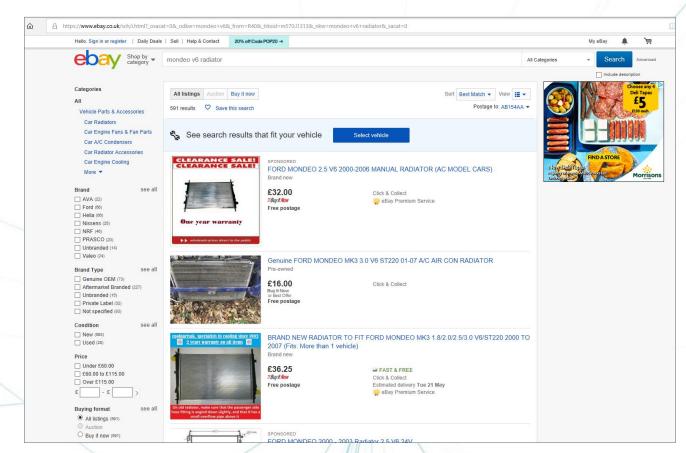


## Personal Experience







#### Our Goals



Unlock

Unlock the full potential of the UK Continental Shelf

Anchor

Anchor the supply chain in North East Scotland

Inspire

Inspire a culture of innovation and transformation



## Technology Vision



#### Fix today



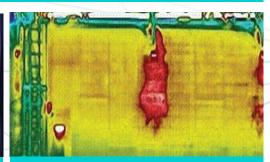
Data access



**Production** optimisation



decommissioning



Asset inspection



Revitalise exploration



Alternative well barriers

#### Maximise recovery



Tieback of the Future



Automation



Integrated

Integrated energy



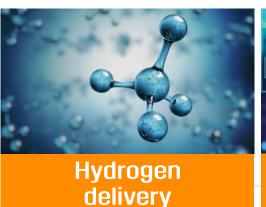
New

New materials

#### **Transform tomorrow**

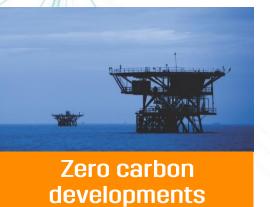






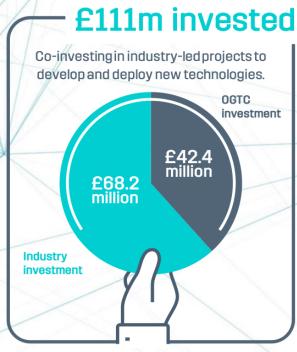


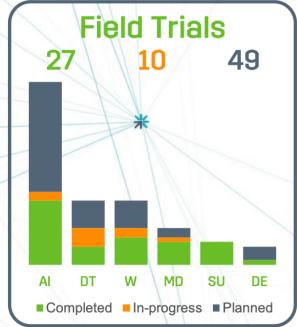


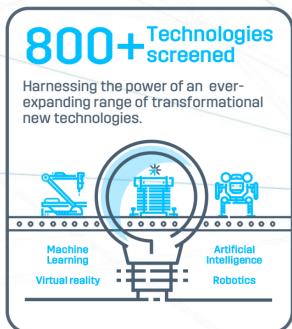


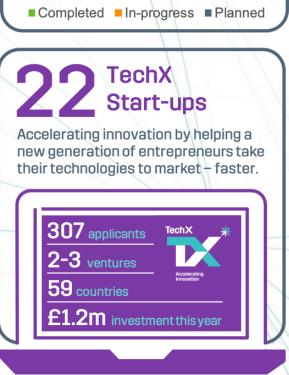
#### Our Track Record

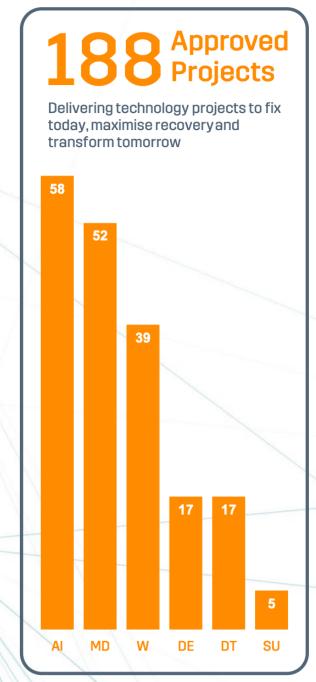


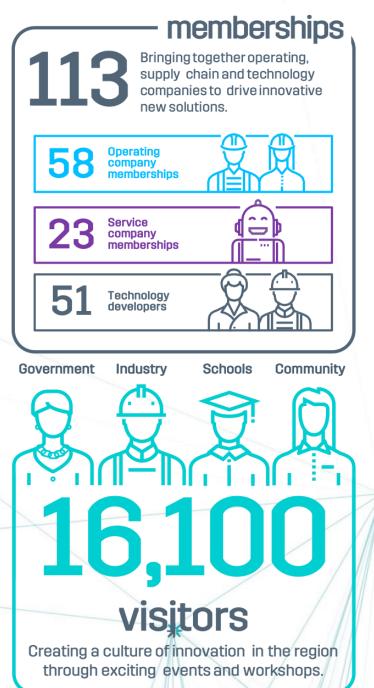












# Decommissioning Roadmap 2019-2028 Overall Goal: 35% decom cost reduction



Focus area		Short-term		Medium-term		Long-term		TLB
Late Life Management 10% of overall cost reduction	Automated operations	Optimise and standardise late life maintenance of critical items for decom		Automate monitoring and maintenance of critical items to decommissioning		Al assisted late life management.		Slash decommissionin costs  Efficient offshoro operations
This is about changing the way we manage infrastructure that is beyond its design life		Digital platform development and data gathering  Extend life		: Decommissioning Similiation		al assisted decommissioning life and decommissioning		
to maximise economic recovery and optimize decommissioning enabling a circular economy.	Remote monitoring Residual Liability	Digital platform developme	ent and data gathering	Autonomous remote curveying of moring				
Post COP OPEX Reduction 20% of overall cost reduction	De-Energising	Pre-CoP decommissioning activities using digital transformation		Pre-CoP decommissioning activities using augmented reality		Automate handover management		Slash decommissionin costs
This is about efficient execution pre essation of production (CoP) to minimize or eliminating post CoP OPEX	Power and Utilities	Alternatives to diesel power		Standardised Modular Utilities		Clean energy during late life and decommissioning		Clean offshore energy
	Make Safe	Identify preservation technologies		Automated mothballing period		Robotise make safe		
Innovative Removal 20% of overall cost reduction	Topsides	Alternatives removal technique Surgical Piece Small		Other industries alternatives	Innovative transportation	Decouple topsides Create and maintain the best and jacket removal decommissioning practices		Slash decommissionir costs
This is about industrializing the process of decommissioning and transportation of offshore infrastructure	Jackets and conductors	Current best techniques identification		Transform removal methods	Innovative transportation : Untimize Litt / Litt / transport		rt	
	Subsea	Alternatives removal technique Transform decommissioning methods		Standardise decom methods for oil and gas subsea removal and transportation.		Automation of subsea removal technologies	Residual Liability	
Optimise Abandonment Value target – 35% of P&A costs	Rigless P&A	Identify alternative barrier materials	Existing barrier remediation	Alternative barrier verification	Eliminate tubular removal	Remotely activated downhole barriers	Dormant technology solutions	Slash decommissionii costs
This is about decommissioning our wells as safely, simply and cheaply as possible	Decision making	Improve flow path modelling	Enable multi-string logging	Optimise schedule and sequencing				

## In the beginning









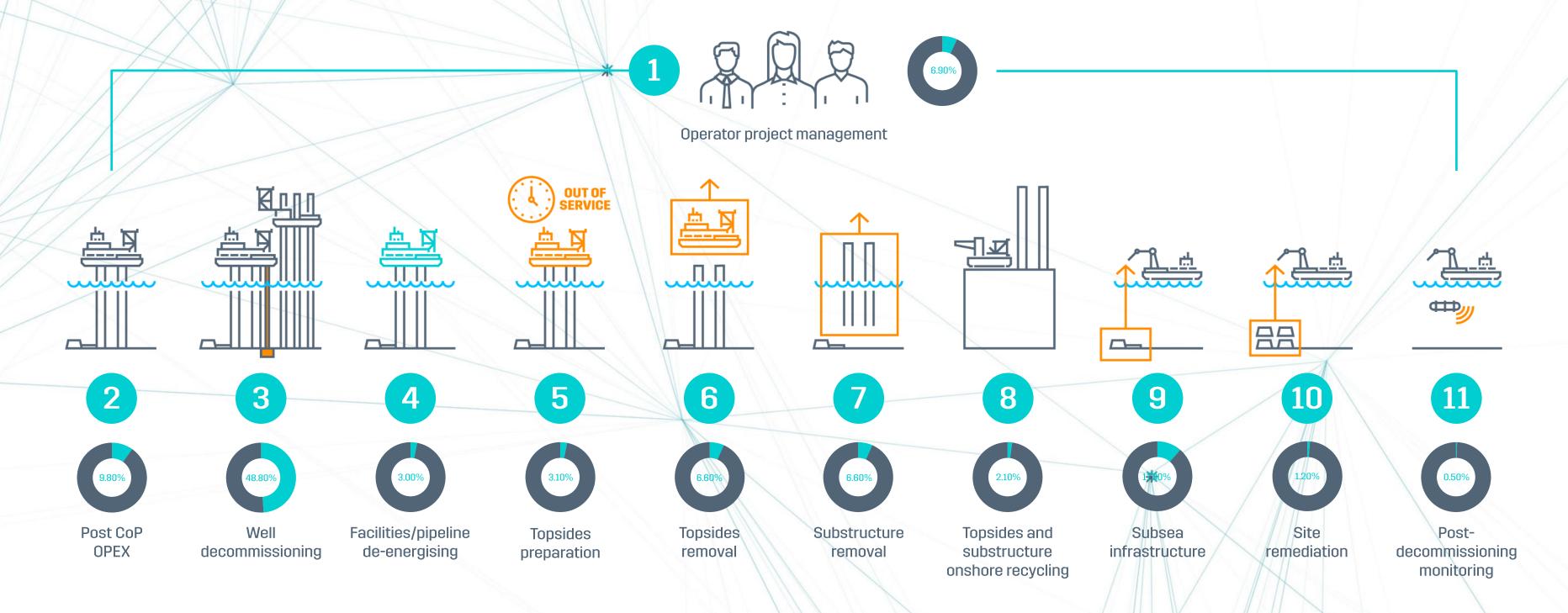






# Decommissioning Work Breakdown Structure (WBS)





#### Current reuse & remanufacture



- Entire installations
- Tubulars
- Valves
- Gas turbines
- Subsea equipment







#### F3-FA Gas Production Platform main particulars

#### Introduction:

- · Offered for sale: Gas production platform
- · Normally manned operations, but designed for and can be remotely operated
- Specifically designed for re-location / re-use
- Facility is in excellent condition
- Planned to be removed mid-summer 2019
- Removal Contractor: Heerema Marine Contractors
- F3-FA platform can be delivered sea-fast on a seagoing transportation barge to ease transfer
  of ownership





Fahrication Vard Vissingen

Offshore installatio

#### General:

- Gas Production Platform. Excellent condition.
- 3 slots
- Location: Dutch sector North Sea, F Block
- Water Depth: 42m
- Installed: 2010
- Design Life: 20 years (TBC)
- · Substructure: four-legged un-braced portal frame, supported by suction piles
- . Topside weight: ± 4500 mT
- Substructure and Suction Piles Weight: ± 5,500 mT
- Topside dimensions: 30 x 50 x 30 (I x w x h)
- Engineering & Design: HFG (structural), IV Consult (process), SPT (suction piles & installation)
- Fabrication: Heerema Fabrication Grou
- Installation: Suction Pile Technology
- Facility is specifically designed for re-location / re-use

ech info F3-FA

by: T.Sterker

14 May 2019

### Reuse

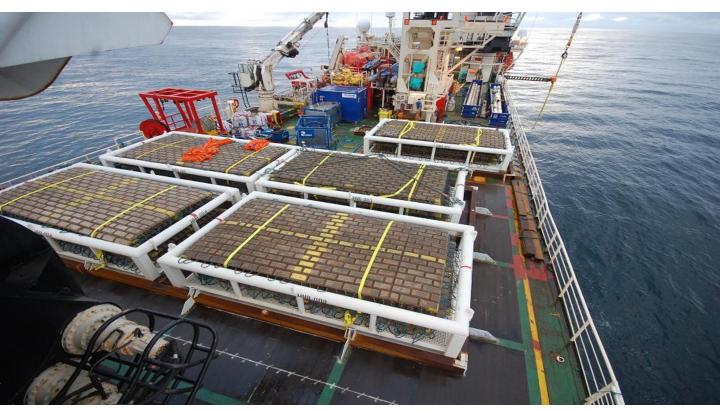








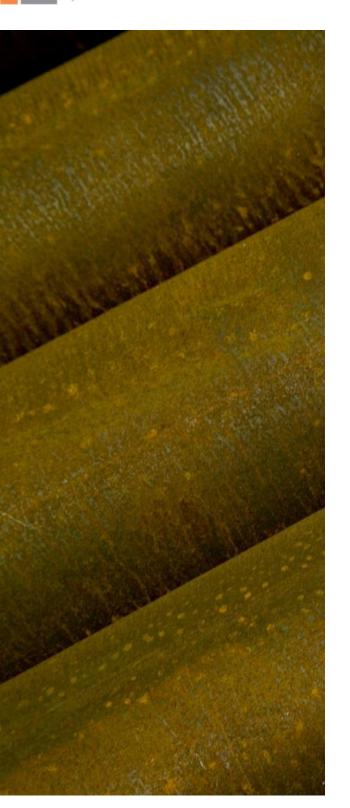






johnlawrie.com

# Reuse – Tubulars & Pipes







johnlawrie.com











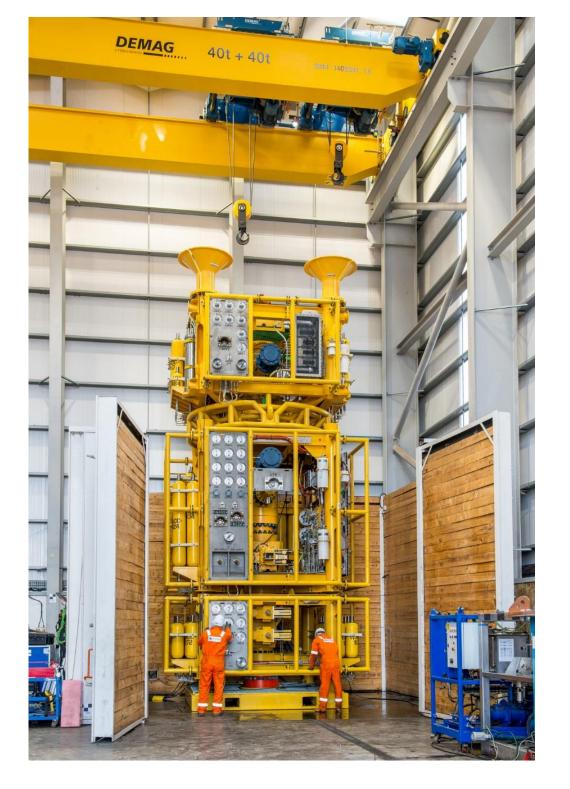












#### Reuse in the Netherlands





Re-use or adapt equipment and infrastructure in the same or a different location

Re-cycle equipment when removing infrastructure onshore and offshore

Re-purpose wells and reservoirs



## SNS Hackathon - outputs



Create a market for reuse equipment e-bay model

Ethical versus cost – Could third world countries benefit

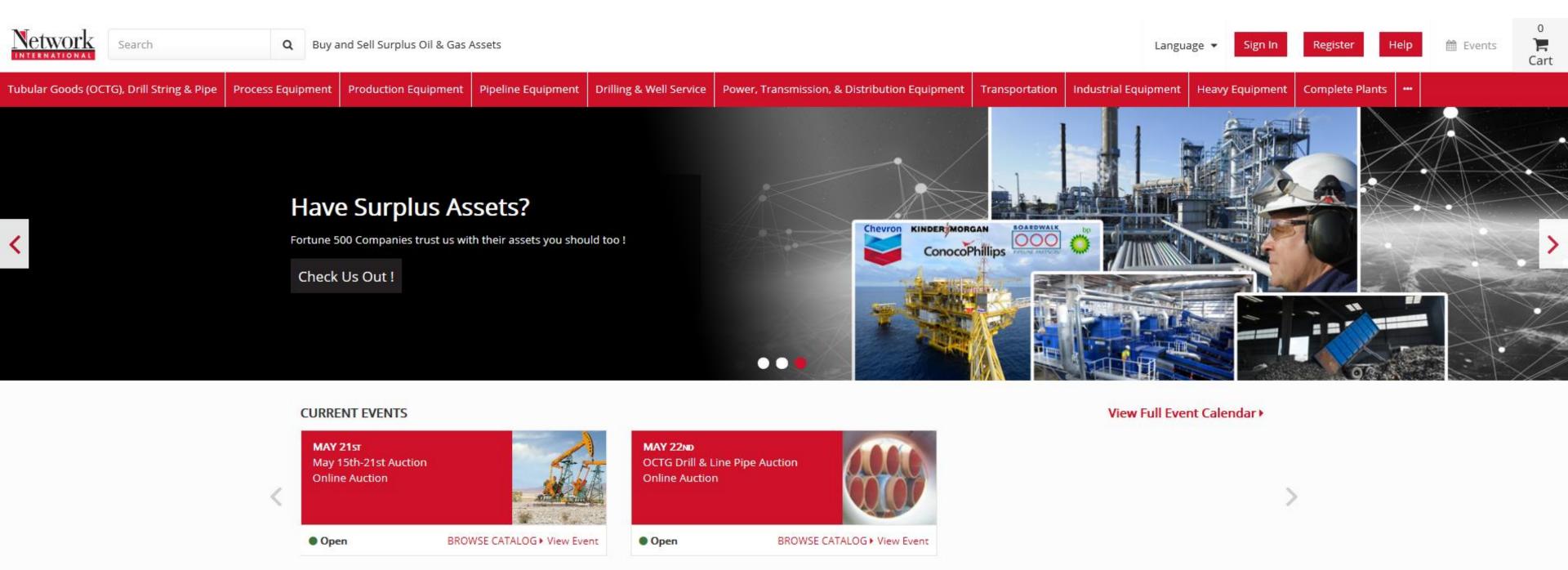
Learn from the Netherlands reuse examples on regulatory drivers

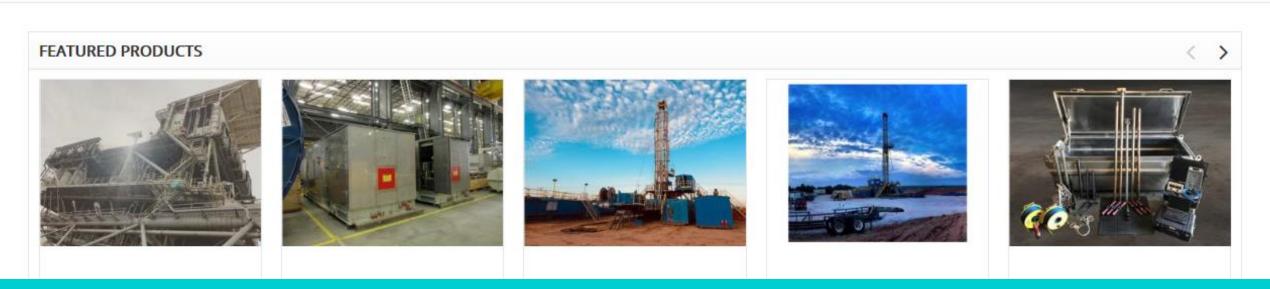


The legal requirement and cost of recertifications needs to be reduced to make this viable

Use old platforms onshore for training

Should regulator/government require reuse as part of decommissioning programme





Contact us

#### Re-use and the energy transition



Offshore electrification

Production and storage of hydrogen

Geothermal

Carbon capture and storage

