ENERGY SECTOR DIGITALIZATION

Benefits & Challenges

11th April 2018
Digitalisation is a journey, not a destination

Factors such as changing market forces, geo-politics, and innovation, have now reached the higher ‘barrier-to-entry’ industries.

70% of players swirl in an endless loop of ‘doing’ digital things – an illusion of being digital – rather than making changes to business, operating and customer models

Another 30% of players are somewhere between “Doing” & “Becoming” – there is a longer journey to make

Leverage traditional technologies to automate.

Leverage digital technologies to extend capabilities.

Changes to current business, operating & customer models

Leverage digital technologies - becoming more synchronized.

Profoundly different from prior business, operating & customer models

- No change to the organization
  - NOCs
- Same business, operating & customer models
  - OMCs, IOCs
- Changes to current business, operating & customer models
  - OFSs
The O&G sector needs to chart its own ‘digital journey’...

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<tr>
<th>What has worked for other industries...</th>
<th>...is not necessarily replicable for O&amp;G</th>
<th>...however, there is hope!</th>
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<td>‘PLATFORMING’ DRIVING THE ‘SHARED ECONOMY’</td>
<td>Complex, diverse data sources, Proprietary nature of assets and data</td>
<td>Digital Twin for Asset Simulation</td>
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<td>Uber, Airbnb, WeWorks...</td>
<td>One of the oldest and highly regulated industry globally</td>
<td>Companies are increasingly investing in technologies to simulate and predict asset performances</td>
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<td>CROWDSCOURCING</td>
<td>Huge number of incumbents across the value chain</td>
<td>AI for Oil &amp; Gas Production Optimization</td>
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<td>Tripadvisor, Spotify, Zomato...</td>
<td>Scale of operations, core business is CAPEX intensive</td>
<td>Norway based start-up developed hierarchical neural network model for real time production optimization</td>
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<td>CONSISTENT DATA ARCHITECHTURE</td>
<td>Unpredictability of earth science; diversity across value chain</td>
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<td>Amazon, Google...</td>
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<td>‘START-UP’ / BOOTSTRAP BUSINESSES FUELED BY DEMAND</td>
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<td>Facebook, Snapchat...</td>
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<td>SCALED ECOSYSTEMS PROMOTING INNOVATION</td>
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<td>Android / Apple ecosystems...</td>
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The Indian O&G industry could potentially unlock ~$1.5 – 2 Bn through Digital interventions over next 10 years...

**Upstream**

**PRODUCTION ENHANCEMENT**
For India, digital interventions around production enhancement could help reduce the import bill.

$0.7 – 0.9 bn\(^1\)

**Midstream**

**ASSET MANAGEMENT**
Given the asset intensity in the midstream sector, Tools to improve asset productivity will remain a priority.

$0.2 bn\(^2\)

**Downstream**

**CAPITAL PROJECTS**
~ $195 Bn of investments envisaged across the downstream Oil & Gas industry over the next 10 years in India. Optimization of CAPEX will be a focus.

$0.6 – 0.9 bn\(^3\)

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\(^1\) Digital production enhancement technologies are typically deployed on large oil fields and can increase production without additional CAPEX; select global use cases and Deloitte Analysis.

\(^2\) Maintenance cost is a significant proportion of overall OPEX for Midstream sector and digital interventions like predictive maintenance, smart metering, smart transportation, asset performance monitoring will help reduce costs; Deloitte Analysis.

\(^3\) Investment in Indian downstream O&G sector is estimated to be ~195 Bn over ten years (2016-25); Digital interventions will help advanced analytics in project management and reduce delays ensuring capital investment savings; Deloitte Analysis.
Adoption barriers until singularity...

Industry needs to drive a culture of innovation and technology adoption across the oil & gas value chain.

Oil & Energy is ranked 4th 'Top Declining Industries For Millennial Job Switchers'¹

Avg employee age across Oil & Gas is 42 while that for IT/ITeS sector is 32²

Lack of integration

Incumbents operating in silos; disparity of data packets leading to non-integrated systems

Much of the data coming in is not standardized or integrated across platforms.

Disparate regimes; ~60% of Global Oil prod comes from non-concession regimes.

Energy geopolitics doesn’t not completely encourage innovation

Fostering enabling ecosystems

Policy-makers, governments, industry incumbents and wider society need to come together; help build the innovation ecosystem to unlock value

¹ The Top Industries Gaining and Losing Millennials – LinkedIn, 2017
² Statista: Median Employee Age Analysis, Business Insider; Deloitte Analysis
OIL MAY RUN THE TOWN

BUT DATA RUNS THE OIL.

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