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► ULSTEIN ACCELERATED BUSINESS DEVELOPMENT - CONCEPT AND PROCESS

ULSTEIN INTERNATIONAL AS
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BACKGROUND



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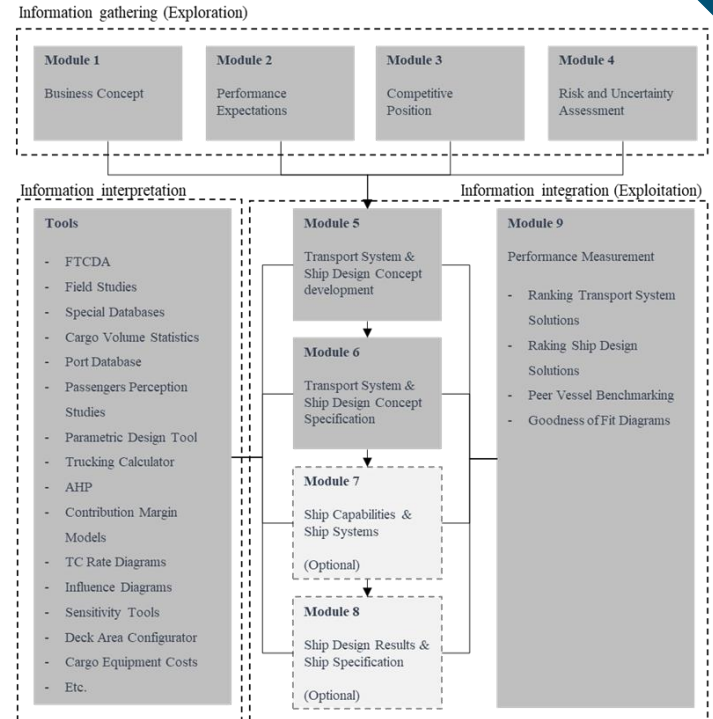
- Increasing demands towards innovation and effective fleet renewal
- There are limited resources with most maritime organizations (time, knowledge, procedures, methods and capacity) to realize effective fleet renewal
- These organization do not perform fleet renewal on a regular basis. Typically, it can take 5-7 years between each renewal project.
- A company can not afford to retain personnel, expertise, equipment and support tools (ICT) when these are rarely used
- Customers need complementary resources for solving inter-disciplinary problems
- Time-to-market from business idea to implementation, testing and realization should always be reduced
- Delayed development projects means lost business and decreased competitiveness





ACCELERATED BUSINESS DEVELOPMENT - ABD

- A systemic approach to accelerated business concept in ship design/marine transport/offshore operations development
- Improving decision making in developing effective marine systems solutions



UNCERTAINTY AND COMPLEXITY CHALLENGES IN SHIP DESIGN DECISION MAKING

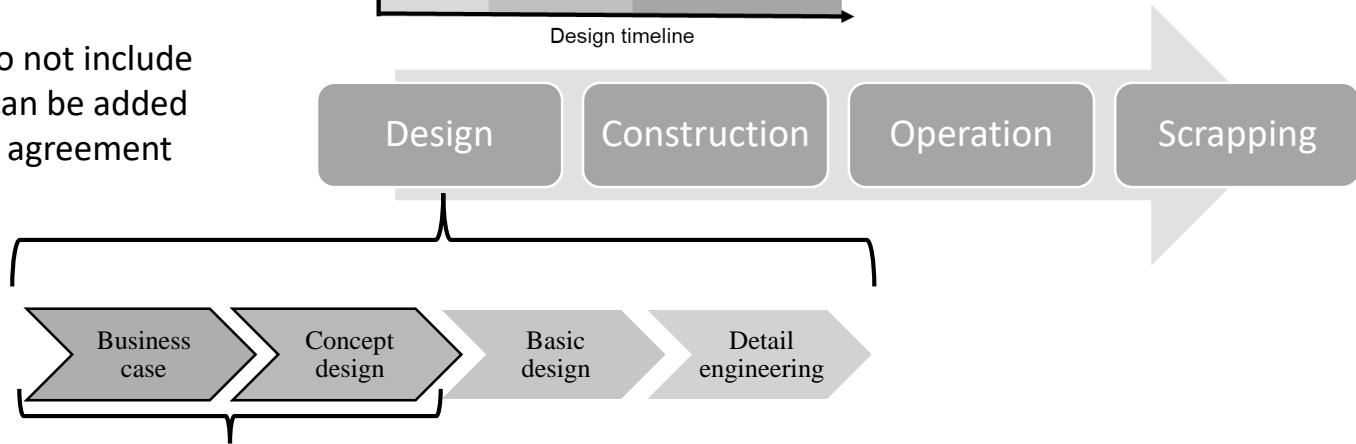
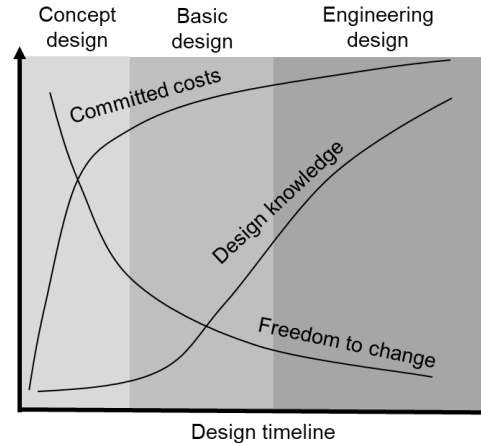


GET YOUR CONCEPTUAL SHIP DESIGN RIGHT

Concept design work as part of an ABD can be developed at two different levels:

- **Level 1:** Fast-track vessel concept design solution – vessel concept feasibility study (business case)
- **Level 2:** A tender-offer package

Normally the ABD do not include “Level 2” work but can be added according to further agreement



ABD Focus

BUSINESS PROPOSITION OF ABD



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- **What?**
 - ABD is a service providing facilitation support including commercial, technical, operational and organisational expertise when developing ship fleets to serve a given transport system
- **Why?**
 - Significantly reduce lead time (from project idea to delivery of vessels) and cost related to the development of transport systems and their integrated vessels
 - Reduce uncertainties and risk associated with vessel newbuilding projects
- **How?**
 - Utilising network resources and expertise to accelerate effective decision making
 - Making use of standardisation and modularization in identifying the most effective transport system solution and design concepts
- **When?**
 - Every time a new-building project is in question and/or a transport system is to be developed or revised
- **For whom?**
 - Ship owners/operators, cargo owners, ship yards, designers and brokers

BENEFITS

- ABD reduces project time-to-market (contract) - typically, 50 %
- Improves the effectiveness of fleet renewal planning - typically, 80 %
- Project realization cost is reduced - typically, 50 %
- Support ship owners to realize their expectations
- Improves the effectiveness of the developed solution meeting set expectations
- Identifies and manages uncertainties and risks associated with the vessel newbuilding project





DO'S AND DO NOT'S OF ABD

- What we do
 - Provide a group of experts for accelerated marine systems design development
 - It always provides state-of-the-art expertise
 - It is a macro and micro level marine systems design to fit any marine operations
 - It connects the customer with the right operators and suppliers
 - A project and related conceptual design are ready when you leave the workshops
 - The design solution is already benchmarked against the market peer vessels and the competitiveness of the solution is set
- What we don't do
 - No ownership of vessels
 - Selection of yard
 - Selection of suppliers
 - The customer makes the business decisions based on facts developed by the ABD process

ABD WORKSHOPS



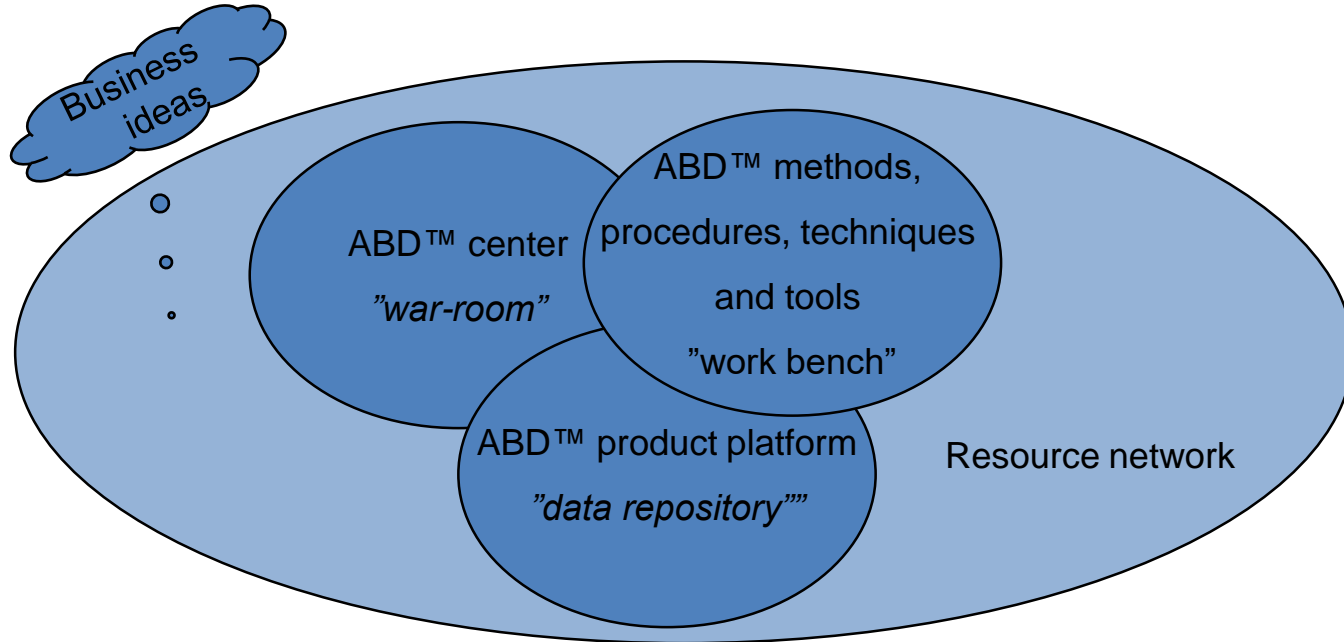
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“Alternative ship design approaches such as Ulstein’s accelerated business development (ABD) propose an alternative holistic avenue to the ship design problem. Here, the initial focus is taken away from the vessel design itself and putting more focus on building up the business case in question and communicating it to the stakeholders involved in the design project. The objective is here to reduce context, agent and process uncertainty factors”

Source: Agis, J.J ; PhD thesis, NTNU 2020



UIN ABD™ CONCEPT...

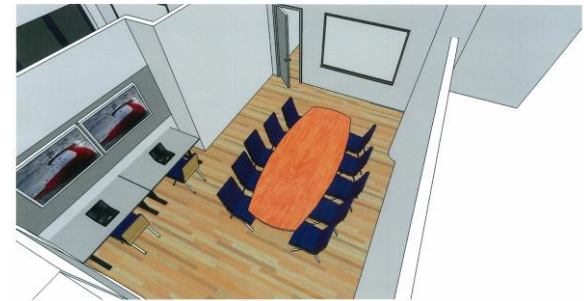


WORKSHOP-BASED DEVELOPMENT

Workshops can take place at owners facilities or at Ulstein or any relevant and convenient meeting places



The work bench & toolbox



UIN ABD™ PRINCIPLES



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- ABD principle I: A systemic (holistic) and systematic (structured) approach for conceptual ship design as part of an accelerated business development process
- ABD principle II: The conceptual ship design solution is always developed for effectiveness (a balanced solution with respect to smarter, safer and greener aspects)
- ABD principle III: A seamless transfer of business case and vessel solution information to further downstream design and production activities (basic design , detail engineering, production design/planning)
- ABD principle IV: All costs-affecting-decisions to be made up-stream, before contract – down-stream decisions taken during the basic and engineering phases to be minimized
- ABD principle V : Introduce strict functional pricing/costing
- ABD principle VI : Integration of developed concept design solution into a project making initiative
- ABD principle VII: A systemic approach to serial production of modularized and standardized ships (reduced product diversity)
- ABD principle VIII: Reduced production diversity by using modularized and standardized ship design solutions

ABD CONCEPT INFORMATION PACKAGE (DELIVERABLES)

- Business user-case brief (incl. market analysis)
- Concept ship design solution (functional diagram, simplified GA, and 3D rendering of the vessel)
- Benchmarking of peer vessel and performance ratings: Pareto front position of the solution(s)

Business user case-brief

Title of business opportunity

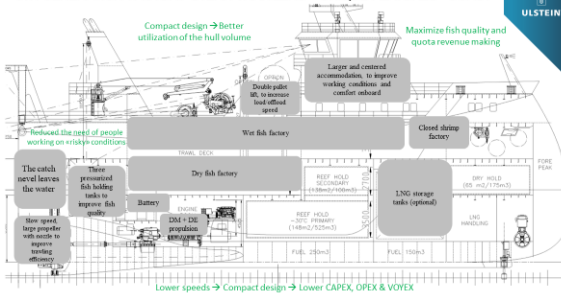
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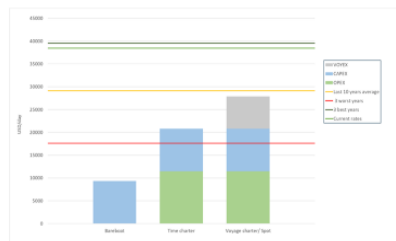
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5TH GENERATION FACTORY STERN TRAWLERS – UNIQUE FEATURES - COAST

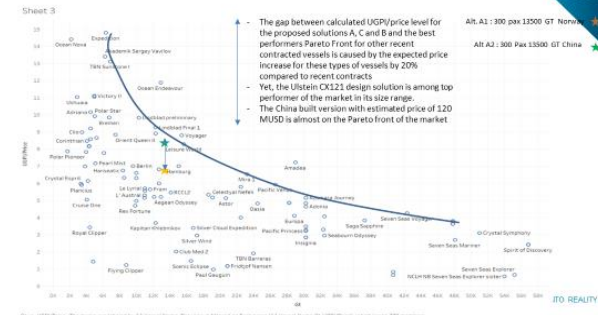


VESSEL ECONOMICS

- CAPEX
 - NB price: 240 mill NOK
 - 30% equity / 70% loan
 - 12 years repaymet
 - 7% interest rate (LIBOR + 5%)
 - 8% ROE
- OPEX
 - Manning: 18 Norwegian
- VOYEX
 - Fuel: 550 USD/tonne
 - NOK tax: 2.57 USD/kg



UGPI/PRICE VS GT





SUPPORTING DELIVERABLES

As part of the ABD, we identify a concept design - feasibility study (business case), that relates to a balanced design (including stability, steel weight, lightweight, deadweight, power, operability, functional areas, and the resulting CAPEX, OPEX and VOYEX – vessel economics, and benchmarking and performance ranking) with main dimensions and capacities and capabilities defined. Based on an interpretation and synthesis of Module 1 to Module 5, the FTDC input sheet is filled in (see enclosure), and different alternative solutions are specified (3 to 5 solutions) to demonstrate the implications and consequences of changes in main design parameters. Such a study also normally includes a functional diagram of the said vessel concept design. In some cases, also a sketch of the general arrangement is also developed based on this functional diagram. Also, special technical features of the vessel in question can be elaborated upon. Normally a full GA or any other drawings are not developed.

Concept design - feasibility study (Phase 1)	Concept design – tender-offer package (Phase 2)
Business case (ppt./report) ABD module 1 to 5 and FTDC input sheet	Concept Design Report
	Loading Conditions, Intact Stability & Longitudinal Strength Calculation
Max VCG for intact stability	Max VCG Calculation (Intact & Damage Stability)
Freeboard set but not calculated	Freeboard Calculation
Propulsion Power & Speed Prediction	Propulsion Power & Speed Prediction
DP Capability and power requirement	DP Capability, ERN Calculation & Power Requirements
Fuel Consumption & Endurance Calculation	Fuel Consumption & Endurance Calculation
Motions Analysis	Motions Analysis
	Outline Specification
FTDCA output sheet	Data Sheet
Functional diagram and sketch	General Arrangement
	Midship Sectional Properties Plan
	Electrical Key One-line Diagram
Electrical load balance for main consumers	Electrical Load Balance



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