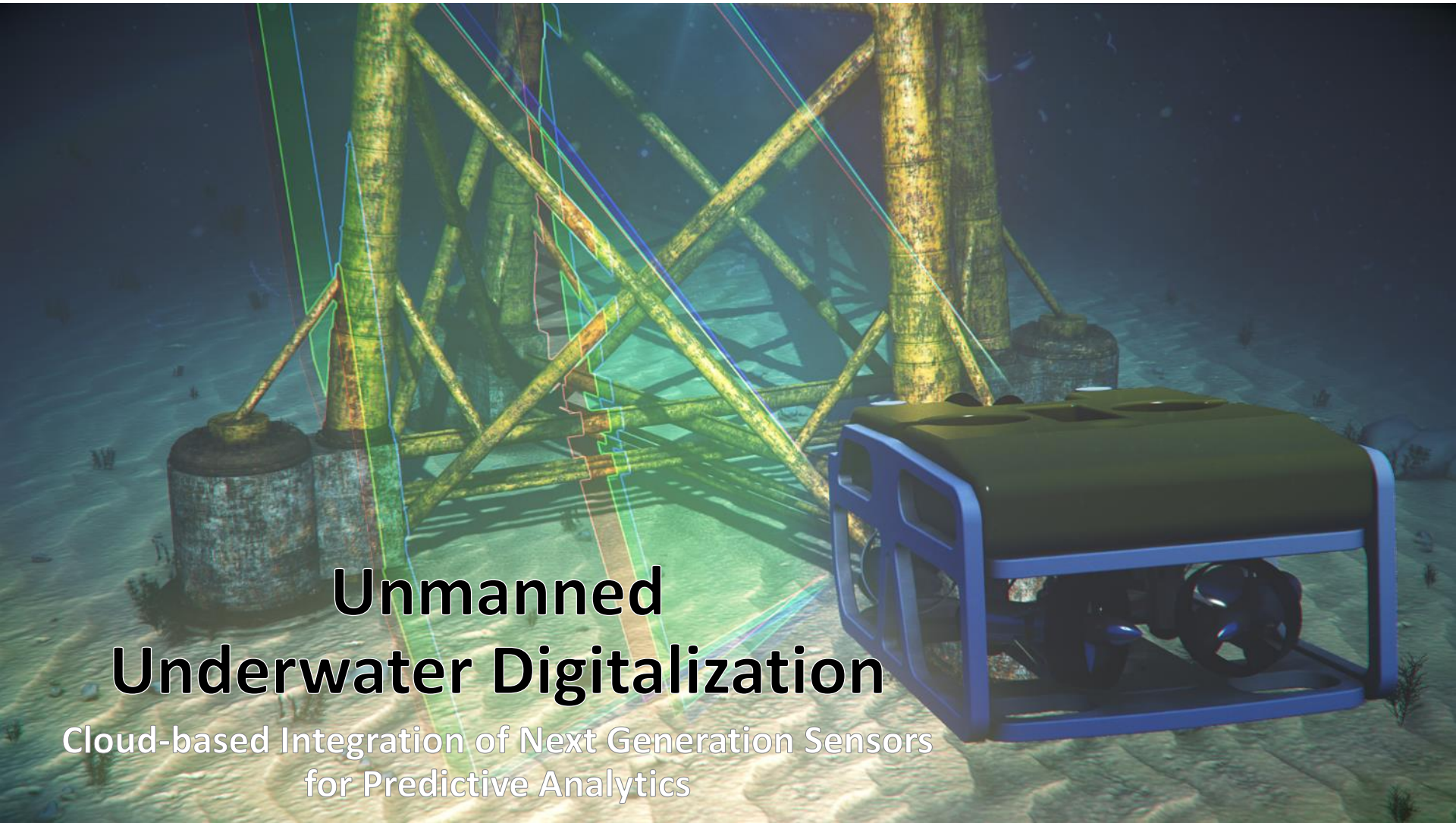
KRAKEN



Unmanned Underwater Digitalization

Cloud-based Integration of Next Generation Sensors for Predictive Analytics

Forward Looking Statements

Some statements herein contain forward-looking information. The use of any of the words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "will," "plans," "project," "should," "target" and similar expressions are intended to identify forward-looking statements. These statements may include, but are not limited to, statements with respect to potential markets and contracts, the completion of a proposed transaction, sales and EBITDA projections or potential applications.

These statements address future events and conditions and, as such, involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the statements. Such factors and assumptions include, among others, the effects of general economic conditions, the ability to project future sales and margins from current fundamentals and assumptions about market share, changing foreign exchange rates and actions by government authorities or cross-border authorities with jurisdiction over waterways, and negotiations and misjudgments in the course of preparing forward-looking information. Kraken believes the expectations reflected in those statements are reasonable but no assurance can be given that these expectations will prove to be correct and such forward-looking statements included in, or incorporated by reference into, this presentation should not be unduly relied upon. These statements speak only as of the date of this presentation.In addition, there are known and unknown risk factors which could cause the Company's actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied by the forward-looking statements.

Known risk factors include risks associated with the ability to close contracts, working capital risk to be able to build inventory, loss of key personnel, lack of patents protecting intellectual property, changes in competing technology, continuing shrinkage of military budgets or other target customer budgets, risks associated with publicly traded company obligations, inability to raise required capital, and other potential risks that arise in the normal course of business. Forward-looking statements are made based on management's beliefs, estimates and opinions on the date that statements are made and the Company undertakes no obligation to update forward-looking statements if these beliefs, estimates and opinions or other circumstances should change, except as required by law.

Kraken

Kraken Robotics Inc.
(TSX-V:PNG)
Toronto, Canada

Kraken Robotic Systems Inc.
St. John's, Canada

- Synthetic Aperture Sonar
- RT SAS Signal Processing
- RT 3D Seabed Mapping
- 3D Visualization Software
- Correlation Velocity Logs
- Handling Systems (Halifax, NS)
- KATFISH SAS TOWFISH
- THUNDERFISH AUV

Kraken Underwater Systems LLC
Fairfax, USA

- Engineering Services
- Business Development

Kraken Robotik GmbH
Bremen, Germany

- Laser/Optic Sensors
- Artificial Intelligence
- Machine Learning
- AUV Control Systems
- Subsea Docking Systems
- Brazilian Support Office

Kraken Power GmbH
Rostock, Germany

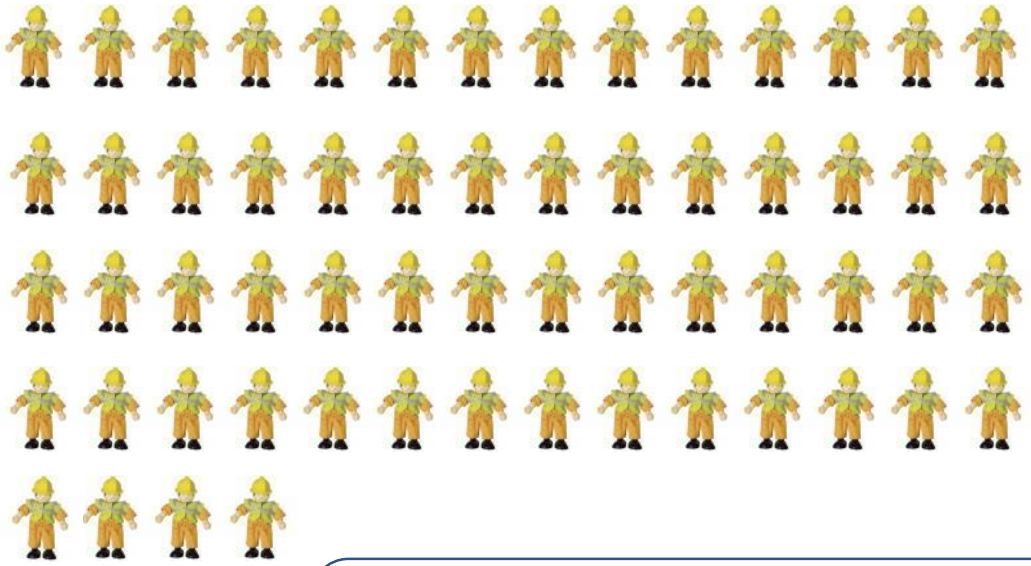
- Pressure Tolerant Molding
- Batteries & BMS
- Drives
- Thrusters
- JELLYFISH H-ROV

Europe E&P - ROV Operations

OBSROV 1

OBSROV 2

WROV 1



Marine Crew

ROV Pilots/techs + Supervisors

CP Techs

FMD Techs

Inspection Co-ordinator

Online Inspectors

Offline Inspectors

Surveyor

Offshore Manager

BG Group QA/QC

BG Group Representative

Structural Inspection Campaign

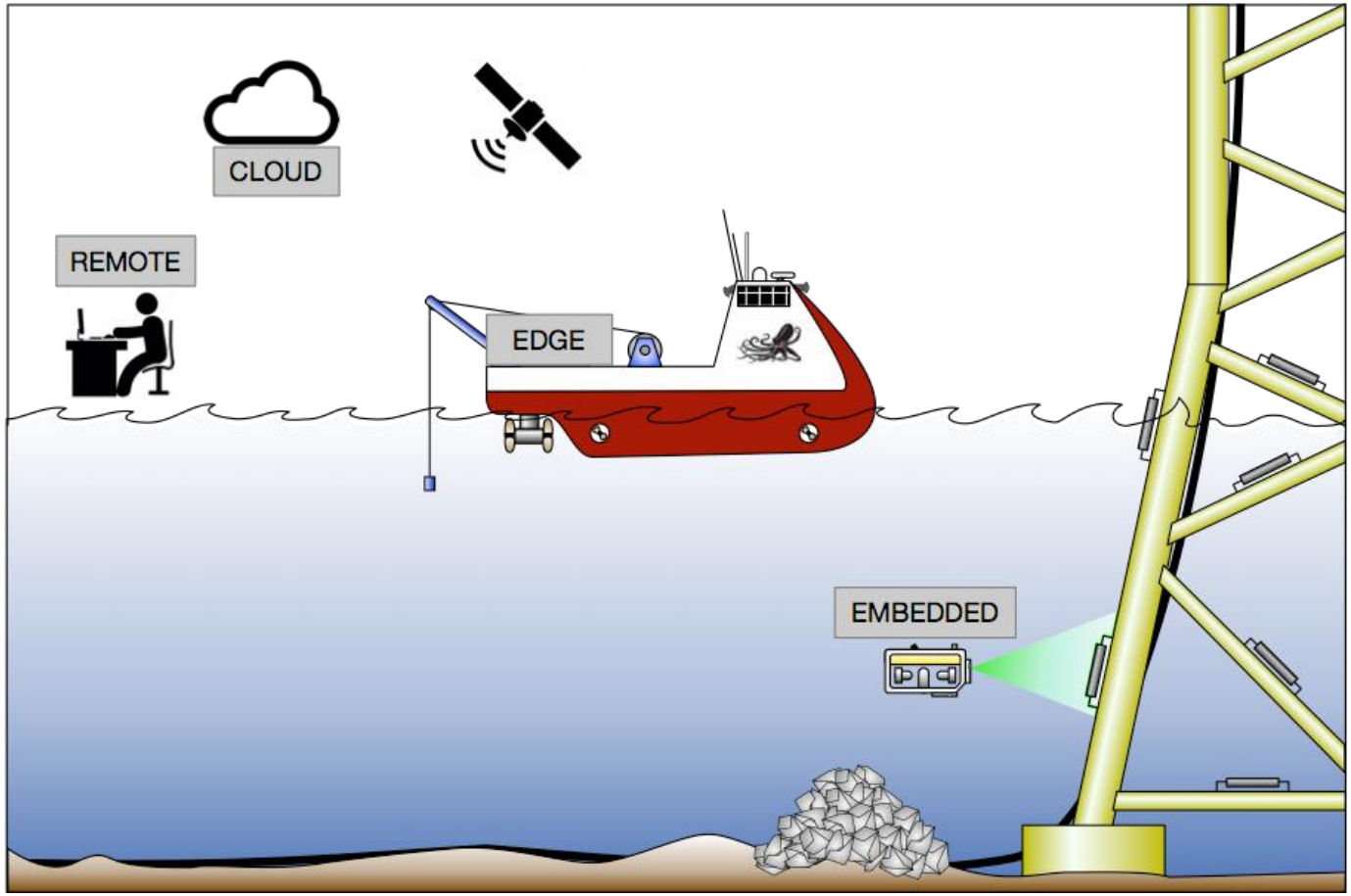
Typical vessel POB = 60 persons

Typical Inspection crew = 32 persons

Slide Credit: Gordon Laurenson Shell/BG Group

Actionable Intelligence

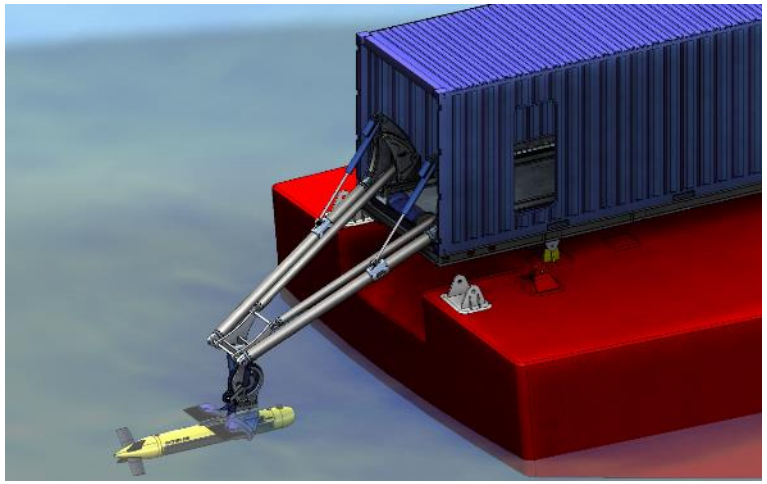
Underwater Digitalization



Lowest OPEX

Actionable Intelligence

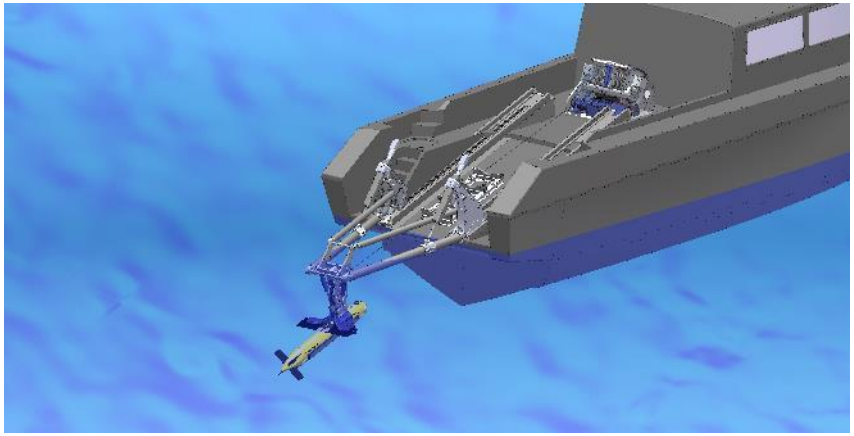
Unmanned Deployment



Vessel of Opportunity

Subsea Resident

Host Facility



Autonomous Surface Vessel

The 3 “A“ of Autonomy

Automated (where we have been – high TRL)

- By default with AUVs
- Given a detailed mission, the vehicle will run it
- …and *only* the mission

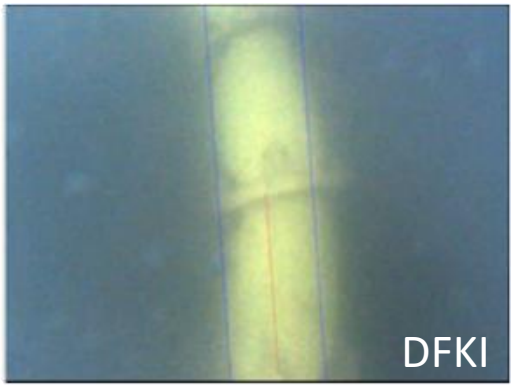
Waypoint

Adaptive (where we are – med TRL)

- Use in-situ data to optimise a task
- Adaptive track spacing

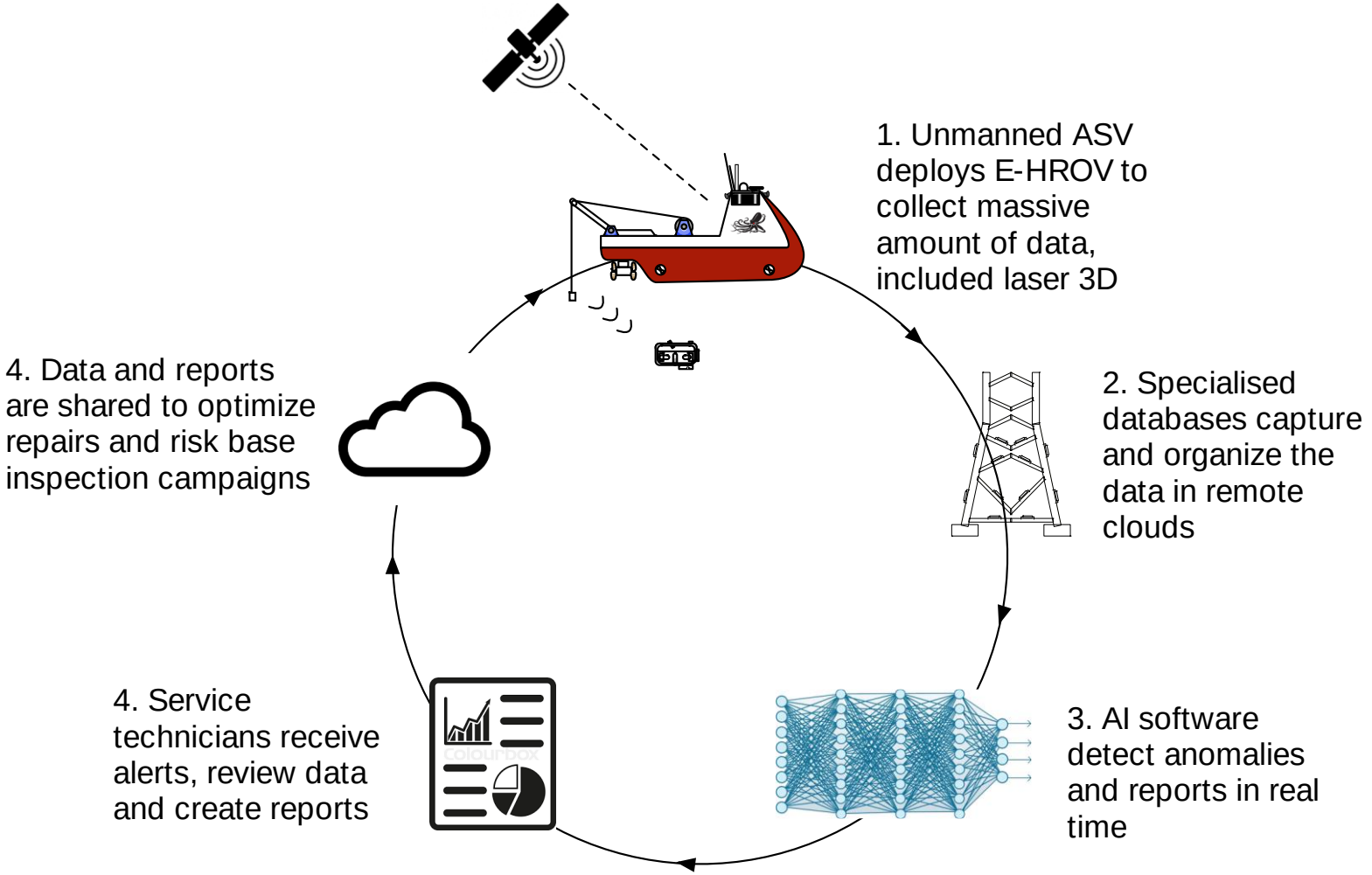
Autonomous (where we are going – low TRL)

- High level mission goals
- Using adaptive capabilities as inputs to accomplishing that goal
- Ability to evaluate progress and plan tasks accordingly
- Cognitive - learning from success and failure



Pipe Tracking

Digitalization Solution



Deep Learning – Predictive Analytics

Corrosion Detection

Why Synthetic Aperture Sonar?

- Ultra High Image Resolution (3x3 cm)
- Co-registered 3D bathymetry
- Increased Area Coverage Rate (600m Swath)
- Operational Safety (up to 30m fly altitude)
- Real Time Processing
- Real Time ATR

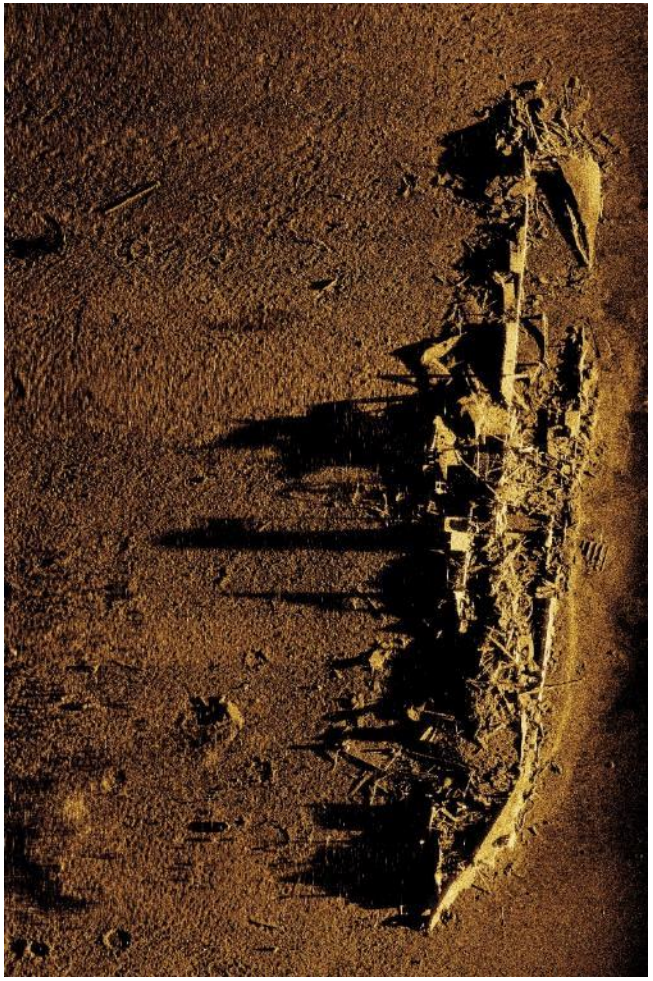
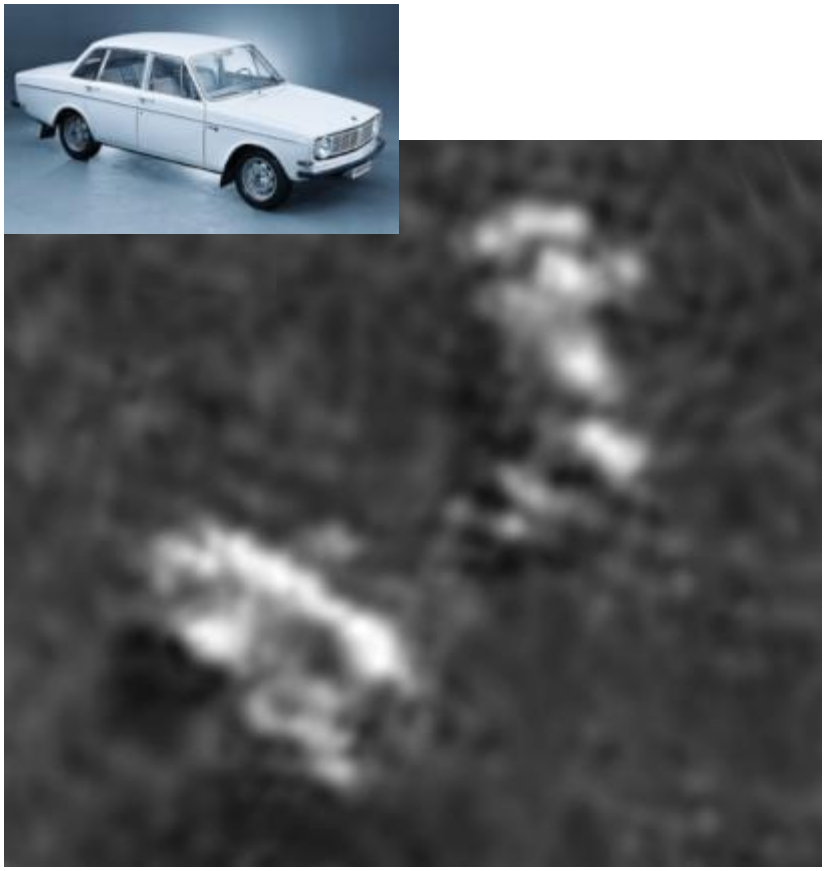


Image courtesy ECA Robotics

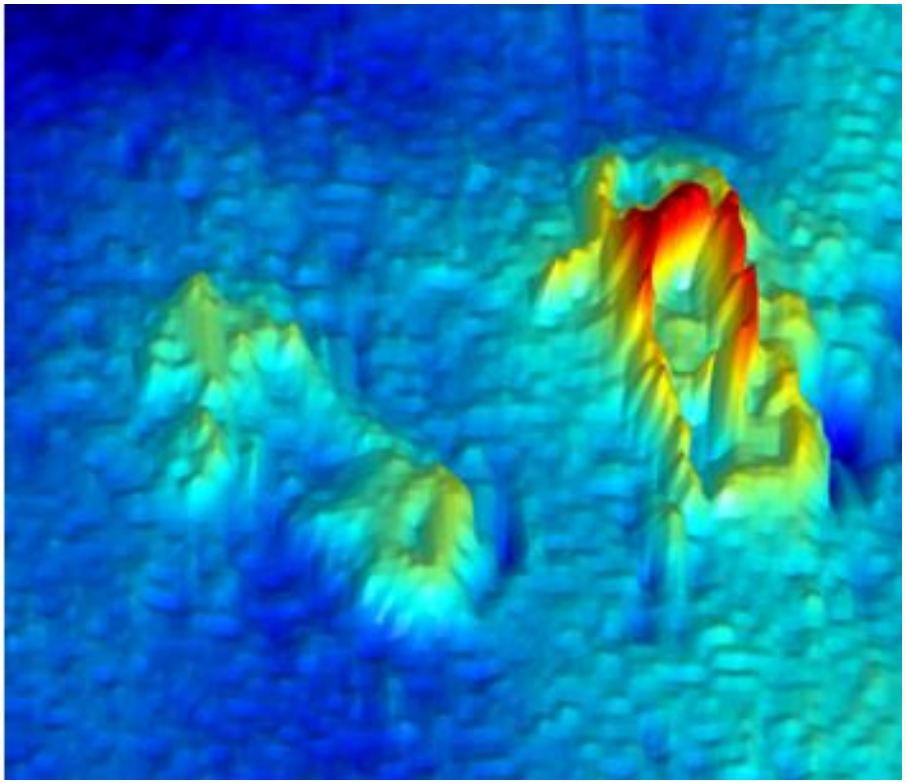
Synthetic Aperture Sonar Technology



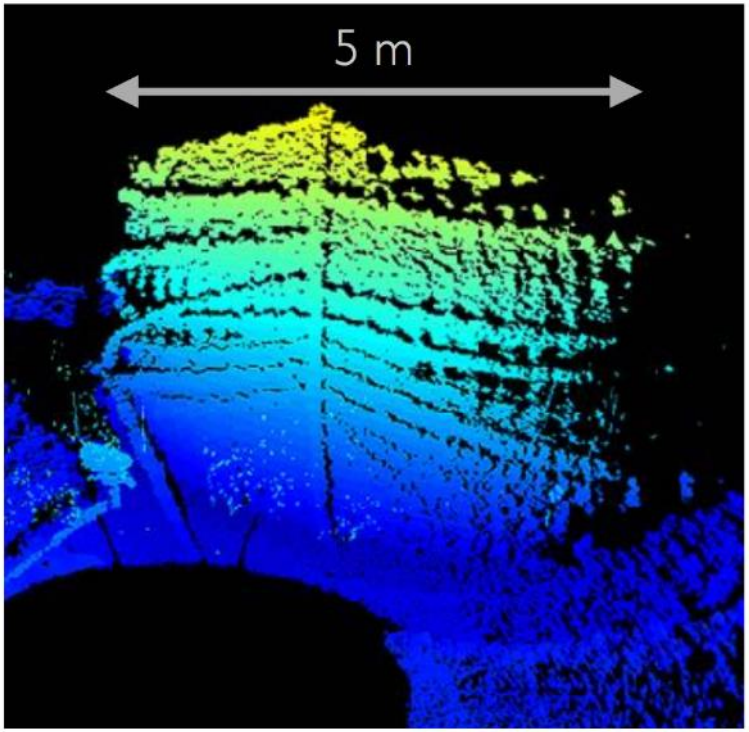
Conventional Side Scan Sonar
Pixel Resolution: 20cm @ 80m range

Kraken AquaPix® SAS
Pixel Resolution: 3cm @ 80m range

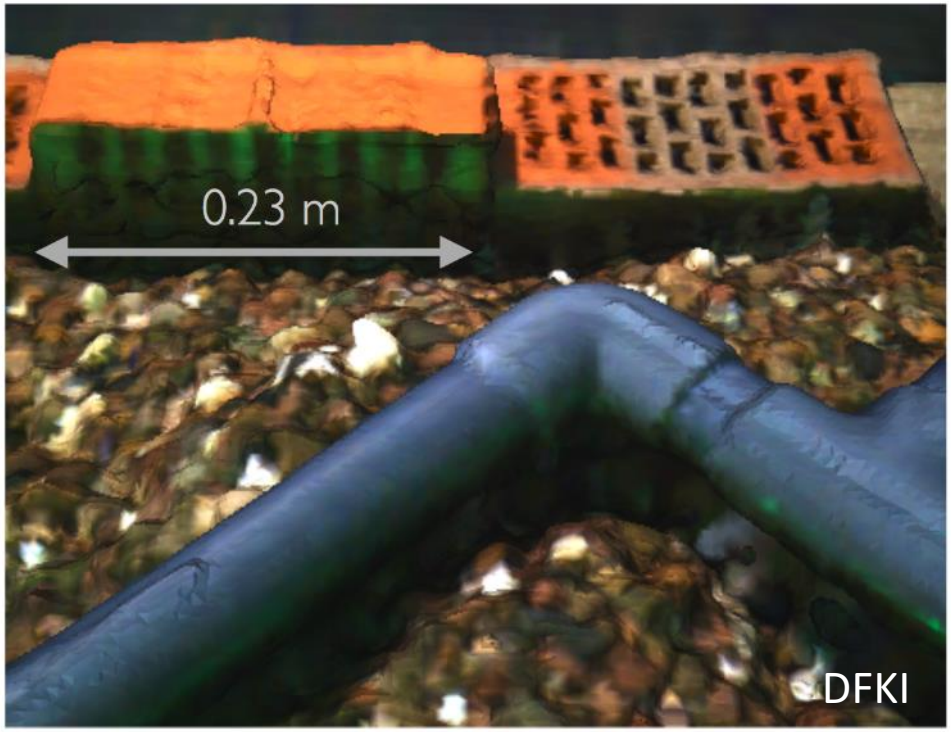
Co-Registered Imagery and Bathymetry



Underwater 3D Reconstruction

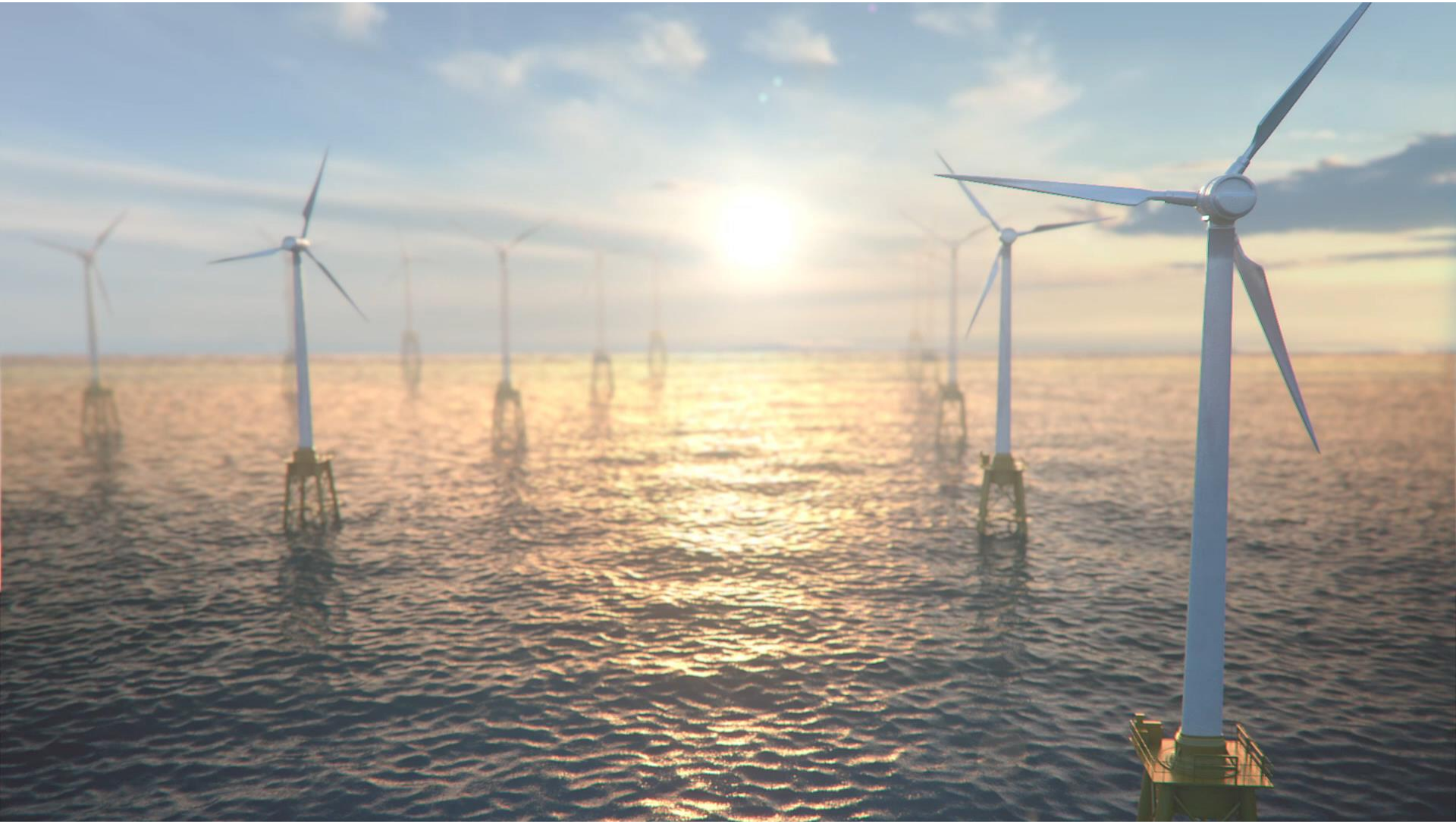


Acoustical 3D Reconstruction

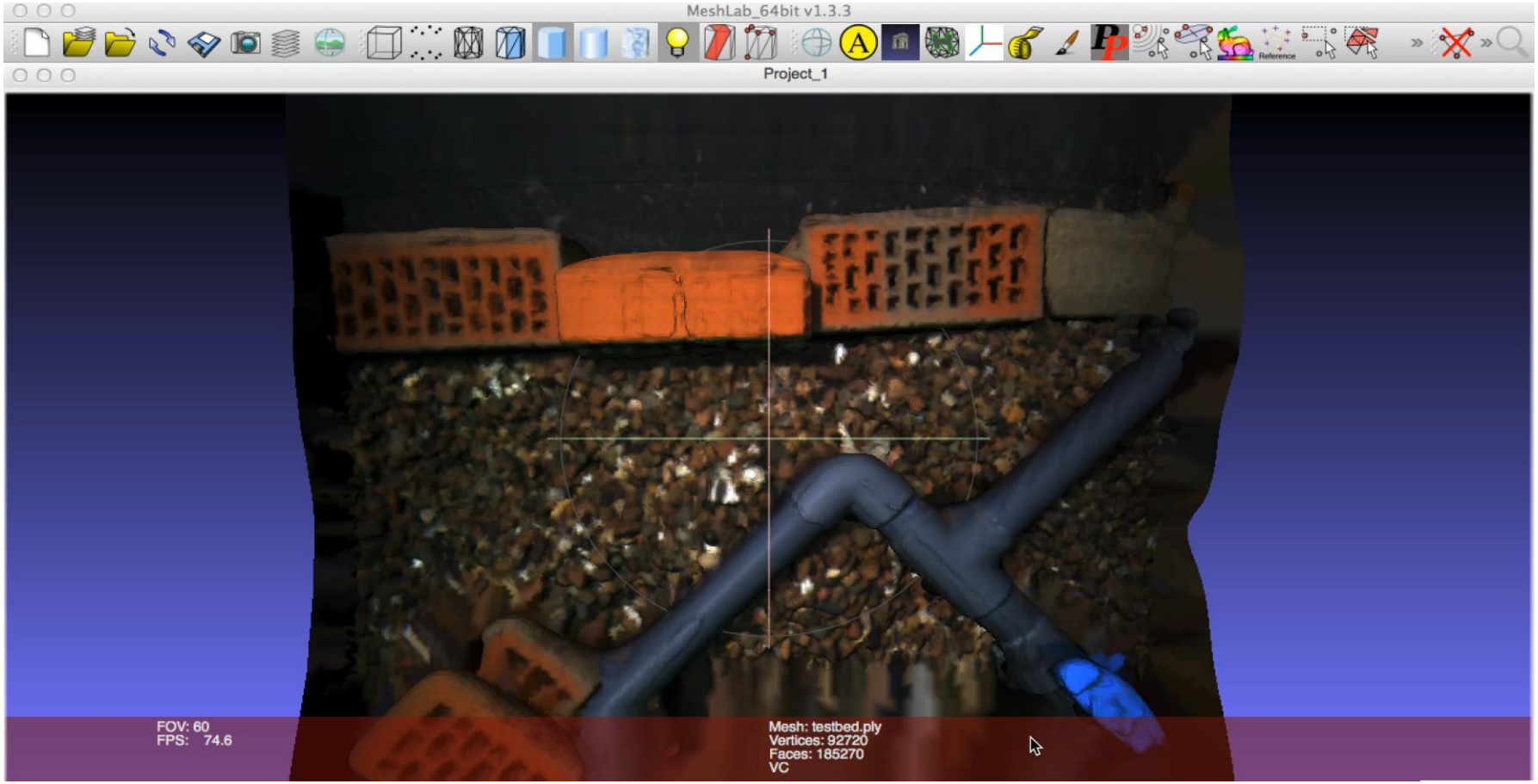


Optical 3D Reconstruction

SeaVision™ - 3D Underwater Imaging



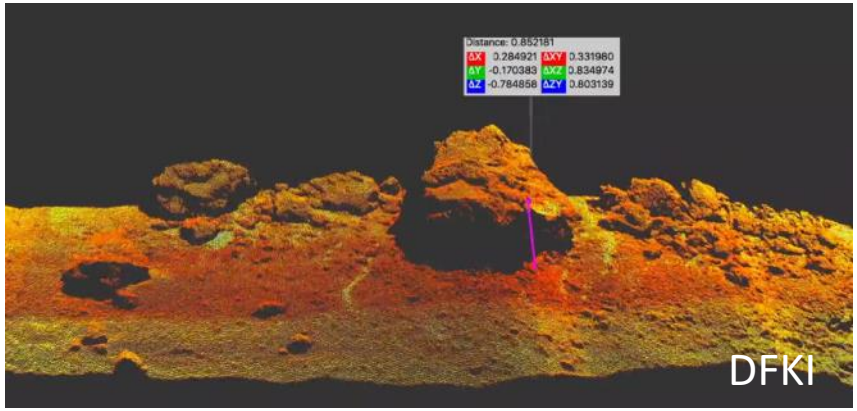
Optic 3D Underwater Reconstruction



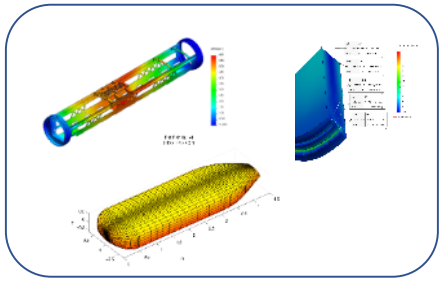
DFKI

Next Gen Survey Cables

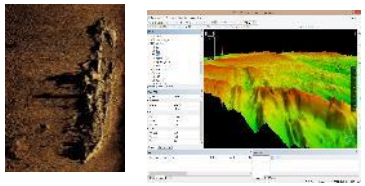
- **Quadband SAS**
  - **LF 3D Volumetric Sub-Bottom Imaging**
    - (20 – 32 kHz)
    - 4cm resolution, 5m x 2m depth
  - **LF Side-Looking, Buried Object Detection**
    - (20 – 32 kHz)
    - 20cm Resolution
  - **MF Side-Looking, Long-Range**
    - (60 – 75 kHz),
    - 10cm Resolution, 600m Range
  - **HF Side-Looking, Short-Range**
    - (150 – 200 kHz),
    - 3cm resolution, 300m Range
- **Laser Gap Filer**
  - **Optic downward looking, short-range**
    - 1mm resolution, 8m Range



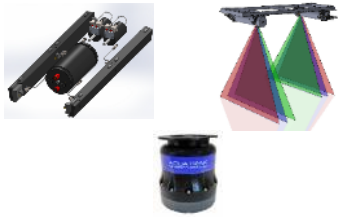
Strong Portfolio of Maritime Robotics IP



Modeling & Simulation



AI Software



Sensors

Hardware

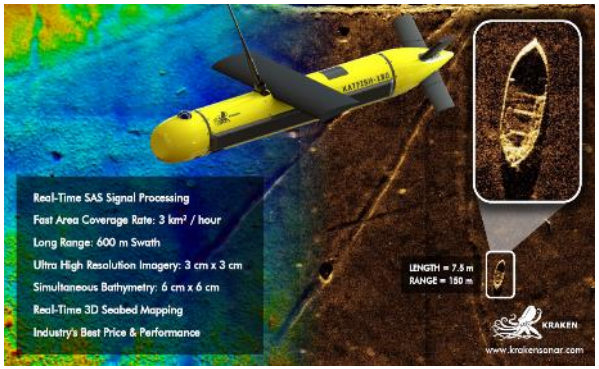
Robotic Systems

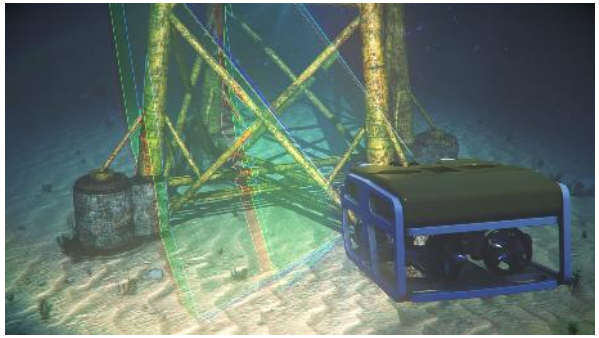
Maritime Robotics as a Service (RaaS)

Robotics as a Service (RaaS)

- Provide customers a recurring data acquisition and seabed intelligence service
- Customer always has access to state of the art vehicle
- No capex intensive asset purchases
- Customers can plan for opex and have their needs more tightly addressed
- RaaS firms benefit from value-based pricing, faster innovation and recurring revenues.

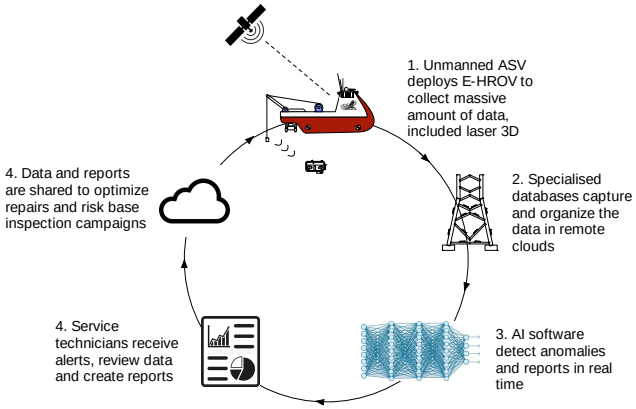
Kraken is positioned to become a leader in Maritime RaaS.





Underwater Digitalization RaaS

- **Mitigate Operational HSSE**
  - Remove people from harms way
- **Reduce OPEX**
  - Robotic automation as replacement for human intensive tasks
- **Mitigate Production Losses**
  - AI prediction of industrial defects



Infrastructure for Research and Testing

Thank You