

# The digital transformation of energy & industrials

Bank of America 2021 Digital Energy Conference

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EVP of Regions, Alliances & Enterprise Sales

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# Digitally transforming the energy and industrial sectors



## Industry demands

Remote operations and automation

Asset availability and optimized maintenance

Process and production optimization

Emissions reduction



## Critical digital capabilities

Secure, interoperable technology

Hybrid physics-based software

Expert services teams

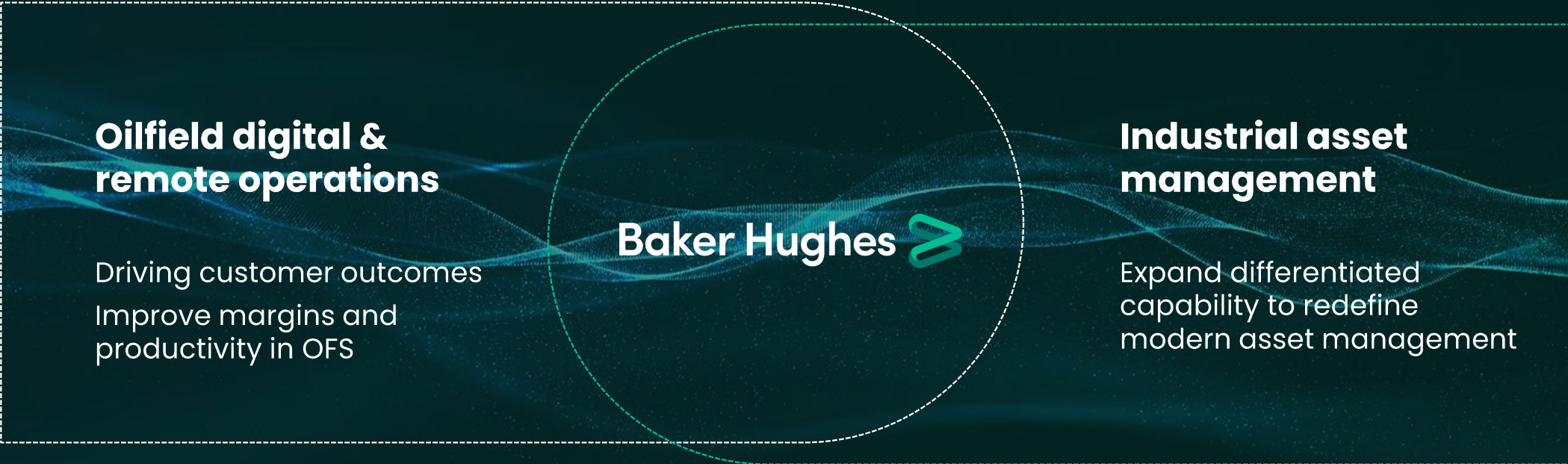
Enterprise scale AI



**TRANSFORMATION  
IMPERATIVE**

**CLEANER ... SAFER ... MORE EFFICIENT**

# Differentiated digital offerings for customer outcomes



  
BakerHughesC3.ai

**Enterprise AI by BakerHughesC3.ai**  
Accelerate core digital offerings

# Evolving Enterprise AI

## February 2021

Open AI Energy Initiative (OAI)



## February 2021

PETRONAS adopts BHC3 technology



## March 2021

BHC3 Production Schedule Optimization released



## June 2021

KBC adopts BHC3 technology



## September 2021

MEG Energy deploys BHC3 technology



## Customer use cases



### Global chemical company

Democratization of data science across engineering and operational teams



### US chemical manufacturing company

AI and machine learning to optimize steam use and maximize clean power generation



### Shell

Extension of BHC3 AI Suite use to address reliability, asset integrity, and process optimization with enterprise AI applications.



### Bentley Nevada and BHC3

Driving collaboration on BHC3 accelerating predictive intelligence to System 1 condition monitoring





# Oilfield digital offering

## ABOUT OUR PORTFOLIO




**1**  
global team across 12 countries

**~15k**  
OFS field engineers supported

**19**  
24/7 remote operations global customer support centers

**~30% / ~70%**  
External / internal user mix

**90+**  
Customer service NPS score

DIGITALLY ENHANCED OILFIELD SERVICE DELIVERY			
SOLUTIONS	 <b>Well Planning</b> Integrated well planning experience built around the user	 <b>Well Construction</b> Data science paired with best-in-class drilling & completions services	 <b>Well Production</b> Maximized output and efficiency on production asset operations
	<b>Remote Operations</b> Infrastructure, processes, training, & automation solutions to run and monitor equipment from offsite	<b>Data Management</b> Systematic, automated process for data aggregation, standardization, & maintenance of unified repository	<b>Advanced Analytics</b> Physical and operational models layering AI, ML, & domain expertise, for better, faster, more informed decisions
CAPABILITIES			

# Scaling remote operations with Saudi Aramco

*Largest deployment of remote operations in Baker Hughes' history*

## Objectives

Consistent access to real-time data across fields, wells, service providers

Increased automation for improved safety and performance

## Deployment

Concurrent data aggregation from 200+ sites

Integrated data streaming of oilfield data

WellLink software applied across the field for real-time drilling insights

100+ team – 95% localized

**Accelerating  
deployments  
with Enterprise AI**






Analyzing historical oilfield data at-scale

Trends analysis and anomaly detection using machine learning

Predictive intelligence to improve performance across the upstream

# Industrial Asset Management

Technology and Engineering Expertise Accelerated by Expansive, Intelligent Digital Solutions

INTEGRATED APM		Asset Control & Security	Emissions Management	Asset Inspection & Integrity
Asset Performance Management	Asset Strategy			
 <ul style="list-style-type: none"> <li>• 60+ yrs of Bently Nevada condition monitoring</li> <li>• System 1 installed base</li> <li>• Cloud-enabled integrated APM software platform</li> <li>• Improved availability, reliability, and facility uptime</li> </ul>	 <ul style="list-style-type: none"> <li>• Acquisition of ARMS Reliability</li> <li>• Combining maintenance, performance &amp; asset strategies</li> </ul>	 <ul style="list-style-type: none"> <li>• Equipment Process Control</li> <li>• Asset / equipment cybersecurity</li> <li>• Mitigate risk, boost safety</li> </ul>	 <ul style="list-style-type: none"> <li>• Investing in emissions management to provide holistic &amp; flexible enterprise solutions</li> <li>• Broad optionality across digital architecture to connect to customers' Enterprise Asset Management software</li> </ul>	 <ul style="list-style-type: none"> <li>• Non-destructive inspection for energy &amp; industrial infrastructure</li> <li>• Pipeline inspection solutions</li> <li>• Advanced robotic inspections</li> <li>• Computer vision &amp; image ingestion software</li> </ul>



Increased performance



Improved focus & ROI



Sustainability Gains

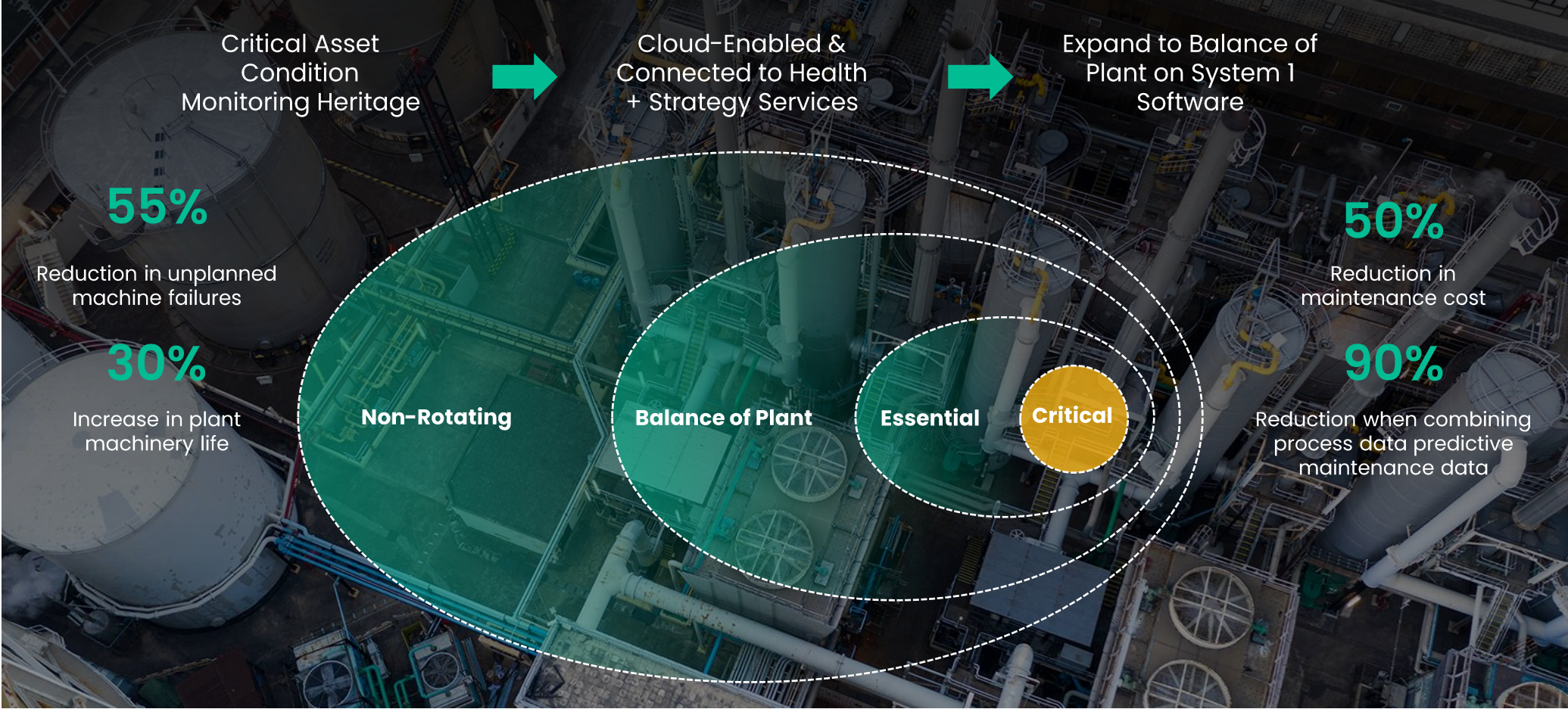


Informed priorities



# Scaling Industrial Asset Management

Integrated APM drives differentiation with holistic asset expertise



O&G Upstream



O&G Mid, Down, & Chemicals



Pulp & Paper



Metals



Mining



Renewable



Thermal Power

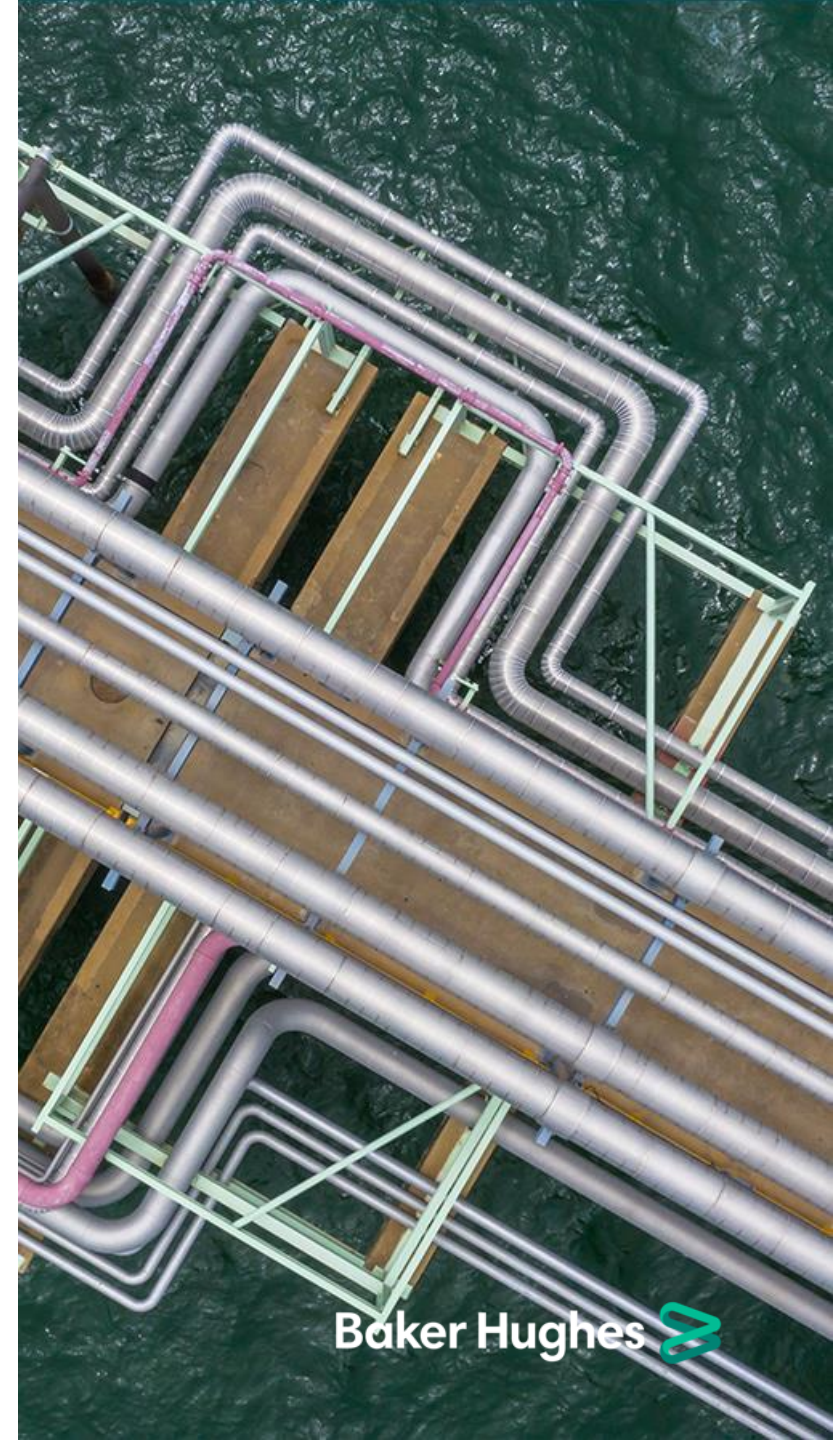


Aero & Auto



# Taking digital forward

- Digital is an enabler of energy and industrial technology
- Baker Hughes driving digital transformation
- Domain-specific, differentiated digital portfolio
- Remote operations driving safer, cleaner more efficient operations in upstream
- Industrial asset management a significant opportunity for industrial energy technology
- BHC3.ai is an AI accelerator across our digital portfolio
- Continued digital growth from organic innovation, collaborations, and partnerships



**Baker Hughes** 