



REACTION

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Articles include:

Women in Chemistry

Pro-growth environment pays off for Indian chemical companies

Paints and coatings players seek more growth through consolidation

Featuring interviews with:

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BASF

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Vice President, Head of Advanced Surface Solutions
Clariant Plastics & Coatings AG

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Introduction

Welcome to the latest edition of REACTION Magazine and the first for 2018. It's been another strong start to the year across the industry with a focus on continued growth leading the strategic agenda. However, as we set out in the last edition, geopolitical risks remain to the fore and as the year progresses, we'll start to see how companies are responding to US Tax Reform and Brexit — more on both of those in future editions.

In this edition, I'm hugely excited that we are focusing on the extremely important issue of gender equality and I'm delighted that a number of senior female leaders from the industry have joined us to talk about their experiences. I was also honored recently to be able to present at the inaugural European Coatings Leading Women's Forum — the debate was lively and there was huge energy and passion from the participants. Increasing equality is a burning platform for almost every industry and something that we all must do more to drive positive change.

We also have articles on the changing landscape in India including the growing market for chemicals and how the historic challenges around doing business are being tackled. Finally, we return to M&A, with a specific focus on consolidation, within the paints and coatings segment.

We'll be back with our next edition in June with an outlook for the Japanese chemical industry and an initial look at the challenges and opportunities offered by US Tax Reform. If there are any other topics you would like us to cover in future editions of REACTION, please don't hesitate to contact us.



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Chemical companies find new opportunities with gender equality

By Regina Mayor

Gender diversity is making steady progress in the chemical industry. Over 35 percent of chemists are women, and that number continues to increase.¹ A 2017 study by Bloomberg shows that chemical engineers in the US who are women have now reached pay parity with their male colleagues.² In addition, improved diversity is supported through government policies, corporate initiatives, and a growing number of groups and professional networks dedicated to helping women advance their careers in chemical companies.





Gender equality and increased business performance

In a recent survey,⁴ 42 percent of business leaders cited fairness and equality as the most important reason to support gender parity, followed by other factors such as enhanced innovation, the gender composition of their customer base, and enhanced decision making. Only 8 percent mentioned financial returns, which is surprising because a growing body of research suggests that gender parity can be directly linked to a measurable increase in economic performance.

The annual Credit Suisse Gender 3000 report regularly finds that companies with a higher participation of women in decision-making roles can generate

higher returns on equity, higher valuations, better stock performance and higher payouts of dividends.⁵ The report from 2016 stated that among 3,000 companies surveyed, having a woman in the managerial ranks has increased a company's return on capital by 3.3 percent over the past decade.⁶ And companies in which women make up 15 percent of management are 50 percent more profitable than those with less than 10 percent.⁷

In line with these findings, a study by the Peterson Institute for International Economics found a significant correlation between women in leadership and company profitability: companies with at

least 30 percent female leaders had net profit margins up to 6 percentage points higher than companies with no women in the top ranks.⁸

Gender equality is both a moral and an economic imperative.³

Saadia Zahidi

Head of Education,
Gender and Work, WEF



¹ Closing the Gender Gap in STEM Fields, Girls in Tech, 17 March 2017, <https://www.bloomberg.com/graphics/2017-women-stem-jobs/>

² Women Close Gender Pay Gap in Two Stem Jobs, Lag in Others, Bloomberg, 2 June 2017, <https://www.bloomberg.com/graphics/2017-women-stem-jobs/>

³ Op. cit. Global gender gap will take 100 years to close

⁴ Future of Jobs Survey, World Economic Forum, 2016, http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

⁵ Higher Returns with Women in Decision-Making Positions, press release, <https://www.credit-suisse.com/corporate/en/articles/news-and-expertise/higher-returns-with-women-in-decision-making-positions-201610.html>

⁶ Ibid.

⁷ Ibid.

⁸ New Proof That More Female Bosses Equals Higher Profits, Fortune, 8 February 2016, <http://fortune.com/2016/02/08/women-leadership-profits/>



New company policies, laws and grassroots campaigns

Global chemical companies including Akzo Nobel Coatings and PPG Industries are implementing policies to make it mandatory for equal pay irrespective of gender across their business operations.

At the same time, a number of national laws now encourage or mandate gender parity in chemical companies. The French government passed a major gender-equality law in 2014 that promotes gender parity in the workplace.⁹ In the UK, a new law requires that companies publish

their gender pay gap.¹⁰ German companies are mandated to reach a target of 30 percent or more women representatives on their boards, as stipulated by the 2015 Law on Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector.¹¹

In the US, there are no legal requirements that specifically target the participation of women on boards of US companies. However, several grassroots campaigns aim to accelerate the rate at which companies increase

participation by women.¹² For instance, 2020 Women on Boards is a national campaign to increase the percentage of women on US company boards to 20 percent or greater by the year 2020. The Thirty Percent Coalition is a national organization that is committed to the goal of women holding 30 percent of board seats across public companies. In addition, the Center for Economic Development has developed the Every Other One initiative to encourage US companies to appoint a woman to every other board seat that opens up.¹³



⁹ France passes sweeping gender equality law, Reuters, 6 August 2014, <https://www.reuters.com/article/us-france-women-idUSKBN0G61OO20140806>

¹⁰ Gender pay gap law could have significant impact, say experts, The Guardian, 6 April 2017, <https://www.theguardian.com/society/2017/apr/06/gender-pay-gap-law-could-have-significant-impact-say-experts>

¹¹ Act on Equal Participation of Women and Men in Executive Positions in the Private and the Public Sector, DLA Piper, <https://www.dlapiper.com/en/germany/insights/publications/2015/03/act-on-equal-participation-of-women-and-men/>

¹² Gender Parity on Boards Around the World, Harvard Business Review, 5 January 2017, <https://corpgov.law.harvard.edu/2017/01/05/gender-parity-on-boards-around-the-world/>

¹³ Ibid.



Organizations supporting gender diversity in the chemical industry

The Royal Society of Chemistry supports several groups aimed at improving the role of women in the chemical industry. These include the Association for Women in Science and Engineering, the UK Resource Centre for Women in Science and Engineering, and the European Association for Women in Science, Engineering and Technology. Their Women Members Network¹⁴ provides support and essential networking opportunities for members to meet others in their area of work or who are facing the same issues. Regional network events vary from simple social events to lectures on professional development or a broader scientific topic.

The Women Chemists Committee of the American Chemical Society¹⁵ serves the membership of the American Chemical Society. The committee's mission is to be leaders in attracting, developing, promoting, and advocating for women in the chemical sciences in order to positively impact society and the profession.

The Women in Coatings Group of the Society for Protective Coatings (SSPC) is a leading forum for women empowerment in the coating industry. The group was established in 2010 to provide an inclusive network, promote equal opportunities for genders, support leadership and recognize contributions by women in the coatings industry. Every year, the group provides the 'Women in Coatings Impact Award' that recognizes women who have made exceptional contributions and positively impacted the culture of the organization.

In addition, the Center for Public Health Initiatives (CPHI) North America and InformEx conducted the Women in Leadership Forum in May 2017.¹⁶ The purpose of the forum was to assemble women executives from across the pharmaceutical and specialty chemicals industries to network, share experiences, trade knowledge and build a community for the advancement of women.

The Women in Coatings Group of the Society for Protective Coatings (SSPC) is a leading forum for women empowerment in the coating industry.

¹⁴ Royal Society of Chemistry, <http://www.rsc.org/Membership/Networking/WomenMembersNetwork/>

¹⁵ ACS, <http://www.womenchemists.sites.acs.org/>

¹⁶ Women in Leadership Forum | CPhI Worldwide, <https://www.cphi.com/europe/women-leadership-forum-cphi-worldwide>



Steps that companies can consider to narrow the gender gap

Over the past few years, more women have been promoted to top management roles and company board positions. Successful women have been complimented and rewarded for their achievements. However, continued progress can be supported by considering the following steps:

Recognize the business case for gender diversity

For businesses, support for gender diversity is a matter of both doing good and doing well. Put simply, companies that hire more women make more money, so gender diversity should be a part of both immediate initiatives and long-term business strategies.

Hire women who can hire women

Research has repeatedly shown that when women are better represented in leadership roles, more women are hired across the organization.¹⁷ This holds true even when considering disparities in the size of female talent pools across

industries. Female candidates may also be more attracted to companies with higher proportions of leaders who are women, since these companies might have more opportunities for women to advance their careers.

Support transparency

A gender gap still exists for the most part when it comes to pay. There are fair questions about whether the gap is solely due to gender. Often, this starts with full transparency

about differences in pay levels for similar roles and positions.

Continue to evolve

Companies need to continually rethink their business and operational models, and that includes how their employees work and live. For example, companies can count parental leaves as years of service and grant generous sabbaticals for women as well as men. Flexible working hours for employees can help them balance work with obligations at home.



¹⁷ The key to closing the gender gap? Putting more women in charge, World Economic Forum, <https://www.weforum.org/agenda/2017/11/women-leaders-key-to-workplace-equality>

Women leaders on gender in the chemical industry



Both diversity and inclusivity are essential

Mayor serves as KPMG Global and US Sector Leader for Energy and Natural Resources, helping to determine the firm's strategy to better serve the energy and chemical industries. Additionally, she is a strong voice supporting women's leadership and networking programs for women in energy and serves as co-chair of the Houston Women Corporate Directors Chapter. She was recognized by the *Houston Business Journal* in 2017 for Women Who Mean Business, and as a "Who's Who in Energy" every year since 2013. Additionally, she was named to *Oil & Gas Investor's* 2018 Most Influential Women in Energy list, and *Houston Woman Magazine's* 50 Most Influential Women of 2016 list.

In a recent conversation with REACTION, Mayor shared her views about gender diversity and its importance for companies. "I'm a passionate believer in diversity at all levels," she stressed. "Industries have made great strides to improve our diversity mix, but we still have a long way to go. I'm encouraged by what I see as a widespread recognition that yes, we have a gap and an opportunity to close it. It's still a work in progress."

Mayor pointed to efforts by American Fuels and Petrochemical Manufacturers (AFPM) in promoting diversity in the chemical industry. AFPM is helping to bring women in the industry together with a focus on making connections and contacts, sharing information and knowledge, and finding support from others. "The AFPM's support and involvement have been a great way to encourage interest by women in the industry," she said.

Mayor also added her thoughts about how companies need both inclusiveness as well as diversity. "By inclusive, I mean that there should be a role for everyone, that everyone is embraced in the workings and culture of the company. Diversity means a diversity of thought, including different genders but also different cultures, geographical regions and countries, with all being accepted by the company."

She added that diversity in the workplace "is still a work in progress," but noted that personnel training, new HR policies, and other factors can help encourage women in business.

Regina Mayor
Global and US Sector
Leader for Energy and
Natural Resources
KPMG in the US



She mentioned mentoring in particular as a valuable benefit. "Senior women executives can give back so much to the industry. This includes speeches, public appearances and panel discussions but also mentor relationships with the next generation of women entering the workforce. That can cover not just advancing their career but achieving a good work/life balance."

Diversity means a diversity of thought, including different genders but also different cultures, geographical regions and countries, with all being accepted by the company.



A performance-based culture helps to build winning teams

Gloria Glang, Vice President, Head of Advanced Surface Solutions at Clariant Plastics & Coatings AG, progressed fast in her career. After leadership roles at PPG, KPMG in Germany and BASF plus educational stints at INSEAD, she was asked to join Clariant. She is recognized as one of Switzerland's leading female business executives, 'top 40 under 40', and was named a "Rising Talent" by the Women's Forum, Egon Zehnder International and Eurazeo. The Generation CEO initiative named her as one of the Managers of the Year. She also serves as a board member of the Leading Women's Forum supported by European Coatings Journal and co-sponsored by KPMG.

"A sustainable, good team should preferably be assembled highly diverse to reassure profitability, innovative capability and reflection — if you don't nurture an environment of gender equality, you forego probably half of a company's true potential. As a leader you need to foster talent, challenge and promote." Glang strongly believes in the critical importance of innovation and performance. "I never felt short of being given the same opportunities as men. Independent of gender, continuous performance will lead to awareness and positively influence one's career."

In her leisure time, Glang did professional show jumping. The sport has also been long dominated by men, but she became a champion

because, in her words "it didn't matter if you were a male or female; the only thing that mattered on the field was performance." Gender equality should be part of a company's culture — but always alongside other important things like development, engagement, accountability or performance orientation. The point is, you have to deliver results, regardless of being male or female.

When asked if she had felt pressure as a female leader to be an outspoken champion of gender equality. It is a positive challenge, but the challenge is not only on gender equality, she suggested, it's about values and culture, about providing chances to succeed no matter what background. Glang agrees that being a woman adds an additional dimension to leadership responsibilities as probably many of our young, female talents may scrutinize her attitude and behavior more thoroughly than they would with male leaders. During her career, Glang always tried to recruit as diversely as possible. Diversity means creativity; it means different thoughts and views, different ideas and understanding of cultures and customer needs. Driving a winning performance — becoming faster, better, smarter, greener or cheaper than your competition — requires a best-in-class, diverse team to use its full potential."

Glang also discussed the challenge of recruiting young women for chemical companies. "Outside-in,

Gloria Diana Glang

Vice President
Head of Advanced Surface Solutions
Business Unit Additives
Clariant Plastics & Coatings AG



the chemical industry is perceived as being conservative, but once you become a part of the industry, you quickly realize that it requires a tremendous amount of out-of-the-box and innovative thinking. Offering products across various layers into several different markets, you need to be creative in understanding the value chain and the value needs of your customers. Out of experience, diverse teams drive better results."

Glang added that support for gender equality but likewise for diversity in general, has to begin at the top with full management buy-in.

Gender equality is more than a goal in itself. It is a precondition for meeting the challenge of reducing poverty, promoting sustainable development and building good governance.¹⁸

Kofi Annan

¹⁸ <https://yourstory.com/2017/04/kofi-annan/>



Diversity and inclusion are enablers that allow gender equality to happen

Like many of today's women leaders, Heidi Alderman regards her mother as an important influence. "She was a very intelligent and capable woman who worked as a partner with my father in building a successful import business," she says. "As a role model, she taught me valuable lessons about being a professional woman, and she always emphasized the importance of education. She would tell my brother, sister and I that 'what you have in your head can't be taken away.' That was something I've always remembered." Not surprisingly, Alderman eventually earned Bachelor's and Master's degrees in chemical engineering and an MBA from The Wharton School at the University of Pennsylvania.

Alderman now serves as Senior Vice-President, Intermediates, at BASF. In talking with REACTION, she discussed the importance of gender equality and its relationship with diversity and inclusivity. "Diversity and inclusion are enablers that allow gender equality to happen. If you have an environment that's diverse and inclusive, then gender equality isn't even a topic; it's simply what the company is." She added, "In recent years, there have been so many studies done that show a strong correlation between better financial performance and the diversity of the organization from top to bottom. Diversity of senior leadership and at the Board level are important differentiators for making this happen. BASF is the largest chemical company in the world. We produce

chemicals that go into many different markets, from petrochemicals to construction to cosmetics. Our customers (and their customers) as well as our suppliers are diverse and they want to do business with companies that share the same values as they do. We definitely understand the business case for gender equality and we made it part of our culture at BASF."

Alderman offered numerous examples of how her company supports a culture of gender equality. She noted that BASF has established specific goals worldwide for the promotion of diversity in its management team. By 2021, the company wants to raise the overall proportion of women in positions with disciplinary leadership responsibilities to between 22 and 24 percent, a share that reflects the current percentage of women in BASF's global workforce. In North America, BASF is looking to make "faster and bolder progress" in both diversity and inclusion. The recruitment process has been structured to ensure a diverse slate for both candidates and interviewers. "If you don't interview diverse candidates, you certainly don't hire them! In addition, we have found that a diverse interview panel makes different choices. This is critical to ensuring that BASF attracts the best men, women and people of all backgrounds to help us anticipate and meet market needs in new ways."

Along with its hiring practices, BASF is committed to building a diverse and inclusive work environment through a formal mentoring program

Heidi Alderman
Senior Vice President,
Intermediates, NA
BASF



and employee resource groups designed to help people connect with co-workers on different levels, build knowledge and skills, and learn more about markets and customers. These groups foster a sense of community and help employees develop personally and professionally. In addition, the executive women at BASF in North America have formed a Women in Leadership group, which aims to boost the recruitment, career development and employment of women and fosters a leadership culture that supports those aims.

Alderman also explained how the goal of gender equality is an important part of BASF's "family-friendly" policies, which include progressive maternity and paternity leave, bereavement leave and flexible work programs. "Take the time you need to help those who need you," she said. "That's the idea behind these policies. They support both men and women, and that's really a direct benefit of gender equality."

In North America, BASF is looking to make "faster and bolder progress" in both diversity and inclusion.

Gender equality is everyone's job



Keri Lynn Fleming

Chief Human Resources Officer
Benjamin Moore & Co.



Keri Lynn Fleming is Chief Human Resources Officer at Benjamin Moore. Her position gives her a unique perspective on women leadership in today's corporations.

She notes that the HR function has gone through significant changes in recent years. "Traditionally, women gravitated to HR because it was seen as a career that valued empathy and relationship skills. But lately, the HR function is being asked to be a much more integral part of the company's business model. That's a win for us, but it also means that HR needs to reflect more diversity in our hiring and advancement, just like any other function. We have an obligation as HR professionals to ensure that we balance robust business skills with soft skills, and that includes everyone on the HR team."

Fleming concedes that gender issues can be complex and persistent. "Men and women are not the same, and our differences are a huge asset for all of us. But nobody has any easy fix; progress is a matter of a series of impactful but manageable steps that will make a real difference."

When asked about steps that companies can take to support equality and diversity, Fleming cautions against a simple, check-the-box approach based on regulations or general corporate guidelines.

"The biggest challenge is to understand that we have this issue to begin with. We need to be aware of where we are and the future state

of where we want to be. We need to know what 'good' looks like. Then we need to find — and follow — the path that will take us there."

Fleming says that new attitudes about gender equality are finding favor across the industry, including her own company. "At Benjamin Moore, we talk about 'doing the right thing' for each other, for the corporation, our products and innovation. That's really how change begins — an ongoing, daily acknowledgement of these issues so that in the future, gender equality is simply a part of the corporate culture and the way we all work together better and more effectively."

She adds, "If we look at gender equality in the workplace and society as only a women's issue or the sole responsibility of women, then little or no progress will be made. Gender equality is everyone's job."

Men and women are not the same, and our differences are a huge asset for all of us. But nobody has any easy fix; progress is a matter of a series of impactful but manageable steps that will make a real difference.



Regina Mayor

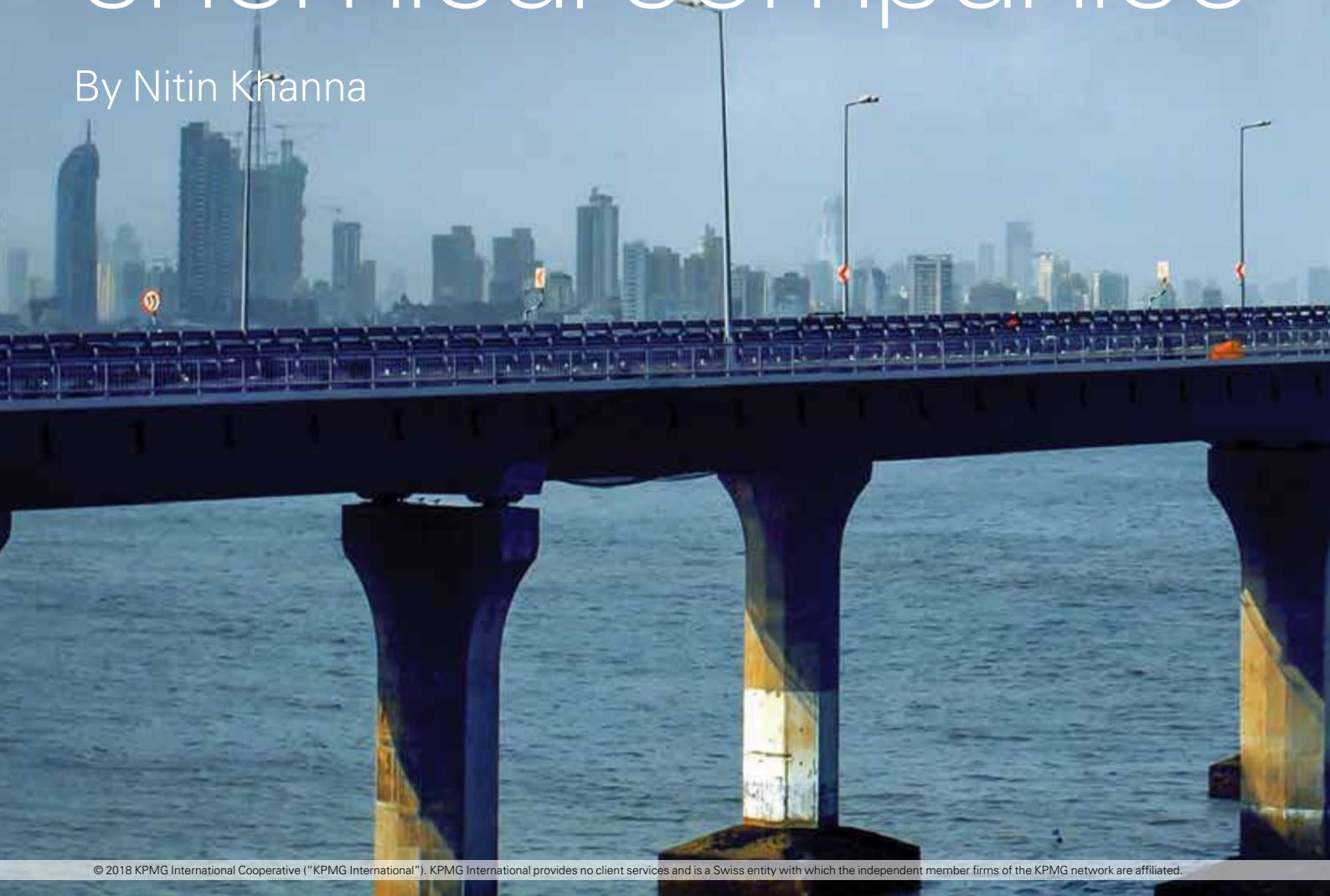
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Regina has over 25 years of experience delivering large-scale business and technology changes to major energy companies around the world, and serves as the lead partner for several of KPMG's key Energy clients. Her expertise in providing advisory services spans across the entire energy value chain from wellhead to retail and from power plant to burner tip.

Additionally, Regina is a strong voice supporting women's leadership and networking programs. She serves as co-chair of the Houston Women Corporate Directors Chapter and is on the board of the Greater Houston Women's Chamber of Commerce and supports the United Way Women's Initiative steering committee in Houston.

Pro-growth environment pays off for Indian chemical companies

By Nitin Khanna



India is steadily moving up the ranks as a global economic power and a business magnet for investment. Key drivers for success in the chemical sector include proximity to strong growth markets, greater ease in doing business, and the continued development of petroleum, chemicals and petrochemical investment regions (PCPIRs). Backed by one of the strongest GDP growth rates in the world, the future looks bright for the Indian chemical industry.



Facts to know about India's chemical industry¹⁹

3rd



India is the third largest consumer of polymers, the third largest producer of agrochemicals and the seventh largest chemical producer in the world.

16%



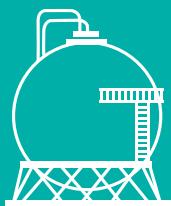
India accounts for approximately 16 percent of the world's production of dyestuff and dye intermediates, particularly for reactive acid and direct dyes.

13%



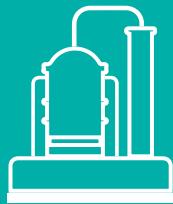
The industry produces more than 70,000 commercial products that account for 13 percent of GNP.

12.17%



Indian chemicals accounted for 12.17 percent of total national exports and 9.91 percent of total imports in 2016.

23%



By 2030, 23 percent of the global middle class will probably be Indian, supporting strong demand for specialty chemicals in the automotive, personal products, water treatment and constructions segments.

¹⁹ IndiaChem 2016, Federation of Indian Chambers of Commerce and Industry (FICCI), www.ficci.in/study-page.asp?spid=20761§orid=7; TechSci Research, www.techsciresearch.com/; Chemicals and Petrochemicals Sector, Achievement Report, 2017, www.makeinindia.com/home; India Brand Equity Foundation, Chemicals presentation, February 2017, IBEFORG



An economic tiger

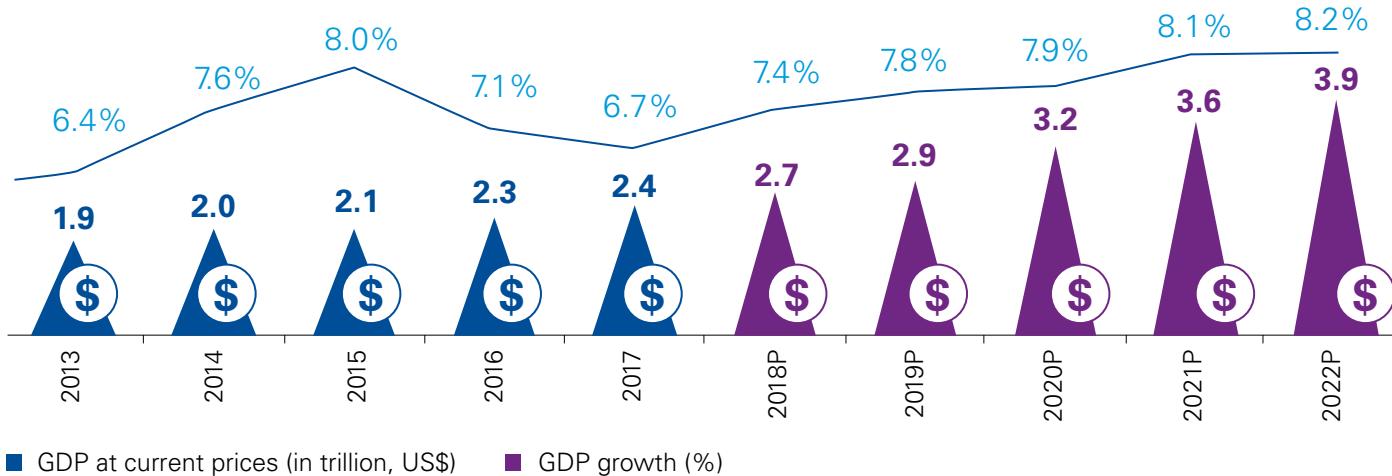
If China is the dragon economy of Asia, India is definitely a tiger. With a GDP growth rate of approximately 7 percent²⁰, India is currently outpacing China as the world's fastest rising major economy. The country is the sixth largest economy by nominal GDP and the third largest by purchasing power parity (PPP).²¹ India is also on track to becoming the world's third largest economy by the next decade and the second largest by 2050.²²

One of the strongest drivers of the nation's economy is a population that is rapidly becoming larger, younger, more middle class and more urban. The total population has now reached 1.3 billion, approximately 20 percent of the world's population.²³ By 2030, India is expected to have more people than China.²⁴ Analysts also expect the country to have the youngest average age in the world by 2020. By 2050, the country is projected to add 300 million new urban residents.²⁵ Even today, every

sixth person in the world moving to an urban area is Indian.²⁶

These demographic trends will support increased demand for appliances, housing, healthcare items, new automobiles, clothing, and a diet that includes more protein and less grains.²⁷ In addition, long-term economic growth for India is forecast because of proximity of expanding markets in Asia, healthy savings and investment rates, and increased integration into the global economy.

Current and projected Indian GDP growth rate (2013–2022)



Source: IMF World Economic Outlook database, October 2017. (P= Projections.) Found at Invest India, www.investindia.gov.in/why-india

²⁰ India's growth to recover to 7% in next few quarters: Report, EconomicTimes, www.economictimes.indiatimes.com/articleshow/62068055.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cpst

²¹ The World's Top Economies, Investopedia, <https://www.investopedia.com/articles/investing/122315/worlds-top-10-banks-jpm-wfc.asp>. Based on WEO database, April 2017

²² Top 10 Largest Economies In The World by GDP Nominal (2015), Reinis Fisher, www.reinisfischer.com/top-10-largest-economies-world-gdp-nominal-2015

²³ www.worldpopulationstatistics.com

²⁴ Ibid.

²⁵ World Cities Report 2016 — Urbanization and Development: Emerging Futures, www.unhabitat.org/wp-content/uploads/2014/03/WCR-%20Full-Report-2016.pdf

²⁶ Ibid.

²⁷ United Nations, Department of Economic and Social Affairs, Population Division



Steady market strength for chemicals

Indian chemical companies support a sizable and highly diversified industry that includes commodities, specialities, polymers, agrochemicals and a range of other groups. Total chemical sales are expected to grow from US\$139 billion in 2014 to US\$214 billion by 2019.²⁸ By 2025, the Indian chemical industry is projected to reach US\$403 billion.²⁹

Organic chemicals dominate both exports and imports. During 2016, organic chemicals accounted for 41.84 percent of India's chemical exports, followed by miscellaneous chemicals that made up 18.59 percent of total chemical exports.³⁰

Specialty sales are expected to reach US\$90 billion by 2023.³¹ Compared to developed markets, current per capita usage of specialty chemicals in India is still quite low, so this sector represents significant growth potential. Within specialities, prospects for construction chemicals are especially promising. From total sales of US\$573 million in 2014, the sector is expected to reach US\$214 billion by 2019.³² Indian construction chemicals include a variety of products ranging from admixtures to sealants. Admixtures form the largest segment with 42 percent, followed by 18 percent from adhesives and sealants.

Petrochemical Outlook Remains Positive

The petrochemical market in India is expected to grow at a CAGR of 10 percent over the next 5 years to reach US\$100 billion by 2022.

Polymers continues to be a promising sector. Between 2000–2015, India's polymer demand grew at 9 percent CAGR to reach about 11 MMTPA in 2016. The growth momentum is likely to hold with demand expected to register 10 percent CAGR for next 5 years driven by demand in packaging, construction and automotive manufacturing. To give an idea of domestic growth opportunities in this area, per capita consumption of polymers in India is only 5.2 kilograms (kg) whereas China consumes six times that number.

Polyester is another high potential segment of Indian petrochemicals sector. 80 percent of the world population needs more fibre. Polyester is expected to account for the bulk of this incremental fibre demand globally. In India, per capita fibre demand is below global average, offering room for growth. As India continues on the path of economic prosperity, its polyester demand is expected to clock north of 10 percent CAGR over the next 5 years.

In addition to basic and intermediate petrochemicals, the industry can also support growth based on the development of niche products for exports and advanced integrated complexes for polymer production.

Several ambitious petrochemical manufacturers have already taken dramatic steps to change the competitive landscape. The sector has long been dominated by a handful of players, most notably Reliance Industries Limited (RIL), currently with

56 percent share. Players are already looking to expand further into the petrochemicals space with aggressive expansion plans being announced by most major players.

As planned capacity expansions come on-stream, Indian petrochemical players may also need to strengthen their sales and distribution network. At present, the domestic distribution network is concentrated around a few producers. As a result, distributors face margin pressures and small-to mid-sized distributors are hindered by unreliability in supply. Petrochemical companies should develop strong sales and distribution networks and set up production plants to minimize landed costs.

India is already the world's third largest producer of agrochemicals and ranks fourth in terms of production of crop protection chemicals. The market for crop protection chemicals in India is expected to reach US\$7.5 billion by 2019. Demand growth is based on a rapidly growing population and a decrease in per capita availability of arable land, both of which result in a greater need to increase agricultural yield.



²⁸ India's chemical industry to touch \$214b by 2019: report, The Hindu Businessline, 29 October 2017, <https://www.thehindubusinessline.com/economy/macro-economy/indiass-chemical-industry-to-touch-214b-by-2019-report/article7818782.ece>

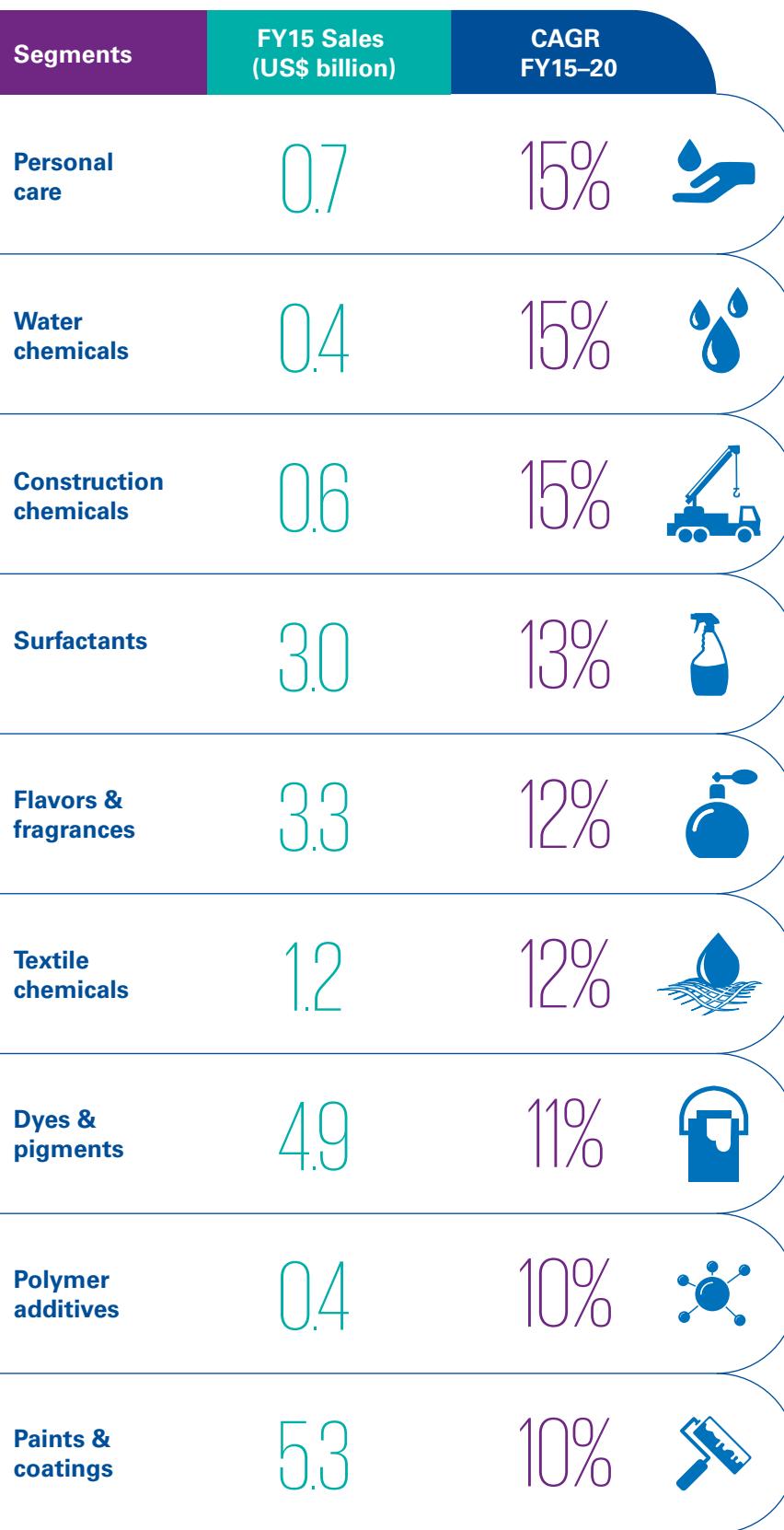
²⁹ IBEF

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

Double-digit growth



Sources: Philip Capital India Research; IBEF; FICCI & Tata Strategic Management Group; AvendusCapital Pvt. Ltd, 2017

Selected Indian chemical players

Tata Chemicals is one of the top chemical companies in India. The company product range includes soda ash, chemicals, fertilizers, industrial finishing products, etc.

Gujarat Fluoro Chemicals is a major producer of refrigerants, chloromethanes and polytetrafluoroethylene.

BASF India produces plastic, catalysts, crude oil, crop technology, natural gas, chemicals, performance chemicals, etc.

Aarti Industries is a leading supplier to global manufacturers of dyes, pigments, agrochemicals, pharmaceuticals and rubber chemicals.

Gujarat Heavy Chemicals manufactures soda ash (anhydrous sodium carbonate) that is a major raw material for detergents, glass products and sodium bicarbonate.

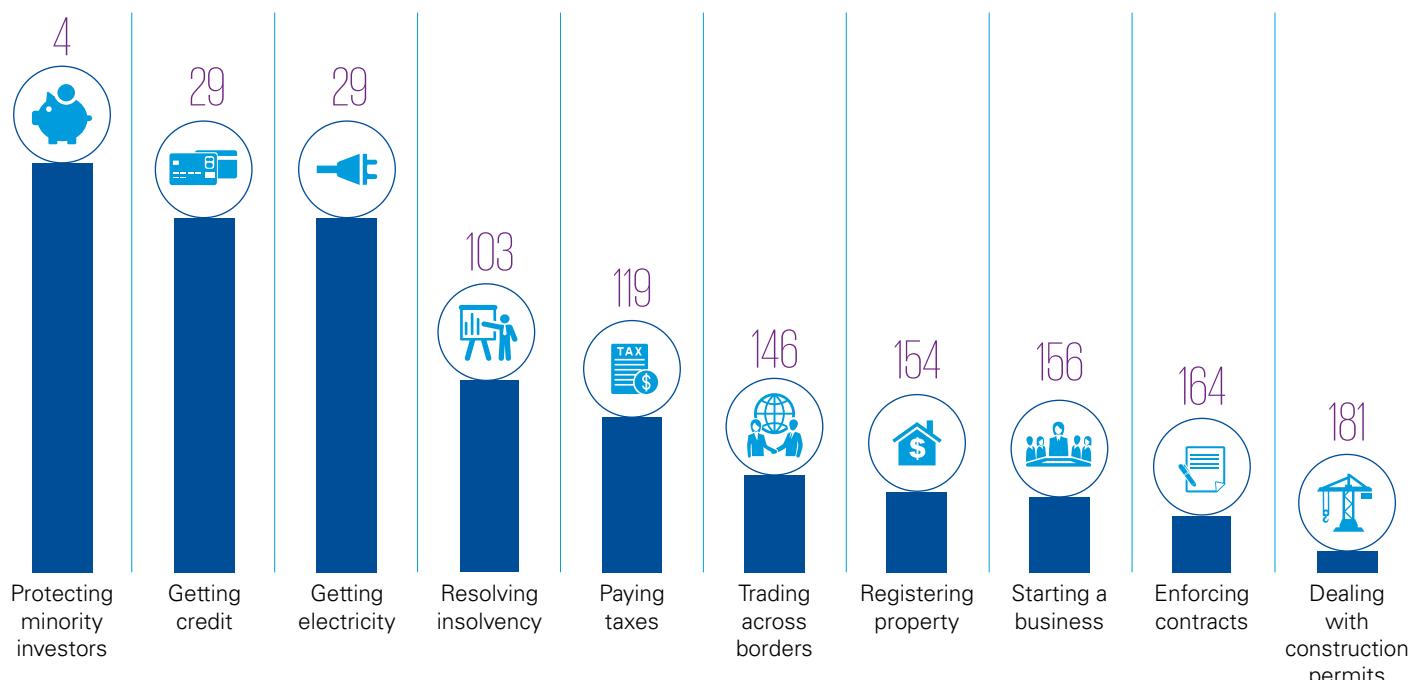
India Glycols uses green technology to manufacture bulk, specialty and performance chemicals and natural gums, spirits, industrial gases, sugar and nutraceuticals.

Gujarat Alkalies & Chemicals manufacturers caustic soda, chlorine, hydrogen gas, hydrochloric acid, chloromethanes, hydrogen peroxide, phosphoric acid, potassium hydroxide, potassium carbonate, sodium cyanide and sodium ferrocyanide.



Doing business in India is getting much easier

India's EoDB indicator rank for 2018



Source: Ease of Doing Business Index report, 2018, World Bank

Since 2014, the government administration headed by Prime Minister Narendra Modi has supported a number of reforms designed to encourage business growth by eliminating unnecessary laws and regulations, simplifying bureaucratic processes, and making the government more transparent, responsive and accountable.

These reforms and other initiatives have supported a dramatic, even historic, rise in India's ranking on the World Bank's Ease of Doing Business (EoDB) Index — a jump of 30 places into the top 100 countries.³³ In fact, India is the first large country ever to record such an increase in ratings over a single year.³⁴

The EoDB index ranks 190 countries based on 10 indicators: Protecting Minority Investors, Getting Credit, Getting Electricity, Resolving Insolvency, Paying Taxes, Trading across Borders, Registering Property, Starting a Business, Enforcing Contracts and Dealing with Construction Permits.

The Report notes a number of measures and reforms designed to promote business in India. These include the government's efforts to recapitalize Indian public sector banks by pumping in funds worth US\$32 billion through bond issuance and budgetary support. This has helped to provide credit for investments in important infrastructure

and power projects. Other reforms involve protecting the interest of minority shareholders, obtaining a building permit, incorporating a business, complying with import and export taxes, and improving access to credit.

In 2016, the government announced the demonetization of all high-value banknotes of the Mahatma Gandhi Series. The action was designed to curtail the nation's 'shadow economy' and reduce the use of illicit and counterfeit cash to fund illegal activity and avoid taxes. The results of the initiative are still being assessed,³⁵ but at the very least, demonetization has given strong momentum to the

³³ India Jumps Doing Business Rankings with Sustained Reform Focus, World Bank, 29 October 2017, <http://www.worldbank.org/en/news/press-release/2017/10/31/india-jumps-doing-business-rankings-with-sustained-reform-focus>

³⁴ Ease Of Doing Business In India Registers A Huge Improvement, IBEF, Knowledge Centre, 6 December 2017, www.ibef.org/blogs/ease-of-doing-business-in-india-registers-a-huge-improvement

³⁵ How India Is Surviving Post-Demonetization, Forbes, 29 July 2017, www.forbes.com/sites/wadeshepard/2017/07/29/how-india-is-surviving-post-demonetization/#4637ff9e1164

government's campaign against corruption and tax-avoidance.³⁶ A 25 percent increase in income tax filings has been reported, more than twice the growth of the previous year.³⁷

The goods and services tax (GST) introduced in July of 2017 has replaced multiple cascading taxes levied by the central and state governments. Under the GST, there will be only one tax from the manufacturer to the consumer, supporting greater transparency in taxes paid to the final consumer as well as easier administration, more uniform tax rates and structures, reduced transaction costs for doing business, and a reduction in taxes overall.³⁸

A key reform is the Bankruptcy and Insolvency Act of 2017. After the Act's execution, it will become easier for companies to exit a distressed business or even to revive it, if required. At the same time, it will also lessen the non-performing assets (NPAs) burden for the country's financial services sector. The Act is designed to help banks and financial institutions deal with NPAs arising out of failed corporate ventures. For the corporate sector, this will help make the liquidation or revival of a business simpler and faster.

Since major reforms such as demonetization, GST and the Banking and Insolvency Act were introduced after the coverage period for this year's Doing Business Report, their impact will be reflected in the 2019 report.

Looking forward, the government plans to introduce additional reforms to land ownership, labor law, and the judicial process. With e-governance, companies can quickly and easily file their application online for permission to acquire land, register property, get a construction clearance, and take other actions.



³⁶ India's war on cash had valuable benefits, Reuters, 11 August 2017, <https://www.reuters.com/article/us-india-cenbank-dividend-breakingviews/indiias-war-on-cash-had-valuable-benefits-idUSKBN1AR0CB>

³⁷ Ibid.

³⁸ www.gstindia.com/about/

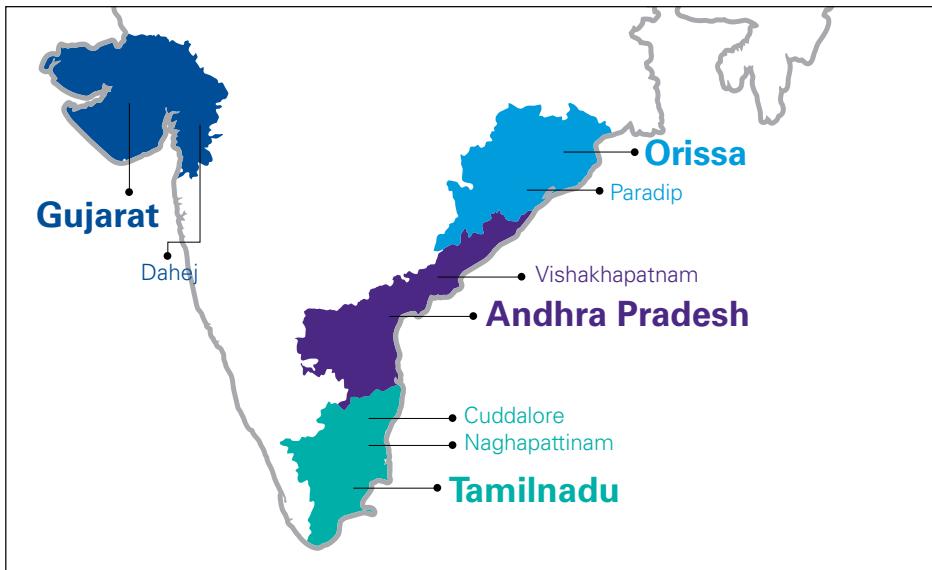
PCPIRs

PCPIR locations in India

Another government initiative to promote development that benefits chemical companies involves integrated petroleum, chemicals and petrochemicals investment regions (PCPIRs). A PCPIR is a specifically delineated investment region for the establishment of manufacturing facilities for domestic and export-led production in petroleum, chemicals and petrochemicals, along with associated services and infrastructure.³⁹

PCPIRs are strategically located at ports for easier access to both domestic and global markets. They offer an area of around 250 square kilometers for development; excellent connectivity through railways, roads, port facilities, airports and telecommunications; broad-based support for management and implementation, fewer regulations than elsewhere in India, greater availability of technical and skilled human resources, and more opportunities for investment through public-private partnerships (PPPs).

The Union Ministry of Chemicals and Fertilizers is planning to revise the 2007 PCPIR policy to increase success. Changes might include reducing the land requirements for a PCPIR from 250 square kilometers (sq km) to about 50 sq km, thereby increasing the number and diversity of the regions. The Ministry may also look at the concept of multiple anchor tenants or cracker project investors at the seaport-based PCPIRs.



Changes might include reducing the land requirements for a PCPIR from **250 square kilometers (sq km)** to about **50 sq km**, thereby increasing the number and diversity of the regions.

³⁹ Indian Department of Chemical and Petro-Chemicals, Policy Resolution for Promotion of Petroleum, Chemicals and Petrochemical Investment Regions (PCPIRs), www.chemicals.nic.in/sites/default/files/PCPIRPolicy.pdf



Looking ahead

Major challenges remain for the Indian chemical companies. The chemical industry is highly fragmented with intense rivalry among companies. Because 100 percent FDI is allowed, domestic players can face stiff competition from foreign multinationals that have the ability to exert strong price pressures on local markets. Huge capital requirements, patent protection, R&D costs and personnel requirements present other challenges.

But for every challenge there is an equal if not greater opportunity. For example, the recent lifting of sanctions against Iran has provided India with

trade access to a country with the second largest amount of natural gas reserves and the largest operational gas field in world.⁴⁰ In addition, market growth plus recent government reforms should make India a much more attractive investment location and increase the country's prominence in the strategic growth agendas of global chemical companies.

The fact remains that the center of gravity for the global chemical industry is moving to the East, and Indian chemical companies are well-positioned to take advantage of this transition.

⁴⁰ A new era for Iranian petrochemicals, KPMG, 2017



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Paints and coatings players seek more growth through consolidation

By Vir Lakshman

Like most of today's chemical industry, the paints and coatings sector is going through a period of major consolidations to support growth, increase efficiencies and gain greater leverage with suppliers and customers.⁴¹ In 2017, Sherwin-Williams, a leading US paint maker, agreed to pay a record US\$11.3 billion for its rival Valspar⁴², and PPG made repeated attempts to acquire AkzoNobel before ending its pursuit.⁴³ More deals are expected in 2018.⁴⁴ The question is whether consolidation will remain a viable growth strategy for this sector in the face of volatile prices, anti-monopoly laws, nationalistic concerns, and other factors worldwide.





To protect and beautify

When we talk about paints and coatings, it helps to remember that the two are similar — but different. Both paints and coatings are designed for protection, but the primary property of a coating is protective, while paints are also designed for color and visual appeal. Paints and coatings can be

divided by resin (acrylic, alkyd, epoxy, polyurethane, polyester) or technology (water-based, solvent-based, high solids, and powder).

In terms of applications, paints and coatings fall into three broad categories:

1 **Architectural products** make up the largest segment of the paints and coatings market, about 45 percent.⁴⁵ These are paint products, anticorrosion coatings, fireproofing coatings, and other materials for use with residential, institutional and commercial buildings. They include both interior and exterior paints. Approximately 90 percent of all architectural coatings are now water-based, with the remainder solvent-based.⁴⁶ Water-based paints are found by most professional painters and do-it-yourself users to be easier to apply and clean up.

2 **Industrial coatings** account for 40 percent of the market⁴⁷ and are used by the aerospace, automotive, consumer products, original equipment manufacturing, shipbuilding, and infrastructure supplies industries. These coatings can reduce friction or serve as adhesives. They can resist temperature extremes, prevent corrosion and guard against microbial contamination. Reflective paints and coatings are needed for reflective markers and signs on roadways and airport runways. Fabric and wood coatings beautify products and help items to resist wear and stains.

3 **Specialty products** include automotive refinishing and industrial maintenance materials that help keep machinery in working condition. Marine paints prevent rust and barnacles on ships and docks. Traffic marking paints are used for roadway lane markers, parking lot striping paint, and airport surfaces. Graffiti-resistant paints help reduce the cost of cleaning urban buildings and infrastructure.

⁴¹ Hunt for earnings growth reshapes chemical sector, Financial Times, 30 May 2017, <https://www.ft.com/content/d9c7bfff8-41e4-11e7-9d56-25f963e998b2>

⁴² Sherwin-Williams Wraps Up \$11.3B Acquisition of Valspar, Zacks, 2 June 2017, <https://www.zacks.com/stock-news/262760/sherwinwilliams-wraps-up-113b-acquisition-of-valspar>

⁴³ PPG walks away from battle to buy Akzo Nobel, Reuters, 1 June 2017, <https://ca.reuters.com/article/businessNews/idCAKBN18S4I2-OCABS>

⁴⁴ Race to the Top: Continued Consolidation in Architectural Coatings, Paints & Coatings Industry (PCI), 4 January 2018, PCI, <https://www.pcimag.com/articles/104322-race-to-the-top-continued-consolidation-in-architectural-coatings?v=preview>

⁴⁵ Paint and Coatings Industry Overview, IHS Markit, <https://ihsmarkit.com/products/paint-and-coatings-industry-chemical-economics-handbook.html>

⁴⁶ A Primer on the Paint & Coatings Industry: Making Real Contributions to the U.S. Economy, American Coatings Association (ACA), <https://www.paint.org/publications-resources/issue-backgrounder/an-industry-primer/>

⁴⁷ Paint and Coatings Industry Overview





Addressing environmental issues proactively

Along with protecting structures and objects, the industry is also focused on protecting the environment. This includes developing sustainable and non-polluting manufacturing processes as well as products that limit emissions of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). VOC emissions in the US from architectural coatings have drastically decreased over the last few decades, even while the use of architectural coatings has increased over the same time period nationwide.⁴⁸ The Toxic Release Inventory (TRI) by the US Environmental Protection Agency (EPA) indicates that releases by the paints and coatings sector decreased by 81 percent between 1990 and 2014.⁴⁹

More than 90 percent of architectural coatings sales in the US are now for environmentally preferable water-based paint.⁵⁰ In Europe, the auto coatings sector is supporting the emergence of water-based technologies, led by the efforts of auto manufacturers in response to environmental issues.⁵¹

Other benefits from recent innovations include energy efficiency. Traditionally, 70 percent of the energy consumed in automotive OEM assembly plants is traditionally attributed to painting operations. A new process lowers cost, emissions and complexity by allowing the wet-on-wet-on-wet application of a primer, base coat and clear coat, without any heated flash-off zones in between.⁵² Paints designed for the aerospace industry help reduce aircraft weight and improve fuel economy.⁵³

Along with protecting structures and objects, the industry is also focused on protecting the environment.

⁴⁸ Environmental Footprint, American Coatings Association, https://www.paint.org/documents/2015/09/env_footprint.pdf

⁴⁹ Environmental Footprint

⁵⁰ Environmental Footprint

⁵¹ R&D, Innovation and Competitiveness in the European Chemical Industry, edited by Fabrizio Cesaroni, Alfonso Gambardella, Walter A. Garcia-Fontes

⁵² PPG Earns R&D 100 Awards for Paints, Coatings, Adhesives Technologies, PCI, Coatings World, 21 November 2017, https://www.coatingsworld.com/contents/view_breaking-news/2017-11-21/ppg-earns-rd-100-awards-for-paints-coatings-adhesives-technologies/7889

⁵³ PPG aerospace website, <http://www.ppgaerospace.com/Home.aspx>

Steady growth led by Asia

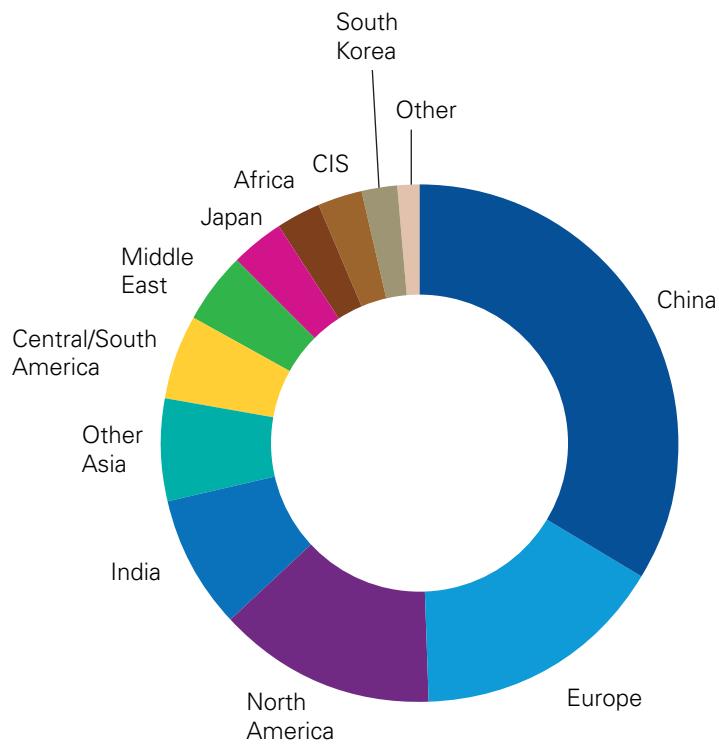
According to analysts at MarketsandMarkets, the paints and coatings market is projected to grow from US\$160.54 billion in 2017 to US\$209.36 billion by 2022, at a CAGR of 5.45 percent.⁵⁴

Currently, Asia accounts for 52 percent of the volume and 45 percent of the value of the global coatings market.⁵⁵ Asia is also the fastest growing market. Rising population levels, more middle class consumers, massive infrastructure developments and widespread urbanization in the region have increased demand for paints and coatings for buildings, public infrastructures, individualized living spaces, automobiles, and a growing number and variety of consumer products. In 2017, the Asian coatings industry was estimated to have grown by 5.7 percent in volume and 6.3 percent in value.⁵⁶ Not surprisingly, the largest coatings market in Asia is China, with 56 percent of the market and a value of US\$53.3 billion.⁵⁷ The next largest Asian markets are India and Japan.

Market growth in the US, Western Europe, and Japan will remain steady but at a slower pace, corresponding to the overall health of the regional economy. Overall demand from 2016 to 2021 is expected to increase at an average annual rate of 3 percent in the US and 2 percent in Western Europe.⁵⁸

Market growth in the US, Western Europe, and Japan will remain steady but at a slower pace, corresponding to the overall health of the regional economy.

World production of paints and coatings – 2016



Source: IHS

⁵⁴ https://www.marketsandmarkets.com/Market-Reports/paint-coating-market-156661838.html?gclid=EA1aIQobChMI_8SP_vKg2QIVjzaBCh0RDARFEAYASAAEgLwwfD_BwE

⁵⁵ Global Coatings Market Overview

⁵⁶ Global Coatings Market Overview

⁵⁷ Study Values Global Coatings Market at Over US\$141 Billion in 2015; Global Coatings Market Overview

⁵⁸ Paint and Coatings Industry Overview



Paint-on solar panels – and more

Recently, a team of Australian researchers announced a paint that can be used to generate clean energy.⁵⁹ The material absorbs solar energy as well as moisture from the surrounding air. It can then split the water into hydrogen and oxygen, collecting the hydrogen for use in fuel cells or to power a vehicle.

Manufacturers are using specialized coatings to smooth the surfaces of 3D-printed parts. With most 3D printers, the printed parts typically do not have

a high-gloss appearance, so the parts often need to be sanded or polished. However, this approach requires access to specialized equipment and adds both processing time and cost. The application of a coating via spraying, brushing, or dipping is easy and relatively inexpensive, does not require specialized equipment, and provides the potential to not only smooth the surface but also impart added functionality to 3D-printed parts.⁶⁰

“Nanopaint” is another exciting area of development. Metal nanoparticles are being used in the electronics industry to coat the surfaces of capacitors. And a coating made from nano titanium dioxide can make glass change color when exposed to light or help ensure that dirt does not accumulate on glass windows but simply washes away with the rain.⁶¹



Drivers and challenges for consolidation

Dow and DuPont, Bayer and Monsanto; and ChemChina and Syngenta — these and other recent mega-deals reflect the ongoing trend of consolidation across the chemical industry. In the last issue of REACTION, ‘New synergies found in M&A by industrial gas players,’ we looked at a sector where three firms now control over 85 percent of the global market.⁶²

For paints and coatings, consolidation has become a long-term trend, especially in Western markets

with limited organic growth. In North America, for example, the industry has been consolidating for decades. In certain end market segments, fewer than ten players (and in some cases, five or less) control over 90 percent of the market. In most other North American markets, fewer than ten companies maintain at least 75 percent of value.⁶³ Worldwide, however, the markets are still very fragmented overall. According to 2016 data gathered by PPG, the global industry is led by

For paints and coatings, consolidation has become a long-term trend, especially in Western markets with limited organic growth.

⁵⁹ A New “Solar Paint” Lets You Transform Your Entire House into a Source of Clean Energy, Futurism, 15 June 2017, <https://futurism.com/a-new-solar-paint-lets-you-transform-your-entire-house-into-a-source-of-clean-energy/>

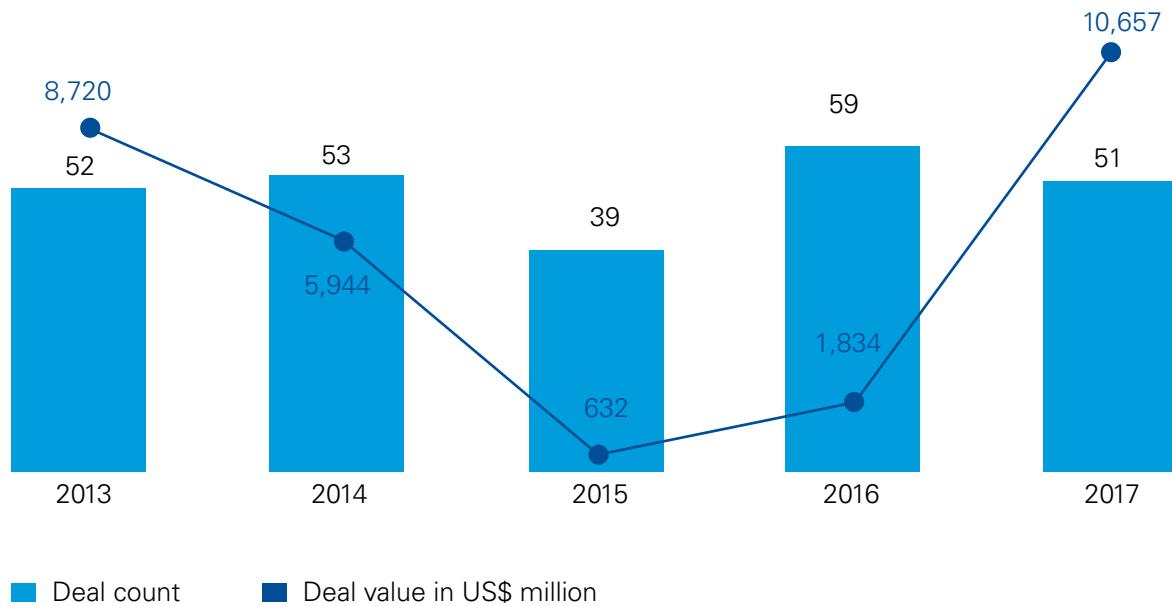
⁶⁰ Coatings are going 3D, ACA, <https://www.paint.org/article/coatings-are-going-3-d/>

⁶¹ Nano and Me, <http://www.nanoandme.org/nano-products/paints-and-coatings/>

⁶² Linde–Praxair merger further consolidates industrial gases: Deal will leave just three firms controlling 85% of the global market, Chemistry World, <https://www.chemistryworld.com/news/lindepraxair-merger-further-consolidates-industrial-gases/2500223.article>

⁶³ Rivalry at the Top? Growing Concentration in the Coatings Industry, Coatings World, 5 July 2017, https://www.coatingsworld.com/issues/2017-07-01/view_features/rivalry-at-the-top-growing-concentration-in-the-coatings-industry/

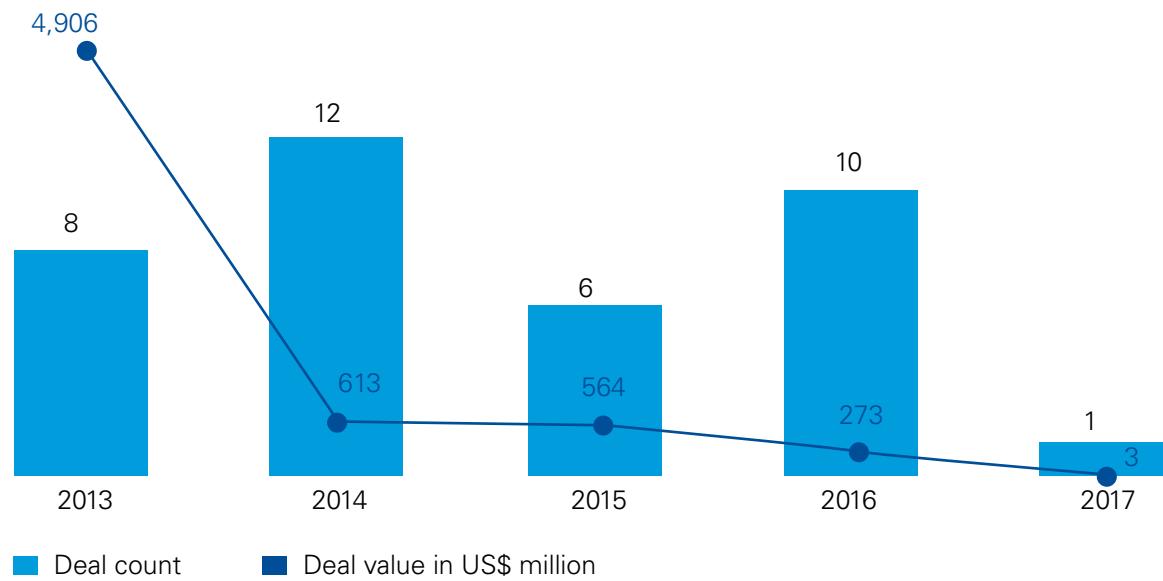
Trends in paints and coatings M&A (2013–2017)



Note: Number of deals includes deals without deal value

Sources: Thomson One, KPMG analysis

PE deals in paints and coatings (2013–2017)



Note: Number of deals includes deals without deal value

Sources: Thomson One, KPMG analysis

ten companies, but approximately 50 percent of the global market is controlled by smaller companies, many of them at the regional or local level.⁶⁴

In 2017, the biggest deal for paints and coatings was the Sherwin-Williams/Valspar merger. Sherwin-Williams has a prominent

market position in architectural paint in North America, South America, China, Australia and the UK. In industrial coatings, the combined company will be a global market leader in packaging coatings, coil coatings, general industrial coatings and industrial wood coatings.

⁶⁴PPG presentation, 28 November 2017. Sources cited: Kusumgar, Nerlfi, & Growney; company annual reports, PPG analysis

The other major transaction for 2017 involved Japan-based Nippon Paint Holdings Co., Ltd., the fourth largest paint company worldwide, which acquired Dunn-Edwards Corp. for US\$600 million. To date, Nippon has focused on automotive coatings in the US. This deal now establishes its architectural paints business in the region.

Successful consolidations can help paints and coatings companies to seize growth opportunities, enter new markets, improve capabilities, increase efficiencies through scale or improved processes, diversify their products, and rationalize their asset portfolios. In many cases, companies can find themselves squeezed between highly consolidated suppliers and customers. Consolidation then becomes almost an inevitable step beyond a certain point in the business cycle.

However, challenges remain for a paints and coating company considering a consolidation. As with any industry,

a seller's market can turn into a buyer's market before the deal is done. Anti-trust regulations often come into play, especially for larger deals or sectors that are already highly consolidated. To win anti-trust approval by the US Federal Trade Commission for the Sherwin-Williams/Valspar merger, Valspar had to sell its North America Industrial Wood Coatings Business because just three companies dominated its wood stains and sealants market.⁶⁵

PPG's attempt to acquire AkzoNobel reflects other challenges, showing that potential deals are sometimes challenged by disagreements related to corporate culture, employee sentiments, national viewpoints, and other concerns that go well beyond the bottom line. In arguing against a PPG takeover, AkzoNobel stated that some employees were opposed to the deal and that the two companies' cultures did not mesh. With concerns over the impact on Dutch jobs, a government minister added that the acquisition was "not in the national interest."⁶⁶



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Conclusion

New regulations, price fluctuations for raw materials and geopolitical uncertainty will continue to affect deal activity in the paints and coatings industry. A general increase in global GDP for 2018, perhaps around 3.9 percent,⁶⁷ may increase the potential for organic growth by businesses as opposed to growth by consolidation. However, consolidations will remain a favored strategy by suppliers, manufacturers and customers across

the industry. In many ways, it all comes down to the benefits of scale, including brand equity, purchasing leverage, pricing power, and production efficiencies. The desire for scale has driven significant consolidation among paints and coatings manufacturers for the last 30 years, and M&A will likely remain a key priority for global paints and coatings companies.

⁶⁵ Sherwin-Williams wins U.S. antitrust approval to buy Valspar: FTC, Reuters, 26 May 2017, <https://www.reuters.com/article/us-sherwin-williams-valspar/sherwin-williams-wins-u-s-antitrust-approval-to-buy-valspar-ftc-idUSKBN18M263>

⁶⁶ PPG walks away from battle to buy Akzo Nobel, Reuters, 1 June 2017, <https://www.reuters.com/article/us-akzo-m-a-ppg-inds-bid/ppg-walks-away-from-battle-to-buy-akzo-nobel-idUSKBN18S412>

⁶⁷ World Economic Outlook Update, January 2018, IMF, <https://www.imf.org/en/Publications/WEO/Issues/2018/01/11/world-economic-outlook-update-january-2018>



KPMG in the industry

European Coatings Leading Women's Forum Networking Dinner

15–16 February 2018

The first European Coatings Leading Women's Forum took place from 15 to 16 February 2018 at Family Murjahn's Old Vineyard in Forst, Germany. The Forum is THE business meeting point for female top managers in the global paint and coatings industry and gathered about 30 leading female heads of the international paint industry.



Besides a variety of presentations on topics such as "Family culture driving value creation" by Dr. Ralf Murjahn, DAW, "Women in the chemical industry and the gender diversity challenge" by Paul Harnick, KPMG International and "How to handle leadership and company culture during a merger" by Paula Salastie, Teknos. The participants also discussed future challenges of the coatings industry during two workshops. Participants said they were very pleased with the Forum programs and all the various opportunities for networking and getting to know each other.

The next EC Leading Women's Forum will take place in January/February 2020.



WOMEN'S VOICES at the World Economic Forum

Creating a Shared Future



Women's Voices at Davos: Creating a Shared Future

This year, the World Economic Forum's theme for the week in Davos was 'Creating a Shared Future in a Fractured World'. KPMG's WOMEN'S VOICES campaign aimed to raise the volume and visibility on the role women play in 'Creating a Shared Future', thereby enabling female leaders and opinion formers in Davos and beyond to share their vision, aspirations and solutions for building better outcomes and a shared future for all.

Women in various walks of life contributed their voice to this program.

Follow the conversation: [#futureisinclusive](#) on Twitter

The future is inclusive

There are 8 billion people who don't just need to be.
They need to belong.

[#futureisinclusive](#)





Global Chemicals Institute webcasts

REACTION 24 webcast: Adapting to a changing geopolitical landscape

Geopolitical uncertainty is on the rise. Volatile oil and gas prices, shifting alliances in the Middle East, shocks to the European Union (EU) such as Brexit, the expansion of China, the Trump administration in the US, and the rise of nationalism and opposition to free trade — all these developments and more are increasing stress levels across the business world. Traditionally, the chemical industry has been more reactive than proactive about dealing with geopolitical disruptions. However, chemical companies would do well to consider appointing a Chief Geopolitical Officer (CGO) to help them address uncertainties in an increasingly turbulent world. Join **Rohitesh Dhawan**, Director, Geopolitics Center of Excellence, KPMG in the UK, and **Andrew D. Bishop**, Deputy Director of Research, Eurasia Group, discuss these issues.

Global Chemicals: Key industry trends and opportunities

China's growth...Indian development...US shale...European recovery...Trump...Brexit...South China Sea...

With all of these and other issues affecting the global chemical industry, it's a great time to make sense of what's really happening. Join our three most senior industry leaders, Paul Harnick, Mike Shannon and Norbert Meyring, for a round table webcast where they discuss the key challenges and opportunities for global chemical companies in today's dynamic and increasingly complex world.

REACTION 22 webcast: GCC chemical companies on the move as global competitors

Following the release of REACTION 22, **Oliver Gawad**, Senior Director, Deal Advisory, Strategy, Industrials & Chemicals for KPMG in Saudi Arabia, recently hosted the latest REACTION webcast. The webcast featured Oliver's latest article in REACTION 22, which discussed GCC chemical companies on the move as global competitors. He covered key topics such as the shift in the chemical industry's competitive landscape, the challenges associated with the changing chemical industry, and the strategies GCC chemical companies have been exploring, which have been demonstrating strong potential for sustainable growth.

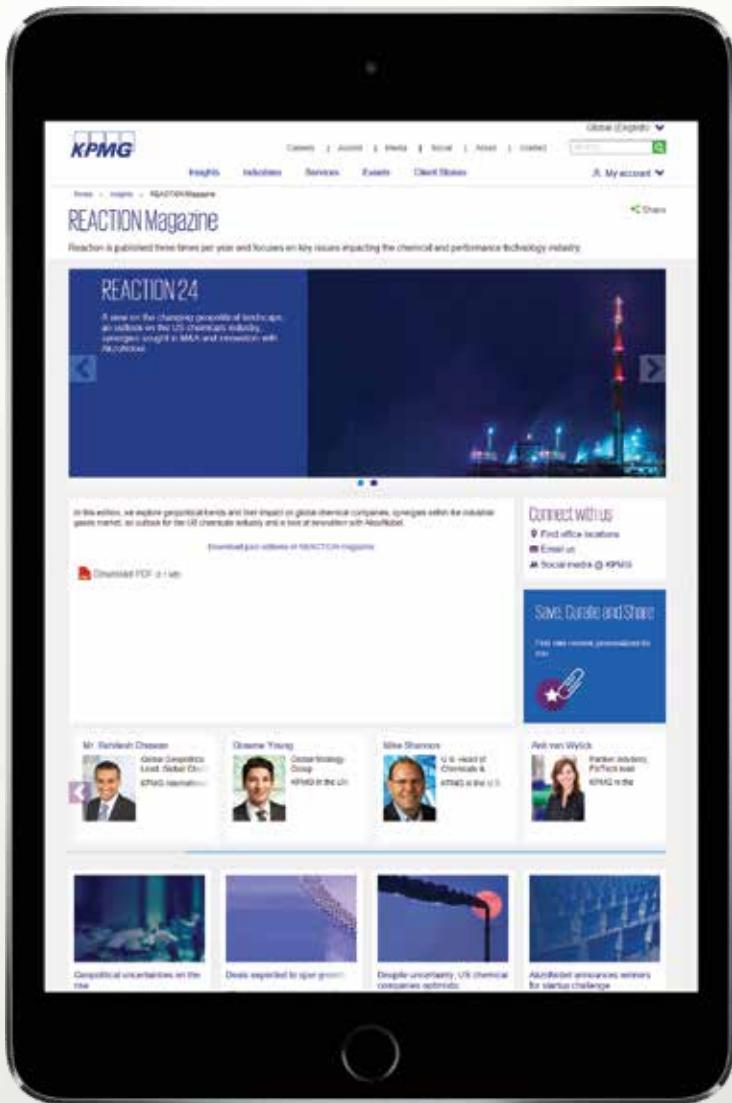
REACTION 21 webcast: Building a sustainable supply chain

Climate change is one of the biggest global challenges today for global chemical companies. Their supply chains — long, lean and increasingly complex — are especially vulnerable to disruptions from major storms, flooding, drought, rising temperatures and other climate-related events. Investors and regulators are showing increasing interest in how companies identify and mitigate climate-related risk. These calls only recently have been backed by reporting recommendations published by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). As with most crises, climate change presents both risks and opportunities for the chemical industry. Successful companies and their suppliers are rethinking their supply chain strategies, helping to mitigate risk and support sustainability in the 21st century. Listen to **Steve Tonner**, Sector Leader, Chemicals & Performance Technologies, KPMG in Australia, and **Christian Hell**, Senior Manager, Sustainability Services, KPMG in the Netherlands, discuss these issues.

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