Offshore Market

Challenges and opportunities for European High-Tech Shipyards

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Raimon Strunck, VPS
Flensburger Schiffbau-Gesellschaft

FSG in brief

- Foundation: 1872
- Built vessels: 762
- Staff: 730
- Capacity: 1 Mio. man hours/year
  25,000 t steel/year
- Order book: until 09/2016
Classical series shipbuilding

- BC Ferries
- Bore Rettig
- Con-Ro 220
- Cobelfret N.V.
- Smyril Line
- A.W.S.R.
- U. N Ro-Ro
- DFDS
- Ulusoy Sealines
- CMAL
- Oceanex
- Seatruck

Small series in the Offshore segment
Essential structural change

- **RoRo/RoPax:** Approx. 15 vessels in 5 years
  - Ø Contract volume about 65 Mio. €/vessel

- **Offshore/Specialised Shipbuilding:** Max. 7 – 8 vessels in 5 years
  - Ø Contract volume about 100–150 Mio. €/vessel

+ More design- and production flexibility
+ New planning processes
+ High level of coordination (internal/external)
  - Less internal added value by
  + simultaneously higher project volume
+ Complex After-Sales support service
+ Sophisticated project financing

"Standard Shipbuilding" ➔ "Offshore Projects"
Proven capability of FSG with 6 entirely different prototypes in 3 years:

- Oceanex
- RollDock
- WesternGeco
- CMAL
- Searoad
- SIEM

Improved planning- and design engineering processes

Hierarchical structures of the product

3D – CAD model on a daily basis

Modules of the production from the network planning

Input from the object list from the PPS-system „MARS”
**DigIMAus** Process control

Preconstructed section B15-1 = Double bottom, half beam of the ship, Overhead fabrication position

- Select and visualize construction
- Procure free view
- Visualization of the sequence of fitting with "Video-Button"

Simulative evaluation ...

- of the production requirements of the vessel
  - e.g. welding special features of the Moon Pool
- of the dependencies of complex outfitting work for the hull assembly
- of the robustness of the proposed construction method using sensitivity analysis
- of the production planning
  - Resources planning
  - Sequences
  - Place of construction
  - Construction method
Shift of requirements and priorities

- Importance of KPI’s from customer side significantly different
- Consequence:
  - Refocussing on important topics
  - Develop new capabilities based on existing know-how and tools
  - Use existing strengths to set higher standards in the new product segment (uniqueness of products)
- Presumption for successful transformation process:
  - Highly skilled experts
  - Continuous investment in R&D

Flexibility by advanced tools

- Simulation tools (e.g. seakeeping simulation)
- Postprocessing
  - RoPax
    - Motion amplitudes
    - Accelerations (MII, MSI, Lashing Requirements)
    - Dynamic Stability
  - Offshore
    - Ultimate loads
    - Fatigue loads
    - Operating limits
    - Site specific operating assessment
  - Flexible adaptable to new requirements
Setting new standards

Available experience and tools from RoPax-product:
- e.g. Comfort Class requirements (Noise and Vibration)

Offshore-Product:
- Utilization of existing know-how helps to enter new markets with similar requirements
- Market entry possible by demonstrating superior performance in with to key requirements

Know-How Transfer

Know-how transfer of logistics simulation for the offshore segment

Evaluation and optimisation of:
- Transport processes on board
- Dynamic storage process for different equipment
- Logistics supply chains at the interface ship - port
- Fleet deployment scenario
North America
3.8 Mio. bpd
Growth: 0.5 %

South- &
Central
America
2.9 Mio. bpd
Growth: 1.6 %

Europe
2.8 Mio. bpd
Growth: -1 %

Med./Caspian
1.7 Mio. bpd
Growth: 1 %

West Africa
4.5 Mio. bpd
Growth: 2.3 %

Middle East &
India
6.5 Mio. bpd
Growth: 6 %

Asia Pacific
3 Mio. bpd
Growth: 0.8 %

North America
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Growth: 0.5 %

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Forecast Offshore Fleet Growth by Sector

TOTAL MOBILE FLEET
UTILITY SUPPORT VESSELS
RESCUE & SALVAGE VESSELS
PSV / SUPPLY VESSELS
AHTS & AHT
LOGISTIC VESSELS
MOBILE PRODUCTION VESSELS
CONSTRUCTION VESSELS
OFFSHORE RIGS
SURVEY VESSELS

0 5 10 15 20 25 %

2013 2014 2015

Quelle: Clarksons
Summing up our challenges

- Development of „Type Ships“
- Cooperation with Yards / Suppliers
- Political Support
- R & D / Financing
- Quality of Engineering Offices
- Design Pools

Shipyard Responsibility

We accept the maritime challenges!