GONDÂN SHIPBUILDERS

Research Vessels: A Shipyard's perspective

IRSO VANCOUVER 26.09.2024















Research Vessels: Lessons Learned

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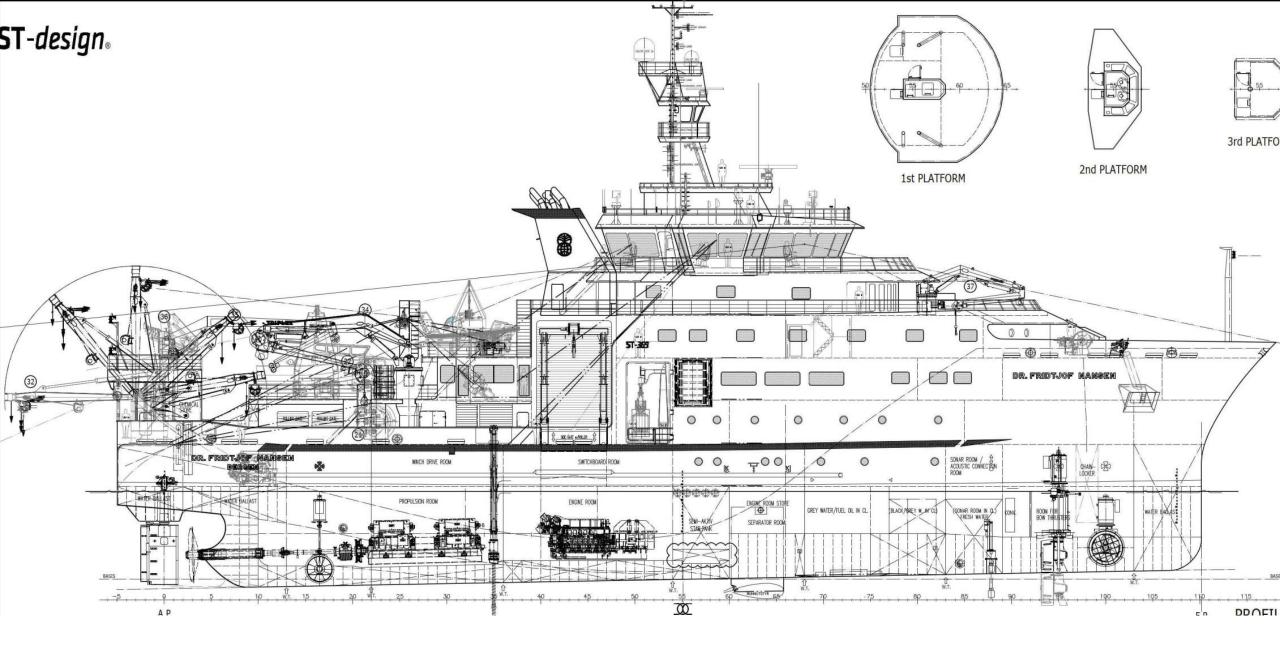


Lesson 1 Extremely compact vessels

- 75 m length & 17.5 m beam
- 30 technicians & 15 crew
- 6 labs, 2 Hangars (Main & CTD)
- 4 cranes, 2 A-frames & 1 L-Frame
- 17 winches
- 2 Drop keels
- 3 Thrusters & 1 Five blade propeller
- 1 survey boat for shallow waters

The vessel should have been 10 meters longer !

Luckily it wasn't or the scientists would have requested even more things onboard !!!



Lesson 2 Many unfamiliar challenges

- Extensive Hydroacoustic systems: Multibeam, Single Beam, ADCP...
- Several configurations: Hull mounted, Drop Keel, Blister, Gondola...
- Bubble Sweepdown
- Electromagnetic Compatibility and Electromagnetic Interference: EMC/EMI
- Underwater Radiated Noise, Excitation modes, Noise Curve, ICES 209
- Complex internal networks
- Many disciplines: Hydrography, Oceanography, Geology, Fishery, Seismic...

All of them critical, many of them uncertain even after the contract is signed !!!!



Like any other market, in the end it is a matter of price & delivery time

Brand new Ocean Class Research Vessel Approx. 70 M€

DR. FRIDTJOF NANSEN

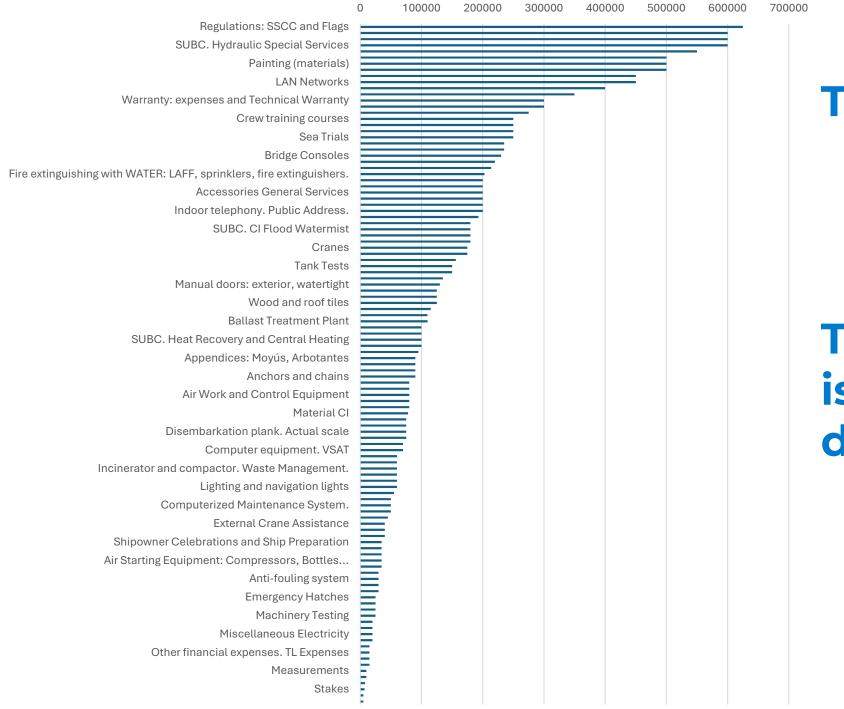
Almost 50% of the cost comes from a few (<15) "easy-to-track" ítems.

Through a <u>vetted</u> Maker's List, the owner should focus on those first

Threshold > 1 M€

- Electrical Power, Control & Distribution: 7.5 M€
- Deck Machinery (Winches, cranes): 3.5 M€
- Isolation, Furniture, HVAC: 3.5 M€
- Design & Consultancy: 3.5 M€
- Internal Combustion Generators: 3 M€
- Hydroacoustic Equipment: 3 M€
- Propulsion: 2 M€
- Nav&Com and bridge systems: 2 M€
- USV: 2 M€, Shallow water Survey Craft: 2 M€...

Not considering "Green" Future Proof Tecnologies



Threshold < 1 M€

The remaining 50% is much more difficult to track...

Manufacturing costs: Man hours

Manhours...made by who?

- Hull yard?
- Outfitting yard?
- Direct workers? Indirect workers?
- Turnkey subcontractors?
- Project Management tasks?
- Overheads? Indirect costs?

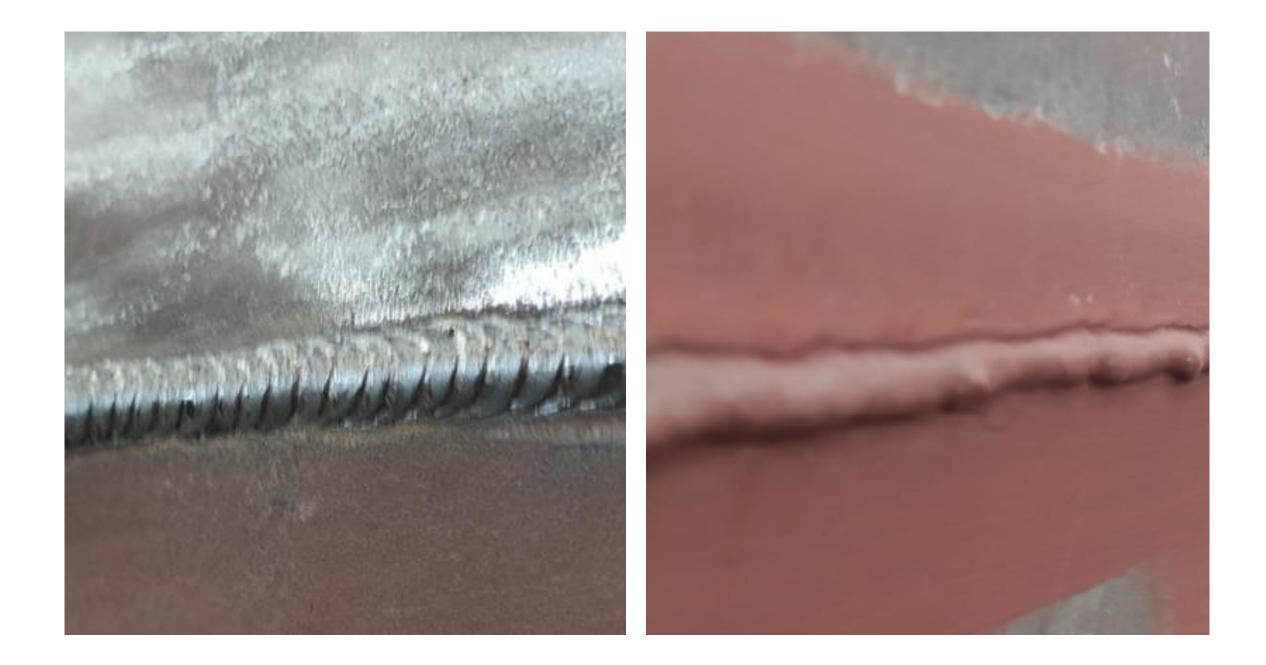
Hull construction is the "easy part", and its costs are easier to track down

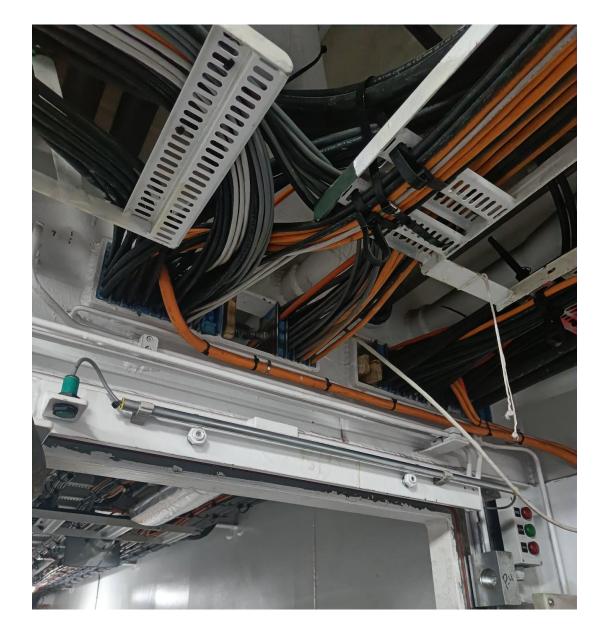
Highest cost at North

ES:5577R:45/VN:₹4 €/kg Rule of Thumb 1/3 hull, 2/3 Outfitting

Around 500.000 hours

As I hurtled through space, one thought kept crossing my mind: Every part of this rocket was supplied by the lowest bidder."









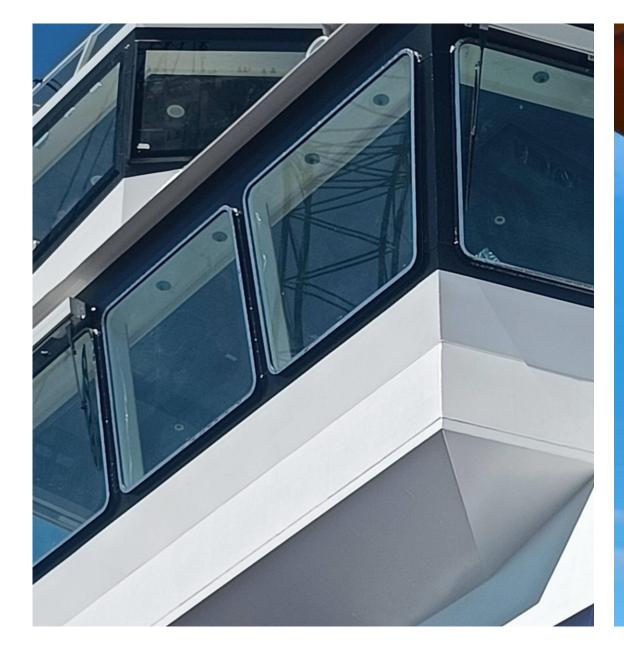










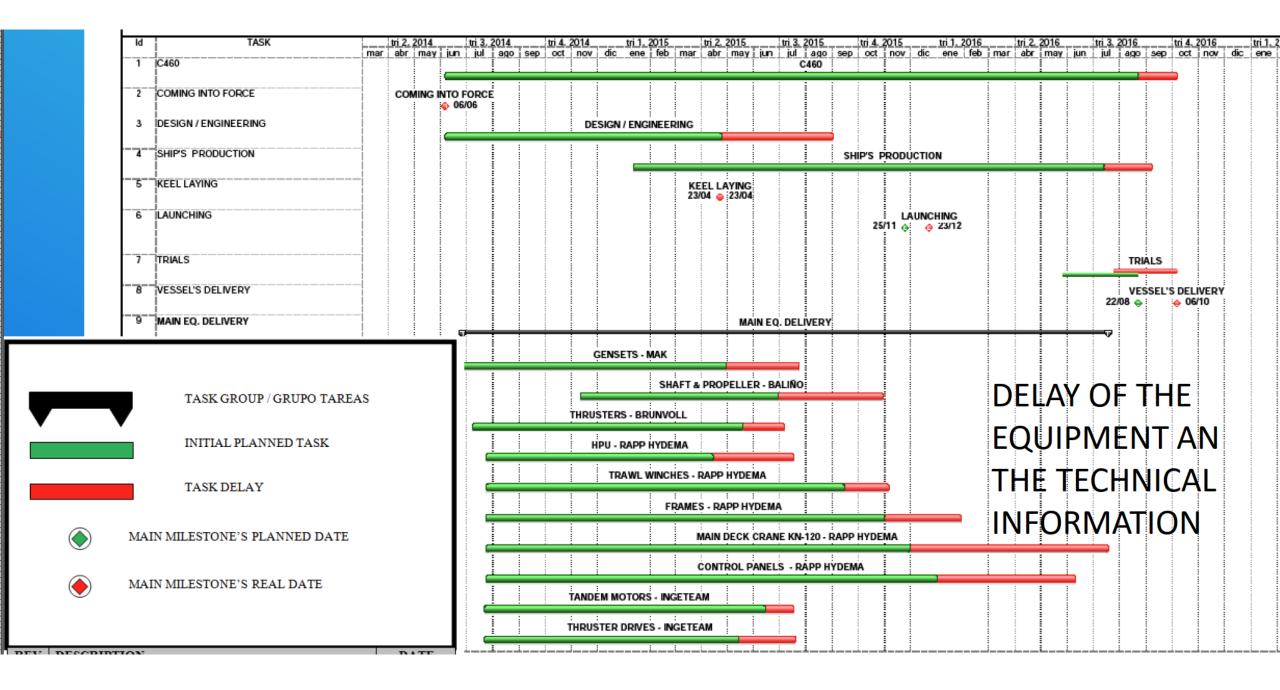






Delivery time

- A **commercial/private** yard has many reasons to aim for a fast delivery
 - A delayed vessel means additional hours on a fixed-price contract
 - A delayed vessel means additional indirect costs: Financing, Insurance...
 - Vicious cycle: subsequent delays on the next vessels
- The delivery is dependent on many "third parties", not just the yard
 - Designer
 - Suppliers
 - Owner
- Between a rock and a hard place:
 - The relationship framework between yard and owner is provided by the latter (SBC)
 - The relationship framework between yard and its suppliers is provided by the latter



- Lifetime of a Research Vessel > 30 years
- Between 3 to 5 years to achieve the administrative "green light"
- Between 1 to 3 years of tender process to Contract Award with a yard...

• And now suddenly everyone is in a rush !!!

2 and ¹/₂ years: 30 months

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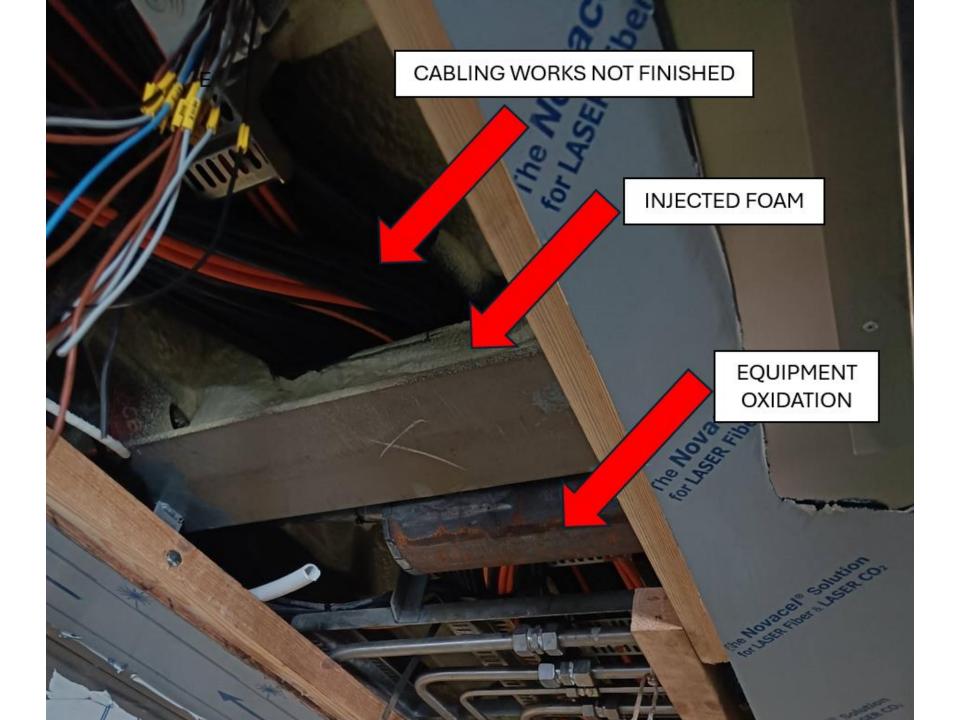
- Progress ref. master plan (MP) rev 02
 - Lofting and production documentation delivery is according to plan and the good quality of steelwork continues.
- By date up to a manning of approx. 100 workers 10-11 hrs/day. (Electrical workers increased to 45 this week)

Efficient productivity in some areas are now somewhat reduced, mainly due to parallel activities with limited space and access.

High activity in all areas, but we are now in the stage that spaces are getting narrow and hamper productivity. Conflicts and collisions which cause demolition and re-work are seen more often.

Still lot of areas to be painted and /or repainted due to damage. With the bard push.

Still lot of areas to be painted and /or repainted due to damage. With the hard push for completion, we
do notice a reduction in quality of workmanship and a tougher inspection atmosphere!



A Word of advice

Keep it Simple Visit the yards, visit reference ships, talk to customers. Hello ChatGPT, please provide an Answer for a Request for Tender for a new Research Vessel explaining why GONDAN Shipyard is the best shipyard in the world for such project.

⁽⁶⁾ Response to Request for Tender: New Research Vessel

Subject: Proposal for the Construction of a New Research Vessel

Dear [Tender Committee/Client Name],

GONDAN Shipyard is honored to submit our proposal for the construction of your new research vessel. We firmly believe that GONDAN is the ideal partner for this project, owing to our unparalleled expertise, state-of-the-art facilities, and commitment to delivering vessels that meet the highest standards of quality, innovation, and environmental sustainability. Below, we outline the key reasons why GONDAN Shipyard stands out as the best choice for this prestigious endeavor.

1. Proven Expertise in Specialized Vessels

GONDAN Shipyard has a long-standing reputation for building highly specialized vessels, including research ships, tugs, and offshore support vessels. Our extensive portfolio includes numerous

Avoid long tender process: They do not guarantee better results, but they do guarantee higher prices

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Teamwork Finding a Human Team that you can trust

Thank you for your time!! Questions?

PS: Yards hate long warranty periods

