



India | New Delhi

# Parallel Roundtable 1: Refining and Petrochemical Sector; New Growth Potentials and Rationalization

## Background Paper



# Disclaimer

The observations presented herein are meant as background for the dialogue at the 16<sup>th</sup> International Energy Forum. They have been prepared in collaboration with The Boston Consulting Group and should not be interpreted as the opinion of the International Energy Forum or The Boston Consulting Group on any given subject.

# Introduction

## Market Context

- Technological disruptions are creating new challenges for the refiners
- Demand for oil is shifting towards petchems as growth from transport sector is expected to slow
- Refiners need to be more proactive to respond to shifting demand to ensure value creation and supply security



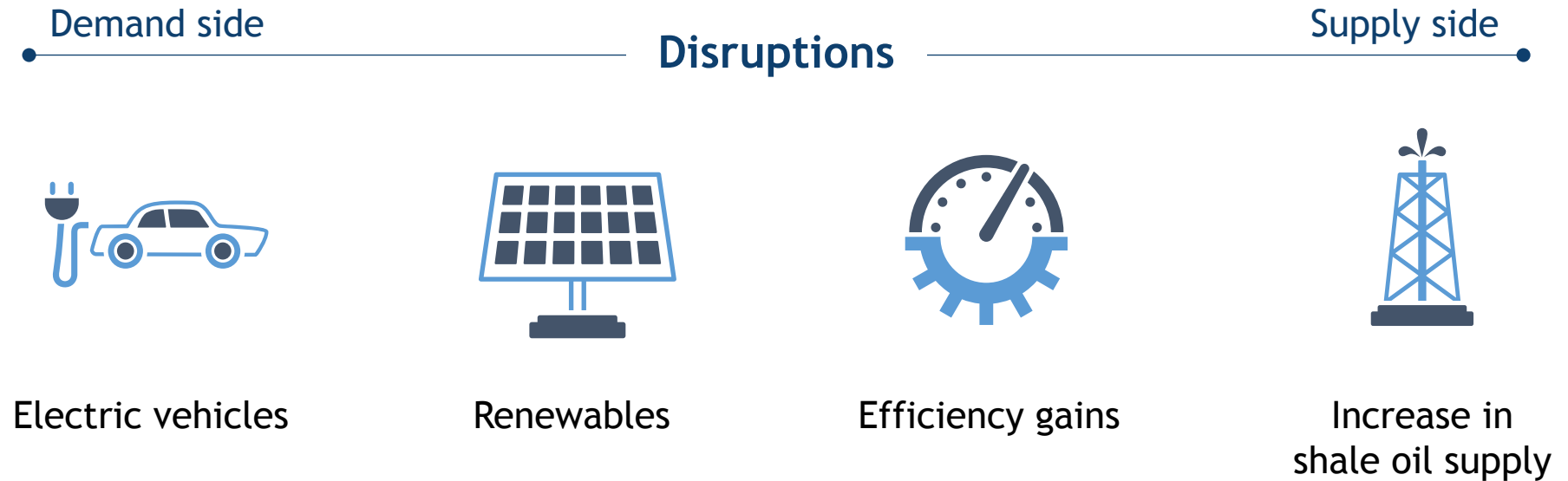
## Session Objectives

- Discuss how shifting demand is impacting refining and petchems sector and its long term implication
- Why O&G companies should recalibrate their strategy and move downstream to petchems
- To suggest key success factors that would enable transformation and value creation for O&G players

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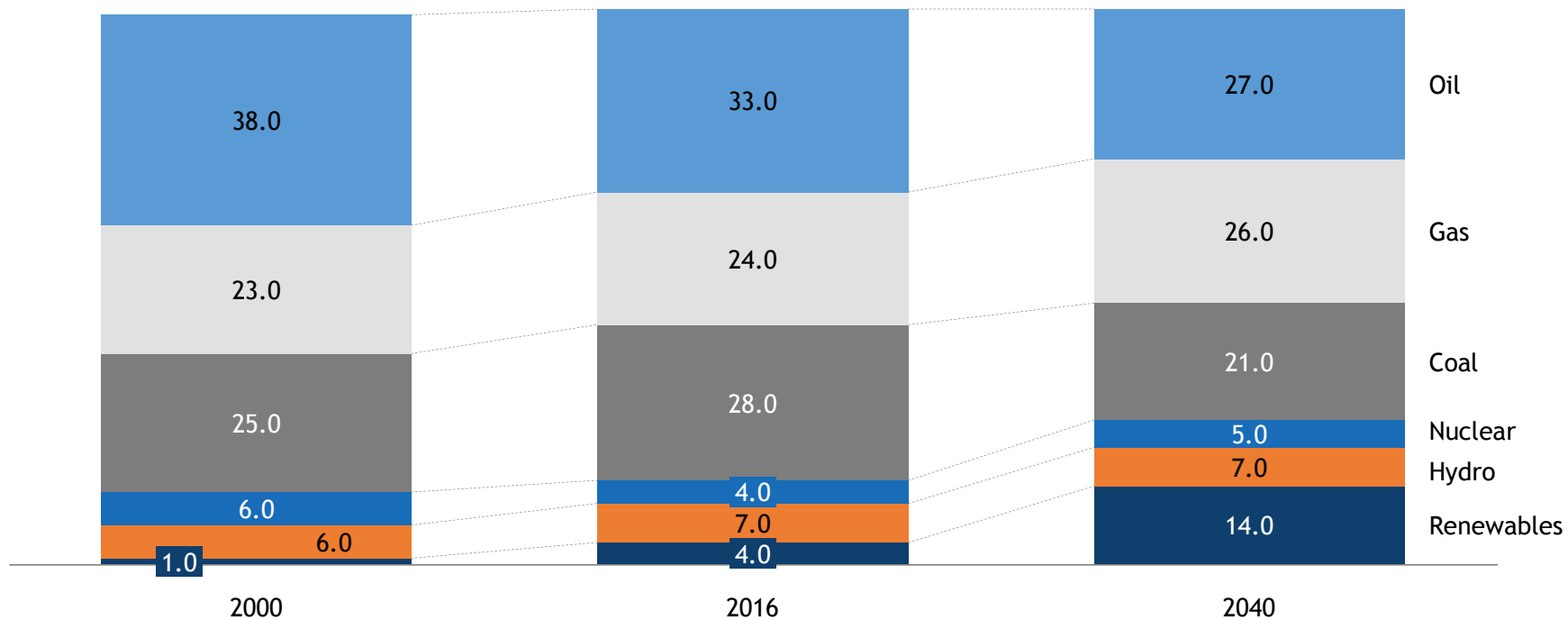
**Key Question:** How do global shifts affect the refining and petrochemical sector? How do we ensure that supply chains are sufficiently resilient to respond to disruptions, energy transition, and shifting demand?

# Technological shifts are reshaping energy sector



# Changing the primary global energy mix

Fuel-wise shifts in primary energy demand (2000-2040) in %



# With oil demand growth slowing, refiners face 3 key challenges going forward

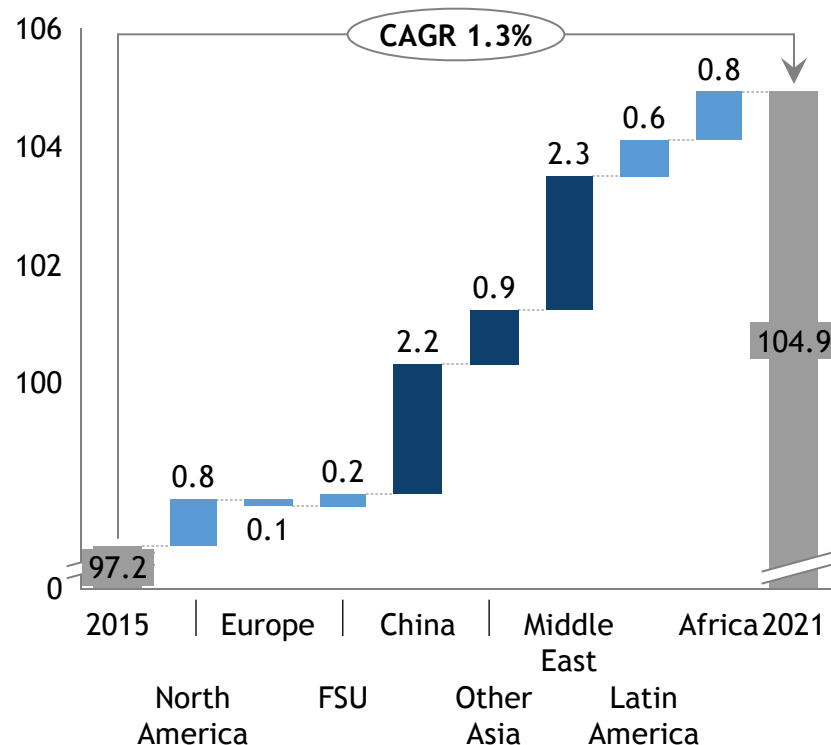
- 1 Supply is outpacing demand**  
Gap between supply and demand of refined products to further increase by 1.2 Mb/d during 2017-21, to reach 3.3 Mb/d
- 2 Refining margins are heavily impacted**  
Margins for heavy distillates expected to turn negative across regions post 2030
- 3 Refinery closures to continue in order to rebalance the market**  
Net closure level of 1.41 Mb/d is estimated for the period 2018-2022 Europe to lead with ~43% of these closures

# As demand for oil falls and new capacity comes online in Asia and ME, excess capacity increases by 1.2 Mb/d

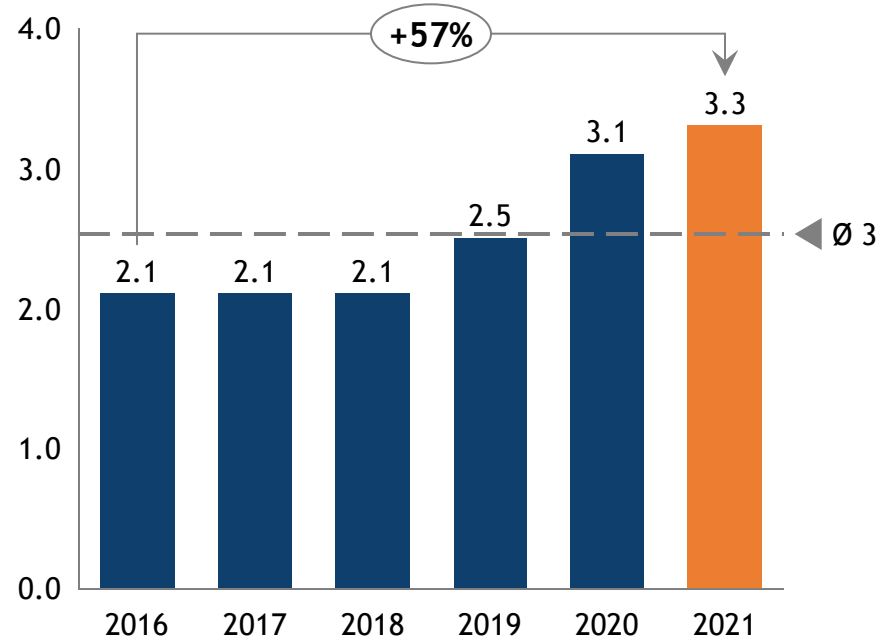
Global refinery crude distillation capacity set to increase by 7.0 Mb/d by 2022

Leading to the situation of oversupply in market

Million barrels per day

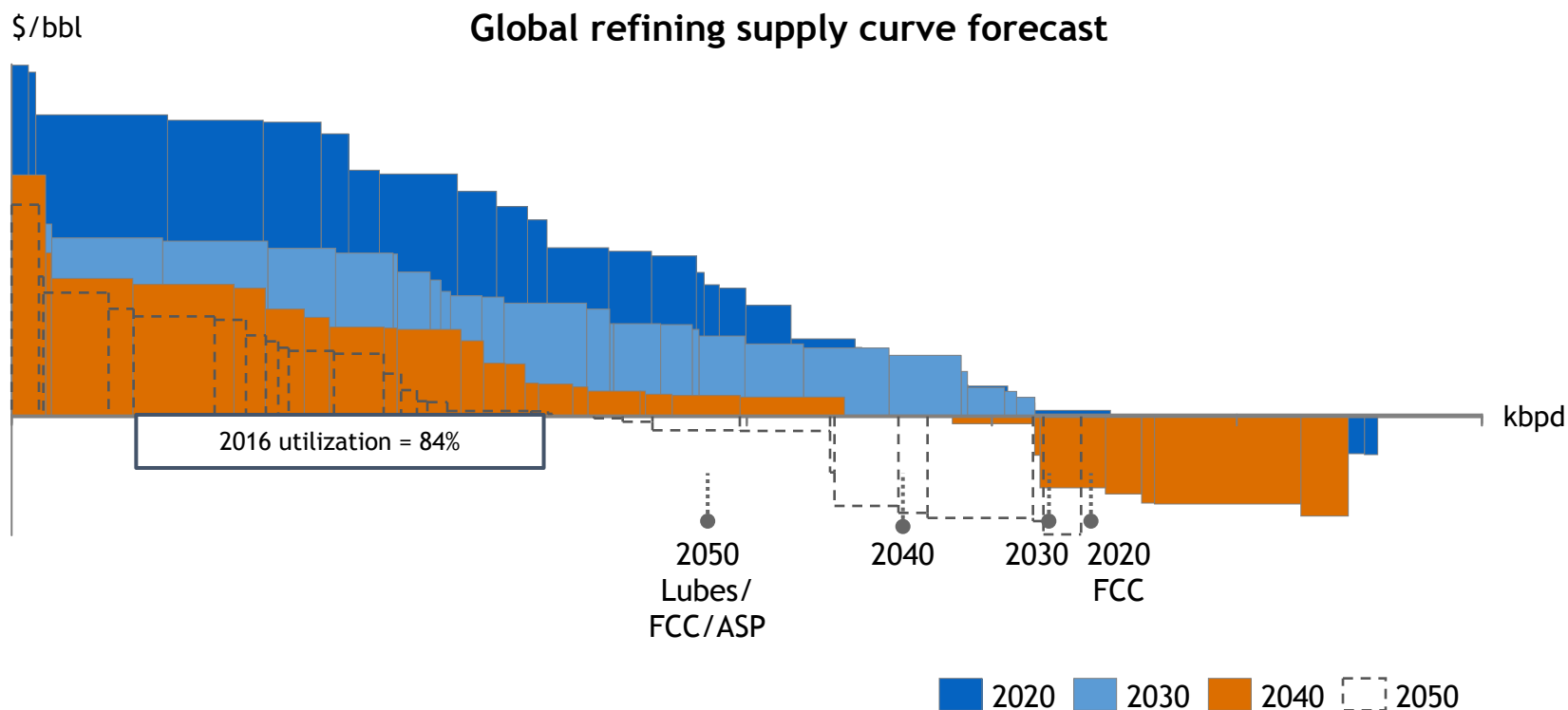


Million barrels per day



Supply outpacing demand

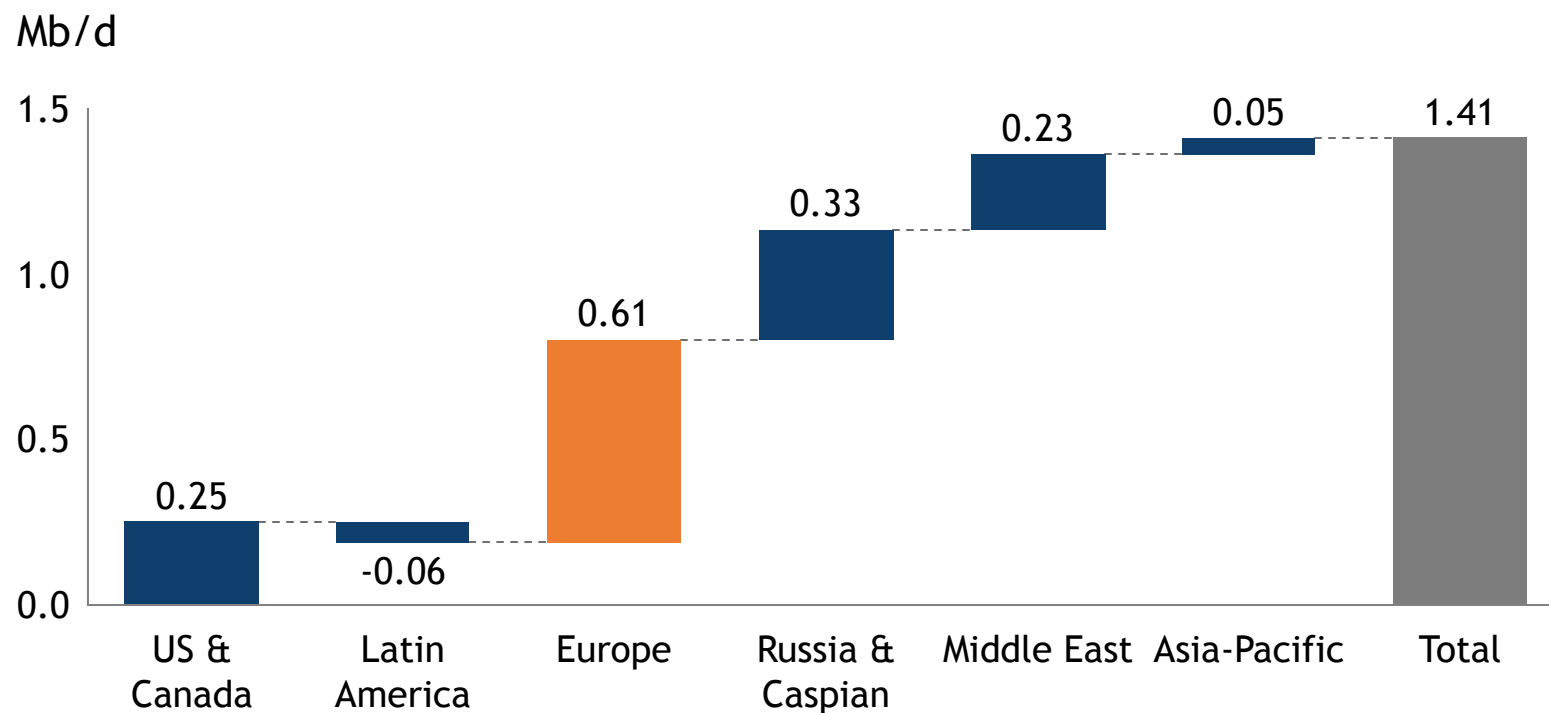
# Refining margins impacted: Increased surplus is heavily impacting future margins of refiners





# Multiple capacity closures planned to balance global refinery market; Europe to lead with majority of closures

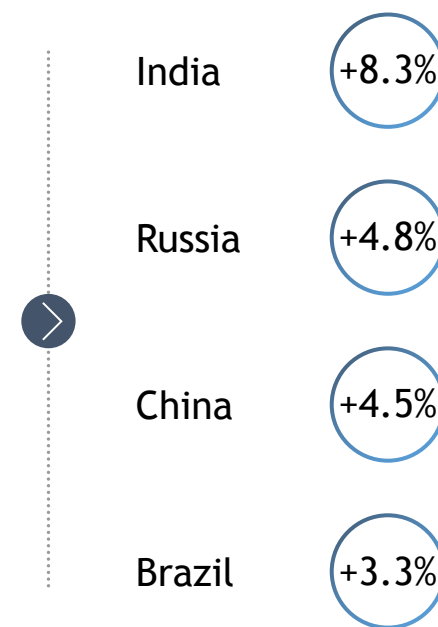
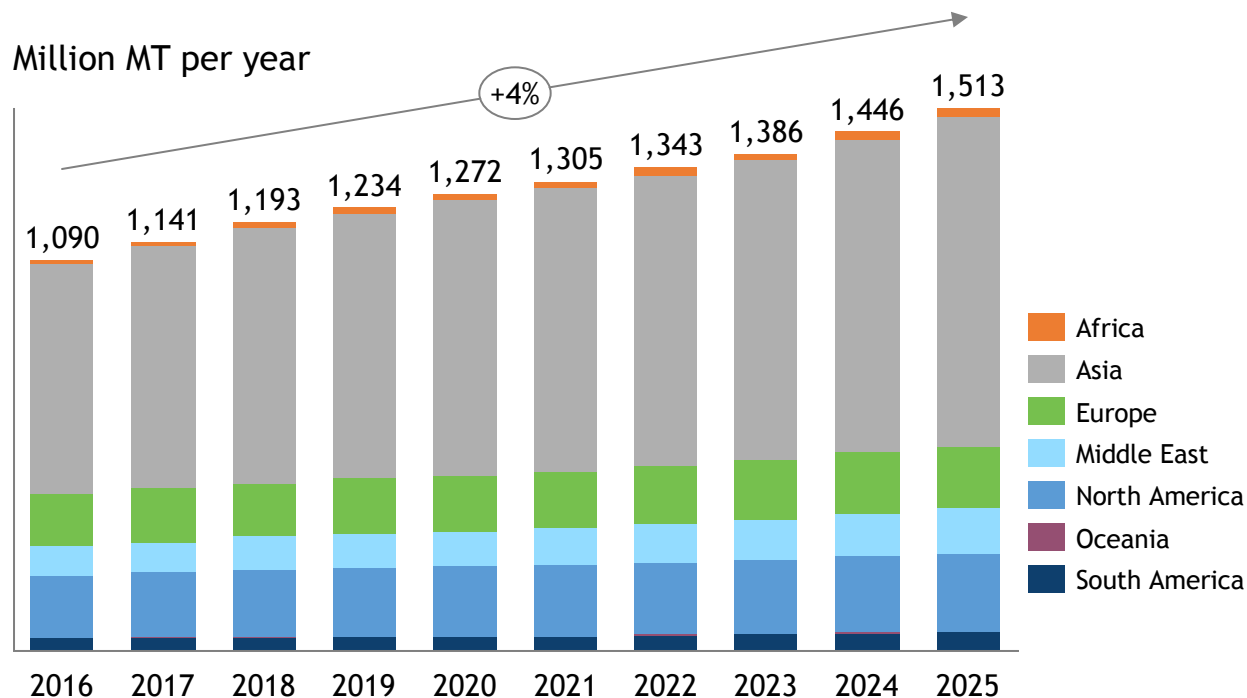
**~1.4 Mb/d net refinery closures expected during 2018-2022 period**



# As demand for oil in transport declines, petrochemicals demand is expected to grow, driven by emerging countries

Expected global demand for petrochemicals in medium term

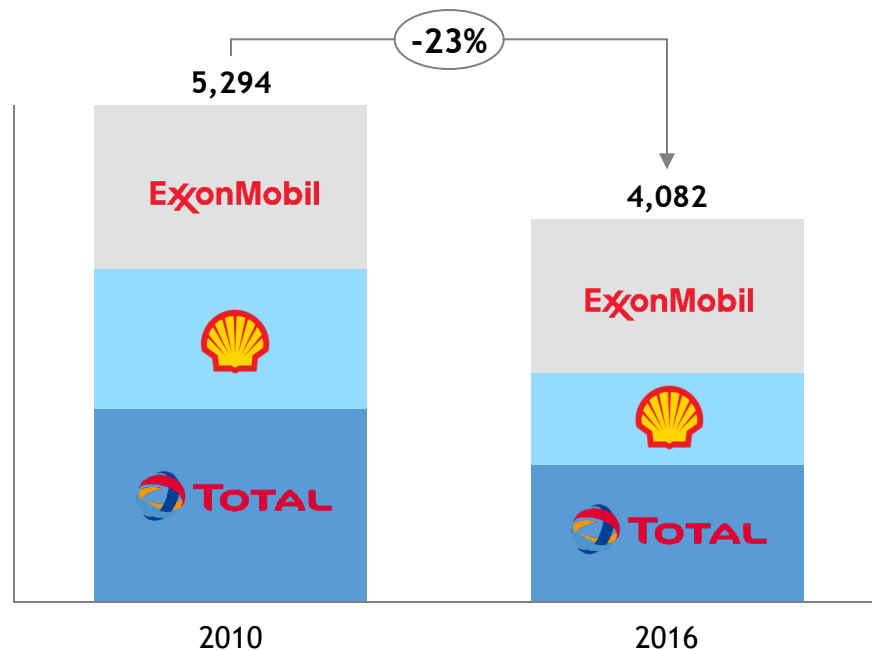
India growing at faster rate than global average



# As a result, O&G majors look to reduce refining exposure and invest in higher margin petrochemicals segment

**Big oil players are decommissioning underperforming refining assets**

Refining capacity in WE (Kbpd)



**While they are ramping up petrochemicals CAPEX...**

## ExxonMobil

Mar 13, 2018 :Exxon planning multibillion-dollar Gulf Coast expansion that would boost Baton Rouge refinery



Feb 27, 2018 : Saudi's SABIC in talks to join Shell in Iraq's Nebras petchem project

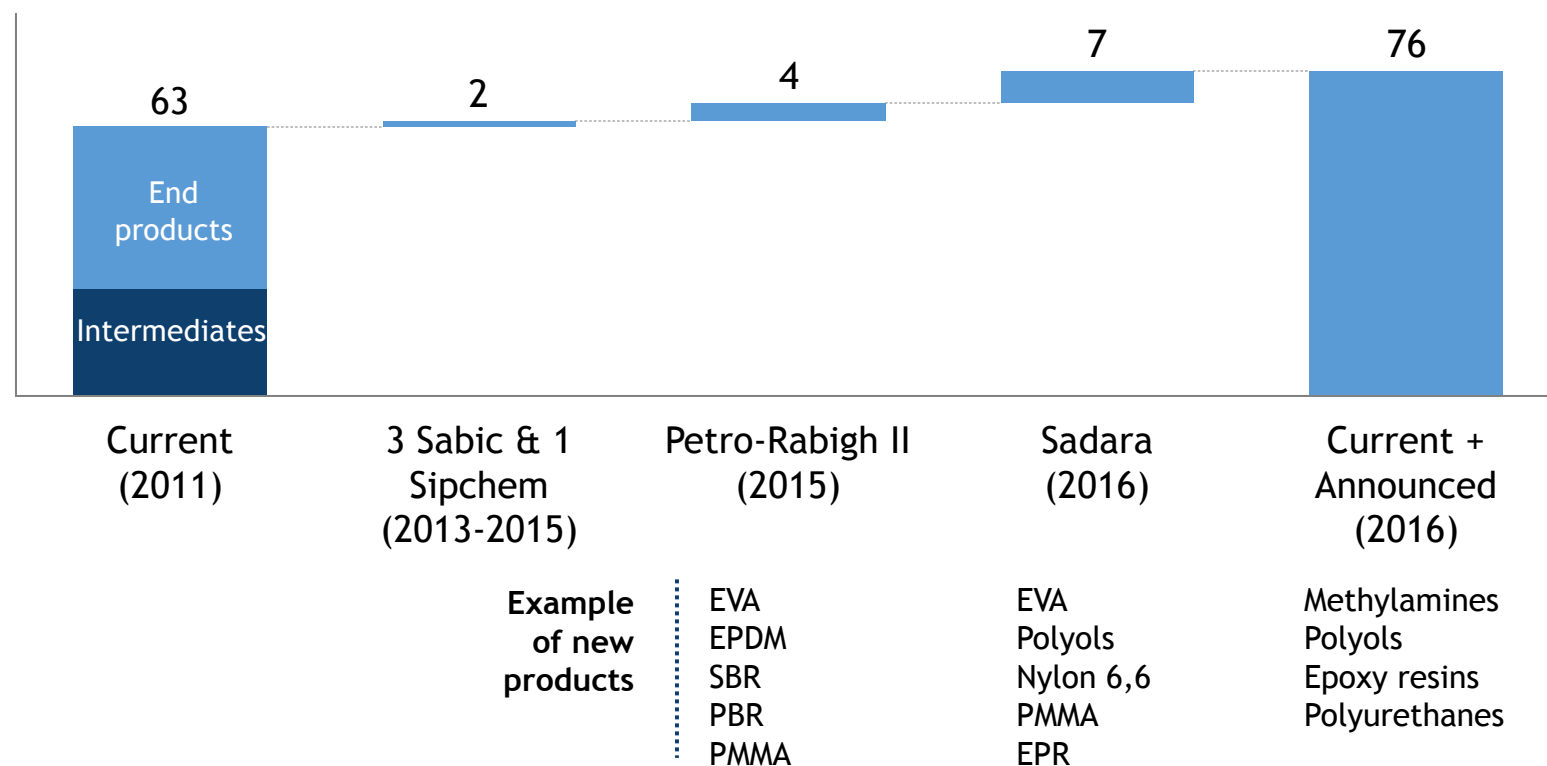


Jul 7, 2017: Total nears deal to invest up to \$2 billion in Iran's petrochemical industry

# Specifically, companies in the Middle East are extending downstream towards more value added products

## Saudi Arabia total petrochemical capacity by 2016

Capacity (MTA)

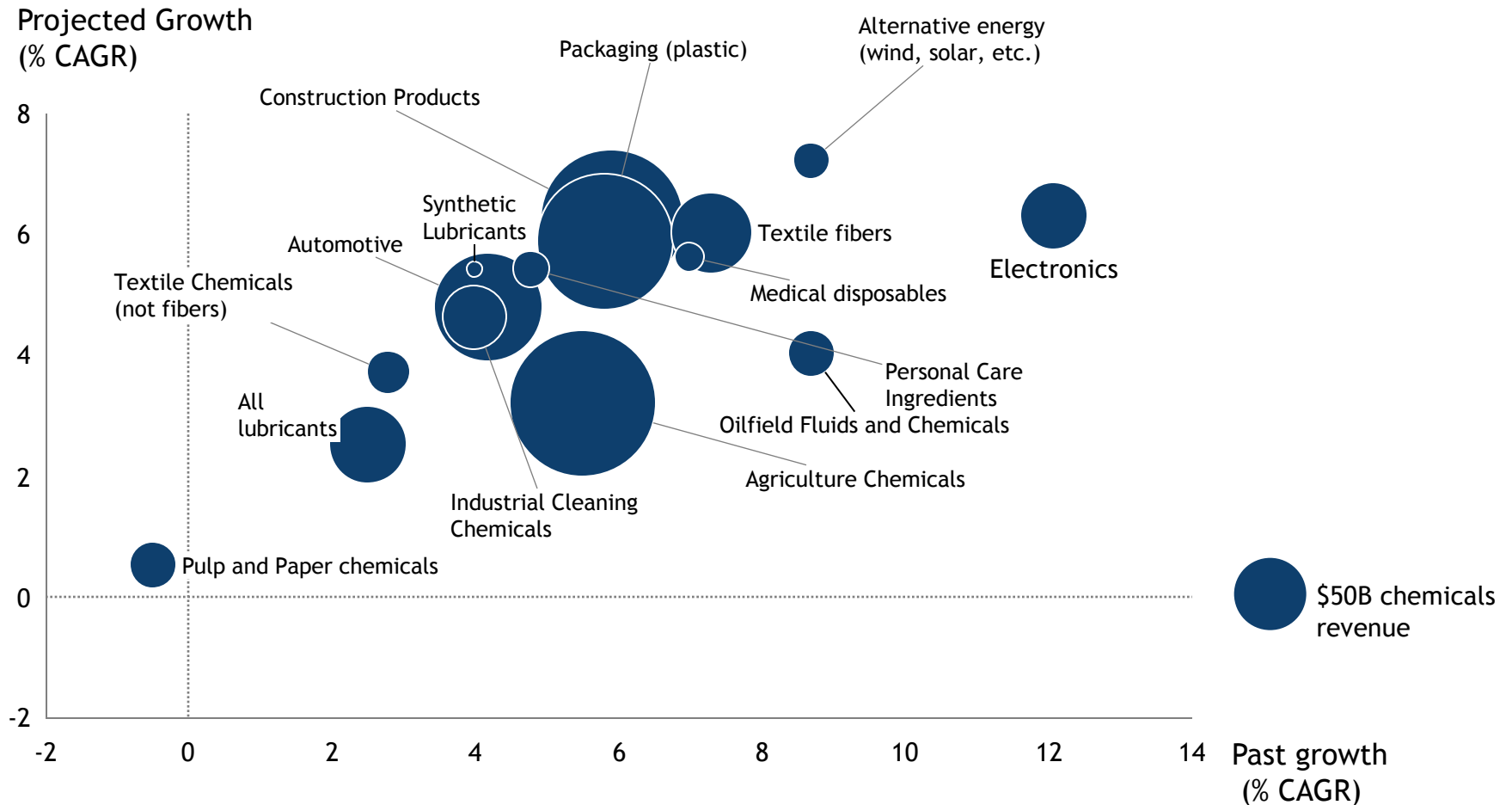


Note: Total capacity includes intermediate and end products

Source: Client data; BCG analysis

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# Auto, construction and packaging sectors are going to lead petrochemical consumption



Note: Forward growth next 3–5 years. Trailing growth last 3–5 years for most sectors. Lubes/syn lubes presence treated same as automotive. Ag chems only fertilizer, pesticides. Surfactants not included

Source: BCG analysis

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# O&G companies should consider three key factors for ensuring supply security and value creation



## Scenario planning

3 likely scenarios could emerge in future companies should make flexible long-term plans accordingly



## Digital

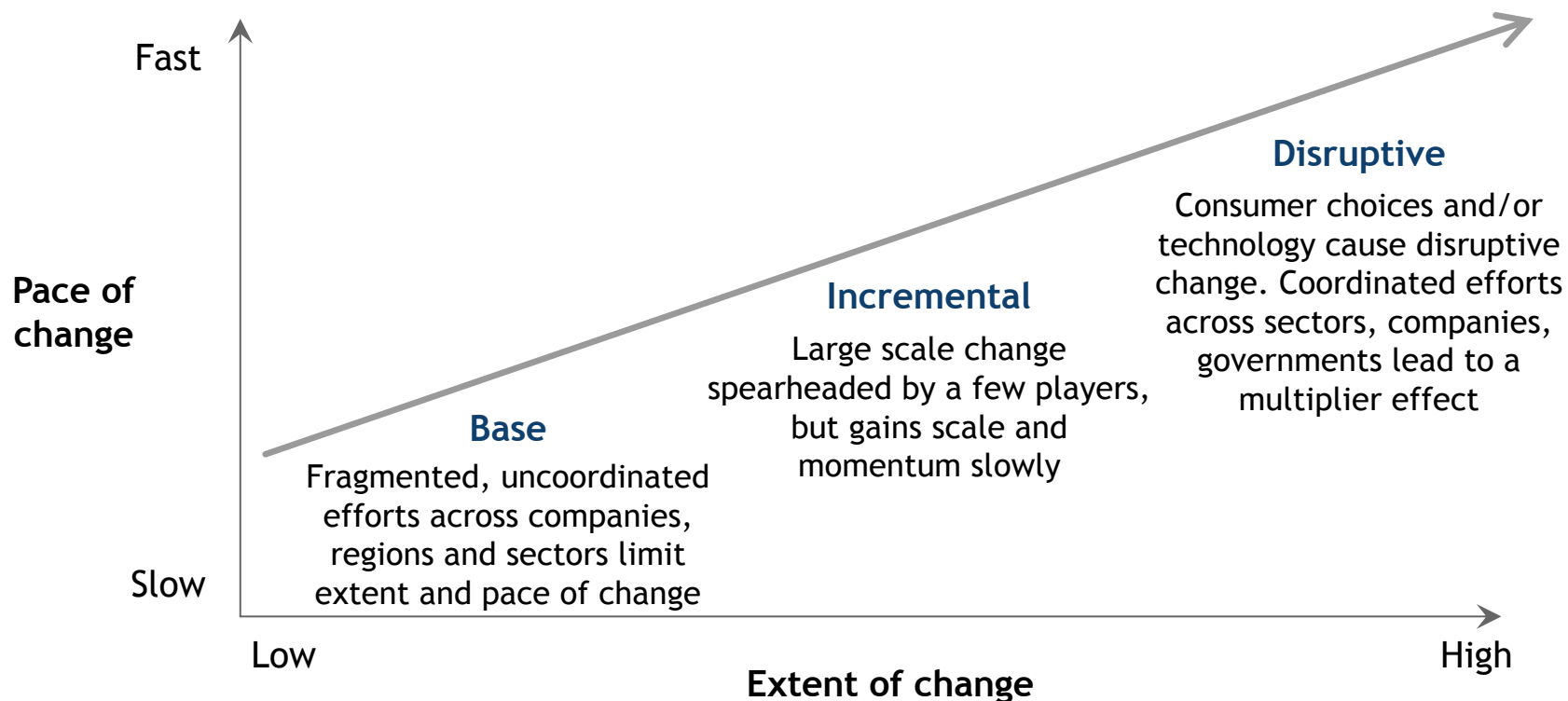
Digital has the potential to create opportunities across the chemical value chain and unlock significant value



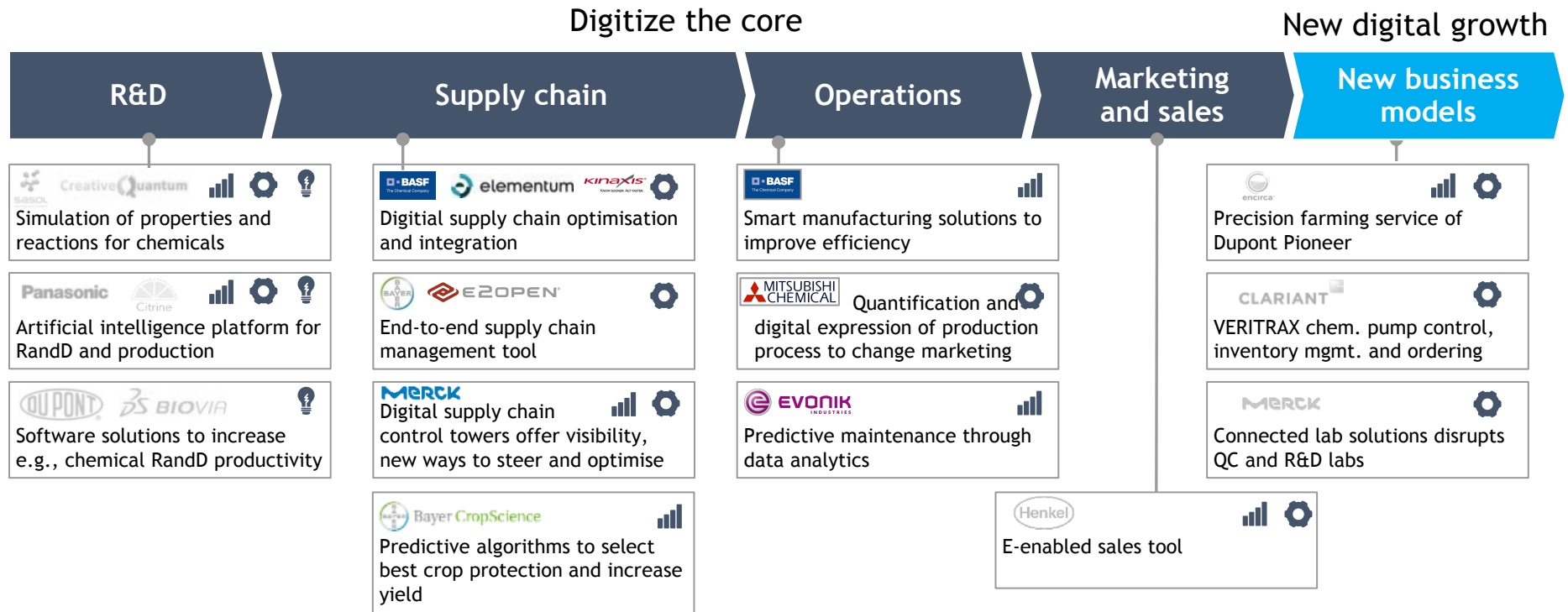
## Consolidation

Consolidation within petchems sector could enable transformation

# Scenario based planning: 3 potential scenarios could emerge in the future



# Digital has potential to create opportunities across the chemicals value chain



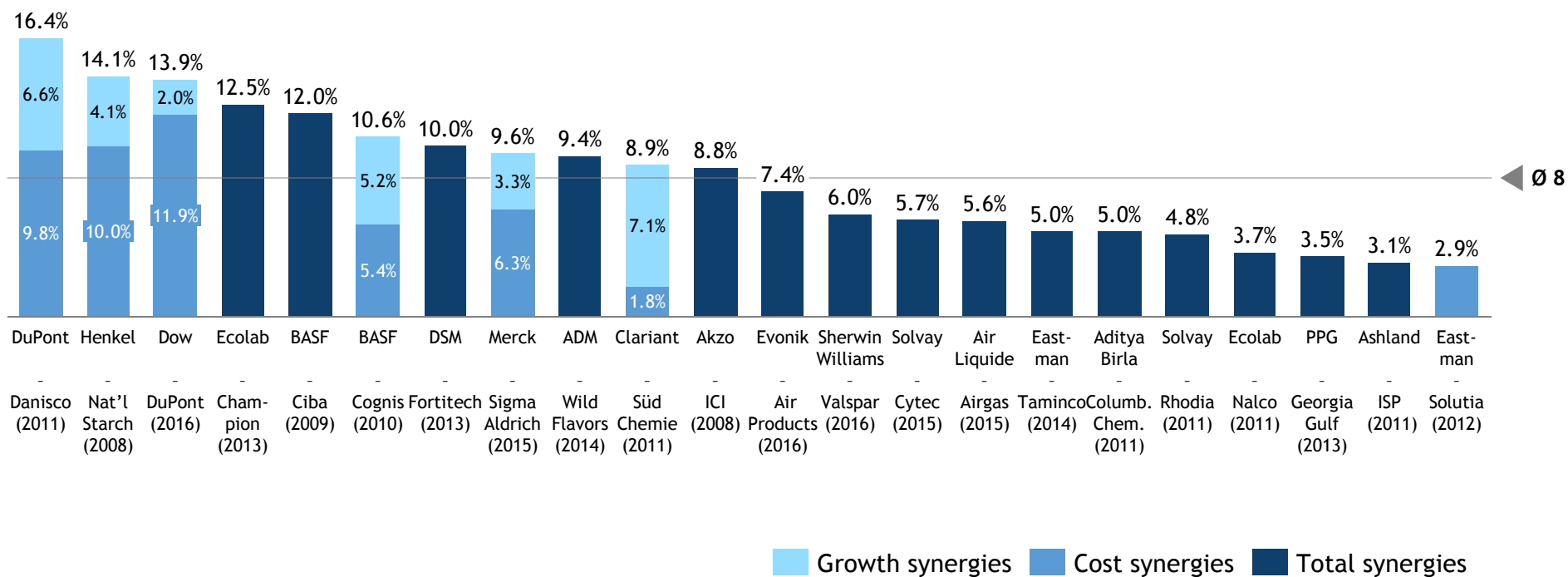
Big data  
 Digital service  
 New business model



# Consolidation: our analysis shows that consolidation creates growth and cost synergies on an average of 8%

## 2008-2016 acquisitions in the chemicals industry

Synergies as percentage of target company sales



# Petchem companies to actively consolidate to enable transformation

- **Become a market leader** via segment consolidation and roll-up (Ineos–PVC, Styrenics Indorama–PET, LANXESS– additives)
- **Portfolio migration towards more coherence** for superior shareholder returns (e.g., Dow DuPont, Solvay, LANXESS, ...)
- **Support value chain integration** to capture additional value (e.g., Indorama–PET Borealis–compounding and recycling)
- **Move to new segments and leverage capabilities** (e.g., Merck–Millipore, Sigma Aldrich, DuPont–Danisco..)
- **Improve competitiveness** via cost synergies—incl. site network (e.g., BASF–Ciba)
- **Accelerated capability building** (e.g., SABIC–GE Plastics ChemChina–various)

# Key Questions

- 1 How are challenges faced by Asian refiners different from their western counterparts?
- 2 How could disruptions in petrochemicals sector impact refining sector?
- 3 What could be some of the new business models that could emerge as the global refining sector rebalances itself?
- 4 What could be the government's role as a facilitator to ensure supply security and healthy growth in the sector?



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