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Chemicals Industry - Challenges & Opportunities



Numbers! Numbers!! Numbers!!!

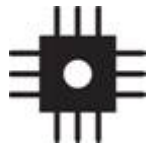


30 Billion



1 Trillion

1+ Trillion



30 Billion RFID's – In Use

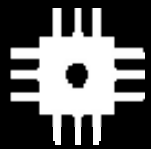


1 Trillion Objects – Connected on the Internet



1 Trillion Gigabytes – Of Data

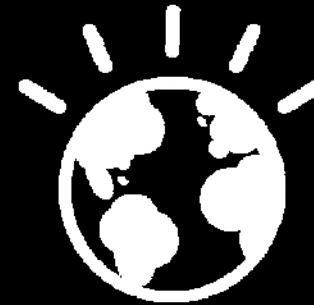
Our world is becoming **smarter***



Our world is becoming
Instrumented



Our world is becoming
Interconnected



All things are becoming
Intelligent



Thinking and acting in new ways to make our systems more efficient, productive and responsive

New Intelligence

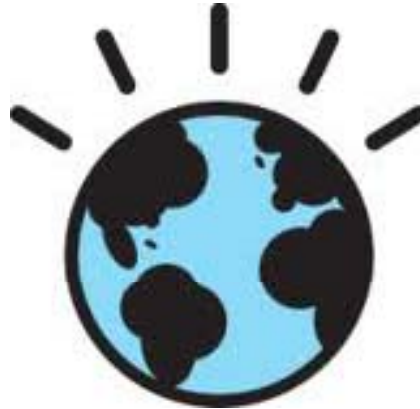
“Data is exploding and it’s in silos”

I Need Insight

Smart Work

“New business and process demands”

I Need to Work Smart



Green & Beyond

“Our resources are limited”

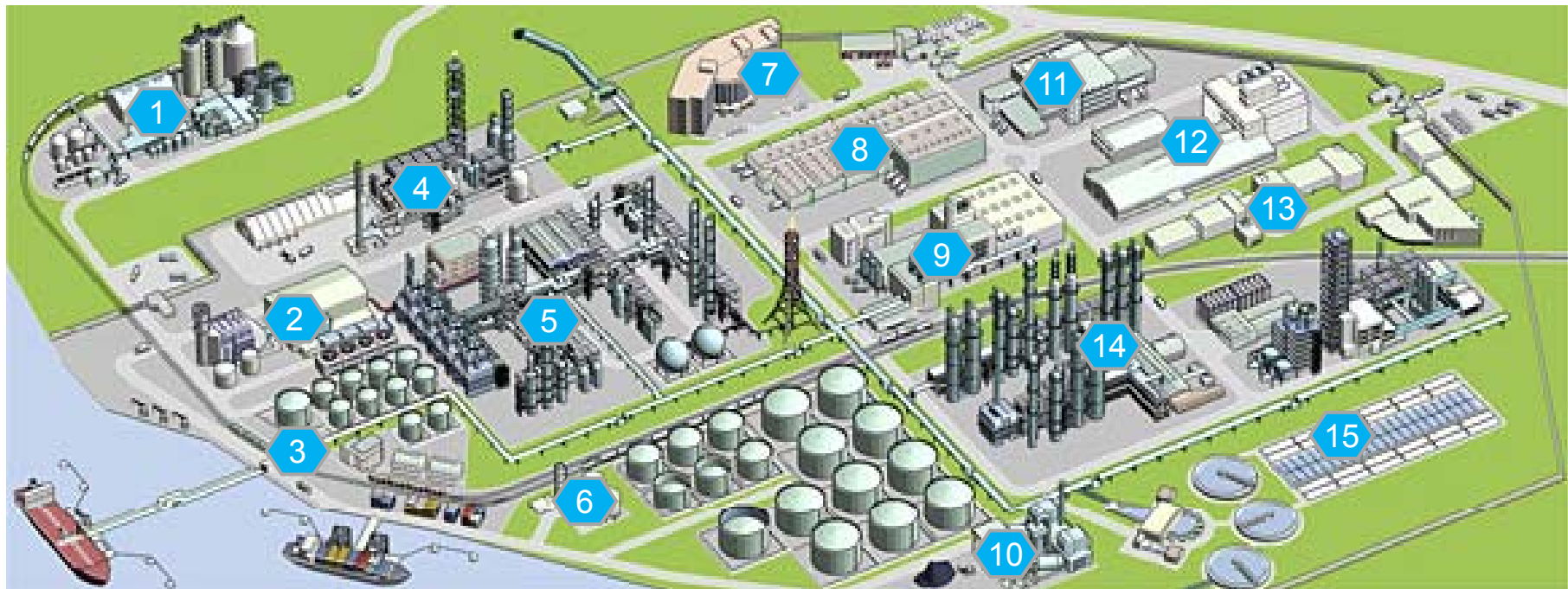
I Need Efficiency

Dynamic Infrastructure

“My infrastructure is inflexible and costly”

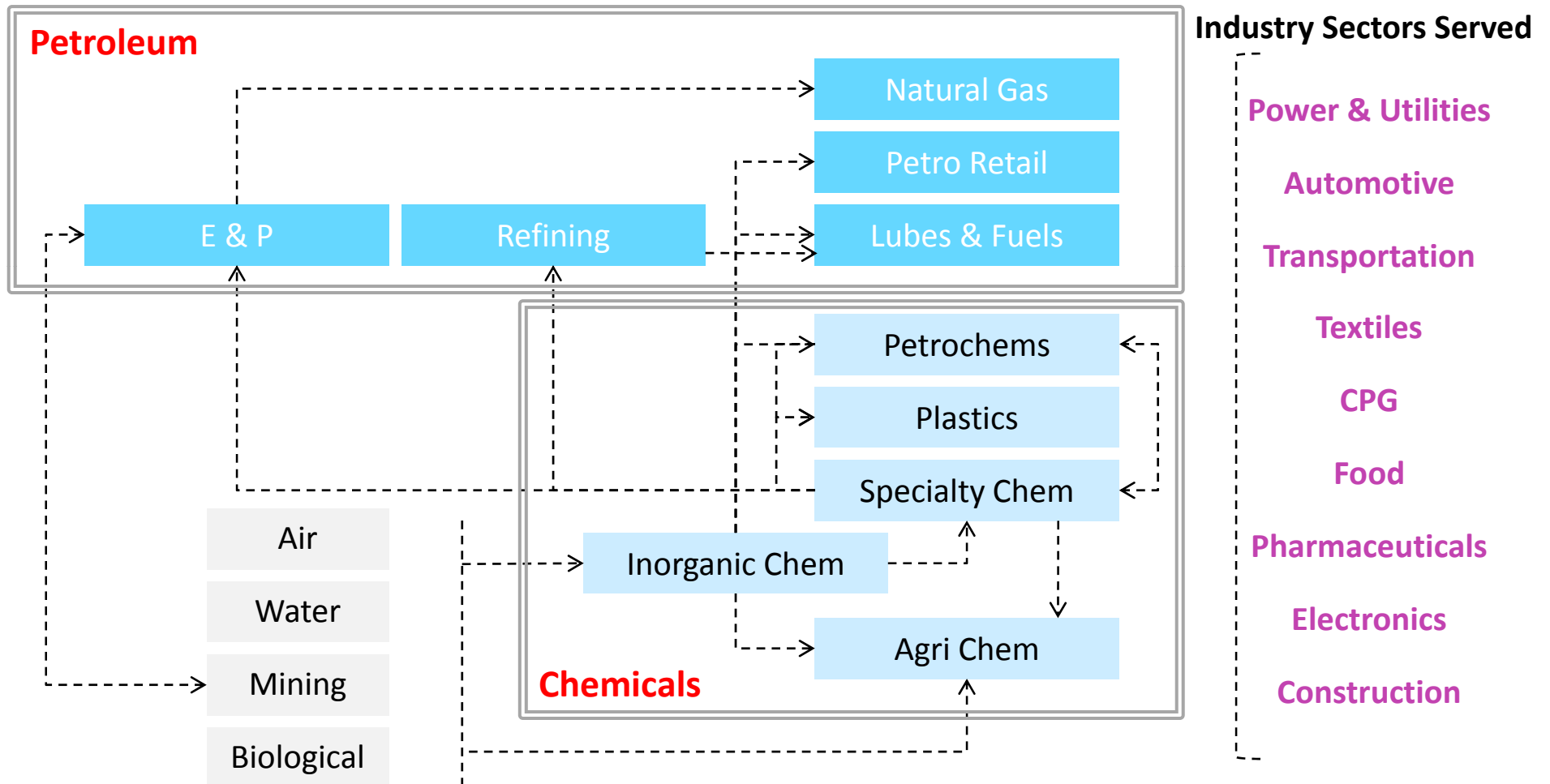
I Need to Respond Quickly

The Chemicals & Petroleum Industry Ecosystem



- | | | | | | |
|---|----------------|----|---------------------|----|------------------------|
| 1 | Biofuels | 6 | Industrial Gas | 11 | Fine Chemicals |
| 2 | Power | 7 | Business | 12 | Fibers & Foils |
| 3 | Logistics | 8 | Consumer Chemicals | 13 | Research & Development |
| 4 | Agrochemicals | 9 | Specialty Chemicals | 14 | Basic Chemicals |
| 5 | Petrochemicals | 10 | Waste | 15 | Water |

Two distinct but interlinked industries with a number of common players



■ Key Trends

- **Knowledge Driven** - High Value-Low Volume
- Evolving **consumer needs**
- **Increasing globalization** - improve operations, **better management of the supply chain and related assets**
- Increasing importance of **Biotechnology** (Bio-pharma highest share)
- Growing need for improving **Agri-chemicals**
- **Pharmaceutical Industry (API's and CRAMS)** – **increasing presence**
Growth in Infrastructure – **spurring demand** in certain specialty chemicals (water, sanitation, construction, urban development etc)

■ Key Focus Areas

- Focus to **improve efficiency in the use of raw materials**
- Need for increased **customer collaboration**
- **Product portfolio** expansion
- **Innovation** - Improve R&D – environment friendly sustainable solutions
- **6-sigma manufacturing** - India - a preferred production destination
- Need for **networked distribution** mechanisms | reach into **rural India**
- **Managing Operating Margin erosion** (Adaptability with varying scenarios)

India
~\$9Bn
2010

Global
~\$27
Bn
2010

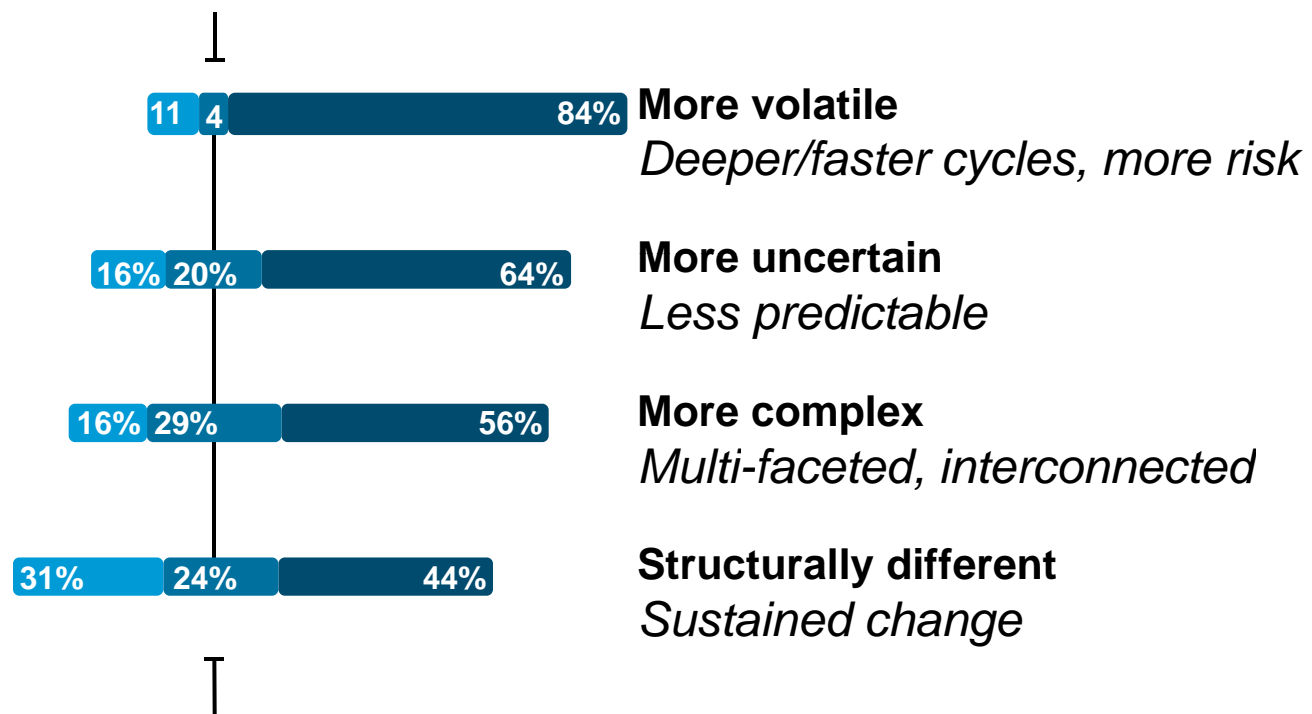
Global
~\$50 Bn
2015

India
~\$17 Bn
2015

In our 2010 C&P CEO Study, CEOs globally said that this new economy is distinctly more uncertain, volatile and complex than ever before



The New Economic Environment

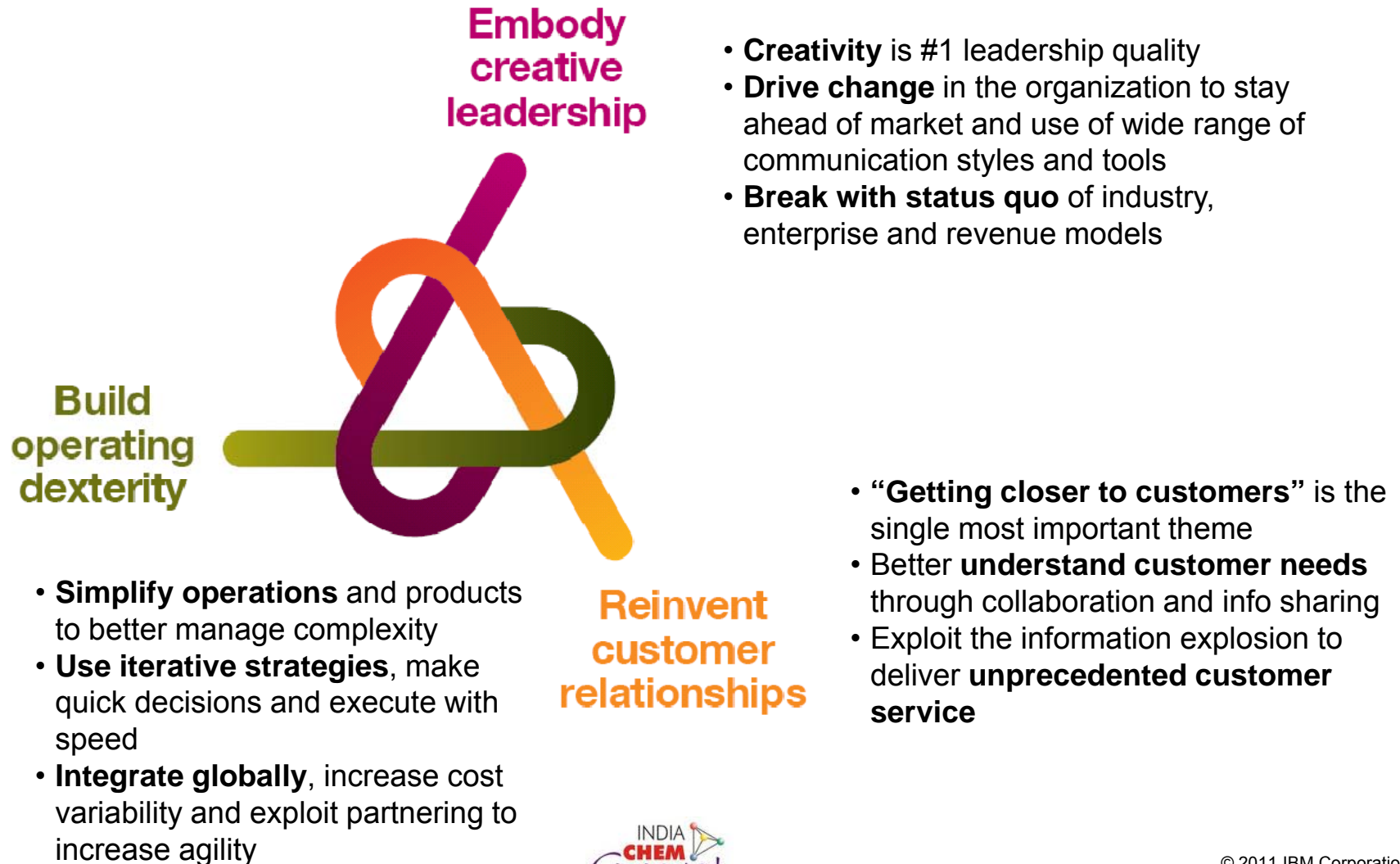


■ Not at all/to a limited extent
 ■ To some extent
 ■ To a large/very large extent

CEO's of Standout C&P Organisations were very focused on 3 areas that gave them the tools to handle complexity



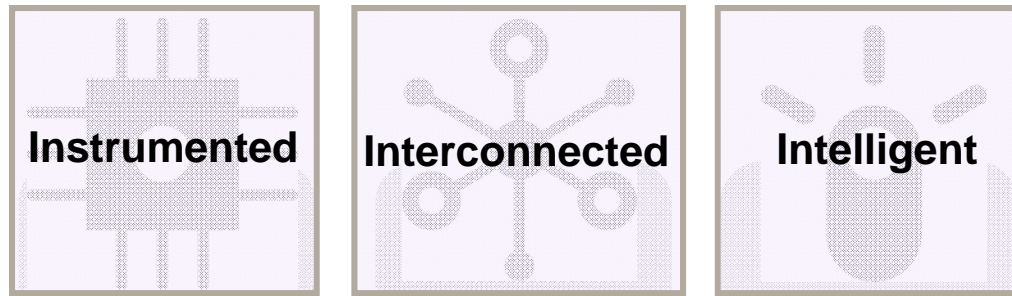
Collective Insights – IBM Global CEO Study – Chemicals & Petroleum Smarter Chemicals - Strategic Imperatives



COO's/CSCO's of Standout C&P Organisations were very focused on 5 areas that gave them the tools to handle complexity



Collective Insights – IBM Global COO/CSCO Study – Chemicals & Petroleum
Smarter Chemicals - Operational Imperatives



**SUPPLY CHAIN
VISIBILITY**

Visibility is vital

A PERVASIVE VISIBILITY capability, provides connectivity, (everybody), supports collaboration (shared network decision making), with intelligence (optimized analytics).

**INNOVATION & RISK
MANAGEMENT**

Innovation & Risk must be managed systemically

A NETWORKED INNOVATION & RISK MANAGEMENT capability integrates identification and mitigation strategies and tactics among the extended network

**INCREASING CUSTOMER
DEMANDS**

Customer input should permeate the supply chain

A CUSTOMER INTIMACY philosophy manages demand & the product lifecycle using customer segmentation principles

COST CONTAINMENT

Flexibility will counteract cost volatility

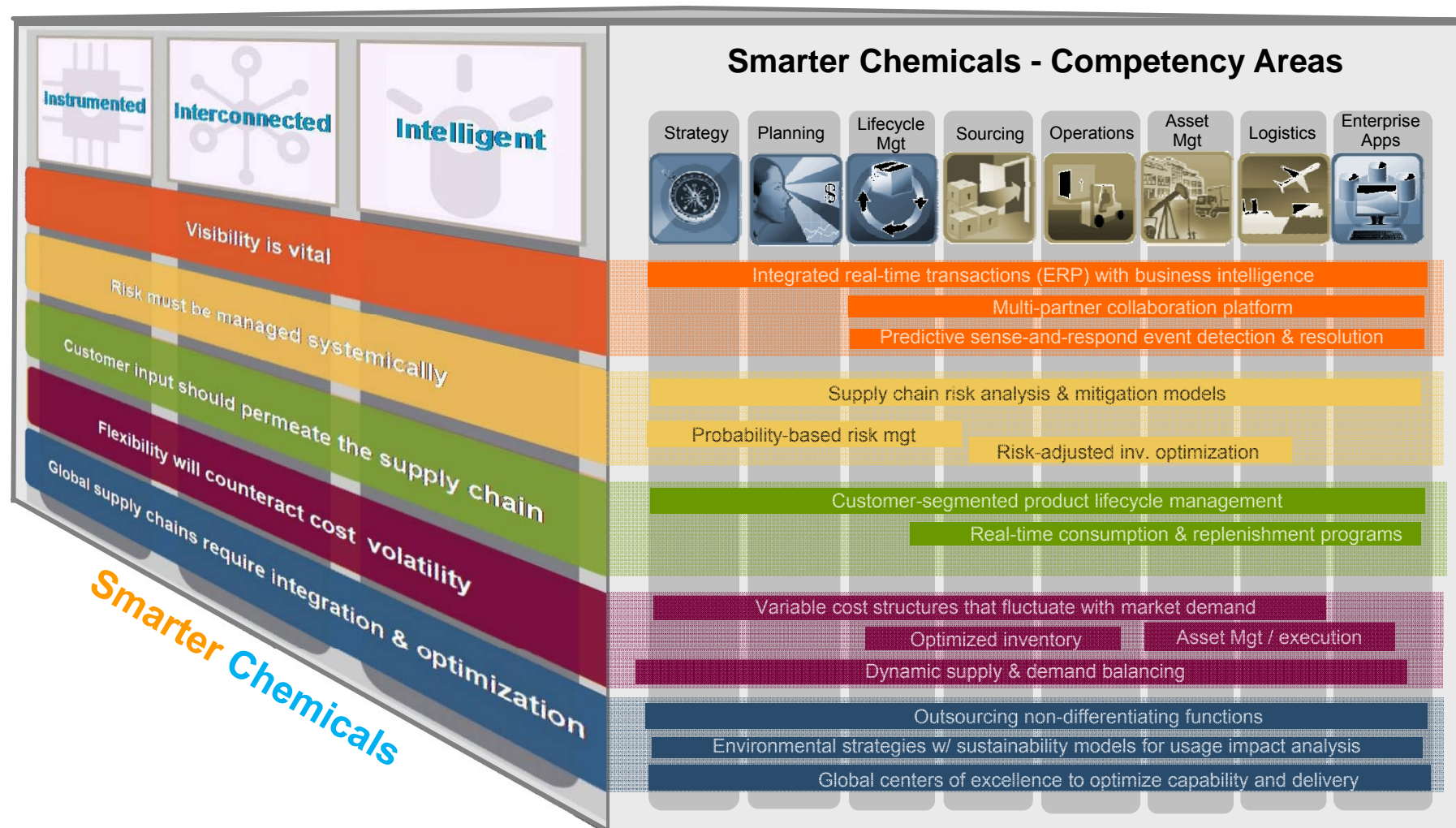
A strategy that fully LEVERAGES RESOURCES sustains the environment while managing the trade-offs of cost, quality, service and time.

GLOBALIZATION

Global supply chains require integration & optimization

A DIFFERENTIATED GLOBALLY INTEGRATED capability is designed to optimize assets & talent to deploy products & services around the world.

The “Smartmap” to the Smarter Chemicals Industry of the Future



Each company must plot their unique journey to “**smarter chemicals**” capabilities

Industry leaders rely on IBM to deliver business value



The Smarter Chemicals of the Future



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Thank
YOU