



India | New Delhi

Parallel Roundtable 3: Energy Sector Digitalization; Benefits and Challenges



Introduction

Market Context

- Industries are going through digital revolution and it has started to reshape each and every one of it
- Though digital is at a nascent stage in O&G industry but players are developing sophisticated initiatives in digital space
- Digital is significant in India and will go beyond 3Ms - males, millennials and metro



Session Objectives

- What technologies today constitute digital?
- To observe themes driving digital investments across O&G industry and how some of the majors are deploying and benefitting from it
- To understand the key challenges in the deployment of digital in Oil and Gas

Key Question: How is digitalization making oil, gas and power sectors more efficient and resilient? What is the role of inventory data, will stocks become more transparent in the digital age?

Digital is a “tremendous rate of change” with an ubiquitous front end



By 2030, the cloud will have more raw computing power than all human brains together



2X growth in connected devices per household—25 (2017) to 50 (2020)



1 internet minute means



0.9Mn logins



156Mn emails



\$0.7Mn spent



4 billion of the world’s internet users, will spend a staggering 1 billion years online in 2018

Digitization has started to re-shape the complete industrial world

Industrial Internet

- Tracking (location & temperature) of refrigerated shipping container



Big Data & Analytics

- Gene sequencing for agricultural production



Mobile & social

- Advanced mobile service assistance



Cloud

- SaaS based process engineering tools



Augmented reality

- AR-based assistance in warehousing



Simulation

- 3D real-time factory simulation for design and monitoring



Cyber security

- Industrial cyber security for process industries



Horizontal & vertical integration

- Plant engineering integrated with process control system



Additive manufacturing

- 3D-printed fuel nozzles in the combustion system



Autonomous robots

- Human collaborative robots working side-by-side with workers

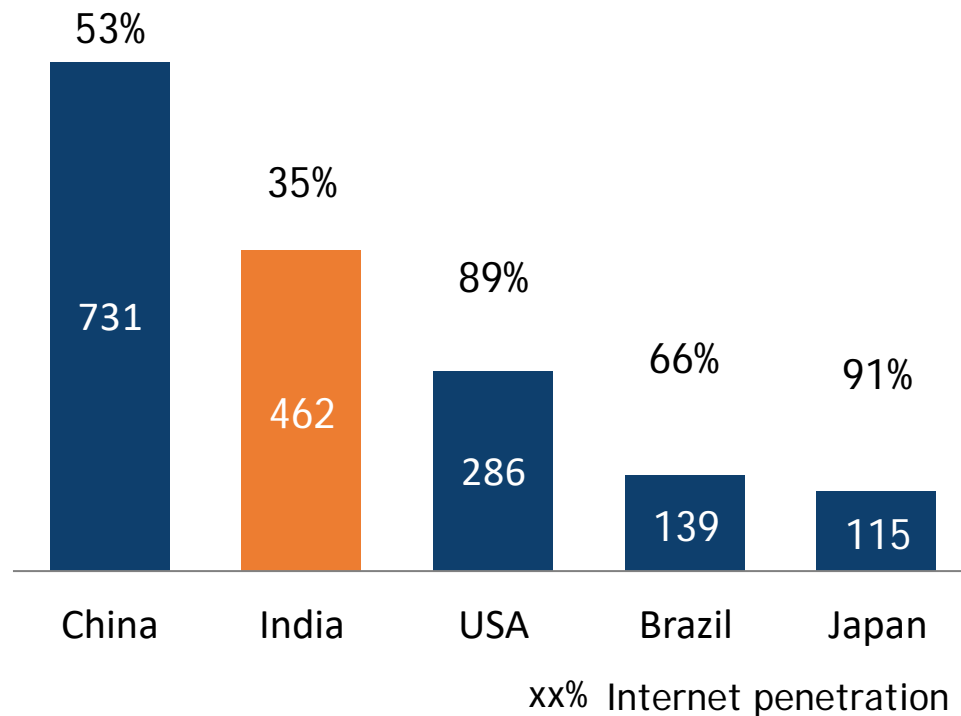


Digital in India is already significant and will continue to grow

India today has the 2nd largest base of internet users in the world

Internet users to further increase, driven by the rise in smartphone use

#internet users (Mn)



650 Mn > Internet users in India in 2020

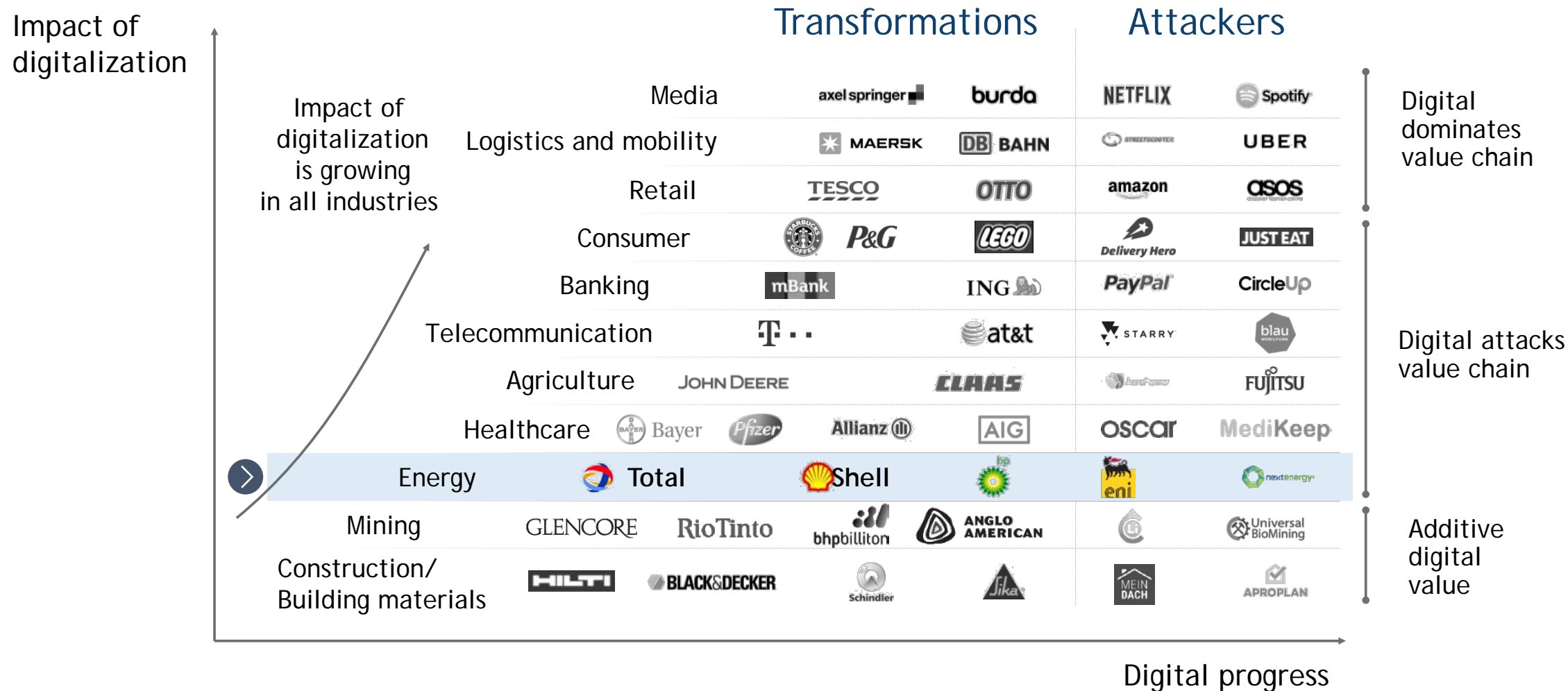
80% > Users to access internet from phones v/s 70% today

13% > Growth in Indian smartphone market vis-à-vis 3% globally

Digital to go beyond 3M's—males, millennials, metro

	Segment	2016 (Mn)	2020 (Mn)	Δ
People who we think use internet in India...	Millenials (<34 Yrs)	244	436	1.8
	Male	231	390	1.7
	Metro/T1	96	150	1.6
... but many others beyond the stereotype are online	Not So Young (35+ Yrs)	86	214	2.5
	Female	99	260	2.6
	Non-metro	234	500	2.2

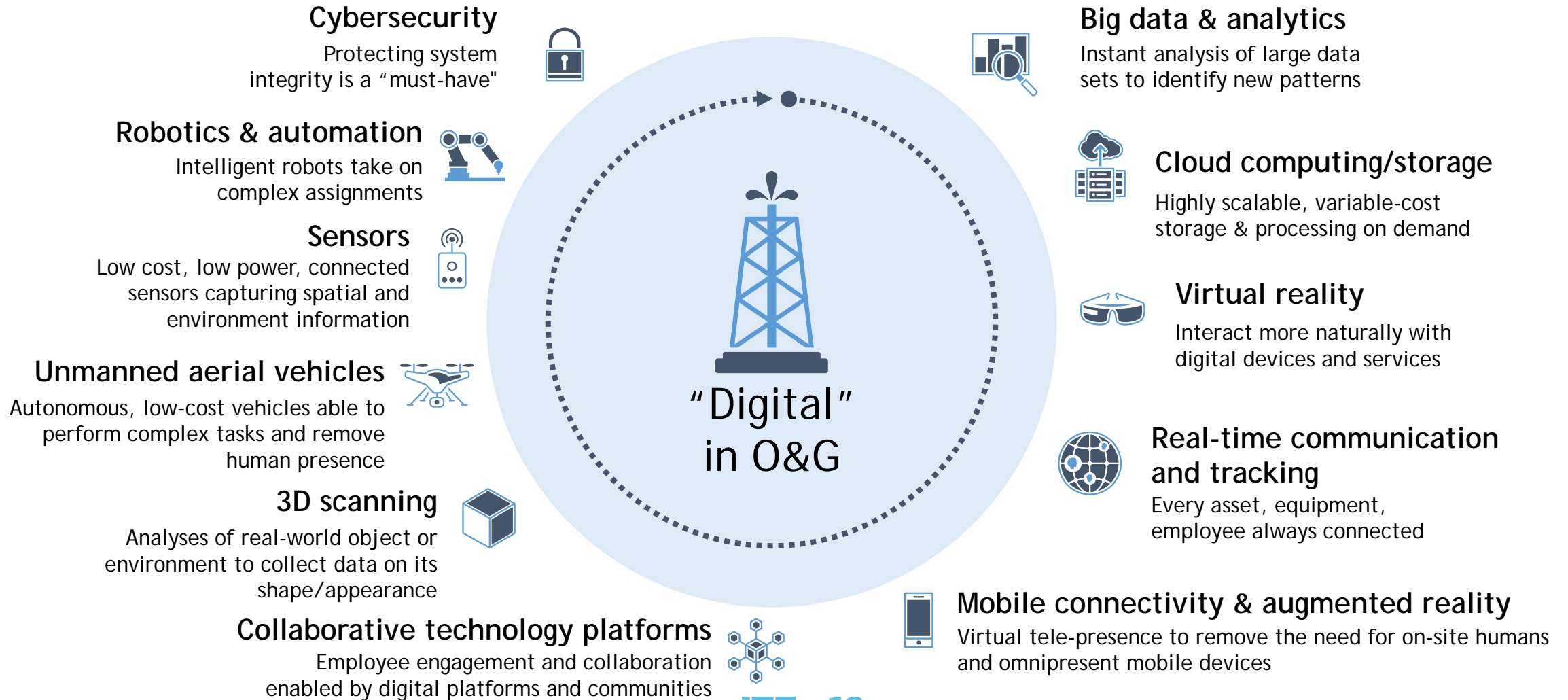
Digital is still nascent in Oil and Gas but could cause significant disruption



Source: BCG analysis

Parallel Roundtable 3: Energy Sector Digitalization; Benefits and Challenges

“Digital” in O&G: 11 themes are driving innovation in leading global companies



Source: BCG analysis

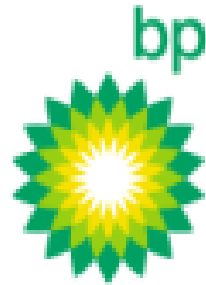
Parallel Roundtable 3: Energy Sector Digitalization; Benefits and Challenges

Oil & Gas players are already developing sophisticated initiatives in the digital space

Illustrative



Digital oilfields controlled from a unique Real-Time Drilling Optimization Center
UAV for pipeline inspections



Analytics driven predictive maintenance
Digital initiatives in retail (customer segmentation and loyalty)



Submersible robot for Ocean exploration
Immersive 3D training simulation



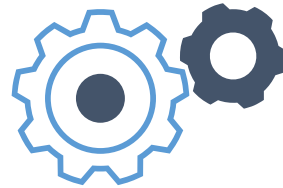
Real time production optimization through big data and machine learning

However, companies are hindered in their “digitalization” by internal roadblocks



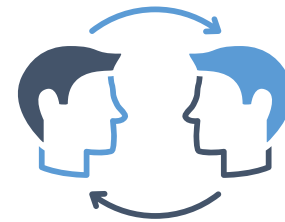
Digital talent crunch

72% of CEOs struggle to source the right digital talent¹



Dated processes

74% high digital decision-makers do not fully agree that their operational process is ready to execute their digital strategy²



Cultural obstacles

“The biggest challenge is cultural change”³



Inadequate investment in digital infrastructure

Only select cos are investing in state of the art digital infrastructure

Source: World Economic Forum, “Four themes of becoming a digital enterprise”, “Digital Transformation In The Age Of The Customer”, October 2015, Interview of V. Fauvel in “Transformation Digitale 2016” by EBG, IBM and BCG

Key Questions

- 1 What are some of the most practical areas where digital can help an O&G company in the short term (1 to 3 years)?
- 2 How can one insure smooth infusion of technology into traditional O&G business/companies without disrupting it?
- 3 What is the role of inventory data, will stocks become more transparent in the digital age?



India | New Delhi

Parallel Roundtable 3: Energy Sector Digitalization; Benefits and Challenges

Background Paper

