



*Digitizing the ocean space*

# Pareto Energy Conference 2022

15 SEPTEMBER 2022  
TROND FIGENSCHOU CRANTZ, CEO

# Disclaimer

- This presentation includes and is based on, among other things, forward-looking information and statements
- Such forward-looking information and statements are based on the current expectations, estimates and projections of Argeo or assumptions based on information available to the company
- Such forward-looking information and statements reflect current views with respect to future events and are subject to risks, uncertainties and assumptions
- Argeo cannot give any assurance as to the correctness of such information and statements

# Agenda

- ▶ **Introduction to Argeo**

What we do

Argeo Technology



4 GEOMARKETS

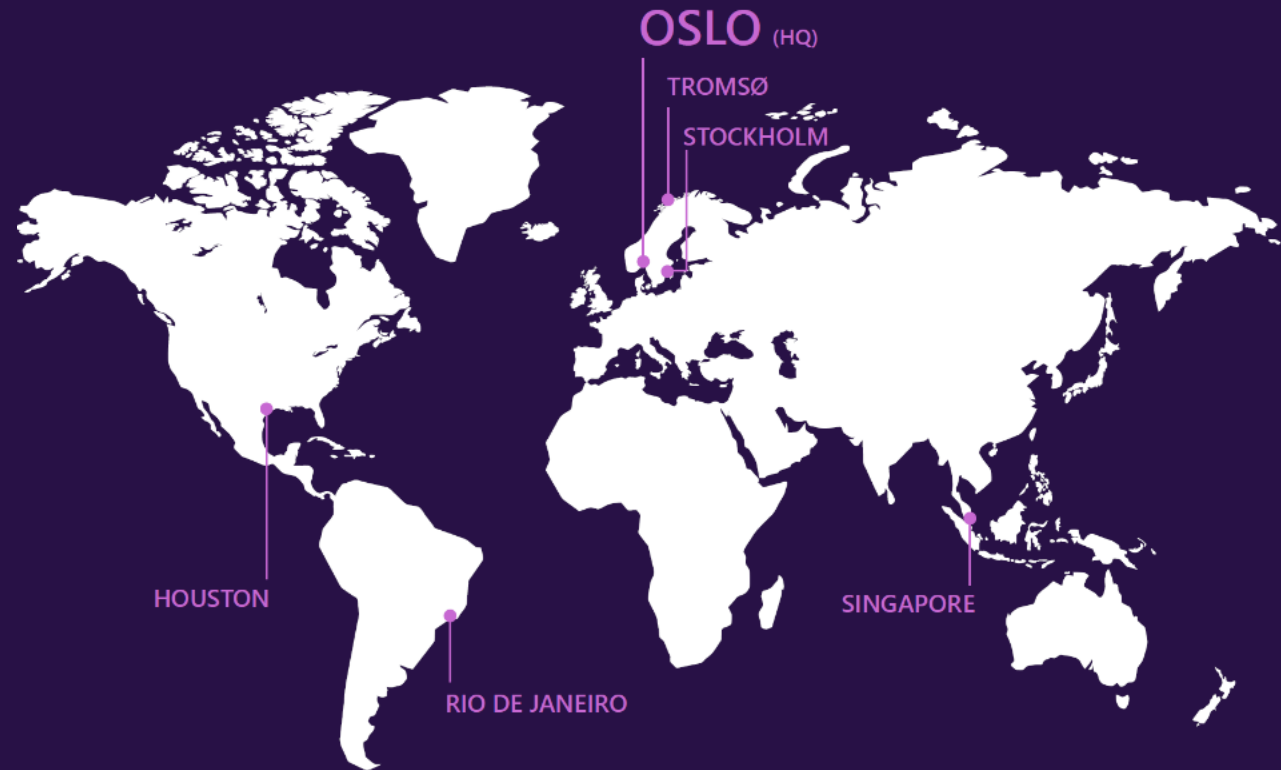


3 AUV CREWS



5 ASSETS

## ► Close to our customers



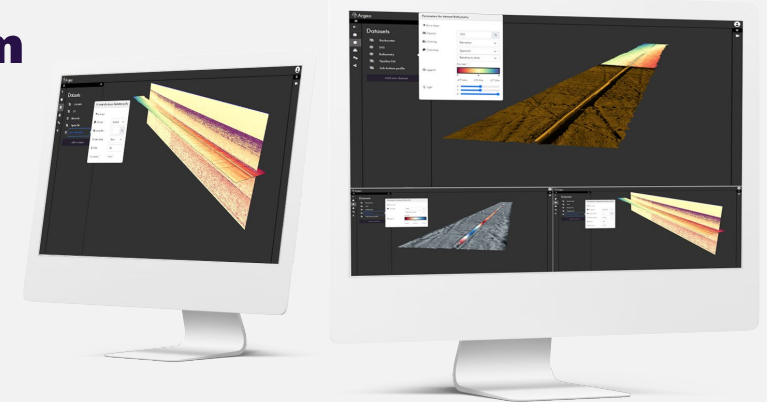
# Our mission

Argeo's mission is to transform the ocean surveying and inspection industry utilizing autonomous underwater and surface vehicles, and unique sensor and imaging technology, to significantly increase efficiency and quality, and reduce the industry CO2 footprint.

## High capability robotics solutions



## Unique sensor technology and powerful 3D cloud-based digital platform



Faster, better, greener, and at a lower cost



Robotics and digital solutions  
for the ocean space

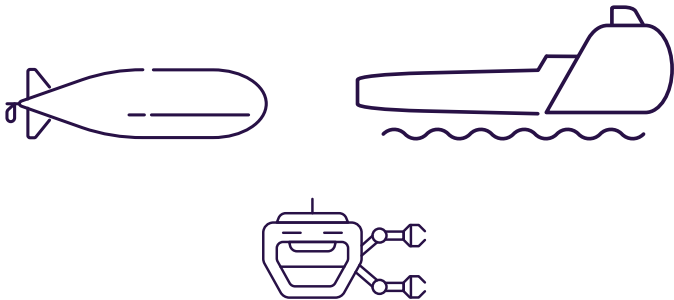
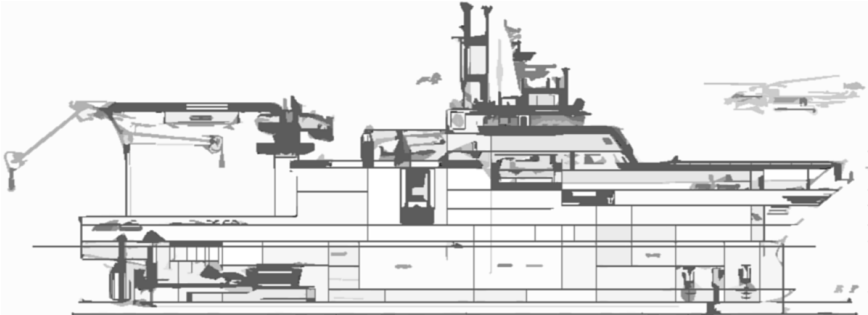
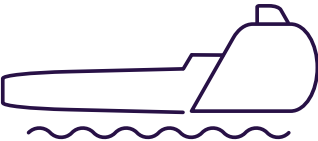
## **Four attractive key target markets**

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# Strategic development to meet global demand in the subsea sector

Capitalizing on the Offshore Energy Supercycle to expand business and scale our global service offering



By introducing a combination of AUV's, ROVs and purpose built subsea/survey vessels Argeo will be able to offer full scale subsea services, undertaking larger scope-of-work for clients going forward.

# Agenda

Introduction to Argeo

► **What we do**

Argeo Technology



## Technology enabled service provider

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Argeo provides full lifecycle services using advanced robotics and digital solutions for the ocean space for oil and gas, renewables, offshore installations and marine minerals.



### Survey

- Geophysical survey
- Hydrographical survey
- Route survey
- Environmental survey
- Ultra-high-resolution photo
- Shallow-water USV Survey



### Inspection

- Pipeline inspection
- Cathodic protection
- Electric cable inspection
- Depth-of-burial
- Installation/IMR support
- As-laid survey



### Repair & Maintenance

- Subsea IMR
- CP / Integrity inspections
- Module replacement
- Light intervention
- Construction & Installation
- Commissioning & handover



Flexible data access models to clients in all market segments throughout the entire project lifecycle.

- Offshore wind concessions
- Marine Mineral exploration
- Greenfield survey
- Environmental survey
- Decommissioning

# Steadily developing our fleet to meet market demand

	HUGIN 1000 AUV	SEARAPTOR AUV	SEARAPTOR AUV	ARGUS USV	HUGIN 6000 AUV	Survey & Light WROV	Large IMR WROV
PLAN TO ACQUIRE							
ACQUIRED							
DELIVERY	FEB 21	FEB 22	MAY 22	JUN 22	AUG 22	TBD	TBD
DEPTH RATING	1000	6000	6000	200	6000	3000	4000
ENDURANCE	15 HRS	50 HRS	50 HRS	30 DAY	60 HRS		



# Argeo Argus USV

COMMERCIALY LAUNCHED IN JUNE AND STARTING FIRST PROJECT LATE AUGUST



“

**The Argeo Argus is a major breakthrough in commercial uncrewed solutions for the offshore energy sector.**

Uncrewed, remotely supervised survey and inspection vessel

- Fully Uncrewed Surface Vehicle (USV)
- Dimensions: 9x3 meters
- Commercially launched June 16th, 2022



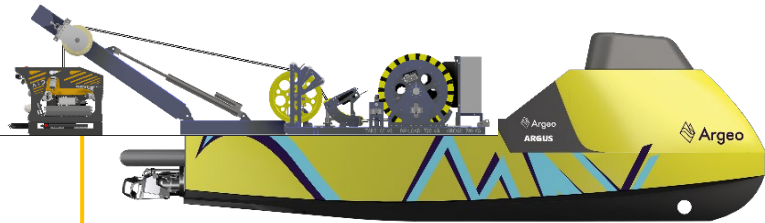
# Mission Controlled Operation for USV & eROV

## ARGEО MISSION CONTROL CENTRE

Both client base (on-prem) and containerized operation centres will be made available, supported by Argeo’s global Mission Control Centre

IP/VSAT/4G/5G/Iridium and MBR link

Supervised operations



**Global Mission Control:** Supporting client on-prem or containerised Supervised operations providing 100% mission support and backup

# Bjørnafjord project

## Focused AUV based seismic project

The planned Bjørnafjord crossing spans over 5km of deep water with proposed suction anchoring as mooring for what will become the worlds longest floating bridge structure

Argeo was contracted by Norwegian Public Roads Administration (SVV) to survey 20 off potential suction anchor locations in challenging terrain in the Bjørnafjord on the west coast of Norway. Argeo was responsible for planning, execution, data processing, interpretation and reporting.



The project was carried out using Argeo's SeaRaptor Alpha AUV

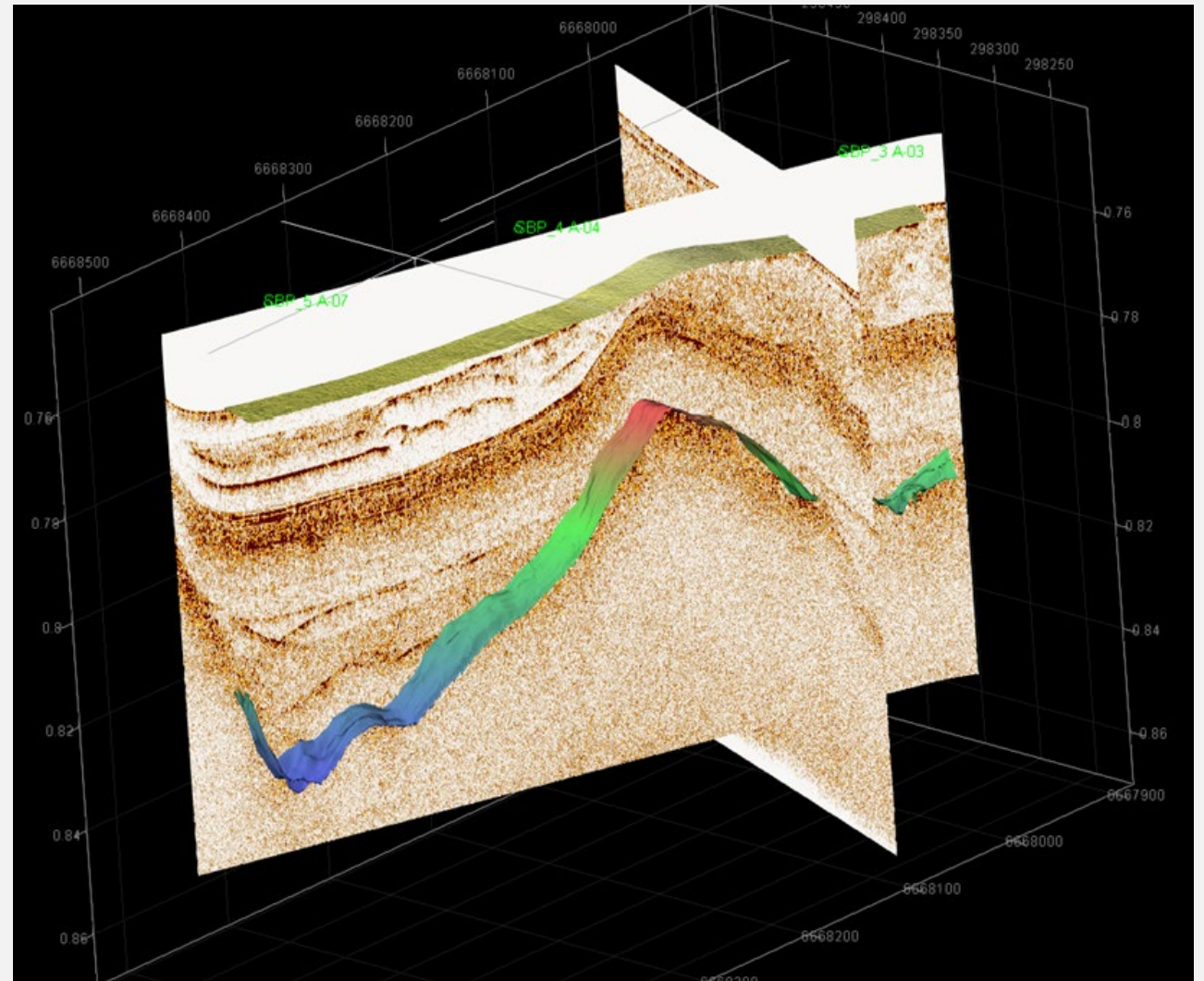

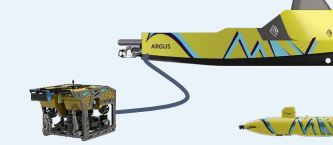
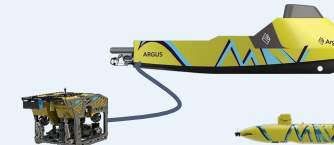
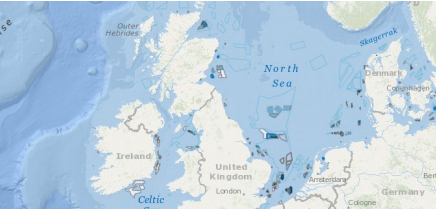
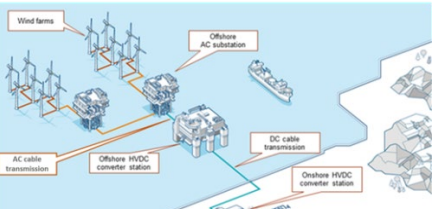


Illustration: SBP lines combined with top bedrock and seabed surfaces viewed in 3D



# Argeo positioned in the entire offshore wind value chain

## WIDE-RANGING SURVEY AND INSPECTION USE IN OFFSHORE WIND

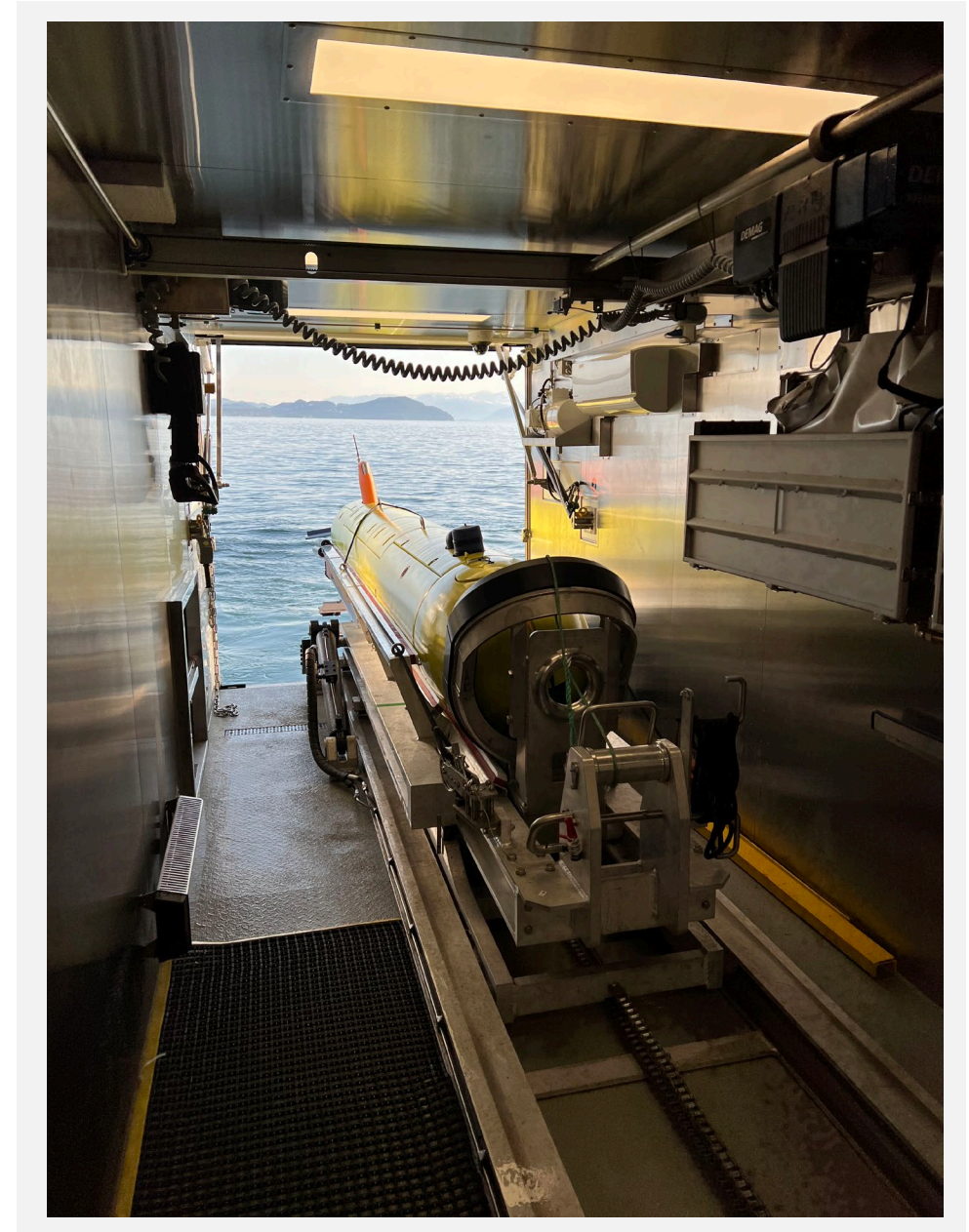
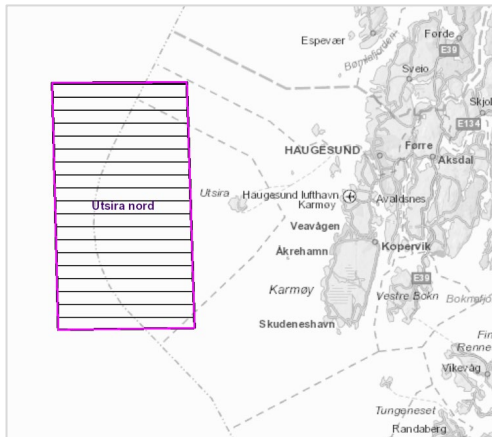
		Pre operation concession	Early planning and design	Construction & installation	Operations & maintenance	Decommissioning
Offshore wind farm life cycle stage	Argeo subsea services	Multi Client/Data as Service pre-concession and license	Geo-uplifted products from initial survey combined with new acquisitions	Focused survey, trenching, depth of burial and verification	Subsea inspection and maintenance tasks focused monitoring task	Subsea inspection and maintenance tasks focused monitoring task
	Main surveys performed	<ul style="list-style-type: none"> <li><b>Initial survey</b> ordered by government to highlight attractiveness for operators</li> <li>Developers perform <b>environmental surveys</b> to obtain concession</li> </ul>	<ul style="list-style-type: none"> <li><b>Full site investigation</b> to determine turbine locations and provide input to foundation and cable planning</li> <li><b>Detection of hazardous elements</b> like UXOs<sup>1)</sup></li> </ul>	<ul style="list-style-type: none"> <li><b>Surveys to update</b> geophysical and hydrographical changes impacting engineering assumptions</li> </ul>	<ul style="list-style-type: none"> <li><b>Inspections of on-site</b> installations, e.g., anchoring and fundament</li> <li><b>Inspections of cables</b>, e.g., if still protected under ground</li> </ul>	<ul style="list-style-type: none"> <li><b>Inspections of site</b> installations, for removal estimations</li> <li><b>Inspections of cables</b>, e.g., if still protected under ground</li> </ul>
	Argeo tools used					
						

# Norwegian Offshore Wind Multi-client project

## Utsira North

The Utsira Nord offshore wind park is located approximately 22 km off the Norwegian coast, where Haugesund is the nearest city.

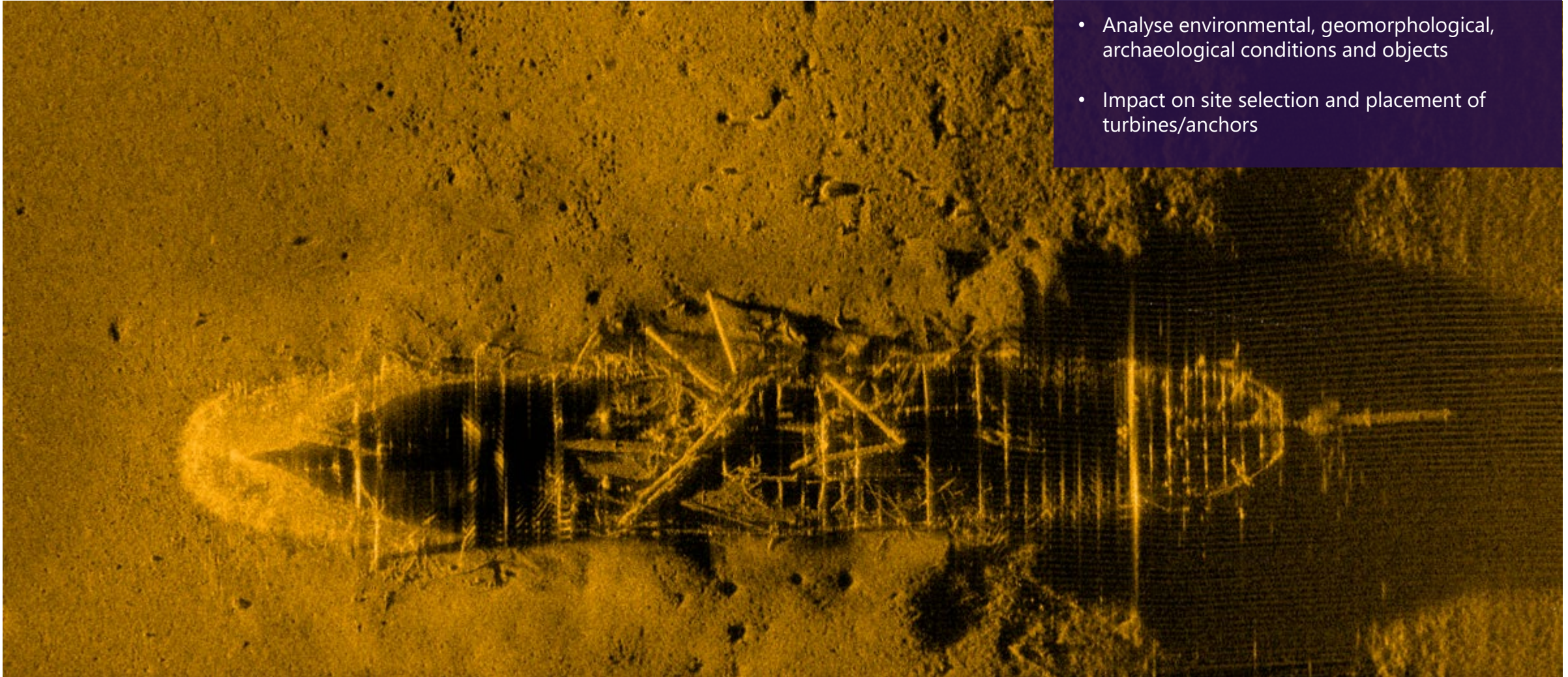
Argeo has acquired a contiguous area which clearly demonstrates value of the data types acquired. The data is providing valuable insight about the conditions on the seafloor for offshore wind developers for de-risking and planning purposes.





# Utsira Nord Multiclient Survey

UNKNOWN SHIPWRECK SEEN ON THE SAS DATA



- Synthetic aperture sonar providing ultra high resolution imagery and bathymetry
- Analyse environmental, geomorphological, archaeological conditions and objects
- Impact on site selection and placement of turbines/anchors



# Argeo's solutions accelerate offshore wind development

ENABLING FASTER RENEWABLES SOLUTIONS

Pre operation concession

Early planning and design

Construction & installation

Operations & maintenance

Decommissioning

## Data as a service

REDUCE PLANNING  
TIME BY 1-2 YEARS

### Earlier access to data

- Increase confidence and reduce risk from application to construction
- Reduce time needed for optimizing development solution

### Cover the whole wind farm

- Increase collaboration
- Large survey replaces numerous small ones
- Less resources spent by authorities and developers

### > 30% cost reduction to client

- Increase efficiency
- Economies of scale

### Lower CO2 footprint

### Early access to higher data quality



# Agenda

Introduction to Argeo

What we do

► **Argeo Technology**



# Unique in-house abilities to generate valuable data output



"Argeo Listen" measure the position and strength of electricity in objects on the seabed.

## CATHODIC PROTECTION

Zinc sacrificial anodes are used to protect pipelines and subsea installations from corrosion. The anodes corrode in stead of the pipeline and needs to be replaced from time to time. By flying Argeo's AUV over the pipe Argeo Listen measure **and identify the condition** of these anodes and **predict** the need for replacement.

## INSPECTION

Argeo Listen can localize electrical cables that have been buried or exposed by shifting sand dunes on the seabed. The tool can also be used to pinpoint the cable's position in real time even when buried.



"Argeo Whisper" sends out electrical signals from the AUV detecting objects with a higher level of electrical conductivity or higher resistance than its surroundings.

## PIPELINE AND OBJECT TRACKING

Traditional use of AUV's cannot locate buried pipelines. By sending out electrical signals and identifying the location of the reflection and signal strength the tool can decide direction, position and depth of the pipeline.

## UXO

With "Argeo Whisper" one can identify and locate objects containing metals, typically unexploded ordnance, with an AUV rather than using a large vessel and tethered magnetometers.



"Argeo Discover" is developed to search and find minerals and smaller objects than the Argeo Whisper can locate as it is 5 times as powerful.

## DEEP-SEA MINERALS EXPLORATION

Deep-sea minerals can be separated from its surroundings as it has a higher level of electrical conductivity. Argeo Discover can detect these minerals and determine the extent of the deposits.

In some cases, one AUV will push signals out and another AUV will listen for the reflection.



## ARGeo ENLIGHT

## ARGeo INTROSPECTION

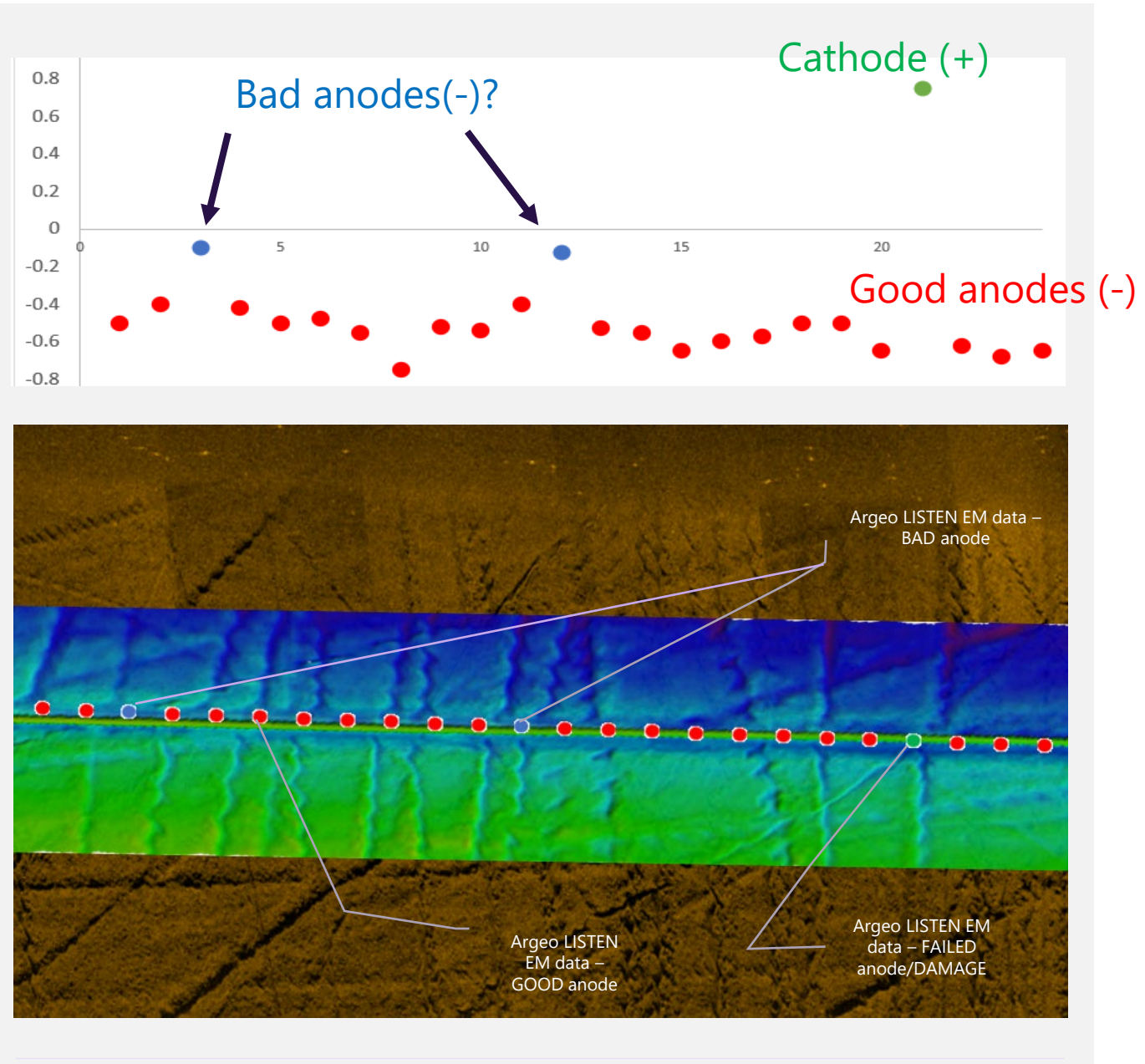
## ARGeo FORESIGHT

# Electromagnetic measurement tested successfully

Gamechanger for pipeline inspection of cathodic protection system

## Integrated in SeaRaptor:

- Contact less inspection 8 times faster than conventional ROV methods
- Up-to 150 km of pipeline inspection per day
- Deliver high density measurements
- Data analysis during field operations
- Both pipelines buried and on seafloor
- Simultaneous data acquisition from other sensors



# Argeo Digital Ocean Space

OPTIMIZING VALUE FROM OCEAN DATA

SUBSEA ASSET DIGITALIZATION, VISUALIZATION AND ANALYSIS ENABLED



ARGEO  
ENLIGHT

The main tool for data processing and visualization of data in addition to our Multi-Client data shopping window



ARGEO  
INTROSPECTION

3D visualization and mapping of subsea inspection data fully interpreted  
Georeferenced in space and time



ARGEO  
FORESIGHT

Prediction of subsea movements and remaining lifetime of assets based upon trends in data measured over time

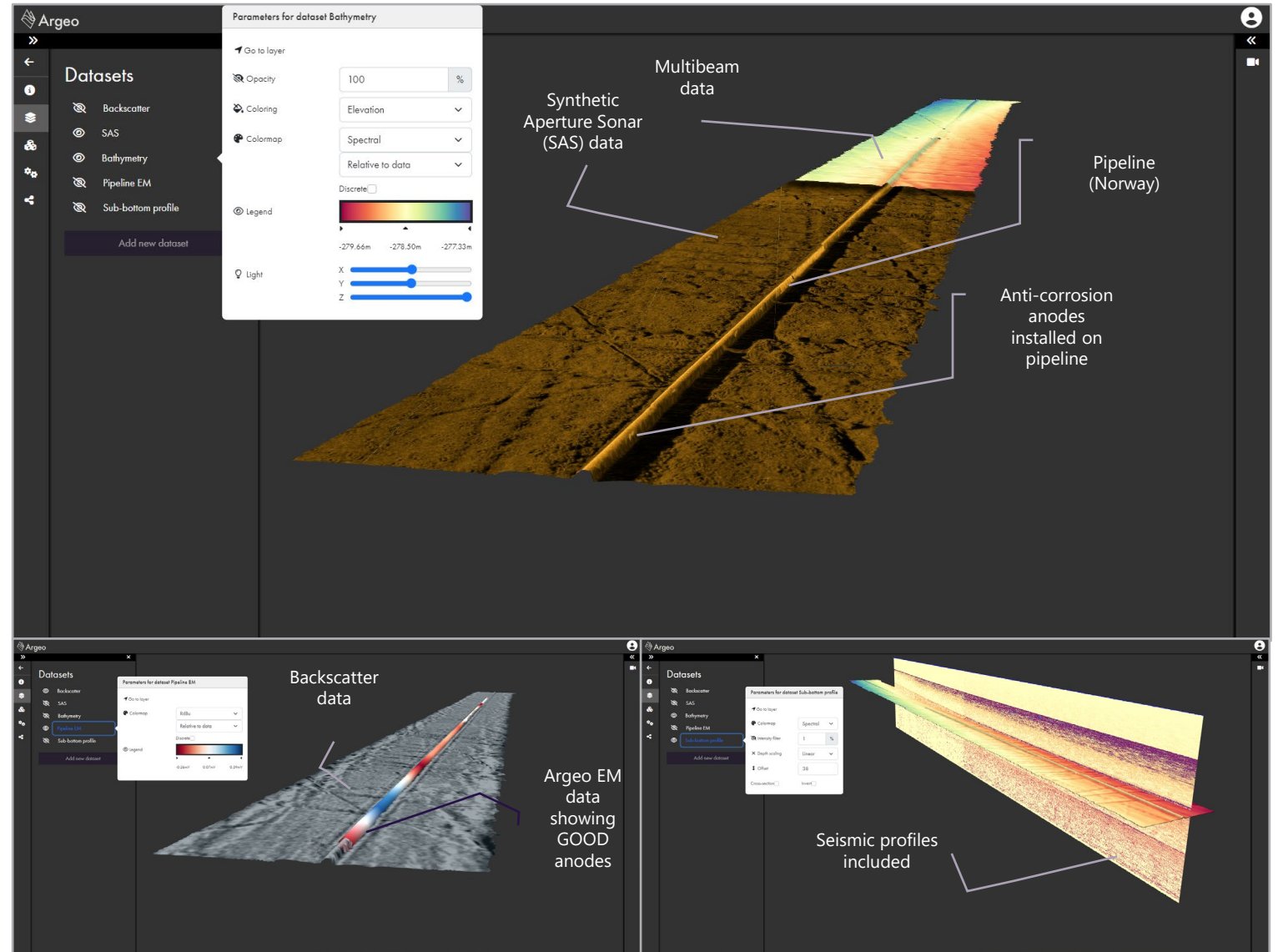


# Digital Ocean Space

Fast and performant 3D visualization of vast amounts of ocean space data in the cloud, supporting a collaborative data sharing and interpretation workflow.

Seamless data fusion from seabed measurements such as:

- Synthetic aperture sonar (SAS)
- Sub-bottom profiler (SBP)
- Backscatter
- Bathymetry
- EM intensity along pipelines using Argeo Listen



# Summary

**On track** expanding business globally and securing backlog

**Increased market demand** and strong overall market outlook

**Rolling out** sensor technology and digital solutions



# Rationale

- 1** Attractive market opportunity
- 2** Strong industry and technological competence
- 3** Ability to meet high demand through fleet expansion
- 4** Sustainable business model
- 5** Solid customers in all verticals

► **Thank you**