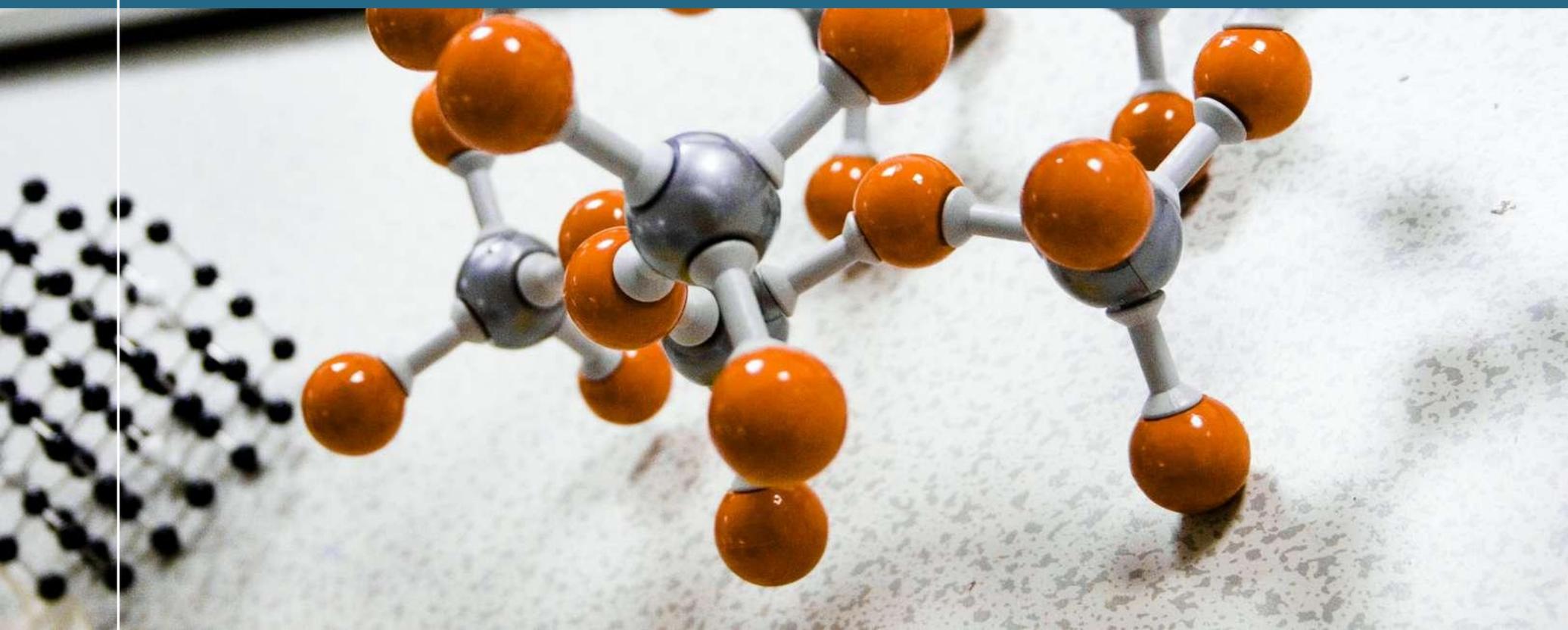


# A different world – Chemicals 2030

November 2011

**RolandBerger**  
Strategy Consultants



# Because the chemical industry is becoming more volatile than ever, Roland Berger has assessed its market dynamics

Motivation for the Roland Berger market study "Chemicals 2030"

"CHEMICALS 2030"

## How to assess a dynamic market ...

- Chemical markets develop in **complex and diverse** ways
- End-consumer and intermediate **demand is shifting**
- The last two years demonstrated the **extremely increased volatility** of the chemical industry
- **Market diversity of chemicals** offers varying opportunities and challenges by segment and region

- Leverage Roland Berger experience and industry insight to build a **consistent market model**
- **Forecast the chemical industry** in 2030 by volume and value
- Allow flexibility in thinking and reflect reality through a **scenario-based approach**
- Understand **forces behind the reshaping** industry and **the strategies that win**

... in a quantitative and qualitative manner

# The study has been developed by our global chemicals experts network in cooperation with academic partners and major companies

## Roland Berger contribution to the Chemicals 2030 study

### ROLAND BERGER CHEMICALS EXPERTS

*The study reflects the experience of the **Roland Berger Chemicals & Petrochemicals team:** More than **85 professionals** working on more than **100 chemicals projects per year** contributed to the study*

#### NAFTA

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#### SCANDINAVIA

Jan Beckeman

#### SOUTH-EAST ASIA

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#### FRANCE

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#### JAPAN

Masugi Kaminaga

#### GREATER CHINA

Watson Liu  
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### ROLAND BERGER NETWORK

Preliminary results have **been discussed with** our highly respected networks

- **Business network** incl. major chemicals companies



- **Academic network** incl. Roland Berger university chairs



Note: Only Partners and Principals mentioned

Source: Roland Berger

# Industry trends, growth numbers and rival strategies will characterize the future chemical industry

## 1 TRENDS

External and internal trends will shape the industry and impact profitability and growth



Future

## 2 NUMBERS

Limited high-growth options will increase company focus so that margins are maintained



## 3 STRATEGIC RIVALRIES

Rivalries between different strategies and geographical regions will shape the industry



# Eight key industry trends will transform the chemical industry towards generally lower profit margins and lower growth

General conclusions on key industry trends – In 2030, ...



- 1 ... **Sustainability** has become part of the corporate DNA on a global scale, like HSE has today
- 2 ... **Demand shift** has accelerated and chemicals companies have continued to follow their (end) customers into all emerging regions
- 3 ... **New competitors** not only play a dominant role in their home markets, but also heavily tap into the mature markets to advance their technological skills
- 4 ... **New business models** have become more distinctive and chemicals companies step into (downstream) customer industries to increase profitability
- 5 ... **Innovation** is still a key differentiator, but only in specialties – shorter product life-cycles and simultaneous introductions have led to increased focus on R&D effectiveness
- 6 ... **Commoditization** has also affected several products and segments, that are currently still distinguishing
- 7 ... **Biotechnology** has created a paradigm shift in chemicals production with its feedstock alternatives and entirely new production routes
- 8 ... **Feedstock access** remains a key challenge: the feedstock and energy balance has shifted to bio-based countries and feedstock access determines one's competitiveness

# Each segment will be affected, but by different trends and in different ways

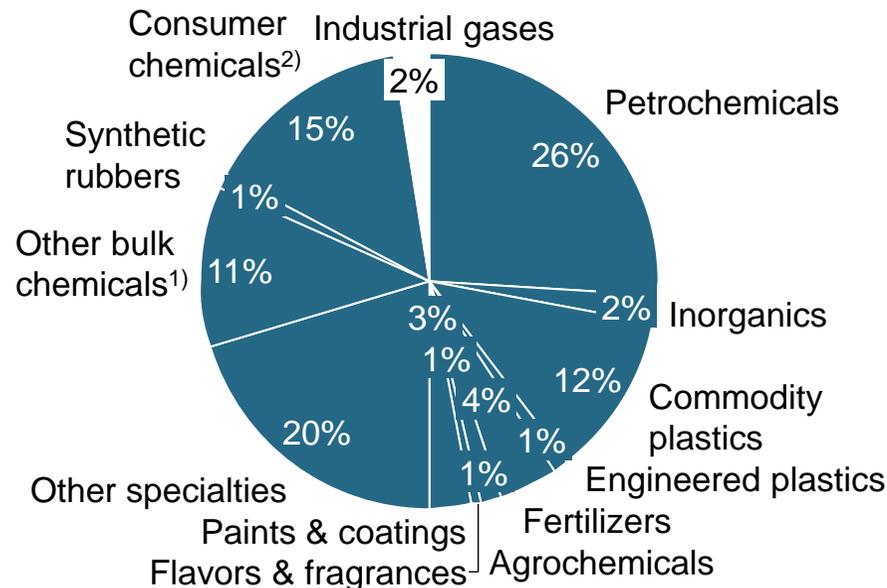
## Assessment of trends by selected segment

Impact by segment	Petrochemicals	Inorganics	Commodity plastics	Engineered plastics	Fertilizers	Agrochemicals	Flavors & fragrances	Paints and coatings
<b>1 Sustainability</b>								
<b>2 Demand shift</b>								
<b>3 Competition rivalry</b>								
<b>4 New business models</b>								
<b>5 Innovation</b>								
<b>6 Commoditization</b>								
<b>7 Biotechnology</b>								
<b>8 Feedstock access</b>								

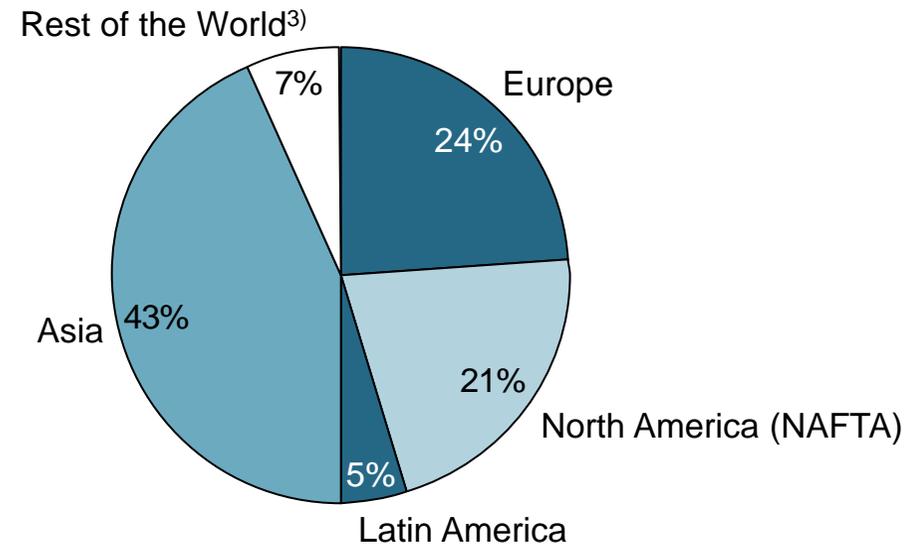
# The study starts with the chemicals landscape in 2010, a EUR 2 tn turnover industry – Our study covers 98% of the market

Global chemical market value by segment and region, 2010 [%]

## Segment split [%] (Total: EUR 2.0 tn)



## Geographical split [%] (Total: EUR 2.0 tn)



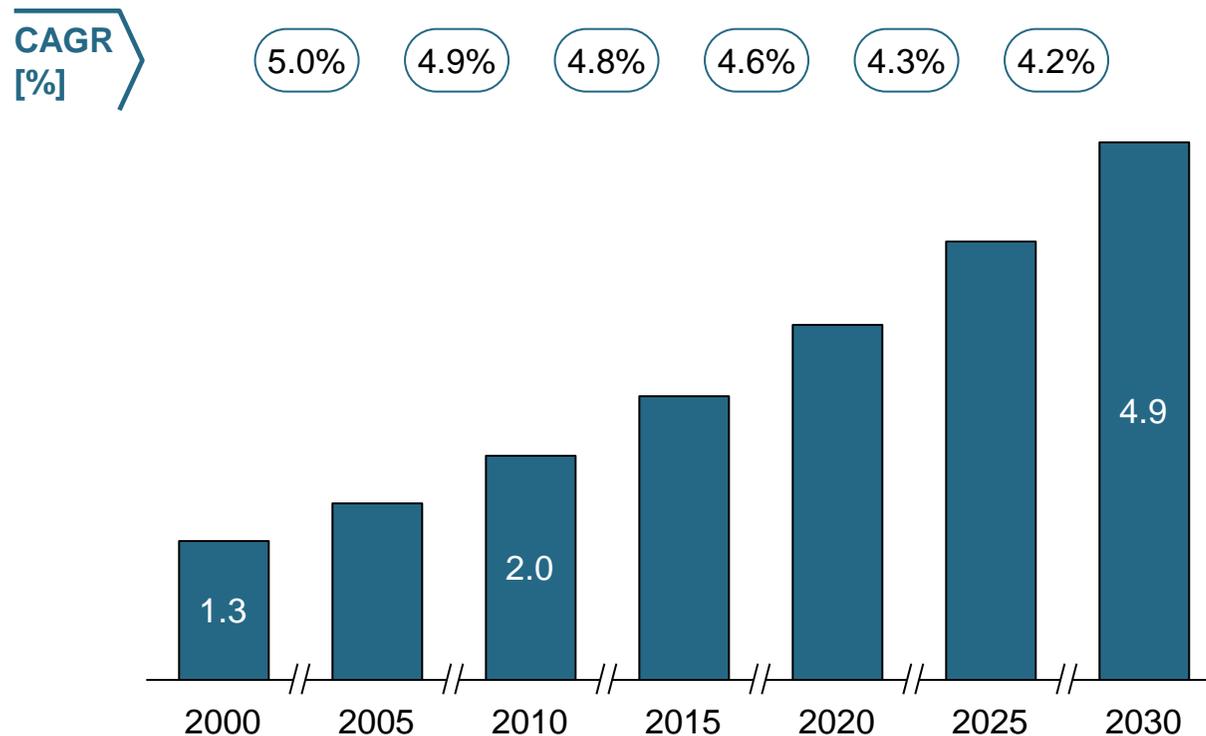
1) Other bulk chemicals includes intermediates

2) Consumer chemicals include soaps, detergents and cosmetics

3) Rest of the World include Middle East, Africa and Oceania

# The market will more than double in the next 20 years even though growth levels will decrease

Total chemical market real value forecast, 2000-2030F [EUR tn]



## COMMENTS

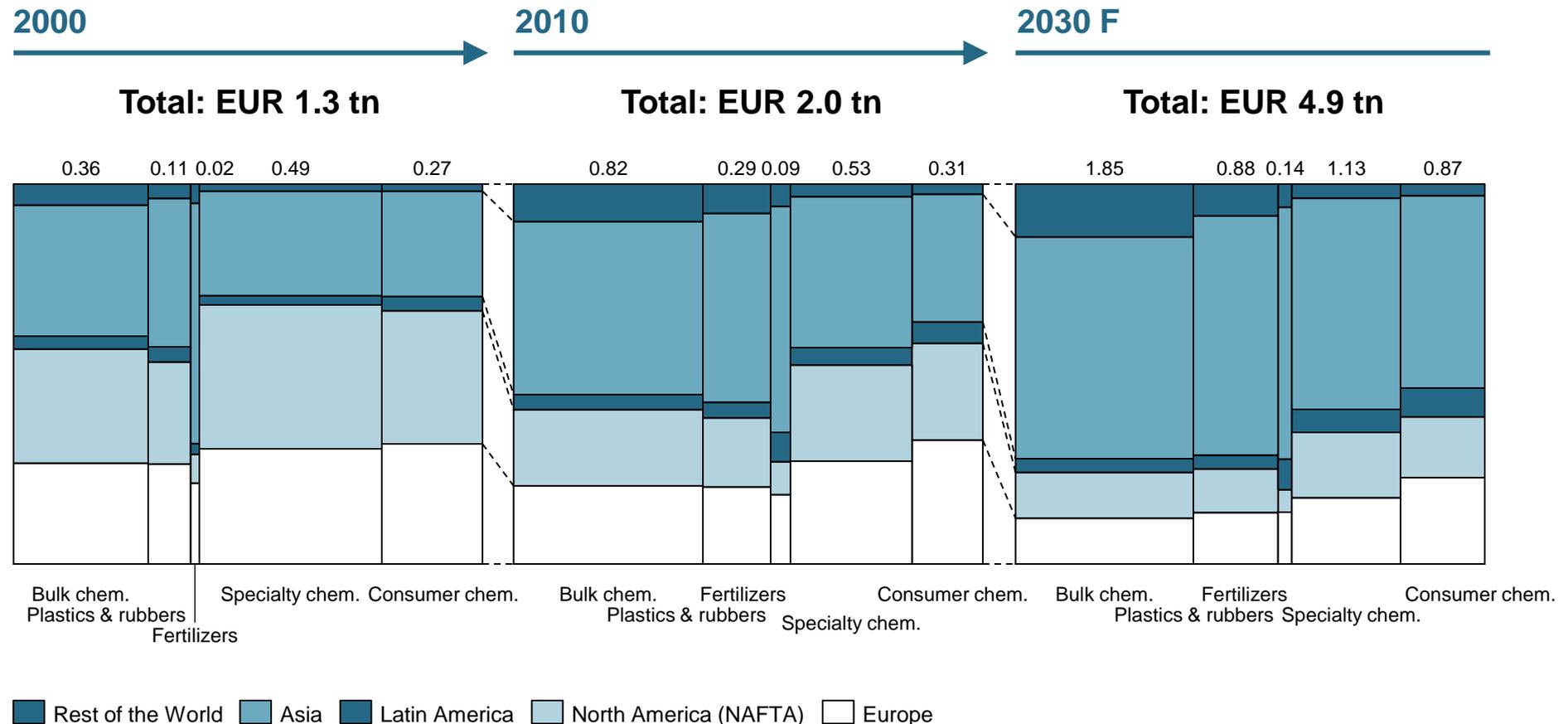
- NAFTA and Western Europe will grow slightly (only 2% p.a.), just below expected GDP growth
- Asia, Middle East and Latin America will drive the chemical industry's future growth (5-7% p.a.)
- China will surpass Europe and NAFTA as the largest chemicals region in the world, but also India and other Asian countries remain interesting growth areas

Note: Value forecasts are not corrected for inflation after 2010, i.e. 2010 price levels

Source: Roland Berger Chemicals 2030 market model

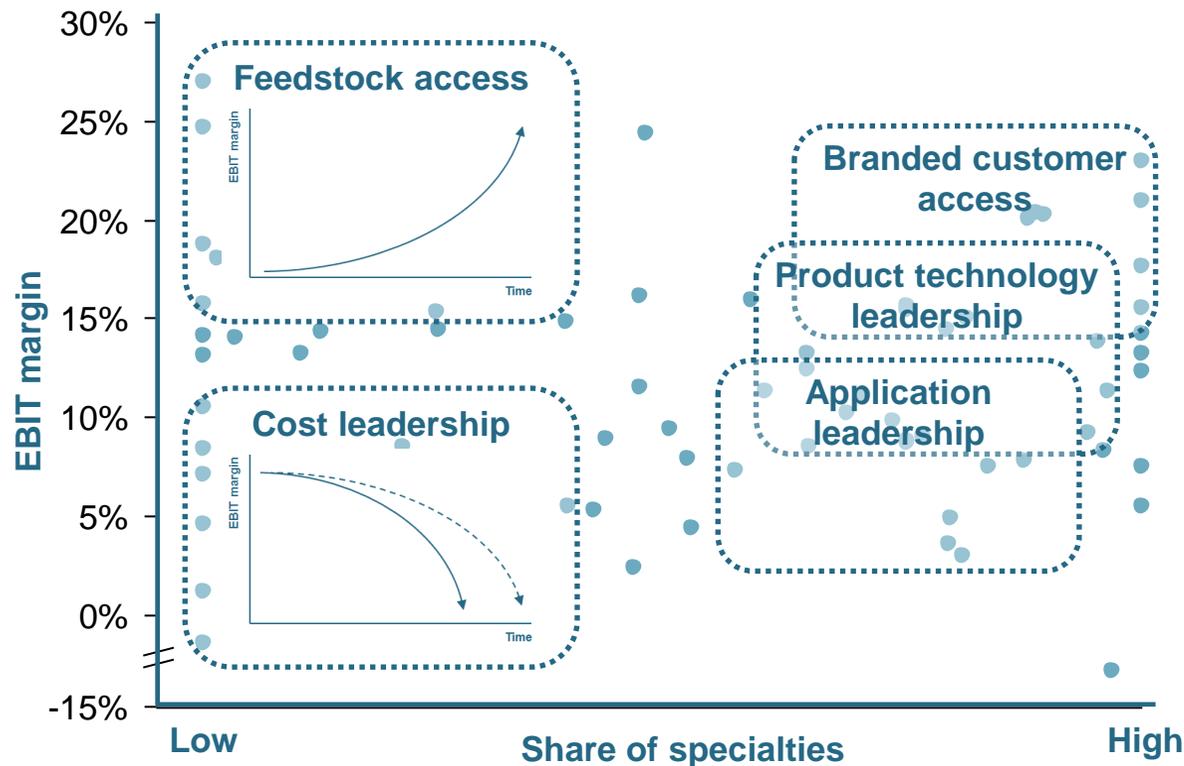
# Plastics and specialty chemicals in Asia will be the most attractive high-growth segments remaining

Total chemical market real value forecast by segment and region, 2000-'30F [%], EUR tn]



# The next decades will be shaped by rivalries between different strategies in chemicals

Profitability and type of chemicals business for selected companies, 2010

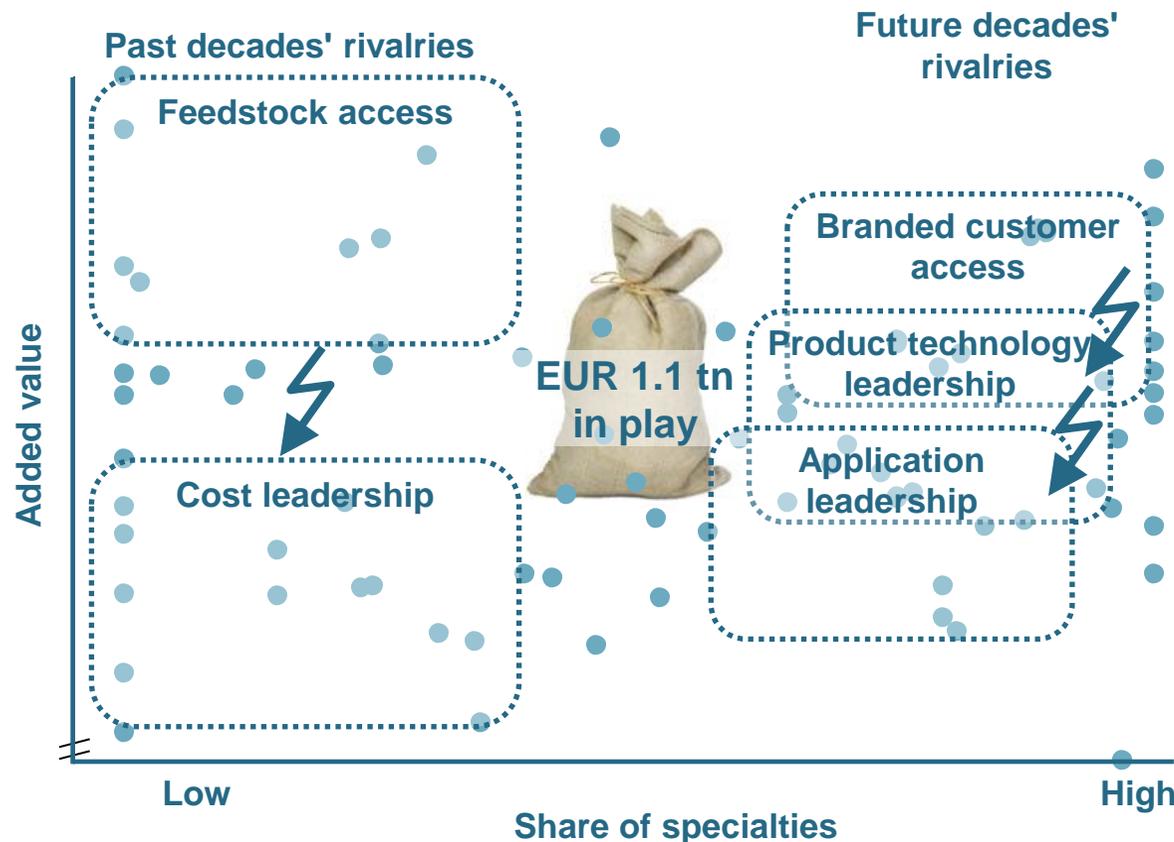


## COMMENTS

- EBIT margins reach up to 27%
- Competing strategies seem connected to specific segments
  - In the basic and bulk chemicals segments, companies with feedstock access rival with cost leaders for market share and margin
  - In the specialty segments, companies with brands and/or customer access rival product technology and/or application leaders for market share and margin
- Most companies tend to focus on either low or high specialty portfolios – some companies operate multiple business models in many markets

# The nature of the rivalry depends on the segment and puts a total EUR 1.1 tn of chemicals turnover in play

Schematic rivalries in the chemical industry and value in play [EUR 2030]



## COMMENTS

- In the basic and bulk chemicals segments, the rivalries are a global or continental game which mainly took place in the previous decades
- In the specialty segments, the rivalries are a local game, mainly played in Asia as main growth region – these rivalries will take place in the coming decades
- Private equity will play an important role and support Asian companies in acquiring technology from western companies to leverage their customer base

Note: Market value in play for the rivalry is calculated by assuming that all regions will have the same demand per capita as NAFTA has in 2030

Source: Roland Berger Chemicals 2030 market model

# Demand shift to Asia will trigger rivalries between regions for market access or technology/application access

## Rivalries for Asia – Schematic

### Market access

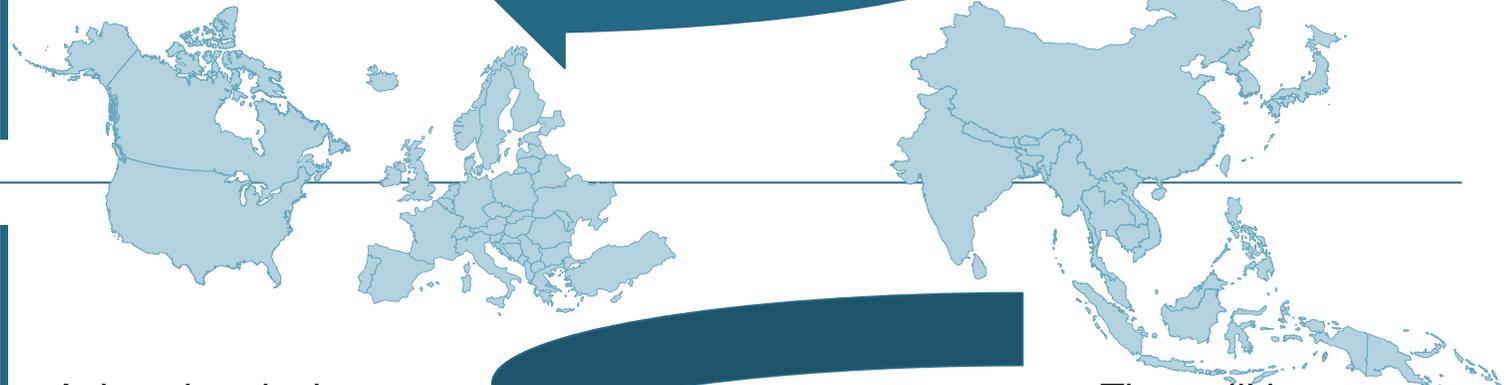
Western chemicals companies bring technology or application leadership to Asia

They will battle for market access, e.g. through joint ventures, and will return with revenues and profit

### Technology and application access

Asian chemicals companies have market access, but need technologies or applications

They will become active on the M&A market, enabled by private equity, and will return with acquired technologies



# Uncertainties remain, but the recent crisis and our analysis suggest that the industry will weather potentially disruptive developments

## Disruptive developments for the chemical industry

- 1 Large **industrial zones** in emerging economies will change the economic landscape
- 2 **PI breakthroughs** allow the chemical industry to produce more effectively and efficiently, thus remaining competitive in mature regions
- 3 **Logistic costs and physical constraints** show significant volatility, and recently even independence of crude prices
- 4 The **Bio Based Economy (BBE)** is about to break through, but many uncertainties exist about its impact on the chemical industry
- 5 **Value chain optimization** will lead to a paradigm shift in the chemicals business: more decentralized production
- 6 **Political unrests, social turmoil and terrorism** might stagnate growth, as recently happened in the Middle East and Northern Africa
- 7 **Financial and economic uncertainties** might hamper growth on a global scale – The recent crisis started in the US and spread rapidly

# The scenarios deviate only slightly – General demand will only vary within a range of -10% to +20%

## Scenario analysis

## Model outcomes



- Strong growth in mature markets, booming growth in developing world
- Increasing spend in mature markets, booming spend in developing world, strong demand for new products and innovation
- Innovation as a global differentiator, commoditization offset by R&D



- Moderate growth in mature markets, strong growth in developing world
- Stable spend in mature markets, increasing spend in developing world, focus on developing world for growth
- Innovation focus in mature markets and commoditization in developing world



- Stagnation in mature markets, moderate growth in developing world
- Stagnating spend in mature markets, stable spend in developing world, localization of operations and footprint
- Limited innovation in mature markets, heavy commoditization (low-cost focus)



# Chemicals companies around the globe should start preparing for the challenges ahead

## Future challenges for chemicals companies

### PROFITABILITY

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- Trends impacting profitability:
  - Sustainability
  - New business models
  - Commoditization
  - Biotechnology
  - Feedstock access
- Geographical regions impacting profitability:
  - Mature markets will face increasing competition with continuing margin pressure
- Business model impacting profitability:
  - Choice of business model will determine future profitability

### GROWTH

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- Trends impacting growth:
  - Demand shift
  - New competition
  - Innovation
  - Feedstock access
- Geographical regions impacting growth:
  - Growth will be possible in Asia, which is close to consumption growth
- Business model impacting growth:
  - Choice of business model will determine future growth potential

## **Answering some key strategic questions will help chemicals companies prepare for these challenges successfully**

### Discussion points

- ▶ What strategy will get me profitable growth in Asia?
- ▶ How can I best prepare for the rivalries to come?
- ▶ Should I pursue single or multiple business models?
- ▶ How can I mitigate enduring volatility?
- ▶ How can I resist profit erosion in mature markets?