



# ARNOWA for Oil & Gas

Smarter Operations. Safer Sites.  
Stronger Sustainability.

# Digital Transformation for the Oil & Gas Operations

In the high-stakes world of oil and gas, operational downtime, safety risks, and environmental non-compliance carry significant costs. Arnowa combines AI, IoT, and cloud intelligence to deliver a secure, scalable, and predictive platform that optimises upstream, midstream, and downstream operations while enhancing safety, efficiency, and regulatory compliance.

## Key Capabilities

### Real-Time Asset & Pipeline Monitoring



- AIoT sensors track pumps, compressors, pipelines, and storage tanks.
- Detect leaks, pressure drops, and abnormal flows instantly.
- Monitor energy consumption and operational performance continuously.

### Safety & Hazard Detection



- Detect gas leaks (methane, H<sub>2</sub>S and more), fire risks, and unsafe working conditions.
- AI-driven video analytics based anomaly detection and automated alerts for rapid response.
- Ensure compliance with safety standards and regulations.

### Predictive Maintenance & Operational Optimisation



- AI models predict failures in rotating and critical equipment.
- Reduce unplanned downtime and maintenance costs.
- Optimise performance across upstream, midstream, and downstream assets.

### Energy, Emissions & ESG Management



- Track emissions and optimise energy usage.
- Integrate renewables, microgrids, and battery systems at remote sites.
- Automate ESG reporting for regulatory bodies and sustainability goals.

### Digital Twin & Remote Operations



- Simulate facilities and pipelines to visualise operations digitally.
- Enable safer decision-making and remote monitoring.
- Support scenario analysis for operational planning and risk mitigation.

### AI-Enhanced Exploration & Production Insights



- Apply AI to seismic surveys, well logs, and satellite data.
- Optimise reservoir modelling and production planning.
- Improve resource extraction efficiency and operational foresight.

# A Few Use Cases



## Upstream & Exploration

Drilling rigs, well sites, and offshore platforms; AI-enabled monitoring for equipment performance, safety, and operational optimisation.



## Downstream & Refineries

Refineries, terminals, and fuel distribution networks; process automation, emissions tracking, and regulatory compliance.



## National & Private Energy Enterprises

Centralised AIoT platform for managing multi-site operations, ESG reporting, and asset performance across large-scale energy networks.



## Midstream & Pipelines

Pipelines, LNG infrastructure, storage, and pumping stations; leak detection, flow optimisation, and energy efficiency.



## Remote & Offshore Facilities

Digital twins, IoT-enabled remote monitoring, and drone-based inspections for safety and operational oversight.



## Fuel Distribution & Logistics

Monitor terminals, depots, and transport networks for safety, efficiency, and real-time inventory tracking.



## Benefits at a Glance

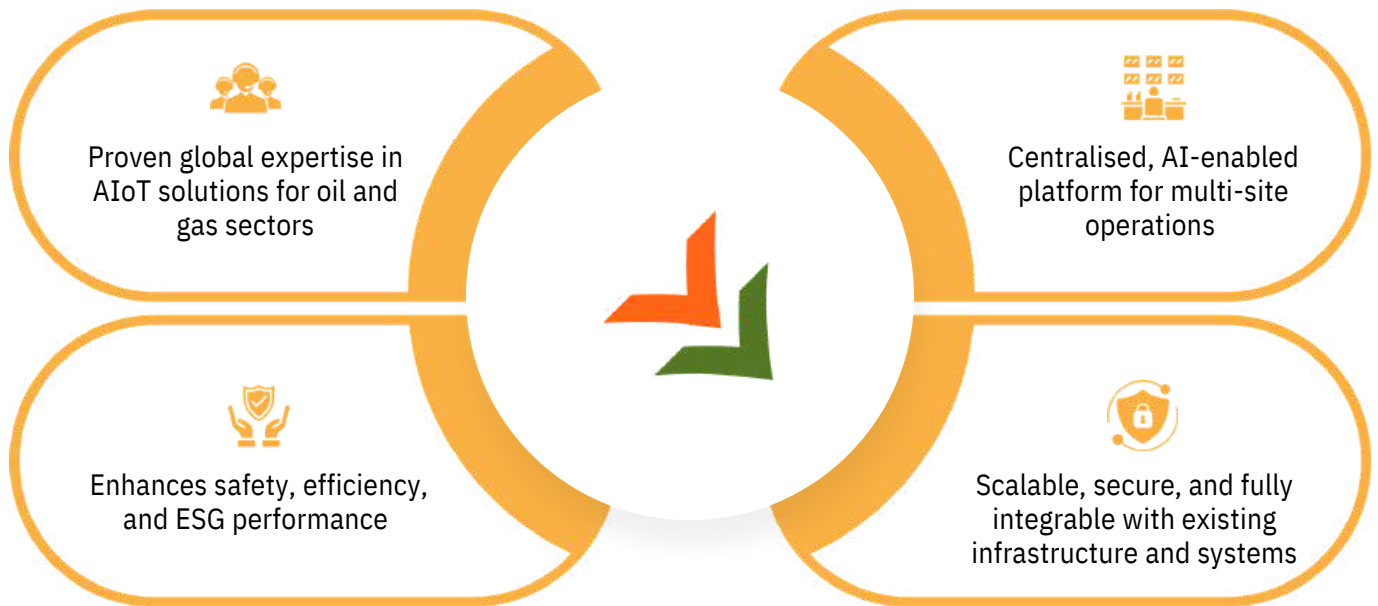
- **Faster Decision-Making** – AI-driven insights and digital twins enable rapid operational and safety decisions.
- **Cost Optimisation** – Reduce unplanned maintenance, energy wastage, and operational inefficiencies.
- **Asset Longevity** – Predictive monitoring extends equipment life and protects high-value infrastructure.
- **Holistic Visibility** – Centralised platform consolidates multi-site operations, ESG performance, and risk monitoring.

## Tech Integration

- AI Edge Processing & Cloud AI for predictive maintenance and anomaly detection
- IoT sensors for pipelines, tanks, compressors, and offshore rigs
- Digital Twin for remote monitoring, simulations, and scenario planning
- Centralised dashboards for multi-site operations and real-time insights
- Integration with SCADA, BMS, ERP, third-party platforms and legacy systems
- Secure cloud storage with cybersecurity and compliance monitoring
- Drone & camera-based AI inspections for structural and safety analysis



# Why Arnowa?



## Maximise Production. Minimise Risk. Meet ESG Goals.

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*With Arnowa, the oil & gas industry enters a new era of resilience, intelligence, and sustainability.*