

McKinsey on Chemicals

Number 4,
Spring 2012

4
Squaring the circle:
Growth and
value creation

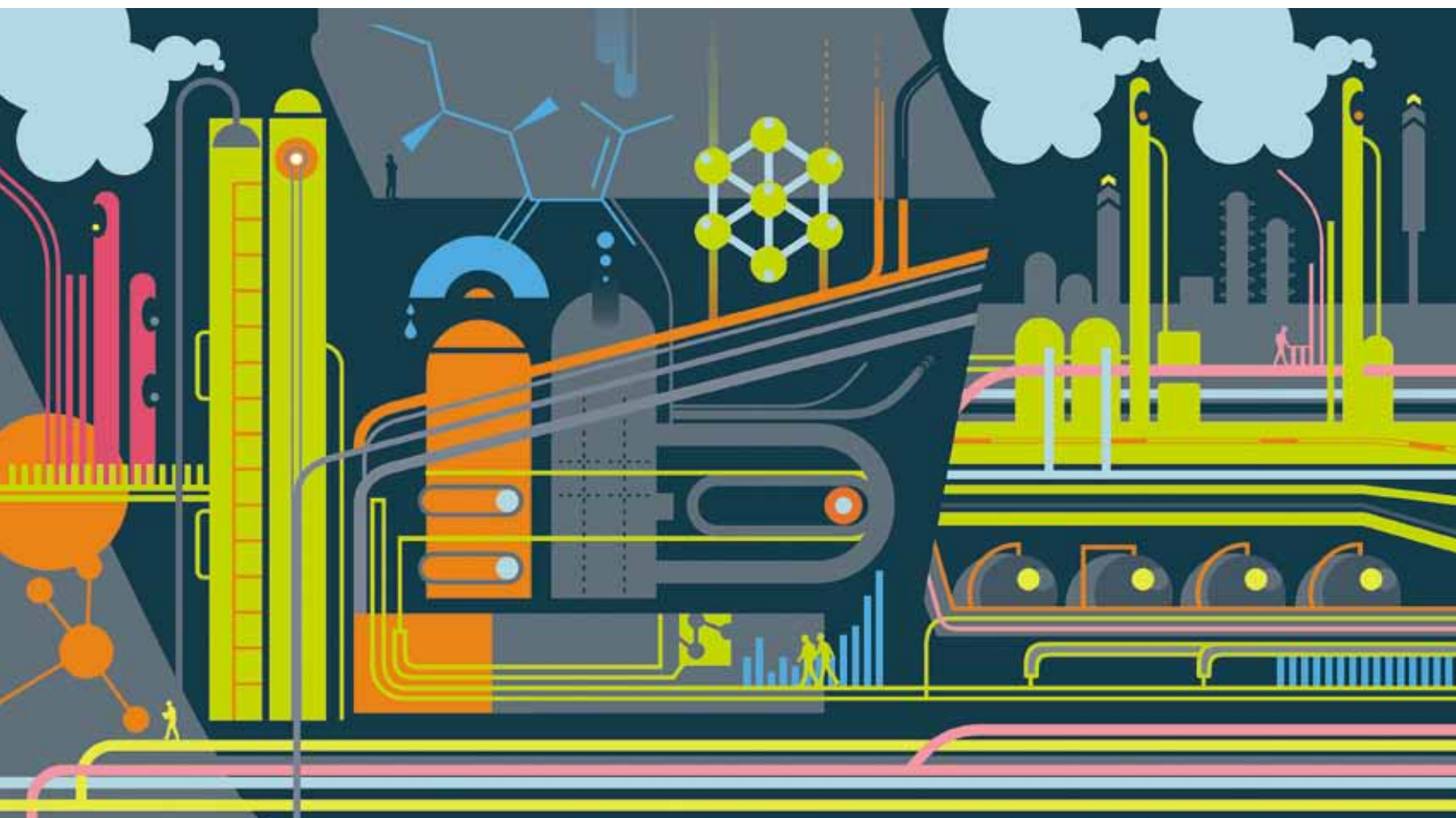
30
Winning in India:
The specialty-
chemicals opportunity

12
The path to improved
returns in materials
commercialization

40
An Indian specialty-
chemicals success
story: An interview
with United
Phosphorus Limited's
Jai Shroff

21
The growing demand
for green

47
Using microeconomics
to guide investments
in petrochemicals





Winning in India:

The specialty-chemicals opportunity

Long seen as challenging and lacking scale of opportunity, India's specialty-chemicals potential is increasingly being recognized by international players. Companies must embrace a number of India-specific approaches to succeed.

Avinash Goyal, Suyog Kotecha, Saikiran Krishnamurthy, Neelesh Mundra, and Ulrich Weihe

For international chemical makers that have set out to tap the growth opportunity of Asian markets over the past decade, India has tended to be in China's shadow. In 2010, China overtook the United States to become the world's largest chemical market, with India ranking only eighth. Not only is China already a much larger market than India, but it also offers similar growth rates and the same order of capital-expenditure and labor-cost advantages. Recent major investments in China are a veritable roll call of leading international chemical players.

Leaving aside the greater allure of the Chinese market, many international chemical companies have in the past chosen to take a pass on India.

In petrochemicals, India has no feedstock advantage, in contrast with production in the Middle East, which is conveniently located to serve the Indian market. As a result, petrochemical capacity additions now under way are driven by local players, a mix of private-sector and government-owned companies that split India's 4 million tons per year of ethylene capacity between them. To put that figure in perspective, global capacity of ethylene is 147 million tons per year. The United States has 27 million tons per year, and China's capacity has grown to 16 million tons per year.

Conditions for international players to enter India's growing specialty-chemicals market are



also challenging at first sight. India has a modest chemicals infrastructure on which international companies can build. Recognizing this, the Indian government has attempted to address the problem: in 2007, it announced five Petroleum, Chemicals, and Petrochemical Investment Regions. To date, only one of the five—Dahej, in Gujarat—has made progress; the region is already India's most developed for chemicals investment and home to 50 percent of the industry.

As a result, international companies face handicaps when contemplating large-scale direct investment in specialties. Take the case of surfactants based on ethoxylates: most Indian ethylene oxide (EO) output is dedicated to monoethylene glycol production, with only Reliance Industries' plant at Hazira, in Gujarat, having substantial EO volumes available for other uses such as ethoxylation. A wide range of other building blocks for specialties production, including oxo-alcohols, vinyl acetate monomer, phenol, propylene oxide, and H-acid, are only produced in

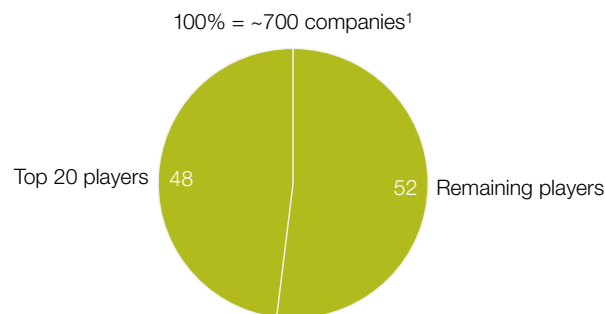
limited volumes in India; acrylic acid is not yet produced. Power shortages are endemic. Given these issues, investments from international companies have tended to be small-scale.

Entering the Indian specialty-chemicals market through M&A also presents challenges, and there has been no activity in chemicals to match the acquisitions of Indian generic-pharmaceutical makers by international companies, such as Abbott Laboratories' \$3.7 billion purchase of Piramal Healthcare. In chemicals, the limited number of sizable acquisition candidates has been a key reason. India's specialty-chemicals industry is highly fragmented, and it mostly comprises smaller companies with sales of less than \$300 million per year (Exhibit 1). In addition, most Indian chemical companies, even those that are publicly traded, are controlled by families. In the rare cases in which families want to sell, acquisitions often follow a less direct route than in Western countries, with negotiations tending to be drawn out over several years.

Exhibit 1

India's specialty-chemicals landscape is fragmented.

Market share by revenue, 2010, %



¹Additionally, 300–400 small players exist in the market.

Source: Prowess; Dealogic; press search; company Web sites; Global Insight; McKinsey analysis

These conditions are reflected in the limited level of chemicals M&A over the past decade (Exhibit 2). With the exception of the \$350 million takeover of Micro Inks, India's top inks maker, by Germany's Huber Group (a transaction completed in multiple steps from 2004 to 2009), foreign M&A activity in Indian specialty chemicals has consisted of small-scale deals worth less than \$100 million. Huntsman, for example, has made two small acquisitions, both in Gujarat. In 2009, the company bought a dyes plant to access low-cost production for its global dyestuffs business and to better position itself to serve the Indian market; in 2011, it bought Laffans, a surfactants maker with ethoxylation capacity located close to Reliance's Hazira plant.

Inflection point: time to look again at India

Despite these challenges, many international companies are starting to look again, and more closely, at the Indian specialty-chemicals sector—and with good reason.

First, the growth potential for India's economy over the next decade and beyond is well-known.

GDP is expected to rise between 5 and 8 percent per year over the next five years, while the Indian middle class could increase from 46 million households in 2010 to 148 million households by 2030, with quadrupled consumption. Such developments put India on track to experience the kind of economic liftoff seen in China since the early 2000s.

Second, the specialty-chemicals sector in India is picking up momentum; its compound annual growth rate (CAGR) rose to 13 percent from 2005 to 2010, a marked increase over its CAGR of 10 percent from 2000 to 2005. Certain subsegments have exceeded that average: crop-protection-chemicals sales have doubled since 2005 to about \$3.5 billion, with growth in export sales (accounting for approximately half of the total) outpacing buoyant domestic sales.

Third, a number of domestic and international companies are already seeing healthy growth and returns in the Indian specialty-chemicals sector (Exhibit 3). The sector's largest companies, Asian Paints and United Phosphorus, have achieved

Exhibit 2

M&A activity in specialty chemicals has been limited.

Total deal value, 2000–10, \$ billion

1.8	Acquirer	Target
1.0	Multinational corporation	Indian company
0.2	Indian company	Indian company
0.6	Indian company	Global company

Source: Prowess; Dealogic; press search; company Web sites; Global Insight; McKinsey analysis

a CAGR in the 25 to 30 percent range over the past decade (see also “An Indian specialty-chemicals success story: An interview with United Phosphorus Limited’s Jai Shroff,” p. 40). Some of these companies are riding growth inside India, while others are leveraging India’s low-cost production base to feed global businesses. United Phosphorus, India’s biggest crop-protection-chemicals producer, employs the latter approach, with 80 percent of its sales outside India; other companies, such as Kiri in dyes and Sudarshan in pigments, have more recently launched aggressive drives to build international businesses.

International companies account for 5 of the 10 largest players in the Indian specialty-chemicals market, and this group of leaders has been achieving high growth. The international lineup includes Syngenta and Bayer, both among the top four players in India’s crop-protection-chemicals market, with long track records in the country; Kansai Paint’s Kansai Nerolac subsidiary; BASF, which saw its 2009 takeover of Ciba significantly expand its India presence; and DuPont, which has grown organically over

the past two decades to become a top player. International companies’ share overall of the Indian market rose from 11 percent in 2000 to 20 percent in 2010.

Fourth, microeconomic analysis makes the case for major growth potential across the specialty-chemicals industry. A detailed analysis of 15 specialty-chemicals sectors and an evaluation of the potential for Indian consumption and usage intensity to reach levels seen in China suggests that the Indian specialty-chemicals industry could grow four- or fivefold by 2020, to become a market worth from \$80 billion to \$100 billion per year. With growth of this magnitude, the existing landscape is likely to be completely redrawn, opening up opportunities for newcomers (Exhibit 4).

A key insight from our work is that this potential will be driven not only by underlying end-market growth but also by increased usage intensity and new product specifications and standards. The intensity of usage of specialty chemicals in India is at a much earlier stage of development

Exhibit 3

Top performers earn attractive margins in the industry and across segments.

Median EBITDA,¹ %


	Industry average for top 200 players	Agrochemicals example
1st quartile	19.8	19.2
4th quartile	4.4	9.4
































¹Earnings before interest, taxes, depreciation, and amortization.

Source: Prowess; Dealogic; press search; company Web sites; Global Insight; McKinsey analysis

Exhibit 4

Factors driving specialties growth potential will vary by segment.


 Less than 25% 25–50% 50–75% 75–100%

Segment	India 2010, \$ billion	Growth drivers evaluated			India 2020 potential, \$ billion
		Key end markets	Adoption level ¹	Impact of consumer standards	
1 Paints and coatings	3.1	Construction, automotive		High	 12.5–16.5
2 Dyes and pigments	3.5	Textiles, exports		Low	 10.0–14.5
3 Agrochemicals	3.4	Agriculture, exports		High	 11.0–14.5
4 Specialty polymers	2.0	Packaging, automotive		High	 8.0–9.2
5 Plastic additives	0.8	Pipes, automotive		Medium	 2.3–3.2
6 Construction chemicals	0.5	Infrastructure, real estate		High	 2.0–3.0
7 Home-care surfactants	1.0	Laundry care, dishwashing		Low	 2.1–2.8
8 Textile chemicals	0.7	Apparel, technical textiles		Medium	 2.1–2.5
9 Flavor and fragrances	0.4	Food processing, personal care		Medium	 1.1–1.5
10 Water chemicals	0.5	Industrial water, municipal water		High	 1.5–2.0
11 Cosmetic chemicals	0.4	Bath and shower, hair care		Medium	 1.3–1.8
12 Paper chemicals	0.4	Printing, packaging		Low	 1.2–1.8
13 Printing inks	0.4	Publication, packaging		Low	 1.1–1.6
14 I&P ² cleaners	0.2	Food processing, hotels		High	 0.8–1.2
15 Rubber chemicals	0.2	Tires and tubes		Medium	 0.5–0.7
16 Others ³	5.0				 20.0–30.0
Total: ~22.5		CAGR:⁴ 13–17%		Total: ~80–100	

¹Defined as a % of India's usage levels of end-market products or chemicals as compared with China.

²Industrial and institutional.

³Includes adhesives and sealants, food additives, electronic chemicals, water-soluble polymers, mining chemicals, oil-field chemicals, lubricating oil additives, and so forth.

⁴Compound annual growth rate.

Exhibit 5

Penetration of specialty chemicals is low relative to both the developed world and other emerging markets.

	Concrete admixtures, \$ per m ³	Crop-protection chemicals, kilograms per hectare
India	1.0	0.5
China	2.0	2.0
United States/Europe	4.5	4.5

Source: Industry interviews; McKinsey analysis

than in Western markets and China, creating significant scope for growth (Exhibit 5). For example, as India's construction and real-estate industries see how concrete admixtures can help reduce maintenance and repair costs, there is potential to at least double the intensity of admixture use in the country.

The adoption of new product specifications and environmental standards also has the potential to boost specialty-chemicals usage. In water treatment, for example, expected tightening of India's municipal water-pollution norms is likely to increase water-treatment-chemicals usage substantially. Moving from concentration-based standards to pollution-load-based standards with tighter limits for industrial effluent is likely to further increase water-treatment-chemicals usage.

If the Indian specialties industry can capture the potential of these sectors, it could become the most attractive specialty-chemicals growth market in the world over the next decade (Exhibit 6). As noted earlier, a few international companies are strongly positioned as India's specialty-chemicals growth picks up speed. Most, however, are in one of three camps. First,

there are companies with long-standing Indian businesses, which have seen limited recent growth. Second, there are companies that have made preliminary steps with small investments or acquisitions to get a toehold—and that now need to reset their Indian operations. The third and largest group has little or no presence, often trying to cover India from their regional headquarters elsewhere in Asia. All these companies have much to gain from greater engagement in India.

Key success factors

What lessons can we learn from the success stories of the Indian specialty-chemicals industry, and what should international companies seeking to capture the Indian growth opportunity do? We have observed five key success factors.

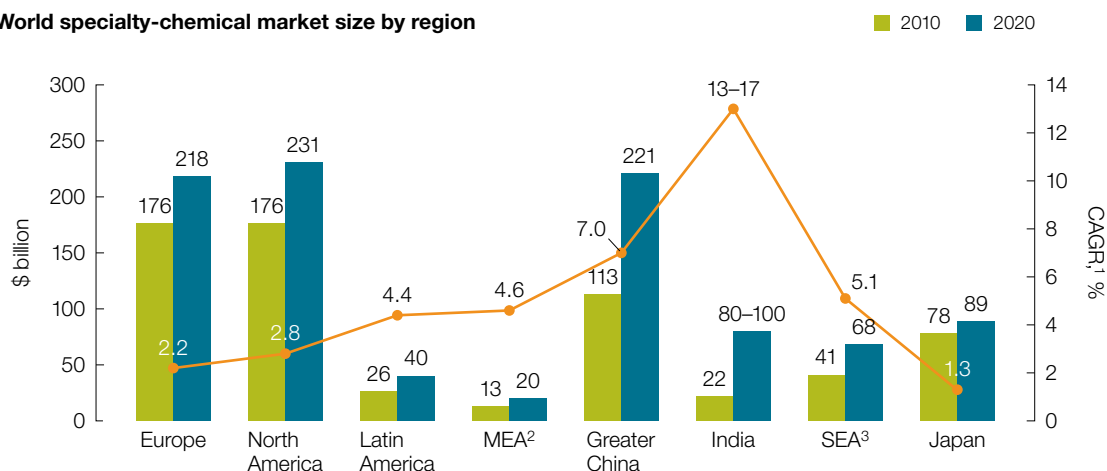
1. Set high growth aspirations and empower the top-management team.

Given the fivefold market expansion expected in Indian specialty chemicals by 2020, companies should aim to grow by 20 to 25 percent per year to capitalize on the opportunity and to gain market share. However, these targets are much higher than those usually set by international companies.

Exhibit 6

If this growth potential is achieved, India will assume greater significance in the region and relative to other emerging markets.

World specialty-chemical market size by region



¹Compound annual growth rate.

²Middle East and Africa.

³Southeast Asia.

Source: SRI; McKinsey estimates

To achieve this high aspiration, international companies must empower their top-management teams in India and develop their capabilities. Local management teams should be strategizing about how to tap the market, which cannot be done from regional headquarters in China or Singapore, and even less from corporate headquarters in Europe, the United States, or Japan. In particular, these companies should build strong business-development teams, which will give them local eyes on the market and feet on the ground. Creating such teams will allow companies to identify opportunities throughout India and across the fragmented lineup of local players, and thus to develop relationships and look out for partnerships and acquisition targets.

International companies with multiple business units may discover that some business units are too small to attract attention within the global parent-company structure or to have resources of their own to invest in India. In such cases, companies could assign or share the profit-and-loss responsibility with the Indian chief executive officer to drive growth in these areas and capture cross-business-unit synergies.

Companies must also work hard to attract the necessary talent to build up their business in India, and they must match salaries available in competing industries. Our research shows that even if chemical companies matched the higher salaries offered by IT companies in campus recruiting, their Indian engineers'

compensation would still be only one-third that of engineers in Europe. Recruits highly value opportunities for overseas assignments within a few years of being hired, and international chemical companies could increase their attractiveness by designing international career paths, which they are well positioned to do.

2. Invest in developing the market in India.

Many international companies underestimate the extent to which they must invest in market development to succeed in India. First, chemical companies must work with end-market players to educate them about the benefits that can be captured by using specialty-chemicals products; this education process is essential to facilitate the adoption of chemicals. Producers of engineering plastics, for instance, need to build contacts in India's fast-growing automotive industry—which is emerging as a world leader in small-car production—and they must show how their products' weight-saving properties can be put to use in new car designs to get their products specified in new models.

Second, international companies should develop local products at the right price to help drive demand growth. A large portion of emerging demand for specialty chemicals in India is in lower-priced segments. Companies should work, for example, with consumer-products companies that are tapping the “bottom of the pyramid” and bringing in new consumers who previously bought products made more cheaply without specialty chemicals or who did not buy products at all. These consumers represent a large new market: while a detergent formulated for such a market with 14 percent active detergent content instead

of the traditional 17 percent content consumes less chemical per dose, it nonetheless represents substantial growth if the consumer previously purchased a product that did not include the ingredient at all. Similar dynamics are at work in industries such as automotive, construction, textiles, and dyes.

Third, companies should support the implementation of product and environmental standards for the benefit of society that will also institutionalize the consumption of more advanced specialty-chemicals ingredients or that will require more environmentally friendly specialty-chemicals end products for consumers. This can be achieved by working with specialty-chemicals-consuming industries and the government.

3. Develop a special business model for India.

The country's scale and differing levels of affluence and development make it difficult for international companies to replicate business models used in other countries, and companies must rethink their approach.

Distributing to major pan-Indian customers while meeting the needs of the country's fragmented and dispersed end-user markets presents a challenge. Companies must create a key-account strategy for large customers and partner with other companies and local distributors to build distribution networks across geographies, which would help them ensure coverage and reduce investment costs. In water-treatment chemicals, for example, companies should engage directly with big power-plant and paper-mill accounts, but they should also have a distribution network to address the mass market of small-scale water-treatment plants.

Supply chains in India can be complex given the fragmented and geographically dispersed market. Developing a strong vendor base, making tolling arrangements with cost-efficient local companies, optimizing the production footprint across India, creating an efficient logistics capability, and working with distributors are important to manage return on invested capital.

4. Leverage India's cost advantage by investing in production for export and in R&D.

There is significant potential for international companies to access India's low-cost manufacturing and research strength through partnerships and M&A. India has a large pool of skilled workers and competitive wage rates, while capital expenditure to build a plant can be 20 to 30 percent less than in developed countries. About half of India's crop-protection-chemicals production is exported; the country is also a major exporter of printing inks, pigments, and dyestuffs. Some international companies are tapping this opportunity: Syngenta, for example, is using its Goa facility to pioneer process innovations, and the site is one of its five main active-ingredient production hubs worldwide. But there is clearly substantial scope for India to become a global production base for other specialty-chemicals market segments.

About 80 percent of the Indian specialty-chemicals industry consists of small and midsize enterprises with subscale production facilities, and many companies lack the financial resources and management capabilities needed to increase capacity four- or fivefold to maintain their market share as the market grows exponentially. Some of these companies may be on the lookout for international partners, which offers a window of opportunity for global players.

5. Cope with the lack of infrastructure in India.

International companies must make a sober appraisal of the challenges of manufacturing in India and take these conditions into account in their business case. While plant-construction lead time in India is comparable with world benchmarks (or even shorter for some leading Indian players), and while capital expenditure costs are relatively low, specialty-chemicals producers face major challenges on access to intermediates (most of which must be imported), to reliable power, and to storage and distribution infrastructure.

There are clear advantages to selecting the sites that have the best infrastructure and that are close to reliable power suppliers and port facilities, such as those in Gujarat. For projects where dependable power is critical,

There are clear advantages to selecting the sites that have the best infrastructure and that are close to reliable power suppliers and port facilities

building a captive power plant—or at least backup power generation—should be part of the project blueprint. Companies with a product slate that requires building blocks not yet available in India should consider launching production of more downstream products, integrating upstream as appropriate chemicals become available (for example, EO derivatives rather than EO itself). Finally, companies should consider planning to hold a “safety stock” of key raw materials and include additional financing requirements in their overall business case.



One international chemical company has worked with an Indian tire producer for the past two years to incorporate its specialty fiber into a new radial tire designed to cater to Indian car

buyers’ demands; this initiative has already translated into tens of millions of dollars of new sales. Top-management teams at Western chemical companies are all too aware that emerging markets are on track to take an increasingly dominant share of global demand growth, and anecdotes such as this only reinforce the idea that they should engage more with the Indian market. Many senior-management teams would do well to keep in mind that their global market positions would be in much better shape if 10 years ago, when China was only the fifth-largest chemical market, they had recognized the true scale of the opportunity in China. As some international companies are showing, the Indian market offers a chance to get it right this time. ○

Avinash Goyal (Avinash_Goyal@McKinsey.com) is a consultant in McKinsey’s London office. **Suyog Kotecha** (Suyog_Kotecha@McKinsey.com) is a consultant in the Mumbai office, where **Saikiran Krishnamurthy** (Saikiran_Krishnamurthy@McKinsey.com) is a principal and **Neelesh Mundra** (Neelesh_Mundra@McKinsey.com) is a consultant. **Ulrich Weihe** (Ulrich_Weihe@McKinsey.com) is a principal in the Frankfurt office. Copyright © 2012 McKinsey & Company. All rights reserved.

The authors wish to thank Suman Mishra and Sam Samdani for their contributions to this article and to the research underlying it.