

Securing Offshore Operations with IoT



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Technical Session 1: ICT & Cyber Security

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10:00-12:00 Hall 10



Connectivity in Hazardous Locations

Enabling mobile, IoT and cloud solutions in hazardous areas purpose built for offshore can drive improved performance and secure operations.



Risk Reduction

Increased Efficiency

Productivity Gains



Paper records and legacy specialty devices without connectivity are holding companies back from a secure digital transformation.



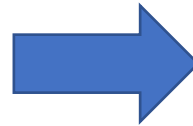
Prior To IoT Solutions

Clipboard and Pencil

End-of-Shift Manual
Recording

Limited monitoring systems

Unique challenges due to
environments



An IoT Enabled Future

Digital Rounds and
Connected Workforce

Real-time process control and
automation

Wireless connected and
pervasive IoT monitoring

Bespoke solutions for client
specific use cases



Considerations for Connecting People

Certified

- Globally certified Intrinsically Safe for Zone 1 hazardous locations

Usability

- Thin and lightweight, easy to carry, rugged, viable touch screen

Power

- Sufficient battery to last a full shift on a single charge

Platform

- Windows 10

Secure

- Wi-Fi, 4G LTE, encryption



Intrinsically Safe Solutions



Considerations for Connecting Things

- Early detection and prediction of failures
- Pervasive monitoring of operations
- Ease of installation
- Configurability
- Ability to connect legacy equipment
- Securely capture and transmit information



One Design, Monitoring Everything

Endpoint								Battery
Oxygen O2	Hexane C6H14	Butane C4H10				Enviro Light	Enviro Temp	Wi-Fi
Carbon Dioxide CO2	Hydrogen H2	Gas LPG	Proximity	Laser (Pipe Alignment)	Enviro Barometer	Enviro Humidity	4G NB-LTE	
Carbon Monoxide CO	Ammonia NH3	Ethanol C2H6O	Smoke	Laser (Gas Detection)	Wind direction	GPS/ Shock	Bluetooth	
Methane CH4	Ozone O3	Phosphine H3P	Dust	Pipe Pressure	Wind Speed	Light Intensity	Li-Fi	
Nitrogen Dioxide NO2	TuHydrogen Sulfide H2S	Wild Card	Radiation	Fire/Flash	Rain Gauge	Sound Intensity	NFC	
Sulphur Dioxide SO2	Hydrocarbons			Pipe Sonar	DC Power Input	AC Power Input	LoRa	



Sample Use Cases

- **Problem:** 100% paper-driven system results in lost or delayed reporting.
Solution: Windows certified mobile devices with NFC and barcode replacing legacy insecure systems increases productivity by an estimated 30%
- **Problem:** Hot work permit processing and updates to process control, asset management and ERP systems takes 4 hours.
Solution: Mobile device enabled digital forms decrease permit processing time to 30 minutes and improve updates to real-time.
- **Problem:** Leakage in O&G and Chemical ranges from 1.5% to 10% of entire industry output.
Solution: IoT endpoints provide 24/7 monitoring and predictive analytics, identifying future leaks.
- **Problem:** Pressure testing an offshore rig's Blowout Preventer can take 36 hours.
Solution: IoT solution reduces this to 4 hours, saving \$250k to \$1M per instance.
- **Problem:** Complexity of operations and silos of information cause high risk and insurance costs.
Solution: IoT improves monitoring and accident prevention, reducing liability costs 1% to 10%.



Summary

- Digital technologies are having a significant impact on improved performance
- Moving to real-time data capture improves data accuracy
- Efficiency of operations and information positively impacts operational safety and security



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