



North Sea
Transition
Authority

Update on Accelerate Deployment activity for Non-Intrusive Inspection

TLB's Technology Managers' Network Meeting

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What is NII?

Checking on condition (e.g. corrosion, erosion) without opening, entering or otherwise exposing the object in the location where it is housed, installed or used

Where is it used?

CM: Condition Monitoring
H2R: Hard to Reach
VI: Vessel Inspection
CUI: Corrosion Under Insulation

What benefits could it bring?

Potentially:

Lower Emissions
Cheaper
Easier
Better
Safer

Key questions?

1. How can we increase the uptake of proven NII technology so it becomes the default option selected across the industry?
Many Operators currently use proven (TRL 9+) NII technology, but it is not used by everyone.
2. What gaps exist and can we accelerate the development and deployment of new NII technology through more, faster and cheaper field trialling of mid TRL prospects?
Gain industry confidence in, and relevant regulator acceptance of, multiple new technologies at pace.

NSTA Technology Surveys (2020-21 and prelim 2021-22) TRL 8-9 examples:

- **Enhanced predictive maintenance of rotating equipment** using online electrical rotor monitoring improving availability & reliability
- **Inline inspection of risers using crawler tool** through ESDV
- **Wireless, battery free, ultrasonic sensor technology** for accurate internal corrosion and erosion monitoring in pipework and vessels
- **Neutron backscatter tool** detects water in lagging for CUI monitoring
- **Pulsed Eddy Current** for pressure containing and structural systems; and for CUI – improved sensors
- **Live and online ultrasonic monitoring of erosion/corrosion hotspots**
- **Structural inspection using alternating current field measurement technology (ACFM)** to inspect welds and identify cracks – incl. ROV deployed
- **Alternative deployment platforms for inspection tools** to reduce/eliminate HES risk to personnel, involving robotic arms and unmanned aerial vehicles
- **Quantitative Short Range Scanning** in large diameter pipework fabrication
- **Radiography inspection without impacting nucleonic level control instrumentation** for inspection of dead legs

Phased Array Mapping: Serica-Energies



- Non-Haz Open Drains Tank
 - Haz Open Drains Tank
 - Oil Export Pig Launcher
 - Gas Export Pig Launcher
 - HP & LP Flare KO Drum
 - PUQ Closed Drains Drum
- Bruce inspections 2019-2021*

Only do intrusive inspection where NII cannot provide adequate inspection coverage to demonstrate ongoing fitness for service.

Making NII technology the default

TLB's Accelerate Deployment Workstream activity:

- **Open Call for Previously Deployed Technologies**

[Call for Previously Deployed Technology - The Technology Leadership Board \(the-tlb.com\)](https://the-tlb.com)

~250 hits; 7 submissions to date

- **Technology Managers' Network meetings**

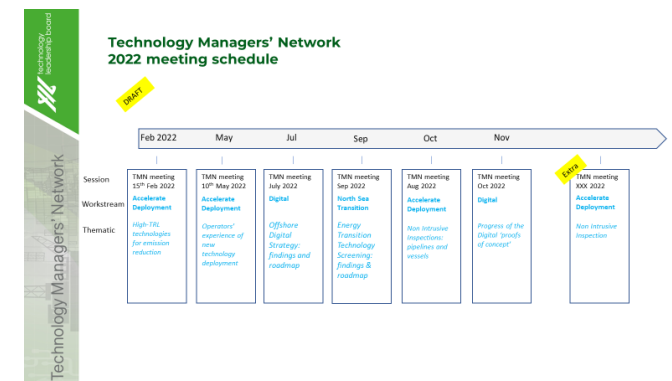
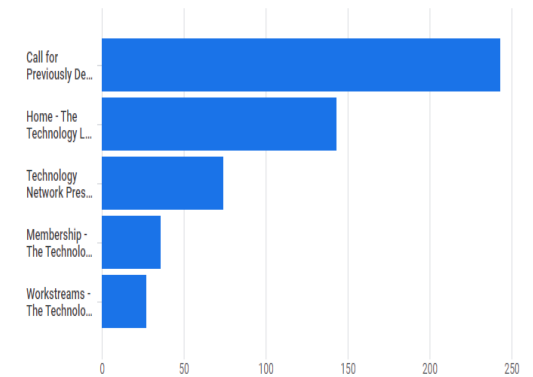
- 6 meetings per year – community of 100+ technology managers from Operators and Supply Chain
- Developers showcase their technology
- Operators share experiences of deployment

- **Engagement with Net Zero Technology Centre**

- NZTC output – promotion at TMN meetings

- **Engagement with Energy Transition Zone**

- ETZ output – promotion at TMN meetings



Technology Driving Transition



Objective:

- Increase the deployment of successful NII technologies for VI/CUI offshore

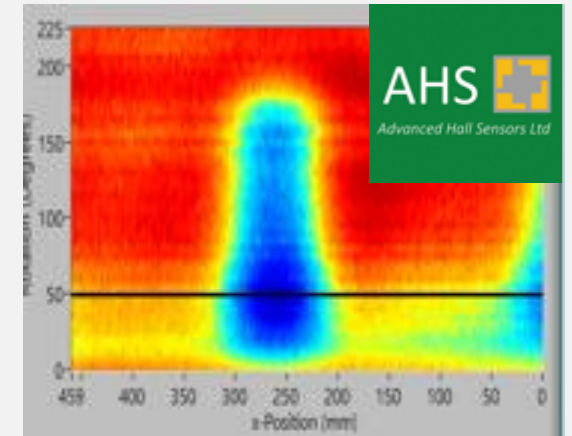
Progress to date:

- TLB's Industry Sponsor Project on NII for CUI led by Kellas Midstream
- NZTC's pipeline of NII technologies at or approaching field trial readiness
- NZTC's recent call - NII technologies seeking partners and field trials
- Scouting for non-NZTC technology and technology transfer from other industries

Forward plan:

- Focus on VI & CUI
- Adapt model used for well P&A technology development, to deliver more, faster and cheaper trialling of mid-TRL NII technology prospects by hosting field trials at onshore terminals
- Create a collaboration under NZTC project management to select, with industry input, and field trial c10 VI/CUI technologies per year
- Build cooperation across onshore terminal operators, led by Kellas Midstream, to host field trials at multiple onshore terminals, dovetailing with already planned maintenance programmes
- Demonstrate viable alternatives to existing practice, securing industry confidence and regulator acceptance
- Measure uptake across the UKCS, estimate benefit/value delivered and publicise success stories to drive adoption.

Advanced Hall Sensors - continuous wave magnetic field to map and image CUI



SubTera - terahertz energy to detect moisture and corrosion





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Thank you

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