

# TEKNO CONSULTING s.r.l

Your qualified partner in ship design & management

## Company presentation



# Where we are / Staff & Contacts

TEKNO CONSULTING s.r.l

## Legal Address:

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## Headquarters:

Piazza Barabino, 10/14

16121 Genova (GE) - Italy

Operating e-mail: [job@teknoconsulting.com](mailto:job@teknoconsulting.com)



Tekno Consulting organization is in constant development and its staff is currently composed by a team of 20 professional figures. A balance is kept between senior staff with extensive experience and younger staff keen on technical and professional growth.

Most members are multidisciplinary with both on-site and office background, either holding qualifications or having experience in more than one specialist area.

## Main Contacts

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Granara Tomaso	(Managing Director & Co-Owner)	- <a href="mailto:granara@teknoconsulting.com">granara@teknoconsulting.com</a> -	+39 348 988 0581

1985 - Tekno Studio Associato is founded as provider of technical services for the local marine industry in Genova

1996 - Tekno Consulting S.r.l. is founded to meet the growing market demand of technical support services of the Marine Industry, thanks to the experience gained along the years by Tekno Studio Associato.

The company expertise has increased along the years as well as the clients base, now including mainly passenger and cruise ships, ferries, cargo ships, offshore vessels (OSV, AHTS, etc.), cable laying vessels, accommodation barges, mega yachts and pleasure/charter yachts markets.

The key services cover a wide range of technical office activities and on-site assistance in any part of the world.

Tekno Consulting mission is to provide consultancy and technical services to support the Owner, Shipyard or operator throughout the lifetime of a vessel, from newbuild to refit, repair and conversion.

The Company is in constant development and growth, and it is appreciated by customers for:

- high quality of the service/product delivered
- excellent reliability of all its on-site services
- efficiency and constancy
- technical expertise and experience of its staff
- short lead time to process out assigned tasks
- compliance with delivery times

- Ships, Yachts & Offshore vessels Engineering
- Offshore Vessels Special Engineering
- Intact & Damage Stability Engineering
- Structural Engineering
- Plants & Systems Engineering
- Electrical Design & Engineering
- Safety, Security & Environmental Engineering
- Management Supporting Activity to Ships, Yachts & Offshore vessels
- Hydrodynamic engineering
- Reverse Engineering
- Special Projects, Conversions & Refits

## Full Basic Design of Structures & Systems

Development of all plans, drawings, diagrams, calculations and reports in compliance with Flag and Class Rules.

Submitting to the Register of Class for review and approval of the following documentation but not limited to:

- Midship Section
- Shell Expansion
- Scantling Plans
- Structural Calculation Reports (Direct calculations & FEM analysis)
- P&ID System Diagrams
- Functional Diagram Calculation Reports
- Technical Specifications

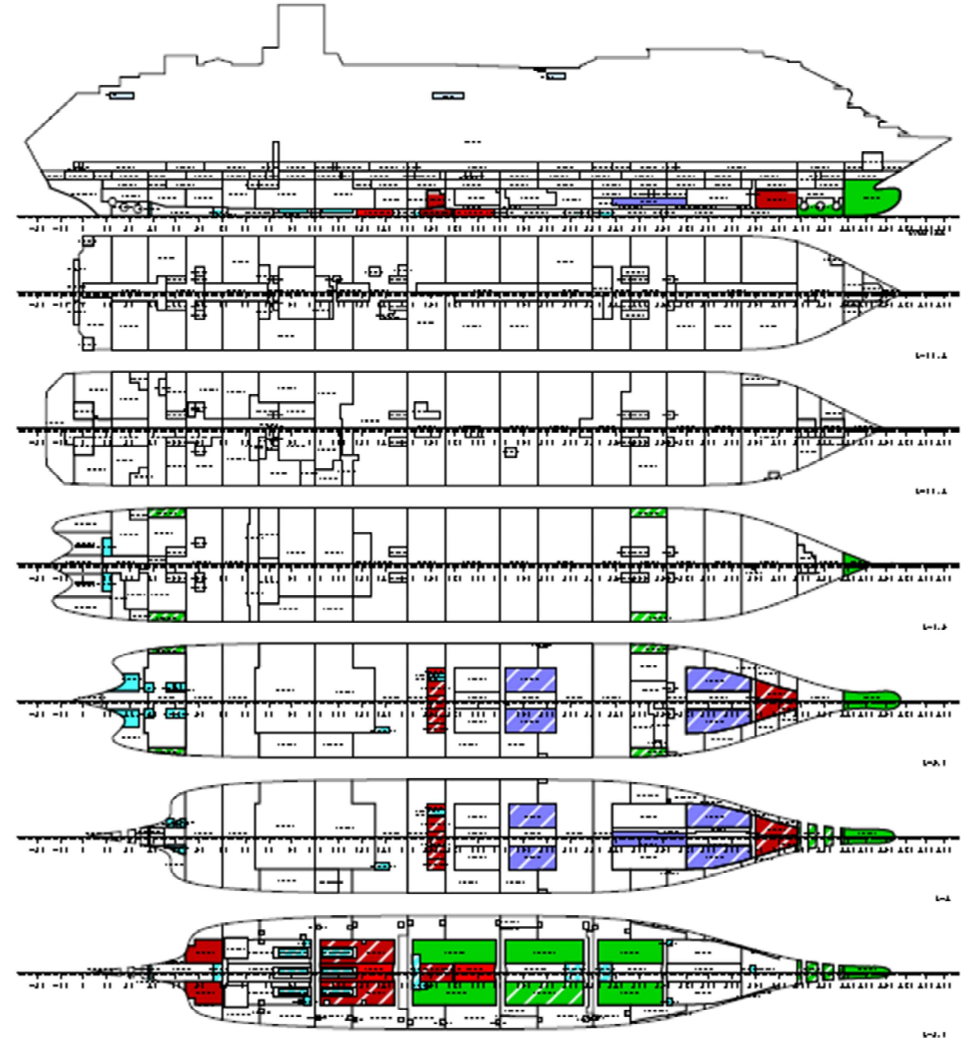


## Typical Design and Assistance Services

- Newbuild consultancy for Flag related matters
- Technical guidance on vessel typology selection and conversion (AHTS, Tug, OSV/PSV, Seismic Support Vessels, scientific mission / refugees mission vessels)
- Technical guidance on Special Purpose ship certification
- Design for installation of deck equipment onboard existing units (LARS, Mob-crane, Boat landing, Safe offshore gangway systems)
- Mooring areas design & conversion
- SAR (sea search and rescue) capability assessments
- Anchor handling & Towing capability assessment
- Lifting & Lashing capability assessments
- Fire fighting capability assessments
- Oil Spill Recovery unit conversion
- Design of Temporary Refuge Barges
- Crew change services coordination
- Technical assistance for FPSO studies
- On site survey services to follow up on retrofits

## Ships Stability Design

- Regulatory compliance consultancy
- Update of NAPA loading computer database to account for conversions/refit/capacity plan modifications
- Stability Booklet revisions
- Lightweight surveys
- Inclining experiments
- Intact & Damage Stability investigations
- Damage Control Plans & Booklets
- Progressive flooding assessments
- Stability practical operation and training
- Guidance on loading computer discrepancies
- Guidance on loading condition optimization
- Guidance on stability enhancements(e.g. sponson, ducktails, flooding doors, capacity plans review)



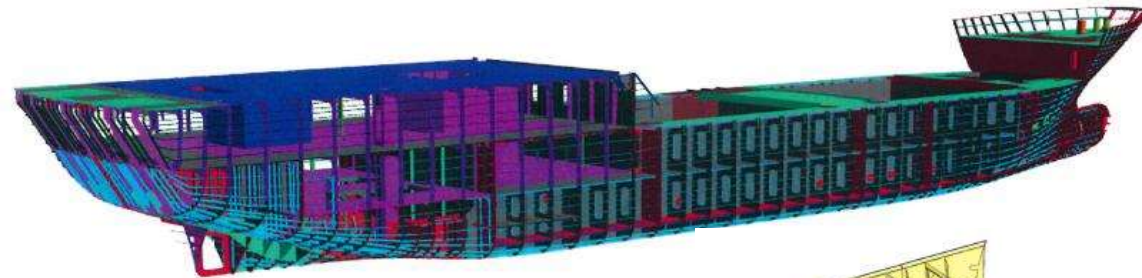
## Detailed & Workshop Design

Development of all plans, drawings, scheme and reports of customized workshop documentation

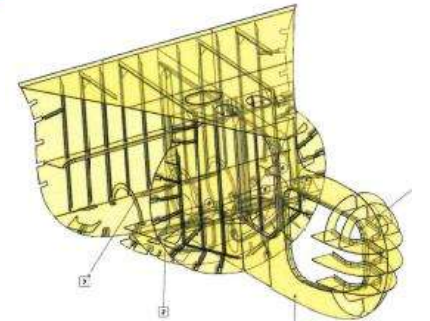
- 3D model elaboration of the complete structure starting from the approved scantling plan
- Unit drawings
- Development of shell plates
- 3D assemblies for prefabrication
- Implementation nesting of plates
- Implementation nesting of profiles for the bars optimization
- Full reports, preliminary and final material lists
- Weights and COG calculation of all structure and/or assemblies
- Elaboration of handling and overturning plans of blocks

Other Activities:

- 3D surface complete/partial of existing hull in IGES file by laser scan
- Onboard surveys for structure measurements following to modification and/or repair



*Sample of cargo ship structure processed through Autodesk® based Shipbuilding & Offshore Software SSI*

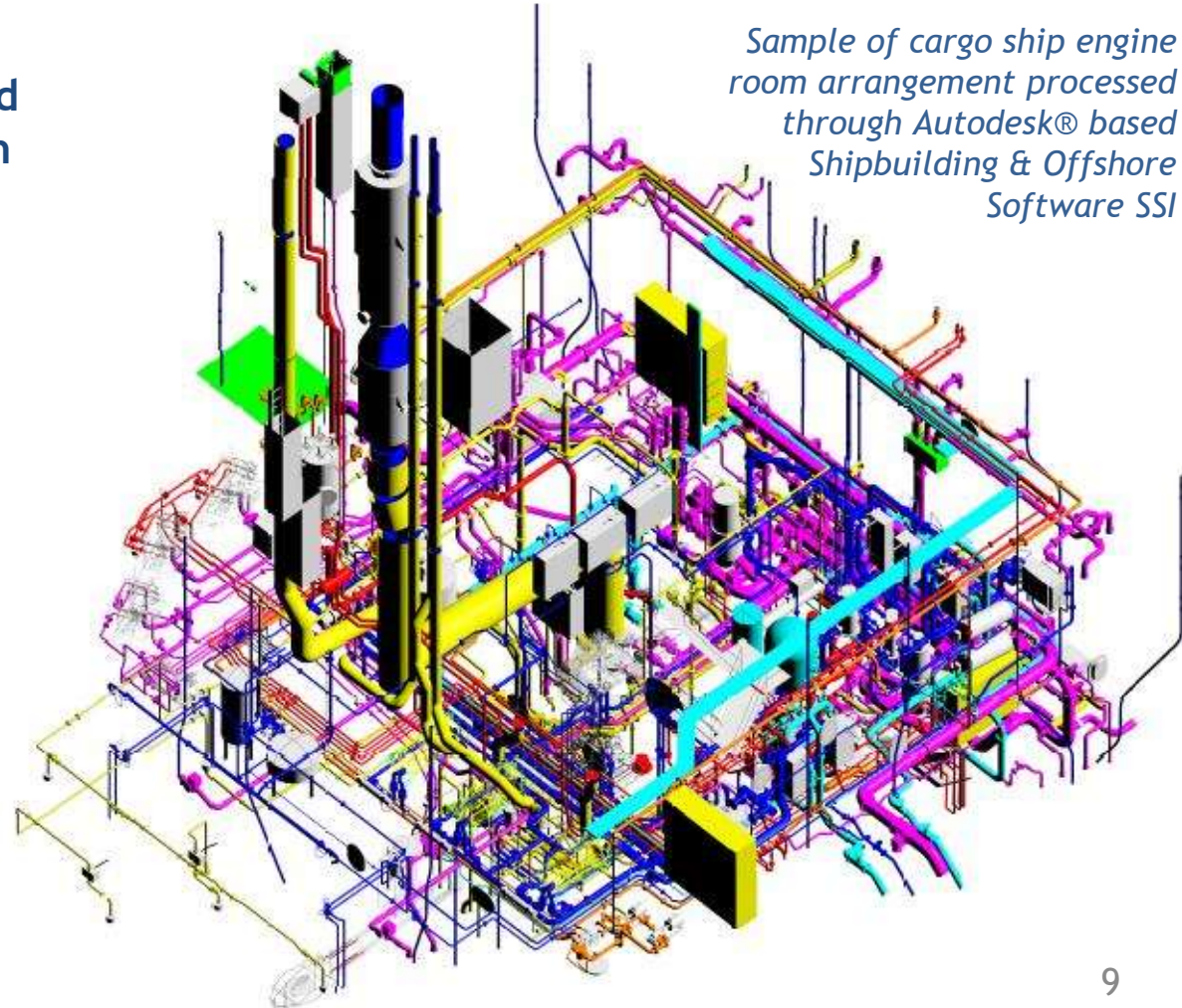




## Detailed & Workshop Design

Development of all plans, drawings, scheme and reports of customized workshop documentation

- Machinery and pipe fitting list
- Piping & fittings layout drawings
- Workshop assembly piping drawings
- Pipe isometric workshop sketches
- Full reports
- Preliminary and final material list (pipes & fittings)
- Workshop drawings of machinery foundations
- Pipe support drawings
- HVAC ducting layout and workshop drawings
- Cable trays layout drawings



*Sample of cargo ship engine room arrangement processed through Autodesk® based Shipbuilding & Offshore Software SSI*

## Integration of electrical design (established Partnership with Art.El. Company)

- Electrical schemes and design documentation
- Realization of Power & Automation Switchboards
- Design support for classification/certification
- Test & Commissioning





### Safety & Security - SOLAS - MARPOL - IMO Conventions and Rules

Solas, Marpol & Flag documentation for new and existing ships as listed below but not limited to:

- ✓ Fire Control Plan
- ✓ Life Saving Appliances Plan
- ✓ Structural Fire Protection Plan
- ✓ Escapes Plan & Evacuation Analysis
- ✓ Security Plan and Ship Security Manuals
- ✓ Solas Maintenance and Training Manuals
- ✓ Plan for Recovery of Person from Water
- ✓ Italian Regulation for the Safety of Navigation and Human Life at Sea - D.P.R. 435/1991
- ✓ Italian Legislative Decree 271/1999

#### Operating, Procedural & Contingency Plans

- ❖ Onboard training, audit and safety inspection
- ❖ Cargo Securing Manual
- ❖ Emergency Towing Manual
- ❖ Panama Canal Expansion Ships Transit Compliance

#### Environmental

- ☐ Sopep & Smpep Plan
- ☐ Ship Emergency Plan - INF Code
- ☐ P&A Manual
- ☐ MRV Plan
- ☐ Seemp Plan
- ☐ Biofouling Management Plan
- ☐ Garbage Management Plan
- ☐ Ballast Water Management Plan
- ☐ Polar Code Operational Manual



## Owner Assistance

- ISM / SMS consultancy
- Safety inspections and consultancy
- Security inspections and consultancy
- Pre purchasing inspections
- Technical supporting activity during ship maintenance works
- Ship works technical specifications
- Relationship technical support with the Register of Class, shipyard and Flag Administration
- QA & QC inspections and supervision
- Internal Audit and support activity during Audit (ISM / ISPS, MLC 2006, ISO 9001/ ISO 14001)



## Strategic consultancy for Energy Efficiency Projects

• Refit/Upgrade Project Management applied to:

- HVAC systems
- Machinery & Aux Systems
- Diesel Engines
- WHR, FW & Electrics
- Hydrodynamics
- Data Management

• Feasibility Studies

• Business plans preparation

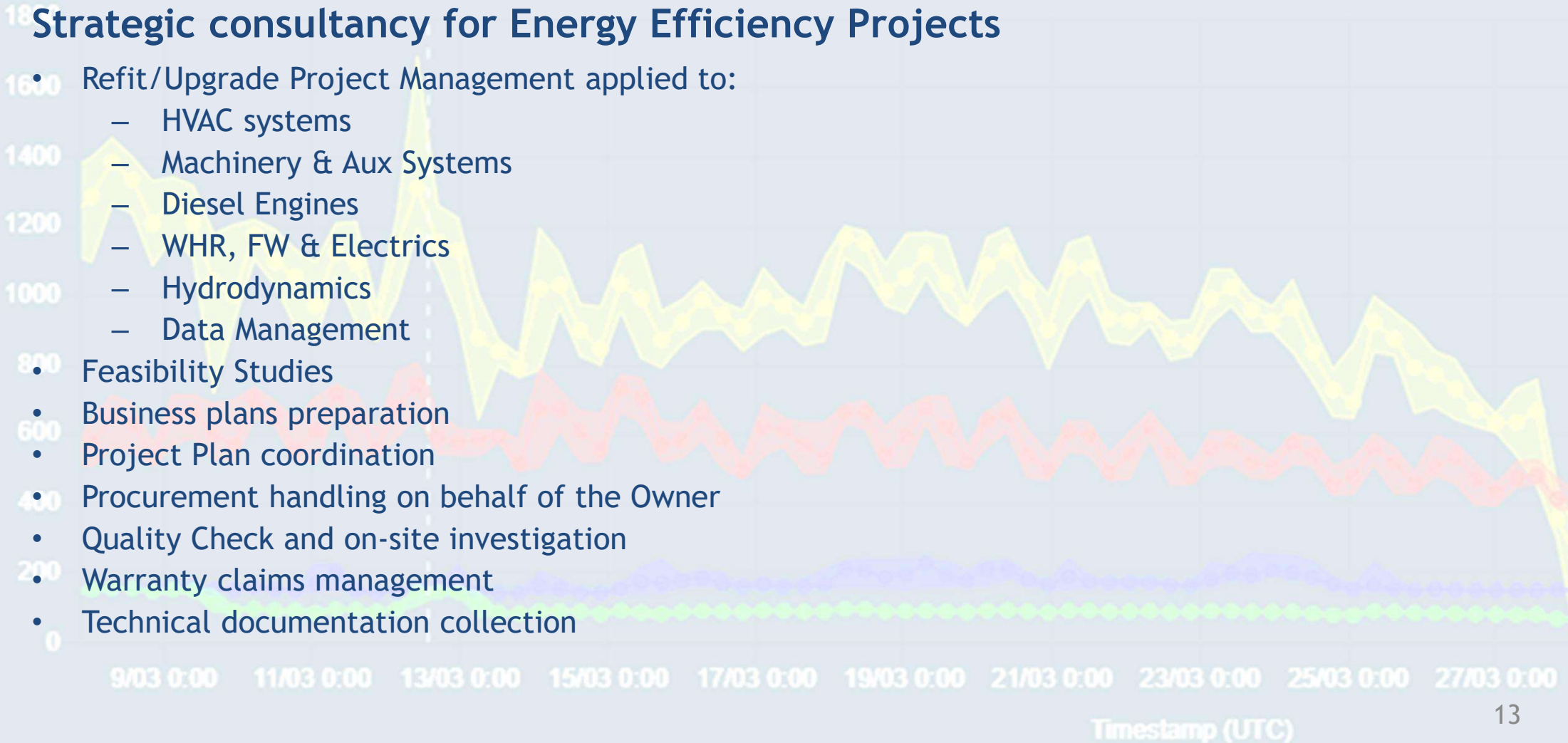
• Project Plan coordination

• Procurement handling on behalf of the Owner

• Quality Check and on-site investigation

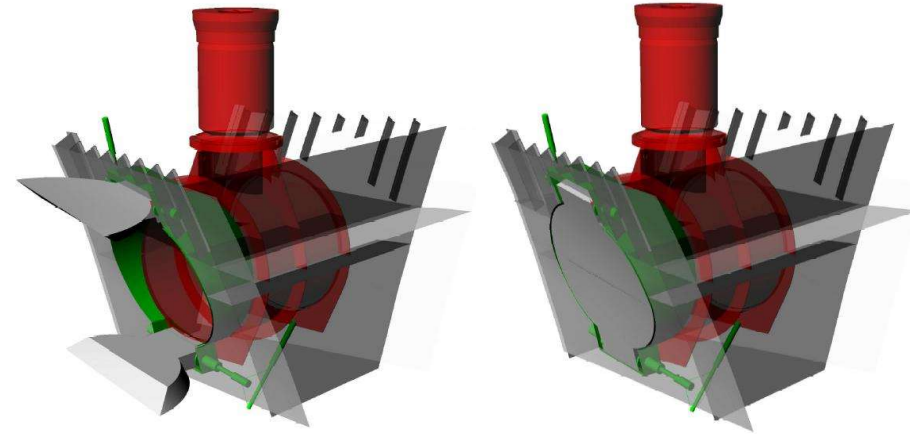
• Warranty claims management

• Technical documentation collection



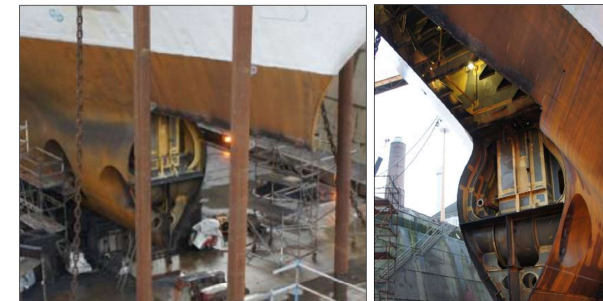
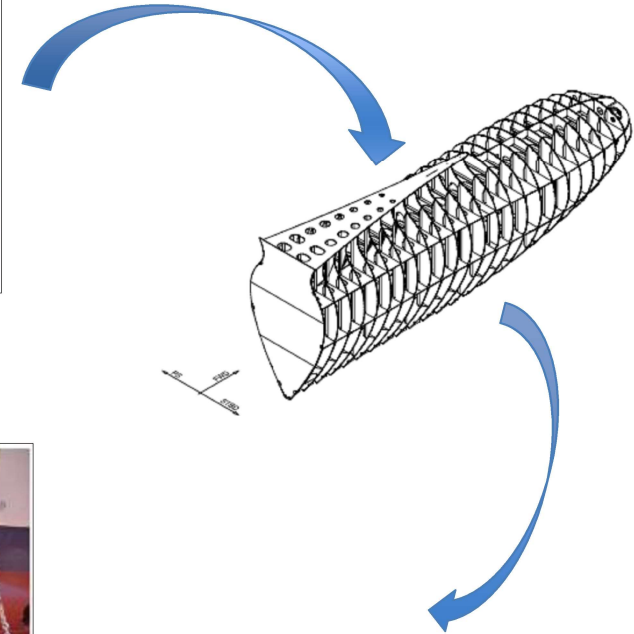
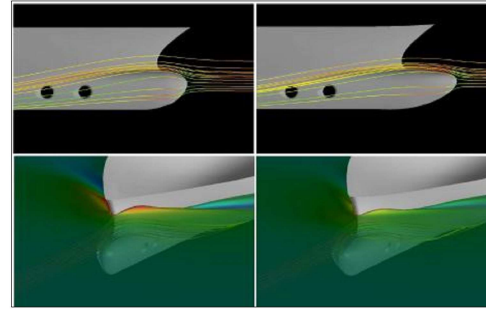
## Thrusters Anti-Drag Systems (Industrial Patent n°102016000036266)

- Elimination of added resistance from tunnels while at sea in all operational conditions
- Sensible reduction of acoustic noise due to fluid turbulence in the hull regions interested by the presence of thruster tunnels (efficacy proven on already refitted naval vessel)
- Improvement of thrust performance as a result of the elimination of conventional tunnel grids
- Turn-key services
  - existing thruster region surface laser scan
  - 3D modelling of tunnel hatches
  - Consolidated partnership with engineering companies for CFD calculation and/or towing tank model tests aimed at new geometry pre-installation assessment
  - new hatches structure design
    - Hull Block layout
    - Scantling plan drawings
    - Parts and structure report
    - Workshop documentation
    - Mechanical installation details
  - Closing mechanism and hydraulic pistons design
  - Hydraulic system P&I diagrams
  - Electrical & Automation P&I diagrams
  - Installation Plan preparation
  - On-site installation supervision



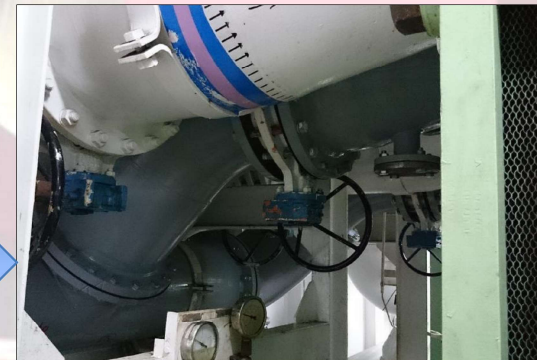
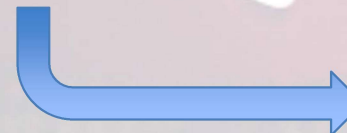
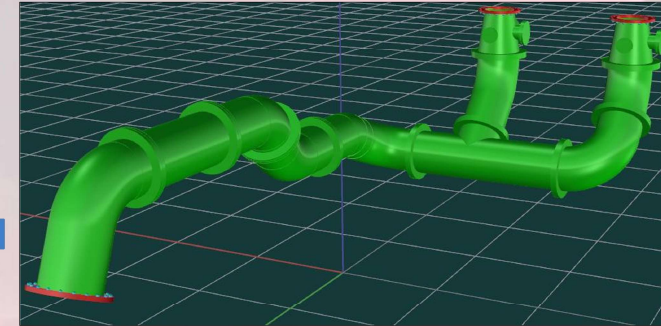
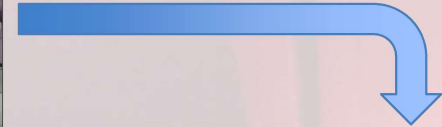
## Bulb Conversion studies & turn-key services

- existing bulb region surface laser scan
- 3D modelling of new forms
- Consolidated partnership with engineering companies for CFD calculation and for towing tank model tests aimed at new geometry pre-installation assessment
- new bulb structure design
  - Scantling plan drawings
  - Parts and structure report
  - Workshop documentation
- Installation Plans and drawings
- On-site installation supervision





- Innovative solution for critical systems tailored piping replacement in challenging conditions and time frames (e.g. SW cooling system)
- Existing piping geometry is scanned an 3D model realized in every smallest detail (e.g. out of axis and rotated flanges)
- Allows complete pre-installation finishing thanks to the preciseness and accuracy of the geometry definition (e.g. galvanized/plasticized pipes)
- Pipes realization as per design is followed up at workshop thanks to laser scanning technology
- Final product is ready for assembly - no need for further adjustment in place





## Technical Services Integration & Management

The technical services Tekno Consulting can provide, have been applied over the years to a broad range of retrofit projects, making the Company the technical integrator for Special Projects, Conversions & Refits and key interface to the Register of Class for the design approval process:

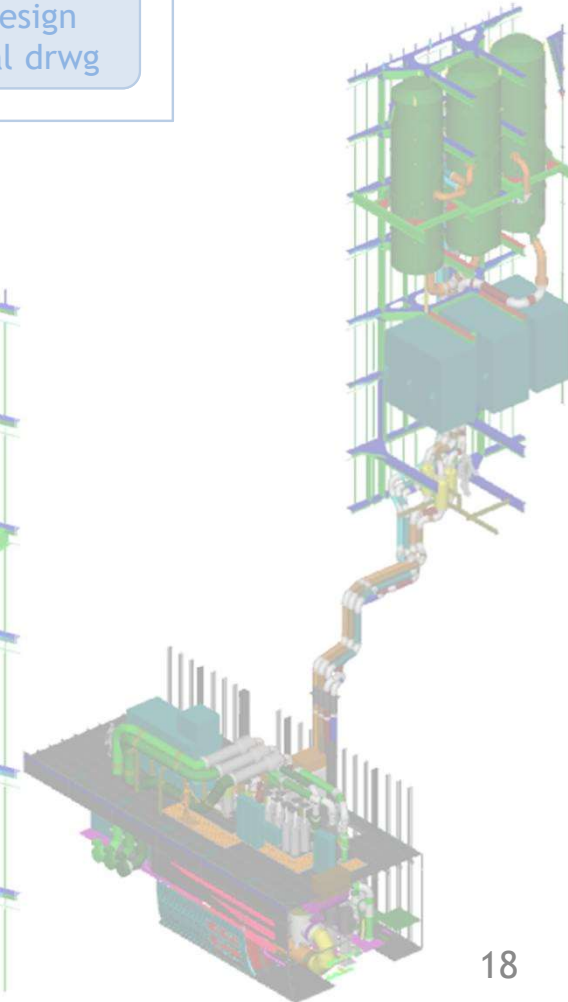
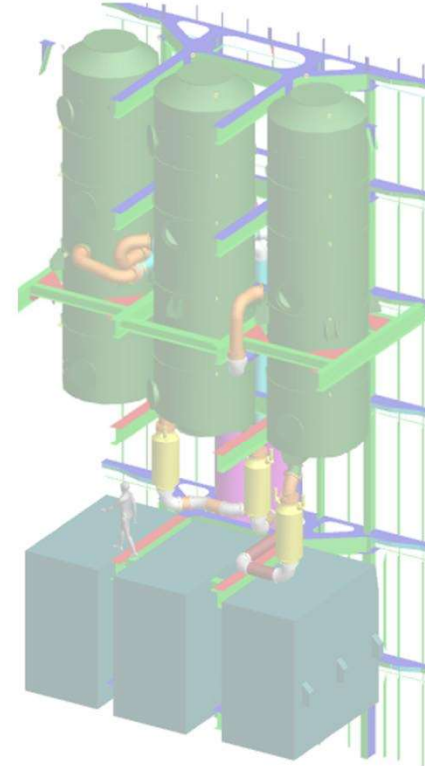
- AAQS projects (Advanced Air Quality Systems)
- AEDG projects (Auxiliary Emergency Diesel Generator)
- Re-powering projects
- BWTS plants refits (Ballast Water Treatment System)
- AC Chiller refits
- Damage Survivability
- Casualties

### AAQS Projects

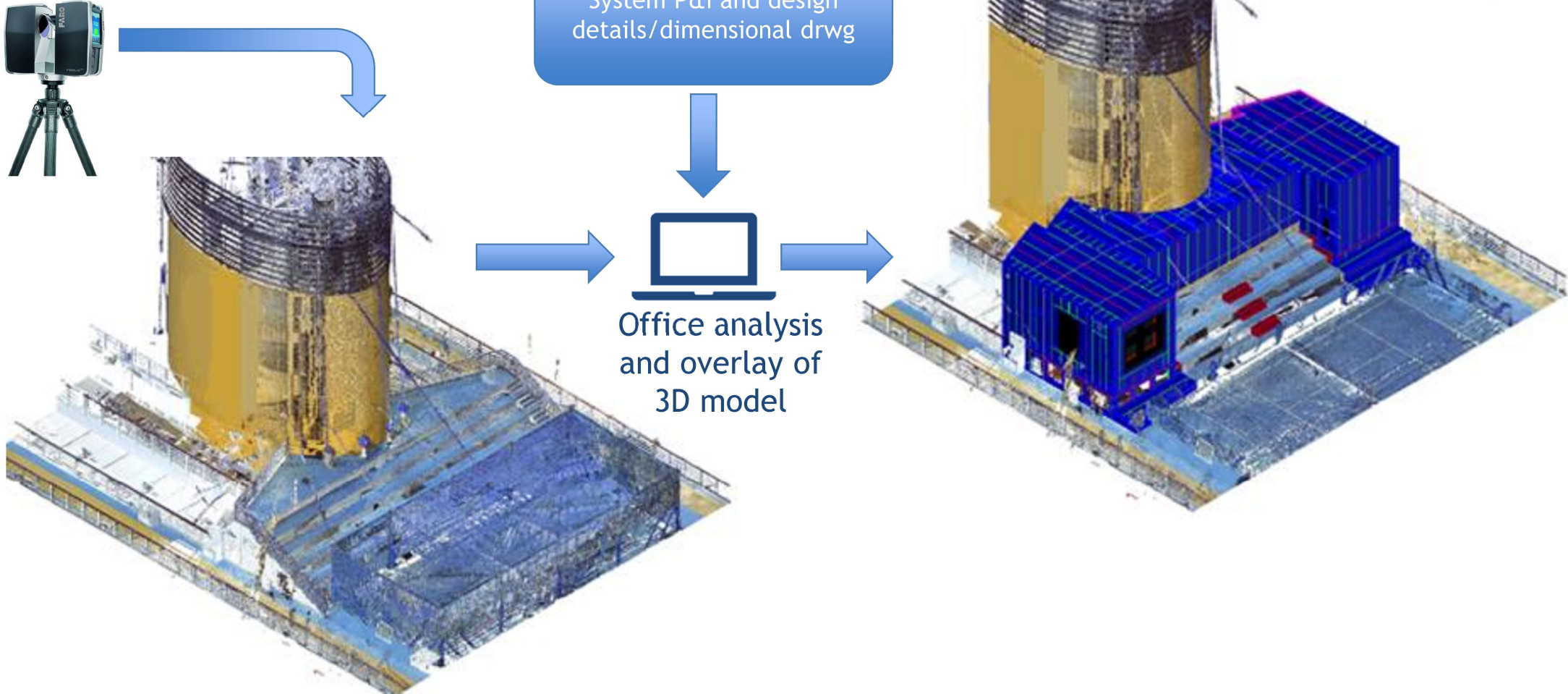
- Onboard technical surveys and 3D laser scanning
- 3D modeling of new arrangements
- Workshop drawings
- Silencers unloading plans
- Scrubber embarkation plans
- Cable trays routing arrangements
- Arrangement of new components including
  - ☐ Exhaust gas sketches
  - ☐ Filter drains sketches
  - ☐ New sea chests sketches
  - ☐ Piping arrangements
  - ☐ SW & Dilution system sketches
  - ☐ O.B. discharge layouts
  - ☐ Scrubber & pumps foundation layouts
  - ☐ Post-installation fittings
- Weights load & unload evaluation report



System P&I and design details/dimensional drwg



## AEDG Projects





## Re-Powering Projects

- Old/new machinery unloading/loading plans
- Main Engine Foundations design
- Structural checks i.w.o. modified/new ship structures
- Class approval of all ship drawings
- Engine Auxiliary systems assembly plans preparation based on customer's Tech Spec and onboard spaces arrangement
- Weights load/unload assessment
- Inclining Test & Stability Booklet revision





## BWT plants

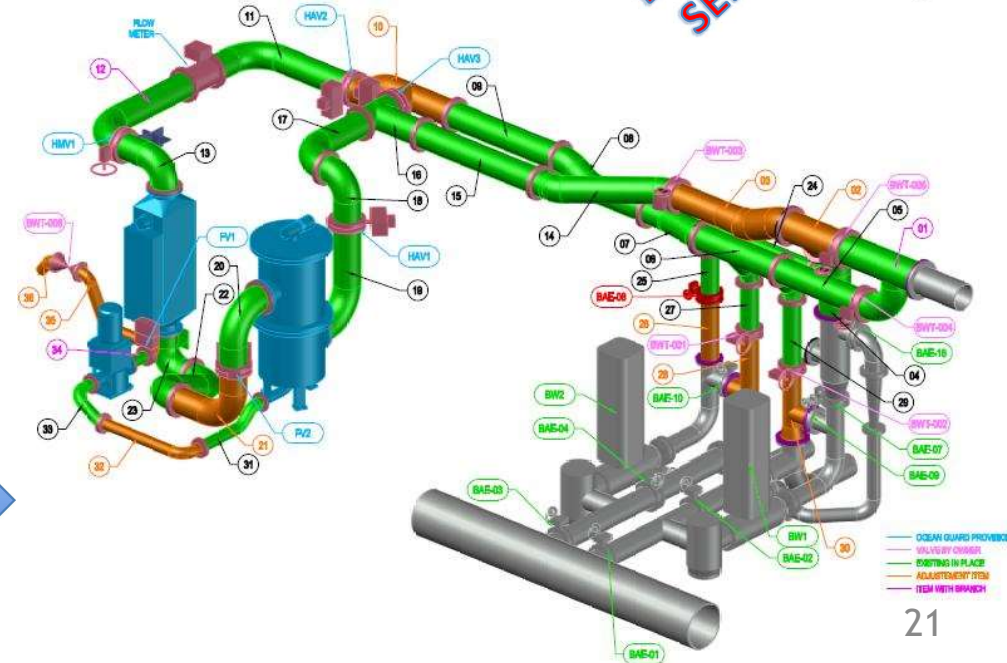
- Ship's preliminary assessment
- Onboard Laser scanning surveys aimed at designing interface to existing ship system
- 3D modelling of piping arrangements and new plants based on design data/P&I
- Update of relevant Ballast scheme, ER arrangement and other involved system
- Guidance on approved systems to achieve the BWM Certificate
- Preparation of Ballast Water Management Plan
- Supervision of installation activities
- Intermediate and renewal surveys

Tekno Consulting Staff has attended RINA Academy Seminar on Ballast Water Convention 2004 as amended



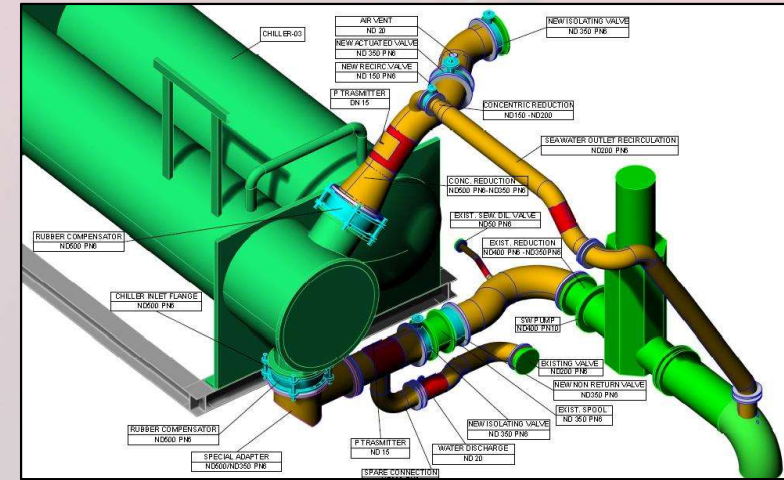
Onboard spaces 3D laser scanning

System P&I and design details/dimensional drwg



### AC Chiller Refits

- External Platform and shell cut drwg
- Disembarkation plans of old chiller units
- Embarkation plans of new chiller units
- Temporary structural modifications plans
- New seawater pipes 3D modeling and assembly drwg



AC Chiller 3D piping interface modeling and 3d model overlap on existing compressor room environment



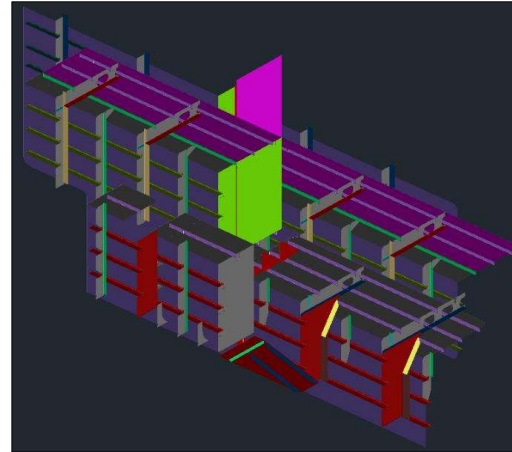
## Damage Survivability

- Conversion studies to comply with Stockholm agreement requirements
- Flooding doors on main garage deck
- Car decks and aft ramps
- Internal ramps / elevators
- Sponsons / Ducktails
- Accommodation areas refit



### Casualties

- Damage/Collision structural and plants investigation
- Support to Yards to define best time and cost-effective repairs strategies
- Block sections tailored design based on existing structure/plants drawings or former laser scanning
- Preventive hull & plants laser scanning during dry docking for fast repair service in case of damage







[www.teknoconsulting.com](http://www.teknoconsulting.com)