OECD COUNCIL WORKING PARTY ON SHIPBUILDING
WORKSHOP ON GLOBAL VALUE CHAINS IN SHIPBUILDING

«Global Value Chains in Shipbuilding
The Italian Perspective»

Contribution by Paolo Lotti – ASSONAVE Director

Paris, 27 November 2013

The Italian Shipbuilding Cluster

Employment end-2012

Total: 36,000 Employees

Supply Chain - 1st tier
Abt 25,000
(70 %)

Merchant Shipbuilding
Abt. 7,900
(21 %)

Shiprepair
Abt. 1,000
(3 %)

Naval Shipbuilding
Abt. 2,000
(6 %)

Fincantieri
85 %

Others
15 %
Italian Merchant Shipbuilding Positioning

Orderbook mid-2013

Total > 4.0 Billion € or 1.1 Million Cgt

- Cruise Ships: 85%
- Offshore: 6%
- Ferries: 4%
- Yachts: 4%
- Other Types: 1%

Fincantieri: 89%

Others: 11%

Fincantieri Group positioning

Turnover of main global shipbuilders (2011 Data - Euro Bill.)

- Fincantieri: 14.4
- Hyundai: 8.0
- DSME: 7.9
- STX: 5.4
- Keppel: 4.0
- HHI: 3.3
- Mipo: 2.9
- Samho: 2.9

- Offshore
- Naval
- Cruise / Ferries
- Mega-Yachts
- Repair/Conversion
- Marine Systems

(1) Turnover related to shipbuilding (including offshore vessels); yearly average exchange rate
(2) Hyundai Group = HHI shipbuilding + offshore BU + H. Mipo + H. Samho
(3) STX = STX Offshore & Shipbuilding (excluding VARD, formerly STX OSV)
(4) Financial year ending on March 31st, 2012

Source: Companies Annual Reports, specialized press
Fincantieri Global Network

21 Shipyards in 3 continents - Abt 19,000 direct employees - Access to high potential markets

(1) JVA agreement with Aker Finnyards and Italian Shipyard
(2) JVA agreement with ABB Asea BPA
(3) Under construction

Fincantieri Cruise ships - track record
Since 1990

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DELIVERED</th>
<th>ON ORDER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niche market (up to 70,000 GT)</td>
<td>6</td>
<td>5(1)</td>
<td>11</td>
</tr>
<tr>
<td>Specialized market (70,000 - 100,000 GT)</td>
<td>28</td>
<td>1(2)</td>
<td>29</td>
</tr>
<tr>
<td>Mainstream market (100,000 - 145,000 GT)</td>
<td>29</td>
<td>5(2)</td>
<td>34</td>
</tr>
<tr>
<td>CRUISE SHIPS</td>
<td>63</td>
<td>11</td>
<td>74</td>
</tr>
</tbody>
</table>

(1) Includes a MoA with Viking Ocean Cruises for 2 units
(2) Includes a MoA with Carnival Corporation & plc for 2 units, respectively for the Holland American Line brand (specialized market) and the Carnival Cruise Lines brand (mainstream market)
The Italian Marine Equipment Manufacturers Cluster
Shipbuilding + Boat/Yacht building – Average annual data

1st tier supplies

Domestic Market: 6.053,16 million EUR
Export Market: 2.677,61 million EUR

N° Enterprises, est.: 6,828
Employment: 32,225

2nd tier supplies
Production value: 5142,31 million EUR
Employment: 18,423
Number of Enterprises: 5,419

Global Value Chains:
Standardised vs One-of-a-kind products in shipbuilding

Sectors Studied By OECD (*)
- Agriculture and food products
- Chemical products
- Motor vehicles
- Electronics (office, accounting and computing machinery)
- Business & Financial services

= STANDARDIZED PRODUCTS AND SERVICES

NOT ALL THE SHIPS ARE THE SAME ….

Italian / EU Shipbuilders

Global Value Chains:
BMW Cars

- **Canada:**
  - Marketing Subsidiaries

- **United States:**
  - R&D Center
  - Manufacturing Plant

- **Mexico:**
  - Marketing Subsidiaries

- **Germany:**
  - Corporate Headquarters
  - Eight Manufacturing Facilities

- **Russia:**
  - Kaliningrad Assembly Plant

- **Brazil:**
  - Curitiba (Triste Motors)

- **United Kingdom:**
  - Four Manufacturing Plants

- **South Africa:**
  - Rosslyn Manufacturing Plant

- **Egypt:**
  - Kairo Assembly Plant

- **Thailand:**
  - Rayong Assembly Plant

- **Malaysia:**
  - Kuala Lumpur Assembly Plant

- **China:**
  - Shenyang Joint venture with Brilliance China Automotive

- **Indonesia:**
  - Jakarta Assembly Plant

- **Switzerland:**
  - Manufacturing Plant
  - R&D Center
European cruise shipbuilders
Total purchased value 2010 - 2012

Sourcing Area

<table>
<thead>
<tr>
<th></th>
<th>National Source</th>
<th>Other Eu</th>
<th>Non-Eu</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC</td>
<td>84%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>MW</td>
<td>80%</td>
<td>18%</td>
<td>2%</td>
</tr>
<tr>
<td>STX (*)</td>
<td>81%</td>
<td>6%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: CLIA Europe, Company data

(*) Finland + France

European cruise shipbuilders
Total purchased value 2010 - 2012

Macro-items

<table>
<thead>
<tr>
<th></th>
<th>Materials, equipm.&amp;services</th>
<th>Turn-key supplies</th>
<th>Contract labour</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC</td>
<td>41%</td>
<td>50%</td>
<td>9%</td>
</tr>
<tr>
<td>MW</td>
<td>52%</td>
<td>37%</td>
<td>11%</td>
</tr>
<tr>
<td>STX (*)</td>
<td>35%</td>
<td>58%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Source: CLIA Europe, Company data

(*) Finland + France
Strategic Purchasing Portfolio for Marine Equipment Products

**Critical Products**
- Propellers
- Fire doors
- ............

**Critical Factors**: On-time delivery, OK / Sustainable Quality, Cooperation during engineering

**Strategic Products**
- Pumps
- Electrodes
- ............

**Critical Factors**: Price / Cost of acquisition, Ordering Process, Just in time

**General Products**
- Turn Key Supplies
- System Supplies
- Main Engines
- Integrated Bridge Equipment
- Design & Engineering

**Critical Factors**: Few Manufacturers, Long-term sourcing, Delivery Lead-time

**Local Content**
- Low
- High

**Global Content**
- Low
- High

**Product Value — Profit Impact**

**TOPIC 1**

- What does the current GVC for shipbuilding look like from the developed economy perspective?
- Where, along the chain, are firms situated?
- What activities have they specialised in?

- Since the ‘90s Italian Shipbuilders have focused on the high-end of the product range of the industry
- The Italian Marine Equipment Cluster is able to supply almost the whole range of components and systems needed to build complex ships
- For one-of-a-kind ships GVCs affect only some of the families of the purchased items
- For one-of-a-kind ships the “proximity factor” plays a key role in the localisation of the Supply Chain
TOPICS 2, 3 and 4

• How did the emergence of competition from emerging economies encourage or change the fragmentation of shipbuilding tasks, such as design and equipment manufacturing?
• What impact might this have had on the extent of market distortions in the global shipbuilding market?
• What challenges and opportunities do GVCs bring to shipbuilding firms in developed economies?

AIDA ... Made in Japan in cooperation with Europe

Our Trust
• 80% of all suppliers from Europe, mainly from Germany

• High tech from Japan
  – MALS Technology, safes 7%
  – Absorption chiller,
  – Hydrodynamic optimization
• Dual fuel engine, triple exhaust gas cleaning
• Cutting edge technologies

Source: AIDA Cruises

TOPICS 2, 3 and 4

• How did the emergence of competition from emerging economies encourage or change the fragmentation of shipbuilding tasks, such as design and equipment manufacturing?
• What impact might this have had on the extent of market distortions in the global shipbuilding market?
• What challenges and opportunities do GVCs bring to shipbuilding firms in developed economies?

• Competition from emerging economies hasn’t significantly changed the fragmentation of shipbuilding tasks for cruise shipbuilders: design and system integration remain areas of key strategic know-how, no way to outsource or to offshore them

• For the firms in developed economies GVCs represent an opportunity to reduce the cost of the final product

• The proximity of the supply chain is a definite competitive advantage of Europe.
The European maritime industry seems to have moved upstream in shipbuilding GVCs. Are there relevant government policies to support this move?

- **Upstream move = industrial strategy**
- **Repositioning costs borne by the companies**
- **Only Innovation Aid under the Shipbuilding Framework**

Would a move to the upstream activities in shipbuilding without maintaining construction activity be sustainable?

- **Yes, in principle it is possible, and there are success stories**
- **Certain European Companies offer complete designs and key material-packages for ships to be built in the most convenient shipyards in the world**
- **Hull structure critical in cruise ships: little room for a “buy” strategy**
- **In Italy and in Europe preserving employment and know how should be a priority**
How have GVCs in shipbuilding affected existing maritime clusters? Are we seeing the emergence of “virtual” clusters across geographic space?

- Competition and cooperation among maritime cluster in the different phases of the cycle
- Virtual clusters already a reality, with more to come in the future
- IT technologies more and more “key enablers”, also with reference to GVCs, but …..
- ….. a value chain is always as strong as its weakest link

What do developed economies consider to be the shipbuilding policy challenges for the future?
Recent and upcoming IMO regulations

- MARPOL Annex V “general prohibition” of discharges to sea: 1 January 2013
- NOx Technical Code (SCR) guidelines: 1 July 2013
- IBC Code (Dangerous Chemicals in Bulk): 1 June 2014
- Noise Levels on Board Ships: 1 July 2014
- MARPOL Annex VI EEDI: ships delivered July 2015. Older ships only a SEEMP
- IGF Code (gases or other low flashpoint fuels): in force not before January 2016
- Tier III limit to 1.00% NOx: ships built after 1 January 2016 may be postponed:
- Ship recycling (2009): entry into force not before 1 January 2017 –
- Mandatory ‘Polar Code’: Estimated entry into force not before 1 January 2017

GLOBAL VALUE CHAINS IN SHIPBUILDING

THANK YOU VERY MUCH
FOR YOUR ATTENTION !!!!!!!!!!
Korea, $175bn Offshore Localization

Offshore Plant Industry Support Center will be established in Geoje, South Gyeongsang Province, to develop technologies of overall offshore plant industry which is considered as a new breakthrough of Korean shipbuilding industry and a support for allied industries.

The Ministry of Oceans and Fisheries (MOF) of Korea entered into a memorandum of understanding for construction of Offshore Plant Industry Support Center with South Gyeongsang Province, Geoje City, Korea Institute of Ocean Science & Technology at Geoje City Hall on November 8.

In the site of 170,000m² of Jangmok-myeon, Geoje, the construction is planned to commence in May of next year and be completed by 2015. The government will put KRW 25.2bn ($25.7m) into this project and South Gyeongsang Province and Geoje City will offer the site.

Its major task is to develop core technologies over the life cycle of offshore plant industry and support related industries.

According to MOF data, life cycle of offshore plant develops as ‘exploration Drilling-engineering-construction-transport-installation-operation-decommissioning’. Proportion of added value for each phase is ‘10-10-20-25-5-8-30-5’ and Korea’s secured competitiveness in building and manufacturing sectors is regarded as the best level however competitiveness in the rest of other sectors are said to remain at low and medium levels, compared to the US, France, the UK and so on.

In global offshore plant market which have a large relating effect of front and back industries together with a great technology ripple effect, deep-water oilfield development is expected to be accelerating driven by sharply increasing energy demand from emerging countries that the market is anticipated to grow by 6.7% a year on average by 2030. However, Korea’s top three shipbuilders are paying a considerable amount of royalty regarding technology for manufacturing high-value added products, such as FPSO and so on.

Accordingly, when localizing source technology of these fields, it is expected to see $80.5bn worth import substituting effect by 2015. And the amount is forecasted to increase up to around $175bn by 2030.

Although Korea came late into the plant industry market other than shipbuilding, when a synergy effect comes to pass among its world level industries of construction, steel, electronics and shipbuilding, Korea will be able to chase advance countries early, experts are saying.

The Offshore Plant Industry Support Center will be in charge of works for localization of offshore plant technology to accomplish technology independence as the weight of offshore plant industry is heavier in Korean shipbuilding industry. In addition, it will support quality certification of equipment, which is essential in producing offshore plant facility, along with international standard development, demonstration of water tank equipment and so on. Moreover, the governmental department is planning to seek to support the industry in partnership with industry, academics and institutes.

Specific operating plan develops from the first phase of establishing a center foundation including comprehensive research building, multi-purpose test building for marine equipment and etc. As the second phase, the center will ▲ support design and engineering ▲ localization and commercialization of equipment ▲ education and training of professional manpower ▲ establishment of support system for related technology/information cooperation among industry, academics and institutes by 2020. For the third phase, it aims at founding a special test center, education and a training center (simulation building for equipment training) and etc. by 2030.

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