Dueling with Dragons 2.0

THE NEXT PHASE OF GLOBAL CORPORATE COMPETITION

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INTRODUCTION

THE PAST FEW YEARS have seen tremendous upheaval in a number of global industries. In 2000, giant Western companies such as Ericsson, Nokia, and Nortel Networks ruled the world's telecommunications-equipment industry. Now, Chinese companies such as Huawei Technologies and ZTE have risen to the top. In the process, they have forced established multinational corporations (MNCs) into joint ventures or even out of the market. In the photovoltaic industry of 2005, U.S., European, and Japanese companies accounted for 90 percent of global production. Today, four of the world's five top players, including market leaders Yingli Solar and Trina Solar, are based in China.

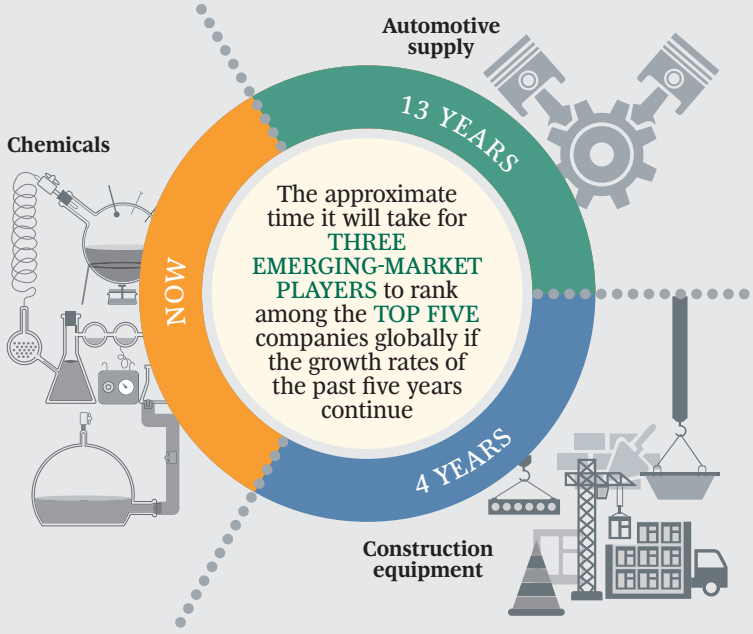
Other industries are in danger of similar disruption as the competitive landscape in emerging markets matures.[1] The number of emerging-market-based companies with at least $1 billion in annual sales—the global challengers, as we call them—has more than tripled, to roughly 1,700 over the past decade. Even though most of these companies remain smaller than the reigning MNC champions in their industries, they are growing much faster.

The Boston Consulting Group continuously monitors the state of global competition in various industries. In this report, we analyze the implications for MNCs and the top emerging-market players (EMPs) in three businesses: automotive supply, construction equipment, and chemicals. Through our analysis, we have determined the strategies that MNCs and EMPs should employ to win.

This report, along with its recommendations, is based on comprehensive quantitative and qualitative research, including more than 100 interviews with executives and industry experts in China, India, and Latin America, as well as with BCG global experts.

We have found that a sea change is under way in all three industries. Even though the automotive-supply, construction equipment, and chemical industries have significantly different natures and competitive landscapes, MNCs in each are facing urgent challenges to their leadership from EMPs. In one scenario, which explores aggressive EMP growth and is based on the assumption that EMPs are able to maintain the growth rate of the past five years, EMPs would represent three of the five largest companies globally in terms of sales in the foreseeable future in all three industries. Indeed, the chemical industry has already reached this point. The construction equipment industry will reach it in 4 years; the automotive-supply industry, in 13 years. (See Exhibit 1.) This hardly means that the game is over for the incumbents, however. In each of the three industries, several MNCs are

EXHIBIT 1 | Emerging-Market Challengers Are Catching Up Fast



Source: BCG analysis.

proving to be agile enough to defend their leadership positions and even to grow in new markets.

Key executives of both MNCs and EMPs expect that competition will intensify in all three industries. Improving global competitiveness, therefore, must be a top priority on CEOs' agendas. Companies must acquire a clear understanding of the market forces, technological trends, and customer demands that are reshaping their industries. According to the results of our analysis, organizations need to develop a winning mix of strategies and pursue them relentlessly. In many cases, a transformation of the business will be required.

NOTE

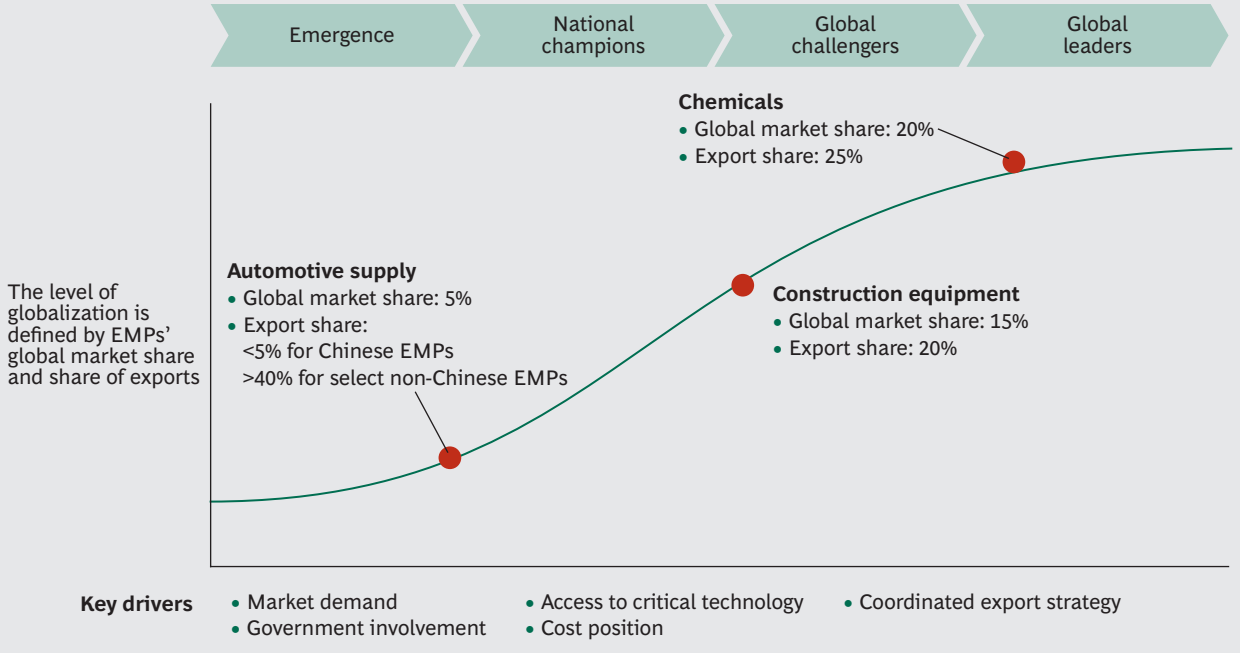
1. We define an emerging market as any economy that is not Australia, Japan, Korea, New Zealand, North America, Singapore, or Western Europe.

FROM EMERGENCE TO GLOBAL LEADERSHIP

We have observed that companies based in emerging markets generally take four steps to become global leaders.

First, they emerge as nascent competitors at home. Second, they become national champions by attaining a strong to dominant position in their home markets. Third, they spread their wings and become global challengers. With the fourth and final step, they establish themselves as global leaders. (See Exhibit 2.) In a 2011 study, we showed how companies from China navigated this journey in industries such as telecommunications equipment, solar and wind power, and power generation equipment. (See *Dueling with Dragons: China's Rapid Rise in Heavy Equipment*, BCG Focus, July 2011.)

Exhibit 2 | The Four Stages of Global Competition for EMPs



Source: BCG analysis.
Note: EMP = emerging-market player; all values are approximate.

We selected the automotive-supply, construction equipment, and chemical industries for analysis in this report because they illustrate three stages in the process. The stages are characterized by the market penetration and revenue size of the ten leading EMPs.

- *Automotive Supply.* This industry is in an early stage of global competition. The leading MNC incumbents still dominate, with a global market share of 95 percent. However, the leading EMPs have experienced staggering growth of about 21 percent per year over the past six years and are by now all sizable companies. While a few EMPs—such as Nemak, Motherson Sumi Systems, and Bharat Forge—are already globalized, many EMPs, including Chinese players Weichai Group and Huayu Automotive Systems, are just starting to reach beyond their home markets.
- *Construction Equipment.* Global competition in this industry is at an intermediate stage. Several Chinese EMPs, including Sany Group and XCMG Group, are now among the largest companies and have invested massively to build a global footprint over the past six years.
- *Chemicals.* This industry is in a very advanced stage of global competition. Several EMPs have already become global leaders. The largest, such as Sinopec and Saudi Basic Industries (Sabic), are already about the same size as the largest MNCs: BASF and Dow Chemical.

In the following chapters, we highlight the key findings for each industry and the strategies that interviewed executives recommend for MNCs and EMPs striving to emerge as winners in the global competition.

THE AUTOMOTIVE-SUPPLY INDUSTRY

THE GLOBAL AUTOMOTIVE-SUPPLY INDUSTRY—WHICH has long been dominated by companies based in developed economies because of close relationships with the leading automobile manufacturers there—illustrates the rapid changes in the competitive balance between MNCs and challengers based in emerging markets. We assessed the current competitive landscape, its likely evolution over the medium term, and the best strategic options available to both MNCs and EMPs.

The Current Landscape: Signs of Change

In 2008, 25 million light vehicles—a category that includes passenger cars, sports utility vehicles, and light and pickup trucks—were produced in emerging markets, equaling 37 percent of global production of light vehicles. In 2013, that share had grown to almost 50 percent, and China alone—by then the largest car producer in the world—had an annual output of 21 million units. The emerging markets, then, are the growth engine of the car industry.

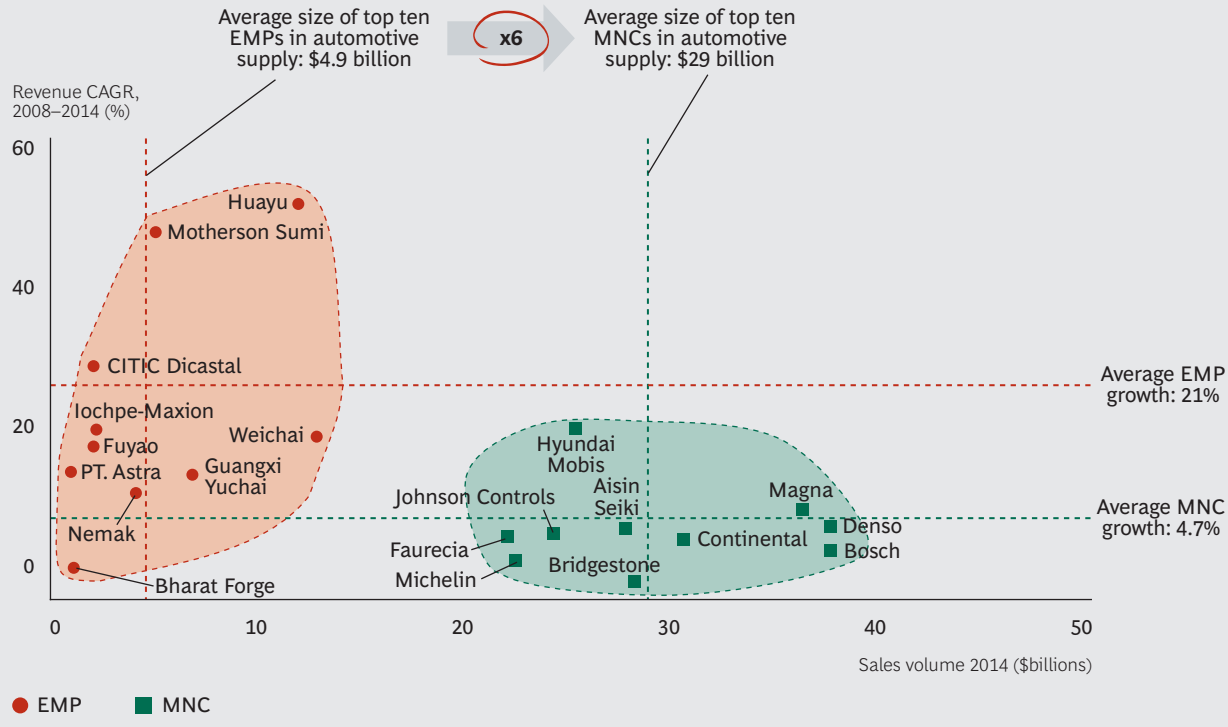
This shift to emerging markets, however, is not yet reflected in the size of automotive suppliers: the ten largest MNC suppliers have an average of $29 billion in annual revenues, which is almost six times the average annual revenue level of the top ten EMPs. (See Exhibit 3.) Nevertheless, the shift of car manufacturing to emerging markets enabled these EMPs to achieve rapid growth that averaged 21 percent annually from 2008 through 2014; the MNCs grew at a much slower pace during that period.

The emerging markets are the growth engine of the car industry.

The top EMPs fall into two categories. Some are already global: Nemak, Iochpe-Maxion, and Bharat Forge have a sales presence, a manufacturing presence, or both on several continents. Others, however, especially Chinese companies, were until recently very busy satisfying their explosively growing home markets. They are now looking for expansion opportunities abroad and seeking to catch up in technology. (See the sidebar "Weichai Power: Vaulting Ahead Through Technology Partnerships.")

From an MNC perspective, the forward march of the EMPs puts many component segments under threat. The manufacture of critical core components such as engines, transmissions, and car electronics is still perceived to be dominated by MNCs. But in segments such as interiors, passenger restraints, wheels and tires, fuel systems, and body glass,

EXHIBIT 3 | MNCs Still Have a Big Lead in Automotive Supply, but EMPs Are Growing Four Times as Fast



Sources: S&P Capital IQ; IHS Global Insight; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation. For conglomerates, 2014 automotive sales are partly estimated. Only 2013 values were available for CITIC and Guangxi Yuchai.

WEICHAI POWER
Vaulting Ahead Through Technology Partnerships

China's Weichai Power, a diversified maker of engines, transmissions, and heavy-duty trucks, illustrates how a strong emerging-market player in the automotive-supply industry can take advantage of inorganic moves to leap onto the global stage—even in high-tech categories that are commonly considered to be the clear domain of multinational corporations. With one move—the 2012 purchase of a 25 percent stake in Germany's Kion Group—the Chinese company became a global leader in forklifts and hydraulic technology. In so doing, it also created awareness of its entire product range.

The year after the Kion acquisition, Weichai made another big splash by forging a strategic partnership with Ferrari. Serving as the Ferrari Formula 1 team's global sponsor enabled Weichai to leverage the Ferrari brand globally for its own purposes. In China, which is now the second biggest market for Ferrari, Weichai collaborated with the Italian automaker to develop a concept car.

Together, these moves placed Weichai—until a few years ago known only to industry insiders—squarely on the global map of leading automotive suppliers.

leading EMPs are rapidly closing in on the MNCs in terms of quality and performance. One example is China's Fuyao Group, which was unknown even to many industry insiders until a decade ago. Today, the company is one of the world's leading manufacturers of automotive safety glass, producing windshields not only for local Chinese clients but also for Western and Japanese multinationals.

The Future Landscape: A Shifting Center of Gravity

By 2020, as many as 102 million light vehicles could be produced globally, with most being built in emerging markets. At that point, China alone could be producing about one-third of the global output, adding another 10 million units to its current volume—more than the current output of Japan.

This trend will put additional pressure on MNC suppliers, which already suffer from a geographical misalignment between their global sales and global car production; most today make only 10 to 20 percent of their revenues in Asia. Many of the executives interviewed for this report believe that most MNCs will react by establishing large investment programs to globalize their businesses quickly enough to keep up with this trend.

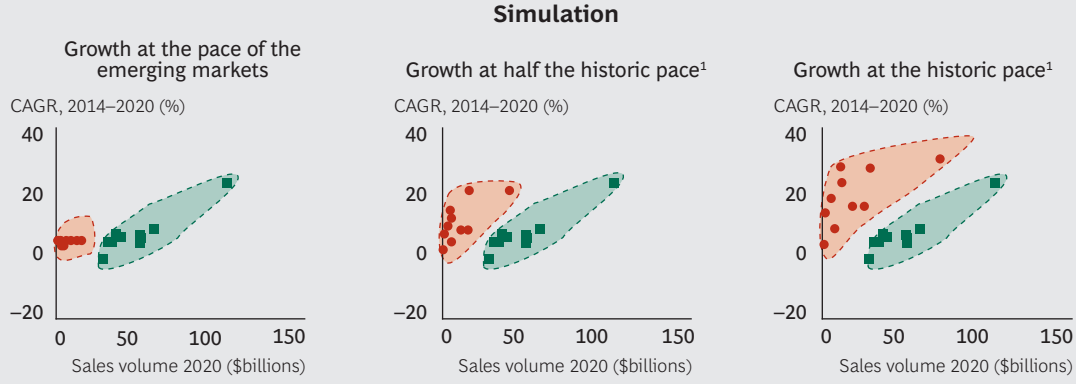
Nevertheless, most executives also expect that despite MNCs' efforts, the increasing home-field advantage will help EMPs, especially those based in China, achieve a second wave of growth that will enable them to further expand outside their own markets.

Our simulations indicate that select EMPs will catch up with the top ten MNCs in sales volume by 2020 even if they grow only half as fast as they did during the past six years. (See Exhibit 4.) But in even the most aggressive scenario, it would still take about 13 years for three EMPs to join the ranks of the world's five largest automotive suppliers.

Winning Globally in the Automotive-Supply Industry

In the face of tectonic changes, MNCs and EMPs need to develop the right set of strategies along three dimensions: products and

EXHIBIT 4 | Even If Their Growth Slows, Big EMPs in Automotive Supply Will Close the Gap with MNCs by 2020



	Growth at the pace of the emerging markets	Growth at half the historic pace[1]	Growth at the historic pace[1]
EMP	• Growth at the same pace as the growth of the home market for domestic business and of the global market for nondomestic business • Average growth: 5%	• Growth at half the historic pace (maximum: 20% per year) • Average growth: 10%	• Continuation of growth at the historic pace (maximum: 30% per year) • Average growth: 21%
MNC	• Projected growth rate based on historic growth	• Average growth: 4.7%	

Sources: Top 100 Automotive Suppliers; S&P Capital IQ; IHS Global Insight; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation.
[1]Historic pace is defined as the rate of growth from 2008 through 2014.

technology, operations, and go-to-market approaches. The automotive-supply executives we interviewed cited a number of actions that are essential for companies to remain successful and win in the increasingly competitive global environment.

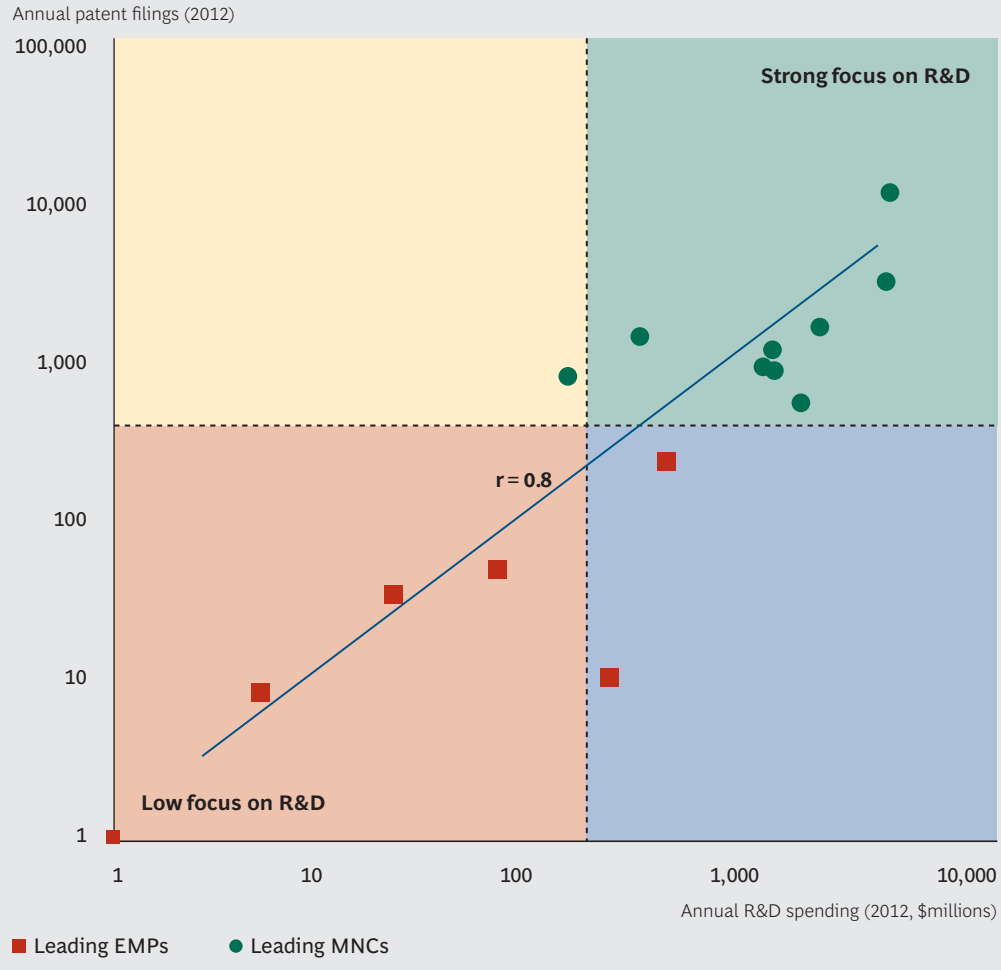
Key Strategies for MNCs

MNCs will need to take action in the areas of products and technology, operations, and go-to-market approach.

Products and Technology. From the interviews, the following top priorities emerged:

- *Retain leadership in technology.* The majority of MNC executives we spoke with ranked innovation and maintaining an advantage in technology as their highest priorities. Currently, we see the top EMP suppliers investing only 1.8 percent of sales in R&D, compared with 4.7 percent for top MNCs. (See Exhibit 5.) In most segments, innovation will come in the form of specialized high-end products and hard-to-imitate technological solutions. For example, in tires, a product category under heavy threat from EMPs, Bridgestone offers highly specialized products—such as fuel-efficient, grip-optimized, or "comfort" tires—that address the specific needs of the end customer.
- *Target the middle market.* Most of the growth in light-vehicle sales is in emerging markets, and a large portion of that

Exhibit 5 | Leading MNC Auto Suppliers Far Outpace EMPs in R&D Spending and Output



Sources: BCG ValueScience Center; Bloomberg; Thomson Innovation; Themescape; company publications; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation. Logarithmic scale; R&D resource commitment includes all business units of companies.

growth will come from the value and middle-class segments. Industry experts believe that MNCs cannot afford to leave these segments to their emerging-market competitors, even though most MNCs find them challenging to conquer. Many standard MNC products are overly complex and expensive. Others have not been adapted to the specific usage patterns of emerging-market customers and to local conditions, such as heat and humidity. Using rigorous design-to-cost approaches, rather than simply stripping down existing products, will often be required. For example, by converting conventional instruments such as speedometers and fuel gauges to a fully digital dashboard, component costs for this module can be reduced by up to 40 percent.

Operations. Key findings from the interviews include the following:

- *Build local production and distribution partnerships.* Given the close integration of OEMs and suppliers in the automobile industry, there can be no doubt that suppliers need to localize their production to where car production is moving. In other words, they must expand in emerging markets. Executives in our interviews clearly see this as a challenge that requires long-term commitment. The necessary capabilities must be built step by step, rather than through a onetime effort. Localization should be pursued in light of a coherent, long-term strategy rather than through individual opportunistic decisions. (See the sidebar "Faurecia: Catching Up by Using a Persistent Strategy in China.") But it is also clear that suppliers will not be able to move into all emerging markets at once. Rather, they need to make smart bets. They have to decide which cases require proactive investment to get into position to win further business and in which cases the company will be better served by following OEMs only after a commitment is secured. Given their capital constraints, MNCs should carefully consider the full spectrum of alliances with domestic manufacturers and distributors and be open to unusual partnership formats, such as minority stakes.

FAURECIA
Catching Up by Using a Persistent Strategy in China

Although Faurecia is one of the world's leading automotive suppliers, the French company was not among the MNCs that pioneered markets in Asia. In the early 2000s, the region accounted for only about 5 percent of the company's sales, and Faurecia had only eight plants in China—fewer than many of its MNC competitors. From 2005 through 2012, however, Faurecia built 25 additional plants in China. By the time its so-called industrialization wave was complete, the company had localized all four of its business areas in China.

Currently, Faurecia is undergoing what it calls an R&D and innovation wave. The company has formed a series of collaborations with strong local players. The first, with Chinese automaker Geely, was launched in 2010. In 2013, Faurecia established a joint venture with Changan Automobile for automotive interiors and built a new 800-engineer R&D center in Shanghai to develop applications specifically for the needs of the Chinese and Asian markets. These moves helped Faurecia to increase its revenues in 2014 at an above-market rate of 19 percent annually, to $2.4 billion. By doing so, it has almost tripled its share of revenues from Asia, to 14 percent.

Building on these successes, Faurecia in early 2015 announced a joint venture with a unit of Dongfeng Motor. The agreement targets $2.2 billion in annual revenues in the medium term, further reinforcing Faurecia's aspiration to become a leading player in China.

- *Address the cost challenge.* In an industry as efficiency oriented as automotive supply, declaring the need to address costs to stay competitive may be stating the obvious. But industry executives believe that this should be approached from a transformational perspective, not with a view toward just improving the efficiency of the supply chain. Such a holistic view is especially important at a time when one traditional cost-reduction method—moving production from high-cost to low-cost countries—is becoming ever more complex. According to BCG's Global Manufacturing Cost-Competitiveness Index, automotive manufacturing costs in MNC home countries, such as Germany, are currently more than 20 percent higher than in India and China. But this gap will shrink, and advanced robotics may actually produce a significant cost advantage for some developed economies. (See "Why Advanced Manufacturing Will Boost Productivity," BCG article, January 2015.)

Closing the technology gap will require EMPs to overinvest in R&D.

Go-to-Market Approach. In our research and interviews, the following key strategies emerged:

- *Defend core client relationships.* The top executives interviewed in our study ranked investments in customer relationships as their second-highest strategic priority. Thus, one approach for MNCs would be to closely integrate production footprints and product development activities with those of their OEM clients. For example, deploying resident engineers at an OEM's facilities can deepen relationships on an operational level and gain priceless insights into the needs and challenges of customers. Japanese suppliers have been the first to show the tremendous value that resident engineers can contribute to their companies' relationships with OEMs.
- *Differentiate through value-adding services.* Experts agree that the current movement away from only supplying parts and toward providing solutions will continue as suppliers seek to protect key accounts and differentiate themselves. This is an especially important strategy for smaller players. Austria's AVL Group illustrates this very well. With $1.4 billion in revenues in 2014, AVL is the world's largest independent developer of power train systems with internal-combustion engines. But it remains much smaller than the leading MNCs. By offering advanced simulation methods and testing instrumentation as well as development services, AVL seeks to provide the ideal solutions for clients' specific demands. This is especially helpful for OEMs in emerging markets, which may not have these abilities themselves. Executives state that the more commoditized the fundamental product technologies become, the greater will be the importance of these value-adding services.

Key Strategies for EMPs

EMPs will also need to adopt new strategies for their products and technology, operations, and go-to-market approaches.

Products and Technology. The top priorities cited by executives include the following:

- *Close the technology gap.* The majority of EMP executives we interviewed cited catching up in technology as their first strategic priority. Despite progress by EMPs in segments such as interiors, passenger restraints, wheels and tires, fuel systems, and body glass, MNC suppliers are still perceived as dominating technology in core components, such as engines and transmissions. Closing the technology gap will require EMPs to overinvest in R&D, yet many continue to underinvest. Pressure to innovate is coming not only from the aggressive R&D agenda of many MNCs but also from stricter regulatory standards in both emerging and developed markets. Rising standards for emissions and fuel efficiency, stricter car-recall policies, and enforced repair and replacement guarantees by OEMs will

require EMP suppliers, as well as MNCs, to improve product technology and quality just to stay in the market.

- *Adjust the product portfolio.* Six of the ten leading MNC suppliers are active in more than 7 of the 20 product categories we examined. By comparison, only two of the top ten EMPs cover more than seven categories. The questions for EMPs then become: Should we broaden our product portfolio, with the risk of spreading our resources too thin? Or should we focus on a few sectors, with the risk of becoming "too niche" to qualify as a global tier-one supplier to MNCs? The answers will vary by industry segment and companies' specific strengths and weaknesses. But executives should make it a priority to discuss these questions explicitly and make strategic decisions accordingly.

Operations. The following key strategies emerged from our interviews:

- *Build global manufacturing and operations footprints.* Large MNC suppliers have a comparably robust competitive advantage in that the world's leading OEMs increasingly require their suppliers to match their global footprints. This is a very significant barrier to growth for smaller local players, even at home, since large OEMs account for a significant portion of car sales in emerging markets. For this reason, the road to global leadership requires a global manufacturing network, including a considerable footprint in the developed world (with the cost disadvantages that this implies). Given the massive capital investment required, making smart bets on where to go is critical to the strategic trajectory of any EMP. Nemak is one example of an EMP that has become a leading supplier, in a high-tech category no less, by extending its footprint and capabilities on a global level. A producer of high-end aluminum components, such as engine blocks, Nemak started the journey in its home country of Mexico. Today, the company has an international production network consisting of 34 plants, and it supplies many of the leading global OEMs.
- *Develop the organizational capabilities needed to realize global aspirations.* Bigger size, global operations, and a broader product portfolio increase organizational complexity. EMPs need to make sure that their core processes are up to this challenge. They should ask: Is our talent management international enough? Are we able to successfully integrate an acquisition target? Are our IT platforms secure, and do they support efficient processes? EMPs struggle with these issues, we often find, because the hypergrowth that they experienced during the previous few years did not leave them sufficient time to professionalize corporate processes and capabilities.

The pace of change is faster than expected a few years ago, and accelerating.

Go-to-Market Approach. Industry experts recommend that EMPs *follow a global branding strategy*. It is important for EMPs to create brands outside their home markets. In our experience, this is a challenge for many EMPs, both within and outside the automotive-supply industry. However, several have found creative ways to overcome this challenge. For example, Hankook Tire is aggressively investing in sponsorships of racing series to create a strong brand for its products, while Weichai—an engine manufacturer—is partnering with Ferrari's Formula 1 team. (See the sidebar "Weichai Power.") Our experts believe that EMPs will make this type of bold move more often in the next couple of years as their ambitions continue to grow.

The strategies of leading MNCs and EMPs in the automotive-supply industry reflect the fact that they are starting from different places. But the vast majority of executives in both types of companies shared one sentiment in our interviews: the pace of change is faster than they would have expected it to be a few years ago, and it's accelerating. Executives must act with resolve to prepare their businesses for the inevitable shifts to come.

THE CONSTRUCTION EQUIPMENT INDUSTRY

The construction equipment market nicely illustrates the overall development of the global economy: revenue growth and competitive advantage have been heavily influenced by demand in rapidly developing economies.

The Current Landscape: Challengers Are Closing the Gap

During the first few years of the 2000s, the emerging-market boom in infrastructure, housing construction, and mining led to an explosion in demand for construction machinery. In China, for example, the business experienced annual growth of more than 25 percent from 2007 through 2011. China alone accounted for more than one-third of the $108 billion global construction-equipment market at the height of the boom, in 2011. The major developed markets, by contrast, were heavily hit by the global financial crisis. Sales contracted by 30 percent in the U.S. and Japan and by 40 percent in Western Europe during that period. EMPs rode the demand growth in their home markets to catapult up the ranks of top construction-equipment manufacturers.

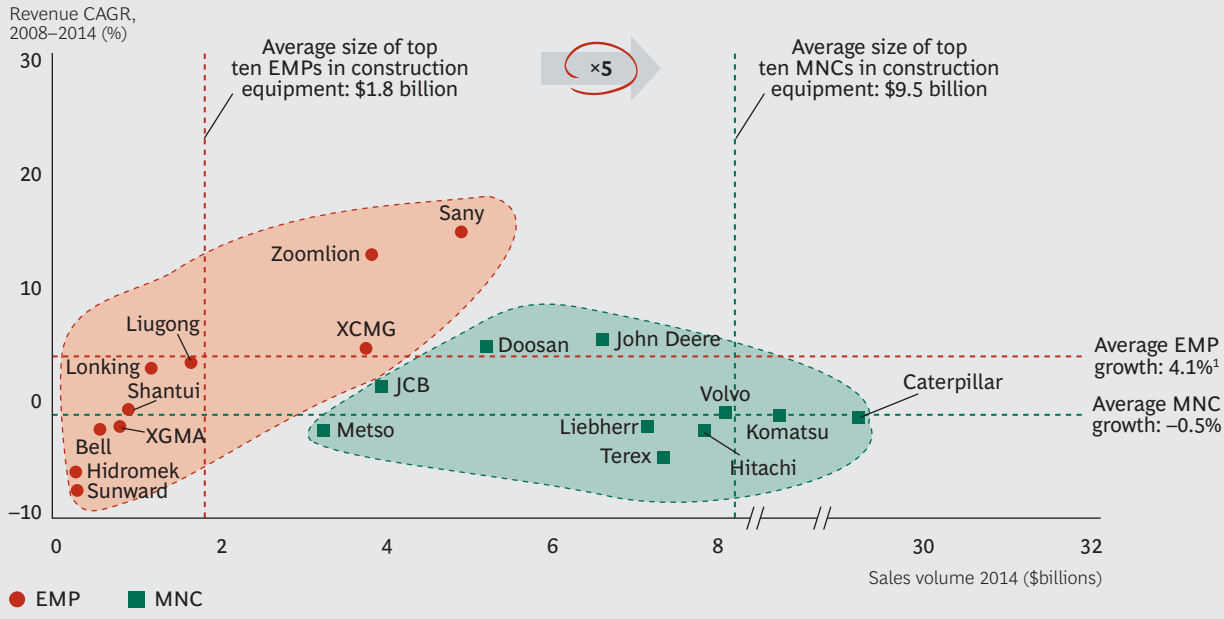
The EMPs, however, have been feeling the impact of the chillier economic climate in many emerging markets during the past two or three years much more strongly than their MNC counterparts. Demand in China dropped by almost 40 percent from 2011 through 2013, leading to declines in revenues of 20 to 40 percent for leading Chinese players. Many are fraught with overcapacity and are losing money heavily.

Despite the headwinds at home, however, the largest EMPs—Zoomlion and Sany of China—have now reached about $5 billion in annual revenues, making them bigger than such longtime incumbents as Metso and JCB. (See Exhibit 6.) The top Chinese players have continued to expand their foreign-market forays, which they had initiated late in the previous decade.

The top Chinese players have continued to expand their foreign-market forays.

As a first step, the Chinese players have typically been achieving organic growth by exporting to other emerging markets. XCMG has enjoyed substantial success in Latin America, for example, with a landmark order worth $750 million from the Venezuelan government in 2012. The company subsequently invested close to $200 million to set up a manufacturing plant in Brazil in an effort to solidify its market position in Latin America.

Exhibit 6 | EMPs in Construction Equipment Are Gaining Rapidly on MNCs



Sources: KHL's IC Yellow Table; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation. Revenues may include some mining-equipment revenues. For XGMA, Hidromek, and Sunward, 2013 revenues are used.
[1]For companies with available six-year CAGR.

EMPs have had trouble trying to go the organic route to seize share in Western markets, where customers value branding, quality, and established distribution systems much more highly. There are opportunities for inorganic growth, however, because of the financial distress of some Western players. For these reasons, several leading EMPs have made substantial inroads in developed economies through acquisitions—making more than 20 significant acquisitions of incumbents in mature markets since 2010. For example, India-based Tata Hitachi Construction Machinery (formerly known as Telcon but now majority owned by Hitachi, with a minority stake held by Tata) acquired nationally dominant Spanish players Lebrero and Serviplem in 2008 and 2009, respectively, quickly giving the company a strong footprint in Europe.

A similar pattern occurred in the concrete pump industry when, within a few years, many of Europe's leading suppliers were taken over by their Chinese competitors. (See the sidebar "How Chinese Companies Took Over the Concrete Pump Market.") Many EMPs have also entered into joint ventures with MNCs, exchanging local market access for the latest technology. China's Liugong Machinery, for example, has made extensive agreements with Cummins, a leading U.S. diesel-engine manufacturer, as well as with Scandinavian equipment-maker Metso for crushing and screening technology. The piecing together of critical technology through different joint ventures has rapidly accelerated the ability of EMPs to catch up technologically.

The Future Landscape: The Bid for Leadership

Top industry executives interviewed by BCG believe that, in the short term, the construction equipment business will see a bit of a slowdown in the further expansion of EMPs. In particular, Chinese companies have recently curtailed their expansion plans as they wrestle with slower growth at home. After they restructure, however, challengers from China are expected to renew their attack on the home markets of MNCs. According to our simulations, the top construction-equipment EMPs will catch up with the top MNCs in size by 2020 if they continue to grow at the same rate. (See Exhibit 7.) In four years or so, three of the world's five largest construction-equip-

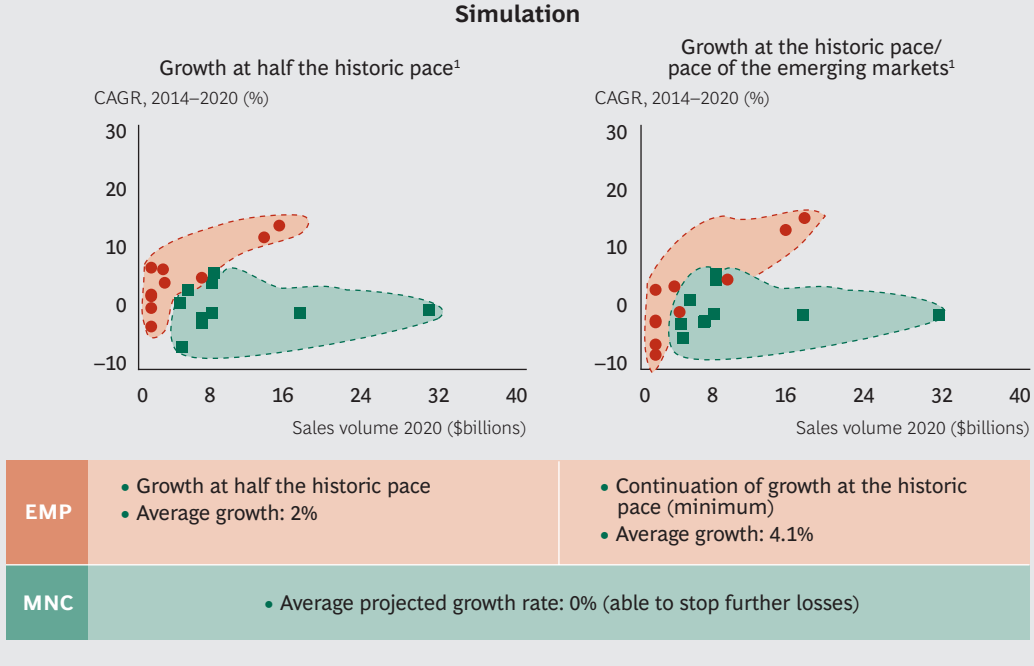
HOW CHINESE COMPANIES TOOK OVER THE CONCRETE PUMP MARKET

Until about a decade ago, midsize European companies, such as Putzmeister and Schwing Stetter, were the technology leaders in the global concrete-pump business. They not only dominated Western markets but also had strong positions in emerging markets.

European companies began losing ground to Chinese companies during China's construction boom in the first decade of the twenty-first century, when China accounted for more than two-thirds of global sales of concrete pumps. The financial crisis of 2008 was the turning point: sales in the West ground almost to a halt. As a result, Putzmeister's revenues dropped from more than $1 billion in 2008 to just $440 million in 2012, when the company was sold to China's Sany. Schwing, Putzmeister's main competitor, was soon acquired by XCMG, also based in China. The chief goal of the Chinese challengers was to gain access to the market leaders' technology and customers. Already in 2008, Zoomlion had bought Cifa, a leading Italian manufacturer. So, within a few years, the global concrete-pump business was solidly under Chinese ownership.

It will take time to determine how well these acquisitions succeed. As of yet, Sany has not fully integrated Putzmeister. Rather, Sany is following a dual strategy: Putzmeister products are sold in its traditional strongholds in the West, while in other markets, Sany products are featured. In China, which still accounts for a huge portion of global sales, products from both brands are offered.

EXHIBIT 7 | Top EMPs in Construction Equipment Will Catch Up with MNCs by 2020 If Current Trends Continue



Sources: KHL's IC Yellow Table 2014; Off-Highway Research; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation. Revenues may include some mining-equipment revenues.
[1]Historic pace is defined as the rate of growth from 2008 through 2014.

ment manufacturers could be based in emerging markets if these companies continue to grow at their current rates. Also, if China gets serious about its goal of consolidating some industries, executives say a Chinese construction-equipment giant could begin approaching the size of Caterpillar and Komatsu, the current global leaders.

Many of the executives we interviewed—including those from rental companies that are large buyers of construction equipment—said that they think the construction equipment made by EMPs is catching up to that of MNCs in terms of mechanical performance and reliability. The recent acquisitions of Western technologies will accelerate this trend even though, as most executives believe, operations have not yet been well integrated into those of the new owners. The fact that both MNCs and their challengers buy many key components, such as hydraulics, from the same suppliers makes it even easier for EMPs to close the technology gap. The threat to MNCs, of course, will vary by product category: experts expect that mini-excavators or light cranes will be among the first construction-equipment products with which EMPs will be able to attain a truly global leadership position.

Winning Globally in the Construction Equipment Industry

The cooling of the building and mining booms in emerging markets gives both MNCs and EMPs some time to improve their competitive positions as they gear up for the next wave of growth in construction equipment and for renewed battles in developed markets.

Key Strategies for MNCs

The shifting competitive landscape requires MNCs to adjust their strategies for products and technology, operations, and go-to-market approaches.

Products and Technology. The following are the key findings from our interviews:

- *Focus on innovations that create real customer value.* As the technology gap closes and EMPs slowly build up their sales and service footprints in Western markets, even some traditional customers will be likely to settle for EMPs' construction-equipment products, which are "good enough" and sell for significantly less than MNCs' products. To counter this threat, MNCs should use their edge in R&D to develop a new value proposition for their customers. Digital technologies are expected to become particularly important. Construction equipment often sits idle on a site for a considerable amount of time as other steps in the construction process are being completed. Digital devices that enhance the integration of machines across the site offer significant potential for reducing working capital—and thus costs—by allowing for better work-site coordination and improved safety. Other digital technologies that enable construction equipment owners to track emissions and peak performance, identify maintenance needs, and better manage their fleets will further increase productivity and reduce the total cost of ownership of an individual machine. (See the sidebar "Komatsu: Leveraging Digital Technologies to Stay Ahead.")

MNCs should use their edge in R&D to develop a new value proposition.

- *Develop a competitive middle-market offering.* The middle market for construction equipment, which constitutes the bulk of demand in emerging markets, is often underserved by MNCs and offers considerable opportunities for growth—if MNCs can build the right offering for these very price-sensitive customers. For example, such customers are often willing to compromise on comfort features for their personnel, such as adjustable seats, air-conditioning, or optimized noise levels. But it's not all about stripping down products. Products to be used in hot and humid climates, such as in India, may require more powerful water-cooling systems than similar products to be used in Europe. The UK's J.C. Bamford Excava-

KOMATSU
Leveraging Digital Technologies to Stay Ahead

Komatsu has a long history of digital innovation, realizing early on that information technology would be key to unleashing the next wave of improvement in productivity and cost-effectiveness in construction equipment. Komatsu has pioneered the use of remote equipment monitoring, which reduces unplanned downtime and enables more efficient servicing. Komatsu was also the first supplier to feature autonomous haulage systems—which reduce the need for personnel—for the mining industry. And it has developed solutions for bulldozers that require less training for operators. Each of these offerings decreases the capital costs and operating expenses for Komatsu's customers.

Komatsu has been a leader in helping customers optimize their operations on a more holistic level, which goes beyond the use of individual pieces of machinery, as well. In 2014, Komatsu formed a joint venture with GE Mining that aims to increase the productivity of entire mining operations. In a similar vein, in January 2015 Komatsu launched a new IT-based offering that seeks to help customers improve operational efficiency through 3-D modeling of construction sites and the optimization of workflows.

If successful, these efforts will enable Komatsu—as well as competitors that follow a similar path—to make the transformation from a supplier of machinery to a supplier of efficiency-enhancing solutions to its customers.

tors (commonly known as JCB) illustrates a successful midmarket expansion. The company has made India its largest single market by heavily localizing its business and adapting its product portfolio to local needs—for example, by introducing a sturdier wheel loader with a stronger axis and improved brakes to handle the specific requirements of Indian construction sites.

Operations. The executives we interviewed identified the following priorities:

- *Build local production and distribution partnerships.* Partnerships can help MNCs quickly acquire links in local value chains by providing access to production facilities, suppliers, and sales and service networks that otherwise would be difficult to develop from scratch in an emerging market. Not surprisingly, then, many MNCs already have partnerships with local players in emerging markets. Caterpillar, for example, has entered into more than half a dozen major joint ventures with different partners in China for different purposes, from equipment and component manufacturing to after-sales services. The experts we interviewed believe that partnerships will become even more important for MNCs for two reasons. First, as demand continues to shift to emerging markets, MNCs will need to set up more local operations. Second, as EMPs mature and grow, they will become more formidable competitors in their home markets. That will make cooperation an attractive alternative to competition. The inherent difficulty lies in the fact that, in any given competitive environment, almost any strong partner is also a potential future competitor. We found in our extensive research that one key to a successful partnership is to acknowledge these conflicting interests and construe the partnership accordingly.

- *Become more cost competitive.* Core MNC markets in the West are expected to stagnate or grow very slowly for years to come, and prices are likely to come under pressure as EMPs increase their presence in these markets. MNCs must handle this pressure on profitability with efficiency programs that include the entire value

chain. Hitachi, for example, has laid out a comprehensive, two-step transformation of its construction-equipment business that spans six years and aims to improve profitability by about 8 percentage points through 2016. We believe that many companies need to think boldly about these types of restructuring efforts.

Go-to-Market Approach. One winning strategy emphasized by executives is for MNCs to *expand value-added services.* Most MNCs have invested significantly in the ability to provide the full range of high-value-added services to customers. Executives believe that this will remain key to helping them differentiate themselves and protect key accounts. In particular, MNCs should focus on a value proposition that considers the total cost of ownership over the lifetime of a product, not just the initial investment. For example, they should further push their offerings of equipment financing, training for the best use of machines, fleet management, insurance products that protect the value of equipment, and relocation services for when equipment needs to be dismantled, transported, and reassembled.

Key Strategies for EMPs

To compete with MNCs on the global stage more effectively, EMPs need to revamp their strategies for products and technology, operations, and go-to-market approaches.

Products and Technology. The executives we interviewed cited *increasing innovation* as a top priority. EMPs have already significantly enhanced their product portfolios over the last half decade or so. (See Exhibit 8.) They should continue to invest aggressively to further close the gap in terms of performance and quality. EMPs particularly need to catch up in engine technology and make sure that they can fully comply with Western emission standards if they wish to stay in the game and expand their global reach. The U.S. norms for hydrocarbon and nitrogen oxide emissions, for example, are 0.6 grams per kilowatt-hour in the 130 to 560 kw engine class, which is

Exhibit 8 | EMPs Are Expanding into New Construction-Equipment Segments

Sources: KHL Yellow Table 2014; BCG analysis.
Note: EMP = emerging-market player.

more than ten times stricter than the standards in China. It is no surprise that Chinese players are only just beginning to offer compliant products.

Operations. The following key strategies emerged from our interviews:

- *Improve efficiency.* The main advantage for EMPs today is cost. As in many manufacturing industries, however, this edge is shrinking as costs in emerging markets rise disproportionately and as MNCs increasingly localize in emerging markets. The current overcapacity of many EMPs adds to their inefficiency. They will therefore need to focus more on streamlining their operations. China's XCMG, for example, has introduced a central IT platform to handle its entire supplier management, a measure that the company says has reduced procurement costs by 20 percent.

- *Get basic business capabilities and processes right.* During the years of rapid local growth, EMPs often did not have sufficient time to develop adequate internal processes and structures, such as for control or people development. Global expansion inevitably increases the level of complexity in an organization, which makes such capabilities much more valuable. According to the experts we interviewed, EMPs would do well to invest in these basic capabilities before taking on the next chapter in their growth story, even if the move seems contrary to their highly entrepreneurial culture.

Go-to-Market Approach. Executives strongly advised EMPs to *expand their footprints in developed markets*. EMPs should develop a greater on-the-ground presence and localize their operations in developed economies to expand their businesses. This is especially true for sales, distribution, services, and support, given that Western customers place a high value on the wide availability and breadth of those capabilities. Services can deliver much higher margins to EMPs than typical construction-equipment sales can. Again, partnering may be critical. Sany, for example, is partnering in the U.S. with GE Capital to offer comprehensive financing solutions to its customers. In addition to expanding the service portfolio, the partnership provides the EMP with trustworthiness and brand value.

The massive shift in global demand from developed to emerging markets in the latter half of the first decade of the 2000s essentially brought about a split in the world market for construction equipment. EMPs, mainly from China, have gained significant share in emerging markets, while the developed world is still largely in the hands of Western MNCs. But this is hardly a steady state: MNCs will need to mount a new attack on emerging markets because they represent the most promising sources of growth. For their part, EMPs will strive to make further forays into Western markets. Both players will need to up their games to pursue their strategies successfully.

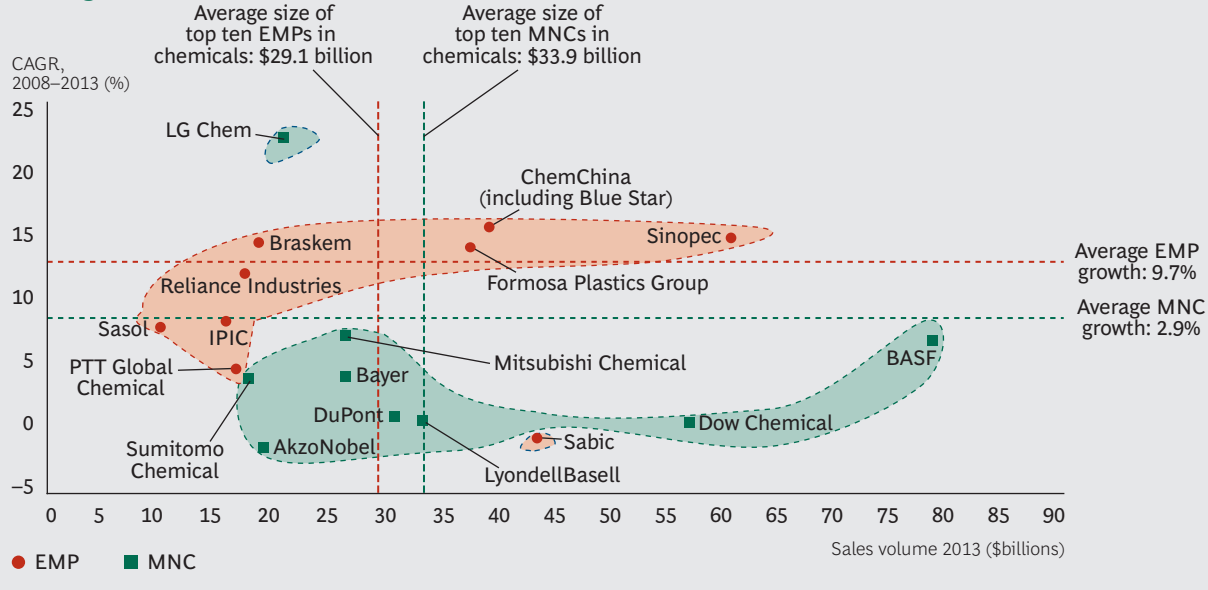
THE CHEMICAL INDUSTRY

THE FACT THAT LEADING MNCs and EMPs in the global chemical business are roughly at parity in terms of revenues illustrates the advanced stage of global competition in this industry.

The Current Landscape: The Fight for Global Leadership

As in the automotive-supply and construction equipment industries, global demand for chemicals is shifting to emerging markets, which now represent roughly half of the $5 trillion market worldwide. Major MNCs in chemicals have considerable local production in emerging markets and have known these economies well for decades. However, the balance of power has now shifted: several EMPs—most of them with close ties to national oil companies—have become global leaders. (See Exhibit 9.) With $60 billion in revenues in 2013, for example, China's Sinopec is larger than Dow

EXHIBIT 9 | The Biggest EMPs in Chemicals Are Roughly at Parity with MNCs—and Still Growing Faster



Sources: S&P Capital IQ; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation. Ineos, which is privately held, is not shown.

Chemical. Sabic, a $50 billion conglomerate based in Saudi Arabia, is bigger than Lyondell-Basell Industries, DuPont, and Mitsubishi Chemical. The sheer numbers obscure big differences among market segments, however. As of now, EMPs dominate base chemicals and basic plastics, and incumbent MNCs generally are stronger in specialty chemicals, industrial gases, agrochemicals, and fertilizers.

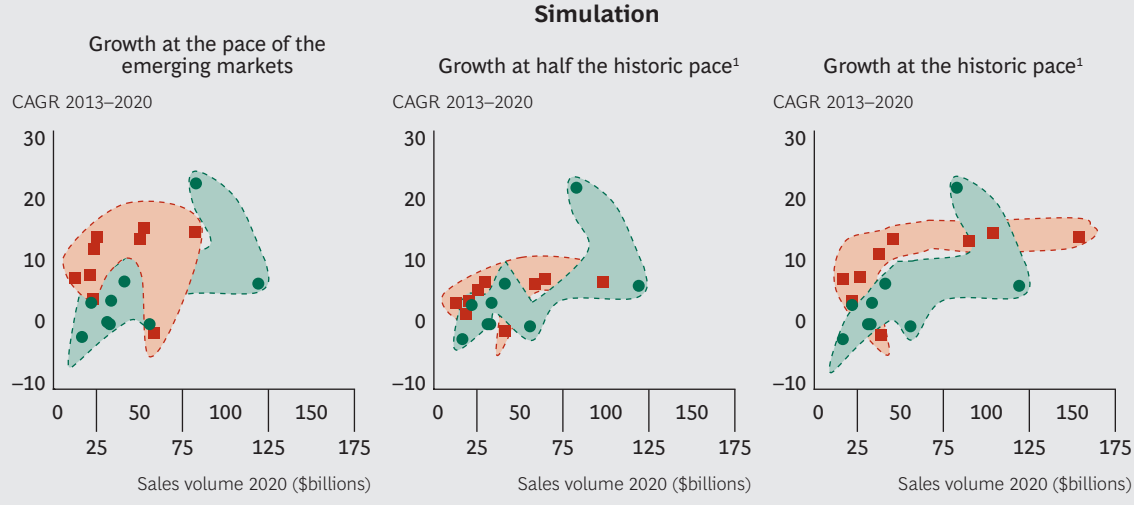
EMPs have also become more aggressive in mergers and acquisitions on a global basis. From 2007 through 2012, the amount that EMPs spent on such acquisitions grew from $7.9 billion to $10.6 billion. The transaction volumes of MNC acquisitions of emerging-market-based chemical companies dropped from $4.6 billion to $2.8 billion during that same period. EMPs are making bigger deals, too. The average EMP outbound acquisition—$881 million—was nearly nine times larger than the average outbound MNC deal.

The Future Landscape: The Battle Moves to Specialty Chemicals

Global demand trends are likely to continue to favor EMPs, especially those based in Asia. By 2020, the Asia-Pacific region is projected to account for approximately 53 percent of global sales of chemicals. The shares of North America and Western Europe are projected to shrink to 21 percent and 15 percent, respectively, by 2020.

It is no surprise, then, that if EMPs manage to maintain a certain degree of growth, they will soon exceed MNCs in size. (See Exhibit 10.) Based on our interviews, we also expect EMPs to further expand into specialty chemicals—not only because they are more profitable but also because these companies want a large share of the fast-growing local market for such chemicals. China identified new materials as one of the key strategic areas on which to focus in the twelfth five-year plan,

EXHIBIT 10 | Some EMPs in Chemicals Will Surge Past Leading MNCs by 2020 If Current Trends Continue



EMP	• Growth at the same pace as the growth of the home market for domestic business and of the global market for nondomestic business • Average growth: 4.4%	• Growth at half the historic pace (maximum: 20% per year) • Average growth: 4.8%	• Continuation of growth at the historic pace (maximum: 30% per year) • Average growth: 9.7%
MNC	• Projected growth rate based on historic growth	• Average growth: 2.9%	

Sources: S&P Capital IQ; American Chemistry Council; United Nations Environmental Programme; BCG analysis.
Note: EMP = emerging-market player; MNC = multinational corporation.
[1]Historic pace is defined as the rate of growth from 2008 through 2013.

for example, meaning that the government will support additional efforts in areas such as specialty materials, advanced polymers, inorganic materials, and composites.

Winning Globally in the Chemical Industry

Largely because MNCs and EMPs are roughly at parity in terms of size, the executives we interviewed from both types of companies in the chemical industry perceived a similar set of urgent challenges. Their highest priorities, however, depend on the industry segments in which they compete.

Products and Technology. The following strategies were cited prominently by executives:

- *Diversify into higher-margin products.* Executives from both MNCs and EMPs stressed the need to develop their product portfolios so that they can earn higher returns. Executives from MNCs see the need to constantly adapt their portfolios and generate new business opportunities. In part, that will require developing ever more customized solutions for their clients. EMP executives, not surprisingly, still see large white space for their companies in the realm of specialty chemicals. They highlighted the need to add more value for customers in their existing businesses rather than enter completely new product areas. One example of such a premium product is Zetag, a polymer developed by BASF that more effectively de-waters sludge, reducing the cost of disposal for the customer.

- *Create products tailored to local markets.* Makers of specialty and base chemicals alike said that their biggest challenge is to create products that are better adapted to local markets. When creating tailored, local products, it is important to keep in mind that there are several ways of doing so. Both MNCs and EMPs should systematically follow three strategies: proprietary product development, licensing of technology in exchange for market access, and acquisition. In any given segment, a combination of these strategies may become appropriate, but experts expect that licensing and acquisition will gain in relevance. Dow Chemical is showcasing these strategies in its electronics chemicals segment, for example. Through its own R&D, Dow brought Silveron, a sustainable surface-finishing solution that avoids cyanides, nickel, and lead, to market in 2014. At around the same time, Dow entered into a licensing agreement with Nanoco Group for the exclusive worldwide sale and manufacturing of cadmium-free quantum dots (Trevista), which allow for better color in electronic displays. What's more, Dow acquired Lightscape Materials in 2012, adding phosphor technology to its existing LEDs and improving the quality and color output of displays.

A local R&D presence is necessary, but it is no longer a real differentiator.

Operations. The following priorities emerged in our interviews:

- *Localize R&D and management.* Although a local R&D presence is necessary to be close to the customer, it is no longer a real differentiator. Eight of the top ten MNCs in the chemical industry have at least one research center in the Asia-Pacific region. For example, at its Shanghai R&D campus, BASF develops new products tailored to the needs of its emerging-market customers. Being closer to customers sometimes requires fundamental adaptations of an organization's management structure. In a globalized industry such as chemicals, this can even mean relocating the global center of a business unit, including functions responsible for key strategic decisions and profit and loss, in its most important market. (See the sidebar "BASF: Staying on Top by Going Local.")

- *Lower cost and secure feedstock.* Cutting cost is a particularly important priority for basic-chemical producers. Because the

BASF
Staying on Top by Going Local

BASF is the world's largest chemical company, with approximately $93 billion in sales in 2014 and more than 112,000 employees. As such, one of the biggest challenges it faces is to maintain growth amid intensifying competition from emerging-market-based companies. BASF has thus decided to take competition into emerging markets and invest heavily in localization.

In 2012, the company opened its BASF Innovation Campus Asia-Pacific in Shanghai to further its goal of building a strong R&D network connecting various BASF sites and universities in China, Japan, South Korea, and other Asian markets. The company aims to have approximately 25 percent of its global R&D workforce in the Asia-Pacific region by 2020. It even manages several global businesses from a base in emerging markets. For example, the company moved the global headquarters of its dispersions and pigments division to Hong Kong in 2012. The division head and 50 global positions were transferred to Hong Kong from Germany and Switzerland. The move allowed BASF to have a better view of its key customers and markets in Asia, which already accounts for a significant part of the division's sales and will be crucial if the company is to remain a global leader.

majority of production processes for bulk base chemicals such as ethylene are well understood, there is limited room for players in this segment to make breakthroughs on cost. Of course, large cost-optimization programs that target operational effectiveness at plants can solve a piece of this puzzle. But experts agree that securing cost-competitive supplies of feedstocks is essential. As the chemical industry grows, so will demand for feedstock. But reserves of major feedstocks—such as natural gas, coal, and oil—are not distributed evenly across the globe. Both MNCs and EMPs, therefore, are looking to secure access by forming partnerships or even buying assets, such as palm oil or sugarcane plantations. Sadara Chemical is one of the most prominent examples of a joint venture between an MNC and an EMP to tap the world's largest oil reserves. (See the sidebar "Saudi Aramco: Leveraging Saudi Resources to Become a Chemical Giant.")

Go-to-Market Approach. In our interviews, executives emphasized the following key strategies:

- *Increase the focus on the environment.* Executives we interviewed from both MNCs and EMPs are greatly concerned about sustainability. They brought up the importance of complying with local environmental regulations in multiple interviews. Chemical producers should do more than comply with regulations, however. Executives believe that green processes can be a true source of differentiation. Lenzing, a producer of viscose fibers, provides a good example. When Chinese competitors took 55 percent of the global viscose market in 2010, Western companies including Acordis, Kemira, and Svenska Rayon had to close production sites. Lenzing remained in business, realizing that it is regarded as a world leader in environmentally friendly and efficient viscose production. A sustainable production process based on 100 percent natural beech wood appealed to customers that were focusing on green approaches and were willing to pay higher prices for such products.

- *Maintain reliable global quality standards.* A consistent global offering is an enabler of competitive advantage and an effective way to protect and broaden the customer base—especially in highly specialized chemical applications. When customers are global and require that their suppliers serve them globally, the ability to provide consistent quality everywhere in the

SAUDI ARAMCO
Leveraging Saudi Resources to Become a Chemical Giant

Although Saudi Arabian Oil, known as Saudi Aramco, has long been one of the world's biggest suppliers of petroleum and gas, it has only recently ventured into the petrochemical industry. Together with Dow Chemical, the company has created Sadara Chemical, which is likely to put Saudi Aramco on the global map.

Sadara, 65 percent of which is owned by Saudi Aramco, is building the world's largest chemical complex ever constructed in a single phase. When it is completely up and running in 2016, the $20 billion complex will include 26 world-class, integrated manufacturing plants with a combined capacity of more than 3 million metric tons of high-grade plastics and specialty chemicals. Nearly half of the complex's output is expected to be shipped to fast-growing Asian markets. The Middle East and Europe will also be key destinations.

Sadara illustrates two key trends in the chemical industry. The first is the push of emerging-market players to own larger parts of the chemical value chain. The second is the growing importance of partnerships as potential game changers in this asset-heavy industry.

world can create a competitive advantage that is not easy to copy. In fragrances, for example, the ability to produce exactly the same quality everywhere in the world is a requirement for staying on a list of core suppliers. And constant adaptation to regulatory changes in all countries, such as prohibitions against natural essences that cause allergies, is absolutely necessary and can be a means of differentiation.

Who will win in the chemical industry—the MNCs or the EMPs? Most experts and executives agree that this is the wrong question. There will be successful players from both camps. Rather, executives need to ask themselves: what do I need to do so that my company is among the winners?

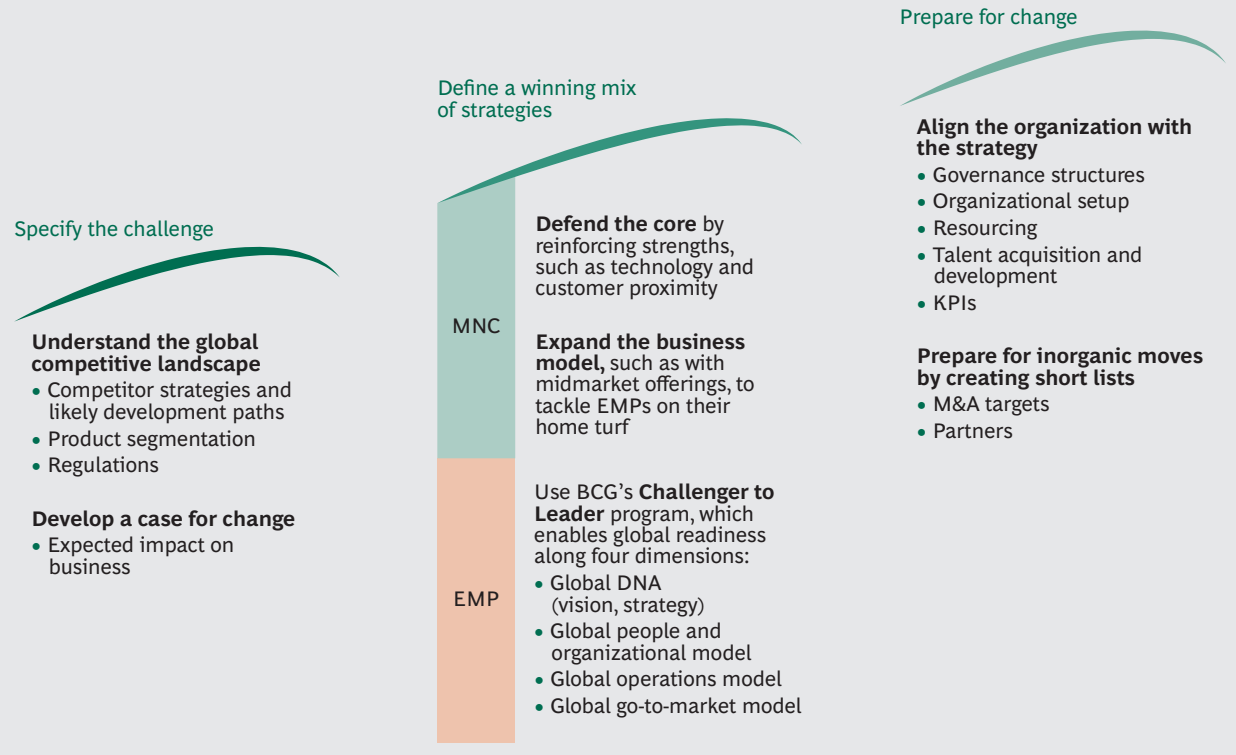
WINNING THE NEXT PHASE OF GLOBAL COMPETITION

As a result of our extensive work with leading companies on their globalization strategies and the findings from this study, we have defined a three-step approach for companies to succeed in the quickly changing global competitive landscape. (See Exhibit 11.)

Step One: Specify the Challenge

Most companies today take stock of market developments and key competitors in their regular strategy and planning processes. We have found, however, that these standard processes often fall short of establishing a com-

Exhibit 11 | A Three-Step Approach for Success in the Changing Global Competitive Landscape



Source: BCG analysis.

monly shared opinion when it comes to the opportunities and risks of globalization. Also, the remarkable speed with which new competitors from emerging markets have arrived on the scene requires companies to maintain extensive intelligence on their competition. Many organizations have found it useful to track in detail the development of their top 20 or so competitors regarding major wins, investments, partnerships, and geographic footprints.

Given the sometimes volatile and difficult-to-forecast developments in global markets, it is very important to form a common vision of what the industry will look like in three to five years. This requires an understanding of the areas for action. What are the fundamental trends in demand, for example, regardless of economic or political turmoil in some countries? How does a company compare with its competitors? What will be the next breakthrough in technology? How are regulations likely to change? This vision should guide efforts in the second step of the process and the big bets a company takes.

Step Two: Define a Winning Mix of Strategies

In this report, we have outlined the most common areas requiring action by MNCs and EMPs in the automotive-supply, construction equipment, and chemical industries.

At the most basic level, MNCs must first defend the core—their home markets and the global premium segment—by reinforcing strengths such as technology and customer proximity. Second, they must expand their business model to tackle EMPs on their home turf. Because we believe it is helpful to think about both targets from three angles—products and technologies, operations, and the go-to-market approach—we have offered our analysis from those perspectives.

Depending on the industry and the specific position of a company within it, the relative importance of these three levers varies greatly. We strongly recommend taking a holistic view, because many companies find that they need to undergo a transformative approach that comprises a wide range of diagnostics and change measures in all three categories to address their globalization challenge.

It is very important to form a common vision of the industry in three to five years.

EMPs typically enjoy the benefits of a relatively low cost position and a growing home market. However, it has been our experience that during the phase of hypergrowth, many EMPs are not able to build the organizational and technological capabilities that they need to continue their global expansion. On the basis of our broad experience in working with emerging-market challengers, we have defined a dedicated, comprehensive approach that enables an EMP to go global. The global Challenger to Leader Program covers four areas and ensures that they are aligned with the company's globalization agenda:

- *Global DNA:* vision, culture, and master strategy
- *Global People and Organization:* leadership, talent management, organization, and governance
- *Global Go-to-Market Model:* product strategy, sales approach, partnerships, and stakeholder management
- *Global Operations:* global footprint, innovation, and operations model

Step Three: Prepare for Change

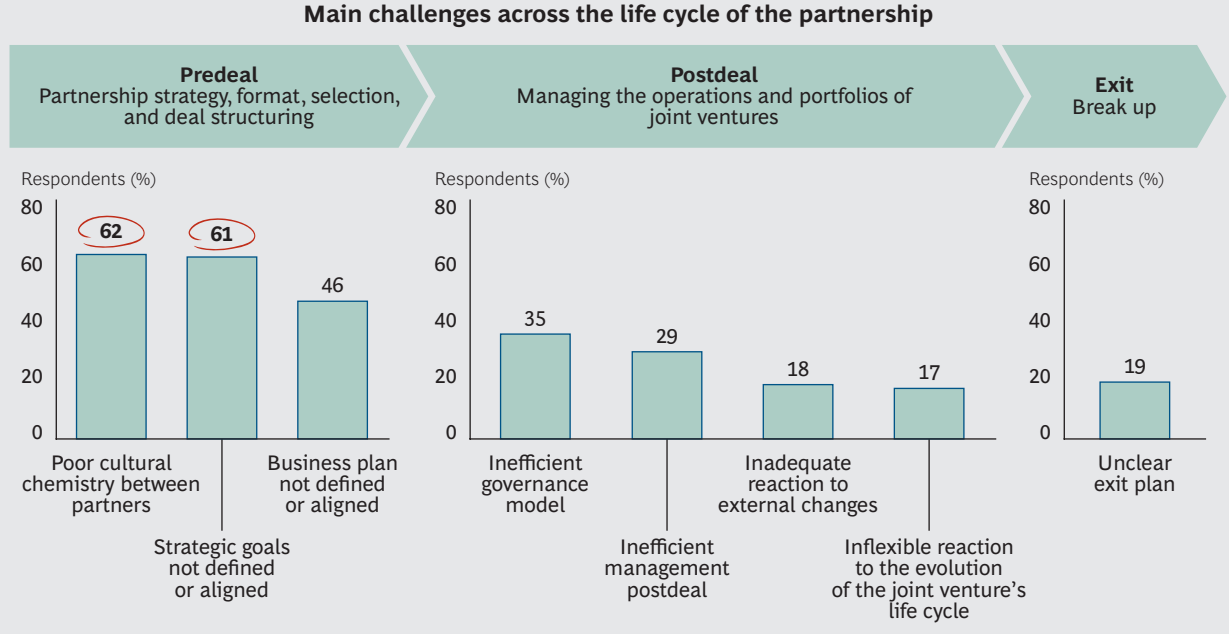
We see two key enablers of a successful globally competitive strategy. One is to properly align organization and governance structures. Adjusting key performance indicators and defining the right balance of decision authority between headquarters and country operations are two important issues that must be resolved.

The other key enabler centers on partnerships and joint ventures, which many companies will find are key elements in their strategy mix. A recent BCG study on mergers and

acquisitions revealed that the vast majority of executives are disappointed by the performance of their cross-border joint ventures. (See *Getting More Value from Joint Ventures*, BCG Focus, December 2014). The analysis identified several critical measures that can help avoid such disappointment. (See Exhibit 12.) They include ensuring that there is cultural chemistry between partners and that there is alignment on strategic goals and business plans, including a clear process for when business plans are not met along the way. Other measures are a sound governance model and an exit plan.

Globalization will continue to bring significant shifts to the automotive-supply, construction equipment, and chemical industries—and undoubtedly to many more. But despite these shifts, most of the executives we surveyed agreed that for the well-prepared company—whether from the developed or the developing world—the globalized market offers much more opportunity than risk.

EXHIBIT 12 | Executives View Poor Chemistry and Conflicting Goals as Among the Biggest Causes of Failed Joint Ventures



Sources: BCG Executive Survey 2014; BCG analysis.
Note: Survey question: What factors do you see as the main obstacles to realizing value in joint ventures or other alliances (in each respective phase)?

FOR FURTHER READING

The Boston Consulting Group publishes other reports and articles that may be of interest to management teams. Recent examples include the publications listed here.

The Proximity Paradox: Balancing Auto Suppliers' Manufacturing Networks
A Focus by The Boston Consulting Group, March 2015

Will China's Global Challengers Be the Next Global Leaders?
An article by The Boston Consulting Group, January 2015

2014 Global Challengers: Redefining Global Competitive Dynamics
A report by The Boston Consulting Group, September 2014

Playing to Win in Emerging Markets: Multinational Executive Survey Reveals Gap Between Ambition and Execution
A Focus by The Boston Consulting Group, September 2013

Dueling with Dragons: China's Rapid Rise in Heavy Equipment
A Focus by The Boston Consulting Group, July 2011

NOTE TO THE READER

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