Value throughout the Project Life Cycle

Integrated services to combine geotechnics, survey and subsea services in a cost-effective and sustainable way.
Asset Integrity services maximise the ability of an asset to perform its required function effectively and efficiently, whilst safeguarding life and the environment.
Business Drivers and Our Clients needs as we understand them

Intelligent Industrial Operations require Asset Integrity Solution that meets:

• Key business drivers
  • Improve availability of assets (downtime reduction)
  • Increase output
  • Compliant with local HSE regulations
  • Increases operational efficiency
  • Cost effective to meet cost reductions

• Global IT standards
  • Accessible anywhere, anytime through cloud-based technology
  • One global solution
  • Based on standards and open architecture
  • Compliant with data security and IRM standards

Growing energy demand
Increasing HSE requirements
Need to reduce costs
Despite the fall in crude oil prices, most companies in the oil and gas industry plan to invest the same amount or more in digital technologies now and in the future.

Mobility, infrastructure and collaboration technologies currently represent the biggest investment areas across the oil and gas industry. Over the next three to five years, investments are expected to increase in big data and the Industrial Internet of Things (IIoT) / automation.

The key reason companies are investing in digital technologies is to improve operational efficiency.

Digital technologies that enable people and assets are considered most important.

To get the most value from digital technologies, several barriers need to be overcome. The top two identified were:

1) workflows and processes that create bottlenecks and
2) physical and cyber security concerns.
Current situation: transactional driven information and data silos

- Owner Operator
- Owner Operator Team
- EPC
- PMC
- Physical Site
Asset Reality vs. Asset Information

- Vendor Data
- True ‘AS-IS’ Information
- Plant Expansion
- Increased Risk
- Information degrades over time
Solution: SITE-SPOT a Single Point Of Truth for field data

Owner Operator

Data acquisition Service Provider

Owner Operator Team

Maintenance Contractor

View and utilise data

Update Field data

View and utilise data

Update object data models

EPC
Life-of-field **digital asset management services for greenfield and brownfield sites.**

We offer dimensional control of structures, 3D asset modeling, centralised data management and web-based 3D visualisation, enabling facility managers to access **up-to-date asset information** and to streamline installation and maintenance operations.

**Land Asset Integrity**
Asset Data Integrity Cycle

DATA MANAGEMENT SERVICE

3D MEASUREMENT SERVICE

WEBSERVICE
Visual Asset Management
Visual Asset Management (VAM)

The purpose of VAM is to

- Visually capture the surrounding environment
- Recreate the surrounding in a virtual world
- Enable measurements to be taken
- Provide access to information
- Enable information analysis & decision making

Components:

- Spherical Images and 360° Video
- Digital Visualisation platform
- 3rd party data integration (optional)
- Information Sharing Options

Benefits:

- Risk Mitigation
- Increased Safety
- Operational Cost and Downtime Reduction
- Enhancement of Collaboration
- Assists compliance with regulatory requirements
**Visual Asset Management**

**Asset Visualisation**
- Single Panoramic Images
- 50 – 100MP resolution
- Walkthrough / Flythrough
- Asset Tagging

**Visual Inspection**
- Stereo Panoramic Images
- 100 – 500MP resolution
- Visual Inspection
- Measurement Capability

**Demonstration**
- Complete VAM solution
- Standalone or Web-hosted

*Interactive Images; click to open sample files
Internet connection required*
Virtual Reality
3D Digital Asset Management
Fugro Site-SPOT – focal point for all available field data
Digital Asset Information: Site-SPOT

3D digital asset information service providing centralised management of all available field data
Web-based 3D view of your site stored in the Single Point Of Truth database
Up-to-date data available to all stakeholders for streamlining plant operations

**Functionality**
- Easy to use web interface
- 3D fly-through
- Quick search of data
- Distance Measurements
- Query Tools
- Reporting Tools
- Fully Customizable to meet any client-specific needs

**Benefits**
- Up-to-date data with quick & easy access to all*
- Free-flow communication
- Maintenance Time & Cost Reduction
- Increased production due to shorter turnaround times
- Reduced risk

**Practical Applications**
- Remote Collaboration
- Virtual Site Inductions
- Asset management
- HSSE Compliance tracking
- Scaffolding planning
- Shutdown & Maintenance planning
- Work Permitting
Digital Asset Information: Site-SPOT

From Document-driven to Data-driven 3D Digital plant & asset management
Digital Asset Information: Site-SPOT

**Inspection & 3D Measurement**

- **Fugro data**
  - Land Site Characterization
    - Aerial or SV data
    - Geological, Geophysical & Geotechnical Data
    - Land Survey Data
  - Land Asset Integrity
    - DC data
    - 3D Laser Scanning
    - Inspection Data
  - Marine Site Characterization & Asset Integrity data
    - Hydrographic Survey
    - Sub-sea structures...

- **Owner / Operator data**
- **3rd party data**
- **Framework agreement in place with major clients**

**Processing, Modelling & Data Management**

- **QC & Data processing**
- **Predictive Modelling**
- **Analytics**
- **Simulation**
- **Reporting**
- **Fugro & 3rd party algorithms**

**Information Delivery**

- **Site-SPOT**
  - 3D Virtual World
  - 2D Maps & Schematics
  - Interaction
  - Reporting
  - Decision Making

- **Linked Data Network**
  - Roser Consys
  - SAP
  - Intergraph
  - …

- **Mission critical client data sets are currently managed by Fugro**

- **In active use in Plants in EU and the Middle East**

- **Framework agreement in place with major clients**
Digital Asset Information
Digital Asset Information
Digital Asset Information
A complete CAD model of LNG plant UG services (as-built)
Digital Asset Information

Fibre optic Cable Routes
BIM 3D model of sub-surface utilities
Augmented Reality
Q&A Session