Delivering the ‘Digital Oilfield’

Is Oil & Gas Ready for Artificial Intelligence?
Robin Auld & Matt Klukas
read·i·ness – noun

1. The state of being fully prepared for something
2. Willingness to do something
Back to the Basics

1. Do you know what problem you want to solve?

2. Do you understand how technology could help solve the problem?
   – What benefits & opportunities are created? What are the resulting risks & challenges?

3. Are you willing to invest time and resources into finding the right technology?

4. Are you willing to fully use the technology once it has been implemented?
   – Do your people ‘trust’ the computer to make recommendations and take action?
What Does AI Deliver? Stronger Value Chains

AI is redefining the value chain in virtually every sector. It’s future-focused; the bar for what’s considered “intelligent” is constantly rising.

Opportunities exist across all value chains, in every industry:

**Smarter forecasting**
- Predictive analytics

**Improve productivity from people & assets**
- Delegate low-value tasks
- Enable better, faster decision-making
- Optimize efficiency through automation

**Increase profitability**
- Better cost analysis
- Targeted sales & marketing
- Innovative revenue streams

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**HEALTHCARE**
Accuracy imperative; high costs  
*e.g. Deliver anesthesia for standard procedures*

**DATA ANALYTICS & AI**

**RETAIL & CUSTOMER SERVICE**
Dynamic; highly competitive  
*e.g. Virtual assistants, augmented interactions*

**FINANCE**
Standardized data; highly regulated  
*e.g. Predictive analytics, ‘robo-advisors’*

**TRANSPORTATION**
Safety imperative; complex logistics  
*e.g. Autonomous cars, predictive analytics to optimize logistics*

**MANUFACTURING**
Thin margins; repeatable tasks  
*e.g. Product assembly and testing*
Unlocking Value by Enabling People

Automation shifts the workforce away from manual labour towards cognitive, social and technology skills. Downward pressure on wages and increased productivity could unlock ~$200 billion in the O&G industry alone.

We still need people...

- How do you explain a decision made by machine learning?
- How do you remove bias in training data and algorithms?
Opportunities Across the Value Chain

AI is not ‘plug & play’ – it’s critical to clearly identify the problem you want to solve. Operating segments within O&G have different characteristics, which creates a spectrum of potential drivers.

**Upstream**
- Increasingly complex E&P projects
- Variable commodity price
- Increasingly remote / challenging locations
- Access to significant subsurface data and expertise

**Midstream**
- Relies on forecasts sensitive to external & cyclical factors
- Crucial to maintain facility integrity and reliability
- Projects constrained by regulatory hurdles and public opposition

**Downstream/Refining**
- Manufacturing/margin business
- Continuous optimization to respond to market conditions
- Technology drives efficiency
- Minimize facility downtime
- Maintenance and reliability

Access to substantial, diverse data sets
Zero tolerance for safety or environmental incidents
Capital intensive, with need to lower cost structures
Today: Expectations are High, Adoption is Low

O&G is consistent with other ‘digitally immature’ industries; companies see the potential but have been slow to develop and adopt AI.

Expectations for AI are high across all industries, but adoption is low, with the exception of ‘Big Tech’ and finance

- Only 20% of companies (across all sectors) have adopted one or more AI-related technology at scale or in a core area of business

- Early adopters are in industries comfortable with digital, with access to standardized data sets

- Focus on protecting or capturing margin, or development ‘net new’ products internally or for customers

Creates an opportunity to capture “early adopter” advantage
So, Are We Ready? Maybe.

AI is an enabler; not a disruptor
- It will help solve problems and empower employees
- Technology has traditionally been a job creator

At a macro-level, there are substantial opportunities
- O&G has a lot to gain from implementing AI, if it’s done properly
- Positive indicators of readiness exist
- History of technological innovation

Don’t skip the basics
- AI is not ‘plug & play’
- Achieve a state of ‘readiness’
- First need to understand the problem you want to solve
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