

exhibition in Asia. The Chinese industry continues to develop in a very dynamic way and thus remains extremely interesting for marine equipment suppliers. Especially German products have a very good reputation on the Chinese shipbuilding market, also due to numerous cooperations between German and Chinese companies of the maritime industry. Another impulse for the German marine equipment industry is released by the large amount of newly-built ships for German shipbuilders on Chinese shipyards, who often insist on the installation of high-quality German components and systems.

The strong German presence at MARINTEC CHINA also reflects the good position of the German maritime industry on the Chinese market and the business opportunities for German exhibitors expected for the future.

The supporting events have led to positive feedback from the Chinese business associates, too. The German professional symposium shall be re-conceived for the next MARINTEC in order to adjust to a high degree to the fast-changing conditions on the Chinese market.

(Text abbreviated and translated by GIC Shanghai)

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Project Management on Chinese Shipyards

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China's statistics reveal that there are more than 1300 shipyards in mainland China. Shipbuilding is considered as one of the key industries of China. Previously centrally controlled under CSSC (China State Shipbuilding Corporation) it is now divided into two groups, the CSSC and the CSIC (China Shipbuilding Industry Corporation). The two groups traditionally controlled about 60 shipyards, which have reached various levels of experience in building ships for export. Some yards, such as the Shanghai Shipyard, have quite a lot of experience and have attracted well-known ship owners to build their vessels. Other yards have more specific capabilities in providing components or various parts.

Chinese shipbuilding industry has entered a period of rapid change—by splitting up into two groups (CSSC/CSIC), merging specific yards, entering new markets and building »higher-technology ships«, such as chemical, gas-tankers, and Ro-Ro ships.

Given the large number of shipyards and taking the development of the Japanese and Korean shipbuilding industry as a model, one can expect that

Chinese yards will have a larger share of the world ship-building market (which is what the Chinese Government is planning).

The Chinese shipbuilding industry depends on local factors, such as the supply of low-cost workmanship, local steel industry development, logistics improvements and many other factors undergoing continuous change within China. External factors influencing the development of Chinese shipbuilding come from ship owners, designers, classification societies, suppliers and similar interest groups who are imposing their requirements on the local yards.

The following paragraphs give a true picture about shipbuilding in China and show the experience of Proftech in the ship-building industry.

Shipbuilding projects—a chronology

In 1996 we had the chance to be assigned Chief Engineer for a 48.000 DWT geared bulked carrier at Jiangnan shipyard in Shanghai. The vessel was built for BSkaugen of Norway and operated by a Swiss company.

The Chinese designed ship was built on a high



Engine building at Shanghai shipyard



Propeller building in Dalian



Propeller building in Dalian



Sea trial at Bohai shipyard

quality standard, using a large portion of imported equipment, and a 2-stroke main engine built under licence from Sulzer at the Shanghai shipyard. China has three large engine factories which are producing engines under licence.

Together with the Norwegian owners, we worked closely with the yard which had already worked for the same owner and guaranteed the quality of the vessel for six years.

During this project, we realised the importance of having a separate project management for the building of the main engine and of establishing a separate suppliers database for it. Our work also included a separate supervision of the building of the engines.

Later that year, we had the opportunity to join a project of Bertling, a Hamburg based logistics company, at the Bohai shipyard in Northeast China. Bertling was one of the first foreign ship owners at this shipyard and the project consisted of four 28.000DWT multi purpose vessels. A German ship design was used in co-operation with MARIC, a Chinese ship design office. Similar to the BSkaugen project, much of the equipment came from overseas, or was built to specification on licence in China.

The remote location of this particular shipyard caused some additional challenges. As an example the main engines were produced in Yichang which is some thousand kilometres west of Bohai and the propeller was delivered from Dalian, which is east of Bohai. Nevertheless, we were able to successfully manage all of these projects at the same time.

Shipyards such as Bohai depend heavily on the engineering and design from many sub-contactors. This can create much friction if there is no daily communication and no close control and co-ordination. We are proud that this first Bohai ship could be delivered with a slight delay of about four months only, with subsequent improvement for the remaining ships.

The next project was the building of two 1100 TEU ships at the Xingang shipyard in Tianjin. A tremendous delay might have influenced the decision to sell the ships during its construction to the final owner, Jüngerhans from Germany.

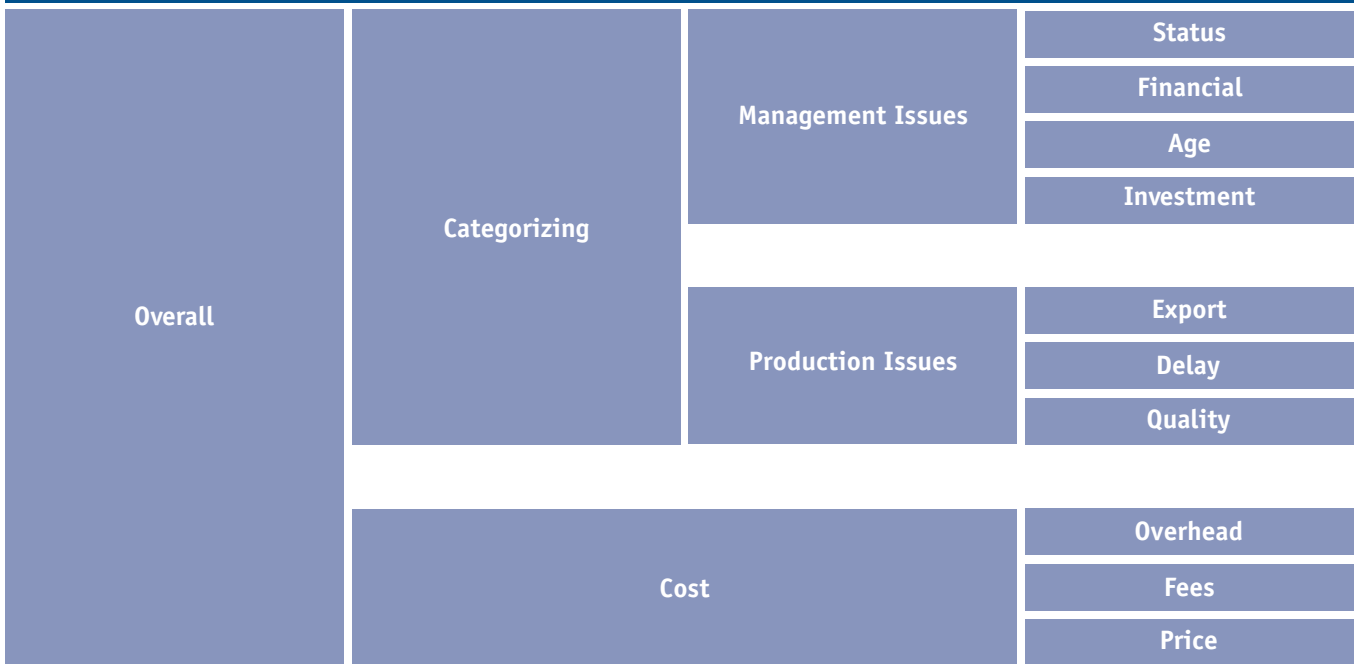
In 1999 we were part of the project for a series of 16.000DWT multi purpose vessels at the Zhonghua shipyard in Shanghai. This project, which consisted in building four vessels in a series, was very successful. None of the ships had a delay and in average every ship could be delivered about ten days after the first and only sea trial.

Multipurpose vessel at the Zhonghua shipyard

Our most recent project in China was for Genchart from Rotterdam, consisting of four multipurpose vessels with the following dimensions:

Length overall	143 m
Breadth moulded	21.5 m
Summer draught	9.7 m
Speed	15.4 knots
Range	15.000 nautical miles
Register	LR
Deadweight	17.500mt
Container capacity	962TEU
Main engine	7800kW
Two holds with twin-decks	
Three cargo cranes	60mt at max. 16m





Most of the equipment for these vessels has been imported from Europe.

This project was very successful, and all the ships are operating to the full satisfaction of the ship-owner. We were able to have a very good co-operation with all the involved parties and all the ships were delivered without any delay.

Some key issues of shipbuilding projects

- Ship design
- Engineering
- Imported equipment—selection, importation, logistics
- Suppliers—choosing the »best cost« solution
- Main engine building
- Project management—bringing together all the factors
- Communication
- Potential for delay

The above mentioned aspects can be seen as part of a chain of inputs into a shipbuilding project that in China is even more complex than elsewhere. The successful completion of such a project must have the contribution of each stakeholder involved:

- Ship-owner
- Shipyard
- Project Manager
- Designer
- Classification society
- Supplier
- Other stakeholders

Selection of shipyards

When a ship-owner decides to build a vessel in China, he soon has to short-list his preferences in order to reach a decision concerning the choice of the build-

ing yard. It is not an easy task to collect information and to evaluate the large number of yards in China. As we experienced, ship-owners often face problems exactly because they have not spent enough timemaking the selection. This is especially true for special projects and for smaller owners who do not have an appropriate infrastructure for continuous evaluation of yards and suppliers. In total, the analysis of shipyards needs time. Inputs such as financial stability, new investment, management skills, work procedures are all crucial in the final decision making process. These informations, however, are difficult to obtain for newcomers in the Chinese market, and almost impossible to get during a one or two days stay of an owner’s representative. Moreover, it is often possible to get better deals if you can rely on some relationship or »guanxi« with the different yards.

Our experience shows that a »Multi Variable Input« approach including about ten major inputs should be applied. Although time consuming, such an approach gives an objective view, and has the potential of saving millions of dollars. Such an approach also offers the opportunity to vary inputs, on a given model, and in doing so to adapt to certain constraints (i.e. budget) of an owner.

Value tree for a shipyard

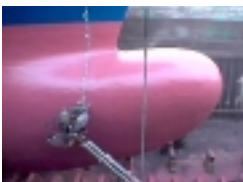
This approach allows the ship-owner to select a yard according to his needs and achieve the »best cost« product. In this case the investment in a vessel can be further assured. Finally, following a detailed analysis process allows a



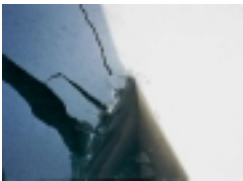
Engine room of Bohai ships



Workers at the A shipyard



Bug of one of the Xingang ships



Breaking the ice...

project manager to clearly justify his/her decisions in front of his/her management.

Ship design

Some ship owners supply their own complete ship designs. Others accept the development of a basic design, with the bulk of the design work carried out locally.

Both approaches have advantages and disadvantages. Many Western design offices are now hoping to establish themselves in China, either by having good contacts to local designers or by performing their own design operations. As an attempt to lower design fees and to be closer to the field of action, this is a reasonable approach as the implementation of a design in China can become a bottleneck quite often.

Project management

The ship itself is a very complex unit and consists of many components either produced locally in China, under licence or imported. The project management therefore can be very demanding to make sure that the equipment is correctly delivered and built to requested standards. Many inspections are therefore not necessarily due at the shipyard, but also at its suppliers' sites. This can be very extensive as local suppliers often do not have established standards.

Not only owners, foreign suppliers are also often facing problems concerning the co-ordination of their deliveries, installation and testing, and the project management as a whole. This can be costly, as suppliers do not necessarily have their own agents or facilitators available. A supplier may have a high quality product, but this is useless if he can not deliver it in a proper way, and on time to the new ship

Western ship-owners usually plan to build ships in China within two years or less. In a typical case, the owner will form teams to oversee the

production. We usually see a mixture of the companies' own staff and local Chinese. These teams work far from their head-offices overseas, and usually do not have any China related experience. To successfully work and build ships in China it is necessary to involve people knowing the laws, business practices, and the language of the host country. These factors, according to our experience, are largely underestimated by ship-owners.

Normally the same objectives can be identified for all companies i.e. »...to build a ship at high quality...« Whereas this is a simple statement and could be categorised as »Management by objectives« it usually gives raise to controversy as it is not always clear what quality standards are to be applied and individuals involved try to influence other team members.

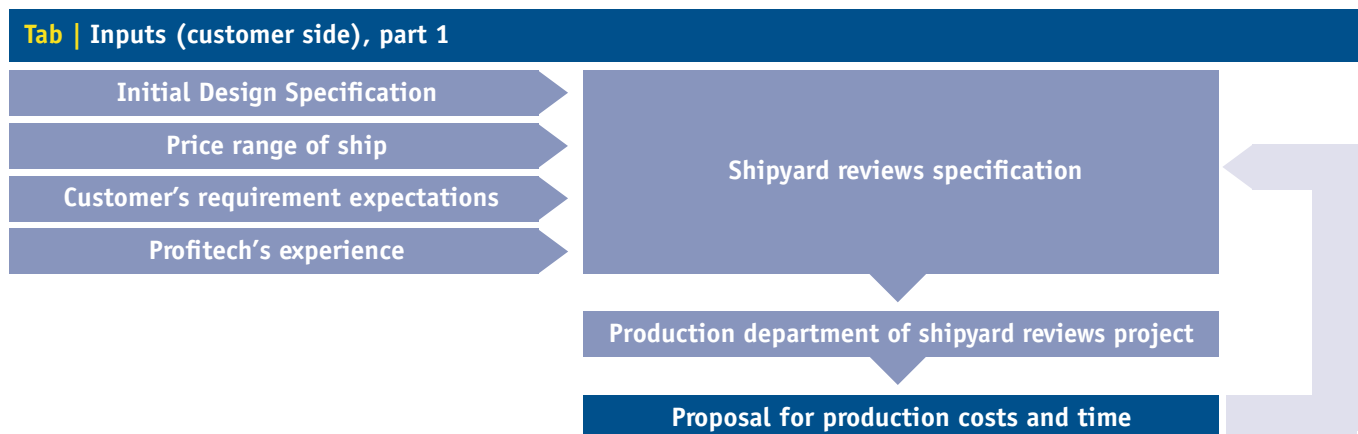
This can cause tremendous frictions between the stakeholders of the project i.e. the shipyard, supervisors, designers, classification societies and ship owners. The decentralisation and distance of the building team can further aggravate these problems.

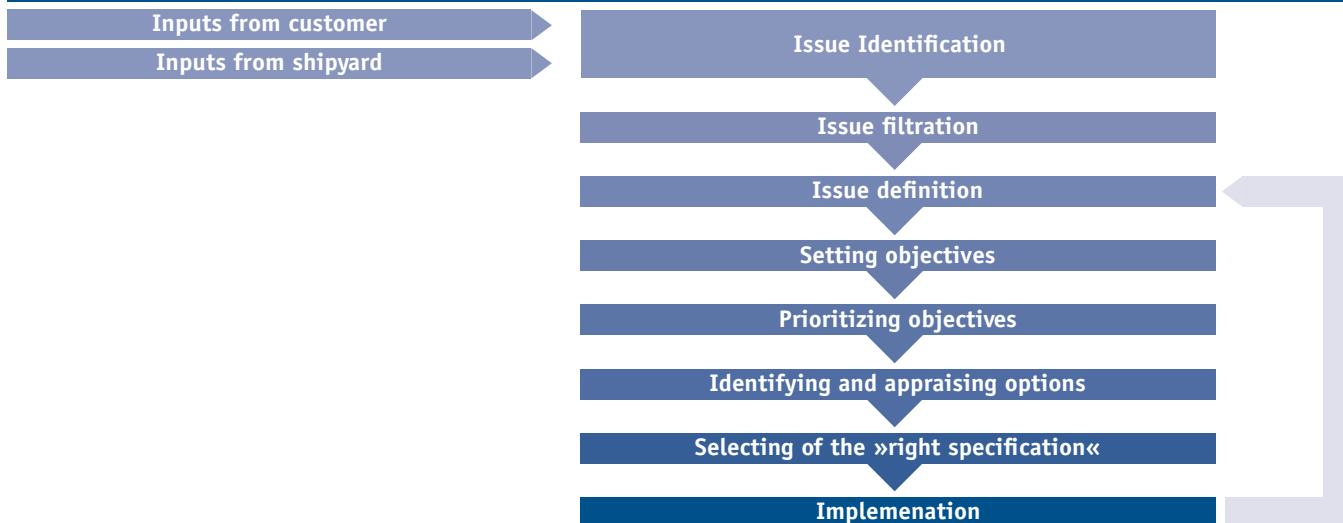
Decision making

The key conditions set by the ship-owner are his budget for the ship and critical specifications. These specifications are usually very detailed and are part of the final contract. The aim is therefore to select the yard which is "best fit".

Typically, there is a "giving and taking" process starting off, the yard trying to match its capabilities to the requirements of the owner – again, at a price and time schedule suitable to both sides. The different stakeholders, of course, have different opinions and valuing systems.

In any project, one must identify »a number of possible solutions« and »decide on the best solution.« Setting objectives and »identifying





and appraising options» should be applied. This also helps to reach an ideal solution and to accept possible trade-offs.

Without proper analysis and experience for operation in China, owners and stakeholders are often negotiating blindly. Reaching compromise for the sake of »giving face« should not be an option.

The entire negotiating and building process may in reality not be as clearly structured as shown above. But we believe that the visualisation of the decision making process will help clarify the

trade-offs by the involved parties and lead to the best solution. This method helps to avoid unnecessary costs and delays and allows to achieve a win/win situation for everybody.

The process has to involve all stakeholders in order to prevent bias. The customer's »pre-selection« of issues especially in the complex environment of a Chinese shipbuilding project has to accept and consider the inputs from the shipyard. Which with the above can result in acceptable solutions for all parties.

➤ **COMPANY**

More and more ship-owners are building their ships in China. Beyond building, Proftech offers the handling of many activities connected to the lifecycle of a vessel.

- Building (includes planning, financing, designing and supervising)
- Operation (includes crewing and maintenance)
- Repair (includes repair and dry-docking)
- Demolition (environmental friendly disposal)

We call it the BORD® Plan. BORD® is part of the value-added services available from Proftech. Proftech's network and management experience can be applied to nearly any marine-related project.

In addition, Proftech is developing a Marine-Pool®, which offers marine equipment suppliers a marketing platform in China and Asia. This has attracted a lot of interest especially

for SME's without a proper set-up in China. The MarinePool® member will have continuous access to major shipyards in China, and will have the benefit of sharing costs, while maximizing contact with end-users. Furthermore, the goal of MarinePool® is to offer integrated solutions—to make components support each other.

Proftech's aim is to offer an expert service in China utilising an extensive network, at competitive prices in the following fields:

- Shipbuilding and Marine platform design and supervising
- Supervising of components also for export
- Suppliers representation
- Marketing activities
- Business consulting

Our multicultural staff of local Chinese and Western expatriates have a sound network to different industries, organisations.

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