

LeaderSHIP 2015



DEFINING THE FUTURE
OF THE EUROPEAN SHIPBUILDING
AND SHIPREPAIR INDUSTRY

European Commission



Enterprise publication



LeaderSHIP 2015

DEFINING THE FUTURE OF THE EUROPEAN SHIPBUILDING AND SHIPREPAIR INDUSTRY

▶ COMPETITIVENESS THROUGH EXCELLENCE

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Executive Summary

With LeaderSHIP 2015 the European shipbuilding industry has initiated an ambitious programme to ensure its long-term prosperity in a dynamic growth market.

Shipbuilding is of strategic importance in many respects. It develops advanced technologies that offer considerable spin-offs to other sectors; it provides essential means of transport for international trade; and it supplies modern navies with advanced vessels.

In high-tech industry sectors such as shipbuilding, success is first of all based on knowledge. Only in Europe exists such a dense network of shipyards, equipment suppliers, research centres and other providers of advanced technologies and engineering services. With regard to knowledge-based economic activities, LeaderSHIP 2015 provides a sector-specific response to the EU's longer term strategy for economic, social and environmental renewal as brought forward by the Lisbon Council of March 2000. Key elements of the Lisbon strategy are increased R&D investment with a target of 3% of GDP, improved access to finance for business, lower regulatory burdens and the attraction of young people to industrial jobs in an enlarged Europe. On all of these points LeaderSHIP 2015 makes concrete recommendations.

The present report summarises the results of an intense discussion process among stakeholders, based on eight key areas, for which further targeted action is identified. Dedicated chapters for each of the key areas describe the challenges and spell out concrete recommendations, summarised at the end of each chapter and at the end of this report.

LeaderSHIP 2015 has proven to be an efficient approach for identifying lines of action, aiming to enhance the industry's vibrancy, dynamism, and world-wide competitiveness, and with it securing sustainable growth. Through LeaderSHIP 2015 the specific conditions resulting from the unique characteristics of the shipbuilding sector are taken into consideration. Thus LeaderSHIP 2015 serves as a good example for an effective European industrial policy on sectoral level.

THE GROUP MEMBERS



Erkki Liikanen
Member of the European Commission responsible for Enterprise and the Information Society
Chairman

The "LeaderSHIP 2015" initiative is the EU shipbuilding industry's response to the competitive challenges it is facing. It is designed to address all issues that are important for the future competitiveness of this industry sector.

President Romano Prodi responded positively to this initiative when first presented by industry in 2002 and asked Erkki Liikanen, the Member of the European Commission in charge of Enterprise Policy, to set up a High Level Advisory Group that would co-ordinate the necessary work.

The High Level Advisory Group consists of leading personalities in the field - from individual companies, industry associations and trade unions -, seven European Commissioners with responsibilities that relate to shipbuilding and two Members of the European Parliament. The present report is the result of the deliberations of the LeaderSHIP 2015 High Level Advisory Group and the eight working groups supporting them.



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LeaderSHIP 2015

DEFINING THE FUTURE OF THE EUROPEAN SHIPBUILDING AND SHIPREPAIR INDUSTRY COMPETITIVENESS THROUGH EXCELLENCE



With LeaderSHIP 2015 the European shipbuilding industry has initiated an ambitious programme to ensure its long-term prosperity in a dynamic growth market. The European shipbuilding industry consists of a great number of companies and bodies - shipyards, equipment manufacturers, engineering services and other knowledge providers - which engage in a wide range of maritime activities, from ship newbuilding to repair and conversion to mechanical engineering and a large variety of specialised services, including offshore technologies. Many of these companies are SMEs.

In high-tech industry sectors such as shipbuilding, success is first of all based on knowledge. Only in Europe exists such a dense network of shipyards, equipment suppliers, research centres and other providers of advanced technologies and engineering services. This particular advantage gives the European shipbuilding industry good reason to be confident about its future. With regard to knowledge-based economic activities, LeaderSHIP 2015 provides a sector-specific response to the EU's longer term strategy for economic,

social and environmental renewal as brought forward by the Lisbon Council of March 2000. The Lisbon strategy lays the foundations for improved competitiveness, new business opportunities and a balanced economic development, through more and better targeted investment in knowledge and innovation and closer interaction between industry and research institutions. Key elements of this strategy - confirmed again in the conclusions of the Thessaloniki Council of June 2003 and in the Commission's very recent Growth and Investment Initiative - are, among others, increased R&D investment with a target of 3% of GDP, improved access to finance for business, lower regulatory burdens and the attraction of young people to industrial jobs in an enlarged Europe. On all of these points LeaderSHIP 2015 makes concrete recommendations.

In the LeaderSHIP 2015 road map, presented to the European Commission in October 2002, industry outlined its longer term vision, presenting a robust strategy aimed at providing answers to the key challenges and assuring a leading role in world shipbuilding by 2015. President Prodi welcomed this initiative and offered his full support. LeaderSHIP 2015 is now recognised by Commissioner Liikanen as one of the priority issues for the sectoral transposition of the Commission's revised industrial policy which aims at improving framework conditions for enterprise and facilitating necessary adjustment processes.

Shipbuilding is of strategic importance in many respects. It develops advanced technologies that offer considerable spin-offs to other sectors; it provides essential means of transport for international trade; and it supplies modern navies with advanced vessels, a key element for effective military operations. That is why countries around the globe regard shipbuilding as a particularly sensitive industry sector, which continues to receive political support.

Unfortunately, not all players respect the principles of fair competition. The European Union is employing all available trade policy measures to ensure fair competition in the global market. However, this must be complemented with concrete actions and decisive political support in order to ensure full-scale competitiveness. The European Commission has welcomed that all stakeholders participate in the LeaderSHIP 2015 Advisory Group with the aim of elaborating concrete actions and appropriate policy proposals in a close dialogue.



The present report summarises the results of this constructive process, based on eight key areas, identified by the Advisory Group, in which further targeted action is needed. It directly responds to the issues and objectives put forward in the LeaderSHIP 2015 roadmap, namely to

- ▶ Maintain and further develop a strong position in selected higher-value market segments
- ▶ Ensure world leadership in product and process innovation
- ▶ Develop a strong customer orientation;
- ▶ Further improve the networked industry structure
- ▶ Optimise production processes and increasingly focus on knowledge-based products

LeaderSHIP 2015 has proven to be an efficient approach for identifying lines of action, aiming to enhance the industry's vibrancy, dynamism, and world-wide competitiveness, and with it securing sustainable growth. Through LeaderSHIP 2015 the specific conditions resulting from the unique characteristics of the shipbuilding sector are taken into consideration. Launched at a crucial time, Leadership 2015 offers first recommendations to address the current challenges, which should be implemented swiftly. Thus LeaderSHIP 2015 serves as a good example for an effective European industrial policy on sectoral level.

ESTABLISHING A LEVEL PLAYING FIELD IN WORLD SHIPBUILDING



Commercial shipbuilding and shiprepair have always operated in a truly global market, with yards competing for contracts within and outside their own countries. This early and comprehensive exposure to the forces of globalisation and the absence of an anti-dumping discipline make shipbuilding substantially different from most other manufacturing industries.

State supported strategic investments in Asia have resulted in an imbalance between supply and demand. If not removed in time, over-capacity is expected to remain a serious problem for the industry, negatively affecting the open trading environment that characterises the highly cyclical world shipbuilding market. Particularly true is its impact on market prices. Excess production capacity, created for strategic reasons, is therefore the key problem in world shipbuilding.

The market is not working optimally due to unfair practices, including injurious prices and subsidisation in several countries. While a strong state aid discipline exists in the EU, no specific discipline applies at international level. Unsustainable capacity is kept in existence and shipyards accept loss-making orders to fill production facilities. The resulting losses lead to new government interventions to save shipyards from bankruptcy. A vicious cycle is created.

Very low and declining price levels are providing an incentive for shipowners to place new orders. However, low newbuilding prices also have a negative influence on the book value of the existing fleet that has been ordered at higher prices.

SUMMARY

KEY DATA OF THE EUROPEAN SHIPBUILDING INDUSTRY

- ▶ An annual turnover of around € 34 billion, more than half of it through exports
- ▶ An industrial network of more than 9 000 companies
- ▶ A workforce of more than 350 000 people
- ▶ A key driver of maritime excellence with 10% of turnover spent on research, development and innovation through a high level of prototyping and the predominance of one-of-a-kind products
- ▶ Strong global market positions in complex vessels and shiprepair



While most industries are effectively covered by existing multilateral trade rules, shipbuilding, due to its own characteristics, is not easily amenable to the application of those rules. Today, shipbuilding is not subject to an anti-dumping discipline or to custom duties. In conclusion, the shipbuilding sector is practically the only industry without this type of effective protection against unfair trading practices.

Many forms of trade distortions are faced by the EU shipbuilding industry: Different forms of direct and indirect subsidies and other support measures, especially practised by one major shipbuilding nation, such as debt forgiveness, debt-for-equity-swaps and interest relief by government-owned and government-controlled banks; unfair pricing practices in form of dumping; grey areas regarding shipbuilding financing; reservation of the domestic market for local shipyards; restrictions to market access like general import restrictions, import taxes and “home built” preferences linked to national shipping services; loans and loan guarantees to shipowners below normal market conditions. Generally, any aid to shipowners may also constitute aid to shipyards if it is conditioned, legally or factually, to purchase new ships domestically. In cases where such a link does not exist in any form, such state aids normally benefit only the domestic shipowner.

The EU shipbuilding industry supports the view that an international shipbuilding agreement, to be concluded on OECD level, should regulate subsidies and injurious pricing practises. It should include provisions that restructuring aid can only be allowed in return for a significant reduction in the activity of the benefiting shipyard, similar to current practice in the EU. Any agreement must also provide an effective remedy in case of non-compliance with the obligations under the agreement.

Also, the existing OECD Sector Understanding on export credits for ships, and related OECD-agreements, need a clear and unambiguous interpretation in order to rule out any potential market distortion and discrimination of EU shipbuilders. It is recommended that the EU seeks a unified implementation of these rules in all signatory countries and a spreading of the rules to all shipbuilding regions.

Additional elements that should lead to a level playing field in world shipbuilding have to be developed on WTO level, with the full application of the Agreement on Subsidies and Countervailing Measures to shipbuilding.

SUMMARY

A LEVEL PLAYING FIELD IN WORLD SHIPBUILDING

PROBLEMS

- ▶ World shipbuilding suffers from a persisting imbalance of supply and demand.
- ▶ Injurious pricing practices add to the distortion of competition.
- ▶ The resulting price depression and price suppression are leading to losses and ultimately state subsidies and protectionism in many forms.
- ▶ International trade rules are difficult to apply to shipbuilding.

RECOMMENDATIONS

- ▶ Continuation of the present EU trade policy approach with determination
- ▶ Full enforcement of applicable WTO rules to shipbuilding
- ▶ Development of enforceable OECD disciplines through a new shipbuilding agreement by 2005 and an unambiguous interpretation of existing rules

IMPROVING RESEARCH, DEVELOPMENT AND INNOVATION INVESTMENT IN THE EUROPEAN SHIPBUILDING INDUSTRY



Research, development and innovation (“RDI”) investment is key to renewing economic growth, strengthening competitiveness and boosting employment. Article 157 of the EU Treaty outlines the Community objective of strengthening the scientific and technological basis of EU industries and encouraging them to become more competitive internationally. This objective has been repeatedly emphasised and complemented with concrete recommendations by the European Council at its summits in Lisbon, Barcelona and, very recently, in Thessaloniki. RDI is of particular importance for a high tech industry such as shipbuilding. Although European shipbuilders are today already investing approximately 10% of their turnover in this field every year, additional efforts are required to meet this Community objective effectively.

In this respect it is recognised that the European Community research framework programmes have increasingly supported RDI efforts of the European shipbuilding industry. This support provides particular benefits by bringing together a critical mass of European research to develop longer-term solutions which address issues concerning training, the environment, safety and competitiveness and take into account the wider commercial, environmental and regulatory perspectives. The “InterSHIP” project, being the largest integrated project supported by the Community Framework Programme under the surface transport heading, can serve as a good example. Based on the encouraging experiences made within the Maritime Industry Forum framework and growing technological

requirements, the continued focus on a long term strategic vision for shipbuilding related RDI is essential. This vision must be commensurate with the long operational life cycle of ships and should encourage the sustained active participation of all maritime stakeholders in order to address all issues (industrial, regulatory, operational etc.) within the wider shipbuilding RDI environment. Such a vision can be used to direct policy development, to allocate resources efficiently and to ensure the maximum long term benefit for the European shipbuilding industry.

However, a fundamental obstacle to improved RDI investment still results from the application of the current Community Regulation. The Community framework for state aid for research and development has been effective to ensure EU competition rules, but, due to certain sector characteristics, the shipbuilding industry has not been able to receive adequate aid on this basis. Therefore new ways and means are needed in order to accommodate the RDI interests and needs of the sector while ensuring full compliance with the principles of the internal market. The Community already recognised this problem in 1998 when a new instrument was introduced, aiming to provide investment aid for innovations. However, this provision faced practical difficulties in implementation and has in fact never been applied.

Possible solutions could derive from the fact that in the shipbuilding business a significant part of the innovation activities is integrated in the design and production process itself, while in many other industries RDI activities are carried out before series production starts.

New ships are large sophisticated products, typically launched as one-of-a-kind or in very short series. Shipbuilders and suppliers have to perform RDI activities prior to a specific order to define innovative systems and components. At the same time, clients are requesting a ship tailor-made to their specific business concepts. The adoption of specific innovative solutions during the concept design phase establishes crucial competitive advantages and is the only way for European Shipbuilders to be successful when competing with Far East Shipbuilders who offer “off the shelf” solutions.

Ships are sold on the basis of the concept design, which is far from representing a complete product definition. Consequently, the largest part of the product development and of the innovation





activities is carried out after the signature of the sales contract. In fact, only after concluding the contract is the yard in a position to clarify the specific RDI needs emerging during the concept design phase. These activities have to be performed in the shortest possible time with the lowest possible costs.

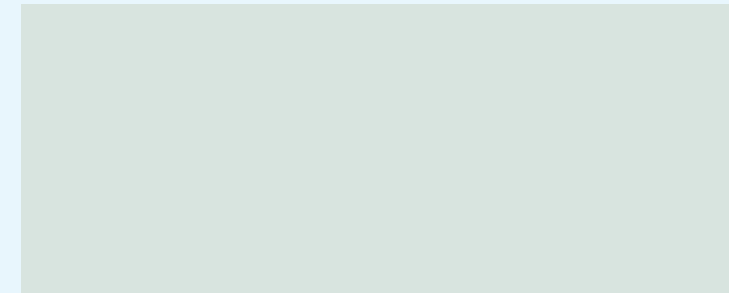
This process implies a very significant industrial and technological risk for the shipyard. The bulk of RDI activities in shipbuilding are always an integrated part of developing, designing and building prototype ships, that are, without exception, used commercially later on.

The market for complex ships, on which European yards concentrate, is in particular characterised by limited demand in numbers of ships, the building of prototypes with very few sister ships, a tailored and knowledge-based production process, a considerable technical expenditure, and a high number of specialised subcontractors. In complex ships up to 70-80% of their value and of the relevant innovations is developed and implemented by the shipyards together with the suppliers inside a wide network of players operating via concurrent engineering.

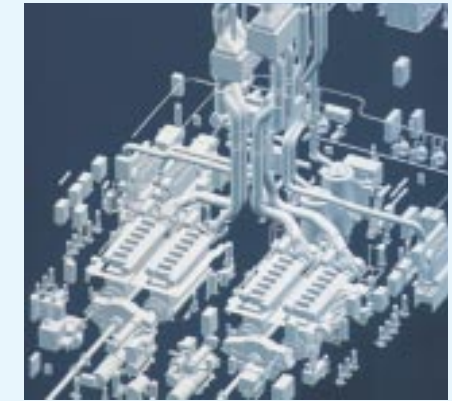
These operating conditions are putting a significant economic and financial burden on the EU shipbuilding industry. An increasing number of European shipbuilders operate in and depend on high-tech market niches, requiring continuously growing investments in RDI in order to maintain the leadership position held today.

Under the current regulatory conditions, RDI support schemes have been used to a very limited extent only. The specifics of the shipbuilding industry with regard to concept, functional and detail design activities are not reflected in the applicable regulation. The subject of any shipbuilding contract is the ship but not the knowledge in research, development and innovation that is undoubtedly required to construct the ship. Consequently, shipbuilding specific RDI activities, also concerning design, tests and trials of new classes of vessels, need to be adequately recognised in practical terms in any support regime, including appropriate shipbuilding specific concepts and the particular non-recurring costs stemming from them. This could be best done under the provisions of innovation aid.

Considering that in any other industry the development of new products, including prototypes, is usually considered a pre-competitive



development activity, allowed to be supported by up to 25%, it needs to be ensured that shipbuilding enjoys, in substance, the same conditions as other industries.



While maintaining the basic concepts of the current regulatory framework and without prejudice to the competition in the internal market, the specifics of the shipbuilding industry should not be an obstacle to the application of aid intensities as used in other sectors with comparable activities. This may require clarifying the eligible expenditures including prototyping costs, and providing an incentive for the adoption of innovative technical solutions across the European shipbuilding and marine equipment industry.

This would yield positive effects for maintaining and improving the technological leadership of European shipbuilders and would help to secure their strong position in markets for complex high-tech vessels. European shipyards would thus increase their investments in engineering know how and the development of new ships, providing new commercial opportunities. The barriers that currently hamper the full application of RDI support schemes would vanish. Improved RDI support schemes would enable the European shipbuilding industry to move to an even higher technological level, selling more ambitious ideas and realising them according to the contractual obligations. Taking on the technical risk of new development and innovation activities would become possible, and at the same time, the client's requirements for innovative solutions could be fulfilled in an economically viable manner. Consequently, the aim of Article 157, to enhance the competitiveness of the European economy by fostering exploitation of research, innovation and technological development, could be more appropriately pursued in the shipbuilding sector.

The absence of an adequate regulatory framework that can be applied effectively could result in European shipbuilders having less and less means to offer highly developed technological solutions.

Consequently, the development of new types of ships would no longer be cost efficient. Given the risk connected with RDI activities in general and the increasing unwillingness of financial institutions to finance innovative projects, shipyards might not be able to correspond to ever-higher demands coming from their customers. In combination with the already meagre profits, revenues could decrease further and there is a serious danger that EU shipbuilding technologies could be caught in a downward spiral if no appropriate measures to foster RDI investment are taken.

SUMMARY

IMPROVING RESEARCH, DEVELOPMENT AND INNOVATION (RDI) INVESTMENT

PROBLEMS

- ▶ European shipbuilders have to compete internationally through advanced technological solutions, not through low costs. RDI investment is therefore key.
- ▶ In RDI, shipbuilding differs from other manufacturing industries, but this is not reflected in the application of the current Community Regulation.
- ▶ The creation of shipbuilding knowledge, almost always integrated in prototype development, is not sufficiently supported.

RECOMMENDATIONS

- ▶ The European dimension of shipbuilding RDI should be strengthened through integrating and concentrating efforts, with the aim to create Technology Platforms. Work being undertaken within the Maritime Industries Forum should form the base for this approach.
- ▶ Shipbuilding should, in substance, enjoy the same conditions as other industries that engage in similar RDI activities.
- ▶ Aid intensities need to reflect the actual technological risks taken in all phases of design, development and production.
- ▶ New definitions, notably regarding innovation aid, need to be developed where necessary.
- ▶ RDI investment support needs to aim at enhancing European technological leadership and should reward risk taking.

DEVELOPING ADVANCED FINANCING AND GUARANTEE SCHEMES



For the successful conclusion of a newbuilding or a major conversion contract, shipyards have to be actively involved in the financing of the project. Shipowners require loans up to 80% of the contract price in a currency of their choosing - normally the currency of their income – with the US dollar still dominating the scene.

Typically, a shipyard's annual production value exceeds its own value as a going concern, and a partly built ship is not recognised as a capital asset. With large volumes of purchased equipment, the value added by the yard's own activities amounts to the smaller part of the total contract sum, while it has to assume full liability for the entire project. Most shipowners require bank guarantees for any down payment made during the construction of the vessel, thus increasing the amount needed for the total project financing even further.

A number of commercial banks are reducing their interest in shipbuilding and hence their commitment to a vital, but volatile industry. Reduced interest will lead to less expertise, which in turn accelerates this process.

All these factors lead to growing difficulties for the arrangement of the ship financing, both during construction (the pre-delivery financing) as well as after the ship is delivered to its owner (the post-



delivery financing). Although problems may differ depending on ship-type, they constitute a serious impediment to the competitiveness of EU shipbuilders.

Three issues are crucial for the financing needs of European shipyards: guarantees covering the gap between the post-delivery financing schedule and the standard mortgage based loans of commercial banks; guarantees for the pre-delivery financing of the project, covering the working capital and the refund guarantees issued by the builder's banks; and, a hedging instrument for the currency risk.

In addressing these issues, some key principles have to apply: All instruments must be self-sustained and transparent. The applicable premiums must reflect the risk that is being run. The operation of the instruments has to be efficient, decisions should be clear and predictable. Any action proposed has to be in strict compliance with EU rules. WTO and OECD regulations should be fully respected as well.

In most shipbuilding countries, state institutions provide support to ship financing, however with considerable variations. While the US Maritime Administration guarantees post-delivery loans of up to 87.5% of the contract value over a period of 25 years, and the Korean KEXIM-Bank offers complete financing packages, covering pre- and post-delivery loans and guarantees, up to a level of 90% of the contract price, only some EU member states run specialised funds.

In most member states guarantees by the export credit agency (ECA) are available to finance shipbuilding projects. However, ECAs are designed to provide loans for export orders to countries that pose a political or economic risk. No such "country risk" exists for the vast majority of the shipowners ordering at European yards. In these cases an export credit guarantee is either not available or not the appropriate answer to cover the gap between the owner's actual financing requirements and the mortgage based loans available from commercial banks.

It is therefore desirable to explore the possibility of establishing an EU-wide guarantee fund, to be operated by a European body in a manner that is compatible with the rules of the common market and the OECD principles. Premiums should reflect the quality of the ship

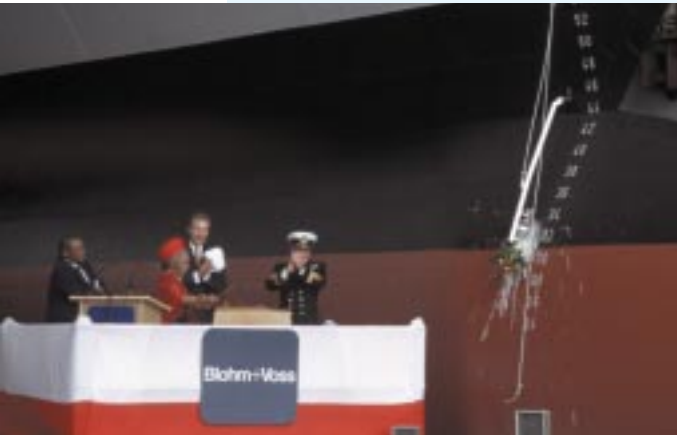


owner, the type of ownership, the employment of the ship, the type and duration of its charter and other factors that might influence the risk level of the loan. To this end a system of a limited number of rating categories could be applied. Fees, which depend on the rating, shall ensure that the guarantee scheme complies with the OECD rules.

A common (or approximated) standard for guarantee schemes to be implemented by all EU member states, following the key principles stated earlier, could provide an alternative solution. However, the harmonisation of such financial instruments is a very difficult exercise. In any case, tools implemented should reflect practical requirements, ensuring a fast and efficient decision making process.

Concerning pre-delivery financing a similar approach could be pursued. A guarantee covering the difference between the actual cost price and the down payments made by the owner, increased by the value of the outstanding bank guarantees for down payments, is absolutely essential. Again, a European-wide guarantee instrument would be desirable, with common or approximated standards in EU member states as an alternative, albeit difficult to fully achieve.

With regard to the management of currency risks the situation in the EU varies widely. Certain countries, like Germany, Belgium and Spain, no longer offer instruments in this respect, while other countries,



notably France, the UK and the Netherlands, run dedicated facilities. In order to assure fair and equal conditions, also vis-à-vis non-EU competitors, an insurance covering the risks run in bidding and contracting in foreign currencies seems essential. Since banks do not provide such a facility at a reasonable cost, the export credit insurance companies, covered by appropriate re-insurance, are the obvious choice. Since the rates of exchange are largely dominated by the interest policy of the major currency controllers, a key role in the re-insurance of currency risks could be played by a European entity.

SUMMARY

ADVANCED FINANCING AND GUARANTEE SCHEMES

PROBLEMS

- ▶ Shipbuilding projects are capital-intensive, but yards are not well suited to organise all necessary financing elements.
- ▶ A number of commercial banks are pulling out of ship financing.
- ▶ Non-EU competitors can rely on advanced state-supported financing instruments.
- ▶ Export financing principles are not fully applicable to shipbuilding projects.

RECOMMENDATIONS

- ▶ Explore the possibility of establishing an EU-wide guarantee fund for pre- and post-delivery financing. The alternative of harmonising standards in EU member states, in line with common market and OECD rules, could also be considered, albeit difficult to fully achieve. Any such tools have to be easily applicable.
- ▶ Export credit insurance companies, covered by appropriate re-insurance, should offer hedging instruments for currency risks.

PROMOTING SAFER AND MORE ENVIRONMENT-FRIENDLY SHIPS



Over the last decade the European Union has increased its profile in the fields of maritime safety and protection of the marine environment by assembling a sizeable number of laws. The EU shipbuilding and shiprepair industry has always supported the adoption of this legislation, in particular with regard to the creation of a European Maritime Safety Agency (EMSA) and the strengthening of the Port State Control regime.

Industry holds the view that modern ships are designed and built to safely withstand the severest weather and that proper maintenance, undertaken by reliable yards, could have prevented recent ecological disasters. Unfortunately, the present state of affairs in the shipping and shipbuilding industries is characterised by low freight rates and a significant decrease of new building prices over the last years. These trends risk affecting the quality of new ships and the maintenance of the existing fleet. Recent ship losses have shown significant structural as well as operational deficiencies. There is a clear trend in ship design to reduce construction and/or operating costs. It needs to be analysed to which extent these changes are compromising the integrity of the vessel and its cargo in rough weather conditions.

Under these circumstances, a reinforcement of the maritime safety requirements at EU and world-wide level is required to ensure safer ships, to minimise crew loss and to protect the marine environment.

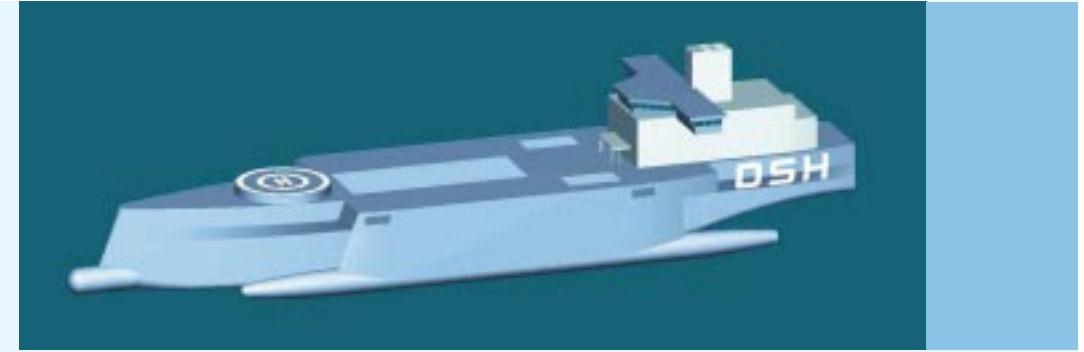


Against this background, four concrete lines of action for further improving shipping safety and restoring a normal competitive environment in the shipping and shipbuilding industries are proposed:

The first line of action is to continue Community efforts to ban sub-standard vessels from EU waters by a mandatory policy. The European Commission's proposals for, inter alia, strengthening the Port State Control regime, accelerating the phasing out of single hull tankers, reinforcing and developing the Conditional Assessment Scheme requirements for ageing tankers, will have a definite effect in this respect. The industry fully supports the new proposed EU regulations and considers EMSA's role as essential.

The second line of action lies with the increased responsibilities to be faced by operators. Industry is of the opinion that, based on clear rules, irresponsible operators have to be subjected to sanctions and should be eliminated from the trade. In market terms, this action should result in the encouragement of "quality shipping" through appropriate market rewards, stimulating a trend for investing in better and safer ships.

The third line of possible action is to promote a more transparent, uniform, efficient and independent system of technical surveys of vessels. In particular, the conditions under which the work of the classification societies is carried out need to be assessed and all possible measures to enhance the effectiveness of the system have to be adopted. The independence of the classification societies from commercial pressure is a necessary condition for a healthy system for



ship surveys. In this respect, a strict implementation of the existing, recently amended, Community legislation on classification societies needs to be ensured.

The fourth line of action is to promote a quality assessment scheme for shipyards at world-wide level. Such a system should be able to identify and rate yards that meet good industry practice and deliver vessels meeting minimum quality requirements. It would encourage higher safety and environmental standards and provide a useful guide to ship-owners, operators and surveyors indicating yards whose ships risk becoming rapidly sub-standard or suffer from high maintenance and repair costs.

Safety standards for building and maintenance of ships established by the classification societies must not be used by these organisations as commercial tools, resulting in a "race to the bottom". A possible role of the IMO in this respect should be envisaged, while the proper implementation of EU legislation will have to be closely monitored.

These actions shall be developed at Community level, but also in the framework of the competent international fora. Industry welcomes that the EU is willing to play a more active role within the IMO and expects that after the EU has enforced new rules, those will be quickly implemented also by the IMO. The European Commission welcomes the offer by industry to provide technical support, in particular to EMSA. To this end, a joint expert committee will be established, devoted mainly to the following tasks: To assess the industrial impact of existing or pending EU legislation concerning maritime transport and, in particular, maritime safety; to analyse possible further proposals to enhance maritime safety; and to support the EU within the IMO. First efforts in this context have been undertaken within the LeaderSHIP 2015 frame.

Finally, it is worth mentioning that the shipping and shipbuilding industries together can play an important role in increasing overall European transport safety and reducing the negative impact on the environment through Short Sea Shipping (SSS). SSS and European shipbuilding can provide each other with new market opportunities. Short Sea Shipping and its inter-modal integration generally require

new or specially adapted vessels and advanced and flexible ship designs that are a domain of European shipyards. The comparatively smaller size of these vessels gives an advantage to domestic yards. To fully develop and exploit this opportunity for a sustainable surface transport system across Europe, EU policy makers need to provide an appropriate framework, taking into consideration the specific conditions of European coastal waters.

SUMMARY

PROMOTING SAFER AND MORE ENVIRONMENT-FRIENDLY SHIPS

PROBLEMS

- ▶ Low freight rates and declining new building prices have a detrimental effect on maritime safety and the protection of the marine environment.
- ▶ “Rogue operators” can still participate in the market with impunity.
- ▶ The system for surveying the quality of design, construction, and repair needs enhancing.
- ▶ The full potential of Short Sea Shipping is not yet used.

RECOMMENDATIONS

- ▶ Existing and future EU legislation has to be strictly implemented and “exported” to the international level.
- ▶ A more transparent, uniform, efficient and independent system of technical surveys of vessels has to be promoted.
- ▶ A quality assessment scheme for shipyards at world-wide level should be developed, covering newbuilding and repair.
- ▶ Maintaining and strengthening shiprepair capabilities in Europe is important to ensure a high level of transport safety and environmental protection.
- ▶ An expert committee is to be established to provide technical support to the European Commission and to EMSA.
- ▶ The great potential of Short Sea Shipping needs to be exploited through appropriate political and economic framework conditions.

A EUROPEAN APPROACH TO NAVAL SHIPBUILDING NEEDS



European naval shipbuilders provide essential hardware for the European defence strategy. In no other area of the armament industry, do European producers hold such a strong world-wide leadership in terms of cost effectiveness. Compared to US naval yards, European shipbuilders are producing platforms up to 2,5 – 3 times more cost efficient. With regard to technologically advanced products, European naval yards are unmatched leaders in some areas such as conventional submarines and fast patrol boats. This lead is due in some measure to the strong cross-fertilisation between naval and highly competitive merchant shipbuilding.

However, compared to other defence sectors, European naval shipbuilding is dominated by national companies. Without increased co-operation and consolidation, European players risk being marginalized in global terms that may reduce future EU defence options. Creating strong integrated European players will assist Europe’s competitiveness, also with respect to its current dominant position in international naval export markets. Three key areas merit immediate attention: industrial co-operation between yards and between yards and suppliers, access to export markets and consolidation of the industry.

Wide-ranging co-operation is still hampered by diverging operational requirements coming from the national navies. Standardisation of components and sub-systems could and should



be widely enhanced, leading to considerable reduction in total ownership costs. Procurement cycles differ as well, leaving yards with an uneven workload. First experience with common programmes which have been launched with the aim of reducing costs and sharing non-recurring ones achieved encouraging results, but substantial improvements are possible.

Member states and their navies need to agree to a minimum set of common operational requirements and a harmonisation of procurement cycles, in line with the Commission's Communication on "European Defence – Industrial and Market Issues" of March 2003. These minimum requirements should be based on the Petersberg tasks and the "Helsinki Headline Goals". Initial efforts towards common requirements should focus on smaller surface vessels below frigate size, and should exceed this size later. Standardisation of components and sub-systems should be based on a voluntary and systematic approach. Standardisation should to some extent also cover a joint approach to quality assurance and life cycle support. Classification societies have an important role in standardisation, building on their experience in commercial shipbuilding. The ultimate goal of these efforts must be the interoperability of systems, vessels and fleets, leading to significant reductions in ownership costs. Co-operation should be organised around a limited number of major projects, using pooled R&D resources and a single European defence equipment market.

Export markets can be quite narrow and specific. Still, these markets are key to the recovery of up-front development costs. Non-harmonised export rules in the member states, based on different traditions and diverging geo-political objectives, lead to distortion of competition and barriers to increased industrial co-operation. The lack of full application of common market rules to intra-EU trades may have similar negative effects.

Therefore, export rules (and their application and interpretation) need to be harmonised between member states.

European naval yards primarily serve a limited national market, with a high degree of customisation and stringent and specific navy requirements. In a number of member states naval yards are state-owned or state-controlled, whereas this does not rule out that commercial paradigms are employed. There is a need to analyse in

more detail the strengths and weaknesses of the EU industry, including the issue of off-sets, i.e. compensatory contractual arrangements related to naval shipbuilding orders. Considerable structural differences exist between European producers, with large state-owned entities competing in the same markets with medium-sized, privately owned yards which claim that private ownership is a pre-requisite to succeed in any consolidation effort.



Against this background privatisation of state-owned naval yards should be supported, although it is fully acknowledged that no particular preference to any form of ownership should be given. Establishing a common market for defence equipment, including the setting up of a joint procurement agency, is key. This would foster consolidation in the longer term.

SUMMARY

A EUROPEAN APPROACH TO NAVAL SHIPBUILDING NEEDS

PROBLEMS

- ▶ Further co-operation between naval yards is hampered by diverging operational requirements of national navies.
- ▶ Non-harmonised export rules, and their application and interpretation, potentially distort competition.
- ▶ The absence of a truly common market for defence equipment makes industrial consolidation difficult.

RECOMMENDATIONS

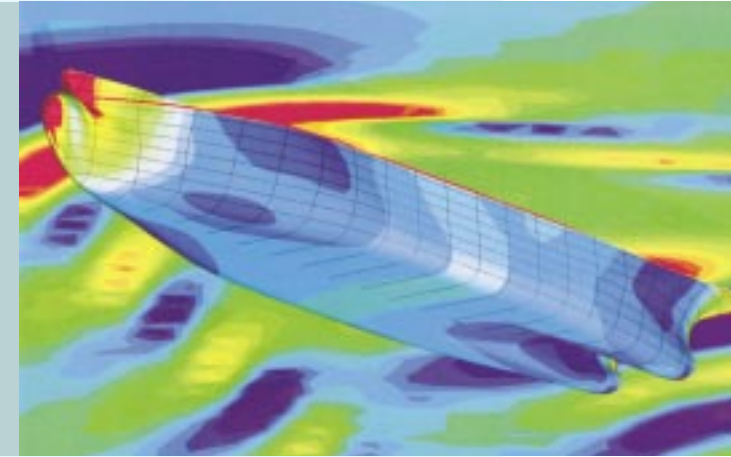
- ▶ Joint requirements should be established to shape a number of major projects, enabling co-operation between yards and leading to interoperability of systems, vessels and fleets.
- ▶ Member states should address the issue of harmonisation of export rules.
- ▶ Common rules to create a European market for defence equipment have to be developed, based on the Council's request to create an intergovernmental agency in the field of defence capabilities development, research, acquisition and armaments.

PROTECTION OF THE EUROPEAN SHIPBUILDING INDUSTRY'S INTELLECTUAL PROPERTY RIGHTS



European yards and their suppliers are confronted with increasing international competition. In this environment, competitiveness can only be maintained through innovative vessel concepts, optimised sub-systems and sophisticated design, production and planning methods.

Knowledge-driven technology is created at a very early stage in the relationship between yards and their suppliers. Yards have a need to disclose detailed technical requirements and solutions to their suppliers in order to safely calculate the project both under technical and commercial terms. Furthermore, yards and suppliers have to secure a proper interface management on all levels and closely co-operate in the technical details of each relevant device or sub-system. Shipyards also have to share their knowledge with classification societies, which perform a variety of functions. The relationship between yards and shipowners is equally characterised by a direct and broad exchange of knowledge-based details of the vessel. Owners collect such information by e.g. receiving yard specifications, general plans etc. and circulate such information world-wide for their commercial and technical opportunities. Finally, yards are co-operating closely with universities and other experts, especially in the field of computer aided design, computer integrated manufacturing and other IT components, in order to exploit R & D results and hereby disclose relevant shipyard know how.



As a result, yards are facing a permanent risk of violation of their and third parties' intellectual property rights (IPR).

Today, copyrights, registered designs, trademarks and patents are the main instruments to protect intellectual property rights. Additional measures are non-disclosure and specific collaboration agreements, although the "one-off" features often found in shipbuilding projects can make such agreements costly and appear less rewarding.

In order to exploit these existing instruments to the full, yards and suppliers need to become more aware of the threats to their know how and the resulting competitive disadvantages. The establishment of knowledge databases could become a central activity for European yards to reach this objective. These databases should not only cover specific vessel characteristics and components, they should also indicate key people and important specific customer-supplier relations. Knowledge databases would help to form an IPR-entity that could be charged to safeguard and protect European shipbuilding knowledge. It would provide yards and suppliers with information on the (internationally) available knowledge (documented and non-documented) on specific vessel components, the requirements of an IPR protection of specific technical solutions, the existing patents in the relevant technical fields, the technological



position of competitors, and the potential exposure of yards and suppliers to product piracy and other threats. All requests directed to such an entity will naturally have to be treated confidentially. The costs of such an IPR entity would be shared between the European shipbuilding partners. Through an IPR entity yards and suppliers would improve their chances to enforce their intellectual property rights at acceptable costs. The entity may even apply for and hold patents directly, thus further significantly reducing the related costs.

Due to their comparatively long validity and their international recognition, patents are still an essential instrument which European shipbuilders need to exploit to the largest possible extent, including in the countries of their main competitors. In addition shipowners should be prevented from operating ships carrying devices on board built in violation of existing patents. However, the complex and truly globalized shipbuilding market contrasts with the current international framework for the protection of patents (on vessels devices), established in 1925 and never changed substantially since then. Today, many of the rules laid down then appear anachronistic and unjustified. A re-examination of the current framework which does not allow national authorities to take measures against a ship, carrying a device built in violation of a patent, calling at a port where such patent is registered and protected, could give yards the right tool to protect their inventions and innovations, boosting the investments in R&D and stimulating yards' interest in acquiring patents.

SUMMARY

PROTECTION OF EUROPEAN INTELLECTUAL PROPERTY RIGHTS

PROBLEMS

- ▶ European shipbuilders and suppliers are more dependent on technological leadership than Far East competitors.
- ▶ The complex and comprehensive interaction in shipbuilding projects between yards, suppliers, owners, classification societies, universities and other service providers opens numerous opportunities for the leakage of knowledge.
- ▶ The industry has no sufficiently established culture for the protection of intellectual property rights (IPR).

RECOMMENDATIONS

- ▶ The existing instruments for IPR protection (copyrights, registered designs, trademarks, patents, non-disclosure and specific collaboration agreements) need to be exploited to the full.
- ▶ Knowledge data bases for shipbuilding, containing information about the state of the art, existing patents, the specific competitive situation for certain products and solutions, and key knowledge holders, should be built and run by dedicated IPR entities.
- ▶ International patent rules applicable to shipbuilding need to be examined and possibly strengthened.

SECURING THE ACCESS TO A SKILLED WORKFORCE

Keeping, transmitting and enhancing know-how is of utmost importance for the competitiveness of the shipbuilding industry. While the decentralisation of competence in the areas of education and training limits the scope for top-down initiatives at EU level, there should be room for support to activities carried out jointly by organisations interested in promoting know-how.

Currently, financial support to trans-national initiatives is provided by the Leonardo da Vinci programme. This programme can support and has already supported the development of training modules for the maritime transport sector and for shipyards. Through the co-financing of pilot projects and mobility fellowships this programme contributes to the upgrading of the skills of older workers in the industry, the transfer of knowledge and the reintegration in the sector of people with experience in shipping. It also explores future skill requirements.



The EU also promotes the exchange and development of knowledge among research workers and between the research sector and industry. The principal instrument for that purpose is the Marie Curie programme, which supports training abroad and the transfer of knowledge through fellowships at post graduate to post doctoral level. The maritime industry can benefit from this support to train researchers within the industry, enable the development of commercial research knowledge, transfer research knowledge to the industry and to facilitate exchange of knowledge between industry and academia.



Initiatives that could be developed at EU level may also relate to the creation of centres for post-graduates, with research and teaching activities, or to the creation of regional centres of excellence in which both companies and educational institutions would participate. This set-up could facilitate exchanges of students, transfer of knowledge, diffusion of good practices and the recognition of qualifications throughout the EU. It would also help to develop exchanges of experiences between technical staff in the maritime sector.

The evolution of the industry towards a structure with a few major companies and many subcontractors increasingly requires new managerial attitudes to foster adaptability and innovation. Management needs to strengthen its ability to run firms based on project-related roles rather than on statically organised functions. This approach would be a vehicle for the social and technical innovations required to enable the industry to keep offering high quality employment in the longer term.

The sector is now formally establishing a committee for the sectoral social dialogue, recognised by the Commission in line with its Communication on social dialogue and in accordance with Art. 138 of the Treaty. This welcome development might lead to joint undertakings and to agreements as regards skills and social innovation in the broadest sense, in particular concerning the adaptability of workers and firms to change, and the implementation of lifelong learning strategies.

Thus, independent of the approach chosen, four concrete key aspects need addressing: Training of managers; promoting exchanges of shipbuilding specialists; supporting the development of skills; and, an appropriate communication policy to attract skilled blue and white collar staff.

Management training should be offered both in a regional and international context. Interaction needs to be organised between senior and

junior managers. The exchange of knowledge, including to a certain extent standardisation thereof, is important. Finally, management training should include knowledge of EU policies and regulations.

Technical, management and research staff in the shipbuilding industry, including equipment manufacturers and services, should have the opportunity to work and learn elsewhere in the EU. The same applies to students and teachers on various levels.

A specific EU platform where employers and employees meet, e.g. within the framework of the sectoral social dialogue, could promote the development of skills and social innovation adjusted to regional needs.

A publicity campaign at EU level could help to stress the importance of preserving and further developing the shipbuilding and ship-repair industry. Regional publicity campaigns could be added to strengthen the effect of the EU-wide campaign.

BUILDING A SUSTAINABLE INDUSTRY STRUCTURE

Considerations on the future structure of the European shipbuilding industry need to cover all areas of activities, from the construction of all types of merchant and naval vessels, to repair and conversion projects, to the manufacturing of key components and systems, because all these activities are closely linked. Security considerations establish clear needs for certain shipbuilding capabilities, with regard to both commercial shipping and defence related tasks. Maintenance and repair capabilities are certainly to be regarded as indispensable due to safety requirements and the topographic nature of Europe.



SUMMARY

SECURING THE ACCESS TO A SKILLED WORKFORCE

PROBLEMS

- ▶ The nature of the industry is changing, posing new skills challenges.
- ▶ Exchange of staff and know how across Europe is still limited.
- ▶ The industry has not sufficiently communicated a positive and attractive image.

RECOMMENDATIONS

- ▶ Programmes for shipbuilding-specific management training need to be developed and established.
- ▶ New skill requirements need to be analysed and addressed, ideally through a sectoral social dialogue.
- ▶ Exchange of staff and know how needs to be organised on all levels, from shop floor to academia.
- ▶ A publicity campaign, showing the vitality and sustainability of the shipbuilding industry, has to be implemented.
- ▶ Regional centres of excellence could provide crucial input for the realisation of the above recommendations.

European yards operating today in the world market differ considerably in size and the applied technology level. Generally, both small and large yards can be operated profitably. Although shipbuilding will remain a comparatively labour intensive industry, manpower can be substituted to some extent by technology, making lower technological standards in low-labour-cost environments as well as high-tech undertakings in high-labour-cost environments economically feasible. The opportunities are less in repair and conversion, as tasks are less likely to be repeatable.

The cornerstones for a healthy and sustainable development of the industry world-wide are reasonable investments meeting the actual market demands. Economically less efficient facilities should exit from the market and investments should concentrate on segments where sufficient returns can be achieved. Such fundamentals for a balance of supply and demand would normally prevail if market mechanisms were allowed to work. However, in the absence of an international accord and in view of continued state intervention in some competing countries, Europe needs to develop an approach that addresses its particular needs and concerns.



Shipbuilding has specific characteristics regarding its products and its production methods. Combined with a great market volatility and the cyclical nature of the industry, shipyards have to meet contradicting objectives: In order to optimise productivity, yards have to specialise; in order to be able to weather market volatility and business cycles, yards should diversify. For historical reasons, shipyards in Europe are on average considerably smaller than Far Eastern yards. In principle, this is a competitive advantage when specialising on certain products. At the same time, market volatility constitutes a serious threat to highly specialised yards. Declining demand in specific market segments may force a specialised yard to engage in alternative products for which it is less well suited, and to team up with other yards.

On company level, structural changes are on-going. They relate particularly to the relationship between yard and suppliers. Today, suppliers account for ca. 70-80% of a yard's production. European yards have actively embraced this development and have thereby provided the groundwork for a vibrant European marine equipment industry. In the future, the relationship between yards and suppliers will evolve towards project partnerships, moving away from the traditional customer-supplier relation.

Great diversity of yards and products exists in Europe, particularly when the situation in the future EU member states is taken into account as well. The total employment in merchant shipbuilding in the accession countries is about 20% higher than in the combined EU 15, while production output is only slightly above a quarter of the EU 15 reference figure. With still much lower labour costs, shipyards in accession countries focus on a different product portfolio. The different sets of competitive advantages already foster extensive co-operation between yards in current and future EU member states. However, this cannot conceal the fact that the EU enlargement process will increase the necessity for an overall industrial consolidation in Europe. Past experience of fundamental restructuring processes, such as in East Germany, indicates that policies are not yet optimised in this respect. Industrial restructuring needs to put stronger emphasis on commercial investors who provide additional know how and better market access.

Where yard closures have become unavoidable, these should be undertaken and supported with the view to create new investments. The modification of the current EU rules on closure aid in

shipbuilding (covering partial and total closure), based on the idea of an "aid to consolidation" and possibly a trans-national approach, is a first proposal with the aim to engage in proactive measures and correct past shortcomings.

The future policy for the sector should be reviewed without bias and with a clear understanding of consequences. Two extreme paths, both undesirable, illustrate the possible pitfalls. The absence of specific measures for shipbuilding could even result in the disappearance of merchant shipbuilding in Europe within less than a decade. On the other hand, extreme protectionism, as for example exercised in the USA, will inevitably result in an irreversible loss of competitiveness.

SUMMARY

BUILDING A SUSTAINABLE INDUSTRY STRUCTURE

PROBLEMS

- ▶ While shipbuilding and shiprepair are for many reasons a strategic industry for Europe, the industrial structure is not optimal to achieve the desired results.
- ▶ International trade distortions, problematic investment decisions, in particular in Asia, and changing business patterns need to be met with a comprehensive European response.
- ▶ EU enlargement will create additional needs for industrial consolidation, but it will also offer opportunities.
- ▶ Past restructuring efforts have not always produced sustainable results.

RECOMMENDATIONS

- ▶ Non-action is not an option, neither is protectionism: The EU of the 25 must further develop its policy approach to the sector, in line with its principles on industrial policies.
- ▶ A consolidation process among European producers should be facilitated, providing incentives to remove less efficient production capacity and thereby freeing resources for new investments.
- ▶ The current closure aid rules in the EU should be scrutinised with the view to facilitate a more pro-active approach, based on the idea of "aid to consolidation".

SUMMARY OF RECOMMENDATIONS

A LEVEL PLAYING FIELD IN WORLD SHIPBUILDING

- ▶ Continuation of the present EU trade policy approach with determination
- ▶ Full enforcement of applicable WTO rules to shipbuilding
- ▶ Development of enforceable OECD disciplines through a new shipbuilding agreement by 2005 and an unambiguous interpretation of existing rules

IMPROVING RESEARCH, DEVELOPMENT AND INNOVATION (RDI) INVESTMENT

- ▶ The European dimension of shipbuilding RDI should be strengthened through integrating and concentrating efforts, with the aim to create Technology Platforms. Work being undertaken within the Maritime Industries Forum should form the base for this approach.
- ▶ Shipbuilding should, in substance, enjoy the same conditions as other industries that engage in similar RDI activities.
- ▶ Aid intensities need to reflect the actual technological risks taken in all phases of design, development and production.
- ▶ New definitions, notably regarding innovation aid, need to be developed where necessary.
- ▶ RDI investment support needs to aim at enhancing European technological leadership and should reward risk taking.

ADVANCED FINANCING AND GUARANTEE SCHEMES

- ▶ Explore the possibility of establishing an EU-wide guarantee fund for pre- and post-delivery financing. The alternative of harmonising standards in EU member states, in line with common market and OECD rules, could also be considered, albeit difficult to fully achieve. Any such tools have to be easily applicable.
- ▶ Export credit insurance companies, covered by appropriate re-insurance, should offer hedging instruments for currency risks.

PROMOTING SAFER AND MORE ENVIRONMENT-FRIENDLY SHIPS

- ▶ Existing and future EU legislation has to be strictly implemented and "exported" to the international level.
- ▶ A more transparent, uniform, efficient and independent system of technical surveys of vessels has to be promoted.
- ▶ A quality assessment scheme for shipyards at world-wide level should be developed, covering newbuilding and repair.
- ▶ Maintaining and strengthening shiprepair capabilities in Europe is important to ensure a high level of transport safety and environmental protection.
- ▶ An expert committee is to be established to provide technical support to the European Commission and to EMSA.
- ▶ The great potential of Short Sea Shipping needs to be exploited through appropriate political and economic framework conditions.

A EUROPEAN APPROACH TO NAVAL SHIPBUILDING NEEDS

- ▶ Joint requirements should be established to shape a number of major projects, enabling co-operation between yards and leading to inter-operability of systems, vessels and fleets.
- ▶ Member states should address the issue of harmonisation of export rules.
- ▶ Common rules to create a European market for defence equipment have to be developed, based on the Council's request to create an intergovernmental agency in the field of defence capabilities development, research, acquisition and armaments.

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