Chronological Impact of Digitalisation within Industry

#1 - Technology
#2 - Media & Entertainment
#3 - Retail
#4 - Financial Services

#5 - Telecommunications
#6 - Education
#7 - Hospitality & Travel
#8 - Manufacturing

#9 - Healthcare
#10 - Utilities
#11 - Oil & Gas
#12 - Pharmaceuticals
Revolutionising Offshore Operations

**Trusted Partner**
40+ years experience in pioneering change for the oil and gas industry

**Efficiencies**
Solutions that reduce manpower, risk and cost

**Innovation**
Not just through technology but the creation of new partnerships and alliances to solve client challenges

**Optimised Decisions**
Faster, more seamless access to high quality data for better decision making
Leveraging 40 years of subsea experience and knowledge with the benefits of digitalisation to transform the design and delivery of projects and the management of subsea assets.

Exclusive partnership with Leidos to provide clients with greater insights into operations through the field lifecycle.

EXPERTISE:
- Cutting edge data technology and capability
- Developments from adjacent industries

PARTNERSHIP:
- Strong relationship and strategic partner
- A dedicated Leidos team embedded within i-Tech 7
- Integrated Leidos Advanced Solutions Group (ASG) & digitalisation team with i-Tech 7’s subsea operational expertise

FLEXIBLE DELIVERY:
- Agile process for rapid turnaround on Minimum Viable Product
- End-to-end solution delivery
Digitalisation: Delivering Value to our Clients

**Better:** by bringing data and information to life we’re optimising data insight and value to clients –using data from both the past and the present as indicators to predict outcomes

**Faster:** by automating previously manual processes, we can radically speed up the analysis of data, improving efficiency and enabling more accurate decisions to be made, reducing delivery timescales from months to days.

**More Economical:** the time involved in a campaign is less, with quicker acquisition and processing/reporting, as well as reducing risk & carbon footprint to our customers.
Automated Solutions That Have Been Deployed and Realised Value

**AUTOMATED CP DATA ANALYTICS**

*Benefits:* Reduced 3 offshore personnel, 80% reduction in delivery time

**HIGH SPEED CAMERA FOR INSPECTION**

*Benefits:* Inspection acquisition speeds x6, up to 50% savings in vessel time

**MACHINE VISION FOR INSPECTION DATA**

*Benefits:* Significant reduction in eventing effort, reduced offshore personnel, move to onshore, much faster delivery time in future
Automated Solutions That Have Been Deployed and Realised Value

Benefits: Robust service, faster client delivery, reduced effort, consistent product, increased quality, move to onshore
Automated Solutions That Have Been Deployed and Realised Value

**Benefits:** Securely accessible from any location for final human QC, Significantly reduced time to event inspection data, Augments and supports training of Machine Learning Models for event classification.
Enhanced Capability with 4Subsea

- Digitalization and development of an Asset Integrity Management (AIM) business is a key strategic priority for i-Tech 7. 4subsea will provide the foundation upon which Subsea 7 will build its digital AIM services across the Oil & Gas and Renewable value chain.

- Solutions can be deployed across subsea infrastructure including risers, pipelines and SPS equipment, in both brownfield and greenfield developments.

Domain experts in risers and wellhead integrity

Advanced engineering & operational experience

Data analytics & AI development capability

Sensor solutions with real-time insights
Available commercial suite of digital applications

**Sensors**

- **SMS Motion**
  Autonomous and retrofittable motion and vibration sensor for subsea.
- **SMS Strain**
  Proprietary retrofittable strain sensor for subsea structural monitoring.
- **SMS Magic Hand**
  ROV deployed modem to configure and download data from SMS sensors.
- **Next-gen Sensor**
  A Nanotechnology based sensor tracking fatigue and corrosion through LoF.
- **SMS Guard**
  Autonomous and retrofittable kit for wind turbine structural monitoring.
- **Portable Annulus Tester (PAT)**
  Automated and cost-effective flexible riser annulus testing kit.

**Data Management**

- **Digital Platform**
  A common data environment (CDE) to store and securely manage interfaces.
- **Data-Reservoir.io**
  A digital service to ingest, store and access sensor data from various sources.

**Decision Support Apps**

- **FlexTrack**
  Manage design and operational data for flexible AIM.
- **FlexShare**
  A shared digital service to access incident database for flexible risers.
- **WellTrack**
  Manage design and operational data for wellhead AIM.
- **Machine Vision**
  Automated detection of components and features for subsea systems using AI.
- **WindTrack**
  Manage design and operational data for offshore wind AIM.
- **CP Analytics**
  Automated analysis and reporting of recorded Cathodic Potentials.

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Augmenting i-Tech 7’s Digital Capability

**Inspection**
- Purpose driven vehicle and tool for optimized inspection
  - GVI support
  - Equipment (CP, NDT)
  - UWILD

**Monitoring**
- Sensors for on-demand condition assessment of subsea assets.
  - Motion and strain
  - Flexible annulus
  - Next-gen sensor (fatigue, corrosion, ...) solutions

**Data Management**
- Subsea and topside data management
  - Digital platform (Storage, security, API)
  - Digital twin (automated analytics)
  - Visualization (dashboard, GIS, AR)

**Integrity Analytics**
- Assessment of data to draw actionable insights
  - Integrity planning (RBI, Anomaly)
  - Fitness for Service (FFS)
  - Life extension

- Remaining in i-Tech 7’s present capabilities.
- Highlighted in Blue offered by 4subsea.
Enabling Solutions

In line with our R&D programme, we continue to deliver transformational technologies that deliver significant future cost savings and operational improvements.
Rationale for Autonomy: Impact on Vessel Dependency

A move to autonomy or shared autonomy can significantly lower operating costs, improve operations, reduction in carbon footprint, reduce the risk to offshore workers and enhance safety by reducing the human error factor.

With a Seabed resident vehicle for 365 day a year, estimate a 40% reduction in vessel days.

<table>
<thead>
<tr>
<th>TODAY</th>
<th>TOMORROW</th>
<th>Vessel</th>
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<tbody>
<tr>
<td>Vessel-dependent</td>
<td>Hosted</td>
<td>Vessel</td>
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<tr>
<td>Inspection</td>
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<td>20%</td>
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<tr>
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<td>Repair</td>
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<td>0%</td>
</tr>
<tr>
<td>Lifting and high-power</td>
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<td>50%</td>
</tr>
</tbody>
</table>
To Summarise

Data is the key element
The change will be radical and we need to accept that fact
An enlightened SME is the key member of the team
The current boundaries will become blurred or disappear completely
Machine Vision isn’t straightforward but done correctly is powerful
There will be failures – this is cutting edge after all
We can learn from other industries experience

However........
There is a lot of noise out there
ANY QUESTIONS?

CONTACT US