Chemical Industry Vision 2030: A European Perspective

Vision 2030 outlines emerging challenges, analyzes the current positioning, and highlights imperatives for the European chemical industry in positioning itself to stay ahead in the game.
The European chemical industry is facing major challenges as value chains increasingly move eastward, drawn by economic growth and market opportunities in Asia. A new, more competitive environment is taking shape, giving rise to state-controlled players and emerging chemical giants. Fragile economic conditions require managing volatility on a playing field where trade flows gradually change direction. Understanding what these challenges mean, and more importantly, identifying the right strategic options to thrive in this new competitive environment are at the top of every chemical executive’s agenda.

Since the mid-1980s, the global chemical industry has grown by 7 percent annually, reaching €2.4 trillion in 2010. Most of the growth in the past 25 years has been driven by Asia, which now owns almost half of global chemical sales. If current trends continue, global chemical markets are expected to grow an average 3 percent in the next 20 years, mostly pushed by the major players in Asia and the Middle East. Enjoying a home-field advantage, Asian players are positioned to own two-thirds of the market by 2030.

Meanwhile, growth in Europe is expected to be moderate at just 1 percent. In fact, we expect more than 30 percent of jobs to be lost in the European chemical industry by 2030 as a result of slow growth and productivity gains.

**Most of the growth in the past 25 years has been driven by Asia, which now owns almost half of global chemical sales.**

Considering the stable, slow, and somewhat linear evolution of the European chemical industry, the “ruler strategy” is likely to apply in the next two decades. This strategy disputes the emergence of disruptive market events, arguing that the chemical industry will largely continue to follow the trend of recent years. This is because of the dominance of robust shifts in the global economy, asset longevity, absence of major chemical revolutions and continuing innovation in established areas such as biotech and fuel cells. If the ruler strategy is accurate, Asia will dwarf North American Free Trade Agreement (NAFTA) countries and Europe in terms of chemical production by 2030.

Customer industries will continue their move to Asia, ending the dominance of Western demand patterns and giving rise to a multipolar playing field with diverging requirements. The changing direction of trade flows between the Middle East-Asia region and Europe will also contribute to the sheer dominance of Eastern players.

It is time for players to prepare—to defend their home markets, develop growth platforms based on innovation and better value capture, participate more forcefully in Asian growth markets, and build the skills and scale required to compete.

**The Ruler Strategy**

We expect the ruler strategy to play out in the next 20 years. The evidence is all around, from shifting global economic powers and chemistry’s focus on basic needs, to the odds of major chemical breakthroughs, the slow speed of innovation in Europe, and the limited number of life cycle turns between now and 2030.
The key trend in the global economy is Asian growth catalyzed by the ever-faster integration of regional economies and societies across the globe. More than half of the world’s population (workforce and consumers)—nearly 4 billion people—live in Asia. In addition, more people around the world are moving into large cities, favored for accumulating wealth and consuming; and nowhere is urbanization faster than in Asia, especially in China.

Rising consumer purchasing power will translate into more chemicals people can afford to buy, which drives the demand for chemicals across Asia. Thus, as the global economy gravitates eastward, at least half of the top 10 chemical companies in the world will be Asian or Middle Eastern (see figure 1).

Figure 1
The core of the chemical industry is shifting to Asia, and by 2030 at least half of the top 10 chemical companies will be Asian or Middle Eastern

Sales
(€ billion; 2030 is calculated at 2010 prices and exchange rates)

Top chemicals players
(sales € billion, market share in %)

<table>
<thead>
<tr>
<th>Year</th>
<th>Company</th>
<th>Sales (€ billion)</th>
<th>Market Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>Bayer</td>
<td>14</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>BASF</td>
<td>13</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>ICI</td>
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<tr>
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<tr>
<td></td>
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<tr>
<td></td>
<td>Ciba-Geigy</td>
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<td>Montedison</td>
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<tr>
<td></td>
<td>Rhône-Poulenc</td>
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<td>Monsanto</td>
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<tr>
<td>2010</td>
<td>BASF</td>
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<tr>
<td></td>
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<td>41</td>
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<td>ExxonMobil</td>
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<td>Sinopec</td>
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<td>LyondellBasell</td>
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<td></td>
<td>Ineos Group</td>
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<td>0.9</td>
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<tr>
<td></td>
<td>Mitsubishi Chemical</td>
<td>21</td>
<td>0.9</td>
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</table>

Number of players by region

<table>
<thead>
<tr>
<th>Region</th>
<th>1985</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
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<td>2</td>
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<tr>
<td>NAFTA</td>
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<td>1</td>
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<tr>
<td>Middle East</td>
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<td>3</td>
</tr>
<tr>
<td>Asia</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: NAFTA is North American Free Trade Agreement.

1985 assumed exchange rate is: $1.39/€.
2 Assumes the following growth rates 2010-30: Asia 5%, Europe 1%, NAFTA 1.2%, Rest of world 3%
Sources: European Chemical Industry Council (CEFIC), Chemical Week, Verband Chemische Industrie, Chemical & Engineering News, annual reports; A.T. Kearney analysis.
From a manufacturing perspective, longevity in the chemical industry means sudden capacity shifts are unlikely. Chemicals are largely used for basic needs, such as construction, clothing, and agriculture. Specialty products such as batteries and nanotech will dramatically change specific value chains but will not change the overall demand picture because the combined volumes are small compared to increased general consumption in Asia.

Further, the chemicals market will not be stirred by revolutionary discoveries, such as the emergence of new molecule classes. Rather, progress is expected in specialty chemicals and application niches with technological leaps in customer industries, such as biotech and fuel cells.

Production in Europe is expected to grow moderately with only consumer chemicals in marginally higher demand (see figure 2). This slow growth implies a significant reduction in the necessary workforce because of continued productivity gains that outpace volume growth. At the same time, chemical companies in Europe need to build up capabilities to deal with the challenges of a multipolar chemical market.

Competitive Environment 2030

By 2030, three forces will drive the global competitive environment: changes in competition, value networks moving east, and increasing economic volatility. In fact, these factors are already exerting a force on the industry.

Figure 2

Chemicals production in Europe is expected to grow moderately, with slightly higher demand for consumer chemicals

Production volumes

(€ billion, 2010 prices)

Note: EU27 refers to the 27 member states of the European Union.

Ruler strategy¹ production volume CAGR 2000-10 extrapolated to 2030: 0.9% is expected ruler strategy CAGR for EU27 2010-2030. Value and weighting reflect 2010 prices.

¹ Petrochemicals and specialty chemicals are included in the category “organic chemicals.”

Sources: European Chemical Industry Council (CEFIC), A.T. Kearney analysis

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Changes in competition. Sixty-six percent of global chemical sales in 2030 will be in Asia, according to current growth patterns. The rise of emerging players, especially in Asia and in the Middle East, has led to a deconsolidation of the chemical industry. Until 2030, we expect five to eight of the global top 10 chemical companies to come from these two regions, mostly from China. Only a few multinational players from established markets are expected to remain in the top 10, while mostly state-controlled giants such as Sinopec, ChemChina, and PetroChina are expected to rise to the top. To regain consolidation levels of 1985, the top three chemical players are each expected to have more than €120 billion in sales. This consolidation is currently focused on the regional level—for example, the acquisition of Rhodia by Solvay—but will increasingly include transactions between established and emerging markets.

Value networks moving east. In an effort to cater to the enormous Asian demand, many industries are shifting operations to the East. Customer industries are no exception. Key end markets such as automotive, construction, and pulp production are all set to surge in Asia, driving growing local demand for chemicals. Additionally, domestic players that have taken advantage of Asian economic growth are now increasingly making the Fortune 500 list (see figure 3). This is a serious challenge for incumbents, as the emerging players surpassed companies from established economies at a growth rate of 19 percent from 2002 to 2011.

Companies shifting production to Asia are not only churning out higher volumes but also allocating more value creation. Global companies such as General Electric, General Motors, Boeing, and Texas Instruments have been shifting research and development (R&D) eastward, both for customer proximity and availability of talent. For example, by 2017, we expect more automotive R&D resources to be deployed in emerging countries than in developed countries.

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**Figure 3**

**Emerging players are increasingly making the Fortune Global 500 list**

Source: A.T. Kearney analysis
As purchasing decisions in the chemical industry are significantly influenced by R&D in customer industries, chemical companies will increasingly engage in R&D cooperation with customers and institutes in multiple locations beyond their home markets.

**Increasing economic volatility.** As it becomes easier for people to travel, communicate, and do business internationally, the connectivity and interdependences among world markets and businesses will increase. And as the world becomes more intertwined, the global economy will become more susceptible to crises embedded in the more frequent boom and bust cycles. Interdependence, however, increases the chances of a domino effect derailing the global economy. Events such as the 2011 European *E. coli* outbreak, the Arab Spring civil uprisings, the sovereign debt crisis, and the Japanese earthquake illustrate that economies no longer exist in isolation. As countries prepare to meet pending challenges such as aging societies, bankruptcy, natural disasters, and millions of refugees fleeing military conflicts, the development of strategies to deal with high-impact economic volatility will become an integral part of corporate planning across all global industries.

State-controlled companies in fast-growing emerging markets will have more influence. According to classic commodity pricing theory, this could lead to lower prices in oversupplied markets. The goals of state-controlled companies go beyond maximizing profits to include maintaining employment, strengthening market share, and serving their domestic industry. These wider goals will reduce the correlation between operating production rates and cash cost margins.

In oversupplied markets, we expect state-owned players to prioritize volume over price to a certain degree. This can lead to prices even below cash cost incurred by the marginal producer’s driving down of industry margins in the downturn. It remains to be seen how aggressive and systematic emerging players will use price to achieve their strategic objectives. The moment of truth will be when their domestic markets turn from short to long.

We will not see a shortage of carbon feedstock from oil or (un-)conventional gas until 2030. Further relief is expected from the supply side through R&D advancements in bio feedstock. However, price volatility of both oil and gas remains high as the interests of the industry’s stakeholders diverge.

Recent technological advancements combining horizontal drilling and fracturing have paved the way for economically viable shale developments in North America. This has given the United States in particular a boost in confidence in feedstock availability for the next few decades, with major new projects being announced by oil companies and dedicated petrochemical players.

Ethylene is a building block for major chemical intermediaries, such as polyethylene, ethylene oxide/ethylene glycol, and ethylene dichloride/vinyl chloride monomer. The increased availability of ethane and natural gas liquids (NGL) is usually seen as a bonus mainly for the ethylene derivative chain, and the windfall is predicted to have a negative impact on major chemical intermediaries and end-use specialty chemical products, such as those that employ propylene and butadiene as building blocks. As crackers start to use less naphtha, their product mix changes often to the disadvantage of propylene (C3), butadiene (C4), and benzene (C6), resulting in falling supply and rising prices. The supply of propylene tightens as ethane yields less propylene monomer feedstock per unit than crude oil-based naphtha.

However, all is not lost: The North American petrochemicals industry not only represents the primary value outlet for the ethane that will be produced from shale developments but will also access the significant volumes of other NGLs that will be produced as the markets switch from net
imports to net exports of liquefied petroleum gas (LPGs), for example. On-purpose production of propylene in particular is expected to grow as the impact of additional ethane cracking in existing units and a rebalancing of the U.S. refining system tighten further the propylene available for chemicals. On-purpose production of butadiene and butylenes is not as well developed, but significant interest in these areas is also anticipated as the midstream players in the United States maximize the value of the NGLs. This potentially changes the picture significantly with the United States becoming a competitive environment for ethane cracking, liquids cracking, and on-purpose production of major building blocks for the key derivative chains. This may go some way to alleviating the loss of C3 and C4 molecules caused by the reduction in naphtha cracking.

In Europe, 74 percent of crackers currently run on naphtha with relatively small volumes of ethane available from a declining North Sea asset base. Significant shale deposits are believed to exist in Europe, but to date neither the means nor the will to exploit them has really been seen. Poland and France appear to have the best opportunity in Europe with Germany having limited prospects and the United Kingdom commencing drilling but already running into problems with minor earthquakes. Thus, the readjustment of cracker feedstock and the change in the product mix is less likely in Europe, but trade flows could have a significant impact in the future as petrochemicals in the United States and the Middle East both target Europe as a long-term export location.

Despite sufficient supply of hydrocarbon feedstock, chemical companies will continue to see massive volatility in commodity prices because of short-term fluctuations in demand, uncertainties, speculation, and the decoupling of oil and gas prices (see figure 4).

Adding to the overall volatility is the changing direction of chemical trade flows. China is rapidly building capacity and has increasingly been able to satisfy local demand from domestic sources.

Figure 4
Chemical companies will continue to see massive volatility in commodity prices

Dow Jones-UBS Commodities Indexes®

Source: Thomson Reuters Datastream
For example, if current trends continue, Chinese polymer imports are expected to keep dropping. China will become a net exporter between 2018 and 2025, based on current trends. India has also indicated that it will continue to push forward on a strategy of self-sufficiency in petrochemicals and has fiercely defended its industry from what it perceives as low-cost imports. The indications are that Europe may become the global pressure point for plant closures with other regional players such as Korea also coming under pressure as imported naphtha-based crackers struggle to compete.

Volatility in commodity prices will worsen in the event of a slowdown in Chinese demand. With growing fears of a bursting real estate bubble, increasing labor costs, an aging population, and potential social unrest over rising fuel prices, demand for imports could fall significantly. And if China absorbs fewer chemicals, these volumes will be shipped elsewhere, including to Europe and to the NAFTA region, potentially creating massive price pressure very quickly.

**The European Chemical Industry 2030**

Preparing for the future, chemical companies worldwide are wasting no time crafting their regional positioning strategies for 2030. Obtaining an accurate assessment of market attractiveness and size of their current footprint in each region is a good place to start.

The current competitive environment suggests that European companies are well positioned in their home markets but have weak positions in overseas markets. As a result, significant opportunities exist in overseas markets (see figure 5).

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**Figure 5**

*European companies are well positioned in their home markets but have weak positions in overseas markets*

Note: “Overall market attractiveness” is defined by size (2010), projected growth (2010-2030), price levels, and ease of doing business. European chemical companies’ “generic” positioning is defined by market share, customer access, and profitability.

Source: A.T. Kearney analysis
Overall attractiveness of a particular regional market is defined by its size and growth capacity, price levels, and ease of doing business. The more qualitative generic positioning is defined by market share, customer access, and profitability.

European players’ core and largest market is Europe. With a slow growth outlook, Europe is a market where competitors play by the rules. In terms of market attractiveness, European producers are most interested in China for its potential and growth rates. China is already highly competitive and has a government that is not shy about wielding power, even with multinational companies.

Moving down the list, the NAFTA countries remain fairly attractive as a large, homogenous market where competition is fair; but, as in Europe, growth is slow. The rest of Asia (ROA) is a relatively fragmented and highly competitive market that is slightly less appealing than the NAFTA region. However, similar to China, ROA continues to be interesting because it has some of the largest and fastest-growing economies, including India, South Korea, Indonesia, Singapore, Malaysia, and Vietnam. Finally, Latin America, Japan, and the rest of the world (ROW) are at the bottom of the list for European producers. These markets do not have the size or growth potential of the others.

Key end markets such as automotive, construction, and pulp production are all set to surge in Asia, driving growing local demand for chemicals.

In market position, European companies clearly enjoy a home-field advantage, but their positions outside of Europe are not strong, having only limited market share. Improving profitability continues to be the largest challenge for companies operating in China, while integration into Japanese networks also remains problematic. In ROA, foreign players face very fragmented markets where local competition is often backed by governments, and local demand may not justify investing in world-scale assets. In Latin America, European players could improve their market share by taking advantage of their solid competitive positions. Finally, the NAFTA countries offer potential to improve margins and capture more market share.

Call to Action

The strategy for chemical companies in established markets—Europe, Japan, and the NAFTA countries—will revolve around maintaining operations in their traditional saturated markets while also exploring growth opportunities elsewhere. The strategy for emerging players will be to manage rapid growth, entailing building more mature organizations and processes while fine-tuning systems.

Successful European chemical companies will focus on size, global reach, and innovation, and will fashion a workforce with the necessary skill sets. They will be ready to build individual plans of action, including the following: defending the European market, developing a platform for growth, and participating in Asian growth.
Defending the European market. One of the principal challenges for European chemical producers is the looming migration of some key customer industries to Asia. Defending the European market, therefore, begins with the right allies, such as those value chains that are less likely to migrate. In principle, industry value chains will stay in Europe if their customer industries stay intact and remain there. If production costs remain competitive and relocation is costly, incentives to move are low. Also, several inherent advantages of regional or local production can outweigh the advantages of producing in Asia; these include customer proximity, logistics costs, and the agility to respond to often rapidly changing customer demands.

In addition, preservation and further nurturing of the competitive edge in key areas will be important—areas such as innovation and complexity management, which are often brought to life by market dynamics and technological developments. Creating a supportive European regulatory environment will also help defend the European chemicals market.

Selecting the right business model is also essential. Focused specialists with a scale advantage in materials and in customer industries have the highest margins. By comparison, broad-based specialists are often challenged by the complexity of their product portfolios.

The indications are that Europe may become the global pressure point for plant closures.

We expect focused specialists and integrated players to prevail by deploying their successful business models on a global scale. The business models are based on organic growth through innovation and investment in assets and capabilities. But success will also require courageous moves toward external growth, including mergers and acquisitions outside players’ domestic markets.

Developing a platform for growth. This will mean European players continue their roles as pioneers in developing innovative products—participating in and further developing innovative industries in Europe.

Here, the focus will be on inventions aligned with global mega trends that ultimately generate future growth platforms. These include alternative feedstock and energy sources, improved energy storage, intelligent materials, and nutrition (see figure 6 on page 11). These platforms will allow the European chemical industry to derive unique products, which are essential for growth. For example, the chemical industry can be involved in clean tech related to value chains, an area where new growth opportunities reside in using both existing chemical solutions and soon-to-be-commercialized chemical innovations.

The existing chemical solutions will further push improvements in weight reduction—a key trend in transportation. The chemical industry already has significant offerings in this field and might contribute more, for example, with carbon fiber solutions. Insulation can boost reduction of carbon dioxide footprints of buildings to fight global warming. In a world where mega cities grow like mushrooms, recuperating valuable raw materials, known as urban mining, will be increasingly important. The chemical industry has answers to these challenges.
Figure 6

Europe’s growth opportunities are primarily in highly innovative products related to global mega trends

Mega trends | Examples of future growth platforms
---|---
Natural resources and environment | Alternative feedstock
- Bio and renewable feedstock
- Coal to liquid
- Urban mining
Environmental technology | Alternative energy
- Shale gas, photovoltaic, and solar thermal
- Wind energy

Demographics | Efficiency
- Lightweight materials
- Insulation

Globalization | Energy storage
- Li-ion batteries
- Fuel cells

Regulation and activism | Nutrition
- Advanced biotech
- Food chain efficiency

Technology and innovation | Intelligent materials
- Nano materials
- Functional textiles

Consumption patterns |

Source: A.T. Kearney analysis

Figure 7

Innovative solutions allow the chemical industry to generate value beyond the traditional payment per ton supplier role

Levers of chemical companies across the value chain

<table>
<thead>
<tr>
<th>Materials advantage</th>
<th>Process excellence</th>
<th>Patent control</th>
<th>Application know-how</th>
<th>Customer relationships</th>
<th>Brand</th>
</tr>
</thead>
</table>

Physical value chain

Raw materials → Chemical industry → Direct customer → Tier 1 supplier → Original equipment manufacturer → End customer

Source: A.T. Kearney analysis
The clean tech platform also offers growth potential because of anticipated innovations in chemicals. For example, chemical products drive the cost, performance, and safety of automotive batteries. Advances in chemicals are critical to improving the power and energy density of lithium-based batteries as the automotive industry moves toward electric vehicle production. And second-generation biofuels require a combination of chemical and biochemical knowledge for pre-treatment and sugar and starch extraction. These are just a few examples that illustrate how European chemical companies can leverage their strengths in product innovation to retain and further build a competitive edge.

Innovative solutions will help the chemical industry transition from a traditional supplier role of being paid by the ton of material to play a more important and indispensable role in the industry value chain. There are several ways to meet this goal. As shown in figure 7 on page 11, every value chain has sweet spots that companies can use, to a certain degree, to control the development of the industry and earn above-average, sustainable returns. In chemicals, these include materials advantage, process excellence, patent control, and application know-how—and they reach far beyond the chemical industry to have, ultimately, an impact on end users.

Domestic players that have taken advantage of Asian economic growth are now increasingly making the Fortune 500 list.

Participating in Asian growth. The current size of Asia’s economic progress cannot be matched by any other region in the world. Countries in Asia are developing their infrastructures and assets, increasing their global manufacturing capacity, and building wealth within growing populations. Although Asian growth rates will not reach the levels experienced in the last 10 years, they will continue to dwarf growth rates of saturated markets in Europe. Therefore, the best option for European producers is to participate in Asian growth. To satisfy the demand in Asia, several customer industries for European players have already shifted activities to Asia and will continue to do so. Indeed, much of the global output in consumer goods, textiles, automotive, construction, industrial equipment, food, and agriculture is now increasingly allocated to Asian production sites.

To maintain a connection to these industries will require European chemical producers to leverage the competitive edge of their existing products and relationships to supply out of Asia or Europe, depending on the product and cost competitiveness. Growth options for European chemical players include developing local products, collaborating with Eastern players, transferring know-how, developing specific local sales approaches, and adjusting offerings to local regions.

However, we advise our European clients to proceed with caution rather than rushing into Asia. Yes, China is a very attractive market, but several risks need to be considered, including price sensitivity, environmental challenges, increasing labor costs, a threatening real estate bubble, powerful authorities, and intellectual property (IP) protection issues. These factors weigh heavily on the obvious advantages. Therefore, China should not be the only market considered.
There are several developing countries to keep an eye on (see figure 8). Although significantly more modest than China or India in terms of output volumes, Indonesia, Malaysia, South Korea, and Vietnam are also considerable Asian markets. The populous Turkey in Europe or Mexico in the NAFTA region are also markets with favorable demographics, ease-of-doing-business environments, and skilled workers. Countries such as Chile, Colombia, and South Africa also hold substantial development potential for similar reasons. These emerging markets are worth investing in for the long term, both to balance risk and to capture the rewards of local economics.

**Building the necessary skills and scale.** In regional markets, determining whether adapting to local standards is the answer to competing with local companies will be important. While each regional market requires a unique set of skills to succeed locally, fully adapting to these markets might not be the smartest competitive play for newcomers. For example, a European company with traditional strengths, such as innovation and a superior brand value, might use these to beat Chinese competitors with strengths in cost competitiveness and flexibility to supply to unstable demand. The skills that European players already have at their disposal and to which they traditionally owe their success can be exported, providing an opportunity for unique selling positions in emerging markets. However, it is important that competitive gaps do not become too wide: Capitalizing on your traditional strengths may provide an edge, but only if you are in the same ballpark on the other dimensions. Finally, lining up the necessary skills is only the first step: The real balancing act for future chemical players with global reach is to establish governance structures to manage different skill sets across different cultures.

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**Figure 8**

*Some less obvious emerging markets have development potential for Europe’s chemical players*

<table>
<thead>
<tr>
<th>Positive trends</th>
<th>Countries to keep an eye on</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Europe</td>
</tr>
<tr>
<td>Favorable demography</td>
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<tr>
<td>Enabling environment</td>
<td></td>
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<tr>
<td>Skilled resources</td>
<td></td>
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<tr>
<td>Ease of doing business including IP protection</td>
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<td></td>
<td></td>
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</tbody>
</table>

*Note: NAFTA is North American Free Trade Agreement. IP is intellectual property.*

*Source: A.T. Kearney analysis*
Creating a supportive environment. Beyond chemical companies, the broader community of stakeholders also has a role to play in the success of the European chemical industry.

The first call to external stakeholders is to create a supportive environment for science and industry aimed at embracing innovation, promoting broader public acceptance of manufacturing industries, and fostering an environment in which the chemical industry and its customer industries can jointly develop a value network.

External stakeholders can also help create a level playing field by offering incentives to encourage fair competition, supporting research in new growth industries, striking a healthier balance of environmental regulations between the European Union and competing regions, and enforcing reasonable approval requirements, processes, and timelines.

Finally, stakeholders can help close the education gaps by building stronger education programs in chemistry, engineering, and other sciences from high school through the postgraduate levels.

Chemical Leader = Strategist

Preparing to meet the global challenges of 2030 is not for the faint-hearted. Tomorrow’s chemical executives will not only be dealing with the unpredictable aftermath of the global recession and economic volatility, but also anticipating and preparing for a variety of other scenarios—from natural disasters and pandemics to terrorist attacks. Add demographic changes and the depletion of natural resources to the mix, and chemical leaders have their work cut out for them.

In a volatile economy, fast reactions to unexpected changes are pivotal. A.T. Kearney’s rapid response framework is an invaluable tool for gaining immediate impact and a growing advantage. This blueprint for acting fast at the right time can be used to capture opportunities and prepare for potential downturns. Our rapid response framework can be used for many objectives, from identifying and capitalizing on windows of opportunity and speeding up crisis recovery to adding increased flexibility to general business planning.

Traditional strategic planning is no longer enough. Chemical executives are now required to be versatile strategists, able to think in several worlds and prepare for various scenarios while gaining agility up and down the entire value chain. Success in the 2030 world of chemicals will require nothing less.

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- Singapore
- Sydney
- Tokyo

### Middle East and Africa
- Abu Dhabi
- Dubai
- Johannesburg
- Manama
- Riyadh

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