

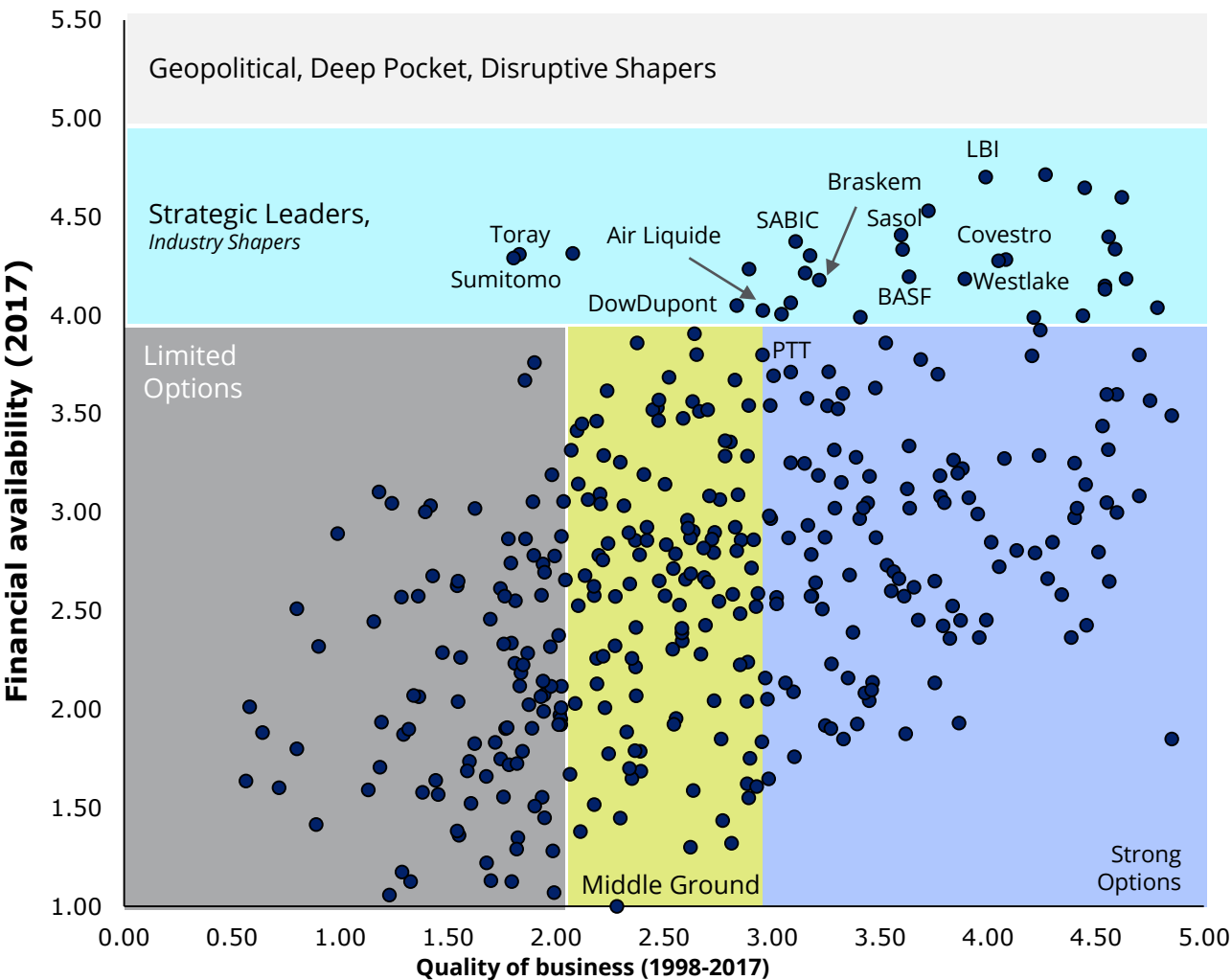


## Third ACS NASA Symposium

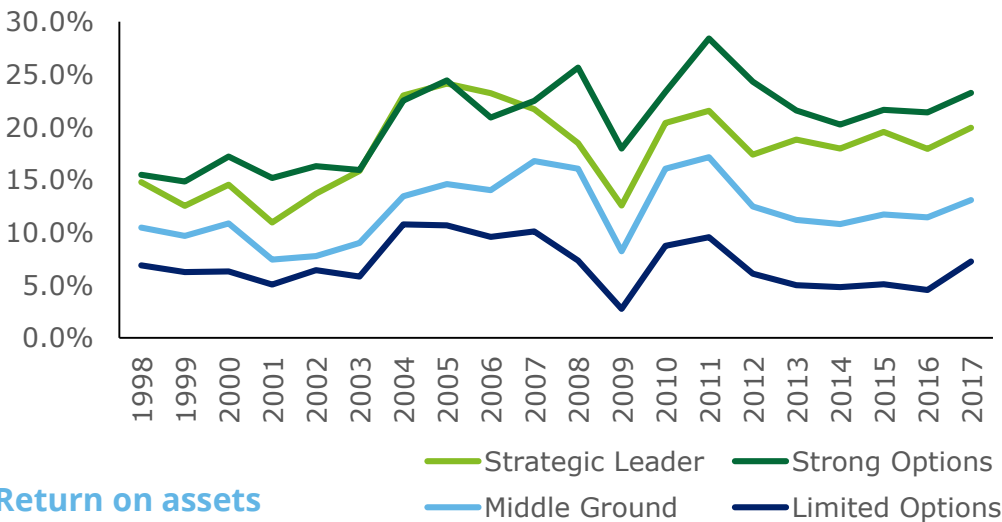
**"American chemistry: Digitalization and re-skilled human capital to shape a \$4T industry globally"**

April 2, 2019 | Orange County Convention Center, Orlando, FR

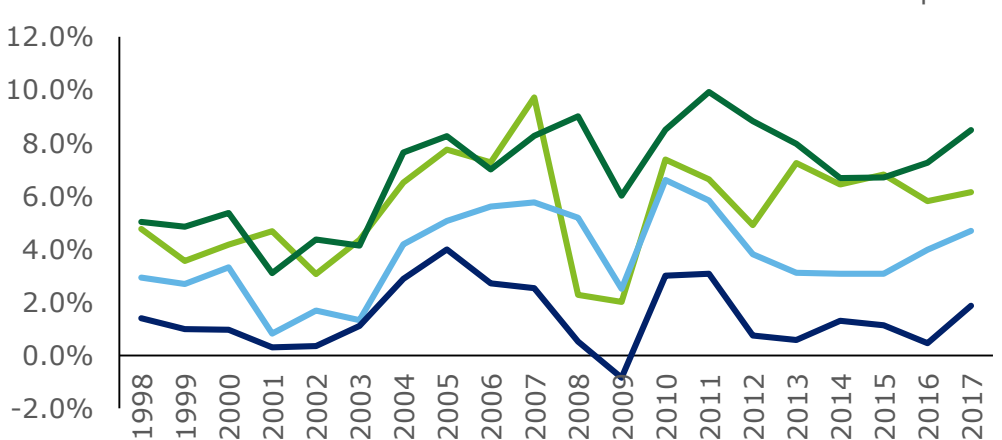
# The chemical industry: A diverse multiverse



Return on capital



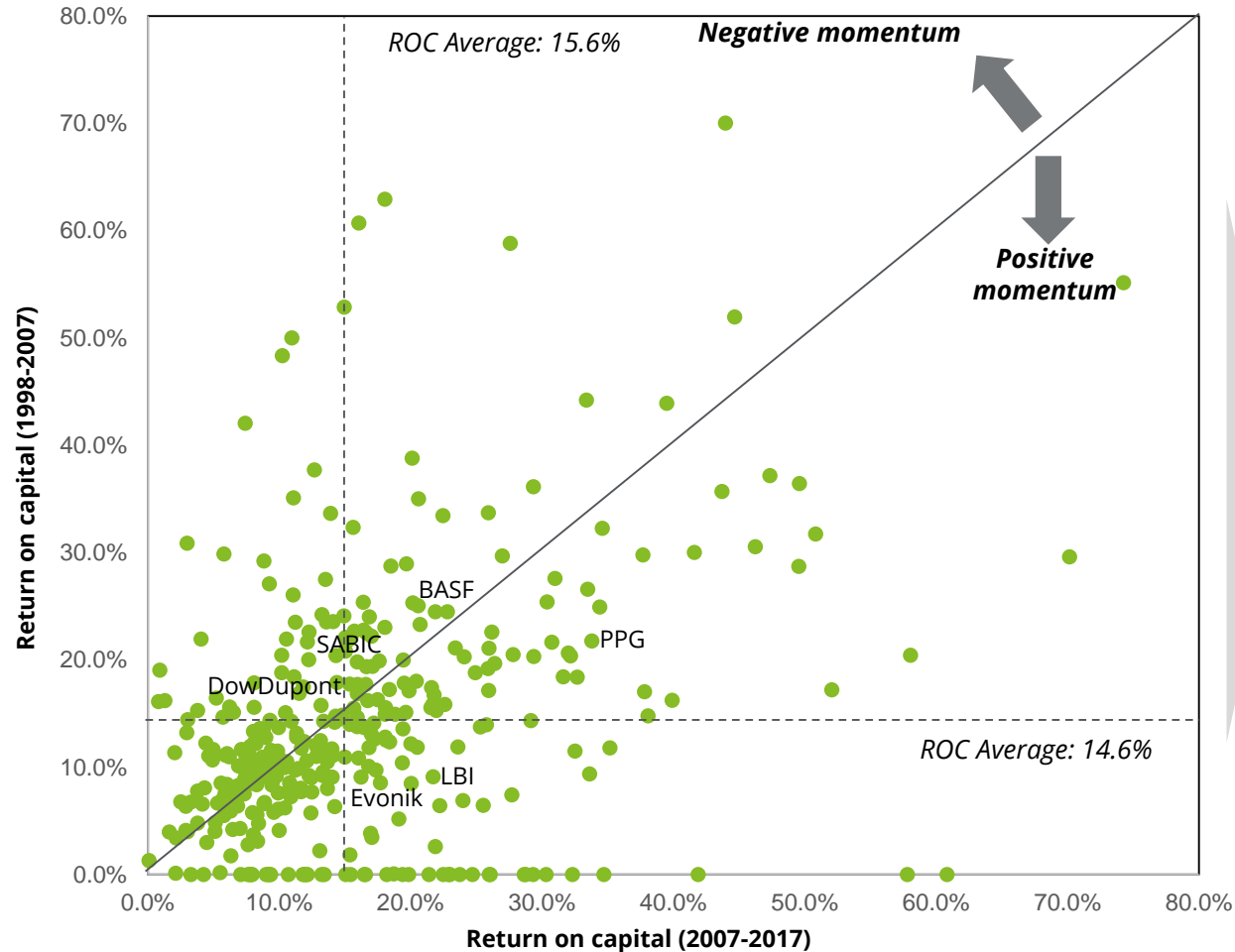
Return on assets



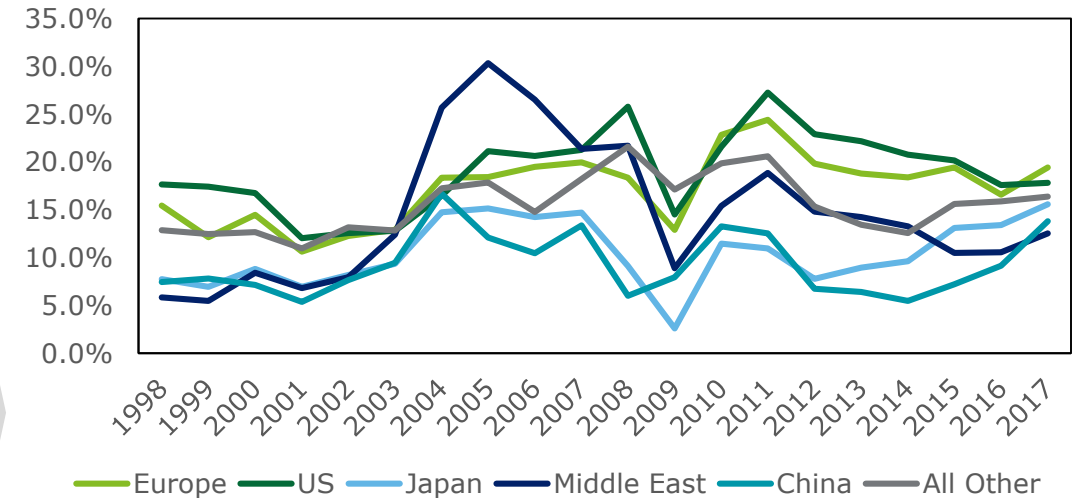
Source: Deloitte analysis based on financial data for top publicly-traded chemical companies pulled from S&P Capital IQ

# This industry marches forward when it comes to returns

Based on two decades of analysis, it is evident the industry has gotten more capital efficient



## Return on capital – US and EU drive the industry...

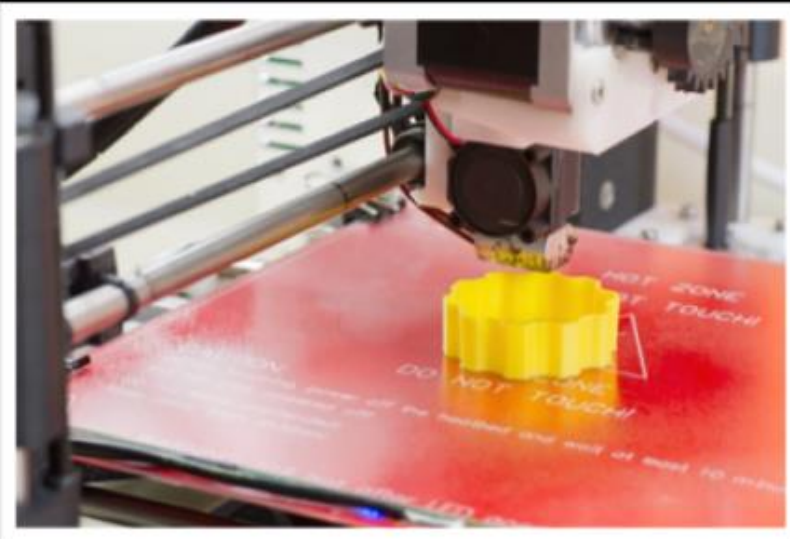


## Rationale for overall expansion...

**EBIT expansion  
with periods of  
peak  
in 2007-2008**

**Structural  
reduction in  
capital spending  
reducing net PP&E**

**Focused efforts to  
improve balance  
sheet  
as a means to  
rebound from  
recession**

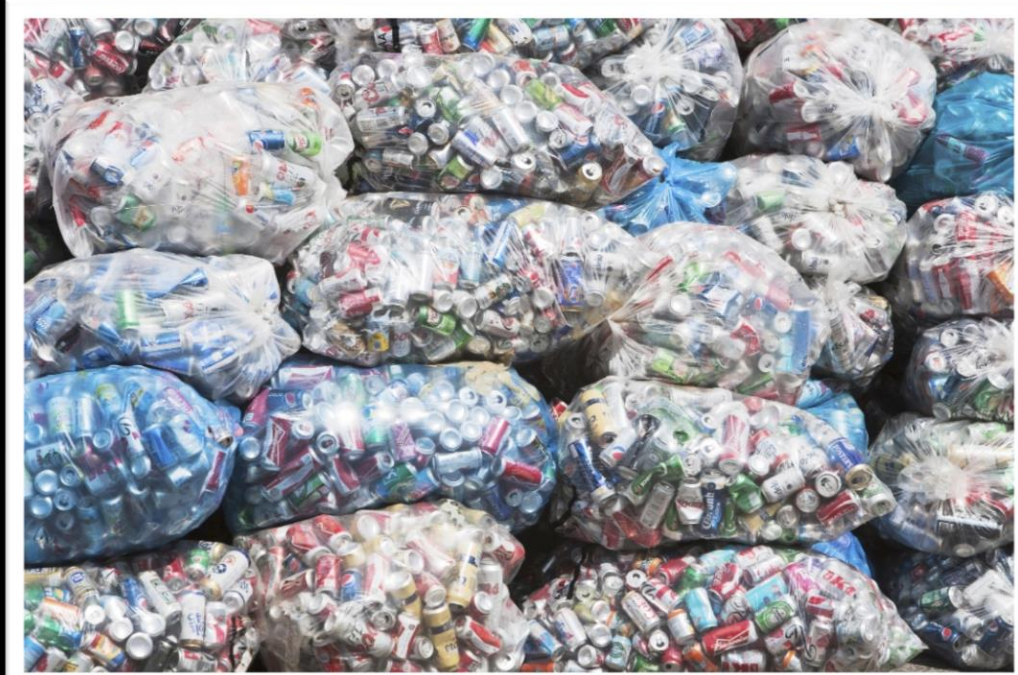


The future of chemicals is being driven by societal needs





Tectonic shift coming in demographics and capabilities....



...embracing sustainability and culture change will change  
the industry paradigm



***Amara's Law: "We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run"***

**Roy Amara**

**President, Institute for the Future (1971-1990)**

**SRI**



Digital solutions are a necessity to solve unmet needs



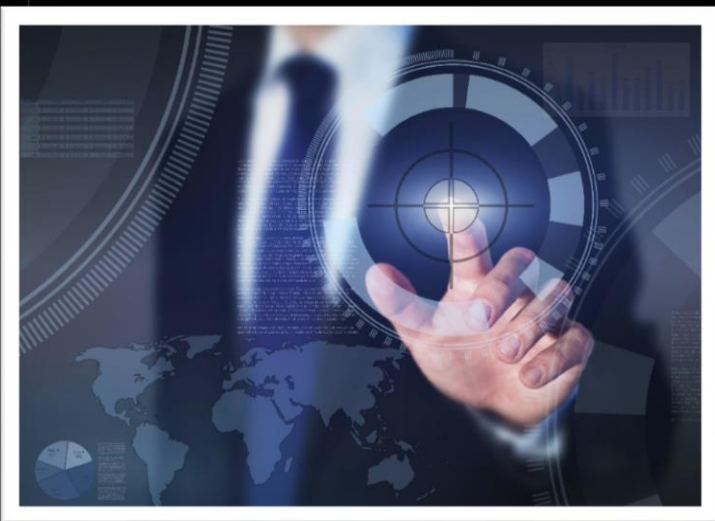


Advanced Materials Systems framework –  
a key to systems level design



*Key question:*

What does it take for chemical companies and the chemical industry to create the “simply irresistible experience”?



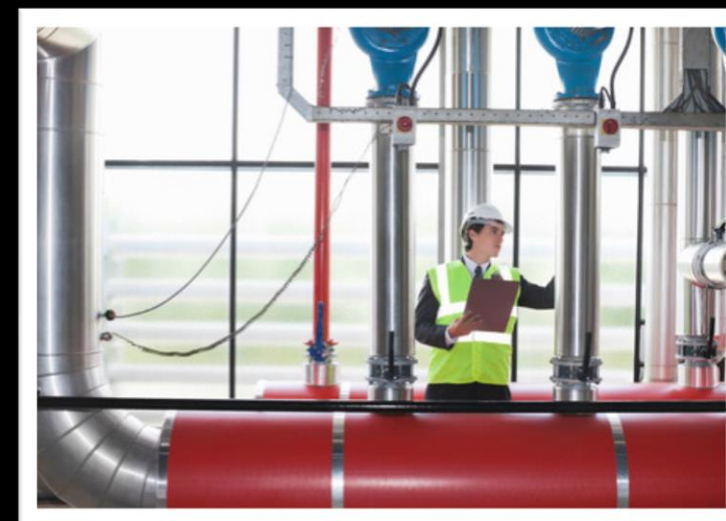
### **Talent shortage:**

- Upcoming retirements
- Need for digital skills
- Making chemistry/chemicals cool



### **Talent gap:**

- Vacancies to fill
- Long recruitment cycles
- Essential to have diversity



### **Culture and brand:**

- Negative perceptions:
  - ✓ Type of work
  - ✓ Image and purpose
  - ✓ Conditions
  - ✓ Compensation

## **Focusing on the direct issues of the chemical industry**





### **Employee experience:**

Think holistically about the employee experience



### **New talent models:**

Attract talent beyond just compensation



### **Ecosystem:**

Value the experience of working in a network of ecosystems

# Creating a new and vibrant workforce



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