

WELCOME BACK

UK Offshore Wind Supply Chain
Spotlight Breakout Stream 1
Session 2

 Orsted





13.15 – 14.00:

Introduction to the Ørsted UK&I Innovation Hub

- Alex Louden – Senior Ventures & Open Innovation Specialist

Site Investigations – Pitches from:

- Natural Power – Michelle Elliot
- Sulmara - Michael King
- Kraken Robotics – Chris Almond
- Sonardyne – Julian Rickards

A wide-angle photograph of an offshore wind farm. Several white wind turbines with three blades are visible, spaced out across a dark blue sea. In the foreground, a red and white supply vessel is moving towards the right, leaving a white wake. The background shows a hazy coastline under a cloudy sky.

Breakout Session 2

Introduction to the Ørsted UK&IE Innovation Hub
Pitches from companies working in site investigation

Breakout sessions

11.10 am

Introduction Ørsted and supplier stories



Julian Das

Ørsted Supply Chain Development Manager

13.15 pm

Introduction to the Ørsted UK&I Innovation Hub and pitch sessions: Site Investigations



Alex Loudon

Ørsted Ventures and Open Innovation
Senior Ventures and Open Innovation Specialist

14.45 pm

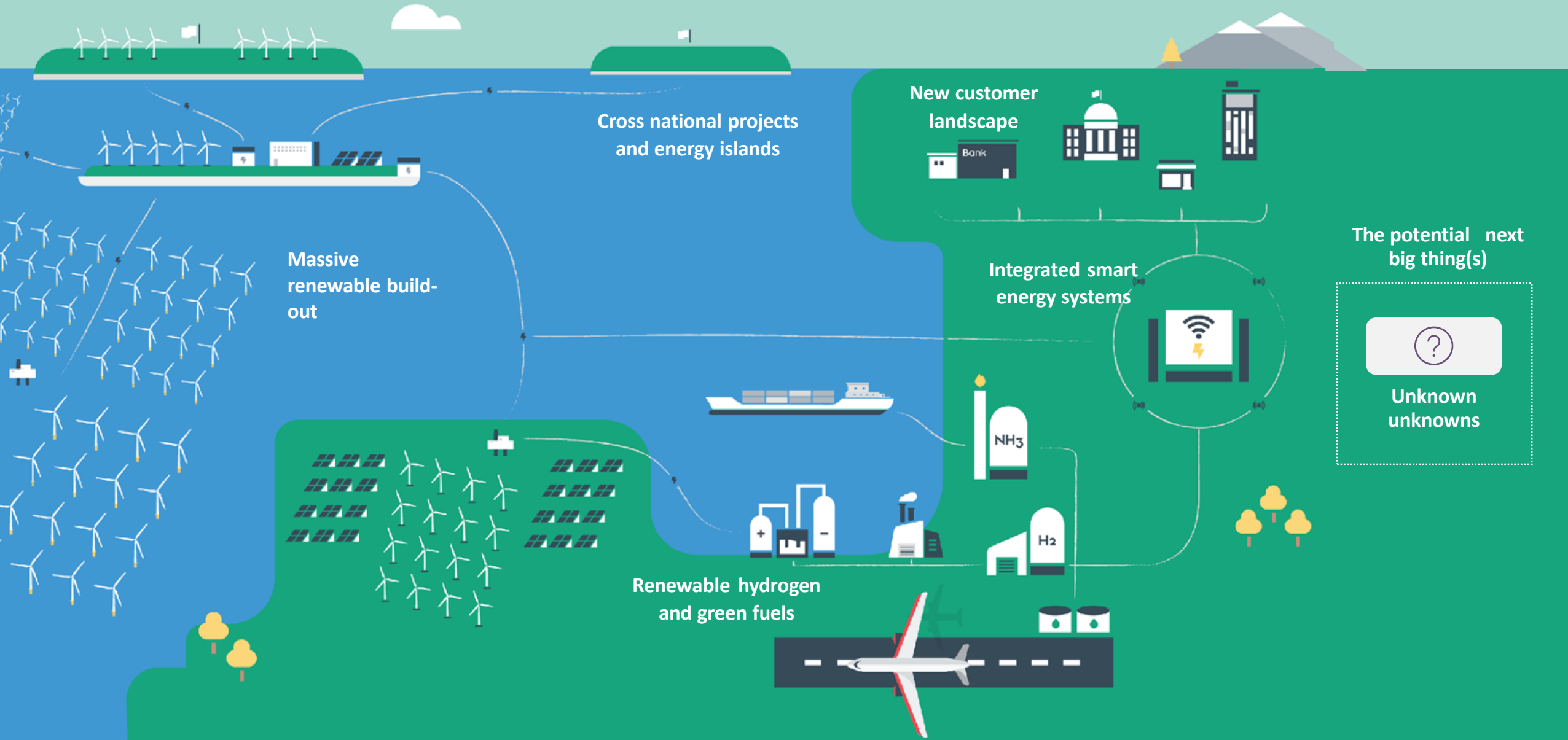
O&M Services followed by pitch and panel sessions



Julian Das & Alex Loudon

Ørsted Supply Chain Development Manager & Ørsted
Ventures and Open Innovation

Let's create a world that runs entirely on green energy – by proactively building the energy system of the future



Ørsted's Innovation department covers a broad scope from incremental to radical innovation

The Innovation department drives the development and implementation of concepts going beyond Ørsted's core business lines

We cover the full spectrum of innovation, including incremental, transformative and radical innovation

Our focus areas include



Renewable power generation



Renewable integration



Energy transmission & consumption



Hard-to-abate decarbonization



Power-to-X



Sustainability



Biodiversity

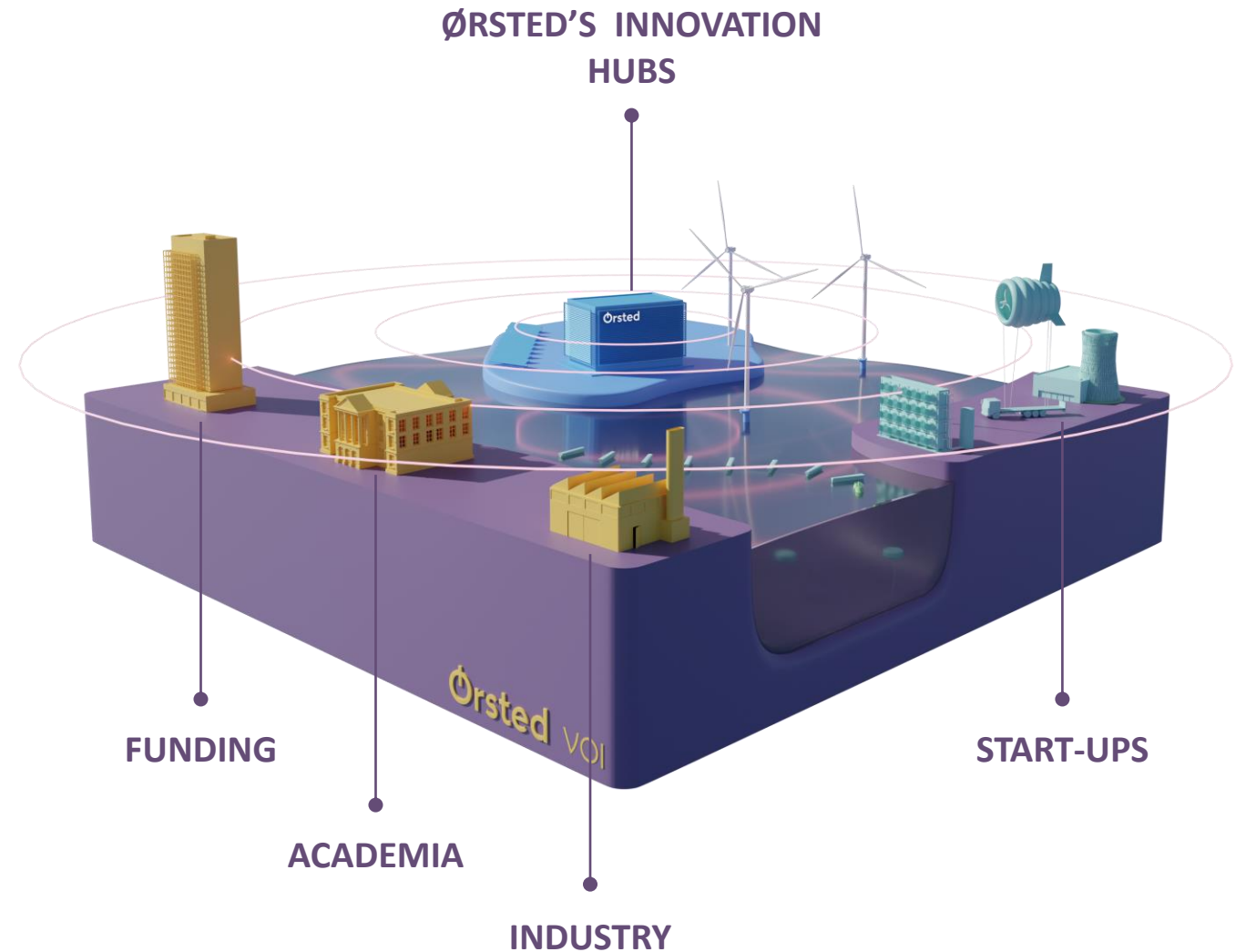
Hi, we are Ventures & Open Innovation!

OUR MISSION

is to build a world that runs entirely on green energy by accelerating the next generation of renewable innovation in collaboration with their makers, supporters and adopters

WE DRIVE AND FACILITATE

Ørsted's collaborations with external innovation ecosystems; start-ups, academia and corporates in neighbouring industries



Current industry trends change our innovation needs – external ecosystems are essential to solve them

INDUSTRY TRENDS¹

MORE COMPLEX ENERGY LANDSCAPE

Energy systems becoming more integrated across markets and technologies, incl. P2X

INCREASED NUMBER OF OFFTAKERS

Shift from "government only market" to a "multiple offtaker market"

INCREASED COMPETITION

Growing number of players applying diverse business models across markets

INNOVATION NEEDS



LARGER NUMBER AND VARIETY OF SOLUTIONS



FASTER ADAPTATION



LOCAL SUPPLY-CHAIN

ECOSYSTEM BENEFITS

HIGH SPEED

Ability to quickly develop and mature new concepts

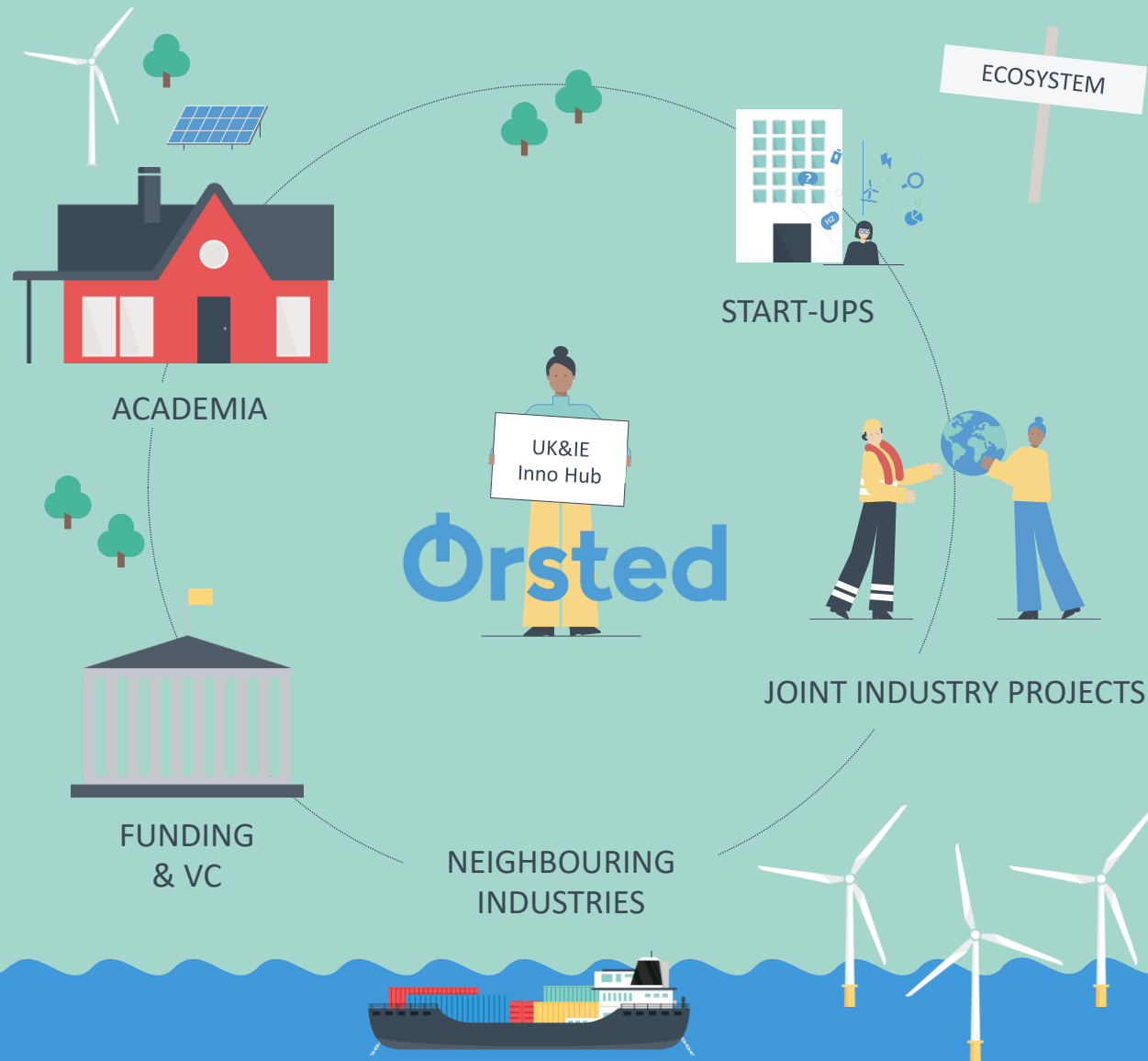
HIGH VARIETY

Access to broader pool of concepts across verticals and fields

HIGH EXPERTISE AND FOCUS

Access to different talent pools and highly specialized capabilities

Welcome to the Ørsted UK & Ireland Innovation Hub!



The **UK & IRELAND INNOVATION HUB** is Ørsted's front door for UK&IE-based innovators, and your contact point to initiate collaborations

Collaborating with **EXTERNAL INNOVATION ECOSYSTEMS** enables us to deliver the rapid, radical innovation needed in the fight against climate change

The UK&IE Innovation Hub is a platform that creates strategic partnerships between Ørsted and innovators to support rapid commercialisation

What we seek

To **access concepts** that enable Ørsted's innovation ambitions in the **short-to-medium term** (<5 years), and enable their scaling, maturation, supplier-readiness and commercialisation

To **detect emerging trends** and radical innovation concepts that may provide opportunities for **business model innovation or disruption** in the longer-term (5+ years)

What we provide

Access to sector-leading green energy expertise – our vast network of globally recognized in-house experts across technical and commercial disciplines

Access to green energy assets – including our onshore wind, solar, storage and green fuels facilities, and the world's largest fleet of operational offshore wind farms

Access to capital – extensive and varied opportunities to co-finance and invest in innovation activities

Access to markets – a history of being the first commercial customer for cutting-edge innovations throughout our global footprint

Access to brand – wide recognition as one of the most sustainable energy companies in the world

Thank you for listening!

Any questions?

Come and find me in the break!



Alexander Loudon

Ørsted Ventures and Open Innovation
Senior Ventures and Open Innovation Specialist



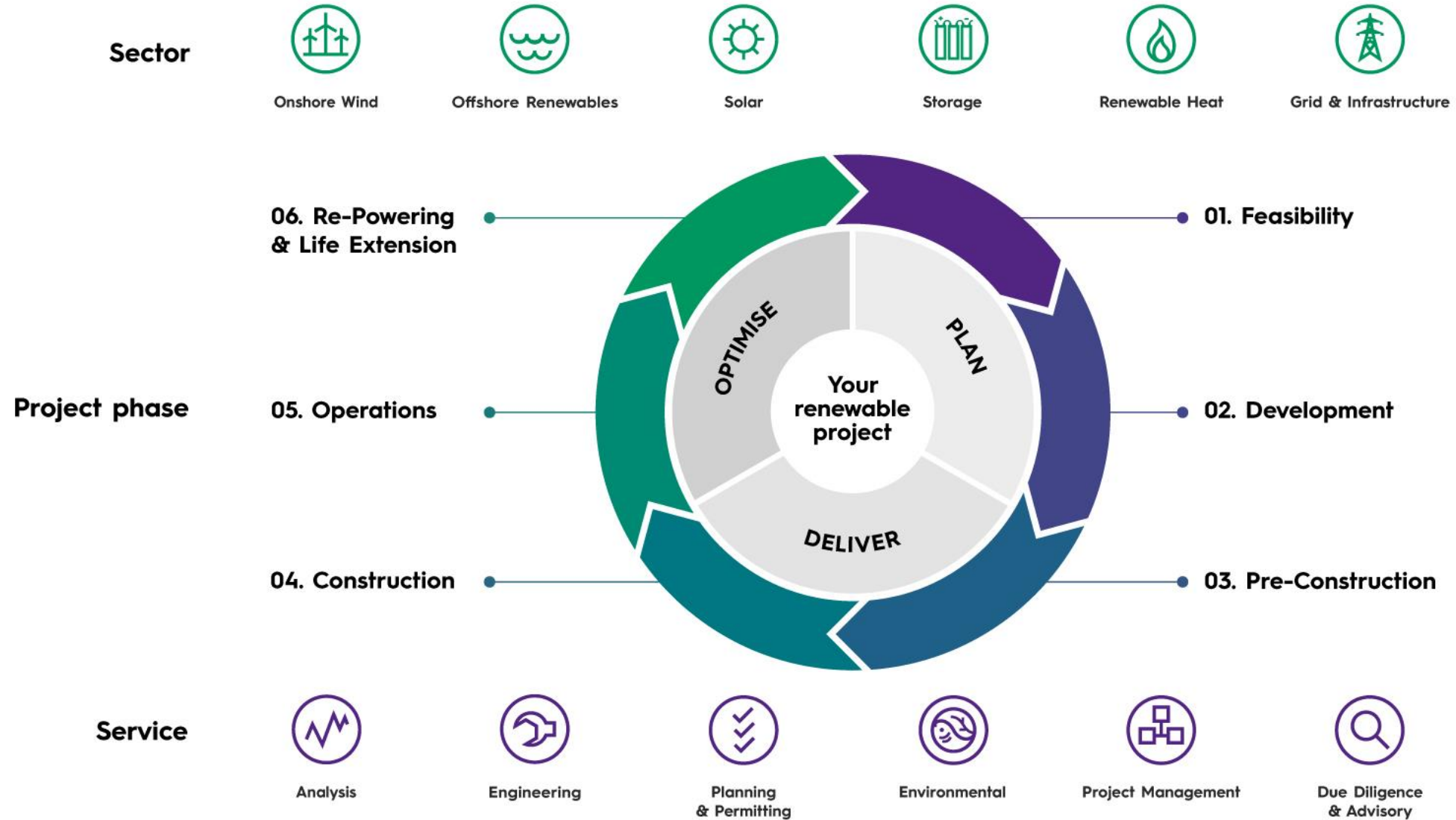
allou@orsted.com

Site Investigations

Pitch Session

Michelle Elliot – Natural Power





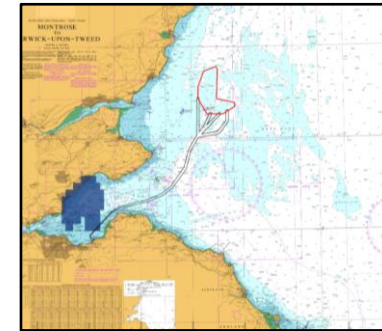
Tender Strategy,
Coordination and
Competitor Analysis

- Extensive experience of site selection and assessment, risk management and tender coordination
- In-house expertise, strong consultee engagement experience



Consenting and
Environment

- Experienced Lead EIA Consultants for on- and offshore infrastructure
- Specialist technical environmental support and advice
- Extensive pre- and post- consent support activities for offshore wind and associated infrastructure



Geophysical and
Geotechnical Services

- Survey Design, Tender and Project Management
- Client Rep support with on-board data analysis to limit downtime and improve data quality
- Ground model production and wind analysis



Health and Safety

- HSEQ Support Services
- Preparation of project specific practices and procedures; monitoring and reporting
- Provision of integrated project staff



Blog

Natural England

Organisations: [Natural England](#)

Biodiversity Net Gain – more than just a number

[Mel Hughes](#), 21 September 2021 - [Biodiversity](#)

Increased environmental scrutiny
Corporate and government goals of Net Zero, Biodiversity Net Gain (BNG) and Net Positive Impact (NPI).



Time-pressured targets UK government to reach Net Zero by 2050 and derive 50GW of energy from offshore wind by 2030. Subsequent supply chain pressures.



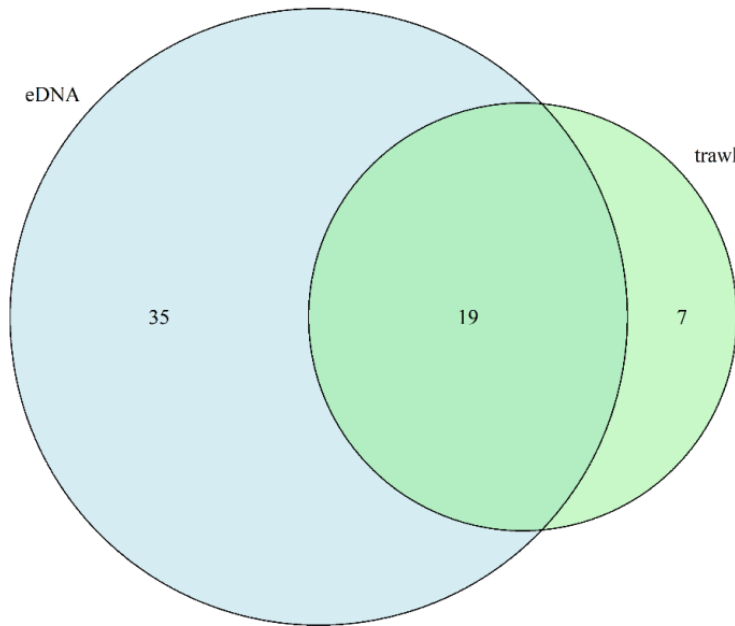
Unknown impacts and innovation opportunities
Monitoring of new offshore infrastructure such as floating wind and remediation projects.

Ecological surveys such as fish ecology surveys, requires specialised vessels, expert staff and equipment. Delays to surveys due to weather, lack of availability of vessels and expert staff can cause significant delays to the construction of developments.

Trawls Vs eDNA: Headline Results

Trawls: 26 fish species

eDNA: 54 fish species



Using eDNA demonstrated that the artificial habitat created by turbines may be providing shelter and food for fish species, with some reef-associated species including goldsinny, Norway bullhead and four-bearded rockling utilising the turbine area.

Other species were also identified in the eDNA samples including marine mammals, such as minke whale, harbour porpoise, bottlenose dolphin and white-sided/ white-beaked dolphin, and diving sea birds and even benthic invertebrates.

Innovative methods are needed to help resolve the many challenges we face as an industry, and using eDNA for the collection of biological data without an increase in frequency and survey effort is one such method that is being successfully explored.

Site Investigations

Pitch Session

Michael King – Sulmara



Question

Could you reduce your projects impact on the planet?

At Sulmara, we innovate for a sustainable energy future

...because our environmental impact doesn't stay offshore.

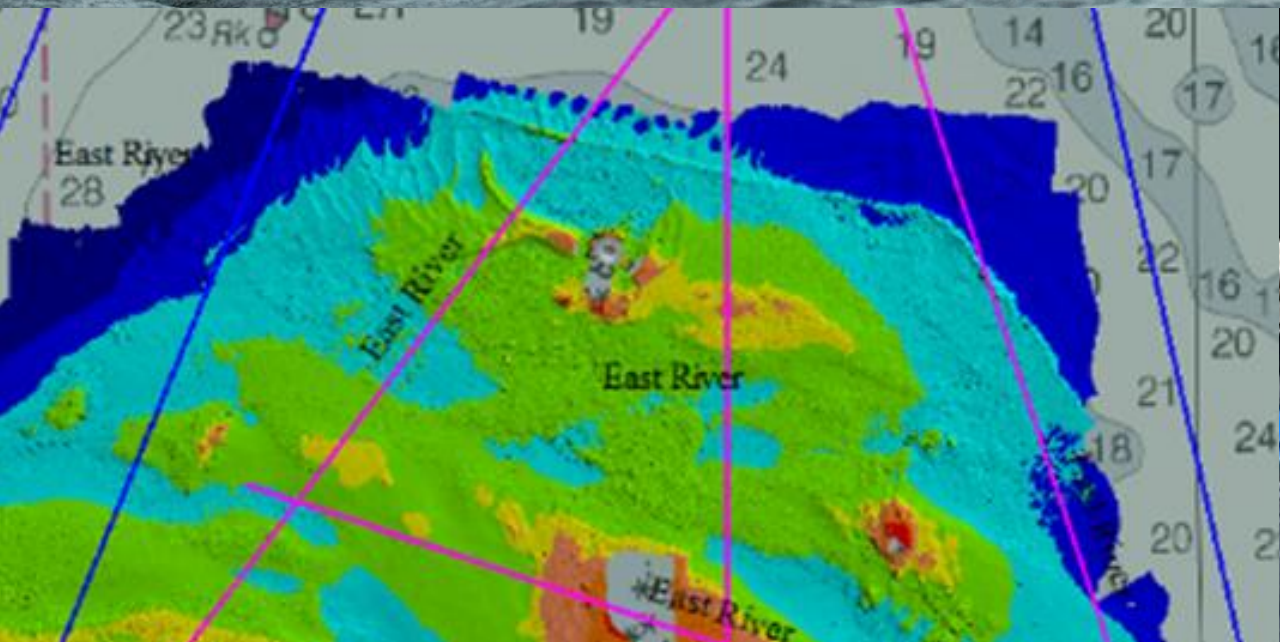




How we do it

Differentiation

- Multiple, agnostic platforms
- Global support
- Dedicated development
- 'The right tool for the right job'



How we do it

It's not easy!

New technology is difficult, and the roadmap to acceptance is full of challenges



What next?

Further development



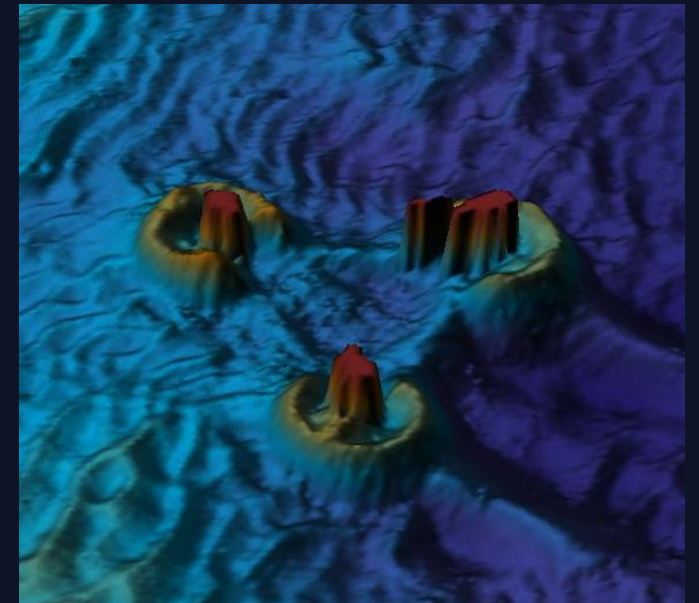
Investment in USV technology



Net Zero
Technology
Centre

Technology Driving Transition

Increasing capability



Data products



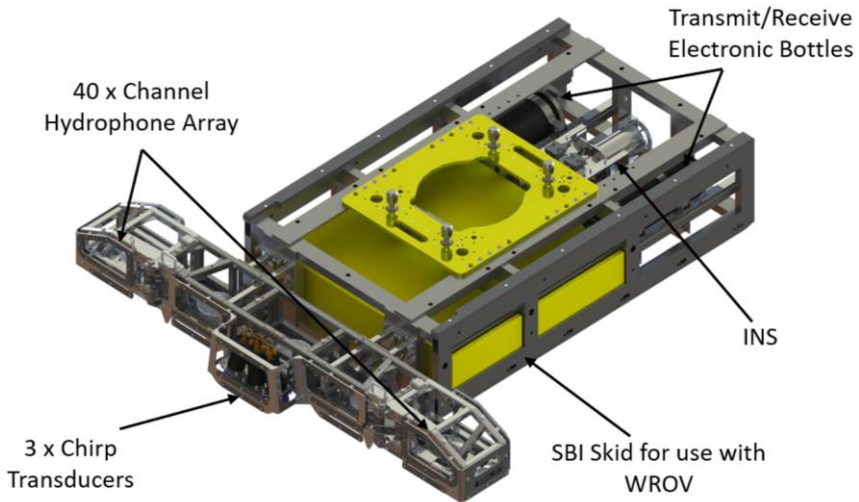
Site Investigations

Pitch Session

Chris Almond – Kraken Robotics

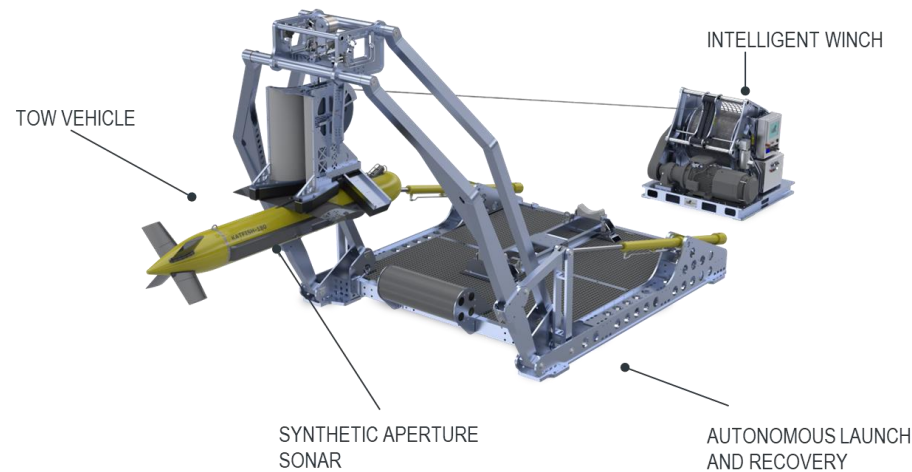


Sub-Bottom Imager



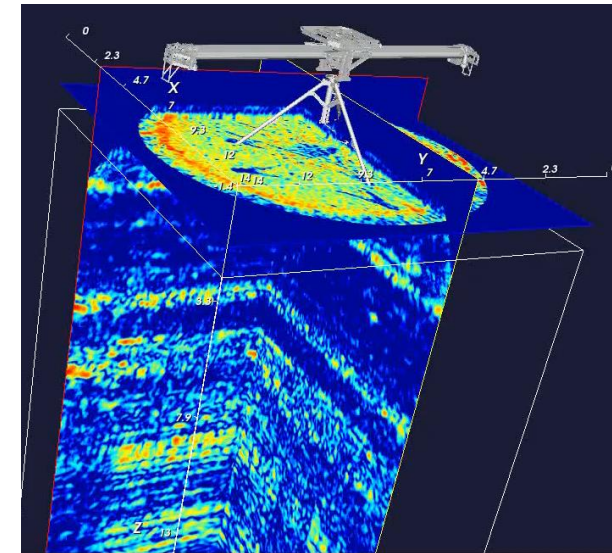
- Sub-Seabed Imaging
- Continuous High-Res 3D acoustics
- Buried boulder, UXO, buried debris
- Energized cable DOB/DOL

KATFISH Synthetic Aperture Sonar



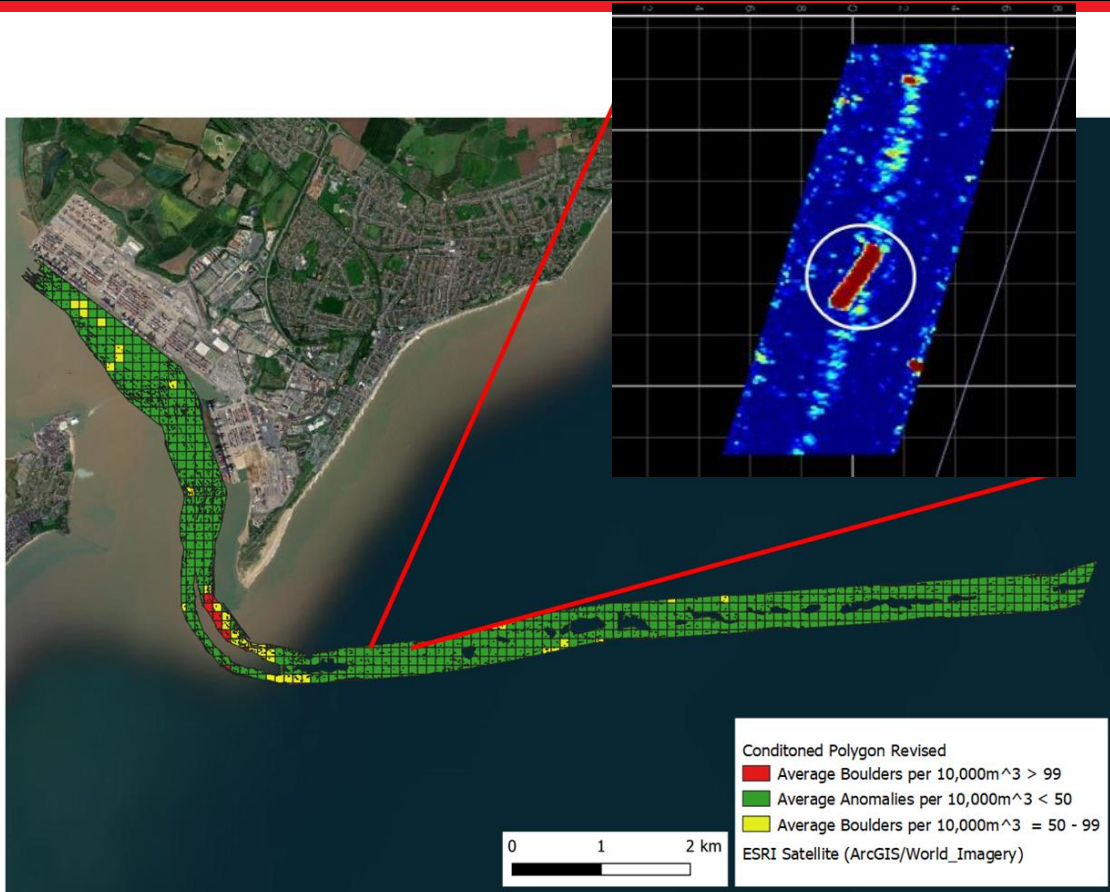
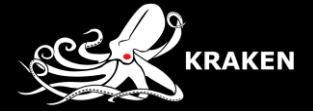
- 2cm resolution imagery of seabed
- NATO specified mine hunter
- Replaces SSS in higher resolution
- Reduces survey time and cost whilst increasing accuracy and resolution

Acoustic Corer



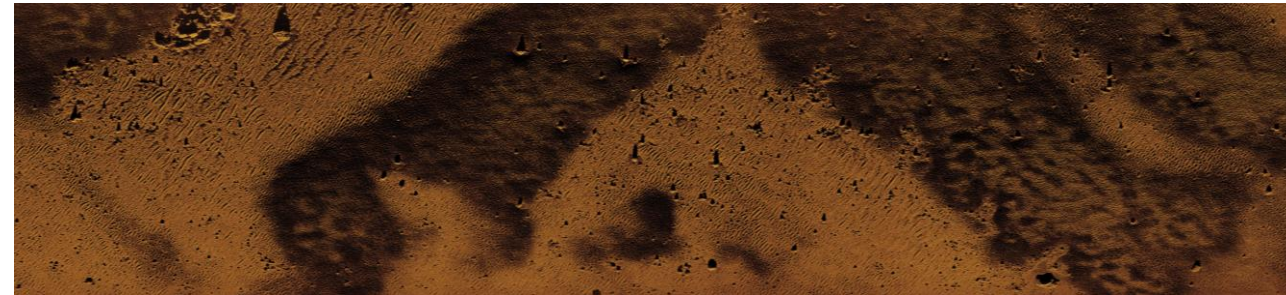
- 3D acoustic image below seabed
- Derisks foundation locations by detecting buried boulders to 60m
- Correlate geotechnics™

Revolutionise Site Investigations

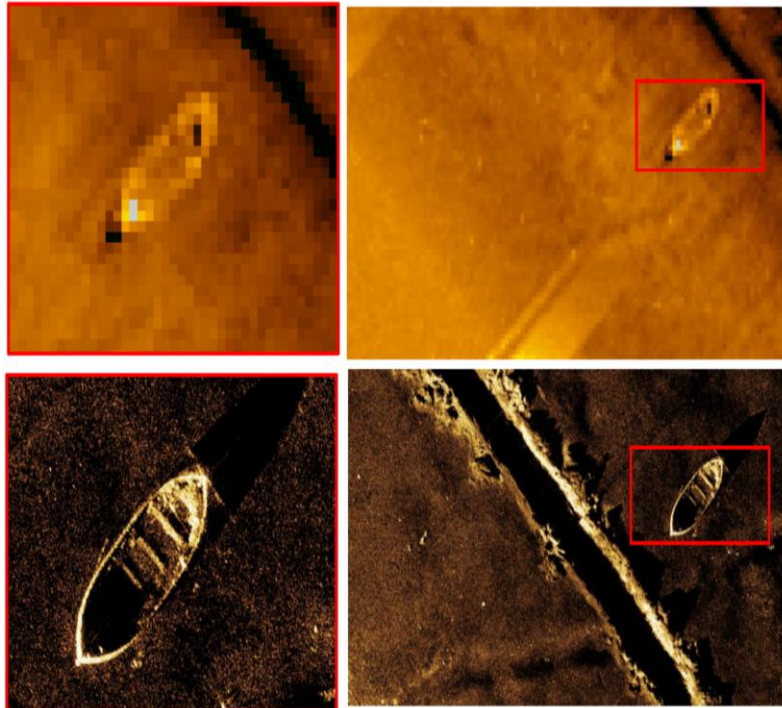
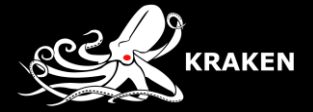


- Full cable route 3D volume – Identify all buried boulders and reduce UXO targets by >70%.
- Locate non-ferrous UXO (LMA/LMA mines)

- Synthetic Aperture Sonar survey of your lease area, produces market-leading accuracy and resolution of seabed imagery and bathymetry.
- Reduces survey duration and costs by over 50% through fast acquisition (7kts) and constant resolution with range leading to 150m line spacing.



De-Risk Cable Ownership and Installation

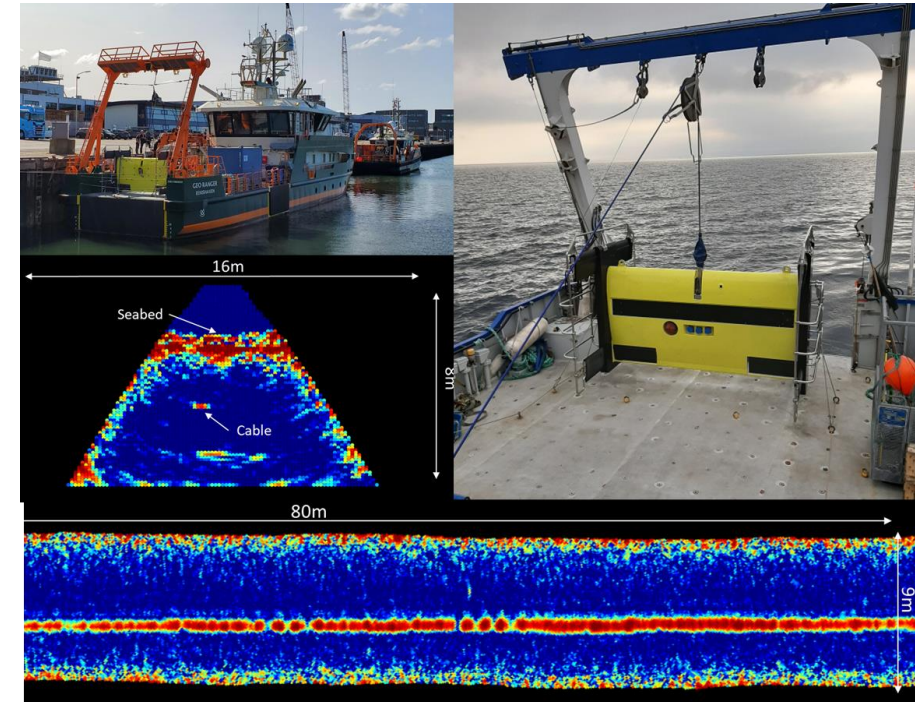


SSS on AUV
900 kHz

SAS on same AUV
337 kHz

Cable cross
profile

Cable
top-down



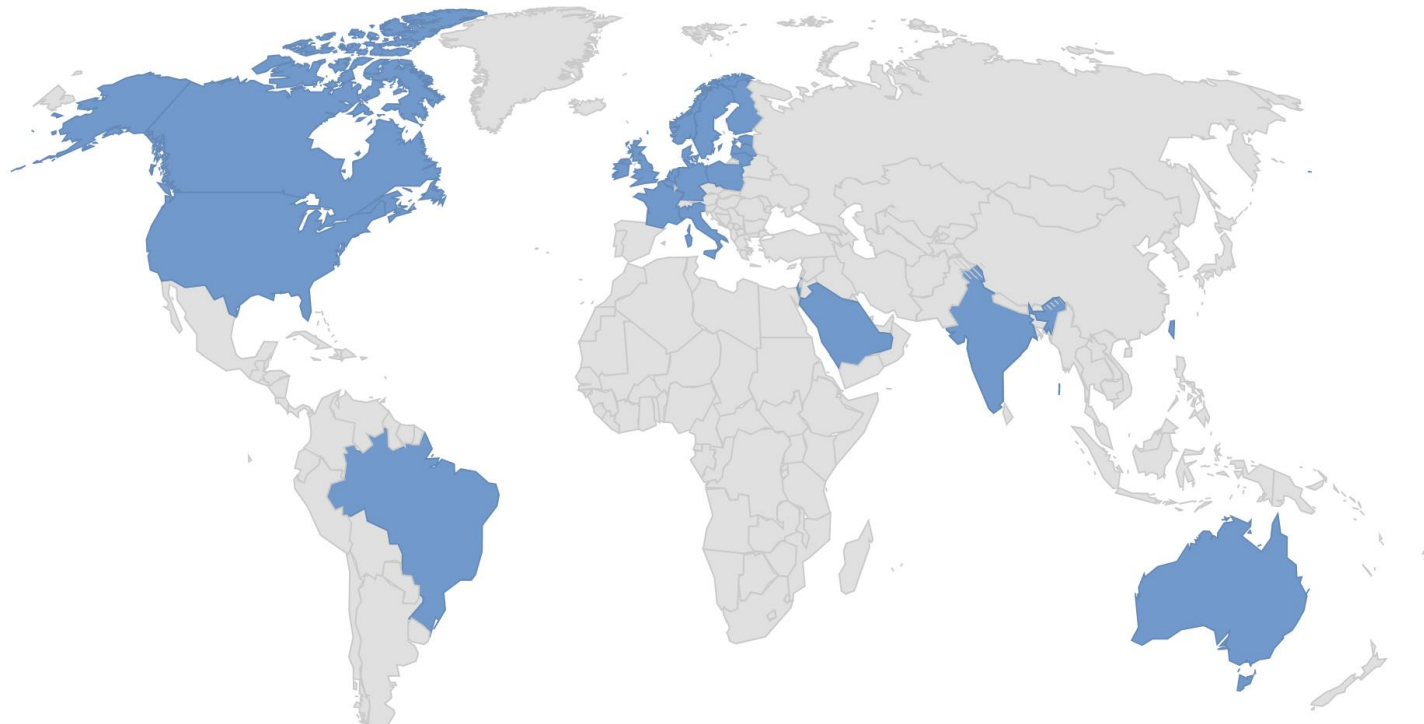
- Know exactly what is on the seabed and how to mitigate the risk it poses
- Plan your trenching operations and methodology from the beach
- Fixed contracts based on sound seabed conditions

- Remove the need for variation orders on your installation contracts
- Provide comprehensive seabed sub-seabed soil conditions including location of buried boulders
- Cable remain energized during cable burial assessment, maintaining energy and revenue flow

Market Impact to Date



Snippet of our Global Track Record



Some of our clients



Site Investigations

Pitch Session

Julian Rickards – Sonardyne





Over 50 years subsea experience



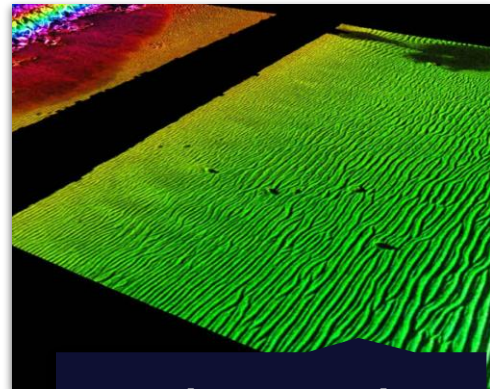
Rich subsea engineering heritage



Evolving subsea technologies



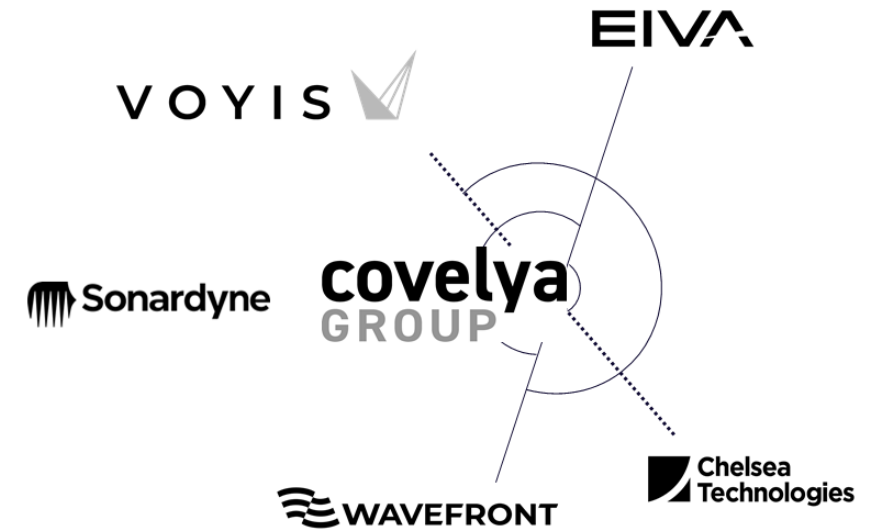
Navigation & Positioning



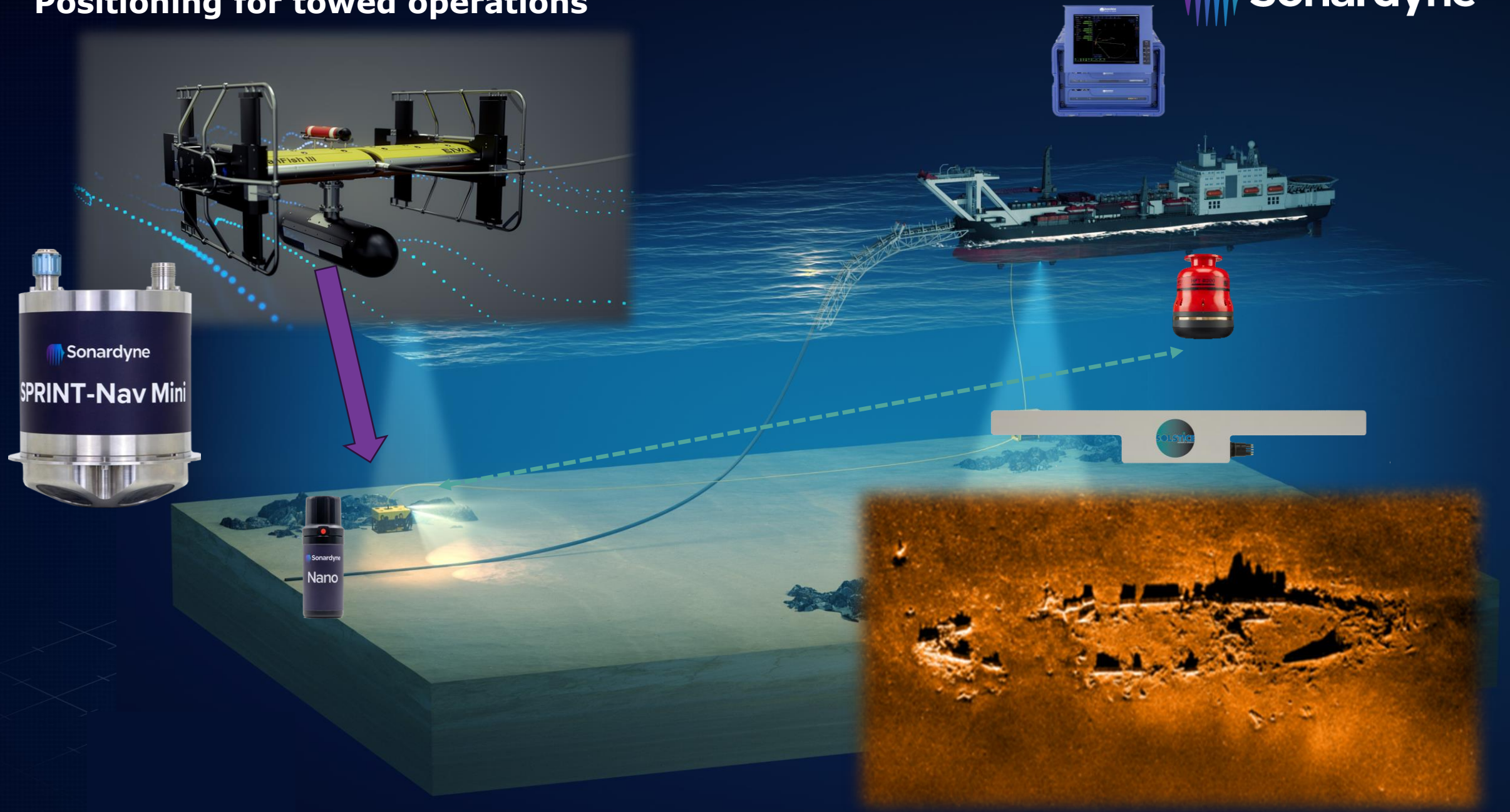
Sensing, & Monitor imagingng



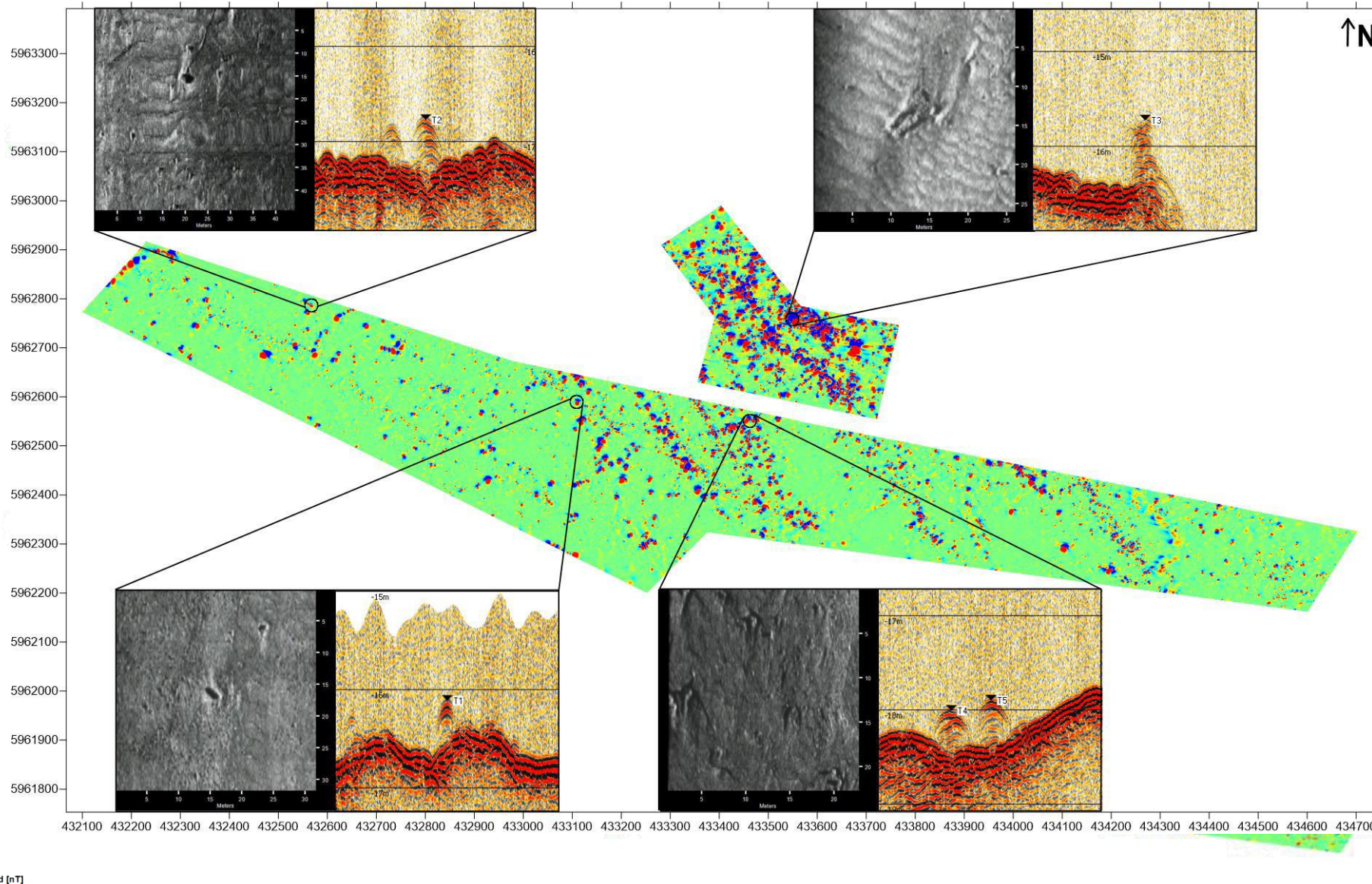
Wireless comms & remote operations



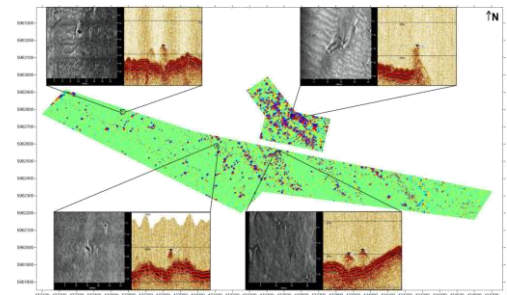
Positioning for towed operations



System improvements 2014 2018



Images courtesy of PKE



Value to the end-user



Accuracy

- More accurate georeferenced geophysical and imaging data

Cost reduction

- More efficiency and lower operational costs due to faster towing speeds

AI

- Removing data gaps means easier classification using AI algorithm

Faster consenting

- Stronger business case for high-res surveys earlier on in the development process

Site Investigations

That's a wrap!

Be sure to catch our speakers in the networking sessions!





PLEASE MAKE YOUR WAY TO
THE PENTLAND SUITE NOW

Up Next – Session 4
14.00 – 14.45