter corvettes (2,600 ton displacement) will be delivered in 2011 to Venezuela, which has also ordered four further 76-meter / 1500-ton units.

### 2.4.3 The shipbuilding industry in Spain

#### 2.4.3.1 Naval shipbuilding

The Spanish shipbuilding industry has 20 to 22 major shipyards dedicated to building new ships. Including smaller shipyards, this figure rises to 90 private sites.

**Tab. 15: Actors in the Spanish Naval Defence area**

Actors in the Spanish Naval Defence	Supervision - LSI	System - integrators	Platforms - Shipyards	Equipment suppliers	Others	Employment	Military share	Comments
<b>NAVANTIA</b>	SS, SM	SMS				5.000	80%	
<b>SENER Ingeniera y Sistemas SA</b>				CAD naval (Foran)	Engineering and naval conception	2.000		
<b>ARESA</b>			Patrol ships, coast guards					
<b>SAES</b>		CS for SM and anti SM		Sonars, minesweepers				
<b>INDRA sistemas</b>		C4I		Comm. Systems, technological warfare, radars	Naval engineering	29.000 (worldwide)		
<b>Sistemas FABA</b>		CMS						Branch 100% Navantia
<b>Lockheed Martin (USA)</b>		CS						
Key	SS: Surface ships - SM: submarine - CS: combat systems - CMS: Combat management systems - WS, Weapon systems - SMS: ship management systems - LSI: Large Scale Integrator							

Source: own research

Though the Spanish shipbuilding industry is in decline, with its 7.500 employees it is still Europe's 5<sup>th</sup> largest shipbuilding industry.

Similar to France, in the military field a national champion has gradually formed around the 100% state-owned Navantia with its largely (and statutory) military portfolio and its domestic monopoly for large vessels.

<sup>58</sup> Mer & Marine 2008

In addition to Navantia, three companies with their own shipyards have been involved in the construction of naval vessels and specialized ships for civilian agencies of the Spanish government (General Secretariat of Maritime Fisheries, Ministry of Agriculture). Construcciones Navales P. Freire for example built two patrol vessels in 2000 and 2004, though remaining generally focused on civilian construction. Similarly, Astilleros Gondan can be cited for certain military construction activities (patrol boats for fisheries monitoring). The fact that the company was declared a *Defence Equipment Supplier* in September 2005 allows it to export vessels for other armed forces.<sup>59</sup> The third company is Astilleros Canarios in the Canary Islands, which has repaired two U.S. American *Military Sealift Command* ships in the past. Navantia does not ultimately compete with these small industry players.

The Spanish shipbuilding industry has encountered difficulties in its use of a network of subcontractors / suppliers characterised by unstable structures and organisations (“risky suppliers”). For example, when the Norwegian frigates were being built, there were problems related to safety management and the excessive use of subcontractors at the Ferrol shipyard. There were 120 subcontractors with 2,500 employees working at Ferrol, higher than the number of Navantia employees there.

The history of Navantia goes back to Bazán, the company founded in 1947 to manage Spain’s military arsenals at Ferrol, Cartagena and San Fernando. Bazán built all types of military ships, abandoning the construction of ferries in 1999 for economic reasons. At that time, Bazán had 7,500 employees and was owned by the State Society of Industrial Participations (SEPI). Other public Spanish shipyards were grouped within Astilleros Espanoles (AESAs), a group also owned by SEPI.

With 5,000 employees, AESA ran the shipyards at Sestao, Puerto Real - Cadiz, Seville, El Ferrol, Gijon and Manises (construction of diesel engines). Finding itself in dire financial straits in 2000 (with EUR 205 million expected losses), the *Astilleros Españoles* group was rescued in 2001 by a merger with other state-owned military shipyards (2001), giving rise to IZAR. This was seen as a way of generating significant civilian-military synergies. However the financial situation continued to deteriorate, requiring the government to provide a number of subsidies. In addition, the civilian-military synergies never materialized.

Three times, in 1999, 2000 and 2003, the European Commission<sup>60</sup> asked the Spanish government to put an end to public subsidies deemed to be contrary to EU rules, and IZAR was forced to repay all aid received in 1999, 2000 and 2003, a total of EUR 1.186 billion. To solve the ensuing crisis, the military and civilian sites were separated in early 2005, with a desire to privatise the three civilian yards at

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<sup>59</sup> FRS: Evolution souhaitable du paysage industriel français et européen pour l’entretien des navires de guerre – H  l  ne Masson, Novembre 2007

<sup>60</sup> Technical Commission of the Interparliamentary Assembly for Security and Defence (2005)

Sestao, Gijon and Seville and the Manises engine plant. Navantia was created as the military shipbuilder, with six other sites (or five depending on whether Fene and Ferrol are counted together). This separation led to a 40% staff reduction programme in 2005 with clear targets (such as 3,983 early retirements (52 year-olds)). The strategy assigned to Navantia by the Spanish authorities was to consolidate military activities, i.e. to streamline the military yards and limit other civilian activities to a maximum of 20% of total business.

In recent years Navantia has developed more into a platform shipbuilding company than an integrator, in a position to do all contracting work like its European competitors (DCN / Thales, BAE / VT, ...). Except for FABA, a Navantia subsidiary for weapons systems, there is no structured relationship between Navantia, the key player in the shipbuilding industry, and combat system integrators.

Though the EUR 750-million programme for five F-100 frigates is largely based on Spanish platform design, 50 to 60% are for the combat system delivered by Lockheed Martin for approximately EUR 400 million<sup>61</sup> (estimated data).

Navantia has recently become aware of the potential instability of this form of dependency on the USA, and would like to rapidly develop the means to build its own combat and combat management systems (CS and CMS), even if this is being done somewhat later than its main European competitors.

#### 2.4.3.2 Employment, workload and capacity

The agreement signed in 2004 by the Spanish government and the unions was endorsed by the European Commission on January 19, 2005. It consolidated IZAR's centres of military activities at Ferrol, Cartagena, San Fernando Cadiz and its centres for civilian activities at Fene and Puerto Real, with company headquarters in Madrid. The eight Navantia sites (circled in red and blue) all perform, at least in theory, repair activities and construction (except Puerto Real, which is exclusively for shipbuilding). They are located in three main areas, with the integration of Ferrol, Fene, Cadiz, Puerto Real and San Fernando and the site of Cartagena. Of these six sites, two to three are mainly available for repair activities: the sites at Fene, Ferrol and Cadiz. The Cartagena and San Fernando sites can take on ship repair work when necessary. The three main shipyards specialised in military repairs are the ones with the most developed infrastructure.

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<sup>61</sup> FRS: Evolution souhaitable du paysage industriel français et européen pour l'entretien des navires de guerre – Hélène Masson, Novembre 2007

**Fig. 10: Map of Navantia sites (ex-IZAR)**



Source: *FRS Evolution souhaitable du paysage industriel naval européen (2007) – completed by Secafi (2010)*

Navantia is building the two BPEs<sup>62</sup> for the Australian Navy at Ferrol. Ready in 2013 and 2014, the Canberra and Adelaide will each measure 230 meters and have a 27,800-ton displacement. The configuration chosen will allow these ships to act as aircraft carriers for F-35 B STOVL fighter planes (Lockheed Martin).

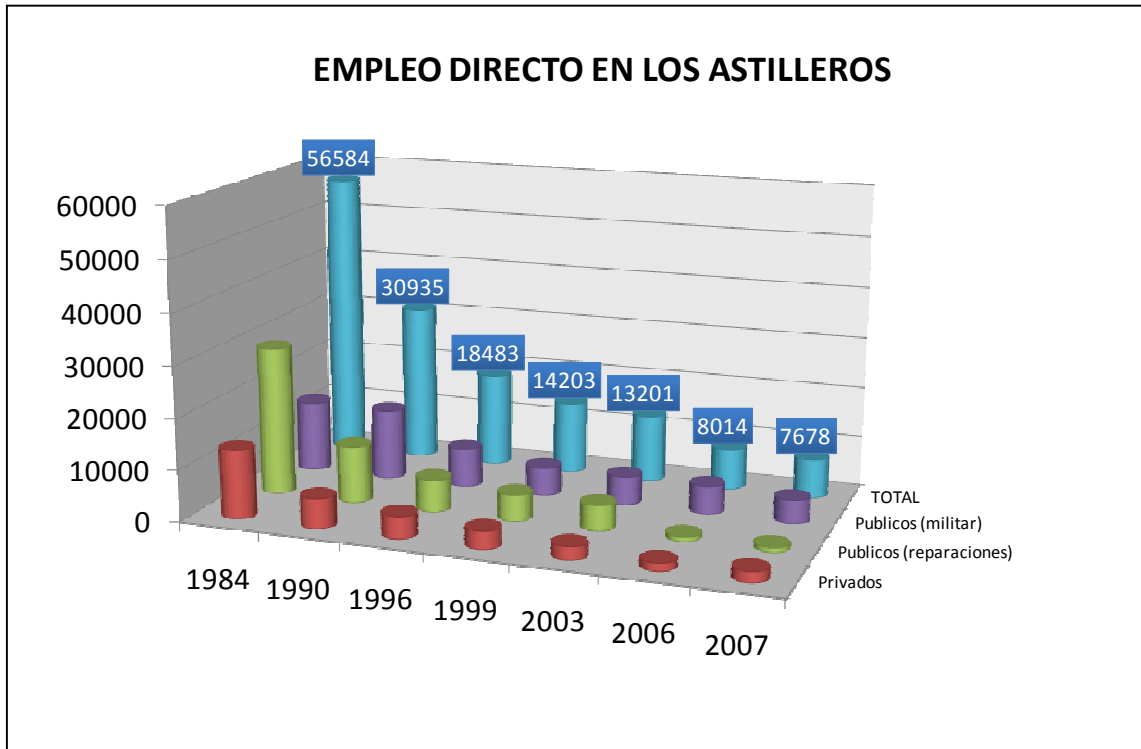
The three F-100 class destroyers ordered by Australia are not providing employment in Spain (or only indirectly) as they are being built locally at the AUC Osborne yards. Expected to enter into service between 2014 and 2017, these vessels are directly derived from the Spanish Alvaro de Bazan design. They will be armed with the U.S. system Aegis with 48 vertical launch cells for SM-2 MR and ESSM RIM missiles.

Also at Ferrol, the contract signed in 2000 for five new frigates for the Norwegian navy (the Fridtjof Nansen class or F-132) is now ending. The Roald Amundsen and Otto Sverdrup, second and third units of the series were delivered in 2007 and 2008. With a length of 123.52 meters and a width of 16.8 meters, the Amundsen displaces 5130 tons fully laden. Armed with a U.S. Aegis-based system, the ships have 32 ESSM RIM anti-aircraft missiles, 8 NSM anti-ship missiles, a 76mm gun, four 12.7 mm guns, four torpedo tubes and are able to carry an NH 90 helicopter. It should be noted that the French company Sagem and its Vigy 20 have been

<sup>62</sup> Mer et Marine 2008.

selected to provide optronical fire control. The last frigate will be commissioned in 2010.

**Fig. 11: Evolution of direct employment within Spanish naval shipbuilding**



Source: UNINAVE

The Spanish public shipyards have undergone a painful process of restructuring and retraining throughout the past twenty years. In 1984, the number of employees in public shipyards was 56,584,<sup>63</sup> today after the latest agreements signed between the Spanish state (through SEPI) and the unions, there are less than 7.500 persons employed in the sector. The sale of civilian yards has been very challenging in terms of safeguarding employment, with more than 5,000 people having been affected by restructuring since privatisation.

In 2009, the economic crisis and the following drop in orders for commercial vessels made the situation even more critical for the non-military yards.

The 3 shipyards of the former IZAR group, Gijon, Seville and Sestao are today in a difficult situation with different degrees of risk:

- Gijon is bankrupt and now being liquidated.
- Seville: 180 persons remain but their future is uncertain. The yard is resisting closure thanks to measures to maintain business implemented by the Spanish state
- Sestao (Bilbao): 450 persons. There is sufficient workload at present but, similar to Seville, there is a significant risk of closure in the future.

<sup>63</sup> UNINAVE Naval Construction 2009

Concerning the other civilian shipyards, the bulk of enterprises consist of SMEs. Many of them are today on the verge of bankruptcy.

#### 2.4.4 Navantia: Little room for strategic manoeuvre

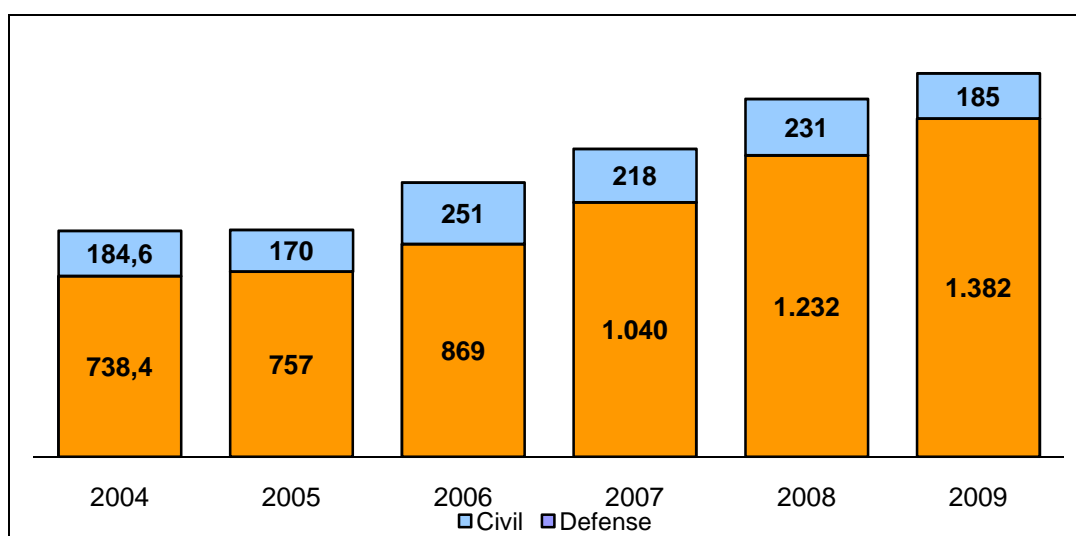
The current growth in Navantia's turnover results from a backlog providing good production forecasts up to 2011/2012 (new orders for export + growth of the Spanish fleet).

Tab. 16: Navantia's Order Book for the Spanish Navy

Navantia Order book	Figures	Delivery	Comments
Aircraft carrier (modernisation)	1	2009	
F100 Bazan-Aegis destroyers / frigates	1	2011 (1 not yet started)	combat systems and missiles from USA
Landing Craft	12	2007-...	
BPE- Projection Vessel and helicopter carrier	1	delivered in 2008	
S80 submarine	4+4	2013-2016	combat systems and missiles from USA - Propulsion and combustion engine
BAM - patrol ships and multi-mission ships	4+8	2008-2015	
BAC- tanker/support ship -	1	2009	
Roros / Ferries	2	2010	Acciona Transmediterranea

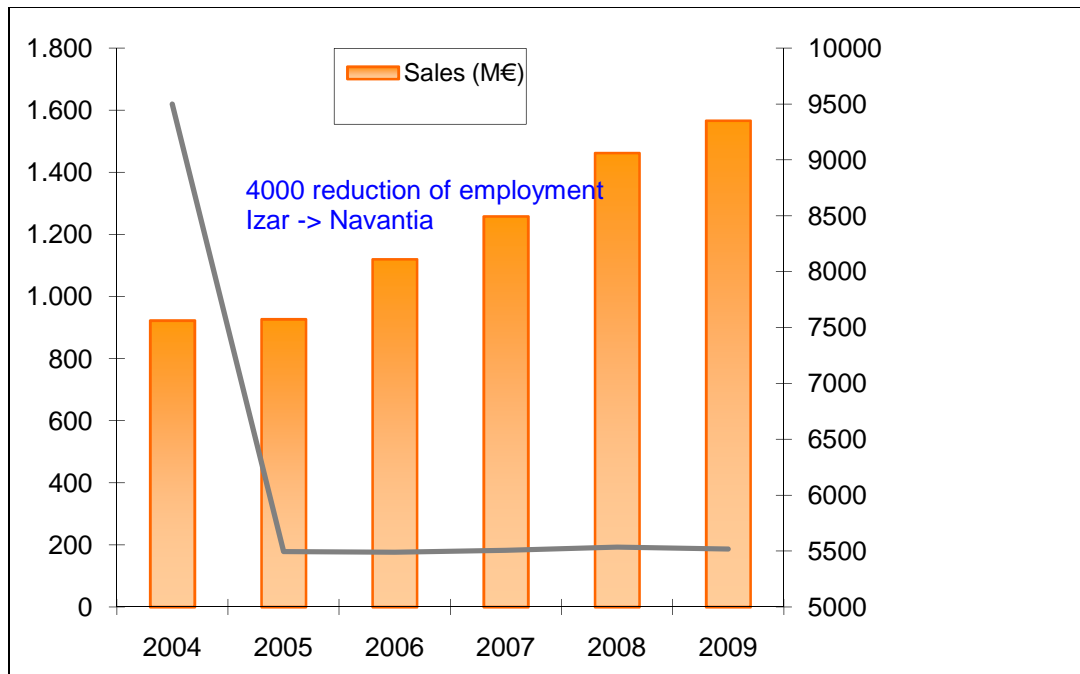
Source: Navantia

Fig. 12: Evolution of Turnover Navantia



Source: Navantia

Fig. 13: Evolution of Navantia employment and sales



Sales: left scale, EUR millions. Employment: right scale, persons.

Source: Navantia

Since 2005, Navantia headcount has been dictated by the Spanish government and the European Union, with headcount remaining stable over the last five years (5,495 employees in 2005 and 5,518 in 2009 (+0.5%)). This relative stability contrasts greatly with the significant (69%) growth in turnover over this period, indicating a greater use of subcontracting and a changed “make or buy“ policy.

There is little room for strategic manoeuvre at Navantia, given current constraints:

- The urgent need to find new sources of growth in exports to fill the drop in business anticipated after 2012;
- The 20% limit imposed by the European Union regarding civilian activity which impedes Navantia’s development until 2015. Navantia has already succeeded in building technological bridges between the civilian and military sectors (i.e. fast landing craft);
- Its heavy dependence on American technology for the development of its heavily armed vessels

This limited room for manoeuvre is coupled with a dearth of alternatives. Apart than being more aggressive in exports and seeking relative autonomy in the design of combat systems, the strategic heart of modern warships, there are diversification projects running, such as offshore wind power platforms, but they are still in an experimental stage. This all raises the problem of Navarantia’s

financial capacity to acquire such technologies. With Navantia a state-owned company, funding remains more a political issue than an industrial one.

If a larger transatlantic convergence is to be excluded in view of the existing partnerships between Lockheed Martin and Navantia, there would seem to be a chance for greater Franco-Spanish cooperation between DCNS and Navantia, especially as there is little probability of any Franco-German alliance in the current situation.

In addition to the uncertainties of the Spanish shipbuilding strategy, uncertainties also exist about the viability of the domestic naval programme. While the government's security policy – with a heightened role for the Spanish Navy - seems clear, it cannot be ruled out that the large-scale domestic naval procurement programme exceeds the government's financial means. If budget cuts do become necessary, these will without doubt have negative consequences on Navantia's business prospects and on employment in the Spanish shipbuilding sector.

## 2.5 UK: Perspectives of naval industries

### 2.5.1 Security policy and naval industrial strategy

The United Kingdom is in the midst of a wide-ranging procurement programme to update its naval fleet. Of the four sectors of the Royal Navy (Surface Fleet, Submarines, the Air Arm and the Royal Marines) two are of great importance to the UK naval yards, namely the programmes of the Surface Fleet, the largest component of the navy, and the Submarines. Major projects are being planned, designed and in the building process.

- The three existing Invincible class aircraft carriers are planned to be replaced by two Queen-Elizabeth class carriers (also named CVF future carriers) in the second half of the next decade.
- The Future Surface Combatants (FSC) programme will replace the navy's four Type 22 frigates, 13 Type 23 frigates, with the Type 45 fighting ships now well under way, and mine countermeasure vessels. In addition, offshore patrol ships and survey ships will be replaced from about 2017 onwards.
- The bulk of the Royal Auxiliary fleet, supplying the navy with fuel, ammunition and stores all over the world, is due to be replaced over the next 15 years.
- The Royal Navy will be equipped with three new nuclear-powered attack submarines equipped with Tomahawk cruise missiles. The initial order quantity is three, but the UK MoD has stated that it is planning a second batch of four. The first of these Astute class submarines has already been delivered to the Royal Navy and is currently undergoing final sea trial and crew training before active commissioning. Boats 2 and 3 are presently under construction at BAE Systems' yard in Barrow-in-Furness. Boat four has an outlined contract and long lead items for boat 5 have been ordered.

These heightened procurement activities come at a time when UK shipbuilding, both commercial and naval ships, has been decreasing for years. The reference points for these various naval construction programs are:

- the current security policy focus on land-centric operations in Afghanistan,
- continued pressure on the defence budget due to a long queue of multiple large-scale procurement projects and
- economic resource constraints due to the economic and financial crisis which has hit UK public finances hard.

To manage the procurement process and to shape the defence industrial structure and the technology base the government has launched a Defence Industrial Strategy (DIS) in 2005. This programme has a clear national focus and is meant

“to promote a sustainable industrial base, that retains in the UK those industrial capabilities needed to ensure national security.”<sup>64</sup> Key objectives of the DIS are

- (1) to maintain appropriate sovereignty over industrial skills and capability in critical areas,
- (2) through-life of weapon systems’ capability management,
- (3) maintaining key and rapid industrial capabilities and skills,
- (4) preserving systems engineering knowledge,
- (5) value for money through competition whilst retaining a focus on national industry and
- (6) improvement in the relation between the Ministry of Defence (MoD) and industry.

In the naval sector, a so called Maritime Change Programme (MCP) and the Maritime Industrial Strategy (MIS), a sub-set of the DIS, is at the core of implementing the DIS. The 2005 DIS was calling for the complete transformation of the UK’s naval industrial base. Long-term agreements, Terms of Business Agreements (ToBA) signed by the MoD and industry recognise the need to restructure the industry and guarantee the sustainable delivery of UK warship construction and through-life support.

The MIS implementation rests on a few substantial initiatives that will fundamentally affect the naval industry:

- A 15 year Terms of Business Agreement (ToBA) with BVT Surface Fleet Limited. BVT is a Surface Ship Joint Venture between BAE Systems and VT Group focussing on both current production and long-term industrial service to the Royal Navy. At the end of 2009 BAE Systems bought the VT part of the joint venture and is now sole operator of the agreement. The company was renamed BAE Systems Surface Ships. At the heart of the agreement is the future Aircraft Carrier programme that was used as a lever for change. The MoD made it clear that no major contracts would be approved until there was progress on consolidation of industrial capacities. At the same time, a MoD commitment to the £3.9 bn CVF programme was a prerequisite for the formation of BVT.
- A 15 year ToBA with Babcock Marine that agrees on the company’s role as UK’s sole provider of submarine support services in return for anticipated efficiency savings and surface support over 11 years.

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<sup>64</sup> UK Ministry of Defence, Defence Industrial Policy, Ministry of Defence Policy, London 2005, p. 6.  
Defence Industrial Strategy, Defence White Paper CM 6697, December 2005. [http://www.mod.uk/nr/rdonlyres/f530ed6c-f80c-4f24-8438-0b587cc4bf4d/0/def\\_industrial\\_strategy\\_wp\\_cm6697.pdf](http://www.mod.uk/nr/rdonlyres/f530ed6c-f80c-4f24-8438-0b587cc4bf4d/0/def_industrial_strategy_wp_cm6697.pdf), p. 6

- An alliance between BVT and Babcock Marine for efficient delivery of surface ship support in the UK.
- A Submarine Enterprise Collaboration Agreement that includes BAE Systems Submarines, Babcock Marine and Rolls-Royce.<sup>65</sup>

In order to bring down costs, the government's naval industrial strategy seeks to adjust the UK's industrial capacities so as to make it compatible with the Royal Navy's future demand. At the same time, emphasis on competition, once the MoD's primary concept for achieving value for money, has been replaced by long-term contracts and a focus on single-source partnering with industry.

### 2.5.2 Perspectives of procurement in the naval sector

According to the MoD, the Defence Budget is planned to increase from £ 32.6Bn in 2007/08 to £ 36.9Bn in 2010/11 in Total Departmental Expenditure Limit (Total DEL).

**Tab. 17: The Defence Budget**

	2001 /02	2002 /03	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10	2010 /11
Total expenditure (near cash)	28.0	27.6	27.9	28.6	29.2	29.2	29.4	30.4	31.9	33.6
Capital (equipment)	6.6	6.5	6.2	6.9	7.0	7.0	7.1	7.2	8.2	8.9
% of Equipment	23.8	23.7	22.4	23.9	23.9	24.0	24.1	23.6	25.7	26
Budget in % of GDP	2.4%	2.5%	2.5%	2.4%	2.4%	2.4%	2.4%	2.5% a*		

Sources: Bernard Gray, *Review of Acquisition for the Secretary of State for Defence*, London, October 2009, p. 68; MoD, *Defence Spending*, <http://www.mod.uk/DefenceInternet/AboutDefence/Organisation/KeyFactsAboutDefence/DefenceSpending.htm>; SIPR Yearbook 2009, p. 242.

Note: Budget figures until 2008 in constant 2008 prices. a\* = estimate

In real terms (i.e. after inflation) it represents average annual growth of 1.5%. By 2010/11 the Budget will be some 11% higher in real terms than in 1997, and represents, according to the MoD, the longest period of sustained growth since the

<sup>65</sup> Bernard Gray, *Review of Acquisition for the Secretary of State for Defence*, London, October 2009. <http://www.mod.uk/NR/rdonlyres/78821960-14A0-429E-A90A-FA2A8C292C84/0/ReviewAcquisitionGrayreport.pdf>, pp. 73 – 74.

1980s.<sup>66</sup> The 2009/10 budget equals approximately € 39bn in (at present exchange rates).

The UK spends on average 2.5% of its GDP on defence, over € 800 per capita, the highest in the EU.

Since 2001/02, MoD funding has increased by 1.2% p.a. in real terms. The proportion of funding devoted to procurement of equipment has remained relatively stable around one quarter of the total budget as can be gleaned from table 1.

According to government statistics, the UK has a total estimated Defence Expenditure Outturn of £ 16,450 million in 2007/08. Off these expenditures £ 1,110 million has gone into shipbuilding and repairing – equalling 6.7% of the total. The total amount of Defence Expenditure Outturn has increased over the five year period by over £ 2,500 million. However the percentage of shipbuilding and repairing has decreased from 7.7 to 6.7%, in absolute figures the expenditure outturn to the naval sector was stable, amounting to roughly £ 1,100 million as Table 2 indicates.

**Tab. 18: Estimated Defence Expenditure Outturn in the UK: Breakdown by Industry Group (£ million)**

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Total	13810	14640	14490	16030	16490	16450
Shipbuilding & Repairing	1070	1160	1060	1100	1150	1110
Percentage of naval sector	7.7	7.9	7.3	6.9	7.0	6.7

Source: UK Defence Statistics of MoD/DASA:  
<http://www.dasa.mod.uk/modintranet/UKDS/UKDS2009/c1/table109.html>

Given the difficult economic situation, it remains to be seen if the UK can afford to spend as much as is planned – namely a generally increased budget in real terms and an increasing share of the budget for procurement. The UK government estimated a negative economic growth of over 3 % for 2009.<sup>67</sup> An independent study on behalf the State Secretary for Defence raises some doubts on the affordability. He argues that a ‘bow wave’ of expenditures still exists but that the present assumption to increase procurement expenditure between 2007/08 till 2011/12 by 6.6% annually “appears to be somewhat optimistic”<sup>68</sup>

The possible future problems of the defence procurements budget are due to a number of factors: among them are cost increases in some major projects as well

<sup>66</sup> MoD  
<http://www.mod.uk/DefenceInternet/AboutDefence/Organisation/KeyFactsAboutDefence/DefenceSpending.htm>

<sup>67</sup> [http://www.hm-treasury.gov.uk/d/bud09\\_complereport\\_2520.pdf](http://www.hm-treasury.gov.uk/d/bud09_complereport_2520.pdf).

<sup>68</sup> Bernard Gray, *ibid.*, p. 95 – 96.

as the general UK tense situation of public expenditure. This has led to a slip on projects, both already in production as well as in the planning stage.

To date £ 1,3bn has been set aside for the construction by BVT Surface Fleet, £ 300 m for work at the BAE Systems yard at Barrow-in-Furness, £ 675 m for the bow section and final assembly, as well as £ 425 m for design and engineering and £ 275 m for design and supply of mission systems.<sup>69</sup>

It is not clear so far to what degree funding pressures might force changes in the equipment programme. The Type 45 destroyers, Queen Elizabeth-class aircraft carriers and the nuclear submarines programme have been putting pressures on the naval procurement budget. The aircraft carrier (CVF) in-service dates have been put back to 2015-16 and 2017-18.<sup>70</sup> Recently Lord Admiral Sir Mark Stanhope admitted that the decision to build the aircraft carriers could be overturned.<sup>71</sup> The construction of the Type 45 destroyer programme suffered from cost growth overruns of £ 354m in the year 2006/07, the biggest overspend of the 20 major MoD projects while the first three Astute submarines are likely to cost almost 50% more than originally budgeted.<sup>72</sup>

The resource constraints and the economic downturn mean that the future equipment plans of the Royal Navy have some degree of insecurity and some projects have already been reduced. The Type 45 destroyer requirement, for example, has halved in the last decade from 12 to six ships. Realisation of the programmes remains subject to the availability of resources:

### *2.5.3 Export markets – insecure prospects for UK naval yards*

The UK naval industry is strong in the design and production of high-end fighting ships. However, it has not been very successful in exporting fighting ships. In a study of the naval sector on behalf of the UK MoD, the Rand Corporation concluded in 2005: “UK shipbuilders face strong competitors in Germany and France, which together have more than 60 percent of the military export market. The United Kingdom certainly has a stronger industrial base to support military sales than it does in the commercial arena, but the match between most current UK military ship products and global demand is not a close one. The military export market is largely a market for modestly priced frigates and small conventionally powered attack submarines. It is not clear that a UK shipyard could build a conventional submarine at a competitive price; UK warships are, in general, too

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<sup>69</sup> Naval Technology 23 Nov. 2009. <http://www.naval-technology.com/features/feature68184/>

<sup>70</sup> Jane's Navy International, Jan/Feb 2009, p. 4.

<sup>71</sup> Naval Technology 23 Nov. 2009. <http://www.naval-technology.com/features/feature68184/>

<sup>72</sup> Jane's Navy International, Jan/Feb 2008, p. 4 - 5.

sophisticated and expensive to make them interesting to potential importers.”<sup>73</sup>

British naval ship design and production are primarily geared at national use. While German and French yards have always relied on a large export component to utilize existing capacities in the sectors of frigates, corvettes, fast attack ships and conventional submarines, British yards have since long focused more on domestic consumption. In that sense, UK’s shipbuilding industry is unique compared with all other European producing countries.

This general observation is confirmed by looking at the details of the UK’s trade statistics for the last decade. Between 1999 and 2008 the UK exported 6 Frigates to Chile and Romania, 4 submarines to Canada and two mine hunters to Estonia and one minesweeper to Guyana. All of these were ex-UK ships, retired by the Royal Navy, but not ships were produced for export. A sizable export during the last decade (a deal worth \$ 381 m) have been four mine hunters exported to Spain in 1999 and 2000 and vessels for the Sultan of Brunei.<sup>74</sup> Additionally there are boats currently under production for Trinidad and Tobago.

However, the Rand Corporation concluded that exports of UK warships do not represent a realistic means of sustaining a competitive shipbuilding industry. The reasons for this conclusion are as follows:

- “UK warships tend to be more complex and expensive than second-tier countries require. “
- “International competition is intense; many governments strongly support foreign sales.”
- “Competing for export orders is a long process with no guarantees of success.”
- “The trend in export orders is towards design and integration, with construction itself undertaken in the ‘importing’ country.”<sup>75</sup>

To conclude: the UK shipbuilding industry (except for small pleasure boats) is completely dependent on the MoD budget. An open question is how the proposed Future Surface Combatant ship will improve the chances of export.

#### 2.5.4 Existing industrial capacities

Today, the UK has three surface-shipbuilding yards, one submarine building site, three naval bases, three upkeep facilities and one submarine refuelling and defueling facility. Part of the Maritime Change programme is to restructure the industry and to realign the contracting relationships between the MoD.

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<sup>73</sup> Rand Corporation, Differences Between Military and Commercial Shipbuilding, London 2005, [http://www.rand.org/pubs/monographs/2005/RAND\\_MG236.pdf](http://www.rand.org/pubs/monographs/2005/RAND_MG236.pdf), p. XVII.

<sup>74</sup> For details see SIPTI Arms Trade Data Basis. <http://www.sipri.org/databases/armstransfers>.

<sup>75</sup> Rand Corporation, *ibid.*, p. 84.

The major contracts in the Future Surface Fleet and the submarine programmes are intended to consolidate the existing tier 1 contractors in the UK naval industry – BAE Systems, VT Group (and their joint venture BVT), Babcock Marine and Rolls Royce. The idea is to offer incentives to company co-operation in order to work more effectively and efficiently. At the same time the MoD wants to maintain an affordable industrial base that is capable of producing the equipment for the Royal Navy domestically. This offers the political and economic frame for the UK naval industry for an industrial consolidation.

The consolidation of the UK's naval shipbuilding sector went ahead following the announcement on 11 June 2009 that VT Group and BAE Systems (50:50) have signed a binding agreement to combine their surface ship and naval support interest in a joint venture company: the creation of BVT Surface Fleet Limited, now fully owned by BAE Systems.

BVT is just one of several industry partners, which together form the Aircraft Carrier Alliance, a partnership set up between a BVT, Thales, Babcock and BAE Systems and the MoD, in which the MoD will act as both client and participant.<sup>76</sup>

The MoD calls such arrangements contracting for capability, rather than volume. Despite these consolidation measures, the naval industry will remain an important employer. Industry estimates that the design and construction of the two aircraft carriers alone will sustain and create around 10,000 jobs across the UK, with at least a thousand personnel expected to be engaged on the three dockyards at the peak of assembly.<sup>77</sup>

## **Profile of major UK naval defence companies**

### **BAE Systems<sup>78</sup>**

BAE Systems is the second largest defence producing company of the world, concentrating with 95% of its turnover almost exclusively on defence products. This strategy is underlined by BAE System's exit of Airbus Industries. The company offers a broad range of products for air, land and naval forces. BAE's naval activities comprise several divisions:

**BAE Systems Surface Ships Limited** is the naval shipbuilding subsidiary of BAE Systems. The division focuses on design and construction of surface ships and their support vessels. BAE Surface Ships employs about 7.000 people and operates in Glasgow, Portsmouth and Filton.

**Submarine Solutions** is the only submarine builder of the UK with about 5.100 employees. The division accounts for the construction of the Astute Class Submarines and the Vanguard Submarines.

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<sup>76</sup> Naval Technology, *ibid.*

<sup>77</sup> Naval Technology, *ibid.*

<sup>78</sup> The research assistance of Katrin Schmidt, WMP, on the company profiles is gratefully acknowledged.

**Integrated Systems Technologies (Insyte)** develops mission systems and information management solutions for the naval as well. BAE Systems currently announced potential job losses in its Insyte division.

BAE Systems was founded in 1999 by the merger of the British Marconi Electronic Systems and naval shipbuilding subsidiary of the General Electric Company and British Aerospace. The former shipbuilding subsidiary BAE Systems Marine was split in 2003 into a submarines division and a naval ships division.

BAE's current Airbus exit agrees with the company strategy of focusing on military divisions.

BAE Systems belongs to the few existing 1 tier contractors in the UK naval industry.

Sales	£ 18,500 million (in 2008)
Employees	105,000
Total	30,200 (UK based air, naval and underwater
UK	systems activities and Insyte) £ 5,327million
Defence production UK	
Products (naval)	Warships; submarines; auxiliary vessel programmes and naval armaments For UK's Royal Navy fleet: Type 45 Anti-Air War Destroyer; Astute class submarine (nuclear attack submarines)
Involvements and partnerships	<b>Maritime Industrial Strategy (MIS):</b> 15 year Terms of Business Agreement (ToBA) between BVT Surface Fleet (BAE Systems Surface Ships) and MoD implementing the <b>Future Aircraft Carrier</b> programme. <b>Future Surface Combatants (FSC) programme:</b> replaces the Navy's Type 22 frigates & Type 23 frigates with Type 45 fighting ships; constructs the Astute class submarine <b>Submarine Enterprise Collaboration Agreement (SECA):</b> with the submarines divisions of BAE, Babcock Marine and Rolls Royce.  <b>Surface Ship Support (SSS):</b> Cooperation with Babcock and MoD delivering surface ship support of Royal Navy warships. <b>MBDA:</b> A missile systems company and partnership consisting of BAE Systems (37.5%),

EADS (37.5%) and Finmeccanica (25%). MBDA is involved in European programs such as the naval supported Aster SAAM/PAAMS.

## Babcock Group

Babcock is an international engineering company headquartered in London. In the UK the company has seven operating divisions. Key customers are the MoD and the Royal Fleet Auxiliary. Babcock is sole provider of support to the Royal Navy’s submarine fleet. It is the Delegated Design Authority for all UK submarines Weapon Handling and Launch Systems. Babcock has been involved in developing the UK’s new Astute Submarines.

Sales	£1,555.9 million
Employees	
Total	15,000
UK	13,800
naval	5,000
Share in military	£633 million (Naval); £302 million (Defence)
Products (Naval)	Providing engineers support; managing naval bases; maintenance and refitting 75% of the Royal’s Navy surface ships
Involvements and partnerships	<ul style="list-style-type: none"> <li>• <b>Maritime Industrial Strategy (MIS):</b> 15 year Terms of Business Agreement (ToBA) with the MoD in terms of submarine support services.</li> <li>• <b>Surface Ship Support (SSS):</b> Cooperation with BVT and MoD delivering surface ship support of Royal Navy warships.</li> <li>• <b>Submarine Enterprise Collaboration Agreement (SECA):</b> Strategic support contractor for the Royal Navy’s nuclear-powered submarine force. SECA includes BAE Systems Submarines, Babcock Marine and Rolls-Royce.</li> <li>• <b>Future Aircraft Carrier Alliance:</b> partnership set up between BVT, Thales, Babcock and BAE Systems and the MoD.</li> </ul>

## Rolls Royce

Rolls Royce is an UK-based global engine and power systems company. The Rolls Royce Group plc consists of several subsidiaries within the UK. The Marine division contains: **Rolls-Royce Marine Electrical Systems, Rolls-Royce Marine Power Operations** and **Nuclear submarine propulsion systems**. Marine is the second-largest company division in revenue.

As part of the UK's Future Aircraft Carrier Alliance Rolls Royce closed a £96million contract in 2008, to provide power and propulsion equipment for the new aircraft carriers. Further Rolls-Royce has currently gained an order to supply lightweight water jets for the United Arab Emirates Navy. Thus, about 300 new engineering jobs might be created in the UK location South Yorkshire. Beside BAE Systems and Babcock Rolls-Royce is the third 1 tier contractor in the UK naval industry.

Sales	£ 2,200 million (Marine); £ 9,082m (total)
Employees	
Total	39,000 (Marine: 8,100)
UK	22,500
Share in military	£ 3,888 million (Defence aerospace & Marine)
Products (naval)	Engines and power systems for naval surface ships, submarines; offshore oil and gas and merchant vessels; electrical systems
Involvements and partnerships	<b>Future Aircraft Carrier Alliance:</b> £96million contract with the MoD. <b>Submarine Enterprise Collaboration Agreement (SECA):</b> with the submarines divisions of BAE and Babcock Marine.

## Thales UK

Thales UK is a specialised provider of services and high-technology component in the naval sector. The company has about 40 locations across the UK. Thales UK's divisions of naval systems and underwater systems are mainly situated in Bristol and Stockport. The UK is Thales' second largest country of operations. The naval sector is one of Thales' key markets in the UK, beside other business areas like Aerospace or Security & Services.

Sales	€ 12,700 million (2008)
Share in military	€ 2,000 million (Naval activities worldwide 2007)
Employees	
Total	68,000
UK	8,500
Products (Naval)	Warship design and systems integration; underwater systems; above water sensors; sonar; ship weapons systems engineering; radar electronic support measures
Involvements and partnerships	<b>Future Aircraft Carrier Alliance:</b> leading the systems design <b>Type 45:</b> delivering integrated communication systems; Electronic Support Measures Astute class submarine: sonar, visual and ESM systems

## QinetiQ

QinetiQ mainly operates in the UK and US as provider of technology services to the defence and security markets. QinetiQ's main customer in the UK is the Ministry of Defence. In 2008 revenues from MoD work were 44%. The company has over 40 sites across the UK. In 2001 QinetiQ arose from the division of UK's former national Defence Research Agency (DERA). Two years later the organisation became a public private partnership due to the investment of US Carlyle Group. In 2009 the Ministry of Defence sold its shares in QinetiQ.

Sales	£1,617 million (2009)
Share in military	-
Employees	
Total	14,000
UK	7,300
Products (Naval)	Integrated naval architecture software for ships and submarines; ship services and consultancy services; onboard decision support for ships and submarines

Involvements and partnerships	<p><b>Maritime Strategic Capability Agreement (MSCA):</b> 15-year, £150 million agreement between QinetiQ and the MoD (since 2008). In the context of the MSCA QinetiQ provides until 2023:</p> <ul style="list-style-type: none"> <li>▪ Submarine Hydromechanics</li> <li>▪ Maritime Life Support</li> <li>▪ Submarine Structures and Survivability</li> </ul> <p><b>Astute class submarine:</b> supporting introduction Naval Design Partnership: Partnership of MOD and Industry. QinetiQ has been involved in the initial phase for the Future Surface Combatant C1.</p>
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#### **BMT Defence Services Ltd.**

Naval design consultancy BMT Defence Services is a wholly owned subsidiary of BMT Group. The company operates from four British locations in Bath, Bristol, Keynsham and Weymouth. BMT Defence has customers in the UK, the EU, Canada and Australasia. Main customers are government departments and further contractors and shipbuilders in the naval sector. As a maritime research and technology company BMT has served the UK Ministry of Defence since 1988.

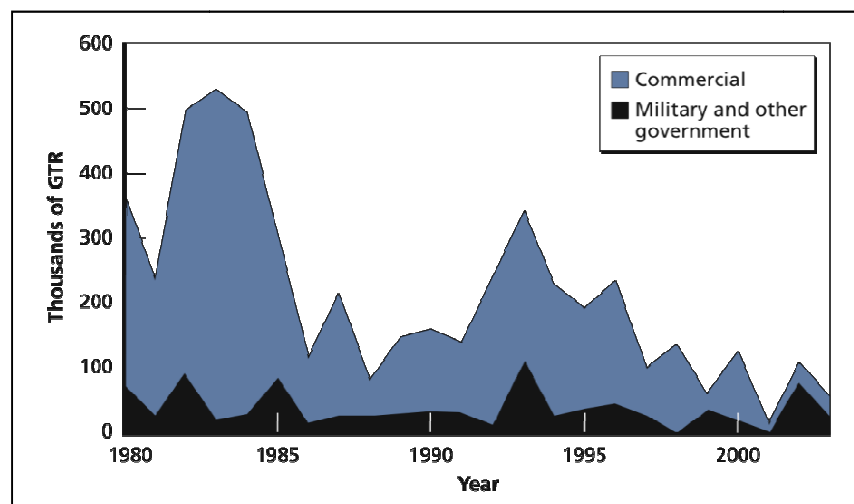
Sales	£ 108.9 million (BMT Group 2008)
Share in military	£ 18 million (turnover BMT Defence in 2005)
Employees	
Total	1,220 (BMT Group)
UK	200 (BMT Defence UK)
Products (Naval)	Naval platform and defence systems design; naval related software products; engineering of specialised naval products
Involvements and partnerships	<p><b>UK's Naval Design Partnership:</b> BMT has been involved in the initial phase for the Future Surface Combatant C1.</p> <p><b>Submarine Support Management Group (SSMG 2009):</b> Industry team with prime contractor Babcock, added by BMT to support the UK</p>

submarine flotilla for the next ten years, providing design and engineering technical services; based on £155million Submarine Engineering Support Contract (SESC).

**Future Aircraft Carrier Program:** Platform design, engineering and simulation for the Queen Elizabeth Class Carriers.

The UK's shipbuilding industry has progressively transformed into a naval industry. Shipbuilding relies largely on the MoD.

**Fig. 14: Commercial and Military Shipbuilding in the UK (1980-2004)**



Source: Rand Corporation, 2005, p. 15

The flipside of this development is that the commercial shipbuilding capacity, once among the biggest in the world, has decreased. Approximately 25,000 employees are engaged in the design, building and service of naval ships in the UK. It can be expected that this number will have to be reduced in the near future.

### 2.5.5 No participation in European and bilateral programmes

Naval shipbuilding in Europe has not been characterized by much collaboration. This observation includes also the activities of Great Britain. One example for the failure of cross-border co-operation in this area is the plan for a common new generation frigate (Horizon), the last major multi-national collaboration in an alliance of Britain, France and Italy, which is now pursued in French-Italian collaboration. Problems of different requirements were a principal reason for the British withdrawal from the project. France wanted Anti-Air Warfare escorts for its aircraft carriers; Italy too required close range capabilities in home waters while the Royal Navy was looking for fighting ships capable of operating in far-away hostile areas. In addition, controversy arose about the selection of radar and missile systems. Despite the formation of a joint venture comprising the national prime

contractors, DNC (France), GEC-Marconi (UK) and Orizzonte (Italy), the UK withdrew in 1999 and began its own national design, the Type 45 destroyers. Presently, not a single larger naval project with UK participation is implemented or discussed in Europe.

### *2.5.6 Scenarios for future developments*

In developing the Maritime Change Programme (MCP) and the Maritime Industrial Strategy (MIS) the British government has decided to support their national industries. The UK government is prepared to split the work on its new aircraft carriers into modules to be built at four different yards in Portsmouth, the North East and Scotland.

The UK MoD is aware that future developments might result in rationalization and consolidation of industry. Already in 2007, a UK Ministry of Defence official concluded: "Fundamentally we need to downgrade our industrial footprint. We need to boil it down to what we need to sustain." It seems possible that by 2016 the infrastructure has been pared down to one surface-shipbuilding facility and one submarine yard, two naval bases, a single up-keep facility and one submarine defueling facility.<sup>79</sup>

Considering the scarcity of resources and the British experience in Public-Private-Partnerships in the defence sector, it can be expected that private financing and services might play a more important role in future. While these partnerships do not solve the problem of funding in the long-term they are a means to overcome short-term financial bottlenecks. An example of such a policy in the naval sector can be found in logistics. The sealift capacity is now delivered through a 25-year private finance initiative with AWSR Shipping Ltd. According to the company they "are a force of 16 UK registered ships in government service and around 2,500 merchant seamen, all of whom are designated as sponsored reserves."<sup>80</sup>

### *2.5.7 Conclusions*

Unite, the Union representing the employees of the defence industry, including the shipbuilding sector, published a brochure with recommendations that are primarily addressed to the British government. Among the recommendations Unite stresses the responsibility of the government for a continued level of investment, including a long-term vision for the shipbuilding and repair sector and the acknowledgement that new technologies and innovations will require investment in new skills and training for workers. The recommendations emphasize the need to base intellectual property rights of products in the UK, to have a research and

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<sup>79</sup> Jane's Navy International, Jan/Feb. 2007, p. 31

<sup>80</sup> Jane's Navy International, April 2009, p. 12.

development content in the UK and to have the manufacture of equipment UK-based.<sup>81</sup> This is a strong call for the maintenance of national capacities in shipbuilding.

The mostly likely development of the UK naval industry over the next five to ten years is

- strong national orientation,
- further consolidation,
- possibly occasionally a cooperative project in Europe or, alternatively,
- cooperation with other international yards in small or medium size projects.

Here are the reasons for this prediction:

**Naval shipbuilding will remain profitable, thus attractive for companies.**

This strategy is attractive to industry for several reasons:

- MoD contracts offer potentially sufficient profit margins and commercial contracts are under strong pressure in Europe given the global market situation.
- Naval shipbuilding offers stability since the MoD is set to maintain a sustainable naval industrial structure in the medium and long-term. Companies can thus count on keeping a skilled workforce (especially design teams).
- As long as the MoD is intent to pursue a nationally based naval industrial policy, foreign companies are restricted to enter the UK market.
- Competition at the national level is limited since the skills and technology required to maintain the full range of high-end military ships design and construction capacity does not allow for more than one tier 1 contractor in the different areas of surface and underwater combatants.

**Further consolidation, on the basis of guaranteed minimum capacities, might be required.**

Given possible resource constraints, the MoD's naval construction program seems ambitious. The present size of the UK shipyards is larger than can be maintained by the present procurement programme. Thus, there is a drive of the MoD to realign the contractor relationship. The previous strong emphasis on competition has given way to long-term sustainable preferential contractual arrangements that guarantee the through-of-life time service of the fighting ships. This MoD policy requires to maintain minimum capacities in the sectors of surface ships (air craft carriers, destroyers, auxiliary) and nuclear submarines.

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<sup>81</sup> Unite, Maintaining a World Class Shipbuilding & Repair Sector in the UK. May 2009, p. 9

However, it cannot be ruled out that limited resources will cause changes of fundamental UK security policies (for example maintaining the nuclear deterrent of the Astute submarines and/or the design and production of two aircraft carriers).

**Europeanization is not on the political agenda.**

The UK is not engaged in any major naval project with other EU partner countries. There is no indication that this policy will change. In contrast to the air defence sector, in the naval sector three aspects work as a disincentive to a potential Europeanization: (1) procurement schedules among the major European navies differ considerably; (2) the type of products procured (with the French and UK nuclear component) differ; and (3) the ownership structure with public (France, Italy and Spain) and privately owned companies (UK and Germany) discourages cooperation.

**Low key international engagements can be expected.**

In contrast to the aerospace sector, where British companies – especially BAE Systems, the second largest arms producing company of the world – are actively operating on an international scale, this type of internationalization has not happened in the past and is not likely to occur in the short- or medium term in naval industry.

The naval sector of BAE Systems, the largest UK naval company, is much more directed to the national market and an orientation on the MoDs procurement policy.

This does not exclude occasional international cooperation or foreign investments in UK naval companies, as for example, US KBR's investment in Devonport Management Ltd., which has now been sold back to Babcock, a British company. Also British companies have invested abroad in the United States. However, these practices remain the exception in the naval sector.

### 3 Compendium of the European naval industry

The perception of “European shipbuilding as a strong and dynamic industry” (the Community of European Shipyards’ Association - CESA) prevailed until 2008.<sup>82</sup> The current financial and economic crisis has changed this situation, with the dramatic drop in demand on civilian markets for container ships in the aftermath of the decline in world trade hitting shipbuilding in all countries. Despite major streamlining and consolidation strategies many shipyards in Europe are currently going through a severe crisis of decreasing business and capacity under-utilisation, and a number of yards (mainly SMEs) have had to file for insolvency. At the same time, government naval procurement programmes serve as a stabilising factor.

To grapple with the present downturn, to anticipate the potential effects for on employment in naval shipyards, and to present alternative future perspectives, it is essential to take a hard-nosed look at the political and economic conditions as well as how the industry is structured and what it is producing.

From the country studies it is possible to draw the following résumé of the most important determinants of the European naval industry landscape:

- Fierce competition exists between European companies in export markets (DNCS/TKMS, DCNS/Navantia etc.).
- The process of looking for new growth drivers for shipbuilders is gaining speed (export and diversification).
- National defence budgets are decreasing.
- Most major naval procurement projects are already under contract for the next five years. There will be only very few new major naval projects in Europe before 2015 (perhaps a new aircraft carrier in France in 2012). All projects are subject to budget constraints.
- Naval systems are becoming increasingly complex technological systems dependent on electronics. Navy missions are changing (interoperability, network-centric warfare, multi-purpose vessels), with more stress being put on intelligence, detection and communications).
- The number of ships in service is decreasing.
- Governments are increasingly buying overall service packages (armed vessels and maintenance, crew training, simulators, including financing and, in the case of exports, also offset measures).

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<sup>82</sup> <http://www.cesa-shipbuilding.org/market.phtml?sid>

- The civilian sector of the shipbuilding industry is suffering more from the crisis. This is contributing to a large degree to the negative economic situation of shipyards and suppliers in several countries.

### **3.1 Current balance sheet: The crisis of the shipbuilding industry**

#### *3.1.1 Market and products*

European shipyards still have a significant share of the worldwide market, with shipyards in EU countries accounting for approximately 20% of overall shipyard turnover worldwide. Their products include:

- Naval vessels (surface combat vessels and submarines): These are primarily high-technology tailor-made ships based on mission requirements, produced in small numbers, but also include less sophisticated auxiliary ships.
- Commercial ships: either mass-produced standard vessels (such as tankers, ferries, container ships); or cruise ships built by specialised yards in small numbers.
- Mega-yachts (for individual owners): These are customised ships, produced to individual specifications.
- Niche products (such as special purpose ships), produced in small series or to individual specifications.
- Offshore products such as oil platforms, wind energy constructions and other facilities (a fast growing market).

If one looks only at the volumes produced, the global shipbuilding market is dominated by the mass production of commercial ships, with over 12,000 units – mainly container ships – being produced between 2000 and 2008. Besides this large market for technically comparatively simple container ships there are several other more specialised niche markets. Over the last twenty years there has been a fast growing market for cruise liners and some smaller markets for several special types of ship (such as ferries and mega-yachts). Compared to these civilian markets the world “export” market for military ships is small. In the last ten years (1999 - 2009) the number of high-technology ships built for navies only reached 75 units, mainly frigates, corvettes and OPVs (excluding the closed markets of China, Russia and USA).

#### **Financial Crisis**

The industry in the EU is currently confronted (to varying degrees) with the effects of the global financial crisis. Many yards focused solely on the commercial market (particularly container ships), but also many with a mix of both commercial and naval production, are struggling with under-utilised capacities. In the past, several

shipyards followed a strategy of filling under-utilised capacities in the naval sector with commercial ships and vice versa. This option changed dramatically at the end of 2008 with the advent of the financial crisis. While the world fleet grew by over 8% annually between 2004 and 2008, the industry is now being hit by reduced maritime trade volumes and overcapacities in commercial ships. This has resulted in a dramatic downturn in orders for commercial ships, including cancellations, postponements or changes in specifications of ships already in the building process, coupled with downward price pressure.

This situation is characteristic of the shipbuilding industry in most EU countries. However, shipbuilders in different countries are affected to different degrees. Shipbuilders with a comparatively high order backlog of naval ships (BAE Systems in the UK, DCNS in France, and HDW-TKMS for the submarine sector in Germany) are much less or not affected at all. The UK shipbuilding industry is generally less affected, having been focused almost entirely on naval ships for many years.

Generally speaking, it can be said that the impact of the crisis is proportional to shipbuilders' involvement in non-military shipbuilding activities. Purely civilian shipbuilders such as STX in France have been hit hardest, with purely naval/military shipbuilders such as DCNS, BAE or Navantia being less affected. In the middle, we find such twin-purpose shipbuilders as Fincantieri or TKMS. For them, the impact of the crisis is dependent on their capacity to generate synergies between civilian and military activities. So far it seems that in Europe only Fincantieri has managed to generate such synergies, meaning that it is less affected by the crisis.

The following table shows the employment figures for major shipbuilders in Europe in the civilian and military sectors. It also highlights to what extent these shipbuilders are currently affected by the downturn in demand due to the current crisis.

**Tab. 19: Employment figures**

	France		Germany		Great Britain		Italy		Spain		Norway	
Total direct employment shipyards	20.000		21.000		22.000		10.000		7.500			
estimate on military dependend employment	65%	13.000	30%	6.300	85%	18.700	30%	3.000	80%	6.000		
Name/ overall employment	DCNS	12.500	TKMS (*)	8.100	BAEs/ BVT	9.500	FINCANTIERI	9.200	NAVANTIA	5.300	AKER Yards	16.000
National employment		12.500		5.000						5.300		1.400
Name/ overall employment	STX	3.000	Lürssen	1.400	Babcock	8.300						
National employment												
Name/ overall employment	CMN		Flensburger S	700	DML	4.800						
National employment			Peene Werft	820								
			A&R	350								

	Netherlands		Denmark		Finland		Sweden		Greece		Total	
Total direct employment shipyards											80.500	
estimate on military dependend employment											47.000	
Name/ overall employment	DAMEN shipyards	8.800	ODENSE steel shipyards	7.400	AKER Finnyards	3.900	TKMS-Kockums	1.000	Hellenic shipyards	1.950		83.650
National employment		2.100		3.200		3.900		1.000				34.400
									ELEFSIS	950		

Impact of crisis

	strong
	medium
	weak

(\*) : for TKMS

	HDW
	B&V

Source: own research

## Naval Demand

After a sharp decrease in military expenditure towards the end of the Cold War, defence and procurement spending in Western Europe has been relatively stable over the last decade, with some EU governments even deciding to gradually increase their procurement budgets in the last few years. However, given the fact that military equipment has a tendency to increase in price from one generation to the next, it is obvious why all European navies are facing growing constraints in their procurement budgets. Generally speaking, restricted public budgets will to a large degree limit possibilities for growing military budgets. In most European countries public debate is calling for more cost discipline and further cuts in defence expenditure. As a consequence of these restricted budgets, total fleet size is decreasing in many European navies (going down in France for example from 89 units in 2009 to 72 in 2015). Although no detailed forecasts exist, one can see from military planning documents and political discussions in larger European countries such as Germany, France, Britain and the Netherlands that the decrease of naval units in service might be up to 20% over the next ten to fifteen years.

Having said that, the decreasing number of naval units can also be seen as a consequence of the fact that several navies are switching to a concept of multi-mission ships. As an example, French-Italian FREMM class ships serve as frigates for deep attacks, anti-submarine warfare and anti-aircraft defence, thereby replacing three types of ships. Those ships are much more complex, with a prevalence of electronic systems and a far more modular design. Furthermore, navies are trying to compensate the reduction of fleet size by greater operational readiness, leading to developing capacities for contractors and shipyards specialising in maintenance.

Another consequence of reduced procurement budgets is the evolution of a market segment for used second-hand-ships. The renewal of western naval fleets will release several ships that could interest countries with more limited resources. As an example of this trend, Romania has bought vessels from the Royal Navy. One can expect that there will be an evolution of refurbishing and modernising activities. Companies like Fincantieri have started to position themselves in this emerging market.

The trend of growing budget constraints is not likely to change in the medium term, with no major increase in military or procurement expenditure announced in any of the EU countries.

**Tab. 20: Equipment Expenditure of European NATO Countries (23 countries)**

(Figures in US\$ bn. at 2005 prices and exchange rates)

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
43.2	44.3	42.9	44.5	45.2	45.7	45.1	46.3	46.3	48.4

Source: SIPRI Yearbook 2009, p. 251

Naval combat ships have a long life cycle. Navies decide only every 20 to 30 years on a new generation of naval platforms. At present, most of the major projects (aircraft carriers, submarines, frigates) in EU countries are under contract and already in the design or building phase. These new warships will come into service between now and 2020. This situation is enabling some of the prime contractors concerned (BAE Systems, DCNS, TKMS, Fincantieri, Navantia) to utilise at least part of their production capacity in the medium term. However, demand from the various national navies is too small to fully utilise existing capacities. In a medium term 5-year perspective, the timeframe for military procurement decisions, new projects not already contracted will generally be for such auxiliary ships as troop transporters, oilers and tankers. For combat ships, there are no new major programmes planned. This can be seen as an opportunity for joint European development or procurement in the next five years.

As a general tendency EU naval shipbuilders (especially with regard to frigates, submarines and fast attack crafts) have become increasingly dependent on exports over the last 30 years, as illustrated by the example of German submarine production, where, of the 117 submarines produced over the last four decades, only 35 were ordered by the German Navy, with approximately 70% of all units being exported.

The large shipbuilding yards in the UK and partly also France represent a certain exception to this trend due to the fact that these shipyards are heavily involved in the production of nuclear powered submarines and aircraft carriers. But even these shipyards are increasingly focusing on the international market. From a European point of view, any cooperation in the nuclear shipbuilding sector is only open to bilateral agreements between France and the United Kingdom.

Potential customers for warships are small in number. Some of the largest markets, including the USA, Russia and China, are restricted for political reasons<sup>83</sup>. Other potential markets such as India, Brazil, Venezuela, Chile, South Africa, South Korea, Turkey, Algeria, Saudi Arabia and a few countries in the Near and Middle East etc. are highly competitive. Given the extremely small number of units being purchased, any engagement in this market is risky. Only one of the potential suppliers (or consortium of suppliers) will receive the order while all others will go empty-handed. This can mean make or break for a shipyard. In addition, the

<sup>83</sup> The planned French export of its "command and projection boats" (BPCs) shows that under specific political conditions even restricted markets may offer opportunities.

financially potent importers are increasingly insisting on offset deals, with the first unit of a new order often being built at the prime contractor's yard and each additional unit transferred to an increasing know-how degree to the importing country until the latter is capable of producing domestically.<sup>84</sup>

Although continuing international demand for naval systems can be expected, the financial crisis is also beginning to show its effects on the naval export markets. Naval shipbuilding programmes have either been postponed (Canada, for example) or reduced in size (South Africa). Market intelligence sees a potential for 61 naval ships with a total value of EUR 23 bn. for the next five to ten years in Algeria, Brazil, India, Israel, UAE and Qatar.<sup>85</sup> It is seen as likely that the export market will experience further limitations. Countries like Greece for example might be forced to postpone procurement projects for the FREMM frigate due to the current financial crisis. Prospects for different companies will vary and one single order can mean survival of a shipyard and almost full capacity utilisation. At the same time, failure to sell abroad can result in extreme economic difficulties and employment problems.

### *3.1.2 The industry: naval sector footprints*

National governments remain the primary sources of export contracts in most EU countries. The structure of the industry however varies greatly from country to country. Five European countries (France, Germany, Italy, Spain, and the United Kingdom) are trying to sustain a diversified naval industry capable of designing and building the whole range of surface combat ships and submarines. The intentions of these countries are to maintain core technological capacities and to guarantee the supply and lifelong service of ships procured by navies (in the case of France and the UK including aircraft carriers and nuclear powered submarines). This group of countries is followed by a cluster of countries (led by Sweden and the Netherlands), which have built high-technology ships in the past but are finding it increasingly difficult to maintain and sustain the whole range of core technologies. A third cluster includes countries like Poland, Romania, Croatia and Greece, where a significant number of jobs still depend on shipbuilding. Shipyards in these countries are only engaged in building complex combat ships to a limited degree, with their primary focus on building ships under licence, the construction of technologically low-end ships, ship repair and services. The number of shipyards in Europe capable of designing and building high-end surface combat ships and/or submarines is very small – not more than one dozen.

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<sup>84</sup> Even in Europe the deals are complicated due to the fact that almost all countries call for compensatory measures and offset deals.

<sup>85</sup> BVN Marketing, Oliver Wyman consultants quoted by Reinhard Kuhlmann, TKMS (presentation at a workshop on 9 Feb. 2010)

**Tab. 21: Country-related naval competences**

Type	Countries	Shipyards
Highest technological competences, maintaining a strong national naval sector	France	DCNS
	Germany	TKMS, Lürssen
	Italy	Fincantieri
	Spain	Navantia
	United Kingdom	BVT Surface Fleet
Core competences in certain fields but probably difficult to maintain in future	Sweden	Kockums
	Netherlands	Damen
Lower technological competences to develop modern and complex combat ships on their own	Poland	Naval Shipyard Gdynia (NSG)
	Greece	Hellenic Shipyard
	Romania	Santierul Naval Mangalia
	Croatia	KRALJEVICA Shipyard Ltd.

*Source: own research*

Shipyard ownership (especially yards with a high share of military contracts) also varies between 100% private ownership in countries like Germany, dual private/public ownership (Italy or France) and 100% state ownership (Navantia in Spain).

How many jobs are related to shipbuilding in Europe? Everybody knows that Europe's shipbuilding industry has suffered dramatic job losses over the last decades. Sweden's shipbuilding industry, for example, employed a workforce of some 30,000 in the 1960s, yet only 10% of that figure by the mid-1980s. The French state-owned DCNS (or its predecessor companies) employed some 30,000 people in the 1970s, shedding 40% of jobs in the 1990s. Job losses have been experienced in all countries. The situation stabilised in most countries between 2002 and 2008, but the current economic crisis is expected to cause further job losses in the range of 10 to 15% between now and 2015.

The total of direct jobs in the EU shipbuilding industry was estimated as being between 140,000 and 150,000 in 2009<sup>86</sup>, with a factor of 2 - 3 used to calculate the number of indirect jobs dependent on shipbuilding contracts among suppliers (such as equipment and weapon suppliers) and service companies. In total there

<sup>86</sup> See Tholen and others 2009

could be as many as half a million jobs related to shipbuilding activities in the EU, with approximately 1/3 of this workforce dependent on naval shipbuilding.

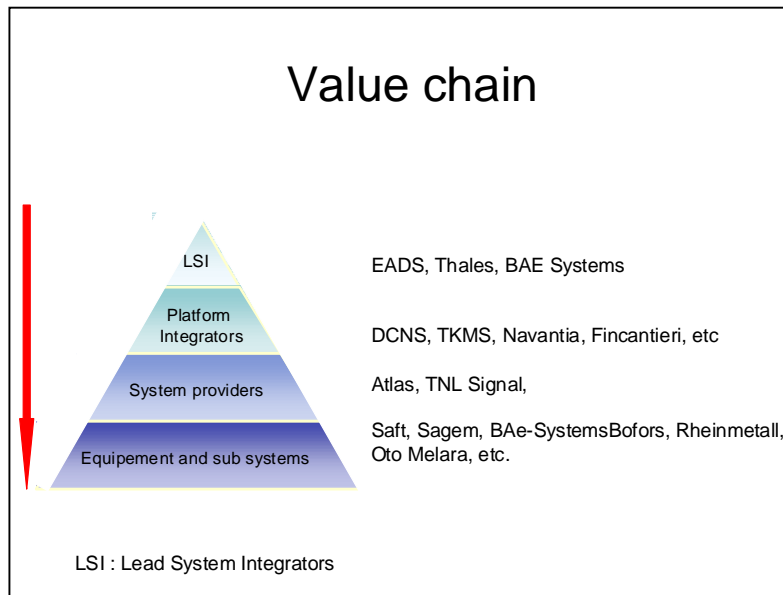
The overall number of jobs is expected to decrease due to the crisis in the civilian ship market. However, national military procurement budgets are being used in several countries to stabilise employment in shipyards and supply industries.

**Tab. 22: Employment in Shipyards**

<b>Employment in Shipyards</b>	
	<b>2008/2009</b>
Bulgaria	3 520
Denmark	4 000
Germany	20 180
Estonia	2 500
Finland	4 500
France	17 000
Greece	2 470
Italy	9 050
Croatia	9 700
Lithuania	2 120
Latvia	1 900
Netherlands	11 500
Norway	3 910
Portugal	1 240
Poland	8 000
Romania	12 600
Spain	7 820
Sweden	1 152
UK	18 180
<b>Total</b>	<b>141 342</b>

*Source: Ludwig/Smets/Tholen 2009, p. 12 and own estimations*

**Fig. 15: Value chain**



*Source: own research*

Due to the fact that shipyards account for roughly 30-40% of the total production cost of a ship, any analysis of the industry's economic profile also has to take into account the marine equipment sector. This is highly heterogeneous, consisting of a large number of often relatively small companies (estimates range from 5,000 to 9,000 suppliers worldwide). According to the European Marine Equipment Council, European marine equipment manufacturers and suppliers represent a cluster of more than 2,500 companies, giving them a very significant role in the European maritime industry as a whole.<sup>87</sup> European marine equipment suppliers are not wholly dependent on European shipyard customers, with many also active in other business areas, such as the automotive or aviation industry. Furthermore several larger companies have licensed Asian manufacturers to produce for them at sites near to Asian shipyard customers.

- Direct employment in the European maritime equipment sector is estimated at more than 287,000. Indirect employment amounts to about 436,000.
- Average yearly turnover is estimated at around EUR 26 billion.
- The export share is nearly 46%.
- 2010 growth is forecast at 2.5% in production, 1.5% in added value and 1% in employment.
- The marine equipment sector is the third largest in the whole maritime cluster after shipping and fisheries.

The role of marine equipment manufacturers has become more important over time. Germany's shipbuilding supply industry, with its more than 400 companies

<sup>87</sup> [http://www.emec-marine-equipment.org/marine\\_equipment/facts\\_and\\_figures.asp](http://www.emec-marine-equipment.org/marine_equipment/facts_and_figures.asp)

and around 76,000 employees, is the second largest in the world (after Japan). Technological progress has resulted in the role of the marine equipment industry clearly increasing. While in the 1970s most of the work related to a shipbuilding contract was carried out at the shipyards themselves, nowadays the share of marine equipment is estimated at 60 - 70% of a ship's total cost, rising to 70 - 80% in the more specialised segments<sup>88</sup>

On the civilian side of the shipbuilding industry there is already a strong European dimension with common industrial strategies being defined within the framework of LeaderSHIP 2015 (an EU-level industrial policy dialogue platform and programme involving all stakeholders, including trade unions).<sup>89</sup>

The existence of a fluent sectoral social dialogue at EU level for shipbuilding and ship repair is a help in the current crisis. Set up in 2003, this was the first ever social dialogue at European level in the metal sector. The social partners are currently developing a number of joint responses and actions to deal with the impact of the crisis. The social partners both confirm that the existence of the shipbuilding social dialogue has given the sector much greater visibility in Europe.<sup>90</sup>

### **National Champions**

The number of major companies engaged in the naval shipbuilding sector is relatively small compared to other lines of business. Naval shipbuilding is clearly dominated in all European countries by a few national champions. The emergence of national champions in the major countries is an indication of the industry's past consolidation, with a series of mergers and acquisitions (mainly within national borders, except for Fincantieri's acquisition of Manitowoc Marine in the USA) having taken place over the last decade. The various restructuring waves have led to a strong trend towards concentration on a handful of companies:

- UK: BAE Systems is the world's second largest defence company after Boeing (Sipri 2009). The company is in the process of becoming the UK's sole warship design company.<sup>91</sup> In 2009, it absorbed the UK's other major shipyard, the VT Group. It has some 12,000 employees working in the naval sector. BAE Systems has a twofold business strategy: It has (1) signed a 15-year agreement with the British government on a common industrial strategy that guarantees to sustain minimum capacities and (2) BAE Systems is clearly focusing on international markets, extending its successful internationalisation programme in the aerospace and land

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<sup>88</sup> ECORYS Consult 2009, p. 8 - <http://english.ecorys.nl/transport-sector/ports-and-maritime-transport-2.html>

<sup>89</sup> [http://ec.europa.eu/enterprise/sectors/maritime/shipbuilding/leadership2015/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/maritime/shipbuilding/leadership2015/index_en.htm)  
<http://www.emf-fem.org/Industrial-Sectors/Shipbuilding/LeaderSHIP-2015-High-Level-Group-meeting>

<sup>90</sup> <http://www.emf-fem.org/Areas-of-work/Social-Dialogue/Sectoral-level-shipbuilding>

<sup>91</sup> except Thales UK, in charge of the CVF aircraft carriers design

systems sectors to the naval sector as well. The UK government is the main customer in the naval sector and the UK's wide-ranging procurement programme to update its naval fleet (nuclear powered submarines, aircraft carriers, frigates and auxiliary ships) gives BAE Systems comparatively good domestic business prospects, although exports seem essential for BAE Systems to fully utilise capacities. Other important companies in the naval sector in the UK are Babcock and Thales UK.

- France: DCNS (75% state-owned, 25% by Thales) also has good business prospects (French Navy orders for the FREMM frigate and for submarines). Both DCNS and Thales concentrate their business on defence, with their main customer being the French Navy. However, exports and diversification into non-military areas (in the field of nuclear technology as well as renewable technologies) is increasingly considered as a strategic option. For the next years the economic situation of both DCNS and Thales seems to be quite comfortable.
- Germany: TKMS is by far the largest naval shipbuilder in Germany. Together with the family-owned Lürssen shipyard, it is engaged in a consortium for a corvette programme. Both companies are also the contractors for the German Navy's new frigate programme. However, TKMS is in economic difficulties due to both a slump in commercial ship orders and a lack of export orders for its current frigate programme. The submarine sector (HDW) is more stable, with capacities fully utilised in the medium term.

With a question-mark remaining over its success in shipbuilding and exports of surface vessels, TKMS has changed its business strategy drastically, planning to exit the commercial ship sector completely and to sell parts of its international activities to the Arabian investor Abu Dhabi MAR. This move is intended to inject new capital into the company and make it more competitive in the so-called MENA markets (Middle East, North Africa).

- Italy: Fincantieri is 90% state-owned and is Italy's major naval shipbuilder. Though the company is facing problems in the commercial shipbuilding sector, the share of military work is helping to stabilise the company, at least in the short term. Fincantieri is traditionally very active in European cooperation projects, working on joint programmes with France's DCNS on FREMM frigates and with Germany's HDW on submarines. The recent acquisition of the US-based Manitowoc Marine shipyards gives it potential future access to the very restricted US market, including the opportunity to win the new LCS (littoral combat ship) contract in competition with General Dynamics.

- Spain: Navantia is 100% state-owned and has emerged after several restructuring steps as Spain's national champion with an almost monopolist position. Its main customer is the Spanish Navy with its plans to increase its fleet size, though the Spanish debt crisis is casting a shadow over these. In the last decade Navantia has exported naval vessels to several countries, including Australia, Turkey and Pakistan. It has presently sufficient military orders to maintain its industrial capacities. The company pursues a policy of international cooperation and has won several contracts due to its strategic partnership with the US company Lockheed Martin.

These national champions are both cooperation partners and competitors in export markets at the same time. This competitive situation is quite clear in the market for major surface combat ships, with the French/Italian FREMM frigate design and the German F-125 targeting the same group of customers. In addition, BAE Systems, which has not engaged in exporting frigates and corvettes during the past years, also hopes to enter this market with its new Future Combat Ships concept.

#### **Different situation on the market for smaller combat boats and patrol vessels**

Modern large naval vessels have become so expensive that they are now procured in small numbers only. In addition, open-sea operations in all parts of the world are of relevance only to a small number of states. A number of countries with limited budgets and small fleets (e.g. Croatia, Bulgaria) would also like to secure their resources and coasts, but are not able or willing to buy frigates just for guarding operations and coastal protection. For such tasks there is an increasing demand for inexpensive, relatively low-tech ships with equipment designed specifically for coastal protection or SAR missions.<sup>92</sup> Cheaply built (near-merchant ship standards), but with good sea-going capabilities, these ships are optimised for prolonged surveillance and presence (fishery protection, securing offshore facilities) and for law enforcement patrols (smuggling, piracy). They also perform numerous (semi) civilian or police tasks. Not operating against military threats, it is possible to make concessions with regard to their capability spectrum. An example of this increase in the construction of coastal patrol vessels is the delivery of 90-meter, 1,500-ton patrol vessels to the Chilean and Columbian Navy by German shipbuilder Fassmer. This example also shows that civilian shipyards are (successfully) attempting to enter this market. Traditional naval shipyards like the Dutch Damen Group design and deliver patrol vessels, for example to the Albanian Navy, However such smaller vessels with their lower technological standards can be built in smaller countries using their own capacities. Bulgaria's "PLAN 2015" for example provides for the country to start producing its own classes of small-size coastal vessels and a small corvette.

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<sup>92</sup> See also Ship and Boat International Dec. 2008, p. 7

### **Submarines: a very specific market**

In the market for conventional submarines there are just three prime contractors competing against each other. Over the last two decades, the conventional submarine market has been dominated by sales of boats in the 1,400 - 1,800-ton bracket, as characterised by German shipbuilder TKMS's best-selling Type 209 submarine, its Type 214 successor and the rival Scorpène jointly produced by the French DCNS and the Spanish Navantia.<sup>93</sup>

Obviously there are only very few companies left which are in a position to build high-end submarines for the world market. All modern conventional submarines have high capabilities, with air-independent propulsion (AIP) technology enabling long-duration submerged operations and reducing the indiscretion ratio<sup>94</sup>. However, any acquisition of even a small number of modern AIP submarines represents a significant investment for a state. Furthermore, operating any submarine force in a safe and efficient manner demands the highest levels of maintenance, skill-training and operational control. As a result, smaller navies with limited financial and technical resources – while attracted to the attributes of these modern conventional submarines – have postponed their acquisition plans. Others like the Netherlands (Walrus class) are concerned by the projected costs of replacing their existing diesel-electric submarines which are now approaching the end of their operational lifespan.

#### *3.1.3 Governmental security and industrial policy*

### **Changed Security Environment**

The security environment in Europe has changed drastically over the last two decades. It is commonly perceived that the defence of national coasts and borders is no longer the main task of EU navies. The increasing number of international missions is bringing new tasks to naval forces (UN missions, anti-piracy and anti-terror campaigns, asymmetric warfare), orienting navies towards more flexible concepts of expeditionary forces with robust peace-keeping and peace-building deployments in different parts of the world.

The EU first formulated its security strategy and objectives in 2003 in its European Security and Defence Policy (ESDP) and its Common Foreign and Security Policy (CFSP). However there still remains a wide gap between these policy declarations

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<sup>93</sup> In the aftermath of this cooperation, Navantia went on to develop its S-80 submarine design on its own and generally attempt to build on its international export successes. These include surface vessels (like the Aircraft Carrier Chakri Naruebet for Thailand built at the Spanish Bazan Shipyard).

<sup>94</sup> Indiscretion ratio – ratio of time spent snorting to total operating time on a mission)

and their implementation at the level of the various armed forces within the EU.<sup>95</sup>

The changed security environment requires new security architectures, with alterations to force structures and armaments. Current security policy has a focus on:

- land-centric and air-centric operations (e.g. in Afghanistan, Kosovo and other UN peacekeeping missions);
- naval operations (the anti-piracy mission around the Horn of Africa and anti-terrorist operations as part of Enduring Freedom);
- forces' interoperability.

Several governments reacted to the new EU policies by re-casting their long-term navy strategies (e.g. Germany: Objective Navy 2025; France: Plan Prospectif à 30 Ans (2005) and Livre Blanc (2008); UK: Maritime Change Programme and the Maritime Industrial Strategy (2005)). The general trend in these strategies (and their associated weapon platforms) is for navies to be able to operate for extended periods of time far from base. However, the procurement plans for the next ten to fifteen years were largely decided before the new policies and therefore only partly take the changed security environment into account.

The cornerstones of future naval procurement and the various construction programmes for surface ships and submarines are:

- highly competitive priorities in procurement for air-, land- and naval-centric operations with clear limits on overall expenditure;
- a strong emphasis on troop readiness (rapid response potential) especially with regard to international operations. This leads on the one hand to increasing personnel costs, and on the other hand to projection capacities as illustrated by the emergence of new concepts of amphibious warfare boats such as France's BPC and Spain's BPE;
- the assumption that combat losses of naval ships in times of war will be rare (the last losses occurred during the Falklands-Malvinas war). This means that any replacement of ships will only take place at the end of the ships' life-cycle; and
- continuing pressure on defence budgets, with a long queue of large-scale procurement projects facing budgetary constraints due to the economic and financial crisis and its hard-hitting effect on public finances.

It can be expected that naval procurement budgets will remain at best stable in

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<sup>95</sup> There will be political changes in the institutional environment following the entry into force of the Lisbon Treaty, part of which involves the removal of the pillar structure, linking the hitherto mainly intergovernmental CFSP more closely to the Commission – primarily through the office of the High Representative of the Union for Foreign Affairs and Security Policy who heads the EDA, the WEU, the CFSP whilst being Commission Vice President at the same time. The impact of this remains to be seen.

real terms. They will therefore not be large enough to enable the implementation of all modernisation and restructuring plans. It can be anticipated that the number of ships and submarines (i.e. naval military platforms) will decrease in most EU navies in the foreseeable future. As a result the number of orders or units ordered from shipbuilders will go down. Business opportunities may arise in life-extension and refurbishment programmes for ships and lifelong maintenance, as well as in the strong growth of a second-hand market for used ships.

### **Government Industrial Strategies**

There is general political agreement among the governments of the major EU countries on the need to maintain core technological capacities in the naval sector. This is also an ESDP objective. However, the pursuit of this objective is largely taking place with national interests in mind (technology, employment, and regional economics). There is a perceptible dearth of European bilateral, multilateral or joint programmes in the naval sector, with European countries following different strategies to maintain their core competencies in the naval sector.

The French government is clearly actively involved in shaping a high-performance industrial player in the naval sector by facilitating cooperation between DCNS and Thales. The French state is a majority owner of DCNS and also an active supporter of an export-orientated strategy for its domestic military industry.

The British government is not itself an owner of major industrial capacities but has decided to develop a joint long-term (15-year) government-company industrial development plan with the industry. This plan guarantees a certain utilisation level of naval industrial design, production and service capacities through national procurement programmes.

The Spanish government has actively facilitated and promoted the development of Navantia as a naval industrial group.

The German government, by contrast, has only demonstrated limited engagement in developing such a coordinated public/private approach. The solution chosen by TKMS with the acceptance of Abu Dhabi MAR as an industrial and financial partner is a signal to search for success in an export-orientated strategy without active German government engagement.

The Italian government is facilitating the development of Fincantieri as Italy's main naval shipbuilder and favours cooperation with Finmeccanica, the main Italian provider of military electronics, and with major players abroad (joint projects with DNCS and with TKMS in submarine production).

In the past the different ownership structures of naval shipbuilders, with a strong emphasis on state-owned shipbuilders in France, Italy, Spain and also Poland in contrast to their exclusive private ownership in the UK, Germany, Sweden and the Netherlands (partly with co-ownership by private equity companies) have not facilitated joint EU projects in the naval sector. The situation is not comparable with

the military and civilian aircraft industry where the French state, the Spanish state and the German “Laender” hold shares in Airbus, the most quoted example of a truly European company. However, it would seem that state participation in shipbuilders’ capital may play an even greater role in the future in Italy and in France.

### **Role of EDA and European procurement**

Since the so-called ‘Klepsch Report’ of 1978, the European Parliament has repeatedly and consistently been calling for better integration of defence production among EU Member States. The creation of the European Defence Agency (EDA) in 2004 saw the EU moving towards a more proactive policy. The EDA aims to back up the European Security and Defence Policy via greater harmonisation of weapon systems and the strengthening of European defence competences and capabilities in such fields as intra-community transfer on procurement.

The EDA tries to create incentives for Member States to opt for European solutions and to make the EU more autonomous and less dependent on non-European resources and technologies. All EU Member States (with the exception of Denmark and Romania) belong to the EDA. Taking these facts into consideration, the EDA could, at least in theory, become a strong driver towards “europeanising” the naval sector.

But despite these ambitious aims at the EU policy level, the EDA has not been given an operational mandate to manage procurement programmes. The EDA is totally dependent on participating members’ willingness to cooperate. Up to now such willingness has been limited. It must be recognised that the defence equipment market and in particular the procurement programmes of national navies remain under close watch by Member States, protecting their national core competences in the fields of defence and naval technology. In the naval sector in particular there is a strong tendency towards preferential contractual agreements with domestic companies.

These are strong arguments in favour of a continuing national orientation in the sector, as described in Scenario 1 below. Looking beyond EDA towards NATO or the implementation of the EU Battle Group concept under the umbrella of a common European Defence and Security Policy (ESDP), no such institution has been able to achieve sufficient harmonisation and integration of defence industries, weapon systems and procurement projects, meaning that as yet such institutions cannot be seen as a strong hub of cooperative projects.

EDA has three categories of programme and project activities in addition to its policy work publishing reports and papers on long-term visions or collecting data on defence expenditure:

**Category A:** Member States agree to cooperate in projects under the umbrella of EDA, with the budget for such joint projects set by Member States. Up to now, this has happened mainly (but to a limited extent) in research.

**Category B:** individual Member States offer cooperation in projects, requesting other member to opt in. National budgets are used to finance the cooperation.

**Category C:** The electronic bulletin: EDA provides information in its electronic bulletin on procurement opportunities and publishes tenders.<sup>96</sup>

In all three categories the EDA has no significant programme targeting the naval sector. As confirmed by our interviews and our analysis of relevant documents, the EDA is seen as playing only a minor role in the foreseeable future.

The restricted role of the EDA in Europeanisation is illustrated by its small operational budget of EUR 6-7 million per year.

## 3.2 State of knowledge and prospects

### Economics and government policy

1. The financial crisis has led to an under-utilisation of civilian shipbuilding capacities in EU countries. The naval share currently accounts for roughly 30% of demand and employment.
2. The present capacity available for military shipbuilding in the EU is larger than can be maintained by current procurement programmes. The crisis in commercial shipbuilding prioritises the need for a certain (downward) adjustment of capacities in several European shipyards. A further consolidation of companies, including insolvencies, cannot be ruled out. The continuous utilisation of existing R&D and production capacities is becoming increasingly complicated.
3. Naval procurement programmes are helping in stabilising several shipyards; however, these programmes are not large enough to fully utilise currently available industrial capacities.
4. The increasing cost of weapon systems will reduce the number of platforms produced and also the workforce employed in the industry. The number of ships in service in the navies of EU countries will continue to decline.
5. European governments play a decisive role in future developments in the naval sector. The state is the main buyer and in many cases the facilitator for exports. The various governments are protecting and supporting their national industries. Despite preaching the need for competition, warship building in Europe is an example of governments practising policies favouring domestic yards. Within the naval sector there is a strong trend for

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<sup>96</sup> <http://www.eda.europa.eu/procurement.aspx>

preferential contractual arrangements with domestic companies. Political directives to enforce competition between defence companies would change the structure of the industry and its economics.

6. It cannot be ruled out that scarce budgetary resources, high public debts and the credit crunch will cause a reversal of fundamental security policies, including the cancelation of already agreed procurement programmes.
7. The security environment in Europe has changed. Governments have already adjusted their naval strategies and procurement policies. However, the changes regarding weapon systems and armaments will be slow. The major programmes in the naval sector for the next ten to fifteen years have already been decided upon.

## **Exports**

8. Export markets continue to be of great interest to the industry. A number of potential importing countries have not been overly affected by the general financial crisis. However, there is just not enough workload to be generated via naval exports to compensate for cuts in demand in other areas. In addition, exports are a highly competitive and risky market, though European shipbuilders do enjoy a competitive advantage.
9. Success in the export of submarines and military surface ships will be decisive for the future of several of Europe's major shipbuilders. This is especially true for TKMS, but also for Fincantieri, Navantia and DCNS.
10. Restrictive export regulations – an agreed policy in the EU – are not expected to play any decisive role in naval exports.
11. Some companies will be able to avoid any downturn in sales due to state support in export projects. However, not everybody can win in a limited and high-risk market. In the next years additional production capacities will be created in some potent “late-comer” countries which are currently important buyers (India, Brazil, Korea and Turkey).
12. The financial risks in export markets and the requirements for package deals will grow over the next years.

## **European cooperation**

13. European perspectives for joint projects are not widely perceived by the industry as an alternative and therefore are not being actively pursued by them. Wider-ranging European programmes in the naval sector are no realistic short- or medium-term option since national budgets will continue to support national minimum core technology bases. Such programmes as anti-piracy measures or European Coast Guards are still in the political discussion process. Even if the outcome is positive, they will be

comparatively small and hence not really prominent on the industry's radar.

14. On the demand side the conditions to set up a "maritime EADS" do not exist. In addition, military requirements regarding naval capacities still vary greatly between European states. In general, most companies (a possible exception might be BAE Systems due to the company's size and its unique situation with "home" markets not just in the United Kingdom but also in the U.S., Saudi Arabia and Australia) seem to be open to limited cooperation within the EU in specific projects<sup>97</sup>. However, except for the French political advances towards HDW (TKMS) in the submarine sector, no one is actively promoting transnational "solutions" with cross-ownership and joint strategic planning on a company level.
15. Any EU-level transnational consolidation of shipyards would require common programmes. However, due to differences in the sequencing of procurement measures, low production numbers, mission requirements, and limited accessibility for European cooperation in some areas (i.e. the nuclear systems of France and United Kingdom) such programmes are not in the making.
16. A recurring point in discussions with industry representatives are also the different ownership structures in countries like Germany, France, Italy and Spain. This is not an insurmountable obstacle to European projects or cooperation but obviously a problem when talking about transnational company structures.
17. The European Defence Agency (EDA) currently has no substantial programme in the naval sector and is likely to play only a minor role for the foreseeable future. The Agency's work is limited to creating transparency in the market and supporting new research projects.

### **Company strategies**

18. The major shipbuilders follow different business strategies in coping with the present situation. Elements of these strategies are
  - a focus on defence (e.g. BAE Systems, DCNS),
  - looking for European and international cooperation partners (Fincantieri, DCNS, Navantia),
  - divestment and concentration on very specific shipbuilding sectors only and diversification into non-military market (TKMS),
  - specialisation on certain products (mega-yachts and smaller naval vessels up to 2 000 tons at Lürssen),

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<sup>97</sup> Currently, European Programmes are limited to naval weapons (MU90 torpedo), weapons systems (the PAAMS anti-aircraft missile system between the UK, Italy and France) and in the case of ships to bilateral cooperation (Scorpène submarines between France and Spain, or FREMM frigates between Italy and France)

- privatisation (Damen Shipyards, NL; Shipyard Gdynia, Poland), and
- internationalisation of sales and investments (BAE Systems / partly TKMS).

As experienced during the last years these strategies can change very fast when new opportunities arise.

19. Industry representatives do not expect any EU-level re-organisation of the naval sector – certainly not in the short to medium-term. They practice business models along the lines of present policies, namely national orientation and sustaining minimum capacities with modestly reduced employment levels and fierce competition between the shipbuilders in the export market.
20. There are differences between naval platform builders, weapon system providers (i.e. missiles producers) and electronic companies. Whereas platform builders in the naval sector are organised largely along national lines, the small number of weapon system producers and electronic companies usually operate on a more international level.
21. New opportunities influencing future developments include the following:
  - The growing complexity of ships is leading to a radical evolution in the value chain. with 2/3 of a ship's cost now linked to its electronic systems (CMS, CS, SMS, etc.). This explains the growing future influence of electronic providers over platform providers (shipyards). Certain companies (such as BAE or DCNS) already master the whole chain, operating as vertically integrated companies.
  - The reduction of defence budgets and the renewal of European naval fleets is creating an important market for used/second-hand ships in emerging economies and furthermore is triggering the development of modernisation and refurbishment activities (i.e. modernisation of the Ecuadorian U209 by Thales, modernisation of Indian submarines of Russian origin, etc.).
  - Fleet reductions are going hand in hand with increased rates of ships' operational readiness, leading to an increase in maintenance activities and maintenance in operational conditions.
  - The new threat scenarios set forth in international policy are leading to the evolution of strategic concepts for different-type navies and new types of ship (amphibious assault ships, support and protection of friendly fleets). This will speed up the evolution of new types of interoperable systems.

## **Employment**

22. Employment levels in European shipbuilding, currently at approximately 140,000 direct and 250,000 – 350,000 indirect jobs, are low compared to previous periods. But even this level will be difficult to maintain in Europe.

The industry's strategy in reacting to the decrease in demand involves downsizing and holding on to smaller key capacities at financially affordable levels. In the medium term it must be expected that there will be constant downward pressure on employment due to financial constraints and productivity gains.

**Tab. 23: Estimate on direct employment in shipbuilding**

	Estimate on direct Employment	
	Total	Naval-related
Bulgaria	3 520	800
Denmark	4 000	1 000
Germany	20 180	6 300
Estonia	2 500	500
Finland	4 500	1 000
France	17 000	13 000
Greece	2 470	2 000
Italy	9 050	3 000
Croatia	9 700	1 500
Lithuania	2 120	550
Latvia	1 900	300
Netherlands	11 500	2 000
Norway	3 910	1 000
Portugal	1 240	450
Poland	8 000	2 300
Romania	12 600	2 600
Spain	7 820	5 300
Sweden	1 152	500
UK	18 180	15 000
<b>Total</b>	<b>141 342</b>	<b>60 000</b>
Source: IAW 2009 and own estimates		

Source: Ludwig/Smets/Tholen 2009, p. 12 and own estimates

23. It can be estimated that in the supply sector there are up to 60,000 direct employees in the military sector and 120,000 - 140,000 indirect employees, i.e. some 200,000 jobs dependent on military shipbuilding.
24. There is an expectation that a wider-ranging "European solution" for a European military industrial base would give more value for money. This includes the opportunity of coordinated programmes bringing down cost due to economies of scale and reduced public budgets, and would save taxpayers' money. However, at the same time it would also result in further rationalisation and further job cuts.

### **3.3 Perspectives: Options, scenarios and likely outcomes**

What are the most likely developments and outcomes for the naval industry over the next five to ten years in view of the present status of naval production, its strong national orientation and constraints to procurement budgets?

In this debate several options are frequently discussed which involve always the same key players. 3 possible scenarios can be distilled from these debates. Each of the scenarios can include several additional options which are partly interconnected.

#### **Scenario 1: Continuing national orientation with “national champions” at the helm**

The main assumption in this scenario is that the industry's existing structure will remain in its current state. Governments will continue to opt for maintaining core competencies on a national level. Naval shipbuilding will remain financed at a profitable level, making it attractive for the companies involved. One can assume that naval procurement contracts potentially offer higher profit margins than commercial ones. Given the global market situation, the non-niche construction of commercial ships will become practically impossible in Europe in the future. Naval shipbuilding offers certain stability to this line of business as the governments of larger EU countries are set to maintain a sustainable naval industrial structure in the medium and long-term.

With governments intent on following a nationally orientated naval industrial policy, foreign companies are restricted in their efforts to gain access to the domestic market. There is therefore only limited competition from other shipbuilders from abroad. Competition at national level is limited since the skills and technology required to maintain the full range of high-end warship design and construction capacities do not allow for more than one principal contractor in the different areas of surface and underwater warships.

But even assuming that only one or two main contractors exist in each country on the basis of guaranteed minimum capacity utilisation, further downsizing seems inevitable in most shipyards. As a result it can be expected that shipbuilders' dependence on military contracts and the role of “national champions” within the naval industry will increase.

Scenario 1 assumes that the economic problems hitting civilian shipbuilding markets in the aftermath of the crisis will speed up the process of establishing in each of the major European nations only one or two remaining national champions. These will operate as the main contractors for the respective Ministries of Defence in the naval sector. This process includes a certain downsizing of capacities and could possibly be accompanied by closer cooperation between these national champions on the few existing European projects and also in exports. With the next round of new procurement projects in five to ten years' time

these national champions could start looking for new organisational structures including cross-ownership and coordination of capacities.

With state procurement safeguarding certain minimum capacities, job losses will occur, but within limits. Companies can thus count on maintaining their skilled workforces in production, R&D and design.

### **Part of the national scenario: Bilateral or multilateral cooperation**

Cooperation at a bilateral or multinational level does not only offer economic benefits but also involves risks and cost. Experience in large multi-national European cooperation projects illustrates that such cooperation at least includes a risk of increased costs and longer time schedules. Less ambitious bilateral company-level cooperation could be a medium-term compromise on the way to Europeanisation in the longer term. For example, direct cooperation and cross-ownership between French and German shipyards in such areas as submarines are both feasible. Other bilateral cooperation projects (as between DCNS and Fincantieri in frigates) already exist. Such opportunities also exist for fast patrol craft, electronics and missiles. The driving forces for such projects are the prospects of economies of scale in the domestic market as well as the prospect of profitable cooperation instead of ruinous competition in exports. The industry might consider following a course of ship standardisation in developing new export markets, thereby (re-)covering R&D costs.

Past experience shows that the cooperating partners in joint projects usually insist on a division of labour guaranteeing that technological know-how and employment is shared in accordance with the financial stakes involved. Such types of cooperation would therefore have only minor or no negative effects on employment.

### **Scenario 2: Europeanisation**

Considering the political declarations on a Common Foreign and Security Policy (CFSP), on the European Security and Defence Policy (ESDP) and the political rhetoric on joint European projects in defence procurement, a neutral observer might gain the impression that the Europeanisation of the naval industry is a plausible option. Furthermore, in the light of limited national budgets on the one hand and the demand for fleet and weaponry modernisation on the other, there is theoretically a strong in-built trend towards further Europeanisation in the naval sector, mirroring that already partly experienced in other defence industry sectors such as aircraft, missiles, helicopters and electronics. The rationale behind such a process lies both in its political relevance and its economic logic.

However, various national interests involving technology development, maintaining employment levels and specific regional considerations have so far thwarted this process. In addition, as mentioned above, the sequencing of procurement orders, the partly conflicting mission requirements of weapon platforms and the

incompatible ownership structure of companies represent major barriers to any potential Europeanisation project.

Nevertheless, changes in the political or industrial environment could facilitate a process of Europeanisation. This can happen both on the basis of political decision-making (ESDP) as well as industrial considerations (including cross-border cooperation or mergers and acquisitions). The national champions might start to collaborate in emerging pan-European procurement projects as well as on export markets. However, any further Europeanisation in the naval sector seems only to be feasible in connection with a major European procurement programme.

Without such an incentive, Europeanisation is at present no realistic scenario for the industry. As yet, the ESDP plays no priority role for industry – although, of course, EU security policy and military interventions outside Europe have had important effects on naval requirements.

A more integrated European naval industry could result in bringing down total procurement spending. It could also improve success in export markets. However, given the budgetary constraints, Europeanisation would most likely boost the industry's restructuring and consolidation process, including the downsizing of shipyards and some loss of employment, unless it is possible to compensate this by a rise in exports.

### **Scenario 3: Internationalisation and investment outside Europe**

Shipyards from several European countries including France, Germany, Italy, the Netherlands, Spain, Sweden, and the UK have successfully exported naval vessels and/or have licensed their production in other countries. Scenario 3 assumes company strategies aimed at expanding their market and production facilities by investing in hitherto importing countries. This strategy is most clearly pursued by BAE Systems and Thales/DCNS with their multi-domestic strategies seeing the acquisition of naval shipyards in South Africa, Australia, India, and other countries. It is also being pursued by Fincantieri with its acquisition of Manitowoc Marine shipyards in USA, and to a certain extent by TKMS as well. Importing countries with a potential for naval production are, among others, Brazil, China, India, Israel, South Africa, South Korea and Turkey.

Such a business strategy could also lead to the formation of strategic alliances and a drive to realign the relationship between companies in the shipbuilding industry. Such alliances are also possible with US partners. In a next step such a strategy could result in the transformation of major shipbuilding companies into system integrators with a growing share of production outside Europe. This might include the option of building up shipyard capacities in lesser developed European countries.

Such a strategy would certainly lead to the loss of jobs in European production facilities in the long run, with value creation increasingly shifting to low-cost countries.

This export development scenario could nevertheless involve European consolidation, particularly in the area of conventional submarines (DCNS/HDW or DCNS/Navantia for example), as a way of avoiding competition and enabling the financing of the development of new ship generations. In a first step, building up such an alliance could involve the creation of common structures responsible for sales and R&D.

**Trends in all scenarios: Focus on core business, divestment, diversification and vertical integration**

The current crisis in shipbuilding will lead to strategies with a “focus on core business”, involving either divestment and/or diversification, especially among those companies that depend to a higher degree on commercial shipbuilding. TKMS’ business concept of spinning off part of its facilities to non-shipbuilding companies (the Emden yard was sold to a company producing wind energy equipment) points in this direction. Similarly, the sale of TKMS’ commercial shipbuilding sector to Abu Dhabi MAR is indicative of such a divestment strategy.

Depending on their current situation, such “focus on core business” strategies can entail different concepts for companies. They can involve an exit from the entire sector (whether commercial or naval production) as seen at TKMS. Or it could instead involve an exclusive focus on defence production with no interest in the non-military shipbuilding sector (a strategy most clearly followed by BAE Systems).

A growing influence of the military electronic industry or weapons producing companies is another possible option in this scenario. This is based on an assumption that shipyards are no longer the driving and most innovative force in the naval defence industry. Over the past few years, the major innovatory and technological breakthroughs have primarily been in naval electronics (Combat Systems, Combat Management Systems, Ship Management Systems), surface-to-surface and surface-to-air missiles. Ships themselves as a platform for such systems have to a great extent retained their basic format. This process is likely to continue. Thus, naval electronic firms could continue to expand their role, leveraging their systems integration capabilities to become the prime contractors for warships. This can lead to greater vertical integration between naval shipyards and systems integrators, as seen with EADS, Thales, BAE, GD and LM.

This scenario also brings the risk of workforce reductions - especially if divestment and diversification strategies backfire.

## **Privatisation**

Privatisation of formerly government-owned shipyards has occurred in several countries and is still taking place in others. At the same time, governments such as France, Italy and Spain continue to operate fully (Spain) or partly (Italy, France) state-owned shipyards – with no apparent intention to privatise.<sup>98</sup> In the short run it does not seem plausible to expect large-scale privatisation in these countries due to the complicated and unsecure market situation. In the past privatisation strategies have often gone hand-in-hand with a process of rationalisation and job cuts.

## **Outsourcing and Public-Private-Partnerships**

Considering the budgetary constraints in EU countries and growing experience with public-private-partnerships (PPPs) in the defence sector, together with a general trend towards outsourcing traditional military functions, it can be expected that private financing and services could play a more important role in the future. While these new public-private-partnerships do not solve the problem of funding in the long term, they are a means of overcoming short-term financial bottlenecks. This could also entail moving away from single shipbuilding orders towards full service contracting.

One example of a PPP in the naval sector is to be found in the area of logistics, where the UK's sealift capacity is now delivered via a 25-year private finance initiative with AWSR Shipping Ltd. The company has a fleet of 16 UK-registered ships and around 2,500 merchant seamen in government service. This PPP model might be more attractive to some governments than to others. It cannot, however, be expected that such a model be implemented across the board in all naval sectors. It will probably be limited to outsourcing military non-core competencies.

The effects on employment in shipbuilding are not immediately apparent. Government may – within such a concept – have less power in placing shipbuilding contracts, leading to losses in domestic shipbuilding jobs.

## **Potential workforce reduction levels of the various scenarios**

The best estimate for military-related employment in European shipyards is roughly 60,000 jobs. Depending on future developments in all three scenarios only minor differences between the three scenarios exist in regard to employment figures. In the light of the predicted stable procurement spending in the naval sector there is a certain built-in reduction of employment due to productivity gains (2 - 3 % each year) and the increasing cost of weapon systems. These two tendencies together have the potential to cause a total workforce reduction of almost 10% in the next five to ten years.

Other differences between the scenarios are:

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<sup>98</sup> The Italian government still proclaims that it wants to sell 50% of Fincantieri

- The national scenario might provide greater protection for national production capacities, i.e. no major closure of sites. However, even in this scenario national procurement is not sufficient to maintain full capacity utilisation and the medium-term effects in productivity gains and cost increases will put pressure on the size of the workforce.
- Budget constraints in the aftermath of the current economic crisis represent a threat to this scenario, as they may result in further reductions of national naval procurement.
- The national scenario can be accompanied by diversification and export strategies.

A **European scenario** includes by definition:

- a certain amount of horizontal consolidation and synergy utilisation (shipyards with overlapping skills and competencies) and therefore a certain reduction of production capacities,
- greater coordination and harmonisation in regard to military requirements, with greater common design and procurement.
- in the medium term this raises the question of plausible forms of regional and company-based work sharing, depending on the main objectives followed: regional aspects (employment), political aspects (national sovereignty), or the overall economic performance of the companies involved. One can envisage a concentration of submarine building in one or two yards, or also certain concentration processes in naval surface ship construction with national competences tied into a European cooperation strategy.

An **international scenario** is characterised by expectations for an increase in export sales, but also a growing tendency to build up new production capacities in other countries or to take over shipyards outside the EU (multi-domestic strategy). Within Europe, shipbuilders would concentrate more on R&D, design and production related to national procurement programmes.

The formation of new international alliances has a greater potential for export successes, thereby generating additional turnover and employment compared to the two other scenarios. Since globalisation of production capacities is often associated with a reduction of European production capacities, such alliances may eventually lead to de-industrialisation in Europe, with a negative impact on employment.

Even though the international market for naval platforms can be expected to retain its size over the next ten to twenty years, there will be European winners and losers in such a scenario due to the restricted number of contracts. Furthermore, new industrial capacities will be being built up in such countries as India, South Korea and Brazil. The conclusion here is that this scenario also bears critical risks for the naval shipbuilding industry.

## 4 Conclusions

### **EuroNaval: Signs of a long-term restructuring process**

The summaries of the country reports and the interviews with industry representatives and Ministries of Defence show that there is widespread agreement on future trends regarding capacities, the need for cost sharing in technological development and the necessity for greater European cooperation in the naval sector. All experts agree that existing national capacities exceed foreseeable demand in national procurement planning. This agreement is based on the observations that (1) the domestic market in all EU member countries is too small to sustain currently existing capacities; (2) the export market for naval products and technology is attractive but highly competitive, meaning that any export strategy involves a certain amount of risk; and (3) the commercial market is currently in no position to compensate for possible shortfalls in naval orders. On the contrary, the current crisis in the commercial shipbuilding market is exacerbating the industry's problems.

One possible solution to existing problems could be a more coordinated procurement policy in conjunction with a common European definition of military requirements for the various weapon platforms. Such a strategy would enable a better value-for-money ratio to be achieved in naval procurement. For any external observer, political calls to move towards a common European Defence and Technology Industrial Base (EDITB) definitely make sense. Several attempts (both policy-driven and industry-triggered) to initiate a coordinated EU procurement policy or at least an intensification of cooperation projects have been made in the past. From a financial as well as pro-European perspective, these efforts can be deemed sensible, even though they involve risks for employment on the national level, particularly when no business alternatives for employees and their skills are developed.

However, these attempts have not yet resulted in any reorientation of largely national procurement policies. Our analysis shows that the chances of such an EDITB materialising in the naval sector in the medium term are low. There are a number of reasons why such a process of Europeanisation of naval production and procurement has not yet taken place – despite numerous calls for such a policy at the highest political levels:

- The existing military requirements and capability requests regarding naval forces (surface ships and submarines) vary greatly between European navies. A common understanding on future military requirements and the resulting consequences for naval equipment does not exist. Concepts of naval missions continue to differ between different EU countries.
- Naval procurement programmes remain within the financial reach of the major European countries - in contrast to the financing of an aeronautical

programme. Should pressure on national procurement budgets and programmes continue to rise however, the question as to whether national solutions are still possible will come to the fore, probably opening the door to greater cooperation.

- In most European countries procurement decisions in the naval sector have already been taken, with major weapon platforms contracted for the next five to ten years. The scope for new programmes and the joint development of major naval weapon systems is extremely limited. Possible joint projects are largely confined in the medium term to projection and support ships, logistics and support programmes.
- In the major European nations the remaining industrial actors have already come to medium-term agreements with their respective Ministries of Defence to safeguard minimum industrial and technological capacities.
- The business plans of the major industrial actors (the “national champions”) continue to favour a combined business strategy of a dominant share of respective domestic markets and competitive advantages in exports, rather than giving priority to increased European cooperation.
- The different ownership structures with (partly) state-owned shipyards in France, Italy and Spain and privately owned companies in Germany and the UK seem to be an additional constraint – at least in the opinion of several industry representatives. In the UK, companies are clearly oriented towards the international market (mainly the U.S.) with strong backing through domestic demand. The EU market is perceived as too narrow.

As a consequence of both the crisis in civilian ship markets and limited military demand, the industry will require further restructuring. This is bound to have a negative impact on employment. This will be accompanied by industrial strategies oriented towards export markets and diversification into other newly emerging markets such as wind or sea energy systems. However, as shown in our analysis, the export market is limited and very competitive. Demand for major weapon platforms is small and winning one order alone (or the loss of the order to a competitor) can mean “make or break” for a company. But even increases in export sales will have no long-lasting effects on company-level employment due to offset deals requiring that shipyard capacities be used in those countries where vessels are commissioned.

European-level cooperation in the naval sector between the main industrial actors, based on common development projects, industrial cross-ownership and joint export efforts, would seem to be the rational option. However, on the basis of the current strategies of the industry’s key players, we come to the conclusion that this will not materialise in the medium term. This does not however preclude project-based cooperation. If European consolidation does occur, it has to be step-by-step, first on a bilateral basis, then gradually extended to additional partners. At

present, bilateral or even multilateral cooperation remains the exception. Nevertheless, the realities of the market, budgetary constraints in Europe (and political pressure) could become an incentive for companies to engage in cooperation projects. Such future projects do not, of course, rule out companies continuing their current strategies of further internationalisation or diversification into other markets. If the political goal is a more coordinated EDITB, the EU needs to compile a long-term perspective taking four key elements into account: (1) its medium- and long-term defence and security needs, (2) procurement policy, (3) the industrial capacities needed in the naval sector, (4) the preservation of European employment and skills in this strategic sector (involving a discussion on the effects on employment and required skills). In the light of the lifecycles of existing naval capacities and the budget constraints, this involves a 10 – 15-year perspective. Possible steps towards the development of a true EDITB in the naval sector could be:

- Defining and prioritising required naval capabilities
- Harmonising national naval requirements (excluding nuclear forces) on a European level
- Defining European naval needs and requirements (ESDP)
- Joint development initiatives coordinated by the EDA, together with the identification of key technologies
- A joint discussion on what constitutes key industrial capacities
- Consolidating demand by agreeing on joint procurement programmes
- A joint discussion on how to reduce inter-EU competition on the export market
- Initiating discussions on and anticipating future skill needs
- Continuing social dialogue to facilitate possible changes at company and regional level
- Continuing a dialogue between the key stakeholders (defence ministries, industry and EU security bodies, economic institutions and workers' representatives) on naval sector requirements.

Any strategy in the defence sector, especially in naval defence, involves a long journey. However, even the longest journey starts with the first step. It is obviously important to find the right compromises. These are needed to ensure the future of an important European line of business. At the same time it will be necessary to provide alternatives to those employees hit by the necessary restructuring within the sector. The legitimate expectations and demands of employees with regard to secure jobs and decent working conditions have to be taken into account in all future considerations. It is essential that works councils, trade unions, employers and their associations jointly anticipate future challenges and work together to achieve socially responsible solutions.

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## Interview partners

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Mr Aubert	Daniel	CGC
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