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THE LAST 15 YEARS IN THE GERMAN SHIPBUILDING INDUSTRY OUT OF CRISIS?

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The last 15 years in the German shipbuilding industry -
out of crisis?

I. Start of the crisis

Until 1973, German shipyards profited from the tanker boom. Expert forecasts promised a continuous increase in the oil consumption of industrial nations. Shipping companies made every effort to order enough tankers early enough to meet the expected rising import demands. Shipyards launched large-scale investment programmes to be able to build bigger and bigger tankers faster and faster.

The end of this period of optimism is a well-known story. In November 1973 drastic rises in the price of oil and threats of oil boycotting rapidly invalidated every forecast concerning oil consumption. Where possible, shipping companies tried to cancel their orders for new tankers, and already delivered ships were laid up.

It took a while for shipyards to realize that tankers were not the only ships they could no longer sell. All over the world, capacities for building new ships had risen to such an extent that they far exceeded the number of ships in demand.

II. Shrinking

In 1975, a total of 78,000 persons were employed in German shipyards. This number dropped every year until it reached 33,000 in 1988 - a reduction overall of 56 %.

The number of shipyards was also drastically reduced. Three large German yards had to close down - AG Weser in Bremen, Deutsche Werft in Hamburg and Howaldtswerke in Hamburg. Many other, smaller shipyards sadly went bankrupt. The remaining larger shipyards, which together account for about 60 % of the total capacity, are concentrated in three groups:

- Bremer Vulkan AG Group including Schichau Seebeckwerft AG and Lloyd Werft GmbH in Bremerhaven and Neue Jadewerft GmbH in Wilhelmshaven
- Blohm + Voss AG in Hamburg and Thyssen Nordseewerke GmbH in Emden, which both belong to the same concern group and share management and directorship to some extent
- Howaldtswerke - Deutsche Werft AG (HDW) in Kiel, with its subsidiary of HDW-Nobiskrug GmbH in Rendsburg.

III. Alternative production programme

Alternative production programmes ("diversification") quickly spring to mind. Every shipyard has its own specialist workshops, such as the

fitter's shop, the boiler maker, mechanical engineering and machine shop and the steelworks. Without question, these facilities are capable of other tasks and not just building ships. But experience soon showed that the market for such products was firmly in the hands of specialists.

A newcomer to this field faces a long and hard road if he hopes to compete successfully in terms of quality and price with established specialist branches, but there were a few positive developments, such as building tank hulls, maintaining army vehicles, building flue-gas desulphurization systems, excavators, docks or machinery and performing steel construction work.

Another alternative is to invest in new technology. For example, HDW acquired the electronic company Hagenuk, made the computer software department independent, etc. This helps large concerns to try to make money outside the field of shipbuilding.

For a short while, high hopes rested on oceanic research and marine technology. There was a large demand for all kinds of oil rigs in Northern Europe after the loss of the Arabian oil. Unfortunately, the protectionist attitude of the British and Norwegian did not encourage participation of the German shipbuilding industry in this boom.

In spite of these difficulties, production on contracts not associated with shipbuilding now accounts for about 20 % of the man-hours in German shipyards.

IV. Alternative ships

The German shipyards worked very hard to sell the high technical capacities of their engineering and production lines in design and construction of the kind of ships that were not really covered by the worldwide shipyard surplus, for example:

- Passenger ships

In recent years, German shipyards built a large number of passenger ships and ferries of all sizes.

- Icebreakers

One German yard - Thyssen Nordseewerke - has specialized in the development of a new kind of icebreaker, which has meanwhile also been well received in the Soviet Union.

- Naval ships

Since 1973 the three yards of Blohm + Voss, Thyssen Nordseewerke and Howaldtswerke - Deutsche Werft have built altogether 28 frigates and corvettes and more than 40 submarines for export all over the world.

As an alternative to merchant shipbuilding, our statistics list separately production work done for our own and friendly navies and naval repair work. At the moment, work on naval ships accounts for about 20 % of all man-hours on the production lines of German shipyards.

V. The development of improved merchant ships

The German shipbuilding industry realized at a sufficiently early stage that it would only be able to maintain its place in the world market by offering new ship concepts with all the advances of high technology. This was the basis of a large-scale research programme under the ambitious title of "Ship of the Future".

30 companies associated with the German shipbuilding industry spent several years in research and development work under the central coordination of HDW and with the support of the Federal Ministry for Research and Technology, with the overall aim of improving substantially economic ship operation.

As ship's operating costs are mainly determined by expenses for fuel and personnel, most developmental work was concentrated in fields that could contribute towards reducing these costs.

By the installation of economic low speed diesel engines and the use of many refinements like the asymmetric stern, wake distribution nozzle etc., fuel consumption was reduced by 25 % as compared with conventionally equipped vessels.

The use of micro-processor technology and suitable measures to reduce and simplify the workload enabled the previous number of 22 - 24 crew members to be reduced to 15. The installation of advanced permitted a further reduction to 12 crew members. The bridge has been modified into a Ship's Operation Centre and the high technical standards of equipment here make it possible for the ship to be run in one-man monitoring operation only.

The theory that shipping companies would be willing to pay slightly more for a more competitive ship proved to be true, although the price of the "Ship of the Future" lies about 5 % higher than for a normal ship. As a result, this new technology has contributed to the success with which more merchant ships have been ordered in the last couple of years.

In the period from 1985 to 1989, HDW built a series of 16 container ships according to the "Ship of the Future" concept. The container capacity varies from 1500 and 4300 TEU and speed between 17.5 and 24 knots. Another 8 container ships are on order.

Similar principles to those developed by HDW for the "Ship of the Future" have also been applied by Bremer Vulkan in improving new merchant ship construction. In some cases, the two yards have been partners in the acquisition of contracts and the building of container ships. So far, the climax of this series of ships was the joint production by Bremer Vulkan and HDW in 1988 - 1989 of Post-Panmax container ships with 4300 TEU each for the American President Line.

VI. Subsidies

In the light of worldwide surplus capacity and distorted competition, German shipbuilding policy has a dual aim:

- To reduce unbalanced competition and surplus capacity on the world shipbuilding market, especially by negotiations within the EC and OECD;
- Parallel to this, to ensure that the German shipyards are subsidized to avoid sudden collapses during the necessary adaption process without preventing important restructuring.

At the present time, German shipyards can count on the following subsidies::

1. According to the OECD

80 % of the price of a ship can be awarded interest relief if the standard market interest rates are in excess of 8 %. This relief is awarded for a maximum period of eight and a half years after delivery of the ship and may not be higher than 2 %.

2. Trade competition support allowed by the EC

Although the EC allows a maximum of 28 %, the Federal Republic of Germany awards a subsidy of 20 % of the ship's sales price (16.6 % of the net price). A ceiling is determined every year, financed two-third "Land" - the coastal federal states of Lower Saxony, Bremen, Hamburg and Schleswig-Holstein. This combined finance plan is found only in the Federal Republic of Germany. Each of these regions has shipyards. The fact that the regional governments have a share in the financial burden and thus a say in procedures has the useful side-effect that the shipyards concerned can be forced to cooperate with each other on major contracts for a number of ships. This allows several regions to profit from a large contract. In future the EC wants to drop the maximum degree of subsidization from 28 %, to 26 % and the German authorities have also expressed their intent to reduce the 20 % limit to 16 %.

VII. Raising productivity

Structural changes at the shipyards were accompanied by new investments essential to future prospects. In spite of the long period of crisis in the shipbuilding industry, the yards have made major investments in rationalization and restructuring measures. The last 10 years have seen about DM 2 000 million invested by the German shipyards, corresponding to some 8 - 10 % of productive output value.

Productivity increases of 3 - 4 % per year were mainly achieved through

- applying computer-aided project planning and control systems (PPS)
- using CAD/CAM procedures
- introducing NC automatic cutting machines, also for plasma cutting
- improving automatic welding with unilateral welding procedures
- more work in closed workshops, so that today 70 - 100 % of shipbuilding construction work takes place under cover.

Concentrated efforts at rationalization, the introduction of new techniques and adaptation to a changing market have increased the efficiency of the German shipbuilding industry.

In order to safeguard what has been achieved and to further improve the situation, a comprehensive research and development programme is currently being supported by nearly all the German shipyards under the heading "Production Techniques in Shipbuilding". This project is coordinated by the German Shipbuilding Research Centre and has at present a budget of about DM 30 million. It is financed jointly by the industry itself and national agencies.

Summary and future prospects

If the measures outlined under sections II to VII above are summarized, it becomes evident that the German shipbuilding industry is making a very great concerted effort to maintain its place in spite of the worldwide surplus shipbuilding capacity and various difficulties in competing on the market.

It is my opinion today that the question posed by the title to this presentation can be clearly answered in the affirmative: Yes, the German shipbuilding industry is on its way out of the crisis. I come to this conclusion for the following reasons:

- The decline of world shipbuilding stopped in 1988. Forecasts of world shipbuilding requirements up to the year 2000 all show an expected increase. This is based on the future increase in world trade by sea and, because of the general age of merchant ships worldwide, on a rising need to replace ships. The Association of West European Shipbuilders (AWES) forecasts that the need for new ships worldwide will double in the period from 1995 to 2000 compared with present production levels.
- In Japan it would appear that capacities are going to be reduced as they have been in other industrial countries.
- In Korea, high financial losses have also led to the development of a crisis in the shipbuilding industry and it would seem that there too the realization is growing that they cannot afford to build and sell below cost price.
- All the German shipyards have made themselves less vulnerable to fluctuation on the international shipbuilding market by introducing new activities, especially those not concerned with shipbuilding.

The new employment/production structures are as follows:

Merchant ship new construction	45 %
Repair and modernization	15 %
Naval shipbuilding and repair	20 %
Activities not related to shipbuilding	20 %

Contracts for the construction of new merchant ships are in 80 % of cases for technically specialized vessels, such as cruise liners and passenger ships, container ships or gas and chemical tankers. There is also an increase in the number of non-cargo-bearing ships, such as research vessels, patrol boats etc.

- In the production of high-quality ships, the German shipyards can fall back on a wide range of highly efficient suppliers and sub-contractors specialized in the high-tech fields of mechanical and electrical engineering.

Contractors for the construction of new merchant ships are in 50 % of cases for technically specialized vessels, such as tankers, liners and passenger ships. Contractors ship or gas and chemical tankers. There is also an increase in the number of non-cargo-bearing ships, such as research vessels, patrol boats, etc.

In the construction of high-speed ships, the German shipyard can hold back on a wide range of highly efficient engines and sub-contractors specialized in the high-tech fields of mechanical and electrical engineering.