DEEPOCEAN

Inspection Maintenance and Repair – from Oil&Gas to Renewables

Offshore Wind Seminar, Bergen, 31.05.18

DeepOcean group capabilities

Vessels

- Owned: 3
- Chartered: 8-10

Current Operations

- Norway
- UK
- Netherlands
- US
- Ghana
- Mexico
- UAE

ROVs

- 58 ROVs

Other Assets

- Module handling systems
- Excavators / dredgers
- Mattress frames
- ROV tooling

Trenchers & Ploughs

- 5 ploughs
- 7 jet trenchers
- 4 mechanical cutters

Other

- Private company
- Lead investor Triton
- Recently Acquired Delta in US

Talent

- ~1,100 employees
- ~500 in IMR-SURF-Decom
- ~250 in CLT

Service lines

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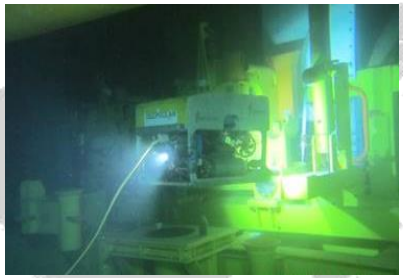
Subsea services and installation - SURF



Structure inspection

Survey and Pipeline inspection

Subsea Decommissioning

Maintanance and Repair

Cable lay and trenching

Cable Lay

Trenching

Installation - SURF

Offshore Wind

Track record

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More than **8 500 IMR vessel days** year in Greater North Sea

Close to 100 0**00km** of subsea product surveyed in water depths to **2100m**

17000km of flexible product installed and trenched. **900km** of which is power cable

900km of large diameter pipeline trenched

MAERSK CONNECTOR
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Power cable operators

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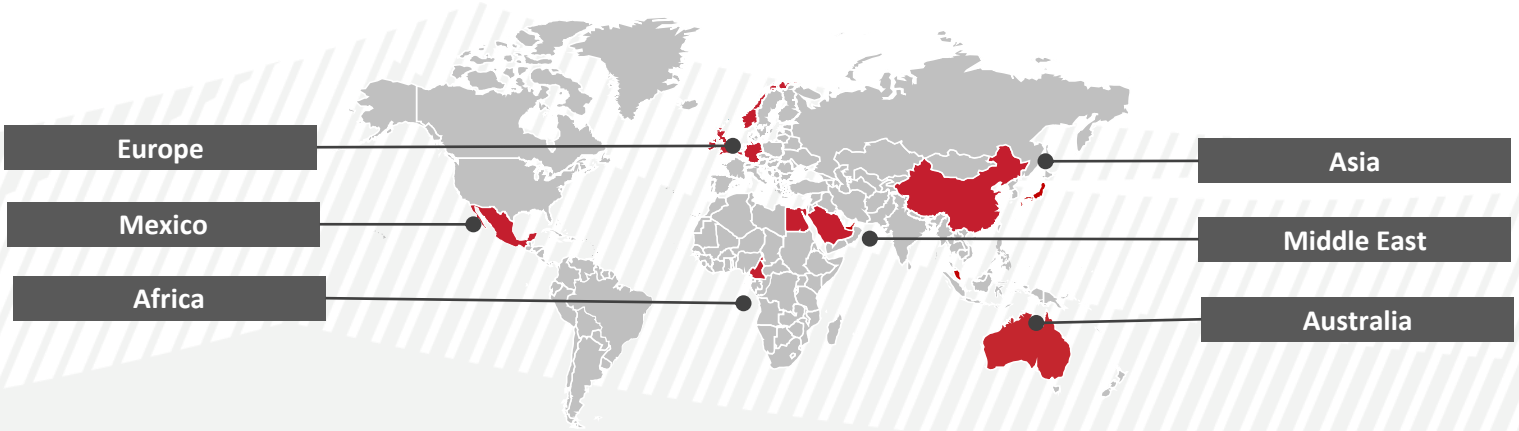
18,500km Subsea Cable Installed

500km HVDC Interconnectors	**1000km** Array & Export Cable	**1000km** Seismic PRM Cable	**16000km** Fibre Optic Cable

Water depths from **0-2000m**

DONG energy, SSE, IBERDROLA, e·on, Statoil, Statnett, VATTENFALL, nationalgrid, westernlink, Nemo Link, Nobelwind Offshore energy, TenneT Taking power further, J-POWER, NSW a General Cable company, LS Cable, Nexans, PRYSMIAN, kt submarine, DEMAR, kepco



Renewables and Interconnector Contracts held in North Sea

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DeepOcean cable lay & trenching

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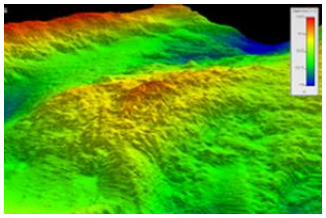
Feasibility & Front End Engineering

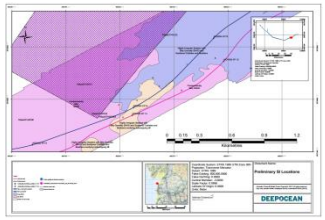
Project Management

Engineering , Geotechnical Engineering, Experienced Offshore and Operational Teams, Procurement



Survey **Seabed Mapping**

- ROV and vessel based survey
- Seabed mapping and geophysics
- Cable route Investigation
- UXO and other threat and obstacle management



Route Design & Eng

- In-house Geotechnical Expertise
- Expert route engineering service.
- Installation Analysis

Subsea Installation

- Over 1200km of power cable installed
- Array, export and interconnector cables
- Offshore, nearshore and shore pull-in.
- Contracted to install over 400km in the next 2 years

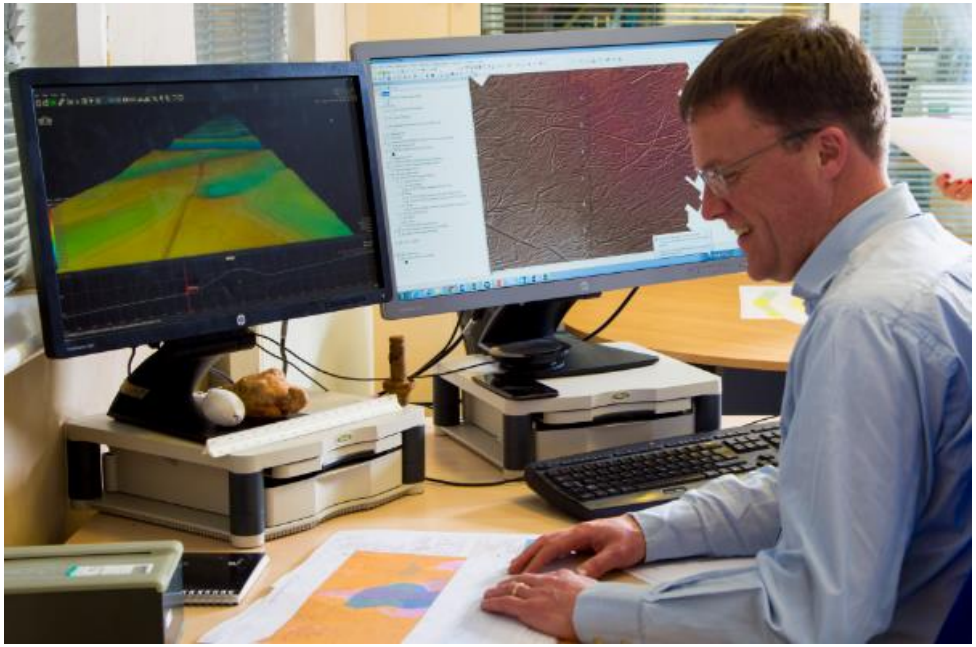
Cable Burial

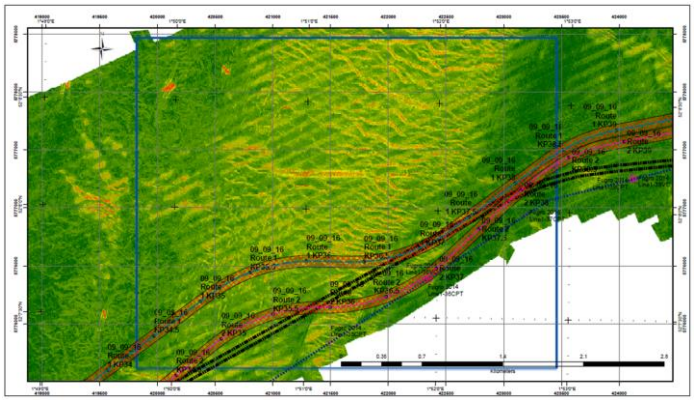
- Leading provider of subsea trenching services
- Largest portfolio of trenching assets
- Permanently mobilised trenching spreads
- Powerful technology for cable burial to 3m
- All water depths
- Diverse seabed conditions

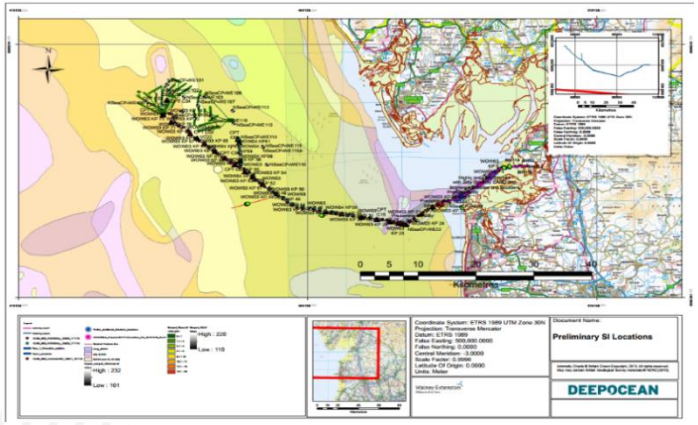
Maintenance & Repair

- Subsea cable integrity inspection
- Remedial burial of cables
- Cable fault identification
- Cable de-burial
- Cable retrieval
- Cable repair / replacement
- Cable protection
- Strategic IMR Frame Agreements

In-House Design and Engineering







Bringing together over 20 years of cable installation experience with the latest cable routing software to provide expert route engineering.

- Route Positioning Lists
- Straight Line Diagrams
- Cable Lengths
- Armour Requirements
- Transitions
- Slack
- Water Depths
- Crossings
- Obstacle Avoidance

Walney extension

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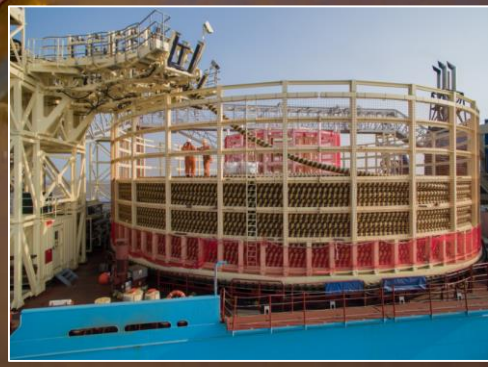

- Client: Ørsted
- Year: 2017
- Maersk Connector, 7000te basket carousel and ACP2
- Simultaneous installation and burial of 2 x 68km HVAC export cables (including 2 x 3.5km over roller beach pull-ins). Installation of 23km of HVAC platform interlink cables and post-lay burial.
- First engineered grounding of the Mearsk Connector and first application of ACP2.

Race Bank UK

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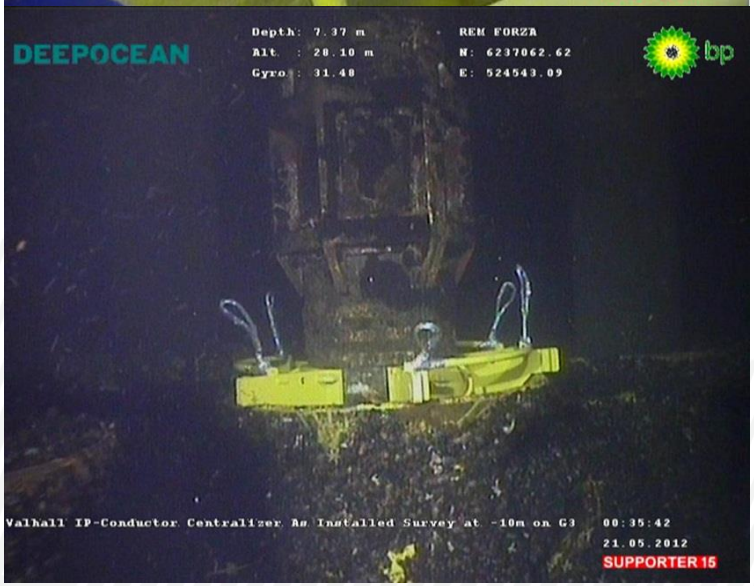
- Client: Ørsted
- Year: 2016-2017
- 91 x 33kV Array Cables
- Edda Freya, Volantis, Deep Helder & T2
- Project management, route engineering and optimisation, PLGR, cable load out, transportation and installation

Valhall IP - Conductor Centralizer Installation



Photogrammetry - 3D from video

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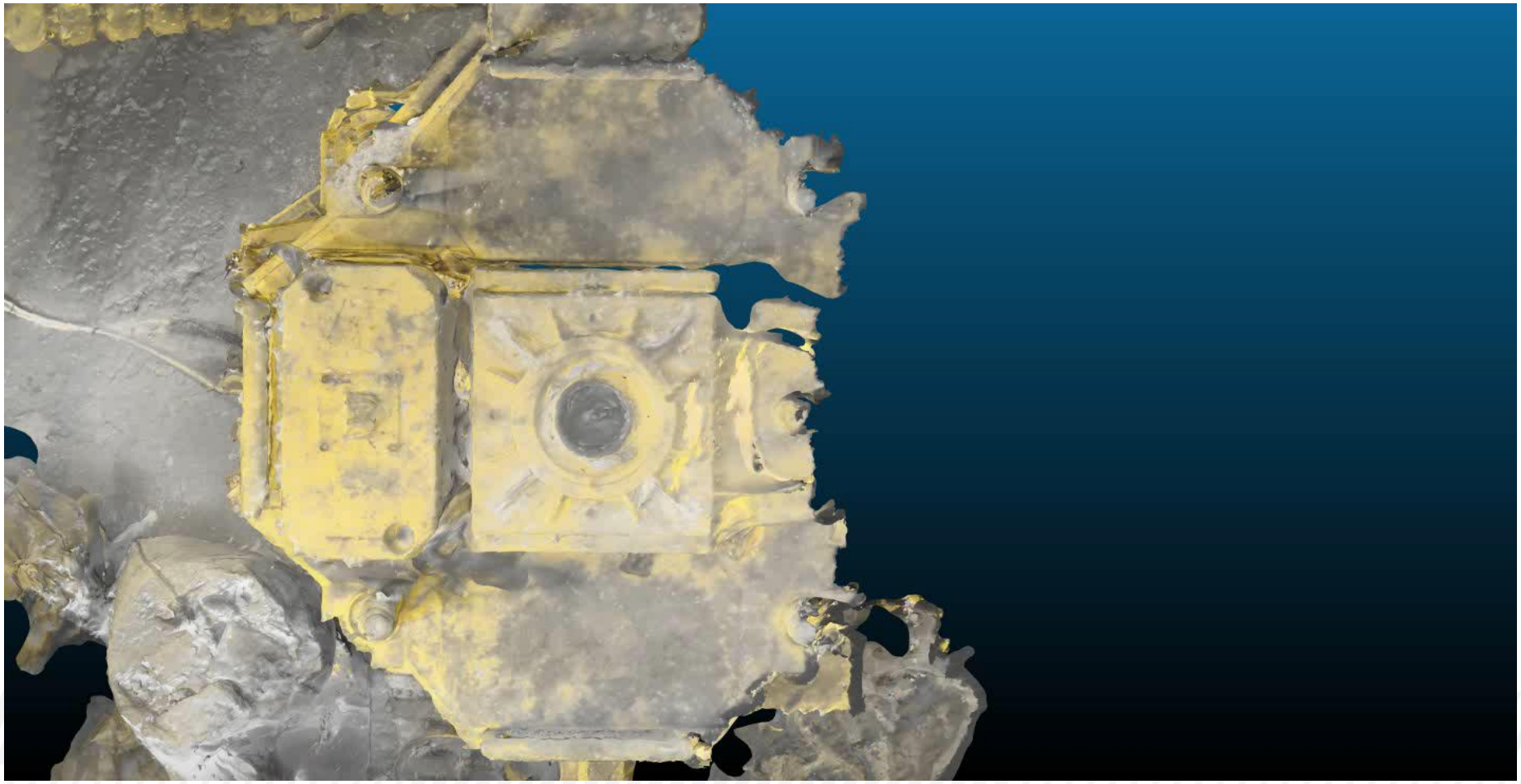

UXO removal and detonation

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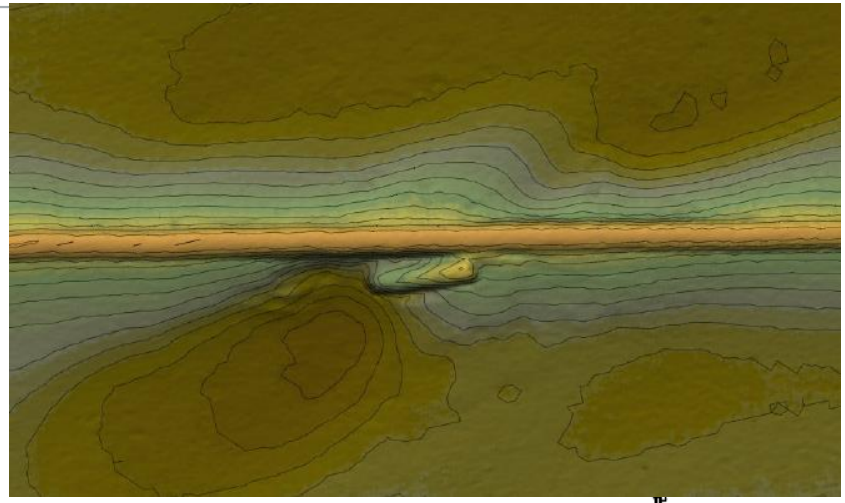

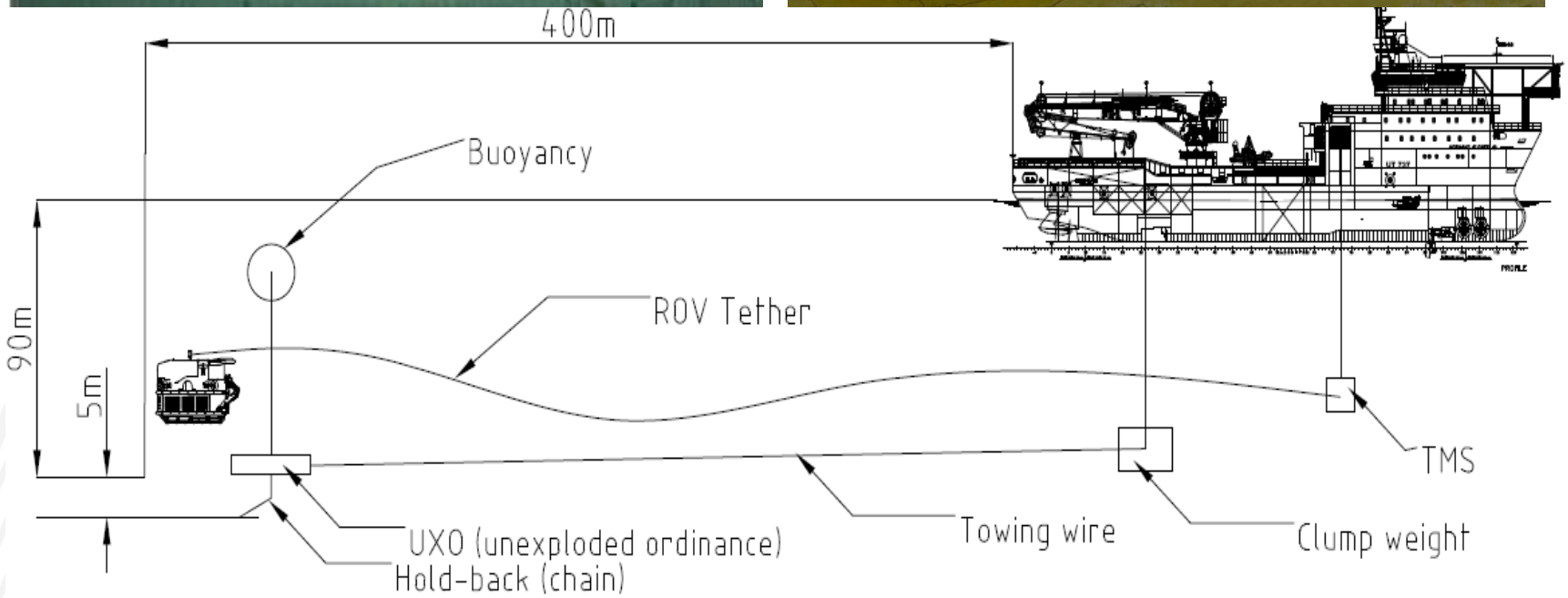

Comparable IMR spreads?

A new generation support vessels

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- Repeatability is key

Onshore Control Centre
– new tools and methods become available

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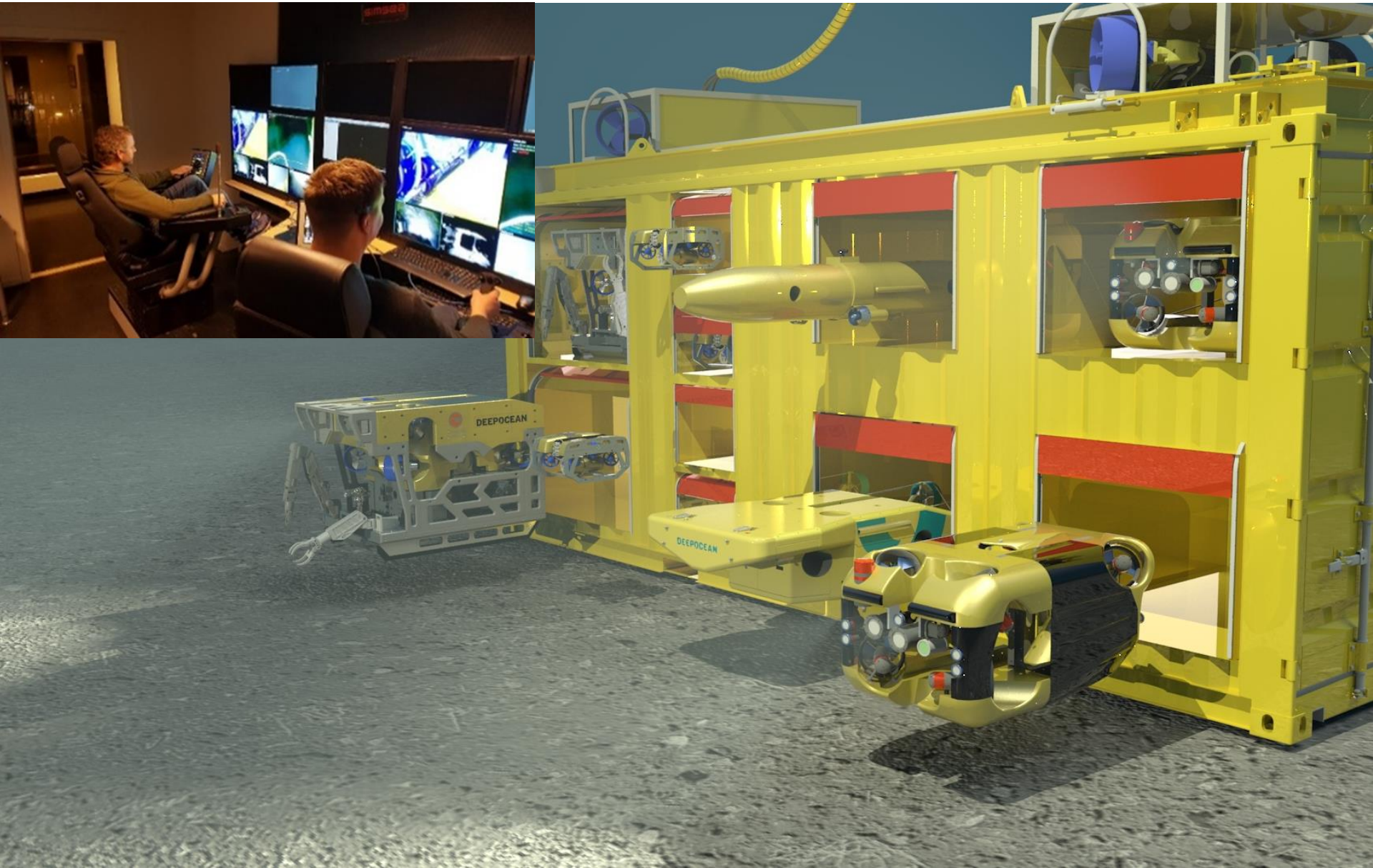

High ambitions – Deep knowledge

www.deepoceangroup.com