

# Entering the Offshore Wind market

IKM Subsea AS

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Offshore Wind – Subsea Challenges and Opportunities

# IKM – A Global Oil & Gas Service Provider

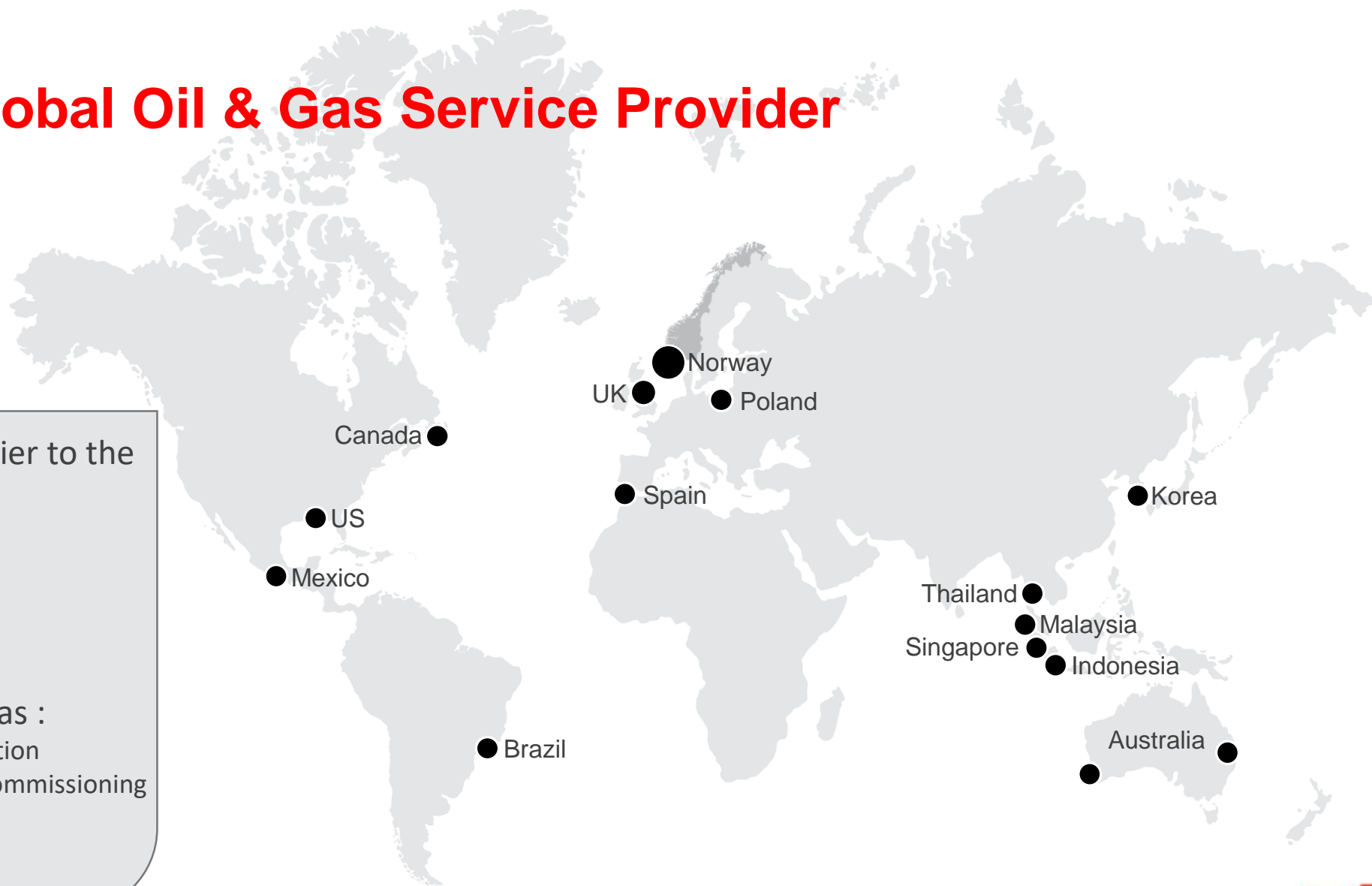
IKM is a multidiscipline supplier to the oil and gas industry

2450 Employees

70 Locations world wide

IKM operates in five main areas :

- Electrical/Instrumentation/Automation
- Subsea/Mechanical Completion/Commissioning
- Engineering/Operation
- Fabrication/Inspection
- Rig/Downhole services



# **IKM Subsea - an Independent Subsea Partner**

**Year:**

2009-2018

**Typical Scope of Work:**

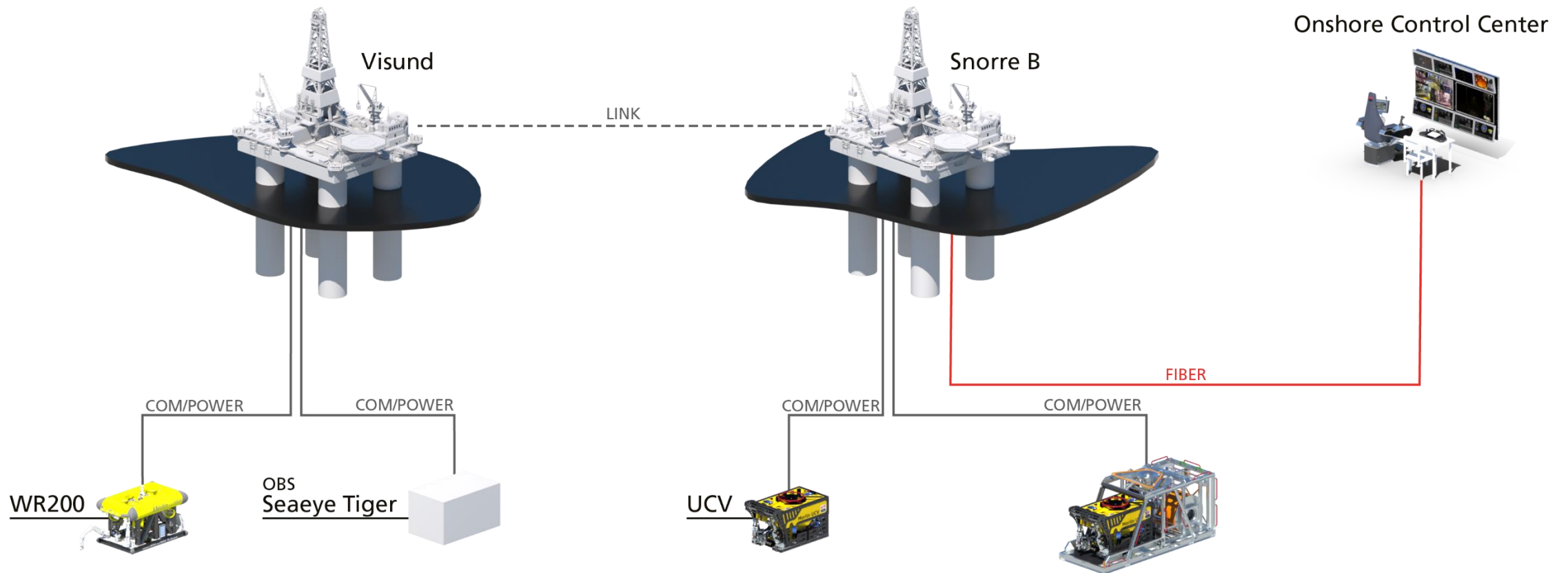
*More than 400 completed projects*

**Typical expertise within:**

- *IMR work*
- *Drillsupport*
- *Survey work*
- *Installation work*
- *Anchor handling*
- *Seabed intervention*
- *Construction support*
- *SURF work*
- *Cable installation*
- *Renewable projects*



# Residential ROV (R-ROV) & Onshore Control Center (OCC)



# Remote Piloting of ROV

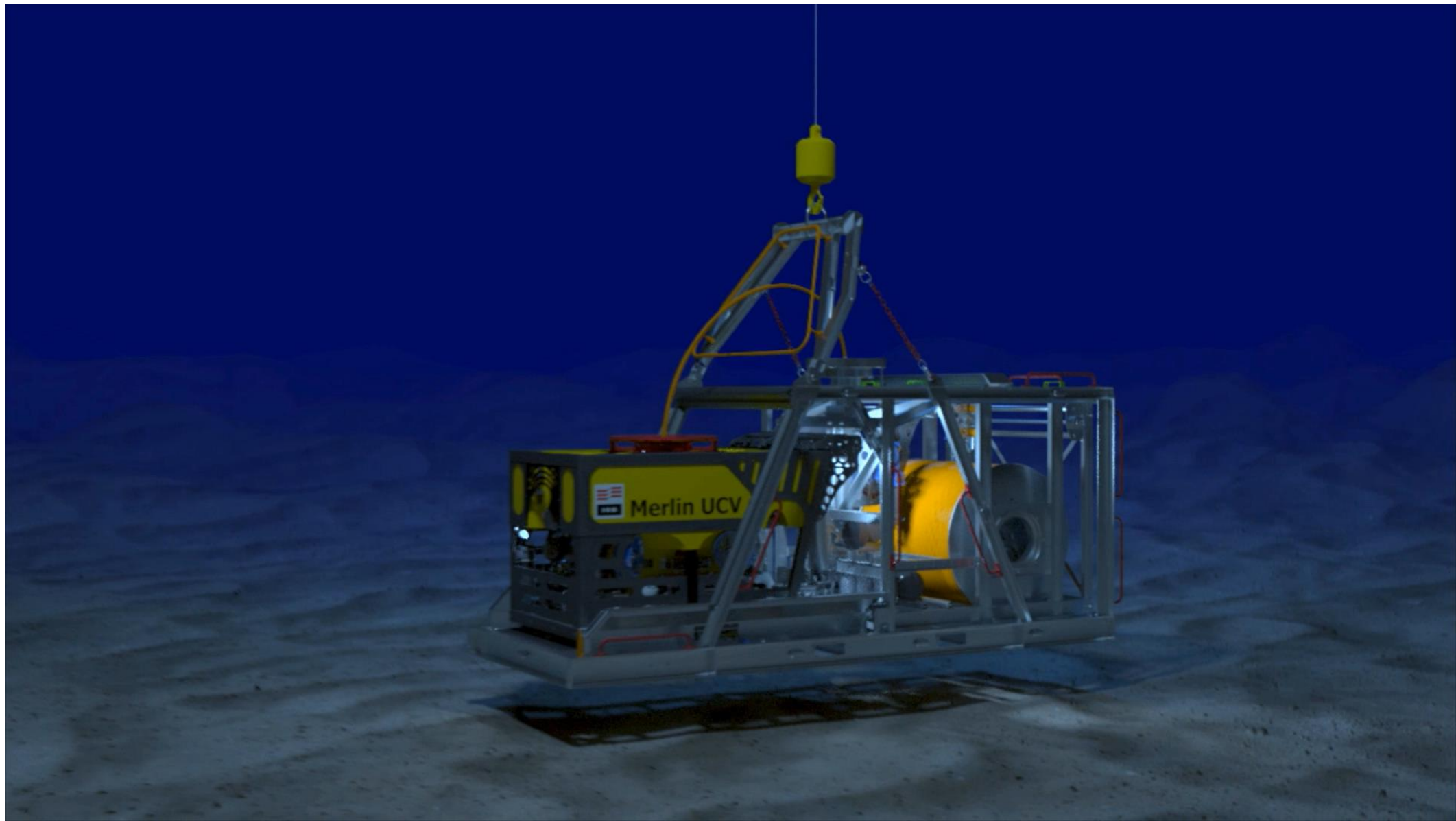
- Remote control considerations
  - Latency
    - Corrections by operator based on visual feedback
  - Security
    - Interference & intrusion of the system





## Remote Piloting of ROV – Latency

- Ideal maximum round trip latency from input to feedback
  - *250-300ms or less*
- The main contributors to latency
  - Loop time for the input collectors
    - Encoding, decoding and presentation of IP streamed video
    - Control signals to ROV
    - Distance and quality of the communication link
- Video has a current latency of 150-180ms



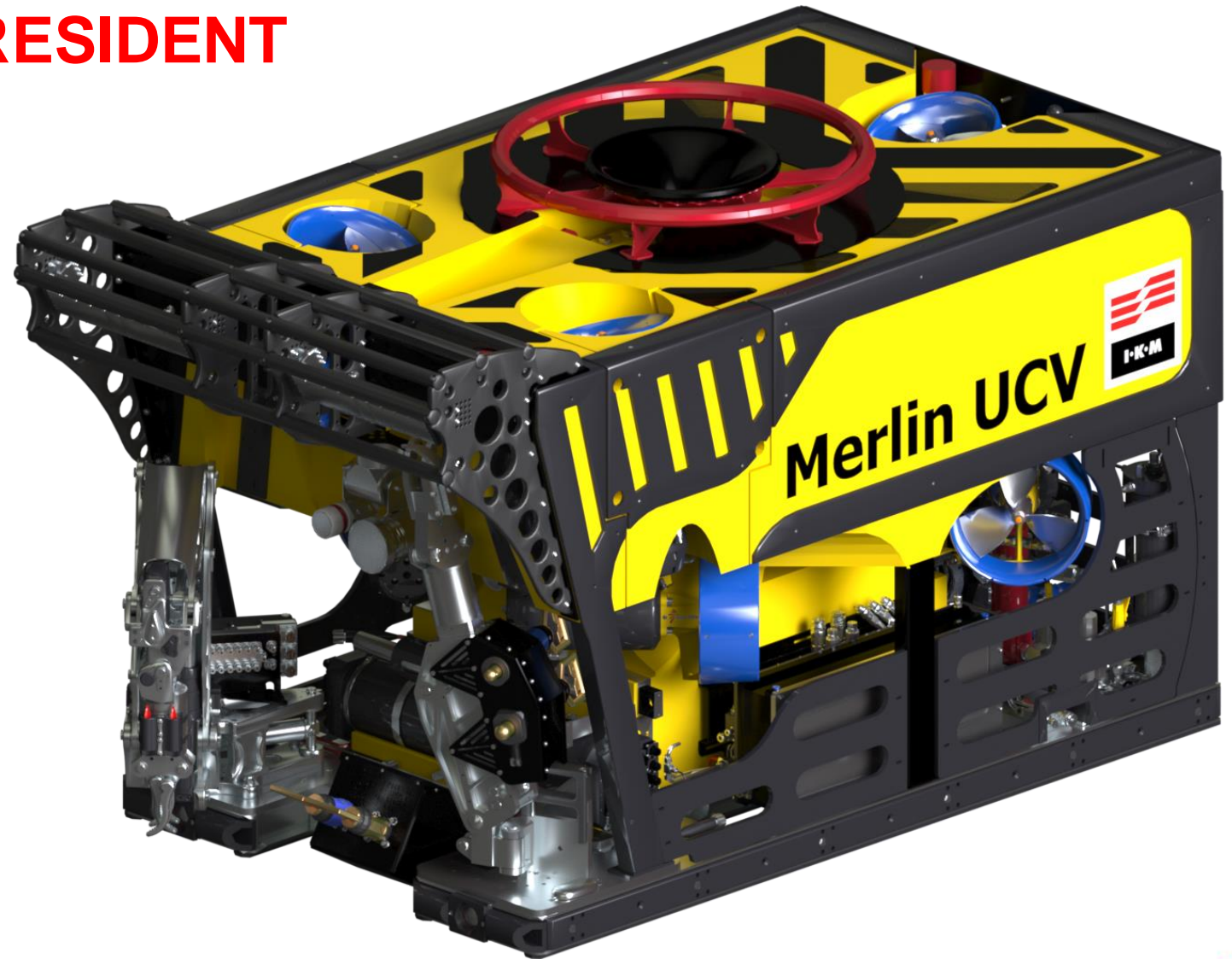
*Zero injuries - an overall objective!*

# WROV MERLIN UCV RESIDENT

Ultra Compact Vehicle (UCV)

LxWxH: 2500x1500x1500 mm

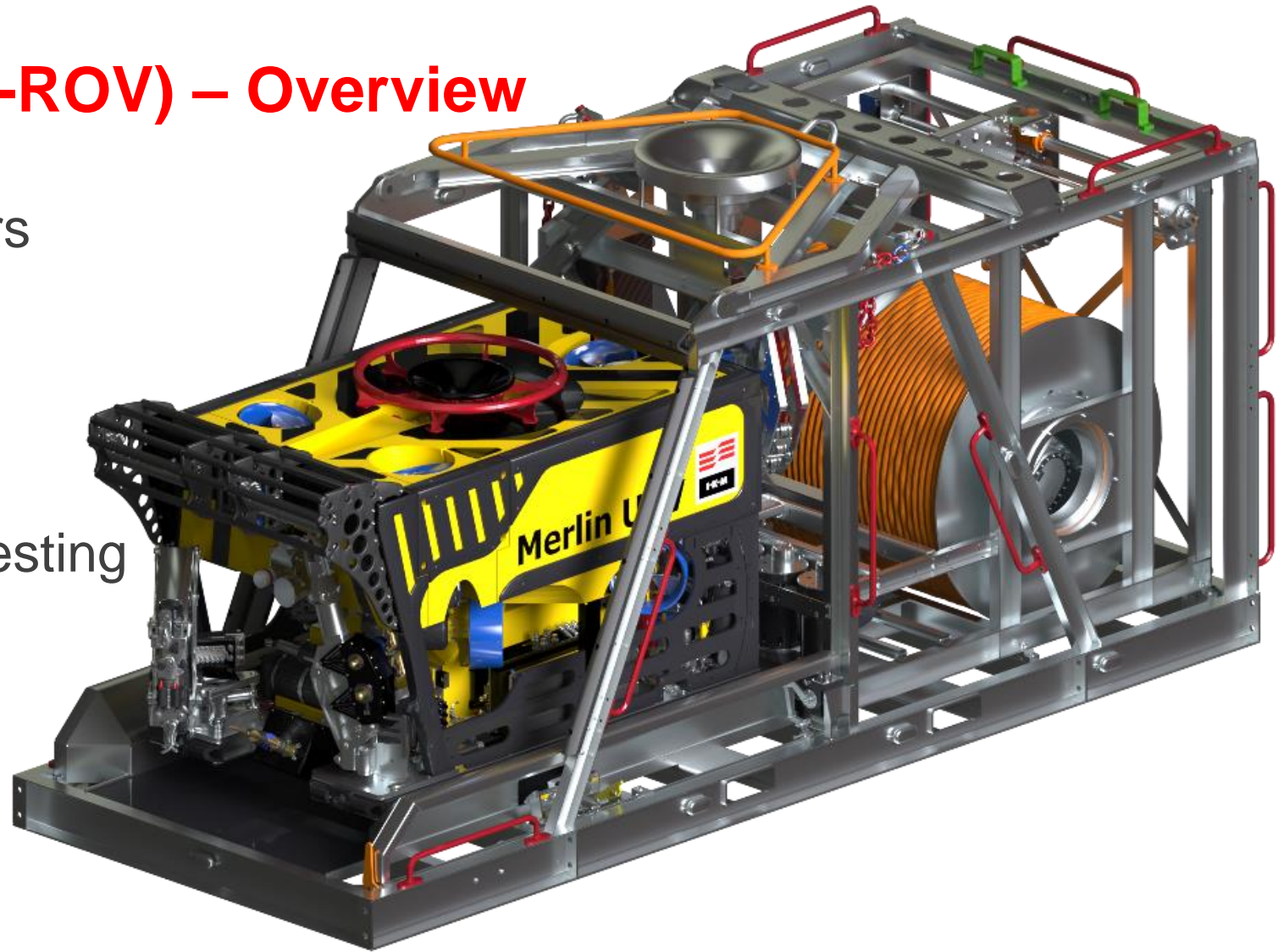
Weight: 2740kg





## Residential ROV (R-ROV) – Overview

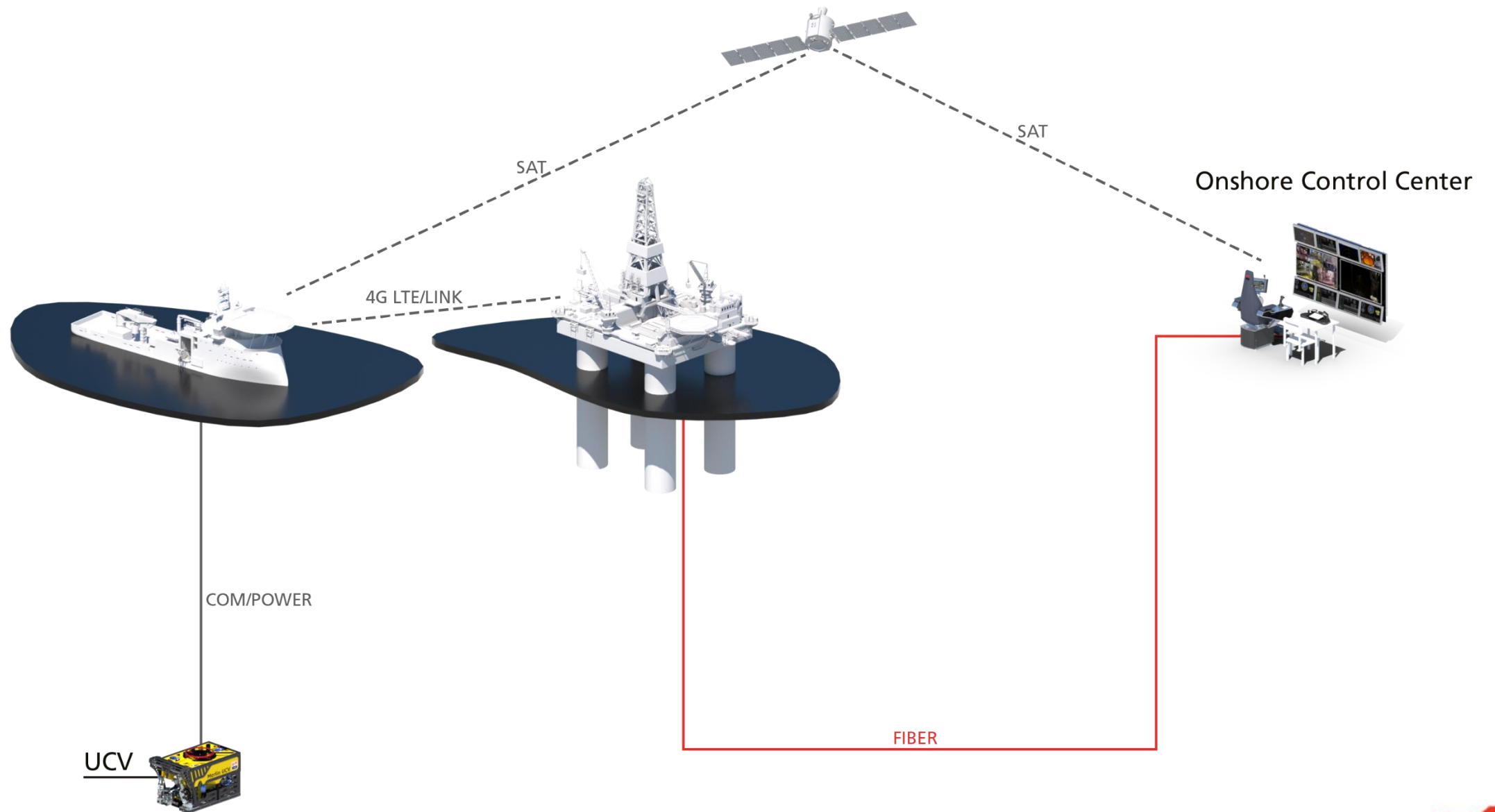
- Modified manipulators
- E-Cage
- HPU for Tooling
- Oil Analyzer
- Quality control and testing
- Corrosion protection
- Condition monitoring



# Operational Activities for R-ROV

- A Work Class ROV system.
- Increase speed on production or drill related operations.
- Tooling hot stabs on system.
- Valve operations
- Possible to perform in bad weather:
  - Valve operations
  - Disconnection of LMRP
  - Check of BOP
  - Check of possible oil, gas or metanol leaks.





## Potential personnel transferred to land

- General inspections (24 hrs):
  - 1 x Online Surveyor
  - 2 x ROV pilots
  - 2 x Inspection engineers
  - 1 x CP engineers
- Pipeline inspections (24 hrs)
  - 2-4 x QC Data processors
  - 2 x Inspection engineers
  - 2 x ROV pilots
- SCM/Choke Change out (24 hrs)
  - 2 x 3<sup>rd</sup> party rep
  - 2 x Inspection engineers
  - 2 x ROV pilots





## Potential for cost savings

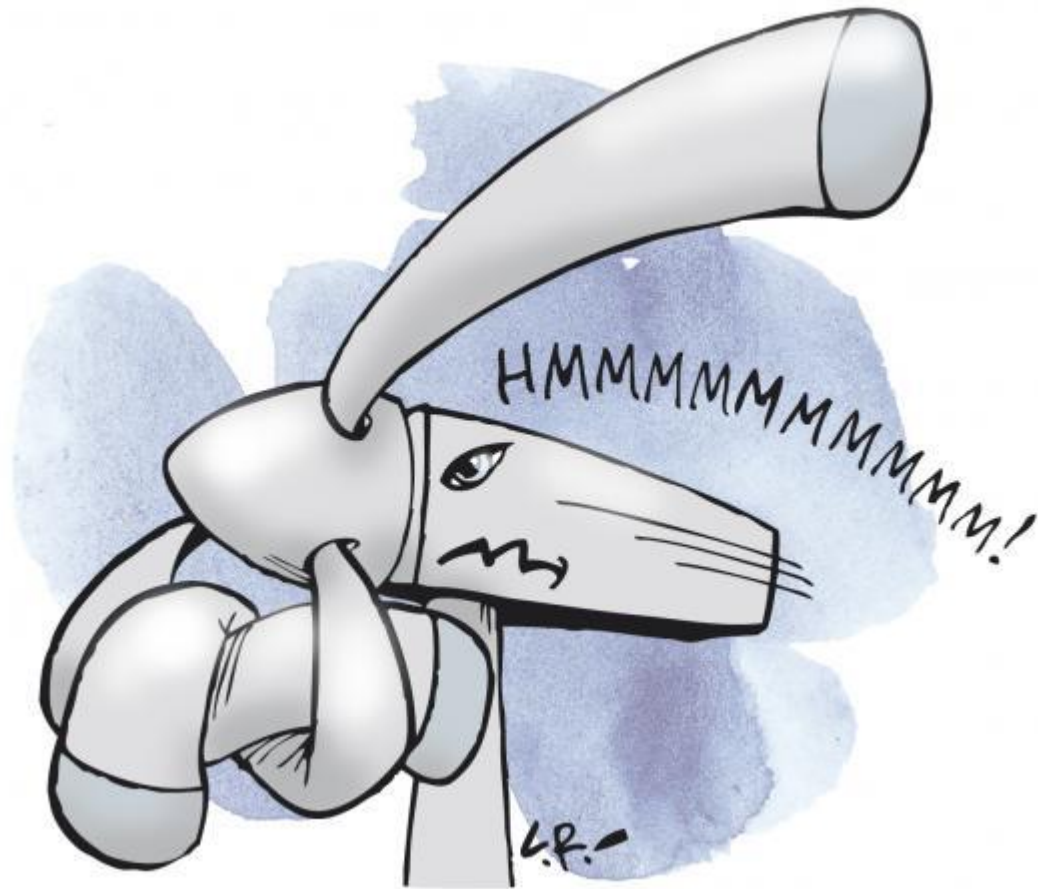
- Cheaper mobilisation due to flight to Stavanger vs Florø/Kristiansund/Hammerfest
- No mobilisation or transit time for unnecessary personnel
- Reduced logging cost
- Online QC of data onshore.
- Less cost on personnel onshore?
- 3<sup>rd</sup> party that is only active in a short period of the campaign do not need to join the whole campaign

# Challenges with remote operations

- Offshore vs onshore contracts for personnel
- Change of mindset needed to move offshore positions onshore
- Poor 4G connectivity
- Smaller amount of personnel offshore – increased reaction time



# Entering the Wind marked as an «Oil & Gas» ROV Operator



# Challenges

- We have today
  - High spec solutions built to Norsok/DnV/IMCA
  - Wind marked demands “low cost” solutions
  - Contracts with short durations
  - Funding for development of low cost solution with “no” guaranteed contracts is non existing



## The future..

- Very interesting market which we monitor closely
- Need the “right” project if we are to invest money
- Tidal energy is maybe more tempting from an ROV point of view

**Thank you for your attention!**

